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Wild entanglements: exploring the visions and dilemmas of 'renaturing' urban Britain

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Wild entanglements

Exploring the visions and dilemmas of 'renaturing' urban Britain

by

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Abstract

Wild entanglements: exploring the visions and dilemmas of 'renaturing' urban Britain.

In a rapidly urbanising world, where lands are increasingly repurposed for human endeavours, where seas and rivers carry the weight of mounting plastic, where species extinction is a common theme and where the effects of global climate change are a daily reality, there has never been a more pressing need to rethink nature-society relations and environmental ethics. This thesis draws insights from two cases of urban renaturing in Britain (London and Plymouth) to explore critical issues in contemporary environmental practice, including what *matters* for humans and nonhumans in such endeavours. Renaturing is here understood as an intentional, reflective attempt to restore human/nonhuman relations, as well as the biophysical health of ecosystems. The twofold nature of this endeavour makes it a productive point of investigation, offering a means to uniquely contribute to academic discussions on nature-society relations and the future purpose of nature conservation in the UK.

It argues that within urban environments, renaturing is best understood as a lively and creative endeavour, yet one full of contestation, characterised by issues of power, ownership and participation. For this reason, the thesis explores renaturing from human and more-than-human perspectives, to draw out multiple voices and thereby enrich understandings of what it means to *intervene* in nature, especially in dynamic, multispecies cities. The two case studies offer different angles on urban renaturing. Firstly, the study reveals that contemporary ambitions for 'wilder cities' do not exist in a vacuum: 'nature' is silently structured and ordered according to urban planning agendas, as well as vivid (re)imaginations of the environmental past. Secondly, it reveals that wild spaces can become highly defended places in cities. While this is partly due to do with the perceived issue of urban encroachment (higher densities of people), it is also to do with the way nature is imagined (as vulnerable and exclusive). Thirdly, it reveals that renaturing has material consequences for all those creatures who do not 'count' as nature. Taking a more-than-human approach, it argues that spatial

categories (native/invasive, wild/domestic) do little to meet contemporary challenges in more ethical and meaningful ways. Finally, it reveals that in post-normal and post-natural times, there are significant limitations in the way(s) that humans govern the nonhuman world, including the decision-making capabilities of such actors. It therefore argues that there is a need to rethink the ways in which nature knowledge is produced, with closer attention to place, and what place reveals about the inextricable entanglements of people, plants and the many creatures and critters that exist in UK cities.

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Acknowledgements

Author's Declaration

At no time during the registration for the degree of Doctor of Philosophy has the author been registered for any other University award without prior agreement of the Doctoral College Quality Sub-Committee.

Work submitted for this research degree at the University of Plymouth has not formed part of any other degree either at the University of Plymouth or at another establishment.

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Publications

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Clancy, C. 'Life in the urban wilds: unsettling Nature through a case of urban rewilding'. *British Animal Studies Network (BASN) 10th Anniversary Meeting*. November 2016.

Clancy, C. 'Performing wildlife in post-industrial urban Britain: Lessons from Walthamstow Wetlands'. *Royal Geographical Society with Institute of British Geographers (RGS-IBG).* September 2016.

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List of acronyms used in the thesis

Active Neighbourhoods – AN

Devon Wildlife Trust – DWT

Lea Valley Regional Park – LVRPA

London Wildlife Trust – LWT

Plymouth City Council – PCC

Special Protection Area – SPA

Site of Special Scientific Interest – SSSI

Thames Water – TW

Waltham Forest Council – WFC

Chapter 1. Introduction

This thesis is about how urban spaces are rearticulated through renaturing and different expressions of 'the wild' and what the implications are for multispecies relations more broadly. The thesis looks at how wildlife and wildspace gets negotiated in the city – both with and against the grain of urban conditions and processes. It considers the spatiality of urban wildlife: the territorialities that are engendered, kinds of borders and boundaries that are created and transgressed by humans and nonhumans. It looks at how humans and nonhumans negotiate the logics and spatial zoning practices that are placed upon them through conservation frameworks, forcing new thinking on these apparatuses and 'wildlife in the Anthropocene' more generally. It looks at the power of the past: how the process of urbanisation has thrown humans and nonhumans together into different spaces of relation – from reluctant tolerance to convivial coexistence. With this, it looks at the temporal orientation of nature-based practices in the city, practices that reckon with the past to shape (and constrain) possible futures. In short, it considers the implications of renaturing in urban zones for multispecies relations, shared futures and common worlds.[1]

Following geographers Whatmore and Thorne (1998, p437), wildlife is here understood as a 'relational achievement' that is 'spun between people and animals, plants and soils, documents and devices, in heterogeneous social networks that are performed in and through multiple places and fluid ecologies'. In other words, 'the wild' is not an inherent quality of certain 'fictionalised fauna' (Buller, 2014b) that happen to live in remote places away from human society. Rather, wildlife and wildspaces are historically situated and relational achievements that are produced within and between human and more-than-human worlds.[2]   Following this, the quality of 'wildness' – sometimes characterised as 'nonhuman autonomy' (see Prior and Ward, 2016) – is also a

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[1] Urban renaturing is the overarching intervention that encompasses socio-economic context, ideas of the environmental past, visions of nature and nature-society relations. 'Wild work' specifically refers to the *practices* of urban renaturing that involve/implicate the nonhuman world and raise questions around what constitutes the wild.

[2] 'More-than-human' is a phrase owed to geographer Sarah Whatmore (2006) to acknowledge the contributions other-than-humans make to this world.

historically situated, relational achievement (DeSilvey and Bartolini, 2018). In short, the wild is not a state of *being* but a state of *becoming*, negotiated in specific times and in specific places.[3] This means that the wild can exist in all manner of places, even cities.

In order to make sense of urban wild places and practices, the thesis necessarily engages with questions of nature and the problematic domain of nature conservation, as both a scientific pursuit and ideological practice in Western society (Jepson and Schepers, 2016). Western conservation is steeped in 'Nature thinking', from the early explorations of 'remote' and 'exotic' places, to the shaping of wilderness in colonised countries, to the recent efforts to renature and rewild the 'blasted landscapes' (Tsing, 2015) of post-industrial cities in Europe. This thesis approaches conservation from the perspective of a rapidly urbanising world where the concept of Nature (singular, independent, balanced) is deeply unsettled: where the lines of separation between 'nature' and 'culture' have been dissolved, and where human and nonhuman trajectories clash and entangle to produce surprising socio-ecological presents and futures. This prompts an expanded sense of conservation, which is about finding a way forward by *looking back*, while living with the multiplicity and uncertainty of a more-than-human world. Here, the question of what constitutes an 'ecological' urban future is of critical importance and the empirical research sheds new light in this regard.[4]

This thesis takes inspiration from contemporary debates on 'conservation in the Anthropocene' (a phrase owed to Lorimer, 2015) where the goal of 'saving life' takes on a new inflection in light of the altered ecologies of urban Europe and the problematic assumption of a 'human-dominated world' (Whitehouse, 2015). Such debates span new modes of ecological restoration, urban greening, and rewilding – a heterogeneous assortment of multispecies practices, all of which

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[3] The phrase 'wild life' places additional emphasis on the supposedly liveliness of the wild, as commonly imagined. It was borrowed from Braverman (2015) 'Wild Life: The Institution of Nature'. The phrase 'wild life' was also used for the UK government's 'Wild Life Conservation Special Committee' set up in 1945. For the sake of ease and consistency, I will use 'wildlife' throughout the rest of this thesis.
[4] From now on, I refer to nature without quotation marks and without capitalisation. It should be clear to the reader that it is now acceptable to avoid using quotation marks around the word 'nature', given academic concerns with the nature-culture dualism.

speak to different ontologies of nature and the wild. While these emerging practices have different spatialities and temporalities, especially when put to work in urban zones, they all engage in questions of nature. For this reason (and partly for the sake of clarity) the thesis refers to all such practices as 'renaturing'. Renaturing is here understood as an intentional reflective attempt to restore human/nonhuman relations as well as the biophysical health of ecosystems (adapted from Casagrande and Vasquez, 2010, p193).[5] Geographical interventions into the question of nature have generally focussed either on its social construction and the spatial/moral orderings of nonhuman life or how nonhumans transgress those orderings and construct their own 'beastly places' (Philo and Wilbert, 2000). This study seeks to elaborate the consequences of renaturing urban space for wildlife and wild-living, and demonstrate how entangled these issues are; how humans and nonhumans are thrown together in new and different ways through the creation of urban wild spaces. In this way, it works to contribute to the development of 'a set of concepts and methodologies that address[…] what matters for both human and nonhuman animals subjects in their various relational combinations and spaces' (Buller, 2015, p376).

This thesis contributes to debates on conservation in the Anthropocene by looking at how urban wild practices could be oriented towards (re)articulating common worlds or common futures – that is, 'building a world of many worlds' (Collard et al., 2014) – while maintaining a sensitivity to place and more-than-human place makers. It suggests that renaturing is a mode of assembling future wilds; shedding light on the entangled histories of humans and nonhumans, as well as the variety of social, economic, political and ecological issues that characterise late modern societies in Europe. Western conservation has always involved securing (particular) human values, about 'negotiating the transition from past to future in such a way as to secure the transfer of maximum significance' (Holland and Rawles, 1993). However, the critical question that is so often neglected is *whose* values, significance for *whom*? Western conservation is one strand within the West's 'empire of knowledge' (Whatmore, 2002) but it

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[5] Helpfully in the academic literature, renaturing is often linked to practices in urban zones where nature has been modified by human activity (Hall, 2010).

has enabled a dissociative understanding of people and construed creatures as bits of information, abstracted from the worlds within which they live. Under the wing of natural science, the 'multisensory animality of creatures…all but disappears as they become symbolic and material units in some human currency' (Whatmore, 2002, p23). For this reason, this thesis combines a critical/reflective approach with formative/inventive approach, so as to question dominant onto-epistemologies as well as write alternative and expansive stories for 'more-than-human' Anthropocene futures.

Research gap

While recent academic interventions have pushed new thinking on 'wildlife in the Anthropocene' (Lorimer, 2015) and worked to dispel the unequivocal and 'foundational' (Hinchliffe, 1999) boundary between cities and towns on the one hand and nature and the 'wild' on the other, there still remains critical need to explore the implications of these moves for human/nonhuman relations and the possibilities for 'shared space' in urban multispecies settings. Geographers with 'more-than-human' interests have made important strides to assert/insert nonhumans in urban theory (Wolch, 1998, 2002; Metzger, 2014, 2015; Houston et al., 2017) as well as reconceptualise nonhumans as agents in conservation settings (Jepson et al, 2011; Lorimer and Driessen, 2014; Barua, 2016, 2017, 2018; Biermann and Anderson, 2017). But, again, few studies have explored the relational implications of these moves, particularly in urban zones where there are multiple ways of seeing and doing 'nature'.

Research aim

The overall aim of this research is: *To explore the implications of 'urban renaturing' for multispecies relations, shedding light on questions of wildlife and wild-living – doing so from different human and more-than-human perspectives.* Urban renaturing is here understood as an intentional reflective attempt to restore human/nonhuman relations as well as the biophysical health of ecosystems (adapted from Casagrande and Vasquez, 2010, p193). This in turn reveals how wildlife and wildspace gets negotiated in urban multispecies settings, where nature-based

practices are actively under way. To achieve this aim, the thesis draws on empirical research from two case study sites in Britain where urban renaturing was actively under way, to ask four key questions:

Research questions (RQs)

1) How does wildlife and wildspace get negotiated in human-modified systems such as cities? (RQ1)

2) How does the past get mobilised in practices of urban renaturing, as 'wild work' in the city? (RQ2)

3) How are boundaries created and crossed in urban multispecies settings? (RQ3)

4) What does all this reveal about 'shared space' in a multispecies city? (RQ4)

These aims will hereon be referred to as RQ1, RQ2, RQ3, and RQ4 respectively. RQ1 looks at how wildlife, as a relational achievement, gets performed, challenged and (re)negotiated in urban multispecies settings and what this raises for questions of space and place. Here, the phrase 'urban conditions and processes' refers to the environmental characteristics of the city and the political-economic agendas that drive urban development. RQ2 looks at how understandings of past environments and past human/nonhuman relations inform contemporary nature-based practices. This question concerns how multispecies (hi)stories are told, by whom and to what end. RQ3 is about the conceptual and physical boundaries that humans construct in the performance of urban wildlife. But it is also about how nonhumans challenge those boundaries and therefore challenge assumptions about urban wildlife. Finally, RQ4 ties together these themes to ask a broader question about the political-ethical parameters of making (and living in) shared multispecies spaces. Here 'shared spaces' are not understood in abstract or static ways, but as 'zones of contact' (a phrase owed to Haraway, 2008) where lively bodies/voices meet and entangle.

The key themes of the thesis are explored in more detail in Chapters 2 and 3, in line with the relevant academic literature. Chapter 2 (Literature Review) provides a critical reading of the main concepts that are relevant to this study,

including wildness and wilderness, environmental ethics in the Anthropocene, multispecies relationality, (more-than-human) space and territoriality. Chapter 3 (Research Design and Methodology) introduces the case studies upon which this thesis is based: Walthamstow Wetlands in London and Active Neighbourhoods in Ernesettle, Plymouth. It details the methodological approach, including the specific methods are used to cultivate more 'lively knowledges' of human/nonhuman worlds, relevant to the concerns of this thesis. The initial discussion Chapters (4-7) explore the visions and dilemmas of renaturing urban Britain, while the latter discussion Chapters (8-10) explore the multispecies entanglements that are either brought to light or directly produced through of urban renaturing. These latter chapters are more lean towards what Braun (2015, p103) has called the 'post-critical' turn by working with more-than-human perspectives. Together, these chapters work to address the novel challenges presented in urban environments, including the perplexities of the Anthropocene and the challenges it poses for conservation, governance and environmentalism more generally.

Chapter 2. Unearthing the nature of contemporary conservation: more-than-human interventions

2.1 Introduction

This chapter draws on diverse literatures from geography, urban political ecology, science and technology studies (STS) as well as human-animal studies (HAS) to map out the conceptual parameters for the 'wild work' that is now taking place in cities across Britain, while reconsidering questions of 'nature' in light of our contemporary moment, that is, a rapidly urbanising world. For several decades, geographers and nature advocates have sought to rethink the role of nature conservation in late modern societies and locate new understandings of the 'wild' relevant to these contexts. This chapter will explore these various incursions and boundary transgressions, working within the expanded field that is created for nature conservation when the dissolution of the boundaries between the 'natural' and the 'cultural' is taken as given. Embracing this dissolution and accepting that modern cities reflect 'post-natural' times (Lorimer, 2012) allows for a reorientation and reconceptualization of the purpose of conservation in contemporary society.

Urban places are collective achievements that not only involve knowing and living with diverse humans and nonhumans but also involve the (re)making of sensibilities and belongings. Thus, efforts to 'renature' and 'rewild' urban spaces have implications for a diverse range of human and nonhuman actors, whether they know it or not. If wildlife is a relational achievement (as per the Introduction) then *who* has a stake in these (re)engagements with nature is of critical importance, yet one that is little explored in the academic literature. This review therefore prepares the ground for the rest of the thesis, so that discussion chapters can carefully and constructively attend to the precise ways that human/nonhuman communities get reconfigured (materially, ethically, politically) when the problematic figure of the 'wild' is centralised in urban settings by groups of people with specific interests and agendas. It is organised into three main parts. Sections 2.2-2.3 discuss the main visions for 'wild nature'

in Western discourse and how these play out in in different spatio-political ways; Sections 2.4-2.5 discuss the emerging paradigms in for 'wild nature' in contemporary Europe and their ethical parameters for multispecies futures; finally 2.6 consolidates the primary themes and concepts that will be used in this thesis, building on more-than-human scholarship.

2.2 Unnatural histories and empires of knowledge

Many of the issues that emerge in the discussion Chapters (4-10) are explored through the concept of 'boundaries'. Boundaries can be physical but they can also be conceptual and either way they have implications for the relationships between human and nonhuman nature, as well as for life itself. The following section outlines the conceptual boundaries that Western philosophy has historically placed around 'nature' and what the implications are for human relations to the natural world.

2.2.1 Constructing nature

The conceptual system that informs what we think of as 'nature' is deeply embedded within a Western ontology whose point of departure is that of 'a mind detached from the world' (Ingold, 2000, p42).[6] Western sciences and logics teach that nature is an objective plane of reality, with dimensions that can be accurately mapped, histories that can be precisely traced, organisms that can be impartially scrutinised. This is easily traced to Cartesian philosophy, which sees the mind (immaterial/thinking) and body (material/unthinking) as distinct and mutually exclusive entities. Here, the world of matter and substance is simply 'waiting to be given meaningful shape and content by the mind of man' (Sahlins 1976, p210). With a mind detached from the world, 'Man' (sic) literally had to build an intentional world in consciousness and so formulate a view of the world as though he (sic) were outside of it (Ingold, 2000).

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[6] From hereon I refer to nature without quotation marks, as it should be clear that I am speaking of the development of the concept in Western society.

Nature conservation, as a particular mode of governing the environment, emerged from this foundation and, with it, arose a quest to retain something of a pre-existing 'original' state of nature. As geographer Steven Hinchliffe (2007, p88) puts it, 'nature in other words is pre-constituted and conservation comes after nature'. Conservation therefore assumes that nature is an objective plane of reality that can be recovered or otherwise maintained. Here, nature is authentically real, independent of human consciousness and with it 'scientific knowledge is rule-governed, context-free, and empirically verifiable' (Merchant, 2017, 172.9, eBook). Conservation science is posited as an objective field – that is, independent of the influence of particular historical times and places.

Social scientists and historians of science with constructivist leanings tell us that this is a mistake: that nature is produced, not discovered; that truth is made, not found (Latour and Woolgar, 1979; Haraway, 1988; Cronon, 1995; Castree and Braun, 1998, 2001; Proctor, 1998; Stengers, 2000; Demeritt, 2001a, 2001b; Latour, 2004a; Merchant, 2017). So, where the biologist claims to study organic nature 'as it really is', the social constructivist studies the diverse ways in which the constituents of the natural world figure in the imagined or cognised worlds of cultural subjects. Here, nature (reality) becomes an interpretation based upon societal, emotional, technological and intellectual experiences and perceptions of the material world (Braun and Castree, 1998). These thinkers argue that science can only really be understood through its practice and that practices are always shaped by cultures, technologies, belief systems, and political economies.

Work in critical human geography in the late 1990s began to challenge the apparent self-evidence and ontological fixity of nature so as to highlight the role of power relations in socially constructing and thus also potentially alleviating environmental problems and resources (e.g. Braun and Castree, 1998; Proctor, 1998; Latour, 1999; Demeritt, 2001a; 2001b). For instance, for Latour (1999, p311), nature only ever emerges as an apparently purified entity, as the 'result of a settlement that, for political reasons, artificially divides things between the natural and the social realms'. Likewise, Haraway (1988, 1991) embraces cyborg imagery to unsettle the ontological purity of nature and society. For her, any

attempt to cognise nature from a distance applies the 'God-trick' – a peculiarly masculinist disembodiment to achieve 'ultimate objectivity' (1988, p576ff). Nature is instead contingent and artefactual, a construction that emerges from the practical 'interactions of humans and nonhumans in the distributed, heterogeneous work processes of technoscience' (Haraway, 1997, p141; see also Haraway, 1992).

These debates, including the so-called 'science wars' of the mid-1990s (see Segerstrale, 2000, for a summary), consider how humans come to *know* nature and who has cognitive authority (Castree, 2014; see also Gieryn, 1995). The question of knowledge is important because the way it gets produced in/by society, directly structures understandings and experiences of nature and therefore the logics and rationales that are deployed to conserve nature. For ecofeminist thinkers like Val Plumwood (2002) and Vandanda Shiva (1988), the conceptual system of Western society has not served nonhuman nature particularly well. They suggest that the Cartesian scientific revolution adopted a particularly masculinist view of the world in how it set up nature as a separate, external entity to be objectively studied, controlled and manipulated (see also Haraway, 1988, 1991; Merchant, 1989). The natural sciences have historically emphasised visual observation and abstraction as the truest method for perceiving the world. Yet, this has produced 'tabular representations' (Frangsmyr, 1988), animals depicted as 'organic machines, ready to be mapped, classified and fixed in a series of abstract spaces' (Philo and Wilbert, 2000, p6).[7]

By framing nonhuman nature as separate from (and so subordinate to) human culture, the bifurcations laid out in Cartesian philosophy have equally produced corrosive entanglements that 'ensnare and overwhelm the beings, spaces and processes which comprise the natural realm' (Kitchen and Thrift, 2009, p137). In

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[7] Natural history museum collections and wildlife collections in zoos are partly a testament to the rationalising gaze of the Western colonial subject. Conservation has partly been built upon various forms of 'viewing' nature, that is making it a spectacle: the practice of 'game preservation' (hunting) would be one such example; later photography was used in parallel with practices of hunting and taxidermy to capture and to reproduce 'wild' animals and interestingly also involves 'loading', 'aiming' and 'shooting' (Ryan, 2000). Today it could be argued that bird watching and wildlife photography also bear the marks of the colonial gaze, where nature is 'viewed' and ornamentalised.

contrast, non-Western indigenous ontologies do not separate 'nature' and 'culture' (Ingold, 2000). For instance, Cree hunter gatherers in north-eastern Canada do not distinguish between subjects and objects, persons and things, reason and instinct and, above all, nature and society. For them, personhood is open equally to humans and nonhumans; even winds are thought of as being 'like persons' (Ingold, 2000, p48). Likewise, the Australian aboriginal notion of 'country' (*ngurra*) sees the landscape as both physical and metaphysical, made and found, stable and shifting, places as well as paths connecting them (Ingold, 2000). For them, culture is everywhere (Bird Rose, 1996). Similarly, the cosmologies of Hopi communities in north-eastern Arizona state that plants, humans and all manner of things have been biologically and energetically intertwined since the beginning of time (Casagrande and Vasquez, 2010).

2.2.2 Beyond constructivism

While the 'social construction of nature' is an important argument insofar as it highlights the power of humans to shape understandings of nature (both through concepts and through material practices) it has been criticised on multiple fronts for not taking seriously the physical reality of nonhuman nature or by relativising and depoliticising debates on pressing environmental issues such as climate change (see Demeritt, 2002 for a review). One of the issues here is the lack of specificity regarding what kind of nature is being referred to in the constructivist argument. As David Demeritt (2002, p768) points out, 'the "social construction of nature" is spoken about in such different and often imprecise ways that its [exact] … meaning and implications can be difficult to understand and evaluate.' By not specifying nonhuman natures or at least attending to the ways that nature is made multiple (Hinchliffe, 2007; Lorimer, 2012), social constructivists risk a homogenous view of nonhuman nature, reinstating nature as a singular totality, defined in opposition to an equally generic human 'culture' (Castree and Braun, 2006).[8]

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[8] As Castree and Braun (2006, p161) remind us, 'there is no generic social constructionist position, only specific modalities of social construction' – all of which speak to a range of contested and emergent natures from differing cultures, times and places.

Some geographers suggest that 'hyperconstructionism' (Castree, 2002) has resulted in geographies of nature that empty the nonhuman world of its vitality and agency to an extent where (at worst) the world is rendered as an exclusively human achievement in which 'nature' is 'swallowed up in the hubris of social construction' (Whatmore 2003, p165). Geographer Dooren Massey (2005) similarly finds that an exclusive focus on human social construction can overlook the shifting and unstable ecologies of place where the lives of animals, plants and humans meet and intersect in mobile and fluid ways (2005, p136). In her attentions to place, as a 'throwntogetherness' (2005, p140) of lively agents as they enter into a dialogue, Massey (2005) provides a history of the earthly ruptures that have taken place in the Lake District over millennia, where place itself becomes an event or a meeting of rocks, soils, sands and earth others (2005, p131ff). Here, attending to the multiplicity of place, she avoids reinstating a singular nature, nor does she treat the nonhuman world as a mere construction.

By being rooted too firmly in social constructivist frameworks, one can quickly create or further entrench knowledge barriers; barriers towards knowing nonhuman others. For the world(s) of plants, animals, rocks and soils are clearly not just human constructions. As anthropologist Tim Ingold (2000, p41) suggests, 'There must indeed be a physical world "out there", beyond the multiple, intentional worlds of cultural subjects, otherwise there would be nothing to build with nor anyone, for that matter, to do the building.' Matters of knowledge are material matters, but the constructivist position risks submitting the nonhuman world entirely to the workings of human culture, and thereby overlooking the more-than-human agents that continually circulate among us, whether we are aware of them or not.

2.2.3 Relational materialism

The world is neither simply 'real' nor merely 'constructed', but a *relational matter* in a continual state of becoming. Geographers have, in various ways, put forward relational accounts of nature that try to avoid subject/object dichotomies, positing 'multiple natures' (Hinchliffe, 2007) and 'hybrid natures' (Whatmore,

2006), with some advocating terms such as 'socionature' (Anderson, 2009; Swyngedouw, 1999) and 'natureculture' (Latimer and Miele, 2013) as more appropriate for describing a post-natural hybrid world. Concepts such as 'socionature' and 'natureculture' are arguably somewhat flawed, since they bolt together two categories (nature and culture) – a move that post-natural perspectives would deny (Anderson, 2010). It is perhaps more helpful to work in the plural (natures, cultures) or use Whatmore's (2002) phrase 'more-than-human' to denote the multiplicity of actors that make life on earth. For the purpose of this study is not to disavow the human but, rather, to investigate the 'implicit entanglements' (Prior and Ward, 2016) of humans and the nonhuman community and the ways in which nature *is made multiple* (Hinchliffe, 2007) by a network of related actors.

Others across the social sciences have put forward relational theories to understand how phenomena (whether landscapes, habitats, ecosystems) are assembled by a myriad of actors, human/nonhuman, organic/inorganic (Latour, 1993, 1999; Whatmore, 1999; Michel, 2000). Here, what is thought of as a 'bounded subject' is always entwined in the wider assemblage of networked relations (Castree, 2005) or, in other words, always primordially pre-woven into the fabric of this world (Ingold, 2000). Some theories, such as Actor Network Theory (ANT) (see Latour, 1993, 1999) have been critiqued for the way they produce nonhumans as abstract agents, rather than beings with specific interests and agendas in the places where they dwell (Jones, 2006). Yet overall, these diverse works have propelled new thinking on *who* is doing the construction in social construction, then inserting more-than-humans into the frame.

They include recent engagements in the biophilosophies of Bruno Latour, Gilles Deleuze and Donna Haraway, including the proliferation of scholarship under the banner of 'vital materialism' (Bennett, 2009) or 'new materialisms' (Coole and Frost, 2010; Dolphijn and van der Tuin, 2012).[9] These diverse works challenge the

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[9] Here, vitalism refers to the power or potential to become other, as contained within the Deleuzian notion of 'becoming' (Deleuze and Guattari, 1989). See also Henri Bergson's (1907) notion of *Élan vital* as the projection of subjectivity into the world, as well as Jakob von Uexkull's notion of *umwelt* or 'lifeworld' (1957).

purification of the world into two distinct categories and emphasise the lively processes and impure forms that co-exist in 'assemblages' (Dewsbury, 2011 via Deleuze, 1989) – including organisms, abiotic elements, technologies, simians, cyborgs and other 'things'. These works give primacy to the life-making capacities of the more-than-human world, with the implication that 'wildlife' can never be fully governable and subjected to the operations of humanity; there is always an *excess of being* that overflows human understanding and control. In this way, new materialisms work to radically decentre the human and ensure that modes of inquiry acknowledge the emergent vitality of/in this world (Lorimer, 2012) – what Bennett (2009) calls 'vibrant matter' or what Braun (2008) calls 'inventive life'.

Anthropologist Tim Ingold offers a particularly productive sense of the relational vitality that flows from all beings. Ingold (1983, 2011) begins by reworking the Marxist concept of *production* through Deleuzian philosophy and so manages to reinstate the primacy of life itself. Organic entities are not merely 'forms of nature' – instead, their very being (form) itself a process of becoming (see Deleuze, 1980).[10] In 'Biosocial Becomings' (2013), a collection of essays edited by Ingold and Palsson, authors counter neo-Darwinist claims by giving primacy to the *process* of ontogenesis – that is, 'to the fluxes and flows of materials entailed in making a growing' – over the forms that arise within such a process (Ingold and Palsson, 2013, p7). These authors see the animal not as a bounded entity, set over and against others of its kind, but 'just one trail of growth and development in a heterogeneous field of interests and affects' (Ingold and Palsson, 2013, p20).

Whereas Marx and Engels were preoccupied with the demarcation of animals and humans, Ingold (1983, 2011) erases these lines by seeing the radical agency of all beings *in relation*; by seeing all beings as producers in and with a process of production. This leads Ingold (2011) to suggest we should refer to animals (including humans) as though they were in a constant state of becoming, and so

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[10] Deleuze's conceptualisation of life within his solo and collaborative writings figures nature as 'a process of production' (Deleuze and Guattari, 2000). 'Life' is the capacity for novel emergence within this process. It is characterised by the continual emergence of new forms and properties from a field of unending possibility that he terms the 'virtual'.

in the form of the verb, that is, 'to human' or 'to baboon'. As he puts it, 'Humans, baboons and reindeer do not exist, but humaning, babooning and reindeering occur – they are ways of carrying on' (Ingold, 2011, p174-175). Humans and nonhumans do not come in pre-packaged form; they are continually worked at: 'life is a task' recalling the famous words of Ortega y Gasset (1941, p200). This allows for a notion of 'life' as a relational matter, that is, as the potential to *become* or *make matter* – something that is fundamentally vital to all living beings.

These moves are productive insofar as they imply new ethical responsibilities and sensibilities, but vitalism *per se* has been critiqued in recent years for approaching 'life' ahistorically and apolitically (Lemke, 2018) and therefore in purist and even fascist ways (Gandy and Jasper, 2017). Without getting too drawn into the nebulous concept of vitalism, it is necessary to consider whether an all-encompassing 'vitality of matter' can overlook the complex ways that 'life' gets politically entangled in the world. As Abrahamsson et al. (2015, p13) suggest:

> 'Rather than getting enthusiastic about the liveliness of 'matter itself', it might be more relevant to face the complexities, frictions, intractabilities, and conundrums of 'matter in relation'. For it is in their relations that matters become political, whether those politics are loudly contested or silently endured.'

Other scholars have made similar observations, reaffirming matter as intrinsically connected to the political collective and the question of how nonhuman entities shape and govern political practices and social conduct (see Lemke, 2015, 2018). Taking note of these interventions, this thesis works towards an account that 'fleshes out' animal lives in relation to the inequalities, asymmetries and hierarchies that limit the conditions of life and life-making practices. This means attending to the 'restless, mutable, roving beings with whose lives our own are necessarily entangled' (Ingold, 2013, p20).

Emphasising the 'implicit entanglements' (Prior and Ward, 2016) of human/nonhuman worlds offers a means to understand the world as a *relational matter*, where all beings exist for themselves as well as for those around them.

Ingold (2011, p31) alludes to this in his metaphor of stones: while 'there is a world of stones that is 'oblivious to the actions, thoughts and social and political relations of humans', there is equally 'a world in which stones are caught up in the lives of human beings, and given form and significance through their incorporation into the social and historical contexts of these lives.' In other words, the material world is a shared environment: lively organisms come into correspondence at particular times in specific places, and it is here where meaning is shared. This is what is meant by relational materialism, which then informs a specific understanding of place. Discussed further in Section 2.6.

2.2.4 Wild visions – landscapes of the mind

The importance of Cartesian dualisms in Western culture, as 'a fault-line that runs through its entire conceptual system' (Plumwood 1993, p42), cannot be understated in the development of contemporary human relationships with the natural environment in the Western context. The ontologies and epistemologies of Western science 'both represented and brought into being a new understanding of the world, one that had profound implications for human relations with nature and with each other' (Pratt, 1992, p38). It enabled the world to be constructed in terms of subject-object binaries (man/woman, mind/body, nature/culture), with important consequences for all those living beings that were considered 'other'. While these fault lines are hard to ignore, there are still important cultural-historical differences, particularly between Old World and New world attitudes (Drenthen and Keulartz, 2014). Figure 2.1 is one example of the Edenic way that Anglo-American artists have depicted the Greco-Roman world.

Figure 2.1 Cole, T. (1843) Mount Etna from Taormina (commons.wikimedia.org)

Cultural geographers and environmental historians have long suggested that many of the ecosystems that come to be valued for conservation are as much 'cultural' as they are 'natural' landscapes (Cronon, 1995; Schama, 1996; Park, 2006; Bradley, 2000). This is because landscape is ultimately a way of framing nature in a way that is intimately tied to the historical and cultural context of a place and its people. As Schama (1996, p7) puts it: 'landscape is the work of the mind'. The very idea of 'scaping' the land reflects a desire to make nature into an object of vision, to view it as a unified whole. Different cultures have different ways of framing (totalising) nature, and this is not an exclusively Western endeavour; non-Western societies also have traditions of imagining nature. Figure 2.2 is one example of Asian depictions of nature 'as it is'. For the purposes of this study, it is necessary to point out a key difference in the Western context – namely, the distinction between Old World and New World perspectives (Hall, 2010; Drenthen and Keulartz, 2014).

Figure 2.2 Zhao Mengfu, Autumn Colours on the Qiao and Hua Mountains (Yuan Dynasty 1271-1368) (Source: comuseum.com)

The Classical philosophies of Ancient Greece and Rome have significantly shaped European understandings of nature, and the interplay between the 'wild' and the 'domestic'. In *Landscape and Memory*, Simon Schama (1996) alludes to the two kinds of Arcadia, the *primitive* and the *pastoral*, and suggests that both of these can be witnessed in different environmental approaches in Europe. This is why it is important not to homogenise European nature(s). As Drenthen and Keulartz (2014, p1) note, 'cultural diversity lies at the core of the European identity. Moreover, European culture is a deeply historicized culture, and conversely, the European landscape a deeply historical landscape.' Even within Britain, there are very different understandings of the historical landscape, which is why there is much debate in rewilding circles regarding what constitutes the 'ideal' landscape (see Wynne-Jones et al., 2018). The depth and strength of Britain's cultural history makes imagining a 'wilder' Britain much more challenging (Cosgrove, 1993; Schama, 1996; Hall, 2010, 2014).

Hall (2014) puts this is a transatlantic context by suggesting that because of Europe's long history of domestication and cultivation, people have been much

more integrated into the ideal landscape than in places like America: 'North Americans may be much more comfortable rewilding, whereas Europeans are adept at gardening and regardening' (2014, p17). There is a strong pastoral traditional in Britain: the image of the garden, (tamed green fields, gentle rolling hills) is 'frequently projected as the authentic landscape of all Britain' (Cosgrove, 1993, p299; see Figure 2.3). This image is challenged by advocates of wilderness and rewilding in Britain (Monbiot, 2014; discussed further in 2.5). But as Schama (1996, p15) reminds us: 'not all cultures embrace nature and landscape myths with equal ardour' and this very idea attests to the fact that, like culture, 'there is more than one nature, natures are multiple' (Hinchliffe, 2007, p3).

Figure 2.3 Constable. J. (1816) Wivenhoe Park (Source: arthive.com)

Western sensibilities thus carry 'a bulging backpack of myth and recollection' (Schama, 1996, p574). Despite the diversity of environmental cultures in Europe and around the world, the majority of debate about conservation and the preservation of nature has stemmed from New World perspectives (Drenthen and Keulartz, 2014; Hall, 2014). Early nature writers like John Muir, Henri Davis Thoreau and Aldo Leopold significantly shaped popular/public understandings of the human-nature relationship in Western society – often referred to as the 'founding fathers' of environmentalism. These environmental philosophies can be traced to broad transatlantic movement know as Romanticism (ca. 1790-1850),

which informed and mobilised a particular environmental ethic that evoked wilderness as 'true nature', set apart from humans (Cronon, 1995). The thinkers of the Romantic period were realists in the sense that they saw the natural world as materially real, but they performed an image of nature that situated the human within it, humbled in the presence of the infinite totality of the universe (see Figure 2.4).

Figure 2.4 Moran, T. (1875) Tower Falls and Sulphur Mountain, Yellowstone National Park (Source: nps.gov)

Romantic writers and artists would speak of sublime landscapes in terms of their 'inhuman beauty', filled with terror and awe. In doing so, they gave these landscapes an other-worldly status and 'reminded anyone who entered them of their mortality and place in the great order of things' (Cronon, 1995, p70). Scientists of the Romantic period also had an aspiration of understanding the relationship between nature and humanity, of the macrocosm and the microcosm, an aspiration pervaded with the feeling of irreparable loss of the imagined 'original harmony'. Theirs was a vision based on an awareness of the alienating power of scientific knowledge and on the firm belief that through systematic observation, the natural world can be understood as 'living' and not merely functional (Cunningham, 2009). The Romantics highlighted the healing

power of the imagination because they truly believed that it could enable people to transcend their troubles and their circumstances.

One of the main fallouts from Romantic 'nature thinking' was the concept of wilderness, which has become a powerful metaphor for nature conservation and has inspired/underpinned many efforts to 'renaturalise' or 'rewild' places in Europe and North America that are thought to be damaged or degraded in some way as the result of industrial and/or agricultural activity (Hinchliffe, 1999; Jepson and Schepers, 2016a; Lorimer et al., 2015). Wilderness is premised upon an idea of nature as a 'pure and timeless collection of objects, best removed from Society' (Lorimer, 2012, p594). As a spatial category that 'places' wildlife in distant ways (both materially and semiotically) wilderness has generated much discussion among geographers with more-than-human interests (Buller, 2014a). For in/with wilderness, the wild is essentialised as remote and, in some obscure way, 'natural'.

Despite wilderness traditionally being an 'American thing', Europeans are increasingly joining calls for more wilderness and rewilding zones (Hall, 2014). Hall (2014) finds that this this is because the origins of wilderness myth-making can in fact be historically traced to Europe where, in the centuries that followed early expansion, Europe had the luxury of constructing its wild peripheries abroad, while producing and maintaining a civilised core 'at home'. When Europeans arrived to define the national parks of North America, the Great Plains would have appeared as 'an apparition of Arcadia or Paradise, a mythical past or heavenly promise' (Taylor, 2005, p12). These utopic spaces imagined as America's 'last wild places' became a sanctuary for urban elites: an antidote to the city and industry, to technology and human work; a (nostalgic) expression of 'an older, simpler, truer world' (Cronon, 1995, p13). Wilderness, as Merchant (2003) famously purports, became *Eden on Earth*.

In his landmark essay on the 'trouble with wilderness' (1995) environmental historian William Cronon lays bare the conceit of wilderness where, in order for nature to be natural it must be pristine, that is, peopleless. He reminds us that in order to secure these spaces as 'natural', much (Western) human intervention

was needed: wilderness places, now famed for their peace and tranquillity, were produced through violent and bloody battlegrounds – the markers of historical exclusion and dispossession (Plumwood, 1993; Cronon, 1995; Callicott, 1998; Adams and Mulligan, 2003; Merchant, 2003). For example, one of the defining features of the establishment of Yellowstone National Park in 1872 was the historical erasure of indigenous peoples, both figuratively and physically. These issues highlight the ontological impossibility of wilderness and its political and ecological problems as a category for conservation (Whatmore and Thorne, 1998).

Responding to the ethical and political implications of wilderness, geographers have sought new understandings of wild nature that avoid the conflation of 'wilderness' with 'wildness' (Cronon, 1995; Whatmore and Thorne, 1998; Chapman, 2006; Prior and Brady, 2016; Prior and Ward, 2016). Etymologically, the root of 'wilderness' in the early Teutonic and Norse languages, from which the English word largely developed, seems to have been 'will' with a descriptive meaning of self-willed, wilful or uncontrollable (Nash, 1973, p1). From 'willed' came the adjective 'wild' used to convey the idea of being lost, unruly, disordered, or confused.[11] But at some point, it also became important to denote spaces and places of the wild: *wildēor* contracted to 'wilder' and gave rise to 'wildern' and finally 'wilderness'.[12] The slippage between wildness and wilderness has, for the scholars aforementioned, reinforced dualistic geographies of nature that confine wildlife to remote unpeopled places.

In response, Cronon (1995) offers a non-dualistic geography of nature through the demarcation of wilderness and wildness. He suggests that in contrast to the purified spatial domain of wilderness, wildness can be found anywhere – from back garden shrubs, to cracks in the pavement, to seemingly tame meadows (1995). He finds that problems arise when wildness is telescoped to distant unfamiliar places, where 'wonder and otherness is limited to the remote corners

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[11] For instance, the Old English *dēor* (meaning animal) was often prefixed with wild to denote creatures not under the control of man (sic).

[12] Etymologically the term 'wild-dēor-ness' means the place of the beasts. For instance, *wildēor* appears in the eighth-century epic Beowulf in reference to savage beasts in a dismal region of forests. (Origins: A short Etymological Dictionary of Modern English, 1958).

of the planet' (1995, p24). As such, he argues that dualisms such as natural/artificial, wild/tame need to be abandoned, along with an appreciation for 'seeing the otherness in that which is most familiar' (1995, p24), which is ultimately an appreciation of the autonomy of all things. While Cronon's argument makes important strides to unsettle Western dichotomies, the category of the wild as 'other' is still problematic, for it fails to capture how people, places and nonhumans are *produced* as other – and thus, how 'autonomy' is a relational category.

Following geographers Whatmore and Thorne (1998), it is perhaps more productive to understand wildlife and wildness as relational categories, 'spun between people, animals, plants and soils, documents and devices, in heterogeneous social networks that are performed in and through multiple places and fluid ecologies' (1998, p437) – what they call *topologies of wildlife*. In this account, instead of the ahistorical spaces of wilderness, where being(s) is fixed and identities are territorialised, Whatmore and Thorne (1998) offer a more fluid, promiscuous understanding of nonhuman natures: multi-sited and always emerging in relation to socio-political networks and historical ecologies. Conceived of topologically, wildlife is no longer fixed at a distance but emerges within the routine interweavings of people, organisms, elements and machines. A topology of wildlife recognises that *wild life* is 'a much more fluid beast' (Whatmore, 1999, p33).

This relational understanding of wildlife opens up the grounds for considering the various wilds that inhabit and coproduce urban environments. For 'wild nature is not just a product of civilisation's self distantiation, but a ubiquitous and contemporary expression of relational vitality that is more than a mere vestige of a non-anthropocentric past' (Buller, 2014b, p238). In other words, when wildness is seen as a relational achievement, it can be operationalised among a diverse array of humans and nonhumans in a variety of times, spaces and places (Whatmore and Thorne, 1998; see also Bennett, 2001, 2009) – including back garden ponds, weed-filled pavements and community allotments (Ginn, 2016). This creates the space to conceive of humans and nonhumans in connected,

interrelated ways – both historically and geographically – instead of humans being mere *visitors* to nature, as is the case with 'nature trippers' in national parks (Matless, 2005).

Even though unofficial urban wildlife might appear less like 'true nature' when contrasted to the charisma of more distant fauna, it is perhaps in their 'very spatial proximity and unexceptional daily encounter that a new sense of interspecies sharing may flourish' (Buller, 2014b, p238). This speaks to Collard et al.'s (2014, p328) version of wildness that does not equate it with the absence of humans but, rather, 'interrelations within which animals have autonomy'. The question of *nonhuman autonomy* is further addressed in Section 2.6, in relation to broader theoretical frameworks within (posthumanist) geography and social theory. For now, it is enough to suggest that these moves to distinguish wildness from wilderness have opened up new conceptual territories for conservation in a post-natural world, including the kinds of multispecies practices that are perhaps needed in hybrid, multifunctional city spaces.

2.3 Spaces of conservation and topologies of wildlife

This section illustrates how concepts of nature, including ideas of wilderness, have led to particular modes of governing the environment, including the relationships between human and nonhuman nature. This is important to the discussion of this thesis, for it centres on the 'biopolitical work' involved in nature conservation, where conceptual and physical boundaries are constructed in and around human/nonhuman worlds. In urban environments, such boundaries might be contested in different ways due to the variety of diverse humans and nonhumans living in cities, as well as the impossibility of 'pure places' of nature. Therefore, this section draws on work in geography and political ecology that addresses the governance aspects of UK nature conservation, shaped under the legacy of British colonialism, and the consequences for human and nonhuman life.

2.3.1 Territorialising nature

Western nature conservation comes with an odd spatial history, closely linked to the territorialising practices of expansion and exploitation (Murphy, 1994; Adams, 1997; Merchant, 2003; Neumann, 2015). The establishment of colonial territories, and the 'westward conquest of other peoples and lands' (Merchant, 2003, p104) meant that nature was invariably rendered as a static collection of natural resources, subject to forms of governance and control by Western authorities (Pratt, 1992; Willems-Braun, 1997; Mackenzie, 2000; Demerrit, 2001; Adams and Mulligan, 2003). Under colonial rule, says Neumann (2015), the maintenance of existing conditions in overseas territories would often involve the careful identification and husbanding of resources, such as water, soil, timber and game. This initiated a process of property enclosure 'whereby existing property rights and access to land and resources were effectively eliminated' (Neumann, 2015, p1580, eBook).[13] Lands and people were manipulated to conserve (maintain) nature in certain states and these states were then spun as 'natural'.

Nature conservation emerged from this space of exploitation, understood as the protection or preservation of 'existing conditions' (Neumann, 2015, p1573, eBook). With this, Western powers developed a 'fortress model' for nature (Brockington, 2002) in order to conserve the resources that were deemed important for European expansion and progress, whether that be scientific, cultural, or economic. While political ecology approaches to conservation generally focus on the global South (see Vaccaro et al., 2013 for a review) many of the critical concepts are equally relevant to a UK/European context. Yet, few studies have considered, for instance, how 'neoliberal conservation' (Igoe and Brockington, 2007; Brockington et al., 2008; Brockington and Duffy, 2011) has

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[13] National parks in Africa, for example, evolved from lands that were originally protected as private hunting reserves during colonial times (Neumann, 2015). As part of their establishment, human communities were forcibly removed in a manner that political ecologists have termed 'conservation displacement' (Brockington et al., 2008). This was made possible by the way 'wilderness' had already been imagined and valorised throughout Western history as a pristine, uninhabited and/or uninhabitable space, separate and autonomous from human thought and activity (Cronon, 1995; Neumann, 1998).

played out in the industrialised cities of Europe where the development agenda is very different. Few studies have specifically drawn links between urban development agendas and the 'Age of Ecology' (Hall, 2014) that characterises late modern societies – as contained within the idea of the sustainable 'eco-city', which assumes *homo sapiens* are major terraformers.

In addition, few studies have explored the material consequences of neoliberal conservation for human/nonhuman life in urban industrialised areas. Concepts such as 'territorialisation' – a key concept in political ecology analyses (Whitehead et al., 2007; Igoe and Brockington, 2007; Neumann, 2015) – could equally be applied to urban zones since it broadly refers to the process of spatial demarcation for the purposes of controlling and regulating people and nature (Vandergeest and Peluso, 1995; Scott, 1998). While conservation 'territorialisation' can be coercive (for example, the forced eviction of people from ancestral lands) it can also work indirectly through prescribing and proscribing certain activities that affect resource access, control, and management. As Elden (2010, p811) identifies, 'territory can be understood as a political technology [that] comprises techniques for measuring land and controlling terrain.' There are multiple modes of territoriality, in which various actors deploy territorial strategies (*territoriality*) to produce bounded and controlled spaces (*territory*) and achieve certain effects (Elden, 2013).

2.3.2 Making wildlife a spectacle

Over the last fifty years, UK conservation has been defined according to the twin goals of saving endangered species and designating and managing a host of specific sites – sometimes, but not always, for these endangered species. There is now a plethora of designations in force in the UK, ranging from National Parks (NPs) to National Nature Reserves (NNRs) to Sites of Special Scientific Interest (SSSIs), all of which guarantee varying forms of protection. While these spaces do not exclude humans as 'fortress conservation' might, they still ensure that nature is locked down into a tight programme of activities to ensure the 'right nature [exists] in the right place' (van Dooren, 2014, p7; see also Adams, 2003) –

what has been termed 'compositionalist conservation' in the literature (Lorimer, 2012, 2015). Designations are often accompanied by a strict 'scientific approach', from mapping reserves and carrying out resource counts to conducting specific biodiversity assessments.

While the literature has explored how these practices are part of a very abstract method of producing knowledge about a place and its (human and nonhuman) inhabitants (Adams and Mulligan, 2003), few studies have attended to the *lived experience* of territorialisation from a more-than-human perspective. Equally, few studies have considered the implications of territorialisation (as a spatial and political practice) for humans/nonhuman relations, particularly in urban zones where close proximity is arguably unavoidable. Nature reserves offer interesting sites to explore these questions. There are now over two hundred National Nature Reserves (NNRs) in England and Wales, and over one thousand Local Nature Reserves (LNRs) covering almost 40,000 hectares, which range from coastal headlands and ancient woodlands to former inner-city railways and long abandoned landfill sites (Natural England, 2018). They were established after the Second World War to provide scientists and visitors with an 'outdoor museum' within which they could conduct their observations:

> 'Nature Reserves are regarded perhaps more than anywhere else as outdoor laboratories where the workings of nature can be studied in addition to being outdoor living museums or wildernesses in which nature can be preserved as a national heritage' (E.M. Nicholson, 1957, p20).

These 'outdoor laboratories' provided an opportunity to ensure that the 'workings of nature' could be viewed, controlled and maintained (Toogood, 1997). Here, there is an assumption that the workings of nature can be bounded; set apart in static spaces, away from the workings of humans. While people are permitted into nature reserves in the UK and encouraged to visit them, they are instructed to do so as precisely that: *visitors*. Nature reserves are seen both as 'vital havens for nature' and as 'special spaces where people can get closer to nature' (RSPB, 'Reserves and Events') to 'experience wildlife first hand' (Natural

England, 2017a). Nature reserves are therefore seen as zones that humans *enter into* in order to have a nature experience or develop new nature knowledge (Natural England, 2017a). In addition, nature reserves are accompanied by particular codes of conduct, which the public are expected to adhere to, so as to 'respect and protect' nature (Natural England, 2017a). Here, much as with wilderness models, there is an assumption that human communities despoil the (real, authentic) 'workings of nature'.

Few studies have considered the implications of nature reserves for human/nonhuman relations more broadly. Political ecologists have noted how areas around the world are being made/remade according to the fantasies of (Western) tourists (Duffy, 2002; West and Carrier, 2004; Ferguson, 2006; Brockington et al., 2008). Here, nonhuman animals are enrolled into neoliberal capitalist agendas by being turned into 'lively commodities' to generate surplus through 'consumptive experiences' such as safaris (Duffy, 2013, 2014). In this model, the charismatics of wildlife become a spectacle for human consumption (Lorimer, 2007; Brockington et al., 2008; Barua, 2014c; 2016) or otherwise memorialised in photographic imagery (Igoe, 2010) – what Barua (2016) calls 'encounter value'. Most of these interventions have been explored in the context of the Global South but they are equally applicable to the context of UK nature reserves (discussed further in Chapter 5).

The thesis explores the relational implications of producing wildlife as a spectacle and, with it, constructing humans as 'visitors' in nature. These moves arguably compound the distant and distancing approaches that have characterised Western conservation thus far. Work in urban animal geographies has offered renewed attention to urban wildlife and the human/nonhuman relationships that are harboured in urban zones: 'things are brewing', observe Hinchliffe and Whatmore (2006, p123), as the 'urban green' becomes revalued politically, aesthetically, conceptually, even ethically (Luther, 2013), into what Lorimer (2008, p2056) refers to as a more 'fluid biogeography' where fixed territories are replaced by 'open geographies of interpenetrating and overlapping networks.' Yet there are still conceptual boundaries that delimit what is possible in

conservation assemblages in urban zones. One of these is the notion of 'equilibrium', which sees human life and activity as a fundamental intrusion on the (authentic, real) 'workings of nature' – addressed further in Section 2.4.

2.4 Post-natural ontologies and post-normal conservation(s)

This section explores some of the recent interventions into the scope and role of nature conservation, in order to see how productive these might be for rethinking 'wild work' in the city, and the implications for human/nonhuman relations in urban zones. The traditional desire to preserve a fixed nature from modern, urban, and industrial society by enclosing it in spaces of wilderness, has come under increasing scrutiny from nature-society theorists (Castree and Braun, 2001; Whatmore, 2002; Castree, 2005; Hinchliffe, 2007) and the more reflexive fringes of the conservation community (Adams, 2003; Taylor, 2005). Conservation thought has started to give way to alternative modes of restoration and stewardship that acknowledge the always-entangled nature of humans with their environments.

The popularisation of the 'end of nature' (McKibben, 2003) has prompted theorists and practitioners to acknowledge the indeterminacy of ecology, the multiplicity and hybridity of natures (not singular nature) and so the contested nature of any aspirations toward a standardised/homogenised approach to environmental management. Authoritarian governance by a cadre of (largely white, male and Western) scientists and politicians can be more vehemently contested, since there is no single nature or mode of natural knowledge to which environmentalists can make recourse. This opens up the possibility of knowledges made by diverse persons since, as Lorimer (2015, p2) puts it, 'there are multiple forms of natural knowledge – not all of which are scientific or even human – informing the myriad of discordant ways of living with the world.'

2.4.1 Altered earth – the politics of 'disequilibrium'

The notion of the 'balance of nature' persists as a powerful but often unacknowledged influence in conservation science and ecology despite there

being little consensus, clarity or consistency about what it means and how far it can be proved (Cooper, 2001; Cuddington, 2001; Trudgill, 2008). Before ecology emerged as a distinct field of study in the 1970s, the majority of analytical work operated on the assumption that ecosystems are inherently stable or exhibit homeostasis, or the self-regulation of ecosystems. For instance, George Perkins Marsh made one classic statement of early ecology in his seminal text, *Man and Nature* (1864, p29):

> 'Nature, left undisturbed, so fashions her [sic] territory as to give it almost unchanging permanence of form, outline and proportion, except when shattered by geologic convulsions; and in these comparatively rare cases of derangement, she sets herself at once to repair the superficial damage, and to restore, as nearly as possible, the former aspect of her dominion.'

This underlines a conception of the earth as fundamentally homeostatic, where any deviations are seen as imbalances that will eventually be self-corrected. Here, 'man' (sic) is seen to despoil the 'workings of nature'. Thus, when applied implicitly equilibrium is frequently naturalised as a pre-disturbance state – that is, a state of balance that existed prior to human disturbance specifically by human activities (Helford, 1999; Trudgill, 2008). Such naturalisation is predicated on a nature/culture dualism, a dualism now widely seen as a modernist conceit or a social construction (see Section 2.2.1). Yet, equilibrium has been normalised (and so naturalised) within the natural sciences and is still implicit in many of the models that are used by environmental scientists and practitioners (Eden and Bear, 2012).

Political ecologists suggest that the notions of ecological balance and equilibrium have likely resulted from social norms about how nature should be (Forsyth, 2003). For instance, some have suggested that the concept of 'ecological crisis' may be a metaphor for the perceived loss of balance under modernity (Giddens, 1994, p204-206). Others have noted how the concept of equilibrium has led to the eradication of non-native invasive species introduced by humans (Head et al., 2014, 2015). The concept has equally influenced the identification of specific 'eco-regions' or 'eco-zones', identified as areas of unique habitat and biological

diversity, with minimal human activity (Neumann, 1996, 1998). Equilibrium ecology has thus provided a potent scientific framework for the rationalisation of nature, by conceiving of it as a 'homeostatic machine' that needs to be regulated and kept finely tuned (Lorimer, 2015, p78).

Equilibrium concepts can powerfully shape understandings of nature and therefore how (Western) society is expected to engage with the nonhuman world. As Lorimer puts it: 'biogeographies for the conservation of Nature tend to purify space and stabilise time… pre-empting and forestalling ecological processes in the interests of preservation and/or biosecurity' (Lorimer, 2015, p163-164). Nature conservation has focused on fixing species and habitats in space and time, often in ways that are seen as beneficial to the present moment (see earlier discussion on the maintenance of 'existing conditions'). Such an approach risks 'rendering the present eternal' (Bowker, 2005; see also Hinchliffe, 2007) and therefore cutting off the possibilities for growth and development, whether framed in terms of biosocial 'resilience' or 'adaptability'. In recent years, equilibrium concepts have begun to be challenged in the geographical and ecological literature.

2.4.2 Nature beyond equilibrium

In an era of rapid and escalating environmental change and ecological degradation, there is substantial uncertainty in relation to questions of nature. Human activities have significantly altered about 75 per cent of the Earth's land surface (Ellis and Ramankutty, 2008; Nellerman and Corcoran, 2010), while more than half of the Earth's total land surface has been domesticated in some way or another (Kareiva et al., 2007). The direct impacts of anthropogenic climate change have now been documented on every continent, in every ocean and in most major taxonomic groups (Parmesan, 2006). As a result, atmospheric chemists and geologists are proposing that the Earth has entered a new geological epoch called the Anthropocene (Crutzen and Stoermer, 2000; see Lorimer, 2016, for a summary).

In response, the last few decades have seen a paradigm shift in ecology, away from ideas of equilibrium towards 'the new ecology' (Botkin, 1990) that emphasises contingency, chance and chaos instead (Wu and Loucks, 1995; Zimmerer 2000; Cooper 2001; Walter 2008). Very briefly, while equilibrium ecology understands ecological systems as moving towards a single end-state, non-equilibrium ecology argues that such states are illusory and are rarely achieved for significant periods of time (Lorimer, 2012). Disequilibrium theory emphasises the dynamic nature of ecosystems, characterised by a multitude of irreversible time scales and 'discordant harmonies' (Botkin, 1990) with no one single balance of 'nature'.[14] Extensive land-use change, pollution, and rapid climate change demonstrate how the world is in ever-greater flux, with important consequences for conservation. As Thomas (2011, p216), writes:

> 'A philosophy of conserving the composition of biological communities as they are, or restoring them to some specified (or imagined) historical state, sits uneasily with the reality of environmental and biological change… [because] as species change their distributions and abundances with the climate, the historic management of a particular region will no longer deliver the historic community composition.'

It is estimated that approximately 35 per cent of the world's ice-free surface is currently comprised of novel ecosystems (Perring and Ellis, 2013). Novel or non-analogue systems have unknown functional characteristics that preclude environmental prediction and management.[15] These interventions have profound implications for environmental explanation and the goal of 'conserving life' (Francis and Goodman, 2010; Adams, 2003, 1997; Zimmerer, 2000). As Botkin (1990, p156) argued: 'non-equilibrium ecology… [is] a Pandora's box for environmentalists'. Later, Adams (1997, p286) wrote: 'Gone… are comfortable certainties about naturalness and the management regime needed to sustain it.'

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[14] Research on *disturbance* (or patch dynamics) in forests (Wu and Loucks, 1995) or changes in vegetation or soils occurring in pastoral systems in drylands (e.g. Scoones, 1994) has revealed that there is much greater change in ecological systems than previously thought.
[15] Even defining and measuring concepts such as endemism, uniqueness, richness and resilience is an increasingly difficult enterprise (Thomas, 2011).

The recognition that ecosystems (and their components) are highly dynamic, complex and unpredictable (Pahl-Wostl, 1995; Kay et al. 1999; Francis, 2009) has prompted ecologists to argue that conservation has been 'too conservative' in its efforts to fix ecologies in the face of global environmental change (Hobbs et al., 2013). Some have even called conservation a 'post-normal science' (Francis and Goodman, 2010), while others have suggested a shift from 'historic' to 'futuristic' ecosystem management (Hobbs et al., 2013).

For scholars engaged in debates on 'conservation in the Anthropocene', these interventions offer a means to re-engage environmental debate and practice. The work of geographer Jamie Lorimer has been particularly exemplary in this regard, driving new thinking on the scope and role of nature conservation in contemporary contexts – tackling some of the most nuanced, contradictory and peculiar aspects of the discipline. In various works, he has argued that nature conservation can no longer proceed in 'normal' traditional manner, when the subjects of the nonhuman world are fluid, mobile creatures, now operating in increasingly unstable and complex climates and ecologies. For instance, in his study of 'living roofs', Lorimer (2008) argues that more 'open ended' approaches to conservation, that speak to a more fluid temporality, are needed in urban environments: 'Rather than seeking to fix the roof at a moment of equilibrium, by forcing it towards a final assemblage of plants, these ecological complexes are allowed to develop through colonisation by local flora and fauna' (2008, p2051).

In recent work (2012, 2015) Lorimer has sought to develop an anticipatory ontological politics for conservation, one that heeds the call of the Anthropocene and does not make recourse to (singular, independent) nature. He was one of the first geographers to make the connection between the relational and vitalist ontologies described above and the emerging (and diversifying) scientific programme of 'new ecology' (Botkin, 1990). Building on the diverse array of non-deterministic and non-dualistic materialisms that percolate environmental geography and social science, he proposes new political ecologies that are sensitive to nonhuman difference and 'the multiple ways in which it might evolve and be governed' (2012, p598). The prospect of the Anthropocene, argues

Lorimer (2012), challenges us to conceive of new ways of understanding and governing life – even the possibility of non-governance altogether (Lorimer and Driessen, 2014).

However, while concepts such as 'disequilibrium' and 'fluidity' offer an important challenge to conservation orthodoxies, they should not themselves become orthodoxy. Even though systems may continually adapt and change, there are certain rhythms and consistencies that creatures depend upon for their survival. For instance, long-distance migrant birds such as thrush nightingales (*Luscinia luscinia*) and European bee-eaters (*Merops apiaster*) rely upon particular climatic conditions to support their chances of feeding and breeding. Likewise, whale sharks (*Rhincodon typus*) rely on the availability of phytoplankton so that they can survive throughout the year, and little penguins (*Eudyptula mino*) rely on *specific* places to sustain ritualistic practices essential to their survival (van Dooren, 2016). While dynamism and flux are clearly important facets of most (if not all) ecological systems, they are not the whole story. Importantly, an overemphasis on these concepts risks framing nonhuman nature as robust and resilient, which can in turn legitimise human activities that are fundamentally harmful to certain nonhuman plants and animals (see 'ecomodernist vision', Asafu-Adjaye et al., 2015).

In short, if the emphasis is solely on the capacity of creatures to adapt/change then there is no need for conservation or care. The following section, therefore, explores the need for 'ethical Anthropocenes' that attend to *place* and the *place-making* capacities of nonhumans.

2.4.3 Ethical Anthropocene(s)

The Anthropocene assumes that 'humanity has become a planetary force, reshaping Earth systems in highly consequential and long-lasting ways' (van Dooren 2012, p231) and this assumption challenges the ontological purity of so-called nature. Signalling the moment at which human activity seeped into geological time, the Anthropocene alters the very structures that have thus far underpinned (Western) reality (Castree, 2014). For it opens up the possibility of

reinterpreting what is considered natural: understandings of 'pure' nature and the concept of 'nature in balance' are made to unravel in light of the Anthropocene. Some have suggested that this poses an ontological challenge to humanity, a sense of the ubiquity of human impact and its 'unforeseen, deleterious and unequal consequences' (Lorimer, 2015, p1). The Anthropocene forces a re-engagement with the past, a recognition that the human relationship to plants and animals is rooted in culture and history (Head et al., 2014).[16] For some, this presents an important opportunity to rethink current approaches to environmental management, as well as the nature/culture dichotomy (Lorimer, 2016).

Feminist scholarship has vehemently critiqued the idea of the Anthropocene for the way it consolidates the (hu)man as primary, thereby marking the entry into what some scholars call a 'new era of solitude' (Bird Rose, 2013; see also Gibson-Graham, 2011; Duffy, 2015; Haraway, 2015, 2016). These criticisms speak to a broader concern within the social sciences, which is that the Anthropocene assumes that all humans are equal contributors to ecological and climatic crises, rendering structural differences and inequalities invisible and cleverly masking the Western capitalist conceit of progress. As with ecomodernist visions (see Dalby, 2016, for a wider discussion), the uncritical uptake of the Anthropocene fails to acknowledge the links between environmental destruction and the basic practices of (capitalist) modernity and development. This is why, as Lorimer (2016, p124) argues, the terms 'Capitalocene' (Moore, 2014) or 'Anthrobscene' (Parikka, 2014) or 'Manthropocene' (Raworth, 2014) have been used by scholars to better specify causal responsibility.

Whether welcomed as a gift (Latour, 2014b) or derided as a dangerous act of human hubris that overlooks other species (Haraway et al., 2016), the Anthropocene demands, says Tsing (2013a), 'sophisticated analyses of how nature comes into being... rather than setting up a passive backdrop for human

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[16] Most biogeographers for instance recognise that the vegetation patterns they are studying reflect both deep evolutionary pathways and the 'muddy and indecipherable blur' of human influence (Mackey, 2008, p392).

activity' (Tsing 2013a). As recognised by a growing number of scholars, the Anthropocene 'challenges us all to radically rethink nature and humans as well as the political and historical relationship between them' (Haraway et al. 2016). It requires shifting perspective to a wholly different scale, vastly more global in scope and historical extent. Specific ethical responsibilities arise from this (see Gibson et al., 2015), perhaps most importantly, the recognition of human difference: that different people have different understandings of nature based on experience and cultural norms, as well as socio-economic circumstance.

This has critical implications for the scope and role of wildlife conservation and the future trajectories that might be possible (and indeed needed) to facilitate what Lorimer (2015, p4) calls 'a post-Natural epoch of multispecies flourishing'. For the human impacts associated with the Anthropocene's great acceleration have 'scrambled established biogeographies of what might belong where' (Lorimer, 2016, p126) and thrown into question the 'normal' trajectories presupposed for ecological systems (Zimmerer, 2000). Thus the concept of the Anthropocene involves not just the challenging task of rethinking and redefining issues such as invasive species, extinction and habitat, but also the ethical and normative underpinnings of these concepts and of the conservation policies that have emerged around them (Holmes, 2015).[17]

2.4.4 Inclusive environmentalisms

One of the primary conceptual barriers to inclusive Anthropocene futures, say interested geographers, is the attachment to an idea of original (pre-human) nature as biodiversity. Ever since conservation became aligned with the global project of biological diversity during the 1980s, spaces for nature have been established on the presence of rare and/or endangered species and then governed on the principle of ensuring 'maximum biodiversity' (Lorimer, 2006, p539; see also Hannigan, 1995; Jeffries, 1997). This has anchored an entire

[17] Holmes (2015) refers us to work that questions the non-native invasive 'problem' (Ellis et al., 2012; Robbins and Moore, 2013). Ecologists are now considering the *positive role* of non-native species in providing vital ecosystem services and even supporting endangered species (Davis et al. 2011).

apparatus for the dispersion of new truths about so-called nature (Escobar, 1998, p55; see also Braun, 2006). Proponents of biodiversity have historically focussed their studies on what were imagined to be 'pure places' free from and defined in relation to 'degraded' urban environments (Francis et al., 2011).[18] This preferential politics has dictated what species belong where in human cultural frames – with strict separations between biophysical, human and supernatural worlds (constructions that do not appear in many local models in non-Western contexts, for example, Gudeman and Rivera, 1990; Descola and Pálsson, 1996).

At the core of biodiversity conservation is an ethic to promote the flourishing of nonhuman life (Meffe et al., 2006). Yet as scholarship in geography, animal studies, ecofeminist and science studies has shown, not all forms of life are valued equally in conservation agendas: techniques and logics often exhibit a peculiar combination of harm and care; culling some creatures to maintain population control, while going to extreme lengths to care for threatened others (Chrulew, 2011; van Dooren, 2011, 2014; Biermann and Mansfield, 2014; Srinivasan, 2014, 2017).[19] This is because, as Rawles (2004) puts it, 'there is an element in conservation goals that is irreducibly to do with preserving the native, or the natural or, perhaps, with preserving a historical lineage' (2004, p205). Biodiversity conservation is another way of 'composing' nonhuman nature, which has consequences for all those creatures that do not 'count' as biodiversity (Lorimer, 2015, p75-77). This has led geographers like Lorimer (2006, 2015) to argue that there needs to be more critical engagement in the *scope* of biodiversity – that is, what gets understood as (and comes to be conserved) as biodiversity, particularly in a national context.

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[18] For instance, biologist and taxonomist E.O. Wilson was one of the earliest and probably most influential proponents of biodiversity as both a scientific and environmentalist concern. He used biodiversity as a way of drawing attention to the worsening threats of extinction and the effects of deforestation, particularly on tropical ecosystems (1988).

[19] For instance, in his ethnographic study of conservation efforts to save the critically endangered Hawaiian crow *(Corvus hawaiiensis)* Thom van Dooren (2014) witnesses the 'violent-care' involved in conservation, where animals that were regarded as 'native', 'rare' or 'endangered' were very cared for, while others (for example, feral pigs) were trapped and killed as part of conservation management regimes.

In the UK, the presence of invasive species in cities is a signature challenge of the Anthropocene, since thousands of years of anthropogenic movement and global exchange have produced anthropogenic biomes (or anthromes) (Ellis and Ramankutty, 2008) and novel ecosystems (Hobbs et al., 2013). In conservation worlds, invasive non-natives are the ultimate sign of 'impure nature' and management efforts are therefore geared towards their removal at various scales and intensities. As restoration ecologist, Allison (2012), finds: 'such [negative] responses to invasive species are not unusual among restorationists [and conservationists], many of whom [attempt to] "do battle" with non-native species in order to "vanquish" the "invasive menace"' (Allison, 2012, p206, eBook).[20] This is often the case with plants such as Japanese knotweed (*Fallopia japonicaand*) and Himalayan balsam (*Impatiens* glandulifera). Yet, these approaches have been strongly criticised in recent years for informing a 'logics of racial difference' (Moore et al., 2003, p18; see also Wong, 1999; Biermann and Mansfield, 2014).

More-than-human geographies have brought into focus how labels such as native/non-native structure the experiences of animals in different contexts, including wildlife conservation (Wolch, 2002; Singh, 2013; Biermann and Mansfield, 2014; Biermann and Anderson, 2017; Hodgetts, 2017a; Srinivasan, 2017). Geographical research on living things and their 'proper' places, as well as their transgressions beyond these places, have included studies of the forcible removal of so-called invasive plants and animals from inappropriate places (for example, Head and Muir 2004). Some have foregrounded nonhuman agency by recounting animal intrusions, collusions and resistances to human efforts to 'place' them (Hinchliffe et al. 2005; Whatmore, 2006). Others have explored the significance of Foucault's notion of *biopower* in their analysis of more-than-human spaces (for example, Holloway and Morris, 2011; Collard and Dempsey, 2013; Wadiwel and Chrulew, 2017), including conservation spaces where nonhuman

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[20] Non-native or 'alien' species are generally considered to be those that are moved outside their 'natural' range, often through human activity. Non-native species that are introduced and subsequently establish and spread effectively, with significant impacts on their host ecosystem, are often classified as 'invasive' or 'invasive alien species' (INNIS, 2008).

life is made governable, often under the premise of 'care' and 'protection' (Srinivasan, 2017).

Others have taken a historical approach, using a multispecies lens to explore how the lives of humans and nonhumans are historically and geographically intertwined, such that it makes little sense to argue for the 'the right kinds of diversity in the right places' (van Dooren, 2014). For instance, Aisher and Damodaran (2016) identify a pressing need to attend to historical and contextual complexity in an Anthropocene world, and argue that 'the history of humanity and the history of the environment only make sense if explored together' (2016, p294). They find much in common between environmental history and multispecies ethnography and argue that that a renewed attention to *place* can bring social and ecological worlds into correspondence to recognise what anthropologist Anna Tsing (2013a, p33) calls 'human histories within a multispecies field of histories'.

Landscapes of place offer a lens to document 'how different life forms flourish or decline in the effects of the world-making projects initiated and maintained by the others' (2016, p296). For this reason, they offer an opportunity to delve into the environmental past and rethink the environmental future in ways that might actually work for multiple species. For Aisher and Damodaran (2016), more attention is needed on shared multispecies histories – since they work to anchor the Anthropocene from a 'more-than-human' perspective. This has important epistemological implications for thesis and its interest in environment ethics (discussed further in Chapter 3).

2.5 Assembling wild futures: Restoring, renaturing, rewilding

This thesis looks at conservation from the perspective of a world which has been rapidly urbanising and developing for the best part of a century – a trend that is set to continue in the future with a predicted six billion people living in cities by 2045 (World Bank, 2016), over 60 per cent of the world's population. Urban zones are at the frontier of socio-ecological issues and challenges – from climate change effects on biogeography to abundant levels of material waste and atmospheric

pollutants. Despite these challenges, the modern city is home to a vast array of nonhumans, many of whom now find better access to food and shelter nestled among human populations than in the rural countryside (Francis and Chadwick, 2012). This makes the urban environment an ideal opportunity to develop co-existence and 'living with' difference and change.

2.5.1 Understanding urban wilds

This study turns to the urban environment in order to situate some of the conceptual and practical challenges brought by Lorimer's (2015) call for 'conservation(s) in the Anthropocene'. It approaches practices of restoration, renaturing and rewilding in terms of the making of 'shared space' in the city – an area that has been little explored in the existing literature.

What is the urban?

The 'urban' has frequently been left ill-defined in academic literature (Francis and Lorimer, 2011). Current definitions of the urban mainly focus on human population size and the amount of land that is given over to human services and impervious surfaces like buildings, streets and roads. Mac-Gregor-Fors (2011) for example defines urban areas as 'populated areas provided with basic services… where more than 1000 people/km² live or work, and an important proportion of the land (>50 per cent) in a "city-scale" … is covered by impervious surfaces (e.g. buildings, streets, roads)' (2011, pp347-348). But this geographical definition is too simplistic, especially when cities are increasingly recognised as fluid and permeable entities that, according to Amin and Thrift (2002), can no longer be theorised as a whole. In addition, these spatial-only definitions overlook the dynamic historicity of a place, such as the speed or intensity of changes in land-use and importantly *land-users*.

Drawing on literatures from urban ecology, urban political ecology (UPE) and more-than-human geographies, this research understands the 'urban' as a historical multispecies achievement. Cities have long been settled: the earliest large urban settlements date from the Sumerian cities of Mesopotamia around

5000 years ago (Gates, 2003). Yet urbanisation has accelerated steeply over the last 20-30 years, with significant ecological, biogeographical and climatic consequences (Ramalho and Hobbs, 2012; Francis at al., 2012). As such, urban ecologists Ramalho and Hobbs (2012) suggest that temporal dynamics need to be incorporated into understandings of the urban. They argue that temporal understandings of the urban can permit a more *ecological* view of human and nonhuman life.

While urban political ecology (UPE) often suggests a historical view of the urban in analyses of metabolic processes of the city (Heynen et al., 2005) UPE has been critiqued for not attending to the 'ecology' in political ecology (Srinivasan and Kasturirangan, 2016) – in other words, for overlooking the specific contributions of nonhumans in urban spaces (Barua and Sinha, 2017; Menon and Karthik, 2017). Therefore, this thesis suggests a definition of 'urban' that makes it more than a *human* matter and this necessarily requires going beyond geographical definitions of rural/urban. Urban/rural are spatial categories that encompass normative animal orderings in which animals are both materially and semiotically 'placed' (Buller, 2014b). Instead this thesis tries to recognise the complex and unfolding ways *places themselves* come into being with those who inhabit and fashion them (human and nonhuman).

Historical ecological views of the urban recognise the *ways of life* that are 'shared, produced, and nurtured in the world through the work of successive generations of living beings' (van Dooren, 2016, p22). Scientists have given the name 'synurbanisation' to these biological and behavioural adjustments of wild animal populations to urban environments (Luniak, 2004). According to Francis and Chadwick (2012) a species cannot be considered a 'synurbic species' (that is, a species living in higher densities in urban areas than in rural areas) unless it has adapted with (and even thrived on) the environmental modifications that accompany urbanisation such as changes in microclimate, resource abundance, disturbance and the creation of artificial ecosystems such as walls, roofs, pavement, parks and brownfield sites (2012).

Synurbisation is a temporal process and so, again, a purely geographical understanding of urban wildlife is not enough. When speaking of urban animals, it is important to look at their historical context and understand how/why they came to thrive in urban areas or otherwise became associated with them (Barua and Sinha, 2017). As Woolfson (2013) puts it:

> 'Living in a city, we are all elements of a biological and ecological chain described by words that express the complex web of connection between us and hint of dependency and need – commensal, mutual, symbiotic, predatory, synanthropic. [...] In different degrees, we share our vulnerability'.

Human and nonhuman lives are inextricably entangled, whether in cities or in seemingly 'remote' wildernesses. Understanding how these entanglements are produced, historically, politically, materially, can offer more meaningful understandings of our contemporary moment, that is, wildlife in the Anthropocene.

What is urban wildlife?

Historically, urban areas were rarely considered potential wildlife habitat and were neglected by wildlife ecologists and managers. The 'urban' has, by and large, been imagined and conceptualised as the exclusively human domain *par excellence* (Hinchliffe, 1999). Wildlife and the ecosystems on which they depended were seen as things that persisted in places away from cities and human influences and wildlife ecologists 'actively sought out study areas far from civilisation in the hope of uncovering facts untainted by human influences' (McCleery et al., 2014, p2; see also Worster, 1994). Focussing scientific attention on places remote from modern, urban, industrial society created a hierarchy in relation to places, peoples and nonhuman plants and animals and underlined a peculiar anti-urban sentiment among conservationists (Hinchliffe, 1999).

More recently, the status of urban wildlife has received renewed attention as interests in the 'urban green' have promoted revaluations of urban space,

politically, aesthetically, conceptually, even ethically (Hinchliffe and Whatmore, 2006, p123). Buller (2014b) marks the explosion of recent interest in urban wildlife in both academic circles and popular nature writing: 'Suddenly, urban wildlife, from voles and bats to peregrines and redstarts, is everywhere, no longer confined to labelled 'nature' spaces but recognised as an active co-presence on tower blocks, sewage plants, brownfield land, old cars, and abandoned sites' (2014, p237). This speaks to a recognition that cities are now being co-inhabited 'with and against the grain of urban design' (Hinchliffe and Whatmore, 2006, p128).

Writing back in 1995, geographer Jennifer Wolch criticised contemporary urban theory as being anthropocentric and called for a 'transspecies urban theory' that acknowledged human/animal interactions in the city (Wolch et al., 1995). Again in 1998, Wolch challenged scholars to rethink the metropolis as a 'zoopolis' and called for wildlife to exist in and among people, not separate and only encounterable through a glass window or wire fence: 'we need to renaturalise cities and invite the animals back in, and in the process re-enchant the city' (1998, p124). Later she called on scholars to 're-imagine *anima urbis* – the breath, life, soul and spirit of the city – as being embodied in its animal life' (2002, p721).

While these mark important moves to unsettle ideas of the city and its anthropocentric heritage, that is, 'to create a new political ecology of people and animals in the city' (Wolch, 2002, p734–5), it is necessary to consider what kind of city is being imagined and what 'wildlife' is welcomed within it. Wolch (1998, 2002) seems to promote the presence of wildlife as the cure to a healthier more 'natural' city. Yet, arguably this is a very Westernised concept of the city, seen as depleted of wildlife. How do people figure in this process? Who 're-enchants' the city and to what ends? These are critical questions for this thesis, discussed throughout the chapters in terms of the 'ethical entanglements' that get produced in renaturing practice, opening fertile ground so as to consider more inclusive and environmental ethics and 'cosmopolitics' (Hinchliffe et al., 2005).

2.5.2 Practising urban wilds

Over the last 20 years, conservation attention has turned to the post-industrial, war-damaged cities of Europe in a bid to 'revive' them (Jepson and Schepers, 2016b). In the UK, urban zones now find themselves the subject of a 'greening' of urban policy that has gathered some momentum of late (Hinchliffe and Whatmore, 2006). Yet few studies have considered the implications of these policies and practices for nature-society relations.

Urban restoration

The restoration of ecosystems has, in many ways, provided a new metaphor for conservation insofar as it involves the 'intentional manipulation of ecosystems in accordance with our values' (Higgs, 2003, p13). The idea of restoring an ecosystem that has been degraded, damaged or destroyed (Society for Ecological Restoration, 2004) goes beyond the principle of 'conserving' to emphasise the importance of recovering the past in conservation endeavours. Where to place the benchmark in the past is a matter of choice and cultural conditioning. Hall (2010) notes how 'baselines' are always shifting in restoration, as restorationists inherit their baselines from former restorationists: 'we automatically depend on our forerunners to understand what is meant by ecosystem and how one interprets or measures degraded, damaged and destroyed' (2010, p5). In this way, restoration is not a self-evident mandate; it is clearly 'a choice based on values, and it is only one of many possible choices' (Diamond 1987, p331).

Moreover, the long history of dense human settlement in cities means that defining a 'natural' (that is, pre-human) ecology is less meaningful (Del Tredici 2010) and urban ecologists have difficulty differentiating whether a given condition or process is indeed of human or nonhuman origin (Keenan and Jorgensen, 2012); this opens up different choices on when and how to intervene (Higgs et al., 2014). As a result, restoration theorists often speak of the *ethic* of restoration, marked in the work of early environmentalist Aldo Leopold in his radical and visionary essay 'The Land Ethic' (1949). Here, Leopold sees the restoration of ecosystems as essential to the development of new, better

relationships between increasingly urbanised people and the rest of the environment (Allison, 2012, p113, eBook). For Leopold (1949), humans are just one part of a vast web of living things, and as such, needed to see themselves as 'biotic citizens' with a renewed ethic to the Earth that goes beyond its treatment as mere property. The 'land ethic' denotes the primary principle of ecological stewardship and gave impetus to restorationists, inspiring them to think of themselves as acting members of the ecological community (Jordan, 2003).

However, conservationists of the more purist ilk (that is, those committed to the preservation of biodiversity and wild ecosystems) have been critical of the significant role of the human in shaping restored ecosystems (Katz, 1992, 1996). For instance, Katz (1996) argued that the practice of ecological restoration represented 'a misguided faith in the hegemony and infallibility of the human power to control the natural world' (Katz, 1996, p222). In other words, when ecological restoration is based entirely on the choices and designs of humans, it risks engendering more human hubris: for if damage to ecosystems can be easily 'fixed' through human restoration then destructive activities may well continue business as usual. This is why some conservationists have been vehemently sceptical of restoration (Allison, 2012, p167, eBook). Yet to deny any human/nonhuman relationship in restoration endeavours is equally problematic, for it assumes that without human intervention landscapes would be entirely 'natural' or somehow more authentic.

Katz (1992) for instance argued that humans created an artefactual reality or false reality in their endeavours to alter or restore landscapes: 'once we dominate nature, once we restore and redesign nature for our own purposes, then we have destroyed nature' (1992, p396). There are several issues with this position. Firstly, it assumes that there is an 'original' background totality that is authentically real, which social constructivists resolutely deny (see earlier in this chapter). Secondly, it implies that 'we already imagine ourselves to be somehow beyond the world, and therefore in a position to intervene in its ['natural'] processes' (Ingold, 2000, p20). Equally, it homogenises humanity (as 'we') and assumes that all humans have an inherently destructive relationship with the nonhuman world,

overlooking how humans are part of ecosystems in different and complex ways (Casagrande and Vasquez, 2010, p193). With this, it denies the multiplicity of relationships that take place between nature(s) and societies, including when life forms come together to negotiate collaborative survival.

Urban renaturing and 'greening'

Renaturing has been noted as an increasingly popular pursuit in Europe (Hall, 2010). Casagrande and Vasquez (2010, p193) define renaturing as 'an intentional reflective attempt to restore human relations with natural processes of ecosystems, in addition to restoring the biophysical health of ecosystems'. They suggest that this involves a recognition that 'humans and nonhumans are equal partners in a process of continual co-evolution' (2010, p193). In a more practical sense, Hall (2010, p20) defines renaturing as 'the returning [of] appropriate nature to a site' and gives the example of the 'renaturalisation' of canals and streams in Germany, where dykes were removed and meanders were reinserted. However, the critical question with both these definitions is: *who decides what counts as 'appropriate' nature? Whose 'human relations' are being reimagined and restored?* For this reason, the thesis takes a critical approach to the kinds of natures that are being renatured, where, why and by whom.

Inviting wider parts of society into questions of nature and the ongoing issue of when and how to intervene is therefore an important aspect of practices of renaturing and something that Francis and Lorimer (2011) partly address through the concept of 'reconciliation ecology'. Reconciliation ecology involves modifying and diversifying anthropogenic habitats to support a greater range of nonhuman others, without compromising the human values associated with the place. As well as involving practical techniques to encourage nonhuman operations in cities, including the creation of 'living' roofs and walls, it speaks to an ethical process of 'reconciling' human/nonhuman interactions and encounters in cities, for instance by encouraging the participation of a range of urban citizens in projects (Francis and Lorimer 2011, p1434ff).

Reconciliation ecology is also reflected in the emerging interest in urban greening, aimed at the creation and enhancement of green spaces within urban areas, including parks, public spaces, gardens, sports facilities, buildings, roadside verges and so on (Ginn and Francis, 2014).[21] The installation of green roofs on buildings to provide habitat for invertebrates and pollinators in the city has been a popular endeavour in European cities (see Lepczyk et al., 2017; Lorimer, 2008). Urban greening can also refer to the preservation and protection of existing 'wild' spaces in the city (De Sousa, 2014, p1050), including those that result from 'urban land abandonment' (Müller et al., 2018), such as wastelands, brownfields, derelict sites or other 'informal' spaces, spaces that might even harbour more species than other nature zones (Müller et al., 2018; see also Bonthoux et al., 2014; Rupprect and Byrne, 2014).

While these moves appear to foreground the nonhuman world in urban places, they need to be understood in light of the complex political ecologies of the city. Critical urban scholars argue that greening cannot be separated from the political economies of regeneration and the quest for sustainable cities. Bunce (2018), for instance, looks at how progressive sustainability initiatives aimed at mitigating climate change become absorbed into neoliberalised, profit-oriented development activities that produce gentrification in cities. Technocratic, market-based solutions to complex socio-ecological problems can smooth over underlying issues of social and environmental (in)justice (Bunce, 2018; Wolch et al., 2014), while greening programmes designed to provide 'ecosystem services' and 'green infrastructure' offer us an economised nature, once again circumscribed within the rational, calculative and instrumental logics of neoliberal capitalism (Spash, 2008; Bakker, 2010).

For this reason, a cautious approach is required with urban greening projects, such that they avoid the 'dream of mastery' as critiqued in Section 2.2 (Lorimer, 2015; Ginn, 2014; see Section 2.2). Urban greening often assumes that (space for)

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[21] For instance, London has been proposed as the world's first National Park City with funds and local government/public support being driven into multiple 'greening' projects for human and biodiversity benefits (Clancy, 2017).

nonhuman nature needs to be *actively engineered* by humans, not left to chance or imagined through a state of regress. Critics argue that human hubris of this kind (or any kind) has not served the planet particularly well thus far, and so call for a different kind of urban praxis that actually acknowledges nonhumans as active agents in the city (Metzger, 2014, 2015; Houston et al., 2017). Rewilding thus emerges as an interesting alternative (discussed in 2.6).

Urban rewilding

The concept and practice of 'rewilding' has been proposed as an innovative, hopeful, and increasingly popular form of ecological restoration (Jepson, 2018; Lorimer, 2015; Svenning et al., 2016) that seeks to address the precarity of human/nonhuman futures (Tsing et al, 2017; Urry, 2016) and create healthy and multiscalar ecosystems more resilient in an unpredictable and shifting global environment (Pettorelli, 2017a, 2017b). Rather than repeat extensive debates on the term and its applicability (for reviews see Jørgensen, 2015; Lorimer et al., 2015) the remainder of this section focusses on some of the key themes that have emerged from rewilding debates that are uniquely relevant to the complexities of urban environments and the 'problem' of securing nonhuman futures in an increasingly 'human dominated' world.

Many have argued that rewilding represents a point of departure from long-standing conservation approaches, characterised by (compositionalist) species-centred and territorialised strategies, toward a focus on ecological functionality and processes – among them predation, naturalistic grazing and plant succession (Vera, 2000; Lorimer and Driessen, 2014; Robbins and Moore, 2013).[22] Rather than preserving a timeless and abstracted understanding of pre-industrial nature (Callicott et al., 1999), something that has been critiqued on multiple fronts (Pauly, 1995; Hilderbrand et al., 2005; Allison, 2012; Ginn and Francis, 2014), rewilding practices attempt to facilitate ecological functioning that engages with a future-orientated environmental imagination (Prior and Brady, 2015; Prior and Ward, 2016). Prior and Ward (2016, p133), for example, point out that most

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[22] Even land abandonment has been proposed an ecological opportunity for rewilding – mostly in a European context (see Navarro and Pereira, 2012, 2015).

rewilding initiatives seek to reach a state in which nature becomes 'self-sustaining' – as contrasted with conventional conservation management, which assumes the need for continual intervention.

For advocates, this approach is commonly expressed as a desire that nature be allowed to 'look after itself' so that human control is reduced (Navarro and Pereira, 2012, p904) and landscapes eventually become 'self-willed' (Taylor, 2005). This places an emphasis on flexible, open-ended forms of management, and so potentially offers new spatialities and geographies of/for conservation. For instance, where traditional forms of conservation might preserve island ecologies in equilibrium by promoting certain (native) habitats and species and erasing (non-native) others, future-oriented rewilding practices would emphasise how islands can become 'wild' (nonhuman, experimental) laboratories if given the space and time to develop 'spontaneous' ecologies free from ongoing human management – and this is ultimately made possible by disrupting the equilibrium philosophy earlier described (see Section 2.4). Lorimer and Driessen (2014) provide a fascinating case to illustrate the point:

Oostvaardersplassen, an artificial island in the Netherlands, has been lauded as Europe's first 'wild experiment' (Lorimer and Driessen, 2014). Reclaimed from the sea in 1968 and originally intended for industrial development, this polder was left largely unattended for almost a decade, resulting in the emergence of a wetland area colonised by greylag geese, whose grazing prevented forest succession and created habitats for a range of rare bird species, mammals and invertebrates. The ecological processes established by nonhumans made a fundamental part of the experiment, while herds of (certain) cattle and ponies were introduced under a policy of minimal intervention in order to make a 'more complete ecosystem' (Vera, 2009, p32).[23] The Oosvaardersplassen has been framed as a 'wild' experiment for the way it 'eschews management...and allow[s]

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[23] Large herbivores were introduced into the area in 1983 (Heck cattle), 1984 (Polish koniks) and 1992 (red deer). Heck cattle and Konik ponies are breeds that have been 'de-domesticated' or 'back-bred' to simulate the extinct ancient auroch and tarpan respectively. The idea was to create 'a naturalistic grazing regime' that ecologist Frans Vera believed existed in Europe during the early Holocene (Vera 2000, 2009).

nonhuman nature to lead the way in some areas at least' (Taylor, 2005, p5). Ecologists at OVP were to open to the possibility of surprising/unpredictable natures and committed to learning from them (Lorimer, 2015) – but it has not been without ethical controversy (Lorimer and Driessen, 2014).[24]

Giving space and time for the unpredictability of ecological outcomes appears to challenge the pre-emptive and anticipatory practices employed to securitise and govern societal and ecological futures (Anderson, 2010; Amoore, 2013). This, in turn, shifts human/nonhuman relations, particularly when place is understood as the complex entangling of beings, bodies, habits and cultures (Ingold, 2000). However, in attempting to facilitate dynamism over time, questions arise over how temporality is conceived and experienced by human and nonhuman actors. Closely related to the question of temporality is a further concern that scholars have identified as one of the unifying characteristics in rewilding discourse and practice: namely, the pursuit of 'autonomy' for nonhuman subjects and processes (Prior and Ward, 2016) and the implications it raises for multispecies relations.

2.6 Shared spaces and beastly places

2.6.1 Entangled autonomy

Several of the themes contained in the idea of rewilding are relevant to the interests of this thesis, particularly the possibility of 'shared lives' and 'shared spaces' within which nonhumans have autonomy. The interest in granting nonhumans greater 'autonomy' from human control and coercion has become a common refrain in environmentalist discourse (Jørgensen, 2015; Prior and Ward, 2016; DeSilvey and Bartolini, 2018). In contemporary debates, nonhuman autonomy or 'wildness' is assumed to be a state that existed prior to the assertion of human autonomy, at a time when the world had 'more animals and less people (or at least, much less intrusive people)' (Jørgensen, 2015, p487). Scholars now argue that this notion, along with rewilding's claims to 'self-willed' or

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[24] In 2010 the project faced a series of legal disputes with animal welfare activists over the starvation and deaths of animals that could not access enough grass during the harsh winter months of 2005 and 2010 (Vera, 2009, p34).

'spontaneous' nature, needs to be further scrutinised (Lorimer and Driessen, 2014, p174).

As critical scholars and environmental historians have recently noted, these formulations of autonomy ultimately work to reinstate a set of binary distinctions, that is, between 'self' and 'other', without necessarily acknowledging the 'implicit entanglements' of humans and nonhumans (Prior and Ward, 2016), nor indeed 'the fullest expression of animal life, including the capacity for movement, for social and familial association, for work and play' (Collard et al., 2014, p328; see also Deleuze and Guattari, 1989). In response, scholars DeSilvey and Bartolini (2018, p2) explore autonomy 'as a fluid and negotiated state, expressed through degrees rather than essential attributes'. This allows them to avoid the trap of specifying nonhuman autonomy in binary ways (autonomous/non-autonomous; wild/not wild), which locates the wild in the past and forces a series of unhelpful value judgements on the authenticity of nature-society relations.

DeSilvey and Bartolini (2018) see autonomy as 'relational achievement' where the animal subject is not a bounded entity, set over and against other bounded entities, but the subject of relational co-becoming. DeSilvey and Bartolini (2018) begin by noting the paradoxical relationship between entanglement and autonomy in much of the academic literature. As they suggest, 'it has become commonplace to make reference to the inextricable entanglement of human and nonhuman worlds' (2018, p6) and doing so unsettles an ahistorical static notion of autonomy, akin to independence or separateness. Instead, when autonomy is understood as a relational achievement, the category of the 'wild' or 'wildness' can still denote 'interrelations within which animals have autonomy' (Collard et al., 2014, p328).

Importantly, this helps DeSilvey and Bartolini inject a temporal orientation into their relational understanding of autonomy and argue for seeing animal autonomy as a 'variable, uneven and situated process' (2018, p14) that needs to take into account deep histories of human/animal relations. They give the example of the release of 'wild' horses into the Coa Valley in Portugal, where

their 'rewilded' state is both historically situated and fluidly negotiated; marked by the ongoing relationship between humans and nonhumans in that region. Looking at prehistoric rock art depicting horses in the region during the Upper Palaeolithic, DeSilvey and Bartolini find that 'even in their independent, "undomesticated" state the horses nonetheless occupied a central role in human systems of meaning and representation' (2018, p9). They therefore argue for the dissolution of binaries such as wild/tame, accepting that histories of landscape are histories of co-habitation and co-production. This involves, say DeSilvey and Bartolini (2018, p14), 'accepting ongoing tensions between intervention and relinquishment, care and containment.'

This has important implications for considering new approaches to (managing) 'wildlife in the Anthropocene' – namely, how to afford different degrees of autonomy to nonhumans in meaningful ways, relevant to burgeoning urban contexts. Rewilding need not be an ahistorical, anti-human practice, as is often the case with 'wilderness' (see Section 2.2). For this reason, Lorimer and Driessen (2014) suggest that more complex notions of spatial history are needed in order to understand rewilding's 'dynamic future pasts' (2014, p647) and redress the implied erasure of human history (Jørgensen, 2015). Collard et al. (2014, p323) recently argued that the pursuit of 'futures with more diverse and autonomous forms of life and ways of living together' must begin with a temporal orientation that reckons with the power of the past to shape (and constrain) possible future. Likewise, Braun (2015, p239) has argued that the Anthropocene calls for a non-linear conception of time, as something that flows 'toward us, from the future to the present', which avoids conservation dilemma based on knowing/predicting environmental futures (see Section 2.4.2).

Understanding the complex temporalities involved in rewilding practice (and conservation more generally) offers a way through certain impasses, being a historically-situated practice, with future-orientated 'aspirant ecologies' (Parkes, 2006). This thesis argues that if rewilding could be reconciled with the idea of 'entangled autonomy' it might offer the chance for more optimistic and flourishing ecologies within the uncertainty of the Anthropocene (Tsing, 2015).

In order to aid this reconciliation, this thesis argues for the inclusion of multiple natures and multiple knowledges in rewilding, made by diverse persons, including nonhumans. With this, it suggests a refocussed attention to place and its more-than-human place makers.

2.6.2 Places as entanglements

There has been a concerted effort to rethink place in geographical scholarship, in a way that scrambles the nature/culture divide and challenges early notions of place as largely static, stable and bounded. Recent interventions have rethought place using a relational lens, emphasising the way place comes into being through encounter and bodily experience (van Dooren and Rose, 2012; Casey, 1993, 1996). Relational understandings of place, like Doreen Massey's (2005), acknowledge the implicit and unavoidable connections to history (time) as well as to geography (space). Here, places are to be 'understood and embedded in broader histories and systems of meaning' (van Dooren and Bird Rose, 2012, p2). In other words, places come to be through specific (hi)stories, encounters, situated experiences: these are the things that animate place.

Places have thus been proposed as 'temporal processes where all manners of trajectories - of people, non-humans, economies, technologies, ideas, and more - contingently settle out into distinctive local patterns' (Jones, 2009, p25). This gives places a more fleeting nature, as what Amin and Thrift (2002, p30) call 'moments of encounter' and Massey (1999, p288) calls 'open articulations of connections'. Philosopher of place Edward Casey (1993, 1996) likewise argues that places are more than physical: 'A place is not a mere patch of ground, a bare stretch of earth, a sedentary set of stones' (1996, p132). Instead, places come to be through specific (hi)stories, encounters, situated experiences: 'places are formed between bodies and terrains that they inhabit' (van Dooren and Rose, 2012, p2). In other words, place is not a bounded entity that one can experience; rather, place emerges through the *experience* of encounter itself.

Senses of place and place-based knowledge can critically inform the priorities of different human groups, including 'what they choose to conserve, for how long,

and for whom' (Aisher and Damodaran, 2016; see also Adger et al., 2011). Adopting a place-based 'view from somewhere' (Haraway, 1988) that focusses on local interactions and the way different species 'become with' other species is a productive way of thinking through what *matters* when spaces are transformed in the name of conservation. But while there has been a proliferation of work to rethink place relationally, place is still largely understood from human-centric and stabilising framings, with little attention given to those 'other-than-humans' that also inhabit and give meaning to places (Metzger, 2014, 2015; Houston et al., 2017).

While early animal geographers attended to 'animal spaces' in cities (Philo and Wilbert, 2000) and political ecologists have centralised nonhuman life in their studies of the metabolic processes of the city (Gandy, 2015; Swyngedouw, 2006), little has been done to attend to the specific historical entanglements of (particular) humans/nonhumans in cities in ways that might actually 'animate the urban' as Barua and Sinha (2017) put it, and so 'elicit understandings of what urbanisation might entail and mean for animals themselves' (2017, p2). This thesis argues that attending to *place*, including those that *make place*, can offer a way of animating the urban: firstly by overcoming nature/culture binaries that have led to hierarchical understandings of life; secondly, by understanding urban wild spaces as more-than-human achievements; thirdly, by opening up a window to the past and the more-than-human histories that constitute urban places.

Following a relational framework, one of the main contentions of this thesis is that places are always already *more-than-human* – including the places of cities. Recent work in human geography, anthropology, and philosophy has attempted to emphasise the more-than-human dimensions of 'place'. Thom van Dooren and Deborah Bird Rose (2012) for example offer us (hi)stories of Flying foxes and Little penguins in Sydney to highlight the specific ways animals make their homes in the urban metropolis and, in doing so, render those places meaningful. Here, they recognise that 'the capacity to experience places as meaningful and significant is one that is shared well beyond the human species' (2012, p5). With

this, they suggest a notion of place as relationally constituted: 'that is, an understanding in which animals, sites, and stories all shape, and are shaped by, entangled and circulating patterns of intra-action' (2012, p1).

A relational lens permits an understanding of the city as a multispecies city, with a community of actors that lay claim to different spaces in different ways, constructing place(s) in the process. Here, places become a complex entangling of beings, bodies, habits and cultures (Ingold, 2000), embedded with human and nonhuman memories and meanings (Jones, 2013). What emerges from these shifts in conceptions of place, is an ethics of entanglement, which has also been described as an 'ethics of relationality' (Castree, 2013, p6). Attending to the multiplicity of bodies and voices in conservation networks and the multispecies communities they produce, involves what Haraway (2008, 2016) calls 'response-ability' after Stengers (2005), that is, the ability to respond to encounters with others and learn something new from them. This equally has epistemological implications – addressed further in Chapter 3.

2.7 Conclusion

This review has identified three key areas in which theoretical debates concerning 'conservation in Anthropocene' could be advanced. First, the discussion on Western philosophies of nature has highlighted the importance of challenging hegemonic understandings of 'the wild' – that is, what the wild is and where it might be found. The category of the wild has been critiqued from multiple angles in the academic literature – mostly in terms of the conflation of wildness with wilderness (see 2.2.4). However, few studies have looked at how the wild gets (re)invented in urban places and what environmental baselines are used. Moreover, only a handful of cases have tackled the question of wildness as 'nonhuman autonomy' and mostly in the context of European rewilding (Lorimer and Driessen, 2014; Prior and Ward, 2016; Bartolini and Desilvey, 2018 are examples). This knowledge gap is addressed through the thesis, detailing what the 'urban wild' means in the human-modified, heavily industrialised cities of Britain (RQ1, RQ2).

Secondly, this review has highlighted the need for more critical engagement on how decisions to 'renature' and 'rewild' are made, by whom, and to what end. Much of the academic literature on the socio-cultural aspects of rewilding has been largely theoretical, with only a handful of studies that critically examine the processes and decision-making practices of rewilding projects (Wynne-Jones et al., 2018, being a recent example). This is perhaps because of the limited number of rewilding projects that exist, but it is also likely due to the rapid pace at which they are being implemented (at least in the UK) – often without critical reflection. For this reason, the thesis aims to rework and expand questions of environmental participation, by examining where lines are drawn in urban renaturing projects and what the (exclusionary) effects are for both humans and nonhumans (RQ3). One of the critical contributions here will be about the relational (ethical, political) implications of constructing wild spaces in human modified systems (RQ4).

Finally, this review has identified a need to reconcile contemporary interests in renaturing with questions of (urban) space and place. While there has been much work to expand urban theory to incorporate nonhuman perspectives, detailing how nonhuman critters contribute to (and animate) the urban, these have not yet been applied to questions of nature conservation. Drawing on more-than-human approaches, this thesis aims to build a richer understanding of how 'shared space' is made and experienced by different actors in urban multispecies settings. This contributes to the overall aim of this research (the implications of urban renaturing for multispecies relations) by *grounding* nature-based interventions, to ensure that what *matters* for both human and nonhuman subjects is brought to the fore when spaces (and places) are transformed in the name of 'wild nature'.

Chapter 3. Research design and methodology

3.1 Introduction

To explore the implications of 'renaturing' for multispecies relations in urban Britain, this thesis draws on empirical investigations at two case study sites. Section 3.2 outlines the overall methodology, detailing how textual and observation data were qualitatively approached. Reflexively, I link this description of my methodology to the conceptual resources outlined in Chapter 2 (Literature Review). Section 3.3 introduces the case studies and explains the rationale for their selection, while section 3.4 details and justifies the range of methods employed. Section 3.5 then reflects on my own positionality in relation to my research and my personal and practical experiences of carrying it out. This naturally raises some important ethical questions for the research.

3.2 Ontology and epistemology

The question of knowledge is important to this study. The way knowledge gets produced in/by society directly structures understandings and experiences of nature and therefore the logics and rationales that are deployed to *conserve* nature. Scientific knowledge, particularly, has power: it can justify and impose regulatory visions of global planetary management; it can underpin and operationalise decisions about the value of nonhuman life, determining who lives, where and in what condition. As Chapter 2 intimated, I understand science, including social science, relationally: as a set of situated activities and interactions with other humans, nonhumans and technologies. The methodological approach needed to reflect this; teasing out the visions and dilemmas of urban renaturing in ways that answered the research questions. Ideas from science studies are particularly helpful in this regard.

The project of 'science studies' (science and technology studies, STS) questions the assumed objectivity of Science (hence capital S) and the naturalisation of 'facts' within society (Latour and Woolgar, 1979; Hess, 1997; Latour, 1999). These variegated works attempt to integrate a political and cultural analysis of scientific

claims to nature to specify the cultural context within which natural science is made (Forsyth, 2003). Science studies questions the perceived political neutrality offered by science and indicates how scientific statements and institutions may reflect social and political influences. As Hess (1997, p1) puts it, 'Science studies provides a conceptual tool kit for thinking about technical expertise in more sophisticated ways. [It] tracks the history of disciplines, the dynamics of science as a social institution, and the philosophical basis for scientific knowledge…'. Detailed studies of pure and applied science show that science/scientists are not exempt from particular cultural practices and societal norms. Scientists become specific 'epistemic subjects' when they enter certain disciplinary fields or scientific communities (Cetina, 1999).

As there are multiple natures that circulate and fill this world (Hincliffe, 2007) so too are there multiple knowledges. It is now generally recognised that knowledge can only ever be partial and situated and that objectivity is impossible to achieve (Haraway, 1988; Valentine, 2005). For this reason, the research combines relational 'science study' approaches with critical reflexive approaches set out by (mostly) feminist authors (Haraway, 1988; Harding, 1991). It builds on the insights of Donna Haraway (1988, 1991, 1993) who engages with the primacy of (masculinist) rational accounts of the world, calling for a critical feminist science, seen as a:

> 'successor science project that offers a more adequate, richer, better account of a world, in order to live in it well and be critical, reflexive [of the] practices of domination and the unequal parts of privilege and oppression that make up all positions' (Haraway, 1988, p579).

For Haraway, research is not just about producing knowledges of (nonhuman) nature; knowledge needs to be accompanied by an *ethic* – that is to say, a way of questioning the power of our assumed knowledges. This means considering whose voice gets heard, how and why. Only in this way can scholarship truly demonstrate the way questions of 'nature' are embroiled within complex negotiations of colonial, gendered and racialised categories of difference (see also Fanon, 2004; Kosek, 2006; Ryan, 2000). Haraway (2008) even questions whether a

distant (objective) scientist, abstaining from any interference with the 'objects' of his/her study, will really produce better science. She gives the example of a researcher who was documenting 'natural' behaviour traits of Eburru Cliffs baboons in the Great Rift Valley in Kenya (2008, p23ff) and discovered that only by becoming more like a social being and less like a detached scientist was she able to gain the trust of the baboon group and gather the behaviour-data she had been hoping for:

> In this study, the researcher began by following the conventional scientific method, playing the role of the 'invisible observer' (watching from afar, being as neutral as possible). But her 'cover' was soon blown when the baboons reacted to her with hostility and aggression. So, she tried a different tactic: she began responding to the cues of the baboons; learning to send signals of emotion and intention back to them (effectively treating them as subjects). The result was that the researcher became 'recognised as a subject with whom they [the baboons] could communicate' (2008, p25) and so they started to relax in her company and 'carry on monkey life without a lot of fuss over her presence' (2008, p25). So, interestingly, '…only through mutual acknowledgement could the human being and baboons go on about their business' (2008, p25).

Knowledge, then, is less a case of observing and documenting some externally imagined world and, rather, an active engagement in the world. Truth-finding and genuine knowledge-building involve what Haraway (2008) calls 'acquiring a face' (2008, p25) in which all the actors (scientists, subjects) become who they are 'in the dance of relating' (2008, p25). Speaking of the work of Isabelle Stengers, Latour (2004a) suggests that 'the path to science requires… a passionately interested scientist who provides his or her object of study with as many occasions to show interest and to counter his or her questioning through the use of its own categories' (Latour, 2004a, p218; see also Stengers, 2000).

Information in itself is not knowledge, nor do we become more knowledgeable through its accumulation. 'Our knowledgeability consists, rather, in the capacity to situate such information, and understand its meaning, within the context of a direct perceptual engagement with our environments' (Ingold 2000, p21). In other words, genuine knowledge (that is, *wisdom*) comes from the ability to 'tune in' to the lessons that are there to be learnt or 'picked up' and relate these to the geographies, histories and political ecologies that surround them. For this reason, I opted for an *iterative-inductive* approach (see O'Reilly, 2012) to build hypotheses based on what I learnt in the field, grafted into rich and detailed accounts that were also reflexive in nature. This was not necessarily a linear process: intersubjective truths were ultimately negotiated out of the 'warmth and friction of an unfolding, iterative process' (Cloke et al., 2007, p170; see also Parr, 2001; Hoggart et al., 2002). But by working back and forth between documents and observations, artefacts and interviews, I was able to develop a strong understanding of what was taking place and why.

3.2.1 Ethnography as practice

Ethnography has long-been a staple of research in geography (Cope, 2009). Although it can be understood in a multiplicity of different ways, with some to its detriment (Ingold, 2014), this thesis understands ethnography as an approach rather than a method; a way of engaging in the world by 'watching, experiencing, absorbing, living, breathing and inquiring' (O'Reilly, 2012, p1). As a practice (that takes practice) ethnography worked exceptionally well for this research and its ambition to understand the (practical, experiential) implications of urban renaturing. With its emphasis on time-deepened participation, as well as observation and reflection, ethnography works to understand phenomenon 'from the ground' (Cook and Crang 1995; Laurier 2003).

Due to the time limitations of a PhD (constrained to one year of fieldwork, split between two case study sites) I had to be quite strategic in my decisions. The scope and intensity of the fieldwork was also partly dictated by the timeframe and rhythms of the projects. To manage some of these constraints, I found

multiple ways of embedding myself in communities and project processes, including volunteering and running participatory sound walks, as well as accompanying participants on everyday activities, such as fishing, bird watching or dog walking. This immersive approach allowed me to get close to the issues that were affecting lives (human and nonhuman) and provided an opportunity to witness the boundaries that were being constructed and transgressed by different actors, revealing a deeply entangled sense of place.

Relational ethnography

The ethnographic approach developed within this research was designed to mirror the overall theoretical framework (that agency is a relational matter; see 2.2.3). It was felt that a relational ethnographic approach would shed light on the multiple and complex ways in which humans and nonhumans are entangled in/with renaturing endeavours, recognising that nonhumans can also shape the personal and collective identity of human subjects (Anderson, 1997). Relational approaches generally avoid prioritising one actor-species over another, in a bid to see the 'whole network' (Ingold, 2000). There are challenges with this (discussed below) but the overall purpose is to illustrate the multiplicity of nature while also teasing out the localities, the 'heterogeneous, overlapping, and shifting ways of imagining and inhabiting our living world' (van Dooren, 2015, p8).

Relational ethnography, as identified by sociologist Matthew Desmond (2014), speaks to the 'relational turn' in the social sciences that paved the way for new methodologies that examine the interactions and transactions between multiple actors (Desmond, 2014, p574). It gives ontological primacy, not to groups or places, but to configurations of relations. Desmond finds that the purpose of relational ethnography 'is to get a little closer to the thing entire, to view processes from multiple and even opposing perspectives, to follow – and not just theorise – broader relations of power' (Desmond, 2014, p559). For Desmond, relational ethnography involves making 'the field' the object of study: 'fields rather than places, boundaries rather than bounded groups, processes rather than processed people, and cultural conflict rather than group culture' (2014, p560).

One of the challenges with this approach is that everything is related, so it is necessary to be clearly guided by research questions in order to know when to 'cut the network' (Strathern, 1996). For me, this meant going to those activities that shed new light on the problem of 'conservation in the Anthropocene' so as 'to witness the clash first-hand' (Desmond, 2014, p559). At first, ethnographic research was designed around observing projects and project processes (decision-making, practical activities) but it soon became clear that place (and multispecies place-making) was equally important, and it was through renewed attention to place that I was able to refine the research questions further and go to the heart of the matter.

Multispecies ethnography

Broadly speaking, the project of 'multispecies ethnography' seeks to do several things, including: to reconsider nature and society, to decentre the human in ethics and theory, to investigate science and technology and (in doing so) experiment with alternative epistemologies like affect (Deleuze and Guattari, 1989; Dewsbury, 2011) and non-representation (Thrift, 2008; Ogden et al., 2013; Vannini, 2014). In their stage-setting article, Kirksey and Helmreich (2010) identify the multispecies ethnography as a new genre of writing and mode of research. They recall accounts of 'insect love (Raffles, 2010), of delectable mushrooms that flourish in the aftermath of ecological destruction (Tsing, 2009) and of microbial cultures enlivening the politics and value of food (Paxon 2008)' (2010, p545). In this research, taking a multispecies ethnographic approach enabled a better understanding of how places were produced and experienced by multiple actors in relation – woven together with textual and contextual data, which provided spatiotemporal depth and richness.

I began by taking a broad taxonomic scope of inquiry, focusing on the 'network' that was made visible (and audible) to me at the time. I did this with an awareness that 'multitudes of lively agents [will] bring one another into being through entangled relations' (van Dooren et al., 2016, p3). Here, the 'network' is not an abstraction from the world (as ANT accounts tend toward; see Chapter 2), but rather a reminder that humans, plants and animals are all members of a global

political ecology and thus have power (see, for example, the ethnographies of Fuentes, 2010; Lowe, 2006; Bird Rose, 2011; Tsing, 2015) After a period of in-depth observation (discussed further in Section 3.4), certain multispecies assemblages emerged as essential places to focus the research because of their cultural-political enrolment into (or transgression of) the 'wild work' enacted through case study projects.

As Chapter 2 (Section 2.6.3) highlighted, too often nonhuman subjects are merely 'placed' by the social sciences and humanities as a sign or symbol, not as a material co-author of life, memory and landscape (Buller, 2014a, 2015). For this reason, I developed a multispecies methodology that acknowledged the importance of 're-politicising animals as bodies and voices' (Johnston, 2008, p634). I took inspiration from (mostly) geographical interventions that combine non-representation theory (Thrift, 2008; Vannini, 2014; Harrison and Anderson, 2010) with questions of politics and place (see Buller 2014a, for a review). These works attempt to 'enliven' and 'animate' accounts of space and place, as well as to politicise them, for instance by demonstrating how creatures are critical to the very construction of rurality, urbanity, and place-based identities (for example, see Waley, 2000 on salmon in Japan; H. Lorimer, 2006 on reindeer in Scotland; Barua and Sinha, 2017 on New Delhi macaques).

Saying this, I took a cautious approach with my ethnographic work and tempered reflections on my own 'embodied' encounters (Johnston, 2008; H. Lorimer, 2010; Lulka, 2004) and 'affective/emotional' registers (Jones, 2013; Nosworthy, 2013) in order to allow the political/ecological voices of more-than-humans to speak. For what makes the multispecies ethnography unique is its ability to situate accounts in wider contexts of ecological concern, keeping the 'forces of history, political economy, interindividual relationships, and culture clearly in view' (Fuentes, 2010, p600). While non-representational accounts can (and do) indeed rupture, resonate or otherwise enliven so-called 'matters of fact' and make them 'matters of concern' (Latour, 2004b) they do not necessarily make them matters of *political* concern – and this appeared to be a common gap in the literature.

Therefore, in order adequately to respond to the aim of this research – namely, the implications of urban renaturing for human/nonhuman relations – a twofold approach was needed, firstly to 'animate the urban' (Barua and Sinha, 2017) and then to 'politicise the urban' by contextualising these non-representational findings. This is why the research uses a mixture of document analysis, interviews, observations, historical research and sound methods (outlined in 3.4).

3.3 Case studies

The decision to take a case study approach was guided by the interests of the research. The case study is a *form* of inquiry that investigates contemporary phenomena in relation to contextual conditions, in order to illuminate a decision or set of decisions: why they were taken, how they were implemented and with what result (Yin, 1994). By being part of a case study, interviews and observations (ethnographic research) can be contextualised and used in conjunction with other documents and artefacts. This was precisely why a case study approach worked for this thesis: it offered a way of attending to *place* and *project* in equal measure, weaving together (con)textual data and contemporary findings.

In order to investigate the (ethical-political) implications of urban renaturing, I identified live (current) projects whose interventions were disrupting/transforming ideas and senses of place and nature. As Chapter 2 outlined, nature-based interventions (whether understood as conservation, restoration, renaturing, or rewilding) immediately signal a particular spatial imagination that reconceptualises multispecies relations. Such reconfigurations have important consequences for those involved, so it was important that projects offered opportunities to reflect on the complex relations of power, expertise, care and curiosity –witnessed in detail and ideally from the start. In addition, I selected sites where there was an existing sense of place and ownership (both human and nonhuman) in order to understand precisely how multispecies relations were challenged, produced or disrupted. I therefore chose public spaces where I could access a range of user groups and/or decision-makers.

3.3.1 Selecting case studies

Deciding on case studies was an important part of the learning process. Before sites were selected, the overall research aim was clear: to investigate the implications of urban renaturing for multispecies relations. However, the inquiry remained open to the ways in which case studies would open up new lines of enquiry or offer a means to identify critical research gaps. After conducting desk-based research, it was clear that there was no one 'critical case' that could stand for all cases of renaturing in the city and, as Yin (1994) observes, 'the rationale for a single case is when it represents the *critical case* in testing a well-formulated theory…to confirm, challenge or extend the theory' (Yin, 1994, p39). As Chapter 2 demonstrated, nature-based practices are highly diverse, and especially so in urban environments. Therefore, two case studies were chosen, which enabled a certain amount of analytical generalisation (Curtis et al., 2000) by providing gentle points of comparison, thereby avoiding purely idiosyncratic conclusions.

The first case study (Walthamstow Wetlands, London) was chosen because it took place in a 'bounded space', which offered opportunities to consider how boundaries might be produced and crossed through urban renaturing (RQ3). It also offered an unlikely mixture of actors and practices, from angling and water production, to conservation and the 'visitor experience'. This allowed the 'multiple natures' involved in urban renaturing to be explored. It also represented a major transition from an industrial reservoir and fishery to an urban wetland for wildlife, which meant that understandings and senses of place were likely to come to the fore. In retrospect, Walthamstow Wetlands could arguably have been considered a 'critical case' for the way it became branded as 'the largest urban wetland in Europe' (Walthamstow Wetlands, 2017). However, I had to discover what the label meant for different actors, and the scale of the project only became apparent during the fieldwork. Fortunately, the case study project was identified a year before its public launch, which meant that there was enough time to witness and understand any tensions that unfolded.

The second case study (Active Neighbourhoods, Ernesettle, Plymouth) was selected because of the emphasis on creating a 'shared space' for people and wildlife in the city, working directly with local communities. The project was also interested in introducing 'micro wilds' to the city (plants and pollinators), which provided an interesting counter to predominant rewilding interests – namely, the emphasis on large mammals (Lorimer et al., 2015). Active Neighbourhoods was conducted in collaboration with UK charity Buglife and their project 'Urban Buzz' to deliver wildflower meadows across the city of Plymouth. This allowed me to situate the case study within wider (national) interests for 'wilder cities'. It also offered an interesting contrast to Walthamstow Wetlands, being located within a residential housing estate and the implicit emphasis on 'community'. On a practical level, the timing of Active Neighbourhoods coincided with the years of the PhD (2015-2018), which meant that it was possible to 'follow' the project throughout.

3.3.2 Situating case studies

The two sites offered different insights/angles on common themes, issues and discursive ideas, which enabled different possibilities for understanding urban renaturing schemes. Perhaps most importantly, drawing on two projects belonging to two different places revealed the importance of context when considering questions of urban renaturing. At a basic level, the study sites themselves were different, with unique environmental histories and so unique 'baselines' with respect to the urban: Walthamstow Wetlands was situated not far from the centre of a fast-paced, rapidly growing cosmopolitan city (London) and Active Neighbourhoods was situated on the fringes of a provincial city in the south-west of England, in an area that is still recovering from the effects of deindustrialisation (Ernesettle, Plymouth). In addition, the projects themselves were very different: they drew upon different logics and rationales for their interventions; they emerged from (and were responding to) very different socio-economic contexts; their decision-making structures were organised differently, with different ideas of 'local participation'. These elements had a direct effect on the way 'renaturing' was conceived and enacted.

3.3.3 Case study 1: Walthamstow Wetlands, London

Walthamstow Wetlands is a partnership project between Waltham Forest Council (WFC), London Wildlife Trust (LWT) and Heritage Lottery Fund (HLF) whose purpose is 'to transform the site into a distinctive urban wetland reserve, with improved access to natural, industrial and social heritage' (Vestry House Museum, 2016). It takes place on a historic reservoir system (Walthamstow Reservoirs) in north-east London that still performs a critical role in supplying 3.5 million households (30% of London) with water (see Figures 3.1 and 3.2).

Figure 3.1 Locator map of Walthamstow Reservoirs, Lea Valley in relation to London and the UK (Source: D-maps)

The reservoirs also constitute the largest fishery in London and what is considered 'one of the best fisheries in the South East of England' (Vestry House Museum, November 2016). Recast as Walthamstow Wetlands, the site opened to the general public in November 2017, providing visitors with 'free access to its natural, industrial and social heritage…in the midst of a densely populated and urbanised part of London' (WFC Planning Committee meeting minutes, June

2014). The site is two miles long by one mile wide and there are ten reservoirs in total, comprising of 211 hectares. Reservoirs No 4, No 5 and East Warwick reservoirs have historically been used primarily as a trout fishery (see Figure 3.3). The reservoirs continued to be a fishery and operational water supply site after the establishment of Walthamstow Wetlands.

Figure 3.2 Aerial view of Walthamstow Reservoirs within the surrounding London boroughs of Hackney, Waltham Forest and Haringey (Source: Digimaps)
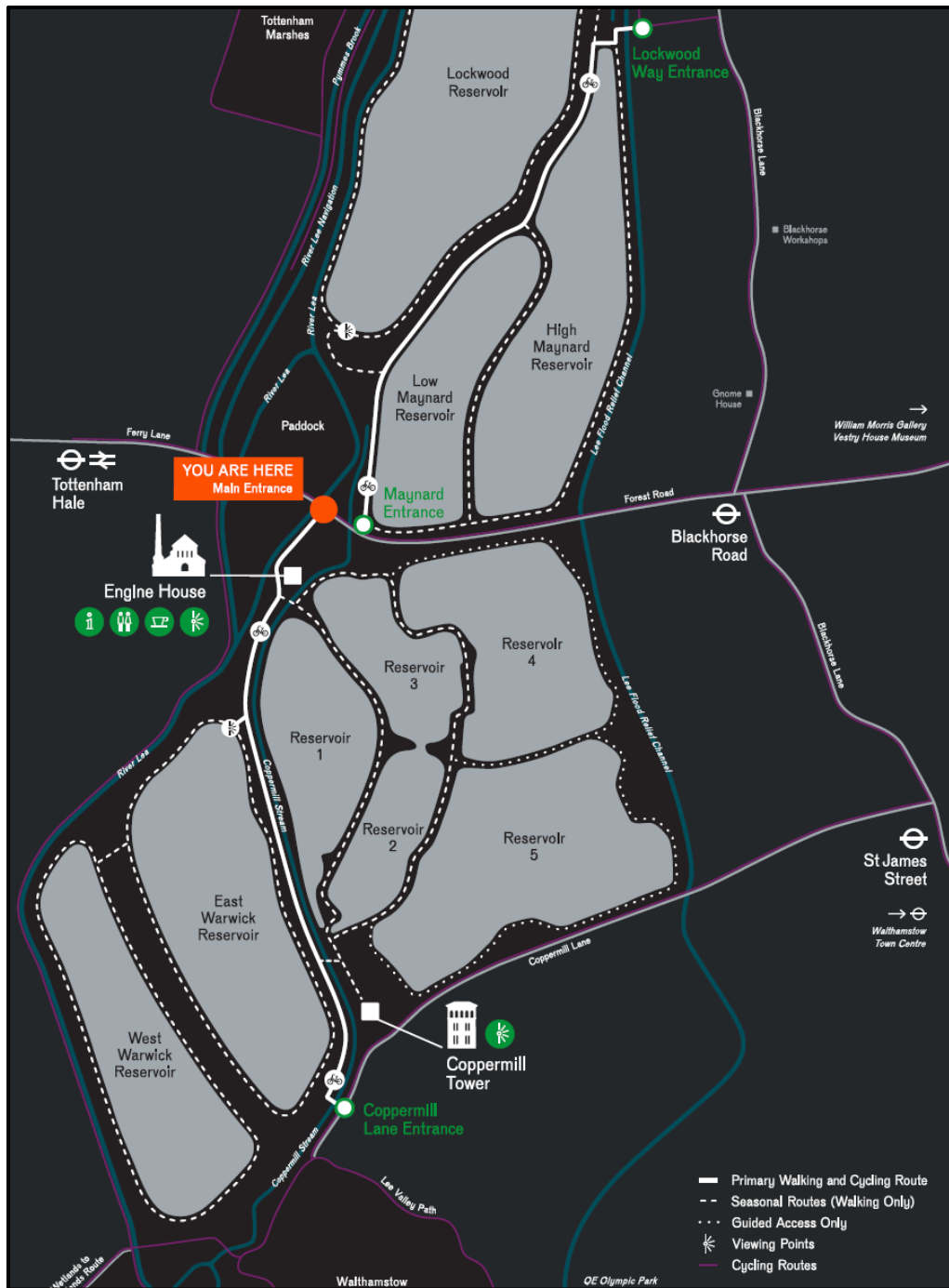
Figure 3.3 Map depicting the ten reservoirs. The reservoirs below Blackhorse Road were the primary focus of the project (Source: Walthamstow Wetlands).

Walthamstow Reservoirs – a brief history

Walthamstow Reservoirs has a heavily industrial past and the project leaned on this in different ways. The reservoirs were first built by the Victorians in response to London's burgeoning population and contaminated water supplies that

resulted in several lethal outbreaks of cholera that killed thousands (Vestry House Museum, 2016). Most of the ten reservoirs were dug by hand, while Lockwood Reservoir, the last and largest of the complex to be built, was a far more industrial operation: 1,250 men, 50 horses, 20 miles of railway tracks, 14 steam cranes, twelve steam pumps and eight locomotives (Vestry House Museum, 2016). The production of a clean supply of water for London has always been the priority of Walthamstow Reservoirs – from its first owners, The East London Waterworks Company in the mid-1800s, to its current owners, Thames Water (TW) (Vestry House Museum, 2016).

Over the years, the landscape surrounding Walthamstow Reservoirs has dramatically changed. Historic records reveal that the River Lea was an immense, fast-flowing river (perhaps reaching over a mile wide in places during Mesolithic times (Lewis, 2017, p20) and that the local area was once part of a vast primeval mosaic of forests and marshes. Victorian excavations at the reservoirs identified abundant driftwood and beaver remains, suggesting that at some point the tract of forest was flooded by beaver dams (Corcoran, et al., 2011, p10). During the first excavations in 1901, geologists also found bones of wolves, ox, bison and boar, as well as weapons from across the ages, from prehistoric flint arrowheads to Bronze Age daggers, to Anglo-Saxon swords and boats, indicating that this watery landscape saw its share of conflict and bloodshed (Vestry House Museum, 2016; Figures 3.4 and 3.5).

Figure 3.4 Geologists' Association visiting Lockwood Reservoir excavation 1901 (Source: Vestry House Museum, 2016).

Figure 3.5 Anglo-Saxon boat burial c.950 AD found in 1901 Lockwood excavations (Source: Vestry House Museum, 2016)

Today Walthamstow Reservoirs is a multifunctional site for water production and fishing. Anglers are one of the key user groups and will be regularly referred to throughout this thesis. Walthamstow Reservoirs has been London's largest fishery since the 1950s (see Figure 3.6). Before the Reservoirs were formally made into a fishery and stocked with fish, it is likely that anglers were already using the site, catching fish that had entered the reservoirs via the underground network of tunnels linking the site to the River Lea and its tributaries (Thames Water, 2017). There were approximately 19,000 visitors to the reservoirs per year but this figure was expected increase to 250,000 per year in the years after Walthamstow Wetlands launches to the public. Prior to the project, anglers represented approximately 80% of visits, while mostly birdwatchers made up the remaining 20% (London Wildlife Trust, 2014a).

Figure 3.6 Coarse fishing at Walthamstow Reservoirs (Source: Walthamstow Wetlands)

Project background

Walthamstow Reservoirs provides a home in the urban metropolis for many species. After the Second World War, a number of rare and vulnerable birds took up residence at Walthamstow Reservoirs, utilising the 'quiet location' they offered within the wider Lea Valley landscape (Vestry House Museum, 2016).

This has led to the reservoirs being attributed with several conservation designations. The site was recognised nationally as a Site of Special Scientific Interest (SSSI) in 1986, the citation for which states that 'Walthamstow supports the most notable variety and numbers of breeding wetland birds among all of London's drinking water reservoirs' (Natural England, 1986).

Populations of wintering shoveler (*Spatula clypeata*), wintering cormorant (*Phalacrocorax carbo*) and post-breeding and wintering tufted duck (*Aythya fuligula*) all reach levels of national significance. The site was also recognised as one of the top five breeding sites for breeding grey heron (*Ardea Cinerea*) when it was designated, and other regular breeding birds include pochard (*Aythya farina*), great crested grebe (*Podiceps cristatus*) and coot (*Fulica atra*). In addition, Walthamstow Reservoirs makes up forty per cent of the Lea Valley's Special Protection Area (SPA), which was classified in 2000 for supporting rare and vulnerable birds listed in Annex 1 of the EU Birds Directive (2009/147/EC), including important wintering populations of Eurasian bittern (*Botaurus stellaris*), gadwall (*Anas strepera*) and Northern shoveler (*Spatula clypeata*).[25]

These are 'natural features' the project, Walthamstow Wetlands, is keen to maintain. In 2016, London Wildlife Trust, a UK conservation charity, took on responsibility for delivering the conservation aspects of Walthamstow Wetlands, as well as education and community engagement (Thames Water and Waltham Forest Council, 2014). While this can be considered the main 'intervention' phase, the vision for Walthamstow Wetlands dates back much further. In 2008, planners at the North London Strategic Alliance (NLSA) reignited a vision for the Lea Valley that was to evoke Patrick Abercrombie's original dream of a 'green lung' for London (Lea Valley Regional Park, 2016). From initial murmurings in boardrooms and speculative glances at maps and plans, the Alliance identified Walthamstow Reservoirs as the 'missing link' within the Lea Valley complex. At

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[25] SPAs are classified for rare and vulnerable birds (as listed on Annex 1 of the Directive) and for regularly occurring migratory species. All terrestrial SPAs in England are also SSSIs. The additional SPA designation is recognition that some or all of the bird species within an SSSI are particularly valued in European context and are subject to additional protection. (Natural England, 2009).

the same, London Wildlife Trust commissioned a report that found that 'reservoirs are perhaps the greatest under-utilised heritage asset in the capital' (2008; referenced in London Wildlife Trust, 2014a).

From these early interests, the NLSA coordinated the three Boroughs surrounding the site (Hackney, Haringey, and Waltham Forest) to form a Steering Group with the necessary stakeholders: Thames Water, the official landowners of the site; Lea Valley Regional Park Authority (LVRPA) who manage the marshland surrounding the site; Environment Agency (EA) who have an interest in maintaining local flood defences; Natural England who oversee the site's ecological designations (SSSI/SPA); English Heritage who have obligations to protect the listed buildings on site; and Canal and Rivers Trust (British Waterways at the time), who manage inland waterways across England. Together they came up with a 'shared vision' to open Walthamstow Reservoirs to the public.

3.3.4 Case study 2: Active Neighbourhoods, Ernesettle, Plymouth

Active Neighbourhoods is a joint partnership project between Plymouth City Council (PCC) and Devon Wildlife Trust (DWT), with support from Plymouth Public Health and a range of community partners. Funded through the Big Lottery (£419,000 from the Reaching Communities Fund), the purpose of the project was to work with residents in some of the most deprived areas in Plymouth to improve local green spaces and encourage people to 'get active in nature' (Plymouth City Council, 2016b). Building on previous work within deprived communities (see for example, the Council's 'Stepping Stones to Nature' project, 2010-2013) the Council's aim with Active Neighbourhoods was to help people 'embrace healthier lifestyles and benefit from improved wellbeing through enjoying nature on their doorstep' (Plymouth City Council, 2016a).

The renaturing work consisted of different activities focussed on improving local green spaces for wildlife and biodiversity, including the introduction of new meadows, hedgerows, orchards, as well as changes to grass management regimes. These activities were designed to reinvigorate communities, using the

local environment as a place to 'reconnect with nature' and to improve physical health and mental wellbeing (Plymouth City Council, 2016b, 2016c). The ultimate hope was to improve 'social cohesion' and see that residents become 'active citizens, contributing towards and taking pride in improved local green assets' (Plymouth City Council, 2016b). Informal partners (to help deliver these works) included Buglife, Royal Society for the Protection of Birds (RSPB), Tree Council, Plymouth Community Orchards (PCO), Plymouth Environmental Action (PEA), and Ernesettle Environment and Preservation (EEP).

The project took place in Ernesettle, a residential housing estate located approximately 7km north of Plymouth city centre to the west of the River Tamar (see Figure 3.7). In 2013 it had a total population of 4,803, which according to Department of Environment, Food and Rural Affairs' (DEFRA) Rural-Urban Classification (2011) makes it technically a rural area, although it is part of the conurbation of Plymouth city which, with a population of 256,400 (Plymouth City Council, 2011), is an urban area within a mainly rural setting (DEFRA, 2011). While these simplistic geographical definitions mean little in ecological terms (see Chapter 2) they nevertheless had a bearing on how nature was imagined and remade through Active Neighbourhoods. The estate occupies an area of approximately 162 hectares / 06. Sq. miles of former farmland but is now a housing estate, interspersed with a Local Nature Reserve (Budshead Wood) and a County Wildlife Site that links the land to the Tamar estuary (see Figure 3.8). The farmsteads of Lower Ernesettle and Budshead and Budshead Mill are the only pre-war dwellings on the estate and are no more than ruins today.
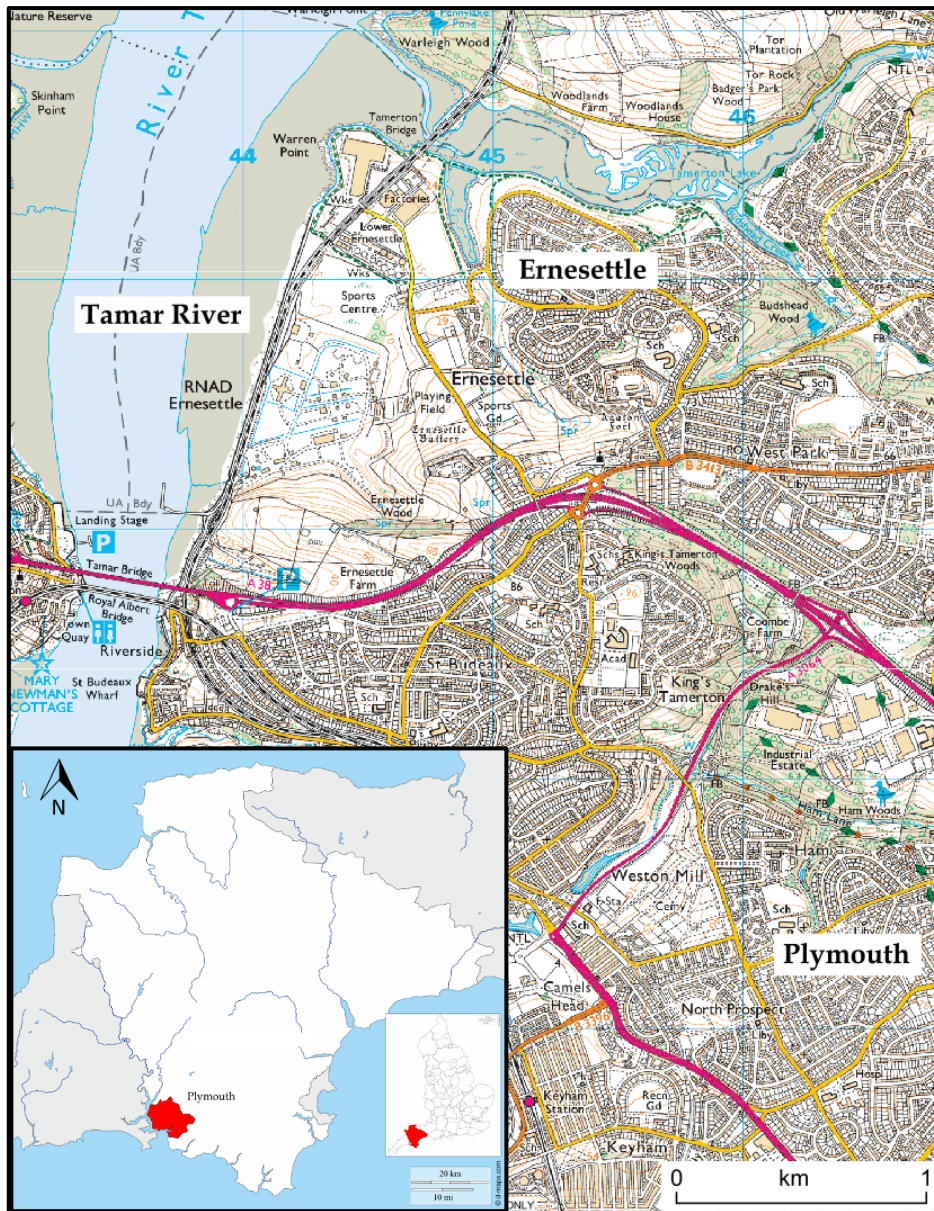
Figure 3.7 Locator map of Ernesettle, Plymouth in relation to Devon and the UK

Figure 3.8 Aerial view of Ernesettle estate surrounded by Ernesettle Creek, Tamerton Lake and the River Tamar

Ernesettle – a brief history

As the project took place *in residence*, people were very important. The early vision for Ernesettle as a 'community estate' heavily influenced the project Active Neighbourhoods and so it is helpful to allude briefly to it here. Built after the Second World War between 1948 and 1953, the estate of Ernesettle was established in line with the Labour Government's pledge to transform working class living conditions and support the population back to health after the Second World War. The original 1948 plan for Ernesettle included communal amenities to support Ernesettle's population from young to old: schools, a residential home for the elderly, churches, pubs, a community centre, shops (Kolinsky, 2016). Importantly, this health agenda included the provision of green space. Patrick Abercrombie's vision for Ernesettle was like many other post-war cities at the time: new roads are arranged in elliptical patterns around a central green, while

the houses on the outer circles look out towards the River Tamar beyond (Abercrombie and Watson, 1943).

According to academic and architect Jeremy Gould (2011) the design reflects Abercrombie's vision of new communities of a 'finite size surrounded by parkland or woodland, forming a natural extension of the city parks or of the countryside on which they would be built' (Gould, 2011, p41). Each community was surrounded by 'arcadian' wooded valleys, open for recreation, while planners ensured there was generous provision of more communal greenspace among the houses in the form of small greens or in, the case of Ernesettle, 'village greens' (Gould, 2011, p45; see Figure 3.9). As local historian Hilary Kolinsky (2016) notes: 'For those who arrived in Ernesettle in the late 1940s and early 1950s Ernesettle was a paradise; its houses 'luxurious', its green spaces 'wide open' for sports and social events, its views towards the surrounding countryside generating a sense of openness and connection to the world beyond' (Kolinsky, 2016, p15).

Figure 3.9 Ernesettle estate with central 'village' green, August 2018

This early imagining of Ernesettle played a powerful role in the development of Active Neighbourhoods. Through the project, Ernesettle was framed within a narrative of 'deprivation' and this implied that Ernesettle was somehow felt to

not be 'living up' to the original plan that was set for it. Ernesettle was ranked one of the most deprived neighbourhoods in Plymouth in 2014 (Plymouth City Council, 2014).[26] Issues of deprivation have been coupled with (and arguably compounded by) a dramatic reduction in local services for Ernesettle in response to austerity measures initiated by the Conservation-Liberal Democrat government, formed in 2010. Even during the fieldwork period (2016-2017) Ernesettle's library was being closed down, shops were being boarded up, health and family services were running at reduced hours (field observations, 2016-2017). This stands in stark contrast to Abercrombie's vision for a thriving community estate on the edge of the city.

Active Neighbourhoods touches upon these complex and interrelated issues through the project of 'renaturing', with its ambition to revitalise the estate and inspire its residents to enjoy and take ownership of local green spaces (discussed further in Chapter 4). The estate's 'unique location' on the Tamar estuary combined with its 'wide open spaces' were framed as important 'natural assets' for Ernesettle (Plymouth City Council, 2016b, 2016c). Before Active Neighbourhoods even launched, Plymouth City Council recognised that one of Ernesettle's 'biggest assets' is its extensive open green space, but it felt that this space was 'underutilised' by residents (Plymouth City Council, 2007, unpaginated). In addition, the water spaces of Ernesettle were felt to be underutilised: 'Ernesettle has a poor relationship with its waterfront due to the location and impermeability of the industrial estate. Therefore, this waterfront location is not utilised by the residents' (Plymouth City Council, 2007, unpaginated).

Ernesettle is surrounded by several important conservation designations, which the project was keen to make visible. These include the Tamar-Tavy Special Area of Conservation (1994), the Tamar Estuaries Complex Special Protection Area (1997), and the Tamar-Tavy Estuary Site of Special Scientific Interest (1991)

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[26] A deprived area is conventionally understood to be a place in which people tend to be relatively poor and are more likely to face challenges such as ill health, lower educational attainment, unemployment, limited access to goods and services, and inferior housing (Plymouth City Council, 2016b)

(Figure 3.10). It has several important habitats including shallow inlets and bays, reefs, sublittoral sandbanks, as well as rare and diverse communities of seaweeds, salt-marsh grasses, vascular plants, Atlantic salt meadows and estuary invertebrates (Natural England, 1994; DEFRA, 2001). Its mudflats also support a variety of invertebrates at high densities, which are a vital food source for water birds, like the overwintering little egret (*Egretta garzetta*) and avocet (*Recurvirostra avosetta*). In fact, the area supports over 15% of the British overwintering population of avocets (Natural England, 1994; DEFRA, 2001).

Figure 3.10 Tamerton Lake at low tide. Ernesettle estate and factories in the background. By Crispin Purdye (Source: Creative Commons)

The area surrounding the lower half of Ernesettle estate – particularly along the edge of Ernesettle Creek ('the Creek' as it is locally named) and Tamerton Lake – was the focus for much of the renaturing work. This area is part of an official public footpath and was used by walkers and dog walkers (Figure 3.11; observations, 2016-2017). This path had clear views of the Tamar River and estuary, views that were seen by Active Neighbourhoods as important 'assets' for Ernesettle. Active Neighbourhoods was determined to make the Tamar

estuary visibly accessible, even if it could not make it physically accessible. The geographies of water and land were frequently alluded to in the project, often caught up with questions of accessibility/inaccessibility, which informed much of the scope of the 'wild work' that followed.

Figure 3.11 Ernesettle Creek, with the estate in the background – top right. (Photo by Lloyd Hunt/Flickriver.com)

3.4 Methods

The methods were specifically designed for the aim of this research to explore the implications of urban renaturing for multispecies relations. Four main methods were used: participant observation, in-depth interviews, document analysis and sound work. Each of these supported different aspects of the research aim, illustrating specific visions and dilemmas of urban renaturing and their implications for multispecies relations. The collection and analysis of data was an iterative one, working back and forth between observations and interviews, project documents and research documents, recordings and sonic practices. Each informed the other, as captured in diagram (Figure 3.12). For

instance, if a specific issue was alluded to in several interviews I would investigate further, either through documents, sound, or observation. This involved cross-cutting different data, and it was this 'cross-cut' that built (grafted) the relational ethnography earlier described (see 3.2.1). The methods described in this section (3.4) together contributed to the ethnographic work as a practice.
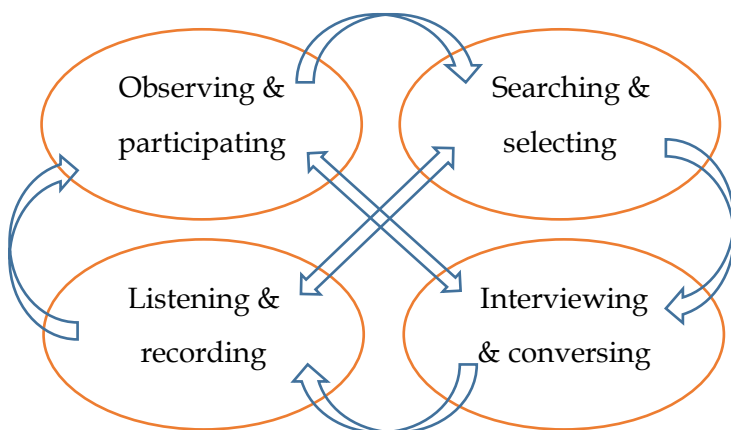
Figure 3.12 Representation of iterative approach, linking different research methods (Source: Cara Clancy)

3.4.1 Observing and participating

> '…to practice participant observation is also to undergo an education' (Tim Ingold, 2014, p388).

Participant observation was an effective way of exploring the dilemmas and entanglements that emerge when 'wild work' is conducted in specific urban zones. It is a central technique in qualitative research and has long-been a staple in human geography. It involves living and/or working within particular communities or settings in order to understand how they work 'from the inside' (Cook, 2005). As Cook (2005, p167-168) notes, participant observation 'Involves researchers moving between *participating in* a community – by deliberately immersing themselves in its everyday rhythms and routines, developing relationships with people who can show and tell them what is 'going on' there, and writing accounts of how these relationships developed and what was

gleaned from them.' It immediately involves the twofold task of observing-listening while, wherever possible, taking part in the 'normal' everyday activities of community participants.

Although my observations were guided by the research questions, I was also led from the field and open to surprises, as is often the case with an ethnographic approach (see 3.2.1) Having decided to 'do' a relational multispecies ethnography, my observations covered multiple interactions between different 'lively agents' (van Dooren, 2014), which meant that I often ended up with a lot of material. Not being a natural scientist, there was always a risk that my descriptions of nonhuman activities were inadequate, subjective or biased, having limited knowledge of animal behaviour. But as Section 3.2 discussed, knowledge is always situated and incomplete (Haraway, 1988). Conscious of these constraints – constraints simply being my situated 'view from somewhere' – I wrote 'thick descriptions' (Geertz, 1973) and sought expertise and further insight during and afterwards, to 'flesh out' animal lives as much as I could (further discussed in Section 3.5). As I became more familiar with the sites, patterns and themes began to emerge: I observed similar events (re)occurr and similar narratives (re)surface from different angles. It was a case of 'learning by witnessing' (Lorimer, 2010, p71).

Participating in a community or setting effectively means taking on a role in that community or setting (Ingold, 2014). Since the research was equally interested in projects and places, I had to strike a balance between observing/participating in official (project-led) activities and the regular day-to-day activities of community members or user groups. This meant my 'role' was not always immediately clear and I would often have to negotiate that role on the spur of the moment. At Ernesettle, observing and participating in projects was relatively straightforward: I was invited to join the steering group for Active Neighbourhoods as well as the stakeholder group for Ernesettle. This provided ample opportunities to witness how ideas unfolded and how different actors were inserted (or inserted themselves) into decision-making processes. I also had plenty of opportunities to get involved with practical field tasks initiated through

the project, whether it was litter-picking, planting trees, or taking part in educational activities and wildlife walks.

At Walthamstow, I began mostly as an observer: attending a series of public guided walks around the site, arranged by London Wildlife Trust. I recorded (or memorised) as much as I could from these walks because they became an important data source, not only providing me with background information on the site but providing an insight into how project staff were framing the site and its 'renaturing' intervention. After several months of attending these walks, I became a conservation volunteer with the London Wildlife Trust on site. This situated me more as a participant, although I would often tell the volunteer group about my research and explain why I might occasionally take written notes. While there were fewer opportunities to observe project meetings at Walthamstow (see Section 4.1 for reasons), I gained a strong sense of the internal mechanics of the projects just by being a regular volunteer, alongside those who were involved in decisions on site. In addition, I made a conscious effort to engage anglers in the research, aware that they were a key user group on site.

I was careful to document everything I heard and saw, making both written notes and sometimes audio recordings with the permission of participants, which I later transcribed (see Section 4.5). I noted the seemingly 'mundane' aspects of meetings or encounters, even the weather, the time of day, sounds and smells, atmospheres. My field notes were messy and incomplete, often captured in the moment, covered in mud and rain, but they helped me 'place' the event in enough detail so that, when it came to writing up, I could convey a vivid impression of actually 'being there' in the setting (Cook, 2005, p181) as well as what it was like to 'witness the clash first-hand' (Desmond, 2014, p559).

3.4.2 Selecting and analysing documents

Document analysis is a systematic procedure to elicit meaning and empirical knowledge from documents, whether they be diaries and journals, organisational or institutional reports, letters and memoranda, maps and charts (Bowen, 2009). This research took a critical approach to documents and secondary sources,

acknowledging that they are 'cultural artefacts, produced by administrators with priorities and ways of seeing the world' (Clarke, 2005, p58). This involved a twofold approach. Firstly, it involved treating documents as a means to corroborate and augment evidence from other sources (Yin, 1994; Corbin and Strauss, 2008; Bowen, 2009), for instance by using them to inform interview questions or lines of inquiry in the field. This helped build a background/contextual picture of the case studies. Secondly, it involved treating documents as a means to elicit and situate any assumptions that were made by project officials. This enabled a better understanding of *the way* information was being drawn upon, interpreted and used within urban renaturing projects.

Most of the documents I analysed were organisational and institutional reports. I developed a systematic procedure to tease out agendas, key narratives, and evaluate them critically (see Figure 3.13 as an example). This was an iterative process (Bowen, 2009) involving skimming documents (superficial examination), then reading (thorough examination) and then interpreting how and why certain rationales were being used for the projects. Once understood thematically, the content of these documents proved useful in participant observation situations and for pre- and post-interview situations, to cross-check interview data and vice versa. As Bowen (2009) suggests, 'Documents supplied leads for asking additional, probing questions. Information contained in documents also suggested events or situations that need to be observed' (2009, p36). The key was to remain critical at all times and remember that these documents were illustrative of wider political-economic and ideological agendas.
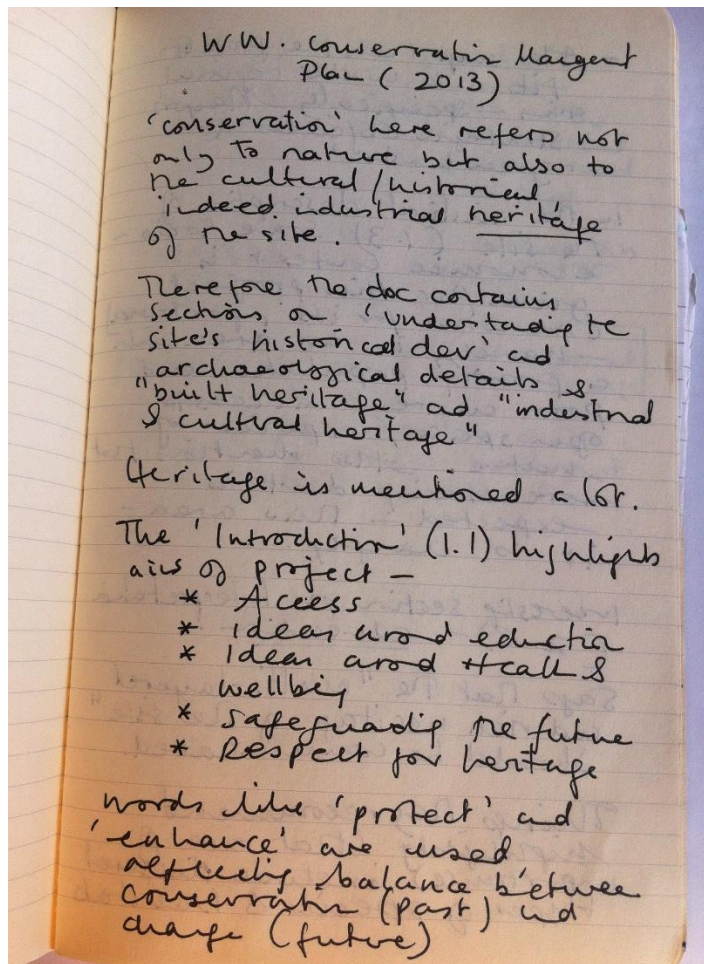
Figure 3.13 Analysing project documents, highlighting common themes

Some documents I sourced myself through archival research and internet searches. For instance, local authority meetings for Walthamstow Wetlands were often publicly available, published on the Waltham Forest Council website. Other documents were supplied though the projects themselves as 'internal' documents and these included site improvement plans and project communication strategies, as well as monitoring/evaluation reports. Other documents were unavailable or I was simply unaware of their existence, but what I gathered was more than sufficient to gain a strong sense of project visions, logics, rationales. I collected as many documents as I could access and decided to stop when I reached knowledge saturation point (Hoggart et al., 2002) where my returns on new texts had diminished to the stage of being largely uninformative.

In addition, this research analysed what public discourses projects were leaning on, in order to identify when and how renaturing in the city reflected wider

policy agendas at a local, regional and national level. This involved sifting through project reports, following up relevant references to local planning documents, green space strategies, biodiversity and conservation agendas. In addition to following up written references within reports, I also made note of how facts/artefacts were used by projects in the field. For instance, during meetings for Active Neighbourhoods, I noted the way photographs, maps and written historical accounts were used to inform renaturing practices, such as the establishment of orchards and the enhancement of hedgerows. Similarly, at Walthamstow, I noted how historical drawings and maps were used on guided walks to draw public attention to particular features on site. Most revealing was an official display of historical artefacts and 'facts' about the site (run through Waltham Forest Council; see Figures 3.14 and 3.15) which served to highlight what (hi)stories the project deemed important.

Figure 3.14 'Water and Life' exhibition, Vestry House Museum, Walthamstow, London, October 2016.
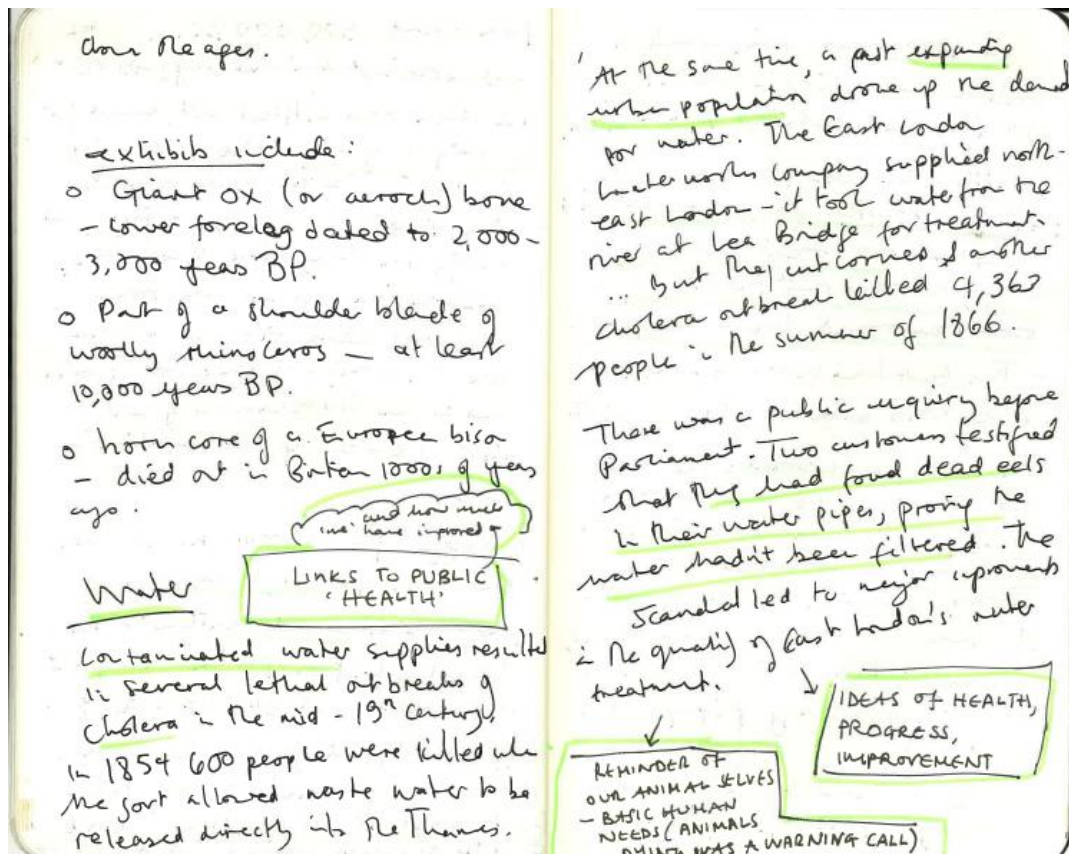
Figure 3.15 Field notes written during 'Water and Life' exhibition, Vestry House Museum, October 2016

'Water and Life' (October, 2016; see Appendix 1) was a public exhibition for Walthamstow Wetlands run by Waltham Forest Council. I felt it was important to capture how documents and artefacts were being used at the exhibition to highlight (and legitimise) project visions in the minds of the public. For although these documents and artefacts tell the history of the reservoirs, the *way* they are curated also reveals the *future story* of Walthamstow Wetlands, as envisaged by project partners (what architectural features they value, what recreational activities they admire, what wildlife or environmental history they wish to remember and so on). Interestingly, there is little literature on this approach to documents and document analysis. The majority of articles and texts on document analysis in qualitative research focus on the text itself, as a source of evidence that can (and should) be interrogated (Yin, 1994; Prior, 2003; Hoggart et al., 2002; Clark, 2005; Bowen, 2009) rather than the *use of the text* by institutions, organisations, groups, individuals.

3.4.3 Interviewing and conversing

Interviewing is a long-held staple in qualitative research, but choosing who to interview, how and why is important (Flowerdew and Martin, 2005). As part of the design process, I identified key stakeholder groups who would offer diverse insights on my research questions. These included decision-makers, field practitioners, and site users who had a stake in the project in some way, either because they were involved in its delivery or because they were at the receiving end of the intervention. Decisions regarding the recruitment of interviewees were sometimes constrained by who was willing to participate (Emmel and Clarke, 2009). However, as Valentine (2005) points out, 'the aim… in recruiting participants for interview is not to choose a representative sample, rather to select an illustrative one. Choosing who to interview is therefore often a theoretically motivated decision' (Valentine, 2005, p112).

Initial observational work (3.4.1) was a helpful way of identifying key actors and reflected a 'purposive sampling' technique (Sarantakos, 2005, p164-165), choosing interview participants based on my own judgement as to their relevance. I adopted a 'purposive sampling' technique (Sarantakos, 2005, p164-165), choosing interview participants based on my own judgement as to their relevance. This sometimes involved going through 'gatekeepers' (Cloke et al., 2004); at other times it involved 'stratified snowballing' (de Wit, 2012). While I did some advertising and online promotion, most participants were recruited through personal invitation (see Appendix 2). Figure 3.16 illustrates the main groups of interviewees that were targeted. Twenty-eight interviews were conducted in total, fourteen from each case study site. Of course, not all interviewees fell neatly into one category, and some wore two hats.[27] But they have been categorised in this way because they provide what Valentine (2005) calls 'illustrative cases'.

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[27] For instance, in Ernesettle, many of the project stakeholders were also residents, but they are categorised here as 'influencers' and 'decision-makers' because that was precisely what they were in relation to the project. Likewise, field practitioners at Devon Wildlife Trust and London Wildlife Trust were also 'influencers' because they provided feedback about the practical applications of the project to senior figures at the local authority.

Figure 3.16 Summary of participants interviewed

	Project **influencers & decision-makers**	**Field practitioners**	*Place* **residents and user groups**
Case study 1 (WW)	Waltham Forest Council (1) Thames Water (1) London Wildlife Trust (1) Lea Valley Park Authority (1) Thames21 (1) WW Mann architects (1) **TOTAL**: 6	Urban ecologist (1) BSG Ecology (1) London Wildlife Trust (2) Walthamstow Fisheries (1) **TOTAL**: 5	Angler (1) Resident (1) Bird expert (1) **TOTAL:** 3
Case study 2 (AN/EC)	Plymouth City Council (2) Plymouth Community Home (1) Active Neighbourhoods stakeholders (4) **TOTAL**: 7	Local youth workers (2) Devon Wildlife Trust (1) Buglife (1) **TOTAL:** 4	Resident (2) Bird expert (1) **TOTAL:** 3

Semi-structured interviews were used to give interviewees the freedom to organise their own opinions according to their specific experiences and interests (Flowerdew and Martin, 2005). Semi-structured interviews, as Valentine (2005) puts it, 'take a conversational, fluid form, each interview varying according to the interests, experiences and views of the interviewees. They are a dialogue rather than an interrogation' (2005, p111). Interviews with key stakeholders

(Figure 3.17) permitted an understanding of how these individuals made sense of urban nature and how they valued and experienced the case study settings. The research developed a set of broad themes for all interview participants, and then tailored specific questions that would speak to the individual's role or relationship to the projects. For decision-makers the questions focussed more on the project and its processes, while for residents and user groups the questions were more about the place itself. These decisions were guided by the research aim and theoretical framing (Sarantakos, 2005).

Interviews normally lasted between 1-2 hours and took place in a location that was meaningful to the participant. There is a growing recognition that attending to the location in which interviews take place is important (Elwood and Martin, 2000; Anderson, 2004; Holton and Riley, 2014). In a study such as this where place and participation are central themes, it made intuitive sense to offer participants a choice as to where the interview was conducted. Most opted for places that were familiar or where the surroundings were relevant to the topic being discussed (Kvale, 2007). With many participants, this research took inspiration from recent interests in mobile interviews, including go-alongs (Kusenbach, 2003; Middleton and Yarwood, 2013) and walking interviews (Brown and Durrheim, 2009; Holton and Riley, 2014; Jones et al., 2008).

Mobile interviews worked well for with birders and local naturalists as well as ecologists and other wildlife experts who felt more comfortable being interviewed 'on the move' where they could point out different features and creatures while being asked interview questions. They also worked for residents and user groups who preferred to be interviewed during their regular routine, for example, dog walking. These emplaced and mobile interviews, almost always conducted outdoors, tended to elicit the more affective and emotional aspects of their relationships with the local area – something that was factored into the analysis (Evans and Jones, 2011). In my interviews, conversations would invariably turn to the place itself, with participants offering information on specific buildings or environmental features as we overlooked them or passed

them by. This seemed appropriate for this study, which sees place and person as inextricably linked.

In addition to these interviews, I held over fifty purposeful conversations with existing user groups from across the two sites. These informal exchanges were often the start of more long-term relationships with particular users on site and they worked well for (what I initially considered to be) 'hard to reach groups' (Emmel and Clarke, 2009, p10). This was a particularly important strategy for anglers at Walthamstow who were reluctant to be interviewed for different reasons (see Section 3.5). However, they were more than happy to talk to me in a more informal/ad-hoc way (that is, not with an audio recorder) and let me use the material for my research. As soon as possible after the event, each interview/conversation was written up, with close attention paid to the memory of the encounter and to what else was happening and remained unsaid at the time.

Both interviews and purposeful conversations offered a chance to discuss particular events or practices and to hear participants' interpretation of what 'wild work' meant for places and individuals (human and nonhuman). They provided important background to places and projects, deeper insights into the ethos and ethical logics for renaturing spaces in the city, as well as some of the dilemmas and tensions with renaturing in the city. To fill any gaps, several interviews were conducted with 'fringe' actors who were not directly involved in the projects (either at a decision-making level or a field level) but who were developing or spearheading some of the science/practice in relation to urban renaturing. They provided insights on similar projects that were operating elsewhere within cities and/or provided relevant expertise in a particular field, such as urban wildlife or urban ecology. Five interviews of this nature were conducted.

The recruitment of participants in ethnographic research is often highly iterative (O'Reilly, 2012) and sometimes there are surprises. For instance, in the case of Active Neighbourhoods (Section 3.3.4) it was not expected that young people, particularly teenagers, would feature so heavily in local discourse about the

natural environment in Ernesettle. The research had not been designed to seek out these particular voices, since the focus was on the stakeholder group (Section 4.3) – and to do so at such a late stage would have felt somewhat tokenistic. However, once it became clear that the (hidden) presence of young people was important, participant observation proved an extremely useful way of exploring the issue further. In future research, it would be extremely productive to directly engage this age group in questions of nature, since there is clearly more debate to be had (see Chapter 7).

3.4.4 Listening and recording

There were several interrelated reasons for focussing on sound as a research method. The research was interested in providing a more-than-human perspective on what it means to do 'wild work' in the city, while recognising that humans and nonhumans are inextricably entangled. For this reason, it was important to find a way of bringing other bodies and voices into the frame and illuminating the *shared* lived experience. Initially visual methods were considered, but a solely visual approach seemed ill-fitting for the theoretical framing of the thesis. Western natural science has generally emphasised visual observation and abstraction as the truest method for perceiving the world (Haraway, 1988; Whatmore, 2002). This approach often involves the abstraction single components out of a larger context and has been criticised for produced 'tabular representations' of nonhuman life (Shiva, 1998; Plumwood, 2002; Whatmore, 2002). Whether in a map, painting or photograph, the 'nature' that is represented is often static and invariably cuts things out of the frame.

Instead this research was interested in 'hearing' nonhuman bodies and voices beyond the (Western) colonising gaze (Urry, 1992) and therefore within their intimate, intersubjective relations and dependencies. As Chapter 2 outlined, the activities of nonhumans are always part of a much wider ecology and so renaturing zones will always have 'lively' activities that proliferate beyond the realms of human influence and control (Collard et al., 2014). Sounds, particularly *soundscapes*, appeared an excellent means to capture these relations. According to

bioacoustician Bernie Krause (2002), exploring habitats sonically reveals how nonhuman territories are much more fluid and 'amoeba-like' than traditional visual representations suggest. Therefore, visual imagery was used in complementary ways, to highlight particular arguments and help the reader situate the sound recordings, rather than as a method in itself. As ethnographer Sarah Pink (2009) points out, the sonic can never be entirely separated from our other senses and so photographs became useful illustrative devices.

While methods involving image-based media are now well-established (Garrett, 2011; Lorimer 2010), sonic methods are still in their infancy within the social sciences (Gallagher et al., 2016). As a result, this research developed an approach to sound that worked for the overall theoretical framing and the specific ambition to include more-than-human perspectives on the subject of renaturing. The notion of 'soundscape' was a helpful starting point insofar as it works to situate animal lives within wider ecologies. The word 'soundscape' was coined by composer R. Murray Schafer to identify sounds that are pertinent to place, including a sonic identity or memory (Wagstaff, 2000). While this thesis adopts the term soundscape, I remained critical of the modernist equation of *scape* with the *scopic*, which 'reduces earthly murmurings to abstract 'vectors of projection'' (Ingold, 2011). The purpose of using soundscapes was not to totalise the environment but to hear things *in relation* and give them context. As such, the 'scape' of soundscape is understood as a lively shifting field, much like the understanding of place in this thesis (see section 2.6.3).

Soundscape ecology emerged as a scientific discipline in the 1970s with the aim of understanding more fully the effects of the acoustic environment on the physical and behavioural characteristics of those organisms living within it (Krause et al., 2011). It generally consists of mapping the spatial and temporal patterns of species' sounds in ways that can help explain their (changing) behaviour in a specific area. Sonic information gets coded into classification systems, which then inform biodiversity management more broadly (see for example Pijanowski, 2011). Although this approach has, in many ways, deepened current understandings of ecological issues and established visceral connections

to ecological data, as a scientific practice soundscape ecology can often overlook complex and dynamic ways in which 'sounds continually connect both the human and the nonhuman elements of daily life' (LaBelle, 2006; Boyd and Duffy, 2012; Duffy et al., 2016).

There is often a distinctly anti-human sentiment in soundscape ecology, underlined by a preference for 'pure' (natural) soundscapes. For instance, Schafer's early work (1969, 1977) developed a raft of theories concerned with how changes in the sounds of the environment impacted on psychological and socio-cultural wellbeing (see also World Soundscape Project). He suggested that certain 'artificial' sounds can have harmful effects on minds and bodies and scholars have since explored the need for managing these sounds in non-urban environments (Caffyn and Prosser, 1998; Miller et al., 2001; Waitt et al., 2009). Under the wing of ecology and conservation agendas, soundscape theory can apply value judgements to different sound-worlds: the soundscapes of 'remote' places of wilderness represent ecological health and purity, while urban landscapes comprise a world of sonic 'interference' (Krause, 2011).

Wildlife sound recording, which has a long-standing history in Britain (see BBC Natural History Unit), is also bound up with notions of the 'authentic' natural soundscape. For instance, wildlife sound recordist Richard Beard describes how recordists want to capture a 'clean sound' of birdsong wherever possible: 'Sometimes as soon as you press record they [the birds] go… you get a more authentic recording if you put the mic [microphone] in the middle of a bush and walk off' (Wright, 2007). Here, nature's authenticity is expressed in places where the human is not. These approaches are, according to Arkette (2004, p161), built upon an urban prejudice 'whereby industrial, commercial and traffic sounds are deemed sonic pollutants'. The ontological foundation for landscape ecology or soundscape ecology was therefore ill-fitting for this study. Moreover, the purpose of sonic investigations was to understand nonhuman experiences (modes of being) on an emotional or affective level rather than a purely scientific one.

This research was very open to exploring what it might mean to acknowledge (and actively include) human sounds and so-called 'sonic pollutants' in wildlife recordings, as vital parts of multispecies soundscapes. As I became more familiar with the sites, I started to notice that the sounds of creatures were often made in response to my human presence or that of those around me: alarm calls from birds, ducks flapping away, a rodent scuttling into the bushes. To edit out my (or any other human) presence from the recording would have been misguided. Richard Beard recognises this dilemma as he reflects on his own experience of producing soundscapes while sitting in a bird hide: '…the background noise is also part of that environment – planes overhead, your own noise – it's a reminder that the subject is present and also part of that environment' (Wright, 2007). Moreover, hearing the 'implicit entanglements' of humans and nonhumans had important implications for considering the (ethical-political) scope of urban renaturing.

Process of recording

The sound work involved a three-stage process and followed an iterative-inductive approach (Section 3.2) so as to keep an open mind (and ear) to the different sonic assemblages on site. The first phase of sound work was more exploratory, using the sound recorder as a means to explore the whole site (sonically) and develop my own 'sonic sensibilities' (Gallagher and Prior, 2017). I undertook multiple solo sound walks around both case study sites to expand my sense of listening (see Figure 3.17). I also conducted several collective sound walks with friends and residents, sound artists and bird recordists, which dramatically developed my own knowledge of sound and enabled me to discuss listening/recording practices with others (see Appendices 3 and 4). By the end, I had a collection of recordings featuring different sets of actors-in-relation. These recordings were taken in a fairly spontaneous way, following my ears much of the time.

Figure 3.17 Drawing of impressions from a 'solo sound walk' at Walthamstow Reservoirs, August 2017

The second phase was more analytical in nature. It involved reflecting on the material gathered so far and teasing out the key areas of interest. In most multispecies stories, there is a central actor who forms the starting point of the story, even when the overall ambition is a relational one. This includes, for instance, Barua and Sinha's (2017) account of the disruptive behaviours of urban macaques in Delhi, and Deborah Bird Rose's (2016) account of the precarious status of flying foxes in Sydney. To tell the right stories in adequate detail, I had to make critical decisions about where (and with *whom*) to place the focus (that is, the recorder) and investigate further. This involved critically examining and situating the sound recordings in relation to what had been learnt so far through observations and interviews. Once critical questions emerged in relation to specific multispecies dilemmas/entanglements, the sound work became more directed.

The third phase was about finding focus. It involved (re)recording particular species and their relationship to the local environment. The 'species stories' that were eventually selected were ones that provided critical insights into the research questions. For instance, the stories of geese and cormorants at Walthamstow Wetlands challenged conceptual and biogeographical boundaries and so suggested a possible response to Research Question 3. They were also embroiled in ethical-political controversies, which contributed a response to Research Question 4, as well as the overall aim. In Ernesettle, the selection was more complicated because the renaturing project was geared towards vegetation, which had less sonic presence (grasses do not vocalise, except in relation to wind). However, the pollinators that fed on local vegetation were more 'sonically visible', which supported Research Question 4 by illuminating relationships of dependency in shared spaces.[28] I would record for at least five minutes, more usually 10-15 minutes. I would listen carefully during this period and write notes on what I heard (the time of day, the weather, the atmosphere, who was within my vicinity) so as to situate the recording later. At the end of each recording, I took a photo in the same location as the recording, a visual prompt for later analysis.

Limitations/opportunities

There were clear limitations to the sound work, most notably around the accessibility of recordings sites, as well as the availability and quality of the recording equipment.[29] Moreover, it was almost impossible to plan the outcome of the recordings. Even when recording times were carefully planned according to the 'normal' habits and rhythms of species (gleaned through observation and local advice) there was never any guarantee the desired species would turn up. Upon listening back to the recordings, I found that many of the planned pieces (where I specifically set out to record a particular sonic assemblage) were

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[28] While it was difficult to record the entanglement of plants, people and pollinators, I nevertheless tried – and got some funny looks from residents in the process!

[29] For instance, I wanted to record Great cormorants on the islands at Walthamstow Wetlands but I was not allowed onto the islands themselves and so I had to record from a distance. Similarly, I wanted to record pollinators that were using the newly-established meadows in Ernesettle but my recorder was not sophisticated enough to pick up these 'micro' sounds.

unusable or simply failed to 'witness the class first hand' (Desmond, 2014, p559). Interestingly, it was the *unplanned* and *unintended* recordings that revealed the most (such as those used in Chapter 9). Sounds work reveals how research with wildlife is not a linear or straightforward process; much of the work is preparatory, attuning to the sounds of the place and improving one's sonic sensibilities (so as to be ready for surprises). It also reveals how research with wildlife is a highly unpredictable affair and never entirely on human terms – discussed further in Chapter 11 (Conclusion).

3.5 Reflexivity and positionality

There are several ethical considerations and issues regarding knowledge construction, power and positionality within the research process. As Chapter 2 indicated, it is now generally recognised that knowledge can only ever be partial and situated and that objectivity is impossible to achieve (Haraway, 1988; Rose, 1997; Valentine, 2005). Acknowledging and reflecting on knowledge construction, power and positionality is essential for understanding and considering the nature and validity of outputs arising from research observations and interviews. The following section firstly explains how I approached my data and made analytical decisions. It then works through my own visions, dilemmas and entanglements with respect to what I encountered in the field and learnt during the research process.

3.5.1 Assembling knowledge

A significant amount of empirical material was amassed through these methods. Because of the limitations of what a thesis can achieve, there was a need to 'cut the network' (Strathern, 1996) and signal the fact that relationships continued to unfold spatially and temporally beyond where this account ends. In some ways, the timing of my arrival and departure from the field demarcated the scope of the analysis, as well as the access granted to activities, meetings or documents. In other instances, there was a need to make active choices as to where to focus investigations based on the research questions. I took a fluid but grounded

approach to the analytical process, entering into 'an ongoing simultaneous process of deduction and induction, of theory building, testing and rebuilding' (Ezzy, 2002, p10). This meant going where the visions and dilemmas expressed themselves most fully, to see how they offered a deeper insight (or otherwise challenged entirely) the research problems being posed.

After the fieldwork period, the extensive array of collected data was organised and assembled, including recordings, transcripts, texts, journal articles, field notebooks, artefacts and photos that had been gathered over the previous year. These strands of data were uploaded onto NVivo and reorganised, both chronologically and thematically. The analytical process began with the identification of different topics that regularly appeared in the data, categorising these as 'topic codes' (Richards, 2005). The second stage involved mapping the various actors and categorising them into broad 'cases' based on the relation they had to the project and to the place. I then worked up from topics to themes, which involved more of an analytical step, keeping in mind the research question and conceptual framework of the study. No data was chopped up and divorced from context, which would undermine the ethnographic process (O'Reilly, 2012). Conversely, primary data was given more context, more meaning, by being cross-cut with different secondary sources.

Data was initially coded in terms of the *visions* and *dilemmas* of renaturing, within which there were multiple themes. In addition to NVivo, written notes and hand-drawn diagrams were used to aid the analytical process and identify the linkages between themes and processes, and the principal actors involved or implicated (Figure 3.18). This also involved identifying centres of power and asking agentic questions, such as 'what strategies do actors employ to do what they do?' (Lofland et al., 2006). Evidence and theory was worked together in an iterative and hermeneutic process, which involved listening to participant voices by reading and rereading transcripts/field notes, listening to sound recordings, writing memos, creating concept maps and chronological sequences of events. It also involved going back to the academic literature and seeing how the data spoke to it.
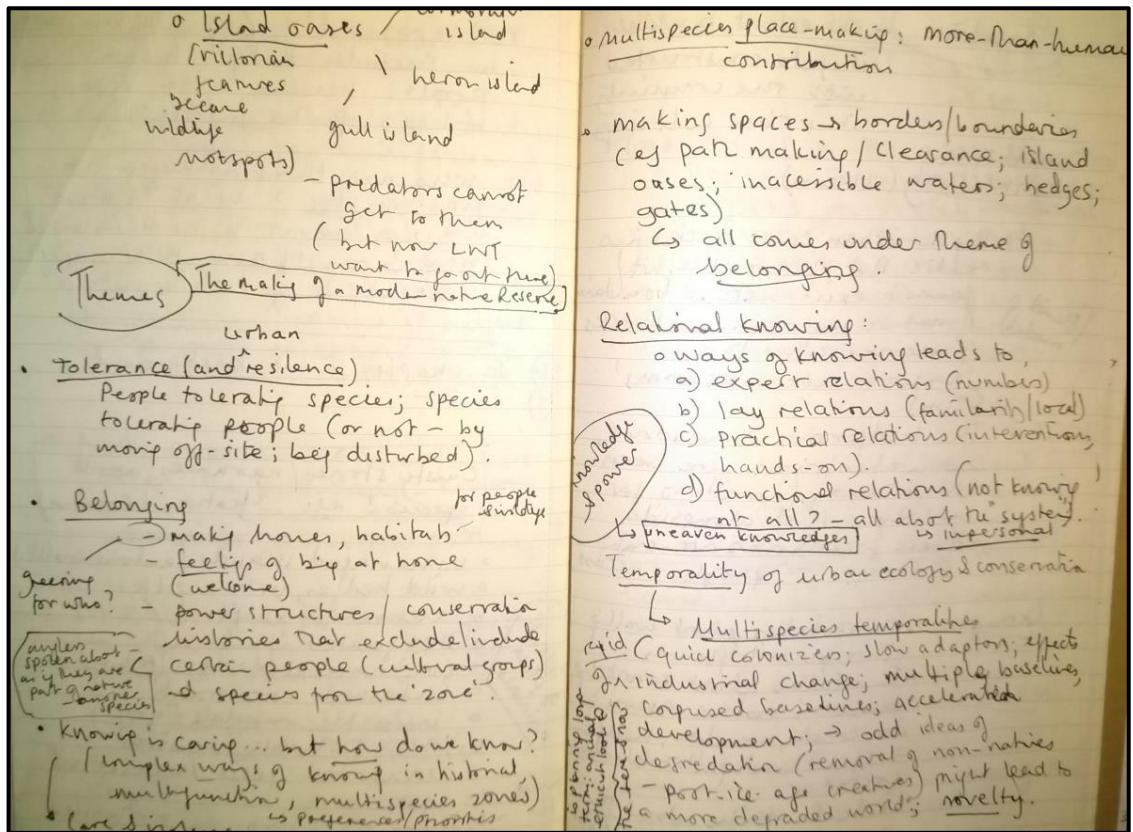
Figure 3.18 Drawing out and linking stories and themes

Working rich 'data' into a linear narrative (as the format of a PhD partially dictates) was not easy and the relational framework of the thesis seemed to resist it at every turn. The stories were about the relationships between people, places and nonhumans in renaturing contexts; to hold themes apart and systematise them in a linear fashion was unnatural to say the least. At first, I began writing chronologically but soon found the stories were expanding rather than closing-in, because it is always possible to go back further in time. Instead I began to write the stories in spirals; going straight to the centre of the research question and *writing out* from there (Figure 3.19). Points of contention became starting points. From initial murmurings spoken through the primary data, it was possible to enrich the visions and dilemmas of urban renaturing, deepening the spiral so as to make broader points about the import for multispecies relations.

Figure 3.19 Analytic process for linking themes, spiralling the story

3.5.2 Positioning knowledge

The following section illustrates how I positioned myself within/against my data and how this shaped the stories I eventually told. My background in wildlife campaigning meant that I was broadly familiar with key issues in conservation, and had developed a sustained interest in the socioeconomic and political agendas that were affecting wildlife and what was commonly characterised as 'human-wildlife conflict'. In the years leading up to the PhD, I began to engage in debates on rewilding in Europe. In 2014, I attended a conference at Oxford University called 'Megafauna and Ecosystem Function: From the Pleistocene to the Anthropocene', which included a presentation on the critical role of elephants in driving ecosystem dynamics in tropical forests by acting as seed dispersers. Elephants were spoken of in a way that was rarely heard in conservation circles at the time: in my former role at World Wildlife Fund (WWF), elephants were framed as intelligent, rare and charismatic but never as ecological engineers. This sparked further interests in the main themes that were underpinning rewilding debates (see 2.5.2), some of which were explored in the first year of research, including field visits to rewilding projects in the UK and Netherlands. An initial review revealed that few (if any) rewilding projects had (at that point) been

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initiated in urban peopled places. Considering the underlying interest of this research (the diverse ethical relations cultivated through renaturing/rewilding projects), I took a directional turn towards the urban.

Dilemmas

Given my background and personal interests, I entered the field with much enthusiasm for the renaturing projects that were taking place in case study sites. At first, my enthusiasm was interpreted as endorsement: for instance, projects would ask if I could supply them with quotes (gathered in the field) so that they could include them in their monitoring/evaluation reports. This required several conversations to clarify my role and relationship to the projects. It also meant learning how to step back and not become too immersed in the objectives of projects, so as to maintain clarity on my own objectives. This was essentially an issue of the observer-participant dynamic (O'Reilly, 2012, p86-98).

The dilemma of 'when to observe and when to participate' came to the fore with anglers at Walthamstow Wetlands. At first, anglers assumed I was working for the project (or was at least proponent of it) because of the timing of my arrival (I began fieldwork just as the project entered its final delivery phase before public launch). Anglers were reluctant to talk to me at first because of their concerns about Walthamstow Wetlands (discussed further in Chapter 4). However, my sound work on site oddly became a way of overcoming this barrier: anglers would often witness me walking independently (not with the project representatives) around the site, taking field notes and sound recordings. This prompted anglers to inquire about my study and, after recognising I was not a project representative, they would talk willingly and often at length, even inviting me to fish with them (see Figure 3.20).

Figure 3.20 Coarse fishing with George, Walthamstow Reservoirs, July 2017.

Maintaining a positive dialogue with the angling community led to more open conversations and meant that I gleaned insights that I would have otherwise missed. Anglers took a genuine interest in my project and very kindly introduced me to new people to speak to, new areas to visit and record, new lines of inquiry to follow up on. The more detail I gave about my own life, the more participants shared about theirs and their stories and memories of the reservoirs. Humour helped us build rapport, as did personal circumstance: I lived on a narrowboat on the River Lea in London and they found it amusing that I lived on a river but could not name a single fish in it. They also seemed bemused when I flinched and closed my eyes when they picked up worms and threaded them onto their fishing tackle – an act they saw as perfectly normal. Anglers made it their business to 'educate' me on 'matters of the water' and I spent many hours and days with them, learning about the reservoirs, openly, from the ground.

Openness continued into other participant observation practices. I took part in regular volunteering activities at both case study sites, overtly explaining my research to the group (Cook, 2005). During these sessions, sensitive decisions were taken on when it was appropriate to observe quietly and when it was appropriate to participate actively. At the start, I would write what I saw/heard at the time, flitting between observing and participating, but this was often quite challenging. Moreover, no matter how subtle I thought I was being, with my tiny notebook and pen, I was clearly conspicuous to others. During one lunchbreak, a volunteer said to me 'so are you observing us like scientists observe animals?' and I immediately felt embarrassed and ceased all writing that day. Rich data was gathered on these occasions, but mostly I decided to memorise what I heard/saw and write later, for really, it was 'the flow of observation and participation which [was] important' (Cook, 2005, p181).

The second dilemma concerned the ways in which my own assumptions about places were unsettled during the fieldwork period. This was particularly the case in Ernesettle. First impressions are often very telling in terms of the expectations of a place, including ideas about 'nature'. Before conducting the fieldwork, I had a preconceived idea of Ernesettle, based on what I had read, seen and heard. Despite once living in Plymouth, I had never been to Ernesettle before and I assumed that it would be a fairly generic working-class housing estate. However, I remember being struck by the multiple geographies that emerged, with different aspects of urban and rural. The diary excerpt below illustrates this.

Field diary, November 2016

I braved the winds and rain today and did a circular walk around Ernesettle. The geography of the place is fascinating. It's perched on the edge of a city, surrounded by fields, with views across to Cornwall. It seems to be a blend of urban and rural, I suppose like many fringe environments … To the south of the estate is a large sewerage works, several factories, and Plymouth city's biggest solar installation, which I'm told was built on a former landfill site – restricted from public use because it is a 'blast zone', designated

by the MOD armament depot as a safety measure… There is only one road leading into the estate and it circles in a dizzying fashion around the elliptical pattern of (very similar looking!) houses. The lower half of the estate is bounded by water. Walking along the empty shoreline, looking up the Tamar River, the city suddenly felt very distant. Ernesettle Creek is a beautiful tidal mudflat, with an edge of lumpy beds of vascular-looking plants. In the mist and rain it almost looked like the Amazon.

In Ernesettle, the research process involved reconciling my expectation of a 'typical' urban estate with the unique environment that continually surprised, as though the two were incompatible. This reconciliation reflected my own tendency to slip into dichotomous ways of thinking about space and place, no doubt because of the foundations of modern knowledge, grounded in Cartesian ontology and epistemology (see Chapter 2).[30] I quickly constructed Ernesettle as having a precarious geographical status: looking towards the city on the one hand, hanging on to rurality on the other. These were my imaginations (see Figure 3.21). Only later did I come to a more nuanced position. Historical research particularly helped me locate a more complex and entangled history of place that explained much of Ernesettle's contemporary identity. I abandoned simplistic labels such as 'urban fringe' or 'rural island', which arguably only arise when landscapes are understood as a collection of static 'features' (Ingold, 2011).

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[30] Working within the 'split discipline' of geography equally raises these challenges. As Jones (2009) remarks: 'Geography can be regarded as an unusual (and promising) discipline because of the way that it bridges between these two realms, dealing with both the "human" and the "physical". But this structure within geography is itself a symptom of the nature/culture world view.' (2009, p3).

Figure 3.21 Photograph of Tamar bridge from Ernesettle's shoreline, November 2017.

Entanglement

The final aspect of positionality and the positioning of knowledge concerns the webs of affective relations I found myself caught up in during the fieldwork period. I knew that I wanted to foreground nonhuman bodies and voices, but I had not anticipated them to appear to me in such a challenging and visceral way. There were two particular encounters that would have undoubtedly influenced my thinking on themes of shared space, inclusion and the question of the 'visitor'. Firstly, I felt very conspicuous on my first visits to Ernesettle: wearing a bright orange backpack and notepad in hand, I instantly felt like an outsider around the site's main user groups. On one occasion I was convinced the local dogs could smell my fear and 'out-of-placeness' since they would bark incessantly as I walked past, letting me know that this was their space and that I was an intruder. I even began to change my course to avoid them (see Figure 3.22). I had been so focussed on how to include 'wildlife' in the study that I had not anticipated that it would be a domestic dog that would make *me* feel like an odd wild figure, ready to be chased and hunted down. The experience helped me acknowledge

that Ernesettle was first and foremost a *home*, not a playground for wild imaginations or 'wild experiments' (Lorimer and Driessen, 2014).

Figure 3.22 Field notes of an encounter with local dogs, Ernesettle, April 2017

The second notable encounter was at Walthamstow Wetlands, where again I had not anticipated to be made to feel a visitor by a nonhuman animal. But this is how the Canada goose sprung its agency upon me. I had several goose encounters during the fieldwork period (2016-2017), many of which shaped my understandings of more-than-human territories and territorialisation. On my way to one volunteer session during the spring (April 2017) I stumbled upon a pair of geese settled along the path: I tried to give them a wide berth, keep to the other side of the path, but the larger of the two (presumably the male) stretched its neck and hissed at me. I put my rucksack to the front of myself to protect my body and quickly skirted past (field observations, April 2017; see Figure 3.23).

Figure 3.23 Field notes of an encounter with geese at Walthamstow Reservoirs

Equally during a site walk with representatives from London Wildlife Trust, I encountered a gaggle of geese, perhaps twenty or more individuals, who were clearly carving out that particular space as their own. They made loud 'barking' noises (much like the dogs in Ernesettle) and I immediately felt worried and made a move to avoid them. The group I was with decided it was 'all territory' and insisted that they were 'more frightened of us' and they flapped around, pushing back at the geese. The whole experience was unnerving and certainly put me in my place, reminding me that Walthamstow Wetlands was not just a 'visitor experience', it was a home.

Finally, to say something of constructing knowledge about nonhumans. This was by no means easy. It involved considerable background reading and conversations with those more well-versed in such matters, including scientists and field practitioners, hobbyists, naturalists and local experts. I wanted to do more than simply identify species: I wanted to say something about the *experiences* and *knowledges* of nonhumans and this involved a lot of subjective interpretation. My own knowledge gaps came to the fore when I started

analysing my sound recordings. I wanted to know precisely what I was hearing, why birds were making certain calls, what they meant. I spent a lot of time listening to bird calls online and researching their meaning. I sent my recordings to a few bird experts but getting responses proved challenging. With more time and perhaps within a collaborative research setting, I would bring together complementary skills and expertise for this interpretive process (van Dooren et al., 2016).

Power and knowledge

Based on my desk-based research prior to entering the field, I had made an assumption that there were very clear delineations between 'expert' knowledge and 'lay' knowledge. Based on the literature, I had assumed that conservationists and scientists were the 'experts' and would flaunt their expertise while user groups and community residents would be the 'unheard' voices. However, I was surprised to find that more 'elite' participants, well-educated, successful scientists and practitioners, were open and humble about their limited knowledge: they would openly admit that their knowledge was incomplete, that they too had preferences, based on where they trained and how they were brought up. Field practitioners were especially aware of being in a privileged position, having been given some 'lucky breaks' in their lifetime. This may have been because my interview approach was an open one: my genuine curiosity seemed to prompt participants to reflect and one practitioner even said after an interview, 'sorry for the life story, I just haven't spoken about this stuff in years'.

Equally, I was deeply impressed by the rich and detailed knowledge of so-called 'lay' participants. The angling community particularly: I leant on their knowledge and experience immensely for my understanding of more-than-human perspectives. They were 'experts' on the water, versed in underwater ecologies, in ways that conservationists simply were not. In addition, based on my experience within conservation NGOs, I had assumed that the project in Ernesettle would have been a typically top-down process, so I was quite surprised at how strong their voice was. I had almost entirely overlooked the power of the community in shaping urban renaturing – although *who* became

known as the community was of critical importance (discussed in Chapters 4 and 7).

Finally, to take this reflexive process on knowledge and positionality a little further, it is important to say that being broadly familiar with the case study areas (London and Plymouth) helped my research pragmatically, in terms of knowing the basic geography of these areas, as well as local politics and cultural norms. While at times this familiarity may have dulled my sensitivity to any extraordinary characteristics of the contexts I was working within (Laurier, 2003), I was constantly met with surprises because of the unique user groups at each site and because I understood my field sites as taskscapes (Dewsbury and Naylor, 2002) and my fieldwork as a 'process of engagement' (Massey, 2003) or 'co-fabrication' (Whatmore, 2003).

Figure 3.24 Fishing with Oldham, Walthamstow Reservoirs, October 2017

3.6 Conclusions

This chapter has brought together and cemented the epistemological approach of the thesis, selecting and developing methods that emphasised the relationality of humans/nonhuman lives and experiences, and teased out the narratives that

accompanied renaturing ambitions. Different methods worked for different areas of inquiry, as well as for different actors. For instance, since plants and animals could not be interviewed, systematic observation and sonic investigation were the central research methods, the findings of which were cross-cut with relevant secondary sources to provide further contextual understanding. Reformulating the model offered by Emmel and Clarke (2009) (see Figure 3.25) the methods broadly fell into two groups: methods to understand context and methods to understand the lived experience of participants, including implicated nonhumans. Collectively, these contributed to the relational 'multispecies' ethnography the research worked to produce.

| Interviews with decision-makers and project managers | CONTEXT | Document analysis (Secondary sources) |

Multispecies relations in/for urban renaturing initiatives

| Participant observation | RELATIONAL EXPERIENCE | Sonic investigation |
| | Emplaced/mobile interviews with site users, practitioners, residents | |
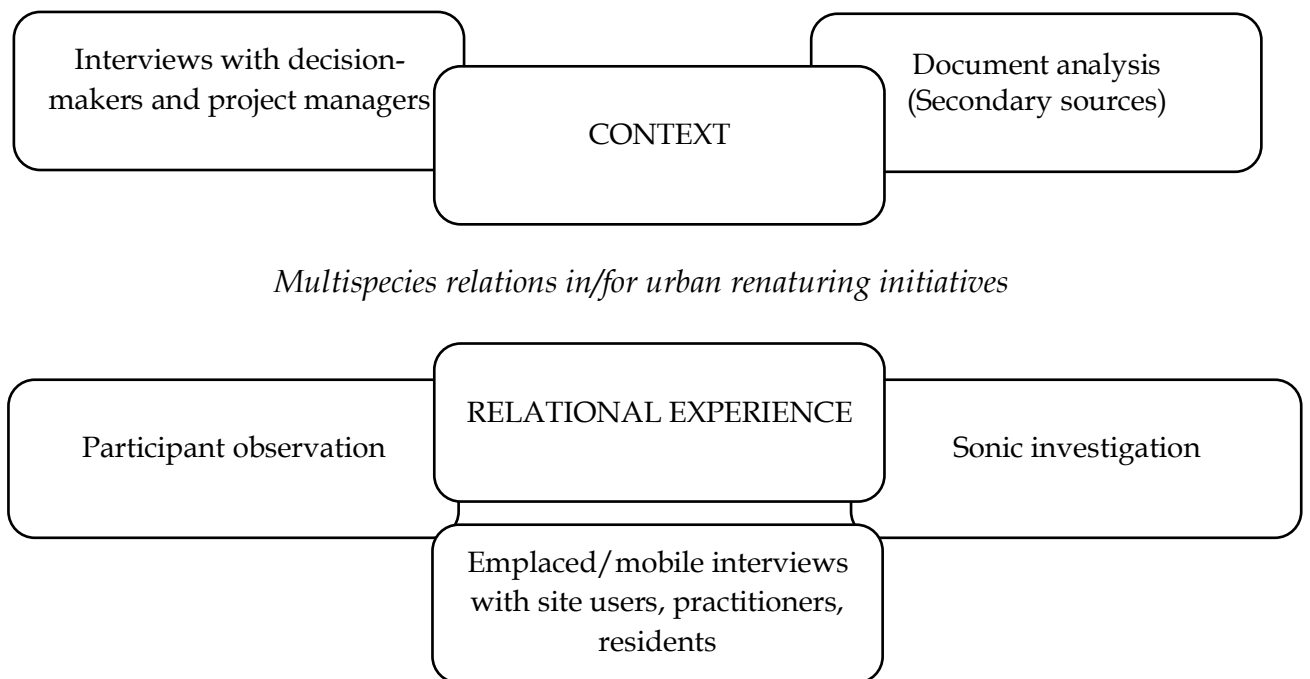
Figure 3.25 Representation of how different research methods were used. Adapted from Emmel and Clarke (2009).

Discussion (Chapters 4-10)

The discussion chapters are broadly organised into three parts. Chapters 4 and 5 centre on the *visions* for urban renaturing: how they are constructed, negotiated and owned; how they evoke/enable new temporalities, geographies and political ecologies for urban environments. These initial 'scene-setting' chapters include findings from both Walthamstow Wetlands (WW) and Active Neighbourhoods (AN) but rather than being directly interwoven and compared, the cases studies are lightly held together – so as to address issues from different angles while maintaining the integrity and uniqueness of each site. They draw upon the body of literature outlined in Sections 2.2 and 2.3 to address research questions (RQs) 1 and 2 specifically. Chapters 6 and 7 explore the ways in which *visions* meet *realities* in cases of urban renaturing: how renatured spaces become subject to governance regimes ('biopolitical work') that generate hierarchies of life and relational distancing. They situate this discussion within the body of literature outlined in Sections 2.3 and 2.4 to specifically address RQ3 and RQ4. Chapter 8 marks a transition chapter, bridging the gap between the problematics of urban renaturing with its material and ethical consequences, thereby weaving aspects of all the literature in Chapter 2, and touching upon all researching questions. Chapters 9-10 builds on the direction of Chapter 8 but specifically from a more-than-human perspective, focussing on the inextricable entanglements that exist in multispecies cities and what they mean for ideas of 'shared space' (RQ3, RQ4). They explore this in relation to the body of literature in Sections 2.5 and 2.6 to explore themes of nonhuman autonomy, territoriality and shared space. Figure 3.26 illustrates the structure and organisation of the chapters.

Figure 3.26 Summary of discussion chapters

Discussion Chapter	Overall objective	Case Study	Research question
4	Visions of urban renaturing	WW, EC	RQ1, RQ2

5	Visions of urban renaturing	WW, EC	RQ1, RQ2
6	Dilemmas & tensions of urban renaturing	WW	RQ1, RQ3, RQ4
7	Dilemmas & tensions of urban renaturing	EC	RQ3, RQ4
8	Dilemmas & relational implications of urban renaturing (**Transition chapter**)	EC	RQ1, RQ2, RQ3, RQ4
9	Relational implications of urban renaturing	WW	RQ3, RQ4
10	Relational implications of urban renaturing	WW	RQ1, RQ3, RQ4
11	Conclusion		All RQs

Chapter 4. Accessing and owning renatured spaces in the city

4.1 Introduction

This chapter explores who has a stake in nature when initiatives are enacted in urban peopled places. Conservation is now recognised as a culturally dynamic as well as a scientific and technical pursuit (Jepson and Schepers, 2016a) and so *who* has a stake in the production of urban wild space will influence the culture of (new) natures. 4.2 turns to Walthamstow Wetlands, London to explore the culture shifts that are imagined as this urban reservoir becomes Europe's largest urban wetland. It discusses how the move was framed as a transition from private to public, although who counts as 'the public' is critically considered in this section. 4.3 turns to Active Neighbourhoods, Plymouth to explore who counts as the 'community' in multispecies communities. It considers how the culture of 'community' directly informs the natures that are introduced, physically governed, and ideologically valued and valorised in residential housing estates.

It is necessary to explain briefly why my understanding of the politics and processes to establish 'ownership' and 'access' within projects differs between the two case studies. In the case of Walthamstow Wetlands, I started fieldwork when the project was approximately a year away from its public launch, when many of the preparations and major decisions had already been made (in fact, these go back as far as 2008). For this reason, I was only able to access and capture the current dynamics 'in the field' rather than past dynamics 'behind the scenes', although many of the interviews I conducted offered important insights into what had happened before. In the case of Active Neighbourhoods, I began the fieldwork at a time when the project was just being rolled out across the five sites and I was invited to join the Steering Group and follow the project from start to finish, at least as it materialised in Ernesettle. As a result, the following section offers more insight into the mechanics of local (and city-wide) decision-making than into decisions taken for Walthamstow Wetlands.

4.2. Private-public natures in cities: Walthamstow Wetlands

Walthamstow Wetlands is a partnership project between Waltham Forest Council, London Wildlife Trust and Heritage Lottery Fund whose purpose is 'to transform the site into a distinctive urban wetland reserve, with improved access to natural, industrial and social heritage' (Vestry House Museum, 2016). It takes place on a historic reservoir system (Walthamstow Reservoirs) in north-east London that still performs a critical role in supplying 3.5 million households with water. While this water function remains, and legal ownerships structures did not alter (Thames Water remain the landowners) Walthamstow Wetlands offered a new narrative for the space and, with it, challenged existing feelings of ownership (on the part of current users). Public access was a critical part of this narrative. Walthamstow Wetlands was framed as a democratic project, shifting the space from private to public. How this, the 'democratisation of nature in the city', emerged in practice is discussed within this chapter.

Walthamstow Wetlands did not happen overnight, nor did it emerge in isolation: it had been gestating in local and regional plans for multiple decades and eventually came together through several interrelated ambitions. In fact, the evolution of the site and its potential importance as a nature reserve was recognised as early as the 1940s by Patrick Abercrombie, who was then working on a large-scale master planning exercise for Greater London, now known as The Abercrombie Plan. Speaking of the reservoirs, he said:

> 'A series of great reservoirs threads up the valley […] and though manmade, they are acquiring a charm of their own as trees grow round them and on their little islands – they are becoming nature reserves for large numbers of birds and the resort of privileged fishermen. These areas are a great open-air lung to the crowded East End – their preservation is essential' (Abercrombie, 1945).

That vision has lingered in the minds of planners ever since and yet seventy years passed before the reservoirs were brought back into the spotlight. In 2008, planners at the North London Strategic Alliance (NLSA) reignited a vision for the

Lea Valley that was to evoke Patrick Abercrombie's original dream of a 'green lung' for London (Lea Valley Regional Park, 2016). From initial murmurings in boardrooms and speculative glances at maps and plans, the Alliance identified Walthamstow Reservoirs as the 'missing link' within the Lea Valley complex. At the same London Wildlife Trust (LWT) commissioned a report that found that 'reservoirs are perhaps the greatest under-utilised heritage asset in the capital' (2008; referenced in London Wildlife Trust, 2014a).

Ann (Waltham Forest Council), who championed the landscape vision within the Alliance, saw Walthamstow Wetlands as an opportunity for public space in the city: 'anybody who looks at the Lea Valley geography as a whole can see that the reservoirs are very much closed off, they're very defended places, owned by one utility company after another...'. Here, the construction of the reservoirs as 'defended places' under the ownership and management of Thames Water was central to the narrative of (and rationale for) Walthamstow Wetlands and helped legitimise the transition from 'private reservoir' to 'public wetland'. I also experienced the site as a 'defended place' at first. Figure 4.1 was taken on my very first visit to Walthamstow Reservoirs (as it was known then), at a time when the reservoirs had not officially been opened to the public.

Figure 4.1 View of Reservoir No 5, taken through the fencing along Coppermill Lane, Walthamstow, October 2016.

On my first visit to Walthamstow Reservoirs, I was not aware that I could have entered by purchasing a one-day permit for £1 from the Thames Water's Fishery Office, and so instead I skirted around the edges trying to get a sense of what was inside (Figure 4.1). At one point, a member of Thames Water's security team approached me to ask me what I was doing and why I was taking photos (field observations, October 2016). I felt illegitimate, an intruder. Once I explained my reasons for being on site (my research project), I was soon directed to the main entrance and, over time, I felt less like an intruder as I became more familiar with Thames Water staff and the angling community during my fieldwork. However, during this first visit, I did indeed experience Walthamstow Reservoirs as a 'defended' place and it was an issue that staff at Waltham Forest Council clearly wanted to address through Walthamstow Wetlands.

Angler ownership

As part of the programme to widen access, Waltham Forest Council were keen to alter the culture and image of reservoirs, to ensure the site was open to people beyond the main user group – anglers. As Ann (Waltham Forest Council) put it bluntly: 'the reservoirs have been the domain of white men who fish [laughs]'. Ann felt that anglers were an obstacle or barrier to greater public access. She felt certain marginal groups were dissuaded from visiting the reservoirs because of angling and the (masculinist) culture associated with it: 'we have been tasked with really conveying the messages of the Wetlands to those hard-to-reach groups – that includes women, families, ethnic minorities who don't feel or haven't felt in the past that this would be a place that they would be comfortable…'. Although scholars have pointed towards other reasons why 'nature' is not a comfortable place (literally and figuratively) for ethnic minorities (Ling Wong, 2002, 2004).

There was an awareness that anglers had a certain historic claim to the space, being there long before the Wetlands project. Therefore, the marketing of

Walthamstow Wetlands as a 'public space' and a 'Wetlands for all' (Vestry House Museum, 2016) became an important part of the transition of power, the sense of ownership that Waltham Forest Council began to exert over the site, in its new guise as an urban wetlands. It was felt that a 'culture shift' was needed and this culture shift was imagined as a smooth transition, a harmonious process of finding common ground:

> 'There's a mutual understanding that has to evolve about what [the site] means… There's a learning to be had and I see it really as a positive thing. It's important for the different users to understand each other's needs, so when anglers are casting they have to say "be careful" to people walking behind them. And then the walkers have to be aware that that's what happens on site. This is all about communicating and understanding the nature of the site and those behavioural changes happening as soon as they step over that threshold.' (Ann, Waltham Forest Council).

However, during my fieldwork it soon became clear that the imagined 'culture shift' was not going to be a straightforward or instantaneous process. Having spent a lot of time understanding the perspectives of existing users (anglers mostly) it was obvious that issues of access and ownership were clearly much more complicated. For a start, Walthamstow Reservoirs has been London's largest fishery since the 1950s and has earned a good reputation among the angling community, with a large and historic following. While a large proportion of anglers are locals, there are considerable numbers of visitors from as far afield as the Midlands and Wales to enjoy the fishing on offer at Walthamstow (Thames Water and Waltham Forest Council, 2014). The Walthamstow Fly-Fishers Club (set up in 1982) uses the site on a daily basis and treats the reservoirs as their home water.[31]

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[31] In addition, a range of popular fishing events takes place at the site, including the annual week-long Army Camp Festival, rounds of the British Carp Angling Championships, which draws in anglers from all over the country, as well as 24-hour fishing events twice a month between March and November (Thames Water and Waltham Forest Council, 2014).

Over the years, anglers have developed a strong sense of ownership over the site. 'Sense of ownership' is a notion that is frequently used in sociological studies as well as planning spheres where the focus is on community development (Lachapelle, 2008). It refers to an individual (or community) that feels he/she has a sense of responsibility over a particular place or issue (Lachapelle, 2008). A 'sense of ownership' can be built over a prolonged period of familiarity, for example, from childhood in relation to the place where one grew up, or it can be newly established, through having a (new) vested interest in a particular place or an issue. In the case of anglers at Walthamstow Wetlands, many of whom had been fishing there since the 1960s and some even before the Second World War, they clearly had strong attachments to the reservoirs (field discussions, 2016-2017).

Local angers valued the site for a number of reasons. According to official documents, the space provides anglers 'a safe, quiet and wildlife-rich haven where they [anglers] can pursue their sport… [away from] the hectic urban environment found outside the site's main gate' (Thames Water and Waltham Forest Council, 2014). Speaking to anglers, it was clear they appreciated the tranquillity of the place and the feeling of remoteness: 'You wouldn't think you were in London here; you'd think you were in the countryside… It's so peaceful' (Tony, 50s, regular coarse fisherman).[32] Anglers felt the reservoirs provided an escape from everyday life: 'this is the only place in London you can get a bit of peace and quiet nowadays' (Freddy, 70s, regular coarse fisherman). The reservoirs were filled with memories and nostalgic feelings for anglers: 'I first came here when I was 10 years old with my Dad, that was over 50 years ago now…This place is an oasis… you could come here and all your troubles – they wouldn't go away, but they'd be less… intense…' (Rodney, 80s, regular coarse fisherman).

These comments reflect what anglers cherished about the place – although arguably they speak to the culture of fishing more generally, often a masculinist

[32] Coarse fishing involves fishing for coarse freshwater fish rather than freshwater game fish, such as salmonids. It differs to fly-fishing and uses different tackle and bait.

pursuit that takes place away from the domesticated home (Eden and Bear, 2012). The new Wetlands project and its ambition to increase visitor numbers from 19,000 to 250,000 per year was seen as a direct threat to the 'quiet feeling' of the place, experienced by anglers. The alterations that were being instigated at the time of research (2016-2017) included the creation of cycle paths through the site, a new fee-paying car park, a venue that could be hired for weddings and parties, a new shop and a café selling food at what many anglers considered 'unaffordable prices' (Andy, 30s, Thames Water Fishery). Rodney, Tony, Freddy and other regular anglers saw these changes as an intrusion that would 'disrupt the peace' that they had presided over until now and even deter the wildlife that was meant to attract visitors in the first place (discussed further in Chapter 5).

Politicised spaces

Many anglers saw Walthamstow Wetlands as a political manoeuvre. Of those I spoke to, many felt that the changes solely appealed to the newly emerging 'Walthamstow middle classes' and did not reflect the interests of current users who were mostly working class. As Andy, 30s, one of the fishery workers, explained: 'it does sometimes feel as though they've disregarded anyone who was using the site… OK, change is inevitable, but the improvements they're making are not for the people who live, work and use the site…' (Andy, Thames Water Fishery). For instance, he observed that most groups that come on the official guided tours of Walthamstow Wetlands are 'all white, middle-aged and middle-class' and that the new facilities have been installed without anglers in mind. He said: 'Don't get me wrong, it's good that more people can come here, but should we have spent £8 million pounds on them so they can have a nice flat white coffee and a bit of walnut cake?' (Andy, Thames Water Fishery).

Andy's comment highlights one of the key socio-economic issues that arises when a 'public' nature space is created in an area of regeneration fraught with tension (The Guardian, 17 February 2018). As a Council-led project, Walthamstow Wetlands operated under a wider planning framework for the Lea Valley and London more generally. The area was identified as an Opportunity Area in the 2005 London Plan, which made it a priority for regeneration and

growth at a national, regional and local level. Within this planning context, Walthamstow Reservoirs was recognised as one of the most distinctive of the 'big landscapes' within the Lea Valley and seen as an opportunity for development within a context of property-led regeneration (Thames Water and Waltham Forest Council, 2014). Yet this sat somewhat uncomfortably with the reality of high levels of social and racial inequality in this area: indices of Multiple Deprivation indicate that the area is in the top 5% of the most deprived in England and Wales (Haringey Council, 2011).

From a social justice perspective, the creation of an urban nature reserve should benefit those who live there. Yet as political ecologists and critical urban theorists point out, green regeneration is often highly stratified based on income, race and ethnicity, age, gender, (dis)ability and other axes of difference (Byrne, et al. 2009; Bunce, 2018). It still disproportionally benefits predominantly white and more affluent communities (Wolch et al., 2014, p234) and, as such, can leave paradoxical results: 'it can lead to gentrification and displacement of the very residents the green space strategies were designed to benefit' (Wolch et al., 2014). Walthamstow is a highly diverse and multicultural area.[33] While project officials were keen to widen access to ethnic minorities and marginalised groups (see above), this is arguably a difficult task in a context of regeneration, especially when questions of nature have historically been owned (literally and conceptually) by the white, male, upper-middle class (Healey, 2006).[34]

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[33] The 2011 census showed that London 64% of Waltham Forest residents are from black and minority ethnic groups. Waltham Forest's White British population is 92,999, 36% of the total borough population. All other ethnic groups constitute 64% of the population (165,250): White Other (37,472/14.5%), Pakistani (26,347/10.2%), Black Caribbean (18,841/7.3%), Black African, (18,815/7.3%), Indian (9,134/3.5%), Other Black (7,135/2.8%), Any other ethnic group (6,728/2.6%), Bangladeshi (4,632/1.8%) and Chinese (2,579/1%). (Source: 2011 Census, Office for National Statistics, Department for Work and Pensions)

[34] Britain's diverse communities have traditionally been excluded from questions of nature and nature conservation. Minority ethnic communities make up only 1% of the visitors to National Parks and many have never been into the countryside at all (Natural England, 2012). Language barriers and poor access to information are part of the issue, but it is also a question of ownership and inclusion – namely, who feels they can participate in nature and the management of natural environments. Many minority ethnic groups feel that they have no entitlement to be in the countryside or are not welcome to visit (Ling Wong, 2002-2004).

Issues of ownership were exacerbated by a supposed lack of consultation on the project. As Andy explained: 'existing users have just been ignored completely. They don't like the project, they don't want the project. And that's partly the project's fault for not including them in the decision-making process…' (Andy, Thames Water Fishery). During a meeting between anglers and Waltham Forest Council, anglers were upset that they had not been consulted on the changes: they felt they had been 'left in the dark', 'neglected', with 'no formal consultation' and 'no effort made' to bring them in on the plans (local fishermen, September 2017). In response, staff at Waltham Forest Council tried to appease some of these concerns: they acknowledged the gaps in communication and how the site and project had 'evolved a lot in a short space of time' (staff, Waltham Forest Council, September 2017).

Access was the primary argument given to anglers for the site's evolution. During the consultation meeting with anglers, Miriam (Waltham Forest Council) explained to them that: 'one of our big obligations is accessibility… because of the Heritage Lottery fund, and the level of engagement HLF want to see…. that's why the shops and café and late evening licence are needed, to help fund and keep it financially sustainable. But please be assured… there won't be big raves and parties.' Project officials stressed that they want to 'work as a team' and that the site is 'big enough for all of us' (staff, Waltham Forest Council, September 2017). However, having a site that is 'big enough for all' does not necessarily mean that *all* needs and interests are met, which can lead to tensions resurfacing.

Soon after the site officially launched to the public as Walthamstow Wetlands (20 October 2017), tensions emerged between anglers and general members. On the first day of public launch, there were several reports of members of the public getting caught in fishing tackle (staff comments, Thames Water Fishery). Anglers were concerned that if there was conflict, the angling might cease at the reservoirs: 'if there's argy-bargy, then they [project managers] will just say "right, no more angling" and that's the end of us' (Tony, 50s, regular coarse fisherman). While there was no indication that angling would cease, signs had to be put up

warning the public about angling (Figure 4.2) and different levels of access were given to keep anglers separate from visitors in particular areas.

Figure 4.2 Sign: 'Beware of back-casting', November 2017.

While there were attempts to reconcile differences and develop a better understanding between anglers and project officials (via consultation) these were timely interventions and arguably needed for the success of the project. The angling community were consistently critical of the project's 'public' narrative and drew attention to the uneven process involved in making spaces public, questioning who counts as 'the public'. Anglers maintained that the reservoirs had 'always been open to the public' but that 'people just don't bother to look' (Elton, 70s, regular fly-fisherman). These comments (and there were many others besides these) reveal that there was a clear tension between the 'old publics', that is, those who would know about the reservoirs because (according to anglers) they had a 'genuine interest' in wildlife and fishing, and the 'new publics', that is, those who discovered the reservoirs under its new guise as Walthamstow Wetlands.

Chapter 5 further demonstrates how these issues of ownership and access manifested themselves in new governance regimes for the reservoirs, with exclusionary effects in some cases.

4.3 Community natures in cities: Ernesettle Creek

Urban renaturing is evidently about more than nature and the natural world. Ernesettle offered a clear demonstration of this through its emphasis on community, active citizenship and local ownership. One of the primary objectives for Active Neighbourhoods, the joint partnership project between Plymouth City Council and Devon Wildlife Trust, funded through the Big Lottery, was 'greater social cohesion', seeing that residents became 'active citizens, contributing towards and taking pride in improved local green assets' (Plymouth City Council, 2016b). For this reason, there was much more emphasis on community decision-making compared to Walthamstow Wetlands where decisions, at least during the fieldwork period (2016-2017), were made (in private) by official representatives of the main project partners. This meant that particular local interests came to the fore, especially on the topic of natural and cultural 'heritage'.

4.3.1 Constructing the community

As sociologists have noted for a long time, what constitutes 'community' is often highly varied within the social sciences and frequently ill defined (Kelly and Caputo, 2011), partly because it is an attitudinal construct that means different things to different people (Wilson, 2012). For instance, some definitions of community involve a geographic area, such as a neighbourhood or a city, while others involve a group of people united by racial/ethnic identity, by a common social or political goal, or by shared interests, illnesses or experiences. Scholars suggest that the way community is defined *matters*, for it influences who can be considered a member of that community and can impact representation and legitimacy, particularly with regards to how state actors recognise communities and their influence (Amit and Rapport, 2002; Kumar, 2005; Kelly and Caputo, 2011; Allman, 2015). There are many different communities within geographical

spaces, often with highly divergent interests in (and relations to) the natural environment (MacQueen et al., 2001; Kumar, 2005; Wilson, 2012).[35]

In the case of Active Neighbourhoods, on the surface it appeared that the project's understanding of 'community' worked to a normative geographical understanding, insofar as project managers targeted residents who lived within the bounded area known as Ernesettle, built as part of Patrick Abercrombie's post-war plans (Abercrombie and Watson, 1943). Initial community outreach involved 'door-knocking' local residents. Equally, consultation meetings were held in community centres within the estate, while promotional activities took place within local schools and with already-existing local groups and group activities, for instance, Ernesettle Fun Day, Ernesettle Community Forum and so on (field observations, 2016-2017). However, once initial outreach was completed, the decision-making process for Active Neighbourhoods was initiated through a select ('elite') group of residents and arguably this homogenised the community, treating it as a single cohort with one predominant vision.[36]

Who is the community?

Figure 4.3 highlights some of the significant events or processual stages when the 'community' of stakeholders was identified and/or further established. I noted these stages as being significant for the way they (and dialogues about them) informed community narratives of nature and/or shaped the physical environment itself. There was an overall decision-making team for Active Neighbourhoods, and then within this there were resident stakeholder groups for each Active Neighbourhoods site, including Ernesettle, which comprised of local community representatives. Most stakeholders were self-selected: they

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[35] Addressing differences, MacQueen et al. (2001, p1929) offer a definition of community as 'a group of people with diverse characteristics who are linked by social ties, share common perspectives, and engage in joint action in geographical locations or settings.' This situates the community (geographically) while allowing for difference and diversity within bounded spaces.

[36] There was an overall decision-making team for Active Neighbourhoods (Steering Group), plus resident stakeholder groups for each Active Neighbourhoods site, including Ernesettle. The steering group comprised of staff at Plymouth City Council, as well as representatives from Devon Wildlife Trust, Plymouth Community Homes, RSPB and Buglife.

either heard about the Active Neighbourhoods group at an outreach event and decided to attend or were contacted directly by the project because of their knowledge of the community or role within it (interviews with stakeholders, 2016-2017). As the timeline (4.3) indicates, practical conservation activities were interspersed with internal project developments, and consultation exercises.
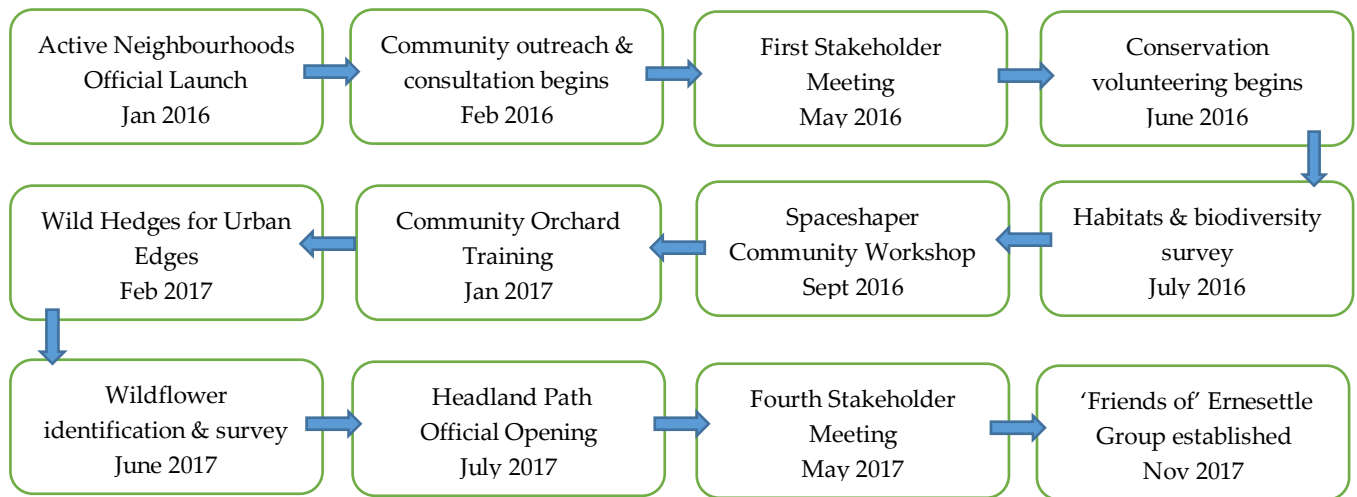
Figure 4.3 Timeline of key Active Neighbourhood events during the fieldwork period (2016-2017)

The stakeholder group was established in Ernesettle soon after the launch of Active Neighbourhoods and the first meeting was held in May 2016. I noted eleven representatives who attended this first stakeholder meeting: one project worker for Buglife, one representative from the social housing association, one member of a local interest group, two Ernesettle residents, three community workers, three representatives from Plymouth City Council (PCC). These representatives became regular attendees at Active Neighbourhoods meetings. These (mostly) self-selected representatives took an active role within the project because they wanted to share something of themselves, their values, skills, contacts or knowledge. This sharing was equally a re-affirmation of their own identities (Lofland et al., 2006). In Ernesettle, stakeholders (re)affirmed their background and interests through Active Neighbourhoods, as a project where they felt they had a role.

The profiles below provide an overview of the main/regular attendees to stakeholder meetings – stakeholders who became embedded in the Active Neighbourhoods process throughout the fieldwork period (2016-2017). Each profile offers some insights on their background, relationship to the community, and particular interests in relation to the project.

The 'lynchpin' in the community – Polly: Ernesettle resident and local representative
Polly (50s) moved to Ernesettle in her 20s with her husband and children, choosing the place because it was affordable and looked out onto 'beautiful' fields and green spaces, which was 'the next best thing' to the countryside: 'Who wouldn't want to live here with the views and everything we've got?' Polly 'found' (her) community in Ernesettle. She is the main resident stakeholder for Active Neighbourhoods, described as 'the queen bee', the 'mover and shaker' of the community who acts a 'lynchpin' for the project. Polly 'brings the community together and keeps them together…It's her that we do things through.' (Fred, stakeholder). She wants residents to be 'involved in their community' and experience the support that she once received as a mother new to the area.

The community conservationist – Simon: urban ranger for Active Neighbourhoods
Simon (50s) grew up in what he describes as 'a very wild, hillside area of Shropshire'. He recalls his 'very feral' and 'lovely' childhood with fondness: spending time in wellies, exploring the countryside and 'really feeling a part of it'. For Simon, in places like Ernesettle, young people don't have opportunity to enjoy the outdoors as he did as a child because 'a lot of it is indoors now isn't it? In front of computer screens'. Part of the reason he wants to work in urban communities is to help people have a richer nature experience. He's concerned that, as a result, young people are 'going to end up having a quite sadder life… and not an enriched life with nature and the environment.' For this reason Simon decided work as an urban ranger for Devon Wildlife Trust, in collaboration with Plymouth City Council.

Keeping Ernesettle tidy – Charlie: resident and local litter picker
Charlie (50s) has lived in Ernesettle since the 1980s. When he first moved here he wasn't sure if he would like it 'but once you see how beautiful it is it makes you want to stay…'. He is proud of Ernesettle's natural environment and set up a local litter picking group with other dog walkers 'to keep Ernesettle looking nice'. He became involved in Active Neighbourhoods because he likes being outdoors and 'looking after' the woods and the creek, preventing them from 'getting trashed' by fly-tipping and motorcycle use. He recognises that 'Plymouth hasn't really got the resources now to keep on top of things like they used to'. So he wants to' educate people' about how they can help maintain the local environment.

The local expert – Fred: a retired 'keeper' of natural history

Fred (60s) grew up in nearby Stonehouse, but was regularly 'shipped out' to Ernesettle to spend the summer with family members. Fred began his career as a keeper of natural history in Plymouth Museum. During the 60s and 70s, he was involved establishing a 'countryside centre' in Warleigh Woods, just across from Ernesettle and described it as 'pioneering work' that focussed on outdoor education. Fred is passionate about trees, orchards and local heritage. He worked for nearly thirty as within a local authority, setting up a local Tree Warden Scheme. When he moved back to Plymouth and heard about Active Neighbourhoods, he wanted to get involved to help improve the community orchard and 'pass on' his knowledge to local residents. He feels there is an 'underlying lack of care' for the environment in Ernesettle. But with education, he feels residents can be 'gently manoeuvred' out of present habits and learn about the 'importance' of the environment.

'This is my wild garden' – Rosemary: Ernesettle resident and local history enthusiast

Rosemary (40s) grew up on the estate and spent her childhood summers playing by the Creek, and going for family picnics: 'We were allowed to freely play down here…. the water was much cleaner then so we could go swimming, crabbing…' she says. Rosemary feels that over the last 30 years, Ernesettle has changed. She is concerned that young people don't have the same connection to the area. 'A lot of new people have come in and had families and they don't know the history of the place… they don't have knowledge we had from our older generation, about the tides and things.' This is why she became involved in Active Neighbourhoods and set up her own local group to preserve Ernesettle's history and environment. She'd like to see people using the Creek again. She also thinks that new families coming onto the estate can be educated: 'I enjoy it when new people come and you can show them what they have on their doorstep.'

'Combatting isolation' – Neil: community worker in Ernesettle

Neil (30s) grew up on the estate but left when he was 20. He now works for Plymouth Community Homes (PCH), as a community worker in Ernesettle and other estates nearby. Neil was invited to be part of the Active Neighbourhoods stakeholder group because of his knowledge of the community. He thinks that the project is doing 'some really great stuff' but finds that for lots of residents, the local environment is just a backdrop to their lives. One of his main priorities is to 'get people involved in their communities' and 'tackle some of the isolation' that people are experiencing. He runs a coffee morning twice a week at the community centre, and ensures that PCH's commercial buildings are being put to 'good use', with family and youth services.

> **'They don't listen to us' – Diane and Kenny: youth workers in Ernesettle**
> *Diane (30s) and Kenny (50s) are local youth workers on the estate. They run a small charity called Barefoot that organises social and sports activities for young people, as well as providing advice and emotional support on a range of issues. They are passionate about their work and committed to representing youth within the community, which is why they became involved in Active Neighbourhoods. For Diane, one of the issues with community projects is that they 'always target our younger group and that's a problem' [by younger she means under 12s]. Whereas 'younger people are very proactive, they'll snap at anything you give them', teenagers have different priorities. Diane and Kenny feel that teenagers need different opportunities to 'express themselves' and when 'youth work has been decimated right across the country' as a result of government cuts, 'they haven't got that outlet' (Kenny).*

Common in sociological studies is the link between identities and roles (Lofland et al., 2006, p135) where identities exist only 'insofar as the person is a participant in structured role relationships' (Stryker, 1980, p60). For Active Neighbourhoods, each member of the stakeholder group was able to place his/her interests within the remit of the project. In the case of Simon (50s, urban ranger, Devon Wildlife Trust (DWT)/Plymouth City Council (PCC)) and Fred (60s, retired naturalist and Active Neighbourhoods stakeholder), they wanted to share their skills and conservation values with the community, while for residents Polly, Rosemary and Charlie, they felt a sense of pride in Ernesettle's natural environment and felt the community should be more involved/connected to it in some way. Meanwhile, community workers, Neil, Diane and Kenny wanted to represent wider community issues that might otherwise be left out of nature-based projects, and so took an advisory role within the stakeholder group. The individuals profiled above became embedded within the Active Neighbourhoods process in Ernesettle, shaping some of the decisions around 'wild work' in the city.

4.3.2 Making active citizens

Through their ongoing engagement in Active Neighbourhoods, the stakeholders above were able to consolidate their particular interests in relation to community and communal natures. Polly (50s, resident; profile above) was a key figure in this process, shaping the dialogue between the project and community residents.

Polly used her influence within the community to promote the rationales and logics for Active Neighbourhoods, and equally had her own interest in seeing a better sense of community developed through increased participation in (and sense of ownership over) local green spaces. This involved the development of the 'volunteer self', someone who prides themselves on the (free) time they offer to do something 'good' or 'worthwhile' for the community (Lofland et al., 2006).

Active citizenship today is often less about obtaining or demonstrating 'rights' and more about undertaking daily acts, performances or duties to demonstrate one's 'moral responsibilities' to the community and embed them within various aspects of social life (Yarwood, 2014; Ghose, 2005; Staeheli, 2008a, 2008b). In the case of Active Neighbourhoods, a particular kind of citizen was being constructed – one that is environmentally aware and conscious of nature. Those who were seen to 'disturb the peace' were not considered members of the environmental community – or at least, they were thought to need of 'education' (see profiles above: Rosemary and Fred). However, it is important to contextualise some of these sentiments in relation to the broader (state-led) agenda.

Voluntarism has long been a part of the political landscape of Britain (Brown, 2000). From a critical perspective, the growing interest in localism and 'active citizenship', emphasised by local authorities (and Western governments more generally), involves shifting responsibilities from the state to the community and, as scholars suggest, this can be problematic since 'community' always has the potential to exclude as well as include (Yarwood, 2014; see also Staeheli, 2008a, 2008b; Closs-Stephens and Squire, 2012b). In the case of Active Neighbourhoods, as well as 'activating' residents, volunteering became a means to represent local engagement in the project, which in turn became a way to measure the success of the project against its objectives. It was seen as a 'win-win' process, insofar as volunteering worked to delegate part of the responsibility of green space management to local communities, while at the same time seemingly empowering communities and securing local ownership (Plymouth City Council and Devon Wildlife Trust, 2017).

Volunteering within Active Neighbourhoods was seen as a pathway toward becoming an 'active citizen' for nature and the community. During steering group meetings organised by Plymouth City Council, there would be regular updates on volunteer engagement, displayed in PowerPoint presentations with the latest volunteer figures: '950 hours of volunteering regularly; 50% of volunteers come regularly; 543 local residents regularly engaged' and so on (field observations, 2016-2017). The commentary would normally consist of whether these statistics were above or below targets and how they represented 'successful' engagement in the project; comments included 'We've had 32 families engaged over the Easter holidays… tonnes better than last summer' and 'We've seen local engagement increase, with 65% of volunteers living locally' (field observations, 2016-2017).

However, it was not clear whether local engagement translated into ongoing active care. As scholars suggest, when volunteers are pointed towards pre-determined political goals, as is often the case with state-led volunteerism, it can be counterproductive, leading to de-engagement and de-politicisation (Yarwood, 2014; Rose, 1997).

4.3.3 Affirming community interests

Local engagement in nature became focussed on specific issues, partly defined by project staff, partly defined by the community of active residents. One of the key consultation events for Active Neighbourhoods was known as the 'CABE Spaceshaper workshop' (September 2016).[37] This community-based exercise offered residents an opportunity to share their interests and concerns about Ernesettle's green space. The results of this workshop were used to inform Site Improvement Plans (SIPs) for Ernesettle, developed through Active Neighbourhoods. My discussions with residents during this workshop revealed a host of complex issues. The following field entry highlights some of these issues

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[37] 'CABE Spaceshaper' is described as 'a practical toolkit to measure the quality of a public space before investing time and money improving it' (CABE, 2007, unpaginated).

and how they speak to (and contest) ideas of 'ownership' and 'access' at a more detailed level.

Field diary, September 2016

It's a warm sunny Thursday and Active Neighbourhoods have invited local residents to take part in a workshop by the Creek, to find out how the local environment is used and appreciated in Ernesettle. Straw bales are arranged in a communal fashion around an unlit barbecue. There is lots of lively chatter. Residents appear to know one another or at least act in a familiar way. Several dog walkers pass by and stop to ask what is going on… One of the project managers introduces Active Neighbourhoods and then invites everyone to introduce themselves: there are two dog walkers, a local mum, a member of the community forum, a member of a local environment group, a retired farmer and a few local dog walkers. We're each given a form to fill out as part of the workshop, 'to give us the opportunity to talk about how you'd like to see the area improved' (staff, Plymouth City Council). I notice forms are made by the Commission for Architecture and the Built environment (CABE) and form part of a 'Spaceshaper Toolkit'. They ask residents to 'rate' different green spaces in the area, state what they like and don't like.

The residents begin to go through these worksheets; some on their own, others with the person next to them. I join the discussions and hear a range of issues raised about the local area, mainly to do with the way the space is used (or not) and perceived issues of antisocial behaviour and local apathy among (mostly younger) residents. Some of the comments are a surprise to me: 'There's a lot of apathy here' says Charlie, 'people don't appreciate where they live… that's what tends to happen. It's probably the most beautiful estate in Plymouth I would say, easily. But people don't appreciate it.' (Charlie, local dog walker). In response, Brian says 'The majority of parents around here are young parents; they don't really go out, they don't really 'do' nature. It's the older generation that goes out. You know, the grandparents… Or, if they've got a pet, they've got a reason to go out – and even then we don't see most of the dogs on the estate. It's the same ones that come out here again and again' (Brian, local dog walker).

The discussion moves on to 'Ernesettle youth', which I presume refers to teenagers. Charlie is frustrated by joyriders in the area: 'We get a lot of kids on motorbikes riding along this path… They're not meant to … We've got a motorbike park over there [points

towards the factories] but because it costs money kids don't go on it, they'd rather come here…' (Charlie, local dog walker). Brian adds: 'We had one the other day across the old sports field; must've been knocking 50 miles per hour and there was a family walking past with young kids, dogs off the lead…It's not designed for that' (Brian, local dog walker). I came away feeling that Brian and Charlie imagined Ernesettle Creek as a place for families and dog walkers, not a place for unruly teenagers.

What these comments illustrate is that certain (active) residents had particular ideas about what constituted Ernesettle's nature(s) and the sense of place that was deemed appropriate for Ernesettle. Many of the residents who attended the initial CABE Spaceshaper workshop continued to be involved in Active Neighbourhoods, leading them to be framed as 'active residents' of Ernesettle and later 'Friends of' Ernesettle. They became the 'voice of the community' and their concerns often took centre stage. On the issue of illegal motorcycling (raised at the CABE workshop; see above), Simon (urban ranger, DWT/PCC) said: 'it's good the community have highlighted this [motorcyclists] as an issue'. With this, he affirmed 'the community' as those whose views are aligned with the stakeholder group – where the stakeholder group is seen as the 'right' kind of community, raising the 'right' concerns for Ernesettle.

Here, stakeholders started to cement themselves as 'active' citizens, with the power to act on matters of the environment and the communal natures they deemed important. By reminding the group of their rights (and duties) to the nature reserve, Simon (urban ranger, DWT/PCC) subtly affirmed how 'active neighbours' are both law-abiding and have the option (that is, power) to act against others who might compromise the (their) nature space as a peaceful place for the community. Soon after these discussions took place, the stakeholder group were invited to walk around the reserve and find some solutions to illegal motorcycling, 'to see what's feasible, what isn't feasible and…. Draw up some plans' (Simon, urban ranger, DWT/PCC). The implications of these 'solutions' will be discussed in Chapter 8, with respect to the biopolitical nature of the

practices in Ernesettle; the kinds of natures that were constructed and secured and what the exclusionary effects were.

4.4 Conclusion

This chapter has explored some of processes and politics involved in renaturing schemes, including who constructs environmental visions within them, how and why. Walthamstow Wetlands was clearly a strategic intervention that aligned with the Council's broader (regeneration) vision for the area. While the site is legally owned and operated by Thames Water for water production purpose, this part of Walthamstow was gripped by the broader planning landscape for London, which was under intense pressure to create more publicly accessible greenspace for urban communities. The agencies involved (together with significant funding from Heritage Lottery) were able to mobilise Thames Water into a partnership, and this made it possible to re-envision Walthamstow Reservoirs as Walthamstow Wetlands. Although Active Neighbourhoods in Ernesettle was also a Council-led project with funding from the Big Lottery, the very fact that it targeted deprived neighbourhoods immediately placed it as a 'community project'. This is why this chapter has dedicated a significant proportion of the analysis to understanding stakeholder dynamics and stakeholders themselves. While Walthamstow could broadly be characterised as 'top down' initiative and Enresettle a 'bottom up' initiative, subsequent chapters reveal that there is much more horizontal work taking place across both case study sites.

Chapter 5. Historical geographies and political ecologies of urban renaturing

5.1 Introduction

The following chapter explores how urban conditions and processes are factored into 'wild work' in the city, including how the past gets mobilised to achieve visions for urban wild spaces. It uses the two case studies to draw out some of the spatio-temporal differences in urban renaturing, as well as the role of socio-economic pasts, presents and (desired) futures. Chapter 4 has outlined how particular visions for nature become 'owned' by certain interest groups; this chapter looks at how those interest groups *envision* renaturing in the city, teasing out the historical, geographical and political ecological factors that influence such visions. 5.2 to 5.3 focus on the historical geographies of the case studies while 5.4 to 5.5 focus on their political ecologies.

5.2 Walthamstow: a 'haven in the heart of the city'

The geographical re-imagining of Walthamstow Reservoirs as an 'urban oasis' was fundamental to the development of the project, Walthamstow Wetlands. This was not an entirely new narrative. As 4.2 outlines, the image of the place as a 'haven' away from the urban metropolis was suggested by existing narratives that circulated among current users – mostly anglers. Anglers would regularly speak of the reservoirs in such terms, as a 'haven', an 'oasis' a 'quiet retreat' (angler comments, 2016-2017). Some even described the site as 'no man's land' and recall family members having to 'get a boat across when it [the River Lea] flooded so, yeah, this is the border. This was the edge of London back then' (Andy, 30s, Thames Water Fishery).

Project narratives supported such visions. Official documents noted that 'Despite the site's proximity to urban settlements and its operational function, it is characterised by a strong sense of tranquillity and remoteness' (Thames Water and Waltham Forest Council, 2014). Here, the city is framed as an urban background to the site. This sentiment was re-emphasised in guided walks and

talks run by London Wildlife Trust, where members of the public were invited to examine the city from a distance. During these walks, the group would often pause along the ridge of East Warwick reservoir to take in the views of the city (see Figures 5.1 and 5.2). I recorded some of my observations:

Field diary, November 2016

We stop and look across the East Warwick. Some visitors take out binoculars. I take out my notepad. I notice the Shard jarring up through the horizon, then Canary Wharf with its safety light flickering in the distance… Someone points out the 'ugly new builds' over at Tottenham Hale and contrasts these to the 'pretty' church spire peering over Stoke Newington… As we walk along the shoreline of this gigantic reservoir, trains rattle past into Liverpool Street and bright red buses cut across blue-grey skies… I hear planes flying overhead, reflecting on the reservoir's open water… Pausing on this side of East Warwick reservoir, looking at London across a large expanse of water, had the peculiar effect of making the city appear small and remote. This was perhaps the intention of the guided walks: visitors clearly enjoyed pointing out landmarks and locating their houses in the distance; it was as though the entire city could be held at a distance from this vantage point and I certainly had never seen London, a city I grew up in, from this angle before.

Figure 5.1 Walthamstow Wetlands guided walk, February 2017 (Source: @Walthamsteve/Twitter)

Figure 5.2 Walthamstow Wetlands, guided walk, August 2016 (Source: @Walthamsteve/Twitter)

Guides would point out the 'city skyline' (guide comments, 2016-2017; London Wildlife Trust, 2016) including iconic buildings such as Canary Wharf, St Ignatius Church, St Anne's Church, Alexandra Palace, as well as railway lines and overground lines that headed towards the city (field observations, 2016). By pointing out these features and making them observable from the reservoirs, guides and guided walks were able to create a particular impression of Walthamstow Wetlands: as a place where one can 'view' the city (remotely) from the relative tranquillity of 'nature'. As the management plan says, 'the site is a metropolitan landscape where one can escape the city without leaving it' (Thames Water and Waltham Forest Council, 2014). In this way, these guided walks, structured and tailored as they were, had the effect of placing the site *in relation* to the city but in a way that backgrounded the city itself.

The literature on geographies of nature (see Chapter 2) illustrates how Cartesian thinking in Western discourse tends to locate 'nature' away from human society, in remote places or places associated with rurality, often defined in opposition to urbanity (Castree, 2005; Hinchliffe, 1999). As Hinchliffe (1999, p138) highlights: 'Cities are imagined as places where nature stops' or, relatedly, as places that

'disrupt natural rhythms'. This, he argues, is partly because of the 'foundational stories' that are commonly told in relation to the modern city (1999, p141ff). In one sense, primordial nature is something to be feared and held at a distance, and ideally expelled from the city entirely so that the potential of man (sic) can be realised and the space become civilised. In another sense, cities are seen to despoil the landscape and the ecological relations that once existed. This story, often lauded by nature advocates and environmentalists, contains elements of nostalgia and idealisations of the past, combined with a distinctly 'anti-urban sentiment' (Hinchliffe, 1999, p145) – for here, again, nature can only be found outside the city.

While these foundational stories were partly present in the narratives for Walthamstow Wetlands, the natural and the industrial were also neatly woven together into a new 'urban wild' story. During guided walks, guides would tell the group about the industrial history of the reservoirs: when they were built; why they were built; how they improved the health of London's burgeoning population and served to boost the city's economy by providing water for thousands of businesses (field observations, 2016-2016). Facts were issued to the group, such as: 'The reservoirs were dug, initially by hand, over a 40 year period as the population of London increased'; 'In 1893, the marshes were drained and Reservoirs 1, 2 and 3 were dug by hand, so the reservoirs are man-made, not natural' and 'the islands you see are made of the displaced earth when they were dug' (guide comments, 2016-2017; London Wildlife Trust, 2016).

In this way, the industrial past was celebrated and reconciled with the site's new purpose as a wetland for wildlife. Project staff insisted that the urban/wild could be 'knitted together' within the vision for Walthamstow Wetlands:

> 'Nature in cities is a very rare thing; because nature is usually relegated to the side-lines in terms of the urban context… so when people start thinking about urbanism they don't think about nature; nature is something separate that happens in a box somewhere else… so the whole art of the place is that it brings together urban and nature very close together, knitted in together' (Ann, Waltham Forest Council).

In Ann's view, both nature and the city could be celebrated at Walthamstow Wetlands. Moreover, it is precisely its proximity to the city that makes Walthamstow's nature valuable. Ann saw the site's industrial past and its natural future (as imagined through the project) as perfectly compatible. Here, it becomes clear that 'nature' is a relative and relational category; shifting in degrees of importance depending on the (urban) context that surrounds it. In the case of Walthamstow, nature gains value by appearing *within* the city itself: the project would regularly emphasise, for instance, that the site is 'Just 15 minutes from central London', thereby reinforcing its value to the capital as a whole (see Figure 5.3 for perspective).

These narratives speak to contemporary urban greening agendas and ideas for the sustainable, ecological city (see Chapter 2). To some extent they unsettle the 'foundational story' that relegates nature to the countryside and so challenge the body of literature that still assumes the urban is not being taken seriously as a space of/for nature (Hinchliffe, 1999). Yet in other ways, these new narratives for the city fail to overcome the nature-society dichotomy that underpins the foundational story itself. Nature is still treated as a singular object: speaking of 'nature in cities' homogenises the nonhuman world and casts its multiplicity as a 'thing' that can be 'knitted together' with other things; placed (and indeed replaced) by humans. This overlooks the continuum of human/nonhuman relationality (Buller, 2014a, 2015) and how nonhuman life does not just circulate in and through urban spaces (Braun, 2005, p646) but actively shapes and challenges those spaces (Barua and Sinha, 2017).

Figure 5.3 Aerial view of Walthamstow Reservoirs (Source: digitalvortex.info)

5.3 Political ecologies of Walthamstow Wetlands

The following section explores the political-economic mechanics that operated through visions for Walthamstow Wetlands as an ecological wild space in the city. Here, wildlife has been spun within the romanticised industrial past, as though these two domains sit 'naturally' together. The purpose is to demonstrate how the nature(s) of Walthamstow Wetlands have been politically produced as a multispecies affair. It therefore situates the 'urban wild' character of Walthamstow Wetlands within the wider political ecologies of London's Lea Valley. It explores how wild renaturing within a context of regeneration has the potential to create social and economic divides and further exclude already marginalised groups from questions of nature.

Figure 5.4 Message screened during an opening event for Walthamstow Wetlands, November 2017.

5.3.1 Renaturing as Progress

One of the first points to make about the political ecology of renaturing at Walthamstow Wetlands is how its proponents have artfully reconstructed the Western narrative of 'progress' in order to legitimise some of the transformations on site. As Chapter 2 outlined, the same idea of 'progress' that once legitimised European expansion and colonisation now percolates ideas of the 'green city', which circumscribes 'nature' within the rational, calculative and instrumental logics of neoliberal capitalism (Bakker, 2010). Here, the urban environment provides an economic and scientific opportunity to 'restore' and 'remedy' the seemingly damaged ecologies of reservoirs through the provision of new (human-designed) habitat – albeit for the right species in the right places (Lorimer, 2015).

Giving a new twist to the idea of economic progress, Walthamstow Wetlands is fetishized as a symbol of ecological progress: representing the supposed transition from an 'age of industry' (production and expansion), to an 'age of ecology' (remediation and restoration). This materialised in several ways, most obviously through the emphasis on the site's industrial history and the fact that

it was precisely that: *history*. During talks, walks and museum exhibitions, the establishment of the reservoirs at the end of the nineteenth century was described as a 'huge industrial feat, requiring many thousands of men and the best innovative techniques of the time' (Vestry House Museum, 2016). Indeed, during a private opening event for the Wetlands, the local Councillor made an impassioned speech about the industrial labour of forebears:

> 'How proud we feel that this space has served 3.5 million households in London, and how proud we should be that the original reservoirs, many of which were dug by hand, is an extraordinary achievement… how extraordinary that we can celebrate that contribution of our forebears.' (Cllr Claire Coghill, Waltham Forest Council, Walthamstow Wetlands, private event, October 2017).

The contribution of forebears is spoken of in a romantic way, almost glamorising the efforts of the working class, which arguably overlooks the socio-economic inequality that would have accompanied much of Britain's so-called economic 'progress' (Barry, 1999). In addition, the use of 'we' speaks to something that is imagined as uniquely British (*British* technology, *British* innovation, *British* labour) – a framing that can have exclusionary effects on those things that are not considered British (discussed further in Chapter 6). The project commends how the reservoirs served London's growth: 'I think, business understood that London couldn't really grow – business, politicians, and virtually everybody came together with the clear understanding that you can't grow as an enterprise, or even as a place for residents, without a supply of water' (Ann, Waltham Forest Council). Here, the reservoirs are circumscribed into London's economic successes, directly attributed with a heritage value that preserves them from future development.

One of the primary reasons substantial emphasis was placed upon the built environment as well as the natural environment was a result of the project's primary funders, Heritage Lottery Fund (HLF), who awarded the project almost £5 million and insisted on foregrounding both natural and cultural heritage (field observations, 2016-2017). As a result, project proposals were geared towards the

heritage remit of the funders: 'that money has been secured from HLF and it has to be spent in the way that HLF have given us permission to do so and by a certain time… and that focusses minds on the HLF fund rather than necessarily giving us time to look at some of the other issues that may emerge' (Frith, London Wildlife Trust). This reveals the power of funding mechanics in shaping what emerges as 'nature'. As Chapter 6 and 9 illustrate, wildlife is placed within a framework of heritage, with important consequences for those creatures that do not count as heritage.

5.3.2 Renaturing and the 'industrial wild'

One important aspect of the political ecology of Walthamstow Wetlands is the local context of green regeneration, which characterises much of the recent change within London's Lea Valley. The River Lea, six miles (9.6 km) to the east of the financial district, is London's second river and one of only a handful of tributaries of the Thames that is not buried in a pipe (Lewis, 2007). It was central to London's success as a global city, providing transport and powering industries. By the turn of the twentieth century, the Lea Valley was home to a profusion of diverse and important industries, from the design and manufacturing of ships, boats, explosives and armaments, to the production of porcelain, bricks, plastics, perfume, chemicals, foods, beers, furniture and flooring (Lewis, 2007). However, over the last 50 years it has shifted from a 'place of production' to a 'place of leisure' (Lewis, 2007; Mann, 2003) and this has important consequences for how its nature(s) are (re)imagined.

When the industries of the River Lea declined in the latter half of the twentieth century, the area became derelict: factories were boarded up, shops closed down, buildings were abandoned; the area fell into disrepute, associated with crime and illegal activity (Mann, 2003). For many years, the lower Lea was forgotten or ignored by London planners, who had their sights on other areas. It was not until 2005, when London won the bid to host the 2012 Olympic Games, that public discourses about the lower Lea Valley began to materialise, framing the area as 'toxic wasteland' in need of ecological remediation (The Guardian, 12 November

2010). As one newspaper put it soon after the announcement: 'London's rubbish dump and oil slump, the Lea powered London's industrial engine and defined its post-industrial necropolis, a dead city of metal-yards, warehouses, waste ground and wilderness marshes, weird nature sucking putrid nutrients from a toxic land' (Financial Times, 28 October 2005).

The lower Lea was reimagined as a place of recreation and ecological flourishing, glamorised as 'the East's New Eden' (The Financial Times, 28 October 2005), appropriately in time for the Olympic Games. The area went from being an economy back-facing away from the river, to an economy front-facing towards the river, with bars, restaurants and apartments created along its course. Meanwhile, stretches of previously inaccessible river were opened up: new paths were created and lined with 'edible hedgerows' and fruit trees; buildings and infrastructure were integrated through 'green roofs' and 'wildflower meadows'; 'ugly' electricity lines and pylons were buried all the way up the Lea. The move to make way for the 73-hectare Olympic Park involved a process of gentrification and purification, one which many scholars have criticised as being a simultaneous process of social cleansing (Watt, 2013; Silk, 2014).

This process works to erase the urban industrial past, so as to make the area appear more natural or ecological. However, the past is not totally erased in order to reinvent a pre-urban idyll: instead, the industrial past is romanticised and oddly incorporated into ideas of 'future nature' (Adams, 2003). The alterations within the Lea Valley are about the future and yet, in order to imagine an ecological future, the present needed to be contrasted with a toxic, polluted past. Walthamstow Wetlands fits within this particular idealisation and aestheticization of the industrial wild. Its architects, William Watson Mann, had worked extensively across the Lea Valley on similar regeneration initiatives and likely carried over the sentiment. In a paper, Mann speaks romantically of the industrial wild character of the area: a place 'where vegetation and metal interweave, where neglected landscapes and unloved buildings abut one another, seem[ing] to embody a timeless balance between ruin and renewal' (Mann, 2003, p13).

Here, the architect almost naturalises the political ecologies of the River Lea, as though ruin and renewal were not of human making but instead a product of nature's 'timeless balance'. During an interview he elaborated this (romanticised) political ecology of the River Lea, giving the example of the fig tree at Three Mills (Bow, London), which is reputed to have been self-seeded from seeds in the sewerage: 'it's an ecology of flora and fauna, but it's also an ecology of small businesses and big industry' (Mann, architect, Walthamstow Wetlands). This romantic retelling of the fig tree expressing its 'wildness' through industrial waters almost sees the productions of the city and the productions of nature as somehow harmonious and compatible, which many critical urban scholars would challenge (Gandy, 2004; Swynegedouw, 2006). For this 'imaginative geography' (Said, 1979) frames nature as resilient and adaptable in a toxic wasteland, without questioning the past or acknowledging the acts that may have been harmful to many human and nonhuman lives.

Nevertheless, the ecological vision for the River Lea filtered through to plans at Walthamstow Wetlands. Official documents described the 'functional aestheticism' (Thames Water and Waltham Forest Council, 2014) of the reservoirs while planners at Waltham Forest Council celebrated the site as a '*wild* landscape with a very strong industrial character' (Ann, Waltham Forest Council, original emphasis). It was felt that 'The mixture of man-made structures and natural elements has created a distinctive sense of place' at the reservoirs (Thames Water and Waltham Forest Council, 2014) and so planners focussed their designs on what they saw as 'that fundamental character of place and nature of place' (Ann, Waltham Forest Council). As a result, industrial design signatures were artistically woven through the site in the form of steel broad walks, open pipework and brickwork, and Victorian-style drain covers – all pointing us towards the site's natural/industrial past (see Figures 5.5 and 5.6).

Figure 5.5 Paths installed with industrial-style drain covers to guide visitors, November 2017.

Figure 5.6 Victorian rotunda built in 1860s, once part of a formal Victorian garden. (Source: Walthamstow Wetlands/Twitter)

In addition, the industrial chimney of the Marine Engine House, which would have once pumped toxic fumes across north London, is transitioned into a home for nature: installed with bat enclaves and swift boxes and even pre-recorded swift calls to entice these creatures in (see Figure 5.7). In a similar vein, the Coppermill Tower was refurbished with a new viewing platform over the

reservoirs to celebrate the role the building once played in the development of London's economy (Thames Water and Waltham Forest Council, 2014) but also the role it now plays in providing visual access to wetland nature. Through these transformations, planners were able to naturalise the industrial past and thereby firmly set it *in the past*. With this, the project offered the reservoirs a new *post-industrial* identity – celebrating the infrastructure of the modernist movement in terms of its (past) heritage value.

Figure 5.7 Refurbished Marine Engine House with 'swift tower' installation, November 2017.

It is important to note that these post-industrial initiatives are still underpinned by very human agendas, linked to ideas of progress. While the project acknowledges the city as a more-than-human space, it still sits within a modernist agenda insofar as human design and technocratic measures are seen as the solution to ecological futures. Retrofitting buildings with wildlife habitats

is a gesture in the name of 'smart design', yet do such designs question the conditions that have led to various ecological crises? Or are they simply another act of human hubris? Here, the past is not challenged, nor are the 'the massive political and social forces aligned against the real transformation… of the city' (Leary, 2011, unpaginated). Instead, the past is spun as part of the 'unique character' of the wetlands. It is therefore questionable whether this lends itself to a humbler, less humanistic Anthropocene. Arguably, this is still a 'business as usual' Anthropocene, with a few symbolic gestures to nature, mostly to create a semblance of ecological progress or to offer Western history some sense of salvation.

5.3.3 Capitalised nature(s)

Scholars have noted how 'neoliberal conservation' involves aligning biodiversity goals with capitalist agendas (Igoe and Brockington, 2007; Brockington et al., 2008; Brockington and Duffy, 2011) although few studies have explored how this plays out in the industrialised cities of Europe where sustainability and human wellbeing are high on the agenda. Although planners for Walthamstow Wetlands were keen to emphasise the site as a *nature reserve* first and foremost, there was clearly a development agenda behind these moves. Development was subtle, and it needed to be in order for the site to be seen as a nature reserve:

> '… when we were looking at the feasibility study, there was a real choice in terms of what would be economically successful. The business planner for our consultancy, he was like "You can make this into a real visitor attraction… almost like a theme park and you would make huge amounts of money from it." But we didn't want to go that way so we said no to that: we want to deliver a nature reserve' (Rupert, Thames21 and ex-steering group member for Walthamstow Wetlands).

Here, there is an awareness that the nature reserve can still deliver a development agenda, but it had to be done in subtle ways, not through the wholesale

Disneyfication of the site.[38] This meant finding more nuanced ways to 'commercialise the space' (Lucy, London Wildlife Trust) and 'make it a bit corporate' (Sebastian, London Wildlife Trust) through its development as a public attraction. These moves arguably present a new, subtler, version of what scholars have called the 'commoditisation of nature' (Shukin, 2009; Brockington and Duffy, 2010).

Project officials argued that because Walthamstow Wetlands was offering a 'free resource' to the capital (Ann, Waltham Forest Council), they had to make it economically viable and sustainable in the long term. Under this rationale, the Marine Engine House (Grade II Listed Building) was relaunched as a café/visitor centre as well as a function room for private events, such as weddings, in order to generate more income (Figures 5.8 and 5.9; see also Appendix 4). Upon visiting the site after its public launch (November 2017), it was clear that the restored buildings were serving their new commoditised function: the café was packed with queues out the door; families were buying gifts in the newly opened shop; visitors were taking in views of the site from the newly installed viewing platform or otherwise relaxing on outdoor seating with a coffee in hand (field observations, November 2017; see Figures 5.10 and 5.11).

It appears as though UK nature reserves are generating 'visitor economies' in much the same way as conservancies in the global South (Duffy, 2013, 2014). London Wildlife Trust confirmed as much by suggesting that a lot of nature reserves need to take an 'asset management approach' to make sure these spaces are economically viable (Frith, London Wildlife Trust). Here, it is often assumed that the specific system or process will benefit from having 'multiple functions' (Wilson, 2010); however, little consideration is given to what is *lost* in the process of diversification, in terms of the quality of so-called functions – for instance, whether the space as a *home for wildlife* is compromised though the development

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[38] There were several references to 'local fears' that the reservoirs would be turned into a theme park or entertainment centre through the project. As Frith explained: 'there was a concern that…. a nature reserve with a visitor centre/café/venue…. is a Disneyfication of the reservoirs – wish we had the money really! [laughs]' (Frith, London Wildlife Trust). In this way, fears were appeased, since it was felt that the transformation was *not* a Disneyfication of the reservoirs.

of the space as a *public attraction* – including who has the power to make those judgements.
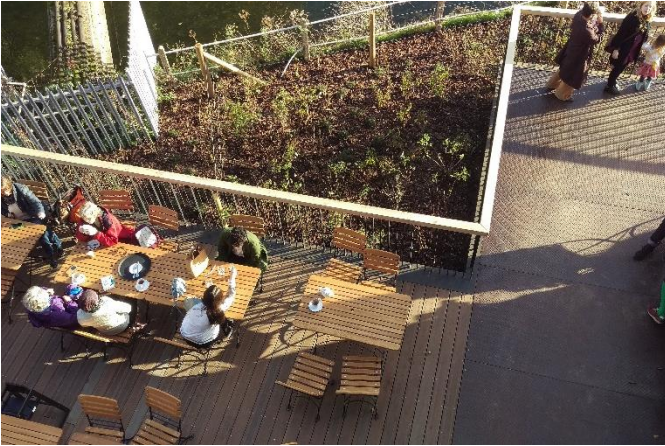
Figure 5.8 New café outside Marine Engine House. October 2017.

Figure 5.9 New café inside Marine Engine House. October 2017.

As Chapter 2 outlined, conservation has a legacy of enrolling the nonhuman world into neoliberal capitalist frameworks by turning animals into 'lively commodities' and generating surplus through 'consumptive experiences' such as safaris (Duffy, 2013, 2014). Most of the work in this area has focussed on cases in the global South, where the 'charismatics' of megafauna become a spectacle for human consumption (Lorimer, 2007; Brockington et al., 2008; Barua, 2014c; 2016, 2017). Yet, arguably there are similar moves taking place in the UK, the accumulation of what Barua (2016) calls 'encounter value', as a subtle way of funding and framing conservation action. This has important implications for how human/nonhuman relations and are and governed, although, again, this has been little explored in the context of post-industrial Britain (discussed further in Chapter 5).

Figure 5.11 New shop inside Marine Engine House. October 2017.

Figure 5.10 View of the reservoirs from new platform at Marine Engine House. October 2017.

Sections 5.2 and 5.3 have demonstrated some of the ways in which renaturing initiatives can be aligned with cities, historically geographically and socioeconomically. The next two Sections (5.4 and 5.5) offer a different context within which to discuss these dynamics – namely, Active Neighbourhoods in Ernesettle, Plymouth. Section 5.4 focusses on the historical geographies of Ernesettle, while 5.5 focusses on the political ecologies of Ernesettle.

5.4 Ernesettle: an 'island' at the edge of the city

This section illustrates the importance of Ernesettle's physical proximity to the city. While there are ambitions to reconstruct a pastoral idyll through Active Neighbourhoods, Plymouth looms in the background as a constant shadow. This gave Ernesettle an odd inside/outside relationship to Plymouth (even the 'Welcome to Ernesettle' sign – see Figure 5.12) created the feeling of a entering a separate conurbation beyond the city, yet still within it). But as Chapter 3 outlined, it is all too easy to slip into dichotomous ways of thinking and label a place 'urban' or 'rural' based on features of the landscape. For this reason, the section emphasises the importance of not isolating questions of geography (space) from questions of history (time). It argues that popular ideas regarding

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what constitutes 'rural' or 'urban' (nature) become muddied and confused when the entangled historical geographies of Ernesettle are illuminated – arguably unsettling dichotomised ideas about what natures belong where, when and how. This section begins by outlining the rural/urban dichotomy that was constructed through Active Neighbourhoods and what this meant for ideas of nature. It then goes on to discuss how 'local heritage' emerged in Ernesettle and functioned as a means to promote a sense of connectivity. Finally, it offers some of the hidden histories of Ernesettle, by situating the areas within the industrial past of the Tamar Valley.

Figure 5.12 'Welcome to Ernesettle' sign (Source: Plymouth Herald, 17/08/17)

5.4.1 Rural/urban divides

As Chapter 4 outlined, one of the primary interests of Active Neighbourhoods in Ernesettle was to emphasise active citizenship through local participation in nature, in order to bring nature closer to the residents of the estate. Official documents stated that: 'Active Neighbourhoods will help people living in five areas of Plymouth embrace healthier lifestyles… through enjoying nature on their doorstep' (Plymouth City Council, 2016b, p2). It was felt that without

securing residents' connection to nature, local green spaces were at risk of being developed:

> 'These places are on people's doorsteps. People have to care for them and be engaged in them otherwise we're gonna lose them. And they're the lungs for people - people who don't have gardens, don't have access. We really need to get people engaged in those spaces for their health and wellbeing but also for the long-term care of them. Because if they don't care for them then why wouldn't they build on them?' (Debbie, Plymouth City Council).

Renaturing places like Ernesettle is therefore immediately linked to urban conditions and processes, including the city's ambitious plans to build 19,000 new homes by 2034 and grow its population from 264,200 (2016) to 300,000 by 2034 (Plymouth City Council, 2017). The project specifically aligns human health/wellbeing with the existence of well-used and well-maintained public green spaces. Official documents specifically link poor health in urban areas to a lack of engagement in the outdoor environment, citing recent findings (Plymouth City Council, 2016b, 2016c). Here, valuing 'nature on doorsteps' is seen as step toward protecting local green spaces as well as securing a healthier, more liveable city for residents, beyond the built environment. This reveals several interesting assumptions about how the 'urban' is understood in urban renaturing initiatives.

Firstly, there is an assumption that the urban environment does not meet the health/wellbeing needs of urban-dwelling communities. The urban ranger for Active Neighbourhoods, who had been seconded from Devon Wildlife Trust (DWT), felt that: 'The Wildlife Trusts – and nature conservationists generally – now realise that getting the *urban* bit right is really important – and working with urban authorities. Because 80% of people live in towns in this country… and a lot of the towns have significantly important spaces within them that can really support nature' (Simon, urban ranger, DWT/PCC, original emphasis). Simon's comment assumes that the urban environment is not currently supporting nonhuman nature, or that it is lacking in nature somehow. In addition, it assumes that urban-dwelling communities are suffering from this perceived deficit of

nature; that human health/wellbeing is directly affected by a lack of nature and nature engagement. This affirms how renaturing in urban environments is as much about securing the health of urban-dwelling communities as it is about securing a home for nonhuman nature in the city.

Participants like Simon (DWT/PCC) who were initially new to the area (not Ernesettle residents) were shocked when they discovered (and produced) Ernesettle as a more-than-human space, which suggests a somewhat limited view of the urban, as a geographical zone defined by the (number of) people who live there. Many of the interviews took place on a bench that overlooked the fields and creeks, while the estate loomed behind (see Figures 5.13 and 5.14). Commenting on this, participants Simon (DWT/PCC) and Fred (retired naturalist and Active Neighbourhoods stakeholder) said:

> 'Behind us there are several hundred houses, compacted houses, and yet in front of us is the countryside with one road dividing us. That's incredible' (Fred, Active Neighbourhoods).

> 'We're sitting in front of a community orchard, which also has a wildflower meadow incorporated with it, and behind us is literally hundreds and hundreds of houses…' (Simon, DWT/PCC).

Figure 5.13 The bench where I conducted many of my interviews. The Ernesettle estate sits behind.

Figure 5.14 The bench where I conducted many interviews. It faces the community orchard and local woods.

Although this was not intentional, the location of the bench almost became a marker between the urban and the rural for participants. The comments above suggest surprise and confusion, as though a housing estate were somehow

incompatible with wild meadows and rolling hills: the interviewees almost appeared shocked that these two (supposedly separate) domains could operate alongside one another (field observations, 2016-2017). In fact, when I asked Simon (DWT/PCC) about his first impressions of Ernesettle when he began work, he said:

> 'Well I'm quite blown away by what you have here actually, it does seem a bit unusual…. If I'm honest when I first drove through Ernesettle and saw all these rows and rows of fairly similar looking houses, some of them quite grey, you know, in winter it's quite a desolate wind-swept place, you think "My god, how am I gonna make an impact here" but actually I've been really pleasantly surprised.'

This comment indicates that Simon had a pre-conceived expectation of what an urban estate would harbour in terms of 'natural' features, which says a lot about the assumptions that are made about urban environments in conservation worlds. The fact that he was 'blown away' by what he found in Ernesettle speaks directly to traditional (Western) expectations of where nature is to be found, that is, away from urban peopled places – a 'fault-line' that runs through the entire conceptual system of Western culture (Plumwood, 1993; see Chapter 2). However, even though Simon and other (non-resident) participants were 'pleasantly surprised' by the co-existence of what they imagined as separate (nature/culture) domains, they still appealed to the past for inspiration in renaturing endeavours, rather than what was in front of them. In other words, the present was not 'pleasant enough' in Ernesettle, hence why the intervention can be understood as 'renaturing' rather than simply 'naturing' (Hall, 2010).

As the following section suggests, the practices that followed made a conscious appeal to a pre-urban nature, an *imagined time* when humans were thought to have a more harmonious relationship to the land.

Figure 5.15 Tamerton Lake/Ernesettle Creek, June 2018

5.4.2 Reconstructing 'heritage' in Ernesettle

Heritage has been recognised as a contested domain by social scientists and cultural historians for many years (Smith 2006; Harrison, 2010, 2012; Waterton and Watson, 2013, 2015). Critical heritage scholars understand heritage as a cultural process that involves multiple actors, with different degrees of power and influence. Such scholars are conscious of the way public or community 'heritage' often emerges as a self-evidently 'good thing' (Smith, 2006), something that must be preserved because it is seen to have inherent importance. Heritage projects thus offer a means to engage specific communities who are seen as 'owners' or 'stakeholders' of a particular heritage. Here 'heritage' itself becomes a means of community engagement as well as its consolidation (Waterton and Watson, 2015).

In her *Uses of Heritage* (2006) Laurajane Smith demonstrates that heritage value is not inherent in physical objects or places, but rather that these objects and places are used to give tangibility to the values that underpin different communities and

to assert and affirm these values. In the case of Active Neighbourhoods in Ernesettle, heritage became a powerful means to construct a sense of community and connectivity with/through the landscape. Certain actors asserted their historical interests early on in the process. Fred (naturalist and stakeholder; introduced in 4.3) for instance was clearly well-connected and well-versed in issues of 'heritage' and 'nature' and was keen to insert himself into processes that affected them.[39] He returned to Ernesettle as a retiree hoping to pass on some of his knowledge and experience to the community.

During the course of Active Neighbourhoods, Fred conducted research on the area and compiled a brief history of his own. In these documents and references, there were various facts about Ernesettle's 'rich history'; for instance, the idea that Ernesettle was once home to 'one of the most famous formal gardens in the West Country', a place 'full of exotic plants' that 'attracted visitors from far and wide' (Clarke, 2011).[40] He also initiated a meeting with Historic England to discuss the ruins of Budshead Manor (Figure 5.17) after voicing his concern at the 'lack of management and deterioration of a very important site' (60s, retired naturalist and Active Neighbourhoods stakeholder). Fred shared a collection of maps with the stakeholder group as well as an old picture of Budshead Mill, which he sourced from 'a local historian friend' (Figures 5.1 and 5.18).

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[39] For instance, when I asked Fred what he would do once Active Neighbourhoods came to an end, he told me he was already involved in a project on the conservation of Devon's cemeteries (field observations, November 2017).

[40] The management (and managers) of Budshead Manor were deemed noteworthy, as the documents mention Sir Harry Trelawny who owned the estate at the time and carried out an 'ambitious scheme of gardening' (Clarke, 2011) including creating or maintaining a Melon garden, a Walled Garden and two other unnamed gardens (all listed as being in Ernesettle as late as 1842).
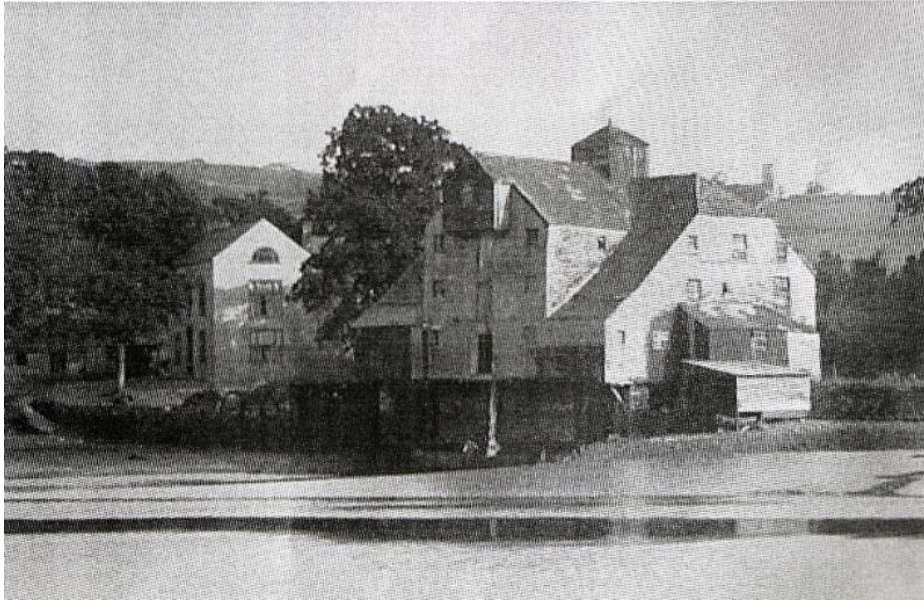
Figure 5.16 Budshead Mill 1890s (Source: Active Neighbourhoods)

Figure 5.17 A view of Budshead Manor (William Payne, ca. 1800)

These artefacts depict Ernesettle in the 1800s when the area was mainly fields, orchards and farmland. They clearly had influence among the group of stakeholders: described as 'wonderful old maps' that will 'form important information on verification of earlier orchards and hedgerows across the site, particularly in respect of the old Budshead Manor' (Simon, DWT/PCC). In this

way, many of the ideas and practices related to Ernesettle's renaturing were brought to bear in 'scientific' ways, through maps and 'expert' advice relating to the specific interests of members of the stakeholder group. The process showed how historical artefacts have power when they are used alongside ideas about community 'heritage' and restoration/renaturing projects – where the past is seen as a source of inspiration. Equally, by circulating these artefacts stakeholders like Fred were able to consolidate their role within the stakeholder group and affirm their place within Ernesettle's 'biotic community' (see Chapter 7).
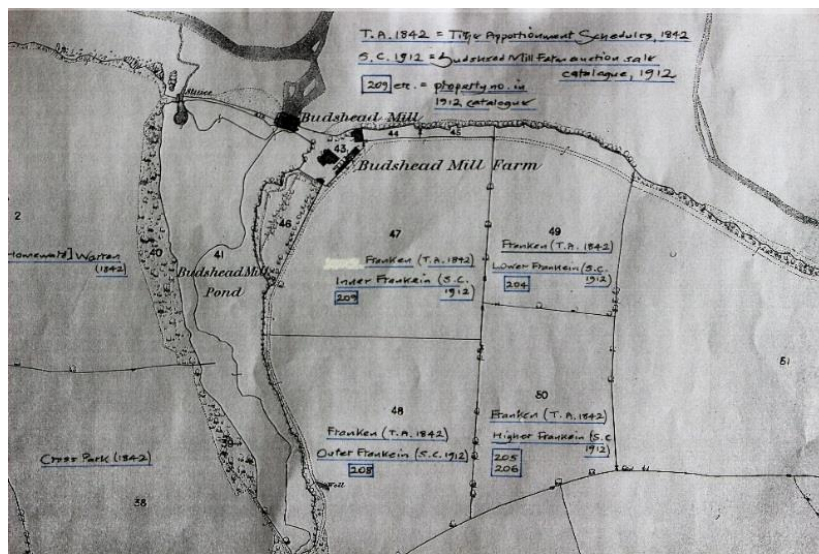
Figure 5.18 Map of Budshead Mill Farm in 1830 (no longer in Ernesettle) (Source: stakeholder/AN)

Here, the invocation of the past in Ernesettle is based on what is imagined (and physically depicted in old maps and paintings) as a thriving pastoral landscape, prior to the establishment of the housing estate in the 1950s. Although the (ideal) timeframe was never fully specified, the stakeholder group did make regular references to the past, such as 'ancient hedgerows' thought to be from the Anglo-Saxon period (AD 800-1066) as well as to 'historic orchards' that once surrounded Budshead Manor, which has been dated to the mid-sixteenth century, but may likely go back to Medieval times. These loose references to the past speak to an (imagined) time when Devon was thought to have a more thriving, harmonious biotic community. Thus, recovering Ernesettle's 'heritage' was about combatting

the perceived cultural 'loss' supposedly wrought by modernity (Merchant, 2003; Cronon, 1995).

In this way, renaturing involves strong imaginations, evoking different temporalities and rural/urban identities, particularly on the part of those who already have an interest or stake in nature (discussed further in Chapter 7). While most of the wild work in Ernesettle involved reassembling 'heritage' according to ideas of community and communal nature, there was also an awareness that the area of Ernesettle had a life history of its own, inextricably entangled with the waters that surround it.

5.4.3 Lost histories

Historically, Ernesettle would have been a very connected place because of its waters: the Creek and the adjoining Tamar river were used by human communities for thousands of years, providing passageways for travellers and sea foods for early settlers (Cunliffe, 1988; Firth, Watson and Ellis, 1998). The area later became an important place for an assortment of seafarers, from explorers and collectors to colonists and slave voyageurs, with Plymouth being a gateway to the world beyond (Essex and Ford, 2015; Knights et al., 2016). During the industrial period, river transportation enabled the expansion of farming and mining industries and supported riverside communities in accessing the growing towns of Plymouth, Dock and Sutton (Chaplin, 2002). Plymouth's military history also left its mark on places like Ernesettle: several sea forts still remain along its coastline and many residents speak of working at the dockyards, before they were forced to shrink their workforce.

When the estate was first built, the water still seemed to have a positive place within the lives of Ernesettle residents. The Creek itself was a place of celebration and a place of exploitation (Kolinsky, 2016). Many of the older residents fondly recalled childhood memories of swimming in the Creek, running across the railway track, scrumping (taking apples from commercial orchards), crabbing and fishing. As one resident recounted:

'Back when I was a kid, there used to be an event where the men would take some of the local women over on a boat and drop them on the other side. Then they'd make rafts and whoever got over and picked one up and brought them back quickest was the winner – and you'd end up with half of the estate swimming in the Creek! And I just don't think you'd do it now, would you, you'd worry too much about what's in it…' (Neil, 40s, community worker and ex-resident, Plymouth Community Homes).

These practices were imbued with high social value, even seen as rites of passage for those growing up on the estate. As historian Hilary Kolinsky puts it, 'There was a strong environmental component to the Ernesettle identity, forged through both dramatic and everyday events with the local landscape' (Kolinsky, 2016, p173). But where the Creek was once a place for family celebration, daring swims, family picnics and fishing weekends, now its tidal powers are a source of fear in the community.

In 2006, a local boy drowned in the river while playing in an inflatable boat with friends. He went out to help his brother who had lost control of the dinghy and was subsequently swept away in the tidal currents (Daily Mail, 10 July 2006). The tragedy still lives on in the collective memory of the community: there is a shrine under the railway bridge near to where his body was found, with fresh flowers placed alongside the boy's football scarf and moped wheel (field observations, 2016-2017; see Appendix 5). It is one of the first stories told by residents when asked about the status of the Creek today (field observations, 2016-2017) and with it, residents constructed the water as a fearful place, full of risk and danger: 'there's such a strong tidal pull in that specific area...' (Deirdre, 70s, Ernesettle resident), 'it's like a sink emptying' (Bernie, 60s, Ernesettle resident), 'it looks so calm and it's not… they [the boats] can get sucked out – it's awesome [says with a smile] but you have to know what you're doing' (Rosemary, 40s, Ernesettle resident). Figure 5.19 illustrates how the Creek might be (mis)interpreted as having calm waters – a surface-level image as Rosemary suggests.

Partly because of these fears and what was perceived to be a loss of connection to (and understanding of) Ernesettle Creek, several of the stakeholders for Active

Neighbourhoods were keen to find ways to 'reconnect' the community to the local environment. Socio-environmental 'connectivity' was thus one of the key narratives that informed Active Neighbourhoods, yet how connectivity was negotiated in practice was not a straightforward or smooth endeavour, as the following section demonstrates (and Chapter 7 explores in more detail).

Figure 5.19 Pink sea thrift at Ernesettle. Tamar estuary behind, May 2017

5.5 Political ecologies of Active Neighbourhoods in Ernesettle

The project of 'renaturing' urban Britain emerges quite differently when social-economic context is taken into account. In the case of Active Neighbourhoods, the project quite dramatically reflects the changing nature of public funding, which is now sourced through external bodies such as the Big Lottery and is often offered on a short-term basis, based around specific objectives that invariably isolate issues from the wider context, such as the long-term effects of UK government austerity. Equally, the logics and rationales local authorities use to legitimise community interventions are clearly much more complex, multi-layered and political than projects let on.

5.5.1 Political economies of 'community revival'

The vision for Active Neighbourhoods was quite consciously framed within a context of socio-economic deprivation.[41] The project specifically targeted five of the most deprived areas of Plymouth, defined according to the multiple deprivation index (2015) issued by Plymouth City Council.[42] Official documents for the project would highlight Ernesettle as one of Plymouth's 'most deprived areas', with high rates of antisocial behaviour, a large proportion of people living in social housing, and an average life expectancy twelve years below that of the city's most affluent area (Plymouth City Council, 2014; Plymouth City Council, 2016). The purpose of Active Neighbourhoods was not to resolve these issues directly, but to link the 'problem' of deprivation to public health and the perceived lack of active citizenship within these communities.

As such, official documents would cite studies that emphasised the health aspects of deprivation, suggesting that Plymouth's most deprived neighbourhoods 'are not sufficiently active, and are hard for health and social services to reach or engage with' (Plymouth City Council, 2014). Likewise, during official meetings, managers would refer to evidence that suggested that communities living in deprived areas suffered from 'social isolation and/or exclusion' or were otherwise 'disengaged from decision making-processes that affect their lives and their local environment' (Plymouth City Council, 2014). Active Neighbourhoods was able to weave together issues of health, citizenship and nature, grounding them in the growing health/wellbeing agenda in Britain (see for example Bowler et al., 2010; Thompson Coon et al., 2011; Wheeler et al., 2014).

Partly because of these linking interests and partly because of funding reasons, the Council's Natural Infrastructure Department worked with its Public Health

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[41] A deprived area is conventionally understood to be a place in which people tend to be relatively poor and are more likely to face challenges such as ill health, lower educational attainment, unemployment, limited access to goods and services, and inferior housing (Plymouth City Council, 2017).

[42] It ranks 7 out of 39 neighbourhoods in Plymouth according to the 2015 multiple deprivation index (MDI) (Plymouth City Council, 2016d). The area scores 1.5 on the 2015 National Indices of Deprivation, which puts it among the 15% most deprived neighbourhoods in the country (Source: Indices of Deprivation Explorer 2015).

Department to deliver the objectives for Active Neighbourhoods. Yet there is a wider political economy to these strategic alliances. During the research period (2015-2018), Plymouth City Council was undergoing significant internal restructures and budget cuts, wrought by post-2008 austerity policies in Britain. As scholars note, with the dramatic curtailing of government spending, local councils were having to become more innovative in the way they manage streams of work and access sources of funding (Mayo, 1994; Healey, 2006; Featherstone et al., 2012). One former worker at the Council indicated as much: 'Most of the work we've done is in the more deprived areas. That's where the funding is. You have to demonstrate there's need and all those kind of things…' (Todd, former employee, Natural Infrastructure, Plymouth City Council).

Todd's comment highlighted how local councils can (and do) formulate specific projects for deprived areas (defined statistically) because they attracted more funding. This meant that areas classified as 'deprived' would be given access to certain streams of funding, with specific interventions tailored under the banner of deprivation. So, labels and public narratives of a place and its people are shaped and normalised (Kolinsky, 2016). Moreover, to secure these sources of funding, new alliances were made, such as the one between the Public Health Department and the Natural Infrastructure Department. As Debbie, one of the managers for the project explained:

> 'The emphasis on health is… well, it's partly a funding issue [smiles] because as you know funding is being cut everywhere so we're looking at ways in which we can prevent poor health, so being more proactive rather than reactive… I think that by joining up with Public Health we can help meet each other's needs. And actually we thought: *We'll get some health money* because actually what we're doing is delivering health outcomes' (Debbie, Plymouth City Council).

Debbie's comment illustrates that with increased cuts to local spending, the objectives of what might otherwise be a purely nature-focussed project were being expanded to include different human objectives, which arguably created both opportunities and challenges for 'renaturing' ambitions, including how

human/nonhuman relations might be reframed and reimagined in the future. While decreased funding and the diversification of income sources might produce some interesting alliances and 'hybridised' human/nonhuman projects (see below and Chapter 8), it is important to consider whether real impact and improvements (for humans or nonhumans) can be fully realised and sustained under such intense resource pressures.

For while Active Neighbourhoods was busy delivering its health-oriented activities (nature walks, outdoor learning), services that would otherwise improve health/fitness were being closed within the community. During a resident forum meeting, one local resident explained: 'It's very disappointing that a lack of funding has forced its [local gym] closure. The YMCA gym will be available in Honicknowle but some of the community will struggle to get there' (Resident, Ernesettle Community Forum, November 2016). Similarly, the local clinic was cutting its staff and hours, meaning that health check-ups for residents would not be so readily available (Ernesettle Community Forum, November 2016). There is a risk that projects like Active Neighbourhoods serve as a distraction from the realities of austerity, where critical services are being stripped from communities on a daily basis. While 'nature' is seen as a way of tackling health issues, one needs to question how effective these short-term interventions are, especially when they are subject to the whims and fancies of funding bodies like the Big Lottery.

5.5.2 Fiscal and functional approaches to renatured spaces

As Chapter 2 outlined, the Western world has a long history of fiscal and functional approaches to nature, where environmental management is orientated towards the goal of maximising the benefits of nature and achieving what political ecologists identify as a 'neoliberal win-win model' for conservation (Brockington and Duffy, 2010, 2011; Buscher et al., 2012). In the case of Active Neighbourhoods, the pressures of limited funding and time shaped some of the major works that were carried out in Ernesettle. One of the best examples of this

is the transformation of the Headland Path (named so by the project) that skirts around the edge of the estate, following the Tamar river/estuary (Figure 5.20).

This public footpath was identified by residents as 'extremely waterlogged' in winter and 'regularly overgrown' with shrubs and overhanging trees that 'block the path' (resident comments, CABE Spaceshaper workshop, September 2016). Stakeholders felt the path was in need of improvement, in order to 'better connect' people to nature in the area, including 'access provision' for pushchairs, wheelchairs and those less able to walk (Plymouth City Council and Devon Wildlife Trust, 2017). In response, the Headland Path was proposed as a simple, practical solution to Ernesettle's environmental access issues: 'it'll be quite a quick repair', 'simple work', a 'no brainer' (Simon, urban ranger, DWT/PCC). Simon explains that the path 'was a fantastic skeleton to add other bits – benches, viewpoints… It's an example of taking advantage of opportunities along the way'. As a 'skeleton', the path was framed as an incomplete space that needed to be remedied.

To create the new path, the vegetation was cleared to 'open it out' and create a 'green avenue' full of 'viewing points'. There was a functional aesthetic to this transformation: in addition to making it usable, the changes to the path were also designed to 'give it a sense of being looked after' (Simon, DWT/PCC). Simon reasoned that 'If we smarten them [paths] up people are more likely to use them'. Here, utility and function is associated with a neat/tidy appearance. The hope was to 'keep it trim' and ensure the path 'doesn't get lost again' by taking a brush-cutter to the brambles and sowing wildflower seeds over any 'bare-looking' edges (stakeholder comments, Active Neighbourhoods, 2016-2017).

Figure 5.20 Headland Path, enhanced through Active Neighbourhoods, August 2017

Afterwards, the new path was seen as a 'win-win' situation for people and wildlife, where 'you have good habitat for birds and stuff, it looks nice in terms of opening up pocket views, and also you've created really positive access for people' (Simon, PCC/DWT). While this appears to dispel borders and boundaries between human and nonhuman worlds by envisaging solutions that 'work for both', there is still a distance that is created, since nature is framed as something to *view* rather than become entangled with. Wild work in this instance can produce utilitarian natures that are subject to the uses and visual interests of humans, as 'added benefits'. This arguably leads to a limited framework for environmental management, where decisions are made based on utility rather than multiplicity; an either/or situation that can have exclusionary effects.

While the interests of wildlife were certainly considered, they were done so in functional ways. For instance, the work on the Headland Path was done rapidly, partly to avoid the nesting season, but also because the project had a specific amount of budget for capital works that 'needed to be spent' within a certain timeframe, according to Big Lottery requirements (Simon, PCC/DWT). Simon admitted that they 'just about got away with it' in terms of the timing of the work, to avoid nesting season and therefore minimise disturbance to birdlife, which would have been in breach of the Wildlife and Countryside Act 1981. This

demonstrates how such interventions to 'reconnect' communities to local landscapes are as much subject to time and money as they are to values and ideals.

5.6 Conclusion

This chapter has offered an insight into the complex ways in which renaturing gets enacted in urban environments. It has shown how renaturing initiatives respond to (and reinvent) history, geography and, critically for this thesis, nature-society relations. Walthamstow Wetlands played on the unique environments that have emerged from the 'industrial ruins' (Tsing, 2015) of London and sought to reinvent them as natural and cultural 'heritage'. Active Neighbourhoods played on the agricultural past – a time when Ernesettle was fields and farmland before it was 'engulfed' by the city. The chapter also drew attention to the political economics that shaped these projects from 'behind the scenes' – situating them within planning contexts and neoliberal agendas for greener cities. Together, the various sections of this chapter have exposed that renaturing is not simply about nature – or, more precisely, that 'nature' is not a context-free category but is enveloped within everyday affairs.

Chapter 6. Life in the urban wilds: ecological governance at 'Europe's largest urban wetland'

6.1 Introduction

Chapters 4 and 5 outlined the complex ways that urban and semi-urban places become reimagined and remade through 'renaturing' programmes. They explored the extent to which current socio-economic and geographical contexts had a bearing on environmental decisions (RQ1). They also highlighted how specific histories (of *place, people, wildlife*) are selected in order to rationalise certain environmental decisions (RQ2). In doing so, they opened up discussion on the scope and role of renaturing in urban peopled places, where urban conditions are set alongside the goal of 'saving life' and the desire for a more ecological future for the city. The following chapter explores the paradoxical ways that 'wildlife' gets enrolled in ecological visions for the city, drawing on empirical research from Walthamstow Wetlands.

This chapter is divided into two main parts. Section 6.2 examines how wildlife is imagined and governed in urban renatured spaces, according to ideas of 'healthy' urban ecologies, addressing RQ1 and RQ3. Section 6.3 reflects on the purpose of an urban nature reserve and the consequences of 'managed access' for multispecies relations, as well as ideas of shared space, addressing RQ4. The reason these parts are held together in one single chapter is because one informs the other: it is through ecological visions for Walthamstow Wetlands that nature reserves are given a contemporary inflection that reflects new/emerging renaturing and rewilding paradigms. However, as the chapter suggests, the framing of wild spaces as 'ecological' can erect a barrier to all those who are not considered ecological, which prompts reflection on who really benefits from 'wild work' in the city.

6.2 Ecobiopolitics for city nature reserves

Over the last twenty years, attention has turned to the post-industrial, war-damaged cities of Europe as sites of ecological remediation (Zimmerer, 2000;

Francis and Lorimer, 2011; see Chapter 2). This includes the production of 'cleaner' and 'healthier' environmental spaces through, for instance, brownfield remediation, the mitigation of environmental toxins and the creation of environmental amenities in urban communities (Banzhaf and Walsh, 2006; Eckerd, 2011; Pearsall, 2012). With this, the remit of conservation (centred on the goal of 'saving life') has been situated alongside the desire for more 'liveable cities' and thus incorporated in urban planning agendas and spatial approaches to habitat creation. The planning and management of, for example, urban greenways and landscape corridors (see Imam, 2006; Hodgetts, 2017b) has meant collaborations between politicians, urban planners, ecologists and landscape engineers. Yet, who benefits from plans for liveable cities; liveable for whom?

As Chapter 4 noted, urban renaturing projects can quickly become absorbed into neoliberalised, profit-oriented urban regeneration, where 'expert' designs for green urban living emerge through the co-workings of capital, state, science and planning (Bunce, 2018; see Chapters 2 and 5). Few studies have examined the biopolitical implications of these moves, where remedying 'degraded' urban spaces under what Zimmerer (2000, p357) calls the 'ecological phase of capital' can have material consequences for nonhuman life. Specifically, there has been little academic engagement on the way 'wildlife', as it appears in conservation agendas, is reconfigured in ecological terms, where certain species become cast as ecological symbols for 'remedied' or 'renatured' urban environments.

6.2.1 Ecological visions for industrial reservoirs

Walthamstow Wetlands is one example where the twin goals of urban liveability and biodiversity conservation are neatly woven together. Being a partnership project between a local authority (Waltham Forest Council), a water production company (Thames Water) and a conservation organisation (London Wildlife Trust), there was a clear alignment of these diverse agendas, made possible through the framing of Walthamstow Wetlands as an ecological intervention. By framing the intervention as a transition (that is, a sign of improvement and progress) from an 'industrial reservoir' to a 'wild wetland', officials were able to

rationalise the changes and cement its image (in the public eye) as a nature reserve. This involved several moves.

Firstly, it involved framing previous management (by Thames Water) as *unecological*. Official documents stated that the operators, Thames Water, did 'not give priority to the enhancement of the site's nature conservation values' (Thames Water and Waltham Forest Council, 2014) and the public were told on guided walks that 'the site has deteriorated over the last ten years because it was not being managed for wildlife…' (Fern, London Wildlife Trust). Conservation practitioners felt that while Thames Water had used 'sympathetic management regimes' to maintain the site's SSSI/SPA status, 'everything else has really kind of thrived on the edges and gone relatively under the radar' (Fabien, London Wildlife Trust). This was thought to be because Thames Water's priority was (and legally had to be) water production: 'they look after the infrastructure, the reservoir banks... and the fish stocks here. That is their focus. It's not nature conservation' (Fabien, London Wildlife Trust). In this way, previous management was seen as ill-fitting for the future needs of wildlife.

The second move involved presenting the site's new management strategy as progressive, more suited to the future needs of wildlife. By foregrounding nature and bringing wildlife out from 'under the radar', project managers were able to frame the intervention as ecologically *necessary* for the protection of nature in the city. In this way, project officials were able to present Walthamstow Wetlands as 'opportunity for wildlife', to increase the site's biodiversity value. Official documents stated that the changes would enable the reservoirs to 'support larger populations of species already known to frequent the site, as well as attracting new species or those that have been absent for some time' (Thames Water and Waltham Forest Council, 2014). Likewise, the public were told that '…we [London Wildlife Trust] are enhancing the site to get some of the species flourishing as they did 10 years ago…' (Fern, London Wildlife Trust). Here, there is an implicit assumption that (new) conservation management is inherently 'good' for wildlife, while operational management (for water production) is

inherently 'bad' for wildlife – an assumption that Chapters 9 and 10 critically examine.

6.2.2 Enhancing urban reservoirs

Various ecological alterations were made at Walthamstow Reservoirs. Wildflowers were sown along the edges of paths and in disused spaces; hedgerows were 'enriched' with gorse and other 'hardy species' (staff/volunteer comments, London Wildlife Trust; Figures 6.1 and 6.2). These alterations were described as 'habitat enhancements' by project representatives and were given a slightly different inflection from that of conservation, which generally involves the maintenance of existing conditions (Neumann, 2015; see Chapter 2). There are very few definitions of what constitutes habitat enhancement in UK conservation (web-based review conducted, 14/09/18). It appears to be applied to environments that are thought to be damaged or degraded in some way, and involves 'improving' the environment, for instance through habitat restoration, litter picking or the re-greening of urban waste sites (Lovell et al., 2014).

With enhancement, there is an assumption that existing ecological systems are not entirely as they should be:

> 'At London Wildlife Trust…. our mantra is *protect, conserve, enhance.* So: *protect* what you've got from other pressures, whether it be development or whatever; *conserve it*, so that's about maintaining what you've got, so moving away from the idea of 'preserving' and conserving gives you the room to align yourself to ecological processes about what's going on anyway; and then *enhancing* is where you can bring about ecological benefits, which are in keeping with the ecological vernacular of the site. And this is where there are differing schools of thought…' (Frith, Director of Conservation, London Wildlife Trust).

While the distinction between protection, conservation and enhancement is very much dependent upon how a landscape is imagined and idealised, this quote suggests that the mandate of organisations like London Wildlife Trust goes

beyond the preservation of existing conditions, to the enhancement of those conditions, including the ecological processes that constitute them. To this extent, the project of habitat enhancement marks a shift beyond traditional 'compositionalist' (Lorimer, 2012, 2015) modes of governing environments, by incorporating interests in urban greening (Hinchliffe and Whatmore, 2006), ecological restoration (Francis, 2012; Müller et al., 2018), reconciliation ecology (Rosenzweig, 2003), as well as the myriad of practices that broadly fall under the banner of rewilding (Lorimer et al., 2015; see Chapter 2).

Urban reconciliation ecology is particularly relevant to the case of Walthamstow Wetlands insofar as it involves 'the modification and diversification of anthropogenic habitats to support a greater range of species, without compromising the land use' (Francis and Lorimer, 2011, p1429).[43] This approach differs from setting aside land that is already seen to be ecologically important and it is not the same as remediating landscapes, either to recreate or simulate a previous condition (Francis, 2009). Instead it involves the modification of *existing* urban infrastructure for the benefit of wildlife. At Walthamstow Reservoirs, existing land uses were highly important: staff were conscious that any enhancements would need to work alongside existing reservoir operations such as water production and angling (see Chapters 4-5). Yet, reconciling habitats and functions still involves a judgement with respect to the baseline that is imagined, a sense of where one is enhancing *from* and *to*.

How 'enhancements' are defined or decided, and by whom, is thus of critical importance. Francis and Lorimer's (2011) version of reconciliation ecology has an important social component, including a 'bottom-up' approach to urban ecological enhancement, which involves local communities and versions of citizen science: 'it will… rely much more on localised and coordinated efforts of a large number of people and organisations with high levels of spatial, social and economic diversity' (Francis and Lorimer, 2011, p1433). In the case of

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[43] In their study, Francis and Lorimer (2011) give the example of 'living roofs' and 'living walls' that are installed with organic matter and a surface vegetation layer and then seeded, planted or left to colonise naturally (Francis and Lorimer, 2011).

Walthamstow Wetlands, 'reconciliation' was very much a top-down process, involving high-level decision makers and particular funding streams (Heritage Lottery Fund) that would have informed the nature(s) of environmental modification, including who/what ultimately benefitted.

Figure 6.1 Enhanced hedges, Walthamstow Wetlands, May 2017

Figure 6.2 Wildflower meadow sown in disused space, May 2017

One of the ways in which 'the urban' became reconciled with the needs of (particular) wildlife, was through the modification of industrial buildings to reflect the interest in natural and cultural 'heritage'. Several of the changes at Walthamstow involved retrofitting buildings on site to make them more fit for wildlife. The 'swift tower' was an interesting example of this: project managers redesigned the chimney of the 1800s engine house in such a way that swifts (*Apus apus*) can now enter the tower (see Figure 6.3). The bricks of the tower were produced with swift-size holes in them, while the inner layer of the tower was designed with bat-friendly enclaves.

Figure 6.3 Swift holes built into renovated chimney (Source: Walthamstow Wetlands)

The renovated swift tower was framed as an ecological symbol, 'to 'symbolise the transition from the industrial to the ecological, a sign of our times' (Ann, Waltham Forest Council). It was seen as a 'gesture to swifts' and 'hopefully not an empty one' (Mann, architect, Walthamstow Wetlands) – for at that point the swifts were yet to take up residence in the tower (April 2017). Here, somewhat paradoxically, a man-made artificial structure is seen as a means to 'naturalise' the urban environment: by enticing swifts to the urban environment, the renovated chimney becomes the solution to the urban problem. While architects and planners were interested in (future) swifts as symbols of an improved urban

environment, conservationists were as much interested in the birds themselves and their plight as a result of human activity. London Wildlife Trust staff thus combined the ecological argument with a conservation one, explaining that:

> 'because the swift is very rapidly declining and has been since the 1970s due to people knocking down older houses, clearing their guttering, and getting rid of the eaves where they naturally nested, it is now being prioritised here… Whereas in the Scottish Highlands maybe you wouldn't be doing that, because you don't have so many buildings around… But we have built the swift tower, to teach people that swifts are declining' (Lucy, London Wildlife Trust).

Here, there is a recognition that human activity has contributed to the decline of swifts and that their decline is still very much a present reality. Implicit is the idea that, while the installation of a swift tower *might* support some migrating swifts, it will not reverse the overall decline of swifts in Britain and Europe. The traditional conservation ethic (concerned with global populations) is combined with localised 'renaturing' interventions, which reflects the diversity of practices utilised in urban nature reserves. London Wildlife Trust located the modern place of swifts in cities: 'it is very much an urban bird; its habitat is buildings' (Lucy, London Wildlife Trust). Here, Lucy sees swifts as *belonging* to urban zones. But again, it is necessary to contextualise these moves, since swifts were not always urban birds.

Until the middle ages, swifts mainly relied on old woodpecker holes in the dead and dying trees of ancient forests (Goode, 2014). It was only through intensive deforestation across Europe that swifts learnt to adapt and move into the open eaves and gables of buildings, breeding there successfully until the twentieth century (Goode, 2014). It is important to attend to the temporal dynamics of nature enhancements, to ensure that what is framed as an *improvement* is not simply a distraction from past human activities, the underlying cause of certain ecological and biogeographical realities. The swift tower may indeed provide an important home for swifts in the future; the critical question is, how would

project managers respond if a different bird (not of conservation importance) were to take up residence in the tower instead?

To this extent, habitat enhancements of this nature are not experimental processes, with doors open to all. They are tailored for specific species that are deemed ecologically significant. To this extent, they do not reflect rewilding ambitions to generate 'surprising ecological futures' (Prior and Ward, 2016), nor do they invite wider parts of society to be involved in making surprising ecological futures.

6.2.3 Beckoning the bittern – reed enhancements

While it might be thought that habitat enhancements support multiple (even all) forms of life and are experimental in nature, open to 'whatever happens to come' (Francis and Lorimer, 2011), there is often still a preference for 'the right kinds of diversity in the right places' (van Dooren, 2014, p7; see Chapter 2). Because of the SSSI/SPA status of Walthamstow Reservoirs, as well as the interest in preserving certain charismatic species for visitor engagement purposes, habitat enhancements were targeted interventions, to encourage certain species to breed and stay (overwinter) at the reservoirs. The installation of reed beds was one such enhancement (see Figure 6.4).

Figure 6.4 Installed reeds (*Phragmites australis*), Reservoir No 1, August 2017.

Between October 2016 and May 2017, 2.4 hectares of common reeds (*Phragmites australis*) were installed in reservoirs 1, 2 and 3 – inserted into floating coir mats in the shallow areas and back-filled using silt recycled from the bed of the reservoirs to help them establish. Seen as a 'cosmopolitan species' (Packer et al., 2017) that is native to Britain, these reeds were spoken about with much pride by project representatives. During guided walks, the group were told that reed beds would serve several ecological functions: to improve water quality by absorbing nutrients; to provide breeding grounds for fish and provide habitat for invertebrates and amphibians (field observations, 2016-2017). Yet the primary function of the reed beds was to encourage *future* species; ones that were not currently present or fully utilising the site. In this way, the reeds themselves were ascribed a labour value for their role in enticing and supporting particular bird species of conservation importance. These included wading birds and marshland birds, such as reed warbler, reed bunting, and sedge warbler – birds that would symbolise a more 'natural' marshland ecology for these urban reservoirs.

Most significantly, the reed beds were designed to encourage a very famous bird of conservation importance in Britain – namely, the great bittern, *Botaurus stellaris* (hereon: bittern). Bitterns became the ultimate (*future*) ecological icon for Walthamstow Wetlands. As one practitioner explicitly stated: 'we're enhancing the site…. so that bitterns can come… Bitterns like the reeds – if you've got bitterns you've got a healthy ecosystem' (Fern, London Wildlife Trust). Likewise, another said 'London Wildlife Trust will be doing cartwheels [in celebration] if the bittern comes' (Sebastien, London Wildlife Trust). During guided walks, the group stop at the reed beds and are shown laminated picture cards of the bittern. We are told that 'it doesn't look much but it sounds great' (Sebastien, London Wildlife Trust). The reference to the bittern's distinctive call, a biophysical characteristic that is unique to the bird, speaks directly to the bittern's symbolised and romanticised ecological status in Britain.

The bittern is a widespread species of the family *Ardeidae*, occurring from Britain east to China, and from Russia south to Turkey (Kushlan and Hafner, 2000). Although not globally threatened, the bittern has an unfavourable conservation status in Europe, and especially in Britain, where the number of breeding males declined from 70 in the 1970s to fewer than 20 in the 1990s, leading to its inclusion in the list of UK Birds of Conservation Concern (Tucker and Heath, 1994; Gilbert et al., 2002; Gregory et al, 2002). During the nineteenth and twentieth centuries, the bird became subject to concerted conservation efforts after bittern populations went into rapid decline as a result of overhunting and the drainage of marshland habitat. Since then, the bittern has gone from being a table bird for royal elites to a conservation icon, a favourite of the press and public, despite its rarity, cryptic plumage and secretive nature (Gilbert et al, 2005).

Tracing the bio-cultural associations of the bittern, from English folklore tradition to modern day conservation, Barua and Jepson (2010) conclude that with its booming call, elusiveness and occupancy of marshes and fens, the bittern has become embedded within 'cultural narratives and practices of educated English relating to nature and the countryside' (2010, p310). Efforts to 'save the bittern' have also had the added effect of human redemption; a means to rectify the

'errors' of the past and recuperate what is thought to be an essential part of English nature – a nature that was oddly only valuable to certain (elite) parts of society. The bittern is now a symbol for the preservation and restoration of wetland habitats, representing the recovery of a 'damaged' English landscape and the rationale for a more 'science-based' conservation that is attractive to popular public opinion (Barua and Jepson, 2010).

Conservation sites where the bittern is present, such as the RSPB's famous Minsmere Nature Reserve in Suffolk, will often frame the bird as the ultimate 'flagship species' – that is, a high-profile, charismatic or ambassadorial species used as 'conservation capital' (Barua, 2011; Jepson and Barua, 2015). Here, it is the *symbol* of the bittern, on display and made amenable to visitors (particularly those with cameras, sound recorders and birding check lists) that is valued and reproduced in conservation settings – what political ecologists see as 'selling nature in order to save it' (McAfee, 1999). The social capital generated around Walthamstow Wetlands (see Chapter 5) equally meant that certain birds were enrolled as icons or spectacles to entice new audiences, as well as satisfy existing bird enthusiasts. For instance, the reed beds were strategically placed close to footpaths so that if wetland birds like the bittern were to arrive, they would be easily visible (or audible) to visitors. With this, reed beds were as much a symbolic gesture to provide an experience of (particular) natures, as a practical step to ensure their arrival.

The mobilisation of ecological metaphors in conservation science, wherein particular species are valorised as keystone, flagship, indicator or umbrella species (Barua, 2011; Lorimer, 2007; Jepson and Barua, 2015) can act as a powerful means to structure public understandings of ecology (Barua, 2011) and legitimise conservation agendas that favour particular species or ecosystems (Cachelin et al., 2010). In the case of Walthamstow, reed beds and bitterns represented (within the project's own logic) the success of ecological enhancement and the transformation of a 'deteriorated' urban landscape to a 'wild wetland', serving as a reminder (to visitors) of what natures *belong* in renatured spaces, worthy of public attention. Attributing species with ecological values can, say critics,

overinflate the role of species within an ecosystem in order to galvanise public support (Jepson and Barua, 2015). It can equally create (new) hierarchies of life by framing other species as 'ecologically ineffective' or 'redundant' (von Essen and Allen, 2016). The following section illustrates how certain (non-native) species such as the ring-necked parakeet (*Psittacula krameri*) became sacrificial/negligible at Walthamstow in the creation of a 'healthier' ecology.

6.2.4 Sacrificial ecologies – parakeets as falcon food

Ring-necked parakeet (*Psittacula krameri*) is a tropical species, its natural range being a broad belt of arid tropical countryside stretching from West Africa across lowland India south of the Himalayas. Wild populations have declined as the pet trade has expanded and eventually brought them to 35 countries across Europe and the Middle East. The parakeet is one of a handful of parrot species that has coped extremely well with deforestation and urbanisation (London Wildlife Trust, 2009). It is thought that the pet trade first introduced parakeets to the UK in 1840 and they have increased rapidly since the 1980s following escaped individuals becoming naturalised. They have now been recorded in all English counties, Scotland and Wales. Population numbers are estimated at over 8,000 breeding pairs, with many of these in London and the south east of (RSPB, accessed 14/10/18).

Studies reveal that heavily urbanised areas are particularly attractive to parakeets given the artificially high presence of food (for example, bird feeders) and the availability of nesting/roosting locations in mature trees in open areas in parks, gardens, small wooded areas and the green belt beyond (London Wildlife Trust, 2009). In addition, the urban heat island effect provides a shortened, mild winter and enables a longer feeding season and amenable temperatures during the parakeet's breeding season. Like their cousins monk parakeets (*Myiopsitta monachus*) they have been shown to use anthropic structures such as utility poles for nesting (Burger and Gochfeld, 2009). Therefore, in many respects they are the ultimate 'synurbic species' (Francis and Chadwick, 2012) insofar as they have taken advantage of what the urban environment has to offer. Yet their 'bright

plumage' and 'noisy calls' have brought parakeets to the attention of conservationists, and there are some concerns that they might be having an impact on other wildlife (The Telegraph, 27 November 2008; The Independent, 20 December 2010).

Figure 6.5 Peregrine falcon feeding on Ring-necked parakeet at Charing Cross Hospital, London, 20 March 2012 (source: gowestlondon.co.uk)

The issue materialised during conversations at Walthamstow Wetlands, where the birds were actively using the site and framed in different ways, from ecological 'harm' to ecological 'utility':

Field notes, April 2017

There were only about five of us at the volunteering session today, but the conversation is lively... We happen to be sitting near a tree with some equally lively birds, nesting or mating up for spring. In the tree a pair of parakeets are 'prospecting'. This is a new word for me and I find out it means that they are looking for a home. Immediately the parakeet debate begins (I've heard this one several times before....): 'they're taking nesting holes from things like starlings' and other volunteers chip in 'I don't like them'... 'yes, I hate them as well'.... 'they're noisy… I can't believe they're not affecting something'....

'they're not native'… Our conservation lead is fairly neutral on the matter: 'parakeets are still relatively new so it's hard to know what impact they're having'. In response, someone suggests enthusiastically: 'the only good thing is that the peregrine goes for them' – everyone laughs and seems to be in agreement. I ask what he means and he explains that parakeets are a 'good food source' for the peregrine falcon on site. Having been on multiple guided walks on site, I knew peregrines were highly regarded by local bird watchers and project staff. One was currently nesting on the electricity pylon by Reservoir No 3 and during guided walks, we would often stop under the pylon to try to catch a glimpse of the bird through binoculars…. even if we didn't see the peregrine, we would often see its dinner: a bunch of pigeon feathers strewn across the grass – the public seemed fascinated by this!

These field notes reflect the diversity of opinions that circled around the ring-necked parakeet. One particularly interesting formulation of the parakeet was its function as a food source for peregrine falcons (*Falco peregrinus*), as captured in the comment: 'the only good thing is that the peregrine goes for them' (volunteer, London Wildlife Trust). I heard this formulation several times during the fieldwork period and noted how peregrines were seen as 'wonders' of the city (London Wildlife Trust, 21 February 2018), icons of resilience and adaptability in the urban environment (The Guardian, 8 March 2015). On one occasion a cluster of parakeet feathers were found under the electricity pylon and the conservation representative enthusiastically surmised it was the work of the peregrine: he wanted to keep the feathers for 'ecology education' on site (see Figure 6.6). While non-native species are generally shunned in conservation assemblages (Rotherham et al., 2008; Allison, 2012; Holmes, 2015), it appears that they are attributed value when they provide an ecological role for other species, as part of the food chain that serves other (more important) birds of Walthamstow Wetlands.

Figure 6.6 Social media post about parakeets as 'falcon food' (Source: Walthamstow Wetlands/Twitter)

Officially, these birds were not being managed (culled) on site and this was not a strategy London Wildlife Trust were particularly keen to adopt.[44] In several arenas, the organisation has celebrated how parakeets contribute to a 'wild London' by bringing 'exotic colour to the capital's skies' (The Evening Standard, 22 September 2017). They offer context to parakeets and recognise how their 'presence reflects the historical ecology of the Capital and the dynamism of urban ecosystems' (London Wildlife Trust, 2009). While this appeal to 'urban wildness' and 'urban dynamism' might suggest more fluid approaches to wildlife (Lorimer, 2012), the subtle valorisation of parakeets as falcon food can reveal underlying attachments to pure nature (see Chapter 2). To make sense of this, it is necessary to emphasise how the 'ecological work' at Walthamstow Wetlands

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[44] At the time of research (2016-2017), ring-necked parakeets were not common enough to be considered a 'problem' at Walthamstow Wetlands and so were not being managed by the conservation group, London Wildlife Trust. Their (2009) policy found that 'There is no sufficient evidence to suggest that ring-necked parakeet is causing a significant adverse impact on wild bird populations (or other species) in London (or elsewhere), although we recognise that there may be localised impacts'.

becomes 'ecobiopolitical work' when it is situated within a framework of biodiversity.

6.2.5 Ecobiopolitics at Walthamstow Wetlands

The term 'ecobiopolitics' was first put forward by anthropologist Valerie Olson (2010) in her study of space biomedicine and the way the medical subjecthood of astronauts has become fundamentally 'environmental' rather than simply biological. Here, the object of interest is not the individual as a distinct biological entity, but what Olson (2010, p171) calls the 'milieu' after Canguilhem (2001) for the way it captures life's spatial and relational context.[45] Olson argues that ecology-centred approaches to medical anthropological problems are made by shifting and reordered categories of nature, culture, technology, and the social and in doing so they further ecology's status as a 'master narrative' for ordering discourse (Harper, 2001).

Olson uses 'ecobiopolitics' in a specific sense, to refer to the remaking of the human on a cosmic scale and the vital technical management of astronaut milieus. However, the notion captures an important mutation in conservation worlds too, where ecology becomes the 'master narrative' of logics and techniques that order, rank and secure nonhuman life. As Chapter 2 outlined, social scientists have made critical interventions to understand the biopolitical character of contemporary wildlife conservation. Through the lens of biopower, conceptualised as the power to 'make live and let die' (Foucault, 2003a, 2003b), these authors have attended to the way that biodiversity conservation is shaped by a biopolitical logic that emphasises distinctions between biological kinds and develops interventions based on these distinctions.

While Walthamstow Wetlands exhibits these logics, it is necessary to expand the notion of biopolitics in order to specify the ecological narrative that is being

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[45] Olson (2010) argues that in space biomedicine, biological indicators of 'health' are not sufficient. Space biomedicine needs to include a larger definition of 'wellness' that accounts for the whole living/non-living (cyborg) milieu of astronaut life, from the molecular to the cosmic to the artificial, (i.e. without the spacecraft itself there would be no astronaut) (2010, p175).

constructed through the project, where conservation species are valued and managed not just because of their taxonomic particularities, biophysical characteristics or nonhuman charisma (Lorimer, 2007), but also because of their symbolic ecological effect – the way that their presence in the city symbolises (for the project) the return of a so-called 'healthy' ecosystem. In recent decades there has been a shift in understandings (and treatments) of conservation species: not as simply biological entities but also as ecological agents, constituted through their life/environment interactions. This can be witnessed in the framing of certain species like beaver, bison and boar as 'ecological engineers' (Noss and Soule, 1998) reintroduced to landscapes as a proxy, to undo the 'human errors' of the past (von Essen and Allen, 2016). In the case of Walthamstow Wetlands, species were valued because of the unique life-making interactions they had made with the *built environment*.

By virtue of their arrival and survival at this (renatured) industrial reservoir in the heart of London, swifts, bitterns, peregrines and parakeets came to symbolise nature's resilience, and this in turn, celebrated the city as a restored landscape. However, as Chapter 9 discusses in more detail, there is always a preferential politics involved. Ecological relations can be framed as *natural* when they serve the right biodiversity (for example, falcons feeding on parakeets) and, likewise, they can be framed as *unnatural* when they serve the wrong biodiversity (for example, parakeets prospecting for homes that might otherwise be 'reserved' for starlings). For a truly 'lively city' where humans live well in/with the nonhuman world, arguably there needs to a real gesture, not a symbolic one, to the myriad of creatures that already roam and inhabit the urban metropolis alongside humans.

This section has demonstrated some of the ecobiopolitical work at Walthamstow Wetlands, where a very particular idea of the ecological is being constructed, already laden with cultural and economic drivers (RQ1). While some creatures become *conservation capital* (vulnerable, rare or endangered species that are easy to 'sell' to the public) other creatures become *ecological capital*, species whose (new) presence legitimises the site as a 'wild wetland'. The following section (6.3)

considers the borders and boundaries that emerge with ecobiopolitical work in the city, and what the implications are for multispecies relations and ideas of 'shared space' (RQ3, RQ4).

6.3 Near but yet so far? Negotiating multispecies relations in an urban nature reserve

In recent years, there have been cross-disciplinary moves to consider the value of nature in urban environments and attempts to give urban wilds a 'constituency' within conservation policy and practice, to borrow Hinchliffe et al.'s (2005) phrase. However, there has been little academic research on the ecological and social implications of setting up nature reserves in urban areas, to help scholars reflect on the purpose of such an endeavour. The majority of scientific studies focus on highlighting species richness in green spaces (for example, Nielson et al., 2014) or the role of urban green spaces in providing ecosystem services (for example, Maes et al., 2015). Here, questions of nature are either subsumed into neoliberal agendas that seek to facilitate the mutual benefits of urban mobility, active living, ecological/community resilience and economic growth (see for example Houston et al., 2017; Bunce, 2018) or they homogenise nature by falling into the simplistic model of 'more green space means more biodiversity'.

Neither of these approaches attends to the multispecies relations that are cultivated in/through urban nature reserves, nor the specificities of how different 'urban wilds' are sustained in different places. This means there is a need to expand understandings of nature reserves in cities: who they serve, how and why and the kinds of multispecies relations that are produced as a result.

6.3.1 'It's not a zoo' – the boundaries of an urban nature reserve

Nature reserves in cities are rationalised in multiple ways. At Walthamstow Wetlands, scientific arguments for enhanced biodiversity were heavily drawn upon and given a new ecological inflection (see Section 6.2). These were situated alongside social arguments for improved public access to natural, industrial and social heritage in the city. In other ways, humans were charged with a moral

responsibility to protect nonhumans in the city (as with urban swifts, see 6.2). For instance, the invitation to swifts through the swift tower (see 6.2) was rationalised (by conservationists) on an ethical basis, the perceived duty of care towards wildlife in the city. London Wildlife Trust's director of conservation felt that 'nature has a *right* to flourish in our towns and cities' (Frith, London Wildlife Trust, original emphasis). Here, 'letting the animals back in' (Wolch, 1998) and creating the space for (particular) wildlife to thrive was seen by conservation practitioners as a self-evidently 'good thing'.

There are over 100 Local Nature Reserves (LNRs) in London, run by a mixture of local authorities and conservation organisations, including London Wildlife Trust, RSPB, Woodland Trust, Wildfowl and Wetlands Trust (Natural England, 2018). Walthamstow Wetlands was keen to offer something unique that reflected the partnership of diverse stakeholders: a local authority, a wildlife group, a water company and a funding body with a focus on heritage. Project officials conducted a 'recce' of nature reserves in London and came to the conclusion that they 'didn't want something contrived' or a 'precious over-managed thing' (Ann, Waltham Forest Council). They contrasted their vision with a site in Barnes, South London, run by the Wildfowl and Wetlands Trust, which they felt was 'set up more as a spectacle; an aviary zoo model' (Sebastien, London Wildlife Trust). Instead, project officials wanted a space that reflected what they saw as Walthamstow's 'wild character' (Ann, Waltham Forest Council). As Lucy (London Wildlife Trust) explained:

> 'Barnes has a very different emphasis… their way of conserving nature is by making people aware of the kind of nature that's out there, in the world. So they have an area in Barnes where they have lots of exotic birds from all over the world. So you could say it's a little bit more like a zoo. And the birds' wings are clipped. They're more kind of exhibits that people can go and see….'.

This sentiment is closely echoed by Sebastien (London Wildlife Trust) who explained that:

'The founder of the Wildfowl and Wetlands Trust, Sir Peter Scott was a fan of this zoo model: he argued that it was the best way to experience wildlife. But now people are more interested in natural wild settings'.

By housing birds from 'all over the world', keeping them in place by clipping their wings, Barnes was cast as an *unnatural* nature reserve. Instead, Walthamstow Wetlands was framed as a free space, where birds were at liberty to come and go. Lucy explained that 'we're preserving it to conserve the birds that naturally use these wetland areas, of which there is a massive range and depth' (Lucy, London Wildlife Trust). By 'naturally' she meant that they conserve birds that arrive *of their own accord*, who actively choose the reservoirs as a home, as a place to rest or rear their young. These birds were not introduced by humans (as is the case with the 'exotic birds' at Barnes), nor were their wings clipped so that they could not fly away. Instead, project managers were working to the 'natural baseline' of birds at the reservoirs – those that existed at the reservoirs before it was called a nature reserve. With this, a certain view of wildness was articulated through Walthamstow Wetlands, one which aligned ideas of naturalness with ideas of movement and mobility.

While this appears to acknowledge the fluid, mobile nature of wildlife (Lorimer, 2012) and recognise that nature reserves should not be zoos or containments for nature, it is necessary to note that, while there were no *physical boundaries* created for wildlife, there were clear *conceptual boundaries* for wildlife and arguably these have equally exclusionary effects. As the next section suggests, protection for 'naturally occurring' birds only extended to particular birds, not all birds. Lucy confirmed as much when she said 'it's an internationally acclaimed wetland site and therefore has really important wildfowl here – but they are native, natural, residents or migrants' (Lucy, London Wildlife Trust). Once again, 'natural' is conflated with 'native' and this means that even if birds like ring-necked parakeets arrive of *their own accord*, because they are non-native they are not seen as naturally occurring and therefore not welcome within official conservation frameworks in the UK. Moreover, it was recognised that 'most nature in Britain lives outside nature reserves' (Frith, Director of conservation, London Wildlife

Trust) and so clearly more discussion is needed on the scope and role of nature reserves in cities.

6.3.2 'It's a great crested grebe!' – producing scientific and public interest

There is now a plethora of designations in force in the UK, ranging from National Parks (NPs) to National Nature Reserves (NNRs) to Sites of Special Scientific Interest (SSSIs), all of which guarantee varying forms of protection. Generally speaking, nature reserves lie in already designated areas, such as Sites of Special Scientific Interest (SSSIs), which means they are often locked into a tight programme of activities to ensure the protection of species of conservation importance (Adams, 2003), keeping the right nature, in the right place (van Dooren, 2016). This was largely the case with Walthamstow Wetlands. While the site was not physically a zoo because there were no physical boundaries, many of the practices involved the 'spectacularisation' (Haraway, 2008; Barua, 2017) of particular species, constructing conceptual boundaries between those species and the visitors.

During official guided walks, tour groups were drawn towards site's SSSI/SPA features, including populations of wintering shoveler (*Spatula clypeata*), post-breeding and wintering Tufted duck (*Aythya fuligula*), grey heron (*Ardea Cinerea*), pochard (*Aythya farina*), and great crested grebe (*Podiceps cristatus*). We were told various facts about these officially designated (water) birds, such as 'this site is one of the country's top five breeding sites for heron… The reservoirs are significant for numbers of breeding and wintering birds…. They form 40% of the Lea Valley's Ramsar designation….' (comments, London Wildlife Trust, 2016-2017). In addition, official flyers and public artworks would feature these important birds project (Figure 6.7) – all of which cemented nature as a spectacle for human visitors and equally cemented the colonising gaze that has characterised so much of Western conservation (Urry, 1992; Whatmore, 2002).

Figure 6.7 Wall mural commissioned by Walthamstow Wetlands depicting (left to right) kingfisher, bittern, shoveler, red shank, heron, swift, cormorant (Source: ATM StreetArt)

There was a strong desire to generate a particular culture where visitors would experience 'stepping over a threshold [into the reserve], realising that it's not a park, it's not somewhere to picnic. It's somewhere to come and watch wildlife' (Judy, community projects lead for Thames Water). Certain activities were either promoted or discouraged, depending on what was seen to be fitting for a nature reserve: this included a policy of no dog walking, no ball games, no barbecues and no cycling except on designated paths (London Wildlife Trust, 2016). It also involved cultivating 'reserved' behaviours towards wildlife, particularly the bird life of conservation importance. In field notes, I marked how the public were encouraged to 'view' these species:

Field observations, April 2017

We paused at particular points around the reservoirs, while our guides took out laminated picture cards and bird ID books and passed them round so that we could learn to identify them. Guides then ran off a summary script about the birds, occasionally handing over to a 'bird expert' if there was one in the group. We would be told about population sizes, how to identify the difference between males and females, what their breeding patterns

were, and other 'facts' that framed their vulnerability as a matter of public concern. And meanwhile visitors would take out cameras, binoculars, notepads or other observational tools to capture what they have seen. Visitors were reminded that they were precisely that: visitors. As one guide put it: 'This is very much a space for nature…. A reserve…so we're privileged guests here' (Fern, London Wildlife Trust).

Figure 6.8 Official bird walk at Walthamstow Wetlands, May 2017 (Source: Walthamstow Wetlands/Twitter)

The practice of 'viewing' species was often accompanied by a form of education, building visitors' factual knowledge base. Conservation anecdotes were associated with these birds, to remind audiences that they were witnessing 'conservation in action'. For instance, when a visitor spotted the great crested grebe (*Podiceps cristatus*), the tour guide would tell the 'great success story' of great crested grebes: birds that were once hunted for their feathers during the 1920s as a fashion item for ladies hats, until conservationists 'decided to put an end to it' and formed the Royal Society for the Protection of Birds (RSPB) (Sebastien, London Wildlife Trust). Visitors would then marvel at how 'beautiful' and 'charismatic' they were through their binoculars, reifying the charismatic values that are often ascribed to species in conservation worlds (Lorimer, 2007).

These walks re-entrenched certain cultures and traditions such as the 'British obsession' with birds (Lambert, 2013).

It often felt as though visitors (including myself) were being guided around a museum, pointed towards different exhibits. Guides would structure the walks and guide people towards *what* visitors should know and *how* they should know. Visitors appeared satisfied with their newly gained knowledge, making comments such as 'how interesting', 'well I didn't know that' (public comments, 2016-2017). Visitors probably left the site feeling as though they had consumed something, whether it was a picture of a bird or knowledge about that bird. But this (commoditised) knowledge, say critical scholars, involves an abstraction of sorts: pictures and facts produce 'tabular representations' (Fransmyr, 1988) of what are essentially living beings and remove creatures from the ecological relations, histories and geographies they fashion, alongside or in spite of human actors (Whatmore and Thorne, 1998; Whatmore, 2002; Lorimer, 2006, 2008).

In addition to these public constructions, the scientific work behind the scenes was almost entirely focussed on the species that appeared on official conservation lists, marked as rare, endangered or vulnerable. I accompanied Julian, one of the official ecologists as he conducted a species count and was surprised at how directed this 'wild work' was:

Field observations, March 2017

I meet Julian in the carpark early one morning. Today he's here to conduct a monitoring survey of the bird populations that fall under SSSI and SPA designations. I'm told that the SSSI citation lists several 'notable' bird species, including breeding grey heron, breeding tufted duck, breeding pochard, and great crested grebe. The winter roosting cormorant was also listed on the SSSI citation, but this species is 'not of conservation concern'. The Lea Valley SPA was classified for its gadwall, shoveler and bittern so 'we'll be looking out for these too' – although I'm told they don't currently use the reservoirs, so 'it's unlikely we'll see one'…

As we walk around the site, Julian stops at various points and marks the birds he sees on a grid reference (see Figure 6.9). Julian tells me he used to work for Natural England. He

says that he would give this kind of survey to a 'beginner' because 'it's a simple methodology: set a transect, walk it, write it… and today all the ones we care about (our target species) are fairly easy… it wouldn't matter if someone misidentified for example a mallard because it's not a priority species. We're just looking for a few key species.'

We stop at Reservoir No 2. Julian looks through his binoculars: 'There's two great crested grebes out there, looks like they might be about to display to each other… one further on as well loitering around… so they're a really pretty bird… G96…' – and he adds the code for the bird into the square grid map. He explains that this this is the last survey of the season (for the overwintering period). All the maps they produce will be for breeding tufted ducks and 'other target species… all other species are ignored.' He explains that he's going to 'collate all the results' and then hand them over to London Wildlife Trust.

Figure 6.9 grid reference that was used to mark species (Source: BSG Ecology)

Scientific studies like Julian's feed directly into the management of Walthamstow Wetlands, to ensure that species of conservation importance are not unduly affected by the anticipated increase in visitor numbers (from 19,000 per year to 250,000 per year). The field excerpt reveals how monitoring reports on SSSI/SPA sites are focussed on particular (designated) species; all other detail is filtered out or held in the margins. When I asked Julian about the relationships between birds or between the birds' use of habitats, he was extremely knowledgeable but very little (if any) of this knowledge gets included in the SSSI/SPA study. Julian admitted that much of the work within ecological consultancies for official designations is limited in scope:

> 'everyone terms what we do as 'ecology' but actually it's not ecology it's just counting species, it's not looking at the interactions, whereas actually ecology is (when you get down to it) eco-logy – the study of interactions between species as opposed to what we do, which is: *there's a badger in the field, you need to stop building there because you don't want to harm the badger* – that sort of thing.'

Julian explained that the focus on species is partly because a lot of ecologists have their own species interests, their own areas of expertise. But going on Julian's comment, it is also because the policy and legislative frameworks are themselves species-focussed: the primary feature of an ecological assessment within planning contexts is a species inventory, to see if any species of conservation importance might be affected by the development (JNCC, 2010). Endangered species lists were therefore the primary technology through which bird lives and bird ecologies at Walthamstow became individuated and ranked, no doubt with consequences for those 'less' listed or 'list-less' (Braverman, 2015). Thus again, while 'wild work' in the city is framed as ecological and holistic, it still often operates with traditional paradigms for conservation, which create conceptual boundaries around what *counts* as nature.

6.3.3 Managed access to official natures in the city

In the UK, nature reserves have come to serve a number of purposes within the broader extension of the conservation assemblage. As well as protecting (or fixing) particular species through habitat management, nature reserves can offer conservation NGOs an element of freedom in their practice: by owning or leasing the land directly, they can experiment with land management techniques while avoiding ongoing negotiations with landowners (Lawton et al., 2010). In addition, nature reserves can provide a way of raising public awareness of nature conservation and recruiting new members to their cause. In the case of Walthamstow Wetlands, London Wildlife Trust use their reserves as 'shop windows' to promote the organisation and '… engage people with nature through direct experience, volunteering and outdoor education' (London Wildlife Trust, 2010). With these multiple functions, the original mandate – to take a 'light management approach', promote the site's 'wild character' and preserve 'natural use' – is set alongside social functions, leading conservationists towards a management system centred on the notion of balance.

Figure 6.10 Low number of visitors prior to launch, November 2016

Following the completion of the project, it was expected that visitor numbers would increase from existing levels of 19,000 visitors per year to 70,000 per year during the first year of opening, and then continue to increase gradually over the next five years, with the total number of annual visitors expected to plateau at around 180,000 by 2023/2024 (Thames Water and Waltham Forest Council, 2014; see Figure 6.10). Monitoring the effects of visitors on water birds became an important part of the project's scientific strategy because it has a legal obligation to ensure the SSSI/SPA status of the site is maintained against the (potential) risk of increased visitors. Official studies conducted prior to the project concluded that 'the low level of public disturbance to date has inevitably contributed to the successful establishment of wildlife at the site' (Thames Water and Waltham Forest Council, 2014). Project staff felt that increased visitors in certain areas could pose a conservation threat by promoting a series of 'disturbance events', which might cause the birds of conservation importance to move off the site entirely.[46] Therefore, monitoring was made an essential part of the strategy for its new guise as a nature reserve.

Ecologists were commissioned to assess the extent to which birds were being disturbed by human presence, noting this information on what they called a 'disturbance form' (field observations, March 2017). I accompanied Julian (ecologist, Walthamstow Wetlands) on one of these assessments and observed how he would mark on a grid how, when and to what distance birds of conservation importance flock up or move away. He would also note whether this was 'natural behaviour' or 'unusual behaviour' and from this, he would assess what species are more 'tolerant' and what species are more 'disturbance-prone' (field observations, March, 2017). The field diary captures some of the judgements involved:

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[46] In addition, there had been a 'fair number of naysayers who felt that somehow it [visitor increase] is going to be critically damaging to the nature conservation interests of the site' (Frith, London Wildlife Trust).

Field observations, March 2017

There are different details Julian has to provide on this disturbance form, such as the "stimuli" (for example, a dog running off lead), the "species", and whether there has been a "neutral disturbance" or whether there have been "positive" or "negative" responses. He explains that a negative response would include flushing, submerging, directional move away, or entire disappearance (these are the categories on his form). If species are chasing each other then it's not classed as a disturbance event. I find this all really fascinating. These categories are fundamentally based on what we (humans) perceive to be 'natural' behaviour – a (potentially false) imagination of what these creatures would be doing in places without humans. Humans are therefore seen as 'not natural'. Equally a dog running off a lead is framed as 'not natural'. So what is natural in an urban environment I wonder?

The field entry reveals some of the ways in which certain human/animal activities and behaviours can be framed as 'natural' or 'unnatural'. I later asked Julian if disturbance studies like this were more prevalent in urban environments, but he seemed unsure. He did, however, say that there was evidence to suggest that some birds such as herons are more tolerant of human 'disturbance' in urban areas (see Appendix 11). In his experience, 'herons in urban areas are pretty unfussed. But in undisturbed areas they'll take flight' (Julian, ecologist, Walthamstow Wetlands). While this is not evidence in itself and it cannot be presumed that all species will become more tolerant of human activity through prolonged exposure (as might happen in urban areas) it offers a provocation/challenge to those management strategies that insist upon forms of 'hyper separation' (Plumwood, 1993, 2002; see Chapter 2).

With these risks and multispecies dilemmas, staff at Walthamstow took a precautionary approach (Cooney and Dickson, 2012) and produced a multi-pronged plan to enhance public access to nature while reducing the potential for disturbance to wildlife (Thames Water and Waltham Forest Council, 2014). A

'managed access' strategy was developed, and practitioners rolled out a series of mitigation measures, including the provision of 'new boardwalks, new and improved (existing) bird hides, new planting and appropriate screening' (Thames Water and Waltham Forest Council, 2014). If there was evidence to suggest that mitigation was not effective, further steps would be identified and implemented. Reed beds were also used to help screen the birds from the public. During one guided walk, we stopped at the reed beds at Reservoir No 1 (Figure 6.11) and the guide explained that they were installed to support waders and bitterns, but also to 'provide screening between visitors and the birds... so they don't get frightened.' Flutter tape was lined around the reeds, with the added function of preventing geese from eating them (discussed further in Chapter 9).

Figure 6.11 New reed beds in Reservoir No 1, November 2016

In addition, seasonal gates were installed to restrict public access to 'bird sensitive areas' at particular times of the year (see Figure 6.12). This involved identifying 'primary' and 'secondary' routes – narrow strips of vegetation around the edges of reservoirs, where birds of conservation importance, such as

tufted ducks and shovellers, would normally nest, rear their young or otherwise congregate during certain seasons. Along these marked edges project managers inserted 'habitat gates' that were locked during bird-sensitive seasons to ensure that visitors are funnelled down a series of set routes and paths away from the birds of conservation importance. These were seen as 'physical deterrents' and were combined with new signage as well as warden presence, as means to keep humans in the right places at the right times of year. While these 'seasonal ornithological constraints' (Thames Water and Waltham Forest Council, 2014) may prove necessary to avoid bird disturbance and ensure the birds are not 'overwhelmed' by the number of new visitors, it is important to reflect on some of the assumptions that are made about humans, nonhumans and relations between them.
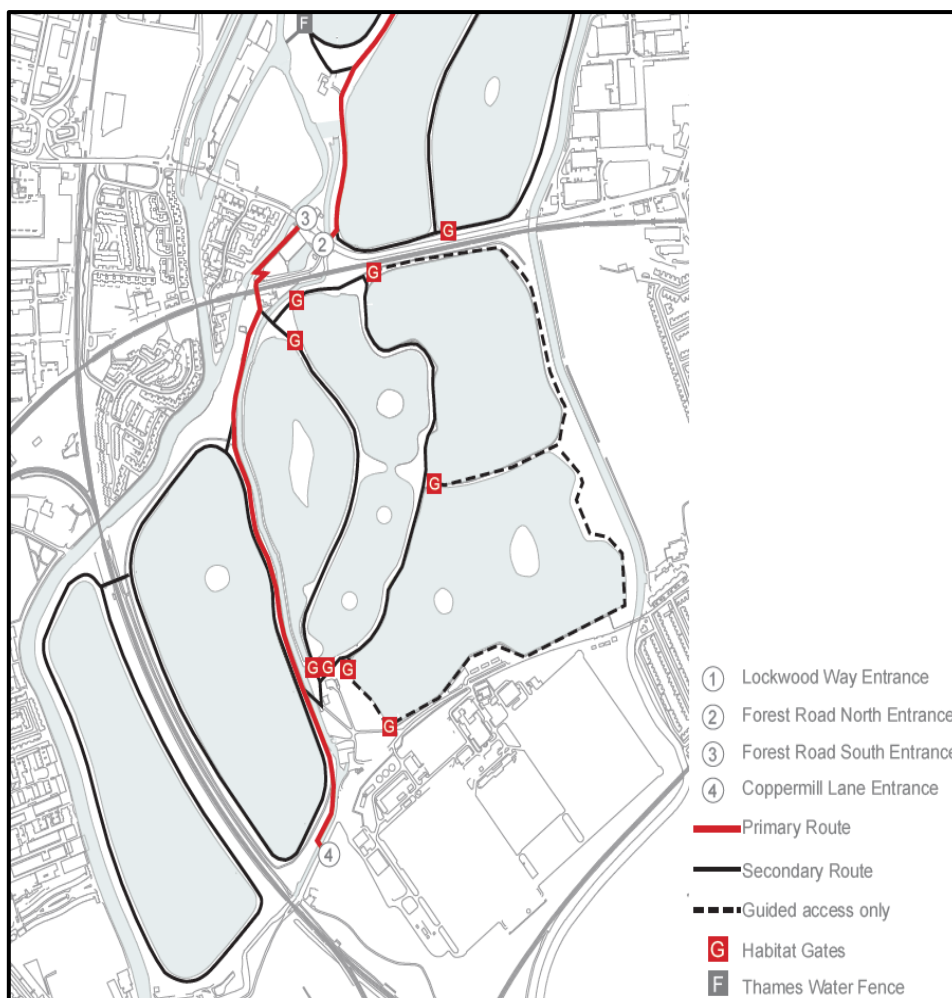
Figure 6.12 Map of habitat gates and primary/secondary routes for the public (Source: Thames Water and Waltham Forest Council, 2014)

Firstly, it incorrectly assumes that bird movements can be predicted and designed. It assumes that only birds of conservation importance will use designated quiet zones during breeding season, overlooking the possibility that other birds (and not only birds) might also be drawn towards quieter locations if they feel uncomfortable or threatened by visitors. (A ring-fenced 'quiet zone' for breeding birds might be equally tempting for a hungry fox). It was not possible to witness the consequences of 'managed access' at Walthamstow because of the timing of the PhD, yet such insights would be welcome in the future: for they might confirm that there are limitations to human design and indicate that alternative management approaches might be welcome, if not needed (Lorimer, 2015). Meanwhile, in quite a physical way (through seasonal gates and natural screening), conservation priorities were being worked into public imaginations, sending a clear message that certain birds are more vulnerable and more worthy of protection.

Secondly, the strategy, including its scientific monitoring, powerfully constructs humans as a 'disturbance' to the natural environment and even posits humans outside nature altogether. It was hoped that visitors would cluster around the pathways closest to the visitor centre, seen as 'the *core* of the nature reserve… the kind of honey pot' (Frith, London Wildlife Trust, original emphasis). Oddly, this strategy was about keeping *people* in place as much as wildlife, by making the indoor human zone as attractive as the nature reserve itself. This creates a somewhat warped version of the wilderness model in the city: humans are allowed into nature spaces but only if they keep to certain areas and adopt the reserved cultures and behaviour expected in a nature reserve (such as depicted those in Figure 6.13). This was seen as the 'least intrusive way' of accessing nature in the city (Lucy, London Wildlife Trust).

Figure 6.13 Viewing 'nature' on Reservoir No 4, November 2016

Thirdly, then, such strategies ensure that the relationship between humans and (certain) urban wilds is distant and distancing. Arguably, this further cements a zoo-like model for human/nonhuman interactions in the city, by constructing an abstracted nature, to be viewed at a distance in its supposedly 'natural' state. In addition, such distant and distancing measures can limit the scope and scale of possible relations between humans and nonhumans, for they suggest that only 'reserved' behaviours are appropriate for 'official' natures, overlooking the chance for more productive learnings on what it means for nonhumans to 'become urban' or what it means for people to 'become affected' by nonhumans (Dewsbury et al., 2002; Lorimer, 2005; Wylie, 2005; Thrift, 2008) if such opportunities were afforded. Grey herons have learnt something about coexistence in London, not through prescriptive carefully managed contact, but through ongoing engagement (see Appendix 11).

As Chapter 4 outlined, members of the angling community have developed intimate relations with all kinds of wildlife over the sixty-plus years they've been fishing here: they know foxes and geese by name and have witnessed successive generations rear their young and make a home here; their boxes of fishing bait

provide food for rats and other rodents, which in turn provide food for raptors and other predatory creatures. But because these relations are 'unofficial' with 'unofficial wildlife' they do not figure in understandings of the broader dynamics of nature reserves and assume that birds of 'conservation importance' are not affected by these unofficial relations – which arguably limits the scope of an 'urban nature reserve'. These challenges and tensions have been little explored in the literature and yet they engender/harbour critical moral dilemmas for conservationists and academics engaged in the project of 'wildlife in the Anthropocene' (Bird Rose, 2012; Collard et al., 2014; Lorimer, 2015; Rose and Fincher, 2015).

6.4 Conclusion

It is important to see the connection between the two parts of this chapter and learn something about the utility and efficacy of ecological management in highly dynamic, fluid cities. Section 6.2 demonstrated how different creatures can be politically manoeuvred with/against the grain of urban design in nature reserves, to reify particular ideas of the ecological city. 6.3 then examined how projects try to balance and offset humans and nonhumans in different ways in urban reserves, overlooking the relational implications of these moves. Together, these sections reveal that while efforts to create wild spaces in the city are not to be dismissed – and this chapter has shown that the making of an urban nature reserve is not a straightforward task – the evidence in Sections 6.2 and 6.3 suggests that nature reserves in the city are not as 'wild' as might be imagined. Arguably, they have more in common with zoos than projects might like to admit. As such, existing academic agendas centred on ideas of 'shared multispecies spaces' and 'spaces to be nonhuman' might need to further consider the purpose of an urban nature reserve, with closer attention to the politics of these spaces and who they really serve.

Re/making 'communal' natures in (sub)urban Britain

7.1 Introduction

Where Chapter 6 examined the biopolitical work at Walthamstow Wetlands, a bounded space with complex governance structures and legal requirements, the following chapter turns to the community-based project, Active Neighbourhoods in Ernesettle, to explore how *neighbourhoods themselves* are transformed and secured through visions of the urban wild. The concept of 'connectivity' formed a key part of this narrative. While the notion of connectivity can be applied in the biogeographic or spatial sense (Thomas et al., 2004; Crooks and Sanjayan, 2006), it can also applied to the (desired) relationships between humans and the nonhuman world – often described in contemporary public discourse as the 'connection to nature' (Hodgetts, 2017b). Renaturing in Ernesettle draws on different geographies and temporalities to construct a sense of connectivity for the human and nonhuman residents on the estate. However, the ways in which 'community', 'citizenship', and 'enhancement' materialised is of critical importance, since these ambitions were not always developed in even ways, which immediately placed limitations and conceptual barriers around them.

This chapter critically examines who gets incorporated into the urban community through renaturing practices, revealing how nature is constructed and even distanced from certain parts of society so as to ensure its longevity and sustainability. It should now be clear that while both humans and nonhumans are involved in the co-production of urban natures, they are not always equal partners in this process. This chapter therefore concludes by considering what it would mean if ambitions for 'wild work' in the city were expanded to include wider parts of the human and nonhuman world.

7.2 Renaturing community imaginations

7.2.1 Making 'biotic citizens'

In recent years, there has been a greater emphasis on incorporating human communities into nature-oriented practices. This can be witnessed in the rising use of local communities in citizen science (Cooper et al. 2007; Silvertown, 2009; Dickinson et al., 2010; Devicktor et al. 2010) global efforts to engage communities in strategies that promote biodiversity and sustainability (for example, UN Aichi Targets, 2010; UN Sustainable Development Goals, 2016); the emergence of community-based conservation (Meffe et al., 2002); the rise of the modern nature connection movement (Gooley, 2014) and discursive productions such as 'parks-with-people' (Zimmerer, 2000). All of these underscore the growing prevalence of nature-society couplings in conservation and renaturing discourse, which reconfigure roles and responsibilities in an increasingly 'human dominated' world (Kareiva et al., 2012; Ellis et al., Holmes et al., 2016).

Yet despite these moves, there has been little critical engagement on whose voice gets heard in nature-society couplings, that is, who/what comes to be defined as 'nature' and 'society'. In addition, few studies have explored the consequences of privileging certain (elite) parts of society in renaturing work, especially in terms of how nonhuman nature can be defended (and so made vulnerable) by these groups. In Ernesettle, there were early ambitions to expand the sense of community to the nonhuman world and, with it, cultivate a new ethic for residents, broadly underpinned by the idea of the 'biotic citizen'. The phrase 'biotic citizen' was coined by environmentalist Aldo Leopold in his radical and visionary essay 'The Land Ethic' (1949). Here, Leopold (1949) suggested that (Western) humanity had forgotten how it is part of a vast web of living things and so called for a renewed ethic to the Earth where humans could think of themselves as acting members of the ecological community:

> 'The land ethic simply enlarges the boundaries of the community to include soils, waters, plants and animals, or collectively the land… A land ethic of course cannot prevent the alteration, management, and use of these "resources", but it does affirm their right to continued existence, and, at least in spots, their continued existence in a natural state… In short, a land ethic changes the role of Homo sapiens from conqueror of the

land community to plain member and citizen of it. It implies respect for his fellow-members, and also respect for the community as such.' (Aldo Leopold, 1949).

In Ernesettle, residents were incorporated into 'wild work' on the estate, as part of their development as biotic citizens. During this process, volunteers and stakeholders were offered training on how to care for newly restored features. Orchard maintenance training involved a 'hands on' approach: we felt the 'lumpy bits' on trees and were told that this was where the tree wanted to root. We also examined the tree's branches and made our own pruning cuts using secateurs (field observations, January 2016). The trainer gave the group confidence by suggesting that 'there's no perfect way of pruning and grafting' since 'with fruit trees, you can play… people experimented with fruit trees much further back than you think' (trainer, Plymouth Community Orchards). Likewise, when residents were invited to create an 'edible hedge' for Ernesettle (Figure 7.1) there was a clear emphasis on handling the trees and feeling the differences between them, noting the 'dangerous spikes' of blackthorns and hawthorns (field observations, February 2017).

The community were encouraged to 'feel' their own way with the trees and develop more tactile, visceral forms of nature knowledge. Becoming a biotic citizen was a matter of co-producing knowledge with the world (Thrift, 2000; see also Dewsbury et al., 2002; Whatmore, 2002, 2006). The hedges and orchards were co-assembled and became sites for embodied response, creativity and curiosity for more-than-human life. Knowledge was a case of *acknowledging* the processes and lifeways of plants: why they produce spikes and branches; how they can be pruned in a way that ensures their survival and utilisation (by humans) in the future. Through the process of plant/human knowledge production, 'alternative realities don't simply co-exist side by side, but are also found inside one another' (Mol, 1999, p85). It was hoped that through cementing physical relations with particular kinds of nature, local communities would develop a stronger sense of responsibility for nonhuman nature, seeing themselves as members of the biotic community.

Figure 7.1 Making 'edible hedges' in Ernesettle, February 2017 (Source: Active Neighbourhoods/PCC)

However, it is necessary to question what kinds of nature communities are being pointed towards and why. The orchards, hedgerows and meadows that were (re)established in Ernesettle were all given a contemporary inflection through the project Active Neighbourhoods. For instance, speaking of orchards, one ex-Council worker remarked: 'They are incredibly engaging habitats like wildflower meadows. They're very tangible, aren't they? What is an orchard? Well it gives you apples and you can hold apple pressing days, you can hold apple tree pruning days, Wassailing days' (Todd, Plymouth City Council). Much of the emphasis was on the utilitarian value of orchards; their tangibility and the products they provide to people.

At the end of some of the renaturing events, volunteers were provided with food and refreshments made from locally-sourced produce: apple juice from community orchards, chutneys and jams from local hedgerows, quince jelly from garden allotments (Figure 7.2). Volunteers were told that these products were made by residents at other sites in Plymouth, at similar projects to Active Neighbourhoods: 'They now sell them and bring in a bit of money for the

allotment' (Debbie, Plymouth City Council). In this way, the community were offered ideas and inspiration for the *productive use* of their orchards and hedgerows, with the underlying hope that they might take on a greater sense of ownership and responsibility for them, thus cementing themselves as 'true' biotic citizens of Ernesettle. Yet, this is perhaps a limited understanding of biotic citizenship insofar as the orchard (and the organisms it harbours/supports) is not recognised as an active member of the biotic community that may have a life of its own beyond the humans it serves.

Figure 7.2 Making 'homemade' jam pancakes in Ernesettle (Source: Active Neighbourhoods/PCC)

The emphasis on utility and the 'added benefits' of nature (see Chapter 5) meant that renatured spaces in Ernesettle became infused with multiple functions, seen to serve both people and wildlife. For instance, the move to restore ancient hedgerows in Ernesettle (see Figure 7.3) brought together ideas of community, heritage, and biodiversity conservation. Fred (Active Neighbourhoods), who championed much of the heritage work in Ernesettle (see Chapter 4), identified

several 'gaps' in the existing hedgerows and called upon the group to 'plug those gaps'. Stakeholders (as 'biotic citizens') were invited to play an integral role in creating a more 'complete' landscape for Ernesettle. Existing hedgerows were 'bulked up' with redcurrant, blackcurrant, gooseberries, blackberries, damsel, which the community 'can eat and enjoy' (Fred, Active Neighbourhoods).

Figure 7.3 Replanted hedgerow with hawthorn, blackthorn and wild plum. These saplings 'filled in' the gaps of ancient hedgerows

In this way, hedgerows were seen to serve many functions. Fred emphasised that 'it's not just about biodiversity, it's not just about food, it's about our heritage' (Fred, Active Neighbourhoods) – and the use of 'our' demonstrated how the responsibility of edible hedges was given over to the community. The Tree Council, who partnered with Active Neighbourhoods to deliver 'Wild Hedges for Urban Edges' in Ernesettle, had an ambition to 'reconnect town and city dwellers to the natural environment while introducing them to the joys of urban food forestry' (Tree Council, 2016). Fruiting hedges were seen to offer a range of services: a source of free and sustainable food; a means to boost wildlife biodiversity; and a way to 'enhance social cohesion by bringing communities together to plant, tend and harvest the produce from their wild hedges' (Tree

Council, 2016). In this way, hedgerows were given a future-oriented and utilitarian value, yet neatly blended with ideas of heritage.

Both hedges and orchards appealed to a Romanticised pastoral image for Ernesettle (see Section 5.4), where the past is framed as a time of bounty, with harmonious communities that are self-sufficient enough to enjoy their own supply of fruits. Stakeholders reified this pastoral idyll, celebrating the 'fertile lands' that supported cultivation and the 'strong waters' that supported a regionally important tidal mill, surrounded by 'rich orchards' and 'ornamental gardens' (comments, Rosemary, Polly and Fred, stakeholders, Active Neighbourhoods). Multiple temporalities were operationalised and smoothly woven together. Yet, as Chapter 4 outlined, it was a *select group* of residents who became the 'owners' of natural heritage in Ernesettle and it was also through this group that natures were given a contemporary inflection.

7.3 From renatured spaces to defended places

The move to create biotic citizens in Ernesettle and to expand the environmental community, left some parts of the estate distinctly on the outside. Ideas of 'community' and 'heritage' will inevitably have consequences for those on the fringes of such visions, as heritage scholars point out (Smith, 2006). In the case of Ernesettle, it was teenagers who were cast outside the environmental community, framed as a threat to renatured spaces. Despite their notable absence from the project process, young people were a constant source of debate among stakeholders.[47] Young people were seen as unruly, deviant, the environmental 'anti citizen' (after Matless, 1997). This was somewhat unexpected for the research: I had not anticipated that this (somewhat absent) group would feature so heavily in local discourse about Ernesettle's natural environment (see reflections in Chapter 3). But the issue could not be ignored, since young people were the primary reason why renatured spaces – orchards, hedgerows and local woodlands – rapidly became defended places.

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[47] The stakeholder group included youth workers, but there were no young people present in meetings, nor directly involved in the decision-making process.

The response to young people raises questions regarding who speaks for nonhuman nature, where and how. It also has important implications for ideas of shared space and how the 'values of freedom, spontaneity, resilience and wonder' (Jepson and Schepers, 2016a) as contained in rewilding visions. These might be rethought in light of unruly *human* engagements in/with the natural environment.

7.3.1 The 'problem' of unruly youth

With environmental citizenship, different ideas of 'use' and 'abuse are produced according to socially and materially situated normative ideas of how nature ought to be engaged with and appreciated (Panelli et al., 2002). In Ernesettle, such normative emerged ideas through the Active Neighbourhoods stakeholder group, who shaped and ultimately decided on what was acceptable environmental conduct and thereby what constituted the 'ideal' environmental citizen. A distinct local discourse about the 'problem' of young people was quickly formulated among stakeholders, which in turn reinforced an idea of the 'legitimate citizen' of the environment being someone who demonstrates the requisite conduct and aesthetic ability demanded by dominant moral orderings (Matless, 1997). Figure 7.4 reveals the many issues that were associated with young people, particularly teenagers – identified by project stakeholders and other active residents, such as the Ernesettle Community Forum.

Figure 7.4 Perceived issues with young people (teenagers, 13-18) in Ernesettle

Issue/concern	Details
Off-road motorcycling	"Kids on motorbikes" using the woodland and Headland Path as a race track "It's not designed for motorcycling"

	"Take their number plates down"
	"It's a criminal offence"
	Noise issue with bikes "ramming around", "blasting across", "zapping right through" "it's a horrible sound"
	"They're just enjoying themselves"
	It's "a nuisance"
	It "churns up" the paths
	It's "disturbing for us humans… it's disturbing to the wildlife"
	Plans to make the paths "more of a hassle for motorcyclists"
Vandalism: natural environment	"It's commendable they [Council] put wire fences around them [orchard trees] because it prevents vandalism"
	"They'll be pulling them [trees] out, showing off to their mates an' that… drunk or high or something…'
	"They did it up there to all them trees that were planted: took them out and used the bamboo poles as weapons… you know, to make bows and shoot ducks"
	"That [new hedges] won't last long, that'll get wrecked"
	"Anything anybody tries down here [environmentally] gets trashed within a month"
	"We planted trees down there and kids just walked right through them"
	"You leave those trees alone, you don't touch them"
	"We could fence the orchard to prevent vandalism"
	"I'll prune them [trees] lightly in case people break off a branch"

Vandalism: built environment	"If you create a nice new path and carpark you might find a load of extra-curricular activities down there" "I just don't want you going to all this work for people to just abuse it" "They [benches] need to be vandal proof… This one [bench] is very durable… fire resistant" "This one [interpretation board] has a full galvanised steel frame… more robust" "Get young people, young offenders to help sculpt it [bench]… to prevent vandalism…" "They set fire to boats… set fire to the scout hut the other week" "They [bee hotels] will just get burned, set fire to, knocked down or stolen" "If they [teens] see a shiny new playground but can't use it… they might vandalise – hopefully not"

This Figure (7.4) illustrates some of the key issues with respect to young people that were identified by active neighbours. From these concerns, a range of defensive measures emerged, generally designed to protect the 'heritage natures' described in 5.4. Hedgerows and orchards were secured with wire fences (see Figures 7.5 and 7.6) in response to the (stakeholder) assumption that these features would be quickly destroyed by young people. Twice during the orchard training (see Section 7.2), dog walkers approached the group and told everyone 'they'll just vandalise them' and 'you're wasting your time' (residents and dog walkers, January 2017). In response, the orchard trainer placed mulch and

newspaper around the orchard trees and explained that 'they [will] look more cared for and if they're cared for then people are less likely to damage them' (orchard trainer, February 2017). Here, a method which is normally used for keeping weeds at bay was also used to keep away young people, as though they were as destructive as the weeds themselves. There was an odd assumption that 'tidy care' would act as a preventative method against vandalism.

Figure 7.5 Fences were installed around the saplings, planted to restore Ernesettle's 'ancient hedgerow'

Similarly, the act of tree pruning became a localised biosecurity measure against the 'threat' of young people. Pruning techniques were adapted to manage any potential vandalism: trees were pruned 'lightly in case people break off a branch, so the plants have another option' (orchard trainer, January 2016). Likewise, orchard fences were adapted to suit particular groups with particular needs: tall enough so that they protected the tree from being 'ripped out entirely' (Fred, Active Neighbourhoods) but low enough so that they were within reach of those who wanted to prune them and harvest their fruit. I spent a morning helping stakeholders cut these fences to the 'right height' so that they could be accessed in the 'right way' – and presumably by the 'right people' (field observations,

January 2017). In this way, the utilitarian value of trees only extended to those who were deemed responsible and 'educated' in the ways of orchard care and maintenance.

Figure 7.6 fences installed around new fruit trees, to protect Ernesettle's 'community orchard'

The aftercare of renatured spaces became a form of selective 'boundary-making' in Ernesettle. Boundaries were created for some yet removed for others. Nature was made exclusive: reserved for certain groups, for '*us* urban foragers' as one Active Neighbourhoods stakeholder put it as she addressed the group collectively during a meeting. Heritage nature became the domain of certain (elite) groups who were considered educated or trained in matters of the environment, with the knowledge of how to exert environmental care. In contrast, 'unruly' teenagers were kept at a distance from heritage nature, seen as troublemakers not to be trusted with questions of the environment. This cast young people as an (urban) problem for nature, not dissimilar to traditional conservation rhetoric where nature is seen as something that persists in 'pristine' places away from cities and the destructive influence of human activity (Hinchliffe, 1999).

Not only does this raise important questions regarding the scope of renaturing – namely, who is permitted a relationship with the environment – it also homogenises the nonhuman world and creates a passive nature that needs protecting and defending. This is not uncommon in conservation discourse. As Chapter 2 outlined, critical scholars have long challenged the implications of static conceptions of nature, framed as a passive resource for human exploitation (Merchant, 1986; Plumwood, 1993). Most political ecologists have focussed on the Global South and the past practices of Western governments, yet here is an example of how it can operate in contemporary European cities, where even forms of 'community stewardship' can pacify nature by preventing certain 'risky' engagements/interactions in renatured spaces.

7.3.2 Claiming space

Young people presented an ongoing dilemma for Ernesettle, prompting important questions on the use/ownership of 'renatured space' in the city. For instance, while motorcycling was not deemed an issue in itself, it became an issue when it took place in renatured spaces such as the newly established Headland Path (see Figure 7.7) – a space that was deemed important for other uses (and other users). Stakeholders and 'active residents' felt that the path was 'not designed' for motorcycling (Brian, 50s, resident and dog walker, Ernesettle). This was because it 'chews up the paths', 'chews up the flowers, the vegetation' and makes a 'horrible sound' that is 'disturbing' to people and wildlife (Simon, DWT/PCC). The idea that some spaces are 'designed' for some purposes and not others, suggests that space itself can be defined by particular user groups, based on what is 'normal' or historically consistent in the area. Arguably, this says as much about how renatured spaces are imagined as it does about the perceptions of young people on motorcycles.

Figure 7.7 Resurfaced Headland Path, Ernesettle, August 2017

Through the stakeholder group, the Headland Path was constructed as a 'nature space' and a 'sanctuary place' where people can go for a 'quiet walk in the countryside' (Simon, urban ranger, DWT/PCC). Motorcycling was seen as the antithesis of this vision. The language around motorcycling is particularly revealing, with words such as 'blasting', 'zooming', 'ramming' and 'zapping' used to describe the sonic disturbance to people and wildlife. This reflects the popular framing of a 'healthy sonic environment' in acoustic ecology, a discipline that regularly characterises anthropogenic sounds as 'noise' in a derogatory sense, while the sounds of nature are 'clean' sounds (Arkette, 2004; see Chapter 3). The sonic preference for the Headland Path would be one of 'peace and quiet' and anything that disrupted or challenged this sonic preference would be considered 'out of place' and therefore worthy of removal.

Ernesettle's youth became framed as an *urban problem*, one which the natural (or not so natural) environment needed to be protected against – and by active neighbours. After some discussion, the project decided to install barriers along the Headland Path to prevent 'kids on motorbikes' from using that particular space. Kissing gates (Figure 7.8) were seen as a 'best solution' and project staff referred to other nature reserves in Plymouth where they had been installed. According to Council staff, kissing gates 'made it… more of a hassle for

motorcyclists to get through' but 'still allowed bicycles' into the nature reserve (Debbie, Plymouth City Council), which suggests that cycling was seen as a more 'natural fit' for a nature reserve: slow, leisurely and quiet compared to motorcycling (at least, that is the reasoning). Again, this regional topology involves what Latour (1993) calls the 'purification of space', which elevates an unsustainable model of untrammelled nature as the touchstone of environmental management (Cronon, 1995; Whatmore and Thorne, 1998; Hinchliffe, 1999)

Figure 7.8 Kissing gates installed along Headland Path at Ernesettle, September 2017

It is important to acknowledge the socio-economic and generational context to 'youth motorcycling' in Ernesettle. When stakeholders were asked 'why do young people use the path for motorcycling?' they spoke across one another – 'they do it for fun'; 'it's free'; 'they just like it'; 'it's informal, ad-hoc' (stakeholders, Active Neighbourhoods) – such that it was difficult to distinguish one line of reasoning from another (observations, 2017). These diverse (yet generic) comments arguably reveal a lack of understanding of young people, their experiences and their interest in 'risky forms of activity' (Brown, 2014). However, perhaps more poignantly, the discussions revealed that there are socio-economic factors that influence youth choices: stakeholders admitted that while there was an official motocross centre in Ernesettle, 'it's expensive' and 'they

[young people] can't afford it' (stakeholder comments, Active Neighbourhoods, 2017).

Sociologists and childhood scholars argue that antisocial behaviour (whether understood as innocent mischief or behavioural misconduct) 'cannot be understood outside the context of other variables such as class, agenda, ethnicity and culture, which in turn shape the diversity of children's and young people's spatial experiences and cultural knowledges' (Panelli et al., 2002, p110). In the case of Ernesettle, young people face a myriad of challenges, from limited role models and job prospects to a lack of spaces and activities specifically designed for teenagers (resident comments/youth worker interviews, 2016-2017). In addition, youth services were being withdrawn from communities as a result of funding shortages, which created a 'time-bomb' for antisocial behaviour because 'they haven't got that outlet... to express their issues' (Diane and Kenny, youth workers, Ernesettle).

As a result, young people make their own 'communities' and subcultures, which are often spatial in nature. In doing so they cross borders and boundaries, move into spaces that are not 'designed' for them. Public open spaces provide the perfect opportunity to test the limits of society's tolerance of certain behaviours (Bell et al., 2003, p89) and indeed the very 'publicness' of public spaces. Illegal motorcycling is one such expression: while it conforms little to Active Neighbourhoods' idea of an 'active citizen', it is undeniably an expression of 'active youth' insofar as it circumnavigates the predominant/popular use of Ernesettle's woodland/headland pathways. Here, young people become active negotiators of their own spaces and social relations, competent in producing their own cultural meanings and practices (Valentine, 2000; Vanderbeck and Johnson, 2000; Panelli, 2002).

Woodlands and other nature spaces may be one of the few autonomous outdoor spaces that teenagers are able to carve out for themselves (Bell et al., 2003). Off-road motorbiking, drinking, loitering, vandalism often become a form of resistance to adult power, say childhood theorists (Panelli et al., 2002). As Valentine (1996a) argues, public space is often produced as a 'naturally' adult

space and adults' spatial hegemony may be openly contested by teenagers struggling to assert their independence. Bell et al. (2003) emphasise how 'vandalism should not be seen as a senseless behaviour with no motivation, but as a very complex behaviour which may be the result of a number of different motivations' (Bell et al., 2003). Therefore, the way public space is constructed (and by whom) may be, in part, responsible for the 'antisocial' behaviours that may take place there.

Active Neighbourhoods stakeholders were fearful of young people because their activities represented something very different from the quiet, peaceful engagements earlier described. Yet, ironically, their own 'wild' childhoods were described nostalgically: older residents and stakeholders would reminisce about 'running across railway tracks', 'hopping fences', 'climbing trees', and 'scrumping' (stealing apples from orchards). These acts were framed as 'character-building' and an 'important part of childhood' (stakeholders, Active Neighbourhoods) rather than antisocial. This meant that a different set of standards was applied to the representation of youth in Ernesettle. Scholars have noted how childhood is often romanticised and framed within a discourse of 'innocence', which can have exclusionary effects on all those who are cast as no longer 'innocent' (Bell et al., 2003). This serves as a reminder of the importance of reflection and openness in renaturing projects, especially when different stakeholders are involved.

7.4 Conclusion

This chapter has explored how renaturing in Ernesettle is multi-layered and multi-faceted, cultivating an awareness of the local environment through contact and use, while attempting to improve local habitats and so increase biodiversity. It could thus be seen as a 'coupling' project (Zimmerer, 2000) insofar as the goals of biodiversity conservation were blended with the (perceived) interests of local society. Particular modes of restoration were given a new contemporary inflection, underlined by a renewed ethic of care for the land and the hopes for 'biotic citizens'. However, this chapter has also drawn attention to some of the

dilemmas that might emerge through urban renaturing, even when they are not explicitly recognised by projects themselves. The (hidden) issues with young people reveal that there are multiple and complex ways that people become entangled with their environments. Young people disrupt hegemonic visions for nature and construct their own alternative natures. Young people in Ernesettle reveal that there are multiple natures; that nature is multiple and that there are also multiple forms of natural knowledge (Hinchliffe, 2007; Lorimer, 2015). This prompts a rethink on the anti-urban sentiments that still percolate environmentalist discourse: accepting these spaces as *urban spaces* means accepting that diverse humans live in them, not all of whom will have the same understanding of (and respect for) what gets spun as nature. If 'wild work' in the city is to move towards ethical Anthropocene futures 'with more diverse and autonomous forms of life and ways of living together' (Collard et al., 2014, p323), then it is necessary to accept that there are multiple ways of knowing and doing nature. Rather than seeing these 'wild' behaviours as a threat, they might be regarded as an opportunity to truly democratise nature and respond critically to the sentiments lauded in rewilding circles, i.e. the 'values of freedom, spontaneity, resilience and wonder' (Jepson and Schepers, 2016a).

Chapter 8. Entanglements in suburbia: plants, pollinators and people

8.1 Introduction

The previous chapter explored the reconstruction of nature by community elites in Ernesettle and how the (invisible) presence and practices of young people made visible the multiple ways of seeing and doing nature. This led to a consideration of the diverse relations that emerge in peopled places with respect to the more-than-human world. Building on these insights and considering the political economic context for 'wild work' in Plymouth City (discussed in 5.4), this following chapter explores the diverse entanglements and political ecologies that comprise what is called here 'austerity wilds'. While there is a wealth of scholarship on the neoliberalisation and financialisation of nature in Western societies (see Chapter 2), few studies have looked at the specificities of austerity approaches to conservation or green space management in European cities. Little work has been done on the specific consequences of austerity on ways of conceiving, managing and *living with* the more-than-human world.

Drawing on recent debates in more-than-human political ecology (Barua, 2014a, 2014b; Srinivasan and Kasturirangan, 2016) as well as recent engagements in vegetal politics and plant geographies (Head et al., 2014, 2015; Ginn, 2016; Phillips and Atchinson, 2018) this chapter uses the example of urban wildflower planting and the (indirect) invitation to passing pollinators in Ernesettle, Plymouth, to discuss key themes in the literature, including 'nonhuman labour' (Barua, 2018; see also Porcher, 2015) and 'nonhuman autonomy' (Prior and Ward, 2016; DeSilvey and Bartolini, 2018) (see Chapter 2). Such themes have been little explored in relation to the introduction of 'micro wilds' in the city, and the subsequent plant/pollinator/human entanglements. The chapter attempts to address these gaps, using an expanded, more-than-human, political ecology framework to attend to the precise ways that plants and pollinators are implicated in UK political economies.

It does so in three main ways. Firstly, by considering the consequences of austerity for human and nonhuman labour in environmental practice; secondly, by detailing the shared, multifunctional environments that are produced as a result of austerity; thirdly, by exploring the implications of austerity for human/nonhuman autonomy and ideas of wildness in the city. This third dimension sees plants, pollinators and people as a collective assemblage that results from their engagement with each other. Working with the body of literature laid out in Chapter 2), it suggests that 'labour' and 'autonomy' are relational achievements, made possible through shared knowledge and an ongoing *involvement* in shared environments. It uses sound methods to support these arguments, reflecting the relational multispecies ethnographic ambitions set out in Chapter 3.

The chapter begins with a broad discussion on the introduction of 'micro wilds' to the city, laying out the vision for wildscapes in the city alongside urban conditions and processes (RQ1) the 'future pasts' of renaturing (RQ2). It then examines the scope and role of urban wildflowers, including: what constitutes a 'wild' meadow; what purpose/function they are thought to serve; and who they are imagined for (RQ3). It then opens a discussion on how 'shared environments' were imagined in Ernesettle through wildflower meadows (RQ4). Finally, the chapter ends with an exploration of wildflowers from a more-than-human perspective, drawing on themes including plant/pollinator dependencies, plant agency and autonomy, plant mobility and temporality.

8.2 Introducing 'micro' wilds to suburbia

There has been a recent surge of interest in wildflowers and meadow creation in Britain in recent years, both in public discourse (BBC, 3 July 2015; The Guardian, 20 July 2012; The Independent, 5 July 2013) and in scientific and policy arenas (Natural England, 2013, 2017b; DEFRA, 2014a, 2014b). Much of this was sparked by the reported decline of wildflower-rich grasslands in Britain (Natural England, 2013). In response, NGOs made extensive efforts to sow and plant wildflowers across England and Wales, particularly in cities – for example,

National Park City's 2018 campaign for nine million wildflowers across London; Buglife's 2015 'Urban Buzz' project; Plantlife's 2014 'Save our Magnificent Meadows' project; Kew Garden's 2012 'Grow Wild' campaign). Alongside these greening programmes, there have been calls to reduce grass-cutting regimes in UK parks, green spaces and marginal areas such as roadside verges, in order to support biodiversity (Friends of the Earth/Buglife 2018; see also Plantlife's 2018 'Roadside verges' campaign). In 2016, the city of Plymouth became the focus of an intensive wildflower planting scheme (see Figure 8.1).

Figure 8.1 Wildflowers sown at North Cross roundabout, Plymouth City Centre, June 2017

8.2.1 Wildflowers for an ecological urban Britain

Wildflowers were seen as an essential way of creating wildlife corridors in Ernesettle and therefore improving ecological connectivity across the city. The notion of 'connectivity' is becoming increasingly part of the common parlance of conservation biology, biogeography and landscape ecology (Thomas et al., 2004; Jongman and Pungetti, 2004; Crooks and Sanjayan, 2006) as well as being used in many different ways in urban planning Hajer and Zonneveld, 2000; Houston et al., 2017). For the purposes of the discussion here, connectivity is understood in its biogeographic or spatial sense (identified by Hodgetts, 2017b), which is often used by conservation biologists to promote structural habitat connections and the

increased mobility of wildlife populations so as to improve gene flow. The notion of landscape connectivity refers to spatial structures and habitat patches that provide different species with different opportunities for movement (Tischendorf and Fahrig 2000; Taylor et al., 1993).[48] For this reason, it forms a key concept for rewilding agendas; Noss and Soule first put forward an argument for rewilding in the form of *cores, carnivores and corridors* (1998).[49]

In 2015, Plymouth City Council partnered with NGO Buglife to deliver 25 hectares of flowering meadow and other 'pollinator-friendly' habitat across 100 sites around the city (Buglife, 2016). In addition, changes to grass cutting regimes were made across the city during the fieldwork period (2016-2017), prompted by Plymouth City Council's partnership with Buglife and its commitment to the project 'Urban Buzz' (see Chapter 3). Such alterations were made in the name of ecological connectivity and biodiversity, both with respect to the (perceived) loss of wildflower meadows and the concern over declining pollinators in Britain. 'Urban Buzz' selected eight cities across England and Wales (Plymouth being one) to help deliver the National Pollinator Strategy (2014). This strategy recognised that urban areas are highly important for pollinator species and provide opportunities for further habitat creation (Friends of the Earth/Buglife, 2018).[50]

Project workers were concerned by the loss of meadows in Britain: 'we've lost 97 per cent of our meadows since the Second World War' explained Simon, the urban ranger for Active Neighbourhoods (DWT/PCC). This has meant that, for

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[48] From a conservation perspective, the concept of connectivity is most obviously, and most often, applied to the movements of animals, since connectivity plays a crucial role in the migrations and genetic futures of populations, such as butterflies (Rabasa et al. 2007) or birds (Alerstam et al., 2007). There is a concern that populations may be affected by habitat fragmentation and will become genetically isolated over time (see island biogeography theory: MacArthur and Wilson, 1967).

[49] Noss and Soule (1998) suggested that a 'healthy' ecosystem must comprise a series of connected tracts of land to ensure the mobility of species and the integrity of trophic connections.

[50] The National Pollinator Strategy (2014-2024) sets out a 10-year plan to help pollinating insects survive and thrive across England. Defra sets outcomes including: 'Bigger, better and more joined-up areas of high-quality flower-rich habitat for pollinators (including nesting places and shelter); no further extinctions of known threatened pollinator species; and enhanced public awareness of pollinator importance.'

pollinators, 'their food sources are just not there… and a lot of them struggle to fly long distances. So, if stuff gets fragmented then that becomes a problem' (Viv, Urban Buzz/Buglife). Project workers felt that this issue was particularly acute in urban areas where

> '…things have been so heavily built up and people now have a habit of paving over their gardens. The green space that exists is really short grass and there's not the kind of diversity that there could be, so it's the same thing – just a lack of forage and a lack of nesting habitat' (Viv, Urban Buzz/Buglife).

Project workers felt that urban areas could support a lot more wildlife 'if they were just managed slightly differently' (Viv, Urban Buzz/Buglife). For instance, during the official launch event for Urban Buzz, project representatives told the audience that urban areas have 'many patches of mown grass and underused land… with low biodiversity value' and explained how 'there is a potential for change, to improve areas' (Councillor Mike Leaves, Cabinet member for the Environment, Plymouth City Council, October 2016). Places like Ernesettle, with its large swathes of heavily-mown grassland, were seen as 'opportunities' for urban-dwelling communities. Project managers for Active Neighbourhoods argued that 'areas like Ernesettle are not only locally important, they are regionally important… providing connections, vital stepping stones for wildlife' (Simon, urban ranger, DWT/PCC). In this way, an urban fringe areas like Ernesettle were seen as vital parts of the 'natural infrastructure' of the city, providing an important resource to wildlife and many people.

Figure 8.2 Sowing wildflowers in Ernesettle, December 2016 (Source: Active Neighbourhoods/Buglife)

Wildflowers and wild meadows were seen as a way of enhancing connectivity and facilitating nonhuman mobility through the urban zone. During the winter of 2016, residents and local interest groups were invited to sow wildflower seeds on the large grassy verge on Lakeside Drive, one of the main ring roads around Ernesettle (Figure 8.2). Once sown, project managers developed site improvement plans that involved changes in grass-cutting regimes to keep the grass long and ensure the wildflowers would improve year on year and bloom for extended periods of time (Figure 8.3). The grass verge was thought to have little use or value in its former state and so it was framed as 'marginal area' (Plymouth City Council and Devon Wildlife Trust, 2017). In fact, project staff regularly described the verge as a 'green nothing' or 'green desert' that had been 'gang-mown' so that it was little more than 'a bowling green' (Simon, DWT/PCC).

Figure 8.3 The grass verge after it had been sown with wildflowers, June 2018

Suburban areas like Ernesettle were framed as degraded and in need of ecological remediation – something to which wildflowers could contribute. The introduction of wildflowers was a means to improve the area ecologically and facilitate the movement of wildlife across the urban zone:

> 'You know, how many types of butterfly were here before the wildflower meadow went in? Maybe one or two. What would be great to show at the end of this summer is [that] there's even more butterflies there because of the wildflower meadow… and [that] different birds come here because of it' (Simon, DWT/PCC, April 2017).

In this way, the project actively made links between pollinators and plants, seeing them as part of an entangled ecology, made possible through the creation and extension of wild meadows and new management techniques. However, as the following section discusses, this entangled ecology was not necessarily an open one where any creature might be welcomed: there were distinct preferences for native species within the project, as these were seen by officials to contribute to a more 'authentic' ecology for urban Britain. New visions of wildness are therefore

still emerging within a traditional conservation paradigm and compositionalist approaches (Lorimer, 2012, 2015), despite the acknowledgement that cities are highly altered environments. As scholars suggest, when ecological connectivity is championed as a mode of environmental management it does not always attend to (or account for) the variety of ways that diverse nonhumans contribute to spaces and places (Hodgetts, 2017c). Not all connectivities are welcomed: non-native invasive species that 'make their own connections' are often the first targets for 'discipline, expulsion and death' (Hodgetts, 2017c, p457; see also Davis et al., 2011).[51]

8.2.2 Wildflowers for a 'native' urban Britain

The wildflowers that were sown in Ernesettle were part of a seed mix called MG5, which produces a particular type of grassland in Britain. MG5 refers to 'unimproved neutral grassland' in the National Vegetation Classification (Natural England, 2013) and it was once the ubiquitous type of old meadow and pasture in the English lowlands. Since the late 1960s it has sustained large losses as a result of drainage, ploughing and re-seeding and from the use of high rates of fertilisers (Natural England, 2013).[52] The mix commonly consists of herbs such as common knapweed (*Centaurea nigra*), ox-eye daisy (*Leucanthemum vulgare*), bird's-foot trefoil (*Lotus corniculatus*), meadow buttercup (*Ranunculus acris*) as well as grasses such as English crested dog's-tail (*Cynosurus cristatus*), and sweet vernal grass (*Anthoxanthum odoratum*). Several of these species were identified in wildflower surveys conducted in Ernesettle the year after they were sown (Figures 8.4 and 8.5).

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[51] The undesired mobilities of such 'invasive' or 'exotic' species causes much anxiety within conservation circles (framed, as they are, as a biosecurity 'threat'). Lines are drawn at unfettered 'feral' connectivities, suggesting that 'connectivity' itself is a choreographed affair (Lorimer, 2015, p174).

[52] Natural England (2013) found that there are now less than 6,000 hectares of this traditional meadow remaining in England, making it a somewhat rare assemblage compared to former days.

Figure 8.4 Cornflower (*Centaurea cyanus*) and corncockle (*Agrostemma githago*) identified on 'wildflower walk', June 2017

Figure 8.5 Ox-eye daisy (*Leucanthemum vulgare*) after it had been sown along the Headland Path, May 2017

The flowers found in MG5 seed mixes were seen by the project as forming a 'diverse array' of native plants typical to lowland grassland in Britain (Viv, Urban Buzz/Buglife). During a workshop on pollinators and wildflowers, Viv explained to the audience that 'it's better to source wildflowers for sowing from local seed banks… because they are better adapted to the climatic and soil conditions of the area'. The interest in preserving 'local' habitats and species speaks to wider conservation interests in 'the right kinds of diversity in the right places' (van Dooren, 2014, p7; see Chapter 2). Viv (Urban Buzz/Buglife), who initiated much of the sowing in Ernesettle, explained 'with the native flowers, our pollinators have evolved with them over time… some of them [pollinators] are very specific and will need certain things'. Here, it is the nativeness of plants that makes them beneficial to meadow habitats and pollinating insects, rather than simply the ecological relationship of dependency between *any* plant and *any* pollinator.

Once the meadows had been established in Ernesettle and flowers were in full bloom (June 2017), Active Neighbourhoods conducted an informal 'wildflower walk' with residents to provide training on how to identify 'native' species. Field ID guides were employed, and square quadrats were used to count the number of (native) species that could be identified (see Figures 8.6 and 8.7). Project managers felt it was important that residents could identify (and thus conserve) these plants for the future because 'that's where the bees go, where the butterflies go' (Simon, DWT/PCC). The field notes below describe the walk and what was encountered along the way. It reveals how knowledge was constructed in both abstract and tactile ways, which arguably challenges thee assumption that 'Western nature knowledge' is produced in remote and distant ways (see Chapter 2).

Field notes, June 2017

As we cross the carpark, swallows and sparrows soar above us and swoop down onto the Creek, skimming the surface of the water for insects. The wildflower walk is not just about

the flowers, but we're told that without the flowers there would be few insects for the birds to feed on. During the walk, we're encouraged to feel, smell and taste plants. There was a lot of careful plant collecting: checking leaves and petals; rubbing stalks; making arrangements and bouquets. Plant ID books were circulated and there were regular exclamations of 'aha' or 'oooh' as the group gave these plants their names: red campion, vetch, bloody cranes bill, herb Robert, Germain speedwell, Oxford ragwort, sea pink, scarlet pimpernel, cornflower. By the time we completed the two-hour walk of the Creek and wound up at the grassy verge that was sown last year, we were sleepy and sun-dazed (or at least I was). Our survey of the new meadows consisted of collapsing in the tall grass, throwing a quadrat around and casually passing around a plant identification book, flicking through the pages to see what flowers we might be able to identify... One lady in our group notices some bees enjoying a cluster of red campion. In response, the ranger says 'That's why flowers are important guys...'

Figure 8.6 Ernesettle resident identifying flowers on 'wildflower walk' in June 2017

Figure 8.7 Surveying plant diversity in Ernesettle using the quadrat technique

The field entry reveals the types of flowers to which residents were being guided. To my untrained eye they looked like small flashes of colour among a swathe of long grass – thin, weedy, dainty. But these were the aesthetics that were being appealed to. The project manager for Urban Buzz felt that wildflowers were a 'great way to brighten up the estate' (Viv, Urban Buzz/Buglife). Likewise, an ex-Council worker explained that he was very keen to promote wildflower meadows in Plymouth because it felt like a 'natural good fit' for the city and a 'way of promoting the benefits of the natural environment in a very accessible, bright way that would be appealing to people' (Todd, ex-Plymouth City Council). Similarly, Simon (urban ranger, DWT/PCC) was convinced by the need for 'rough edges' on the estate to combat the 'swathes of tightly mown grass', which he felt were bland and lacking in biodiversity (Simon, DWT/PCC). Figure 8.8 captures the image he describes. However not all residents (include

some project stakeholders) agreed with this logic (further discussed in Section 8.3).

Figure 8.8 'Rough edges' to 'brighten up the estate', June 2017

Ideas of naturalness and nativeness continued to percolate wild visions for urban meadows. Viv explained that 'it's not that ornamental flowers like petunias and tulips are *bad* for pollinators… but pollinators need a range of different shapes and sizes of flowers because they all feed in different ways' (Viv, Urban Buzz/Buglife). This implied that there was almost a 'natural rhythm' to (native) plants and their (native) pollinators. Ornamental plants were not thought to be in keeping with the vernacular of British wildness. As Chapter 2 outlined, wildness, naturalness and nativeness are commonly conflated in conservation discourse (Lavau, 2011; Head et al., 2014, 2015) and this means that any plant or animal that is categorised as 'native' is automatically thought of as 'natural' and 'wild'. This logic was extended to other plants, including trees, in Ernesettle. For

instance, the renaturing strategy for Ernesettle's Budshead Wood, which was identified as a Plantation on Ancient Woodland (PAW), was to 'get things back to ancient woodland' through a process of 'reversion' (Simon, urban ranger, DWT/PCC).

The reversion involved 'thinning the introduced plantation trees' (mostly beech and hornbeam) and 'opening up the canopy to encourage more diversity', which essentially meant encouraging 'native tree' species such as oak, hazel, ash and thorns (such as blackthorn and hawthorn) as well as woodland edge species such as field maple, dog wood and spindle (Plymouth City Council and Devon Wildlife Trust, 2017). Simon (DWT/PCC) framed the presence of non-native trees as unnatural in Ernesettle: 'One of the trees that really takes over and shade everything else out is beech – but it's not native to the south-west of England; its real homeland is the Chilterns... so it's a bit of foreigner down here' (Simon, (DWT/PCC). This demonstrates how non-native species (even regionally non-native) can be seen as out of place in Ernesettle, 'fit but not fitting' (Head et al., 2014, p862): in other words, *ecological misfits*. It also assumes that plant species do disperse seeds across country/county borders *of their own accord,* by wind, water and other biotic elements: humans only have so much control over plant territories (Head et al., 2014).

8.3. Austerity wilds: the political ecologies of urban wildflowers

So far, the chapter has demonstrated how wildflowers are framed as an antidote to the urban environment, imbued with ideas of naturalness and nativeness. This section highlights the importance of considering the political economic context that, in part, produces 'wild work' in the city. The context discussed here is one of austerity.

When the 40 per cent cut in the budget of the UK Department for Environment, Food and Rural Affairs (DEFRA) was proclaimed in 2010, conservation organisations rallied to denounce the 'austerity countryside' such a cut would create (Jowitt et al. 2010). Partly in response to budget cuts to environmental and park services, conservation organisations in the last 10 years have begun to align

pre-existing interests in (native) wildflowers with austerity contexts, framing their presence across cities and the little management they require as economically beneficial to cash-strapped local councils. Organisations Friends of the Earth and Buglife recently suggested that a reduction in cutting regimes would save local councils 'thousands of pounds' every year (Friends of the Earth/Buglife, 19 July 2018). This indicates how certain environmental practices were and are being strategically aligned with economic conditions, in response to the fiscal consolidation and the decrease in state expenditures wrought by post-2008 austerity policies in Britain.

While wildflower planting and meadow creation were seen as ecological and aesthetic 'improvements' in Ernesettle, they were largely driven by funding-related pressures to generate socio-economic value in what were seen as 'deprived' communities (see Section 5.4). Firstly, there was a desire to achieve more with less, by diversifying the function of spaces and/or intensifying the use of those spaces. Simon (DWT/PCC) thought that the installation of wildflowers and a reduced grass-cutting regime would be 'a lovely quick fix' to the 'over mown' grass verge in Ernesettle because it offered a 'win-win' situation for the estate: 'it's good for biodiversity' and 'it's attractive for residents'. Similarly, as one ex-Council worker put it:

> '…it's about increasing the value of green spaces… It could even be a road verge, you could have an orchard along a road verge. So increasing the value of those for wildlife but also to provide another service – I don't like the word service but another service like providing food or providing a lovely view of wildflowers' (Todd, ex-employee, Plymouth City Council).

Here 'value' is predominantly seen in terms of offering a cultural and ecological 'service' to Ernesettle and Plymouth. Council representatives openly admitted that many of their decisions were partly driven by 'reduced funding to managing natural spaces, including parks' (Debbie, Plymouth City Council; see Section 5.4).

Wildflower meadows were seen as 'low maintenance' because they did not require regular cutting and could therefore be cost-saving for Plymouth City

Council. As Viv (Urban Buzz/Buglife), who was responsible for overseeing wildflower work in Plymouth, said: 'We're looking at reducing cost; we won't do anything that creates more work for them [the Council], just some or less… Because obviously they're facing cuts at the moment'. Here, there is a direct link being made between low-cost natures and aesthetic and ecological improvement, which reflects the wealth of scholarship on the neoliberal approaches to and financialisation of nature (see Chapter 2). While wildflower meadows would not directly generate capital, they would provide a source of social/natural capital, a clear appeal to recent neoliberal discourses that emphasise the value of nature in terms of the services it provides. In this way, the environment was being mobilised to circumvent or subvert the challenges posed by austerity (Apostolopoulou and Adams, 2017; Calvário et al., 2017).

With these shifting economies, there was a desire to change cultures and attitudes to wildflowers in the city. Active Neighbourhoods felt it had to convince the parks department at Plymouth City Council (PCC) – who were responsible for grass management across the city – to adopt the rationale for wildflowers and change their grass-cutting regimes (that is, reduce them). At meetings, there would often be debates about grass cutting and lively exchanges between residents and conservationists:

> You're going to hate me for saying this, but I hate that wildflower meadow, it looks a mess' (Polly, resident and stakeholder for Active Neighbourhoods).

> 'I know you're sceptical [about wildflower meadows]… but nature isn't tidy' (Simon, urban ranger, DWT/PCC)

This short exchange affirmed how wildflower meadows acted as a provocation to Ernesettle residents who were used to seeing their communal lawns neatly trimmed (field observations, 2016-2017; see Figure 8.9). It also highlighted a potential tension between 'official' perceptions of the estate (those who lived elsewhere) and the experiences of residents themselves – again suggesting that there are multiple ways of seeing and doing 'nature' (Hinchliffe, 2007). Project

staff felt that new grassland strategies would require a 'culture shift' within the parks department because it presented 'an alteration to how they're used to working' (Viv, Urban Buzz/Buglife). But they also recognised that Council groundsmen were under pressure to continue existing grass-cutting practices or otherwise risk 'having to double back on themselves and cut it all down. So that [public perception] is a really big barrier' (Viv, Urban Buzz/Buglife). Therefore, project workers engaged the parks department and provided guidance and training where they felt it was needed (field observations, 2016-2017).

Figure 8.9 Uncut grass verge below the estate, June 2017

To overcome the 'barrier' of public perception, Plymouth City Council park staff were invited to official stakeholder meetings so that they could share their knowledge and opinion on grass management, but also to 'witness' the (supposed) local support for change that had been cultivated in Ernesettle.[53] Those who lived outside the estate generally celebrated wildflowers as 'fantastic' and 'beautiful' (field observations, 2016-2017). One community worker emphasised how much she 'enjoyed driving past the new wildflower roundabouts' in Plymouth City Centre (Nora, Plymouth Community Homes). Responding to the (apparent) local enthusiasm, Active Neighbourhoods staff

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[53] While the interest in wildflowers was not entirely unanimous (see above), by the time park staff were attending these meetings, there was a broad acceptance of the changes among stakeholders.

praised grass-cutting alterations across the city in persuasive ways: 'Plymouth has done well… It takes lot of commitment from people like yourself [nodding the parks representative] to take on some of these… slightly different approaches to management. I think we should be proud of that' (Simon, urban ranger, DWT/PCC). In this way, keeping the grass long (uncut) was presented as a challenge as well as a goal for Ernesettle and the parks department, to take on 'with pride' (Simon, DWT/PCC).

While these meetings helped valorise environmental changes in Ernesettle and cultivate a sense of civic pride in them, grass cutting was an ongoing source of debate within the project, and never entirely resolved. This was partly because of the internal turmoil the parks department was experiencing during the fieldwork period (2016-2017) as a result of budget cuts. At first, Active Neighbourhoods reasoned that a reduction in grass cutting would save the Council time and money. But that reasoning was soon quashed as 'a false economy' by staff within the parks department, who explained that meadow management needed specific machinery which the Council did not have, as well as a more tailored approach to each space that would arguably take them 'more time than before' (groundsman, Plymouth City Council). These issues were rarely reflected upon by the project, mostly because wildflowers were perceived as inherently 'good'. But the political ecologies produced through 'austerity wilds' clearly do have implications for diverse humans and nonhumans.

This section has demonstrated how austerity measures and 'wild' visions can combine in ways that seem outwardly smooth and logical, but are inwardly full of tension and contestation, with implications for people's lives and livelihoods. Few studies have looked at the specificities of austerity approaches to conservation and park management – that is, the kinds of ecologies that are produced under austerity, whether in urban zones or the rural countryside. Scholars have only recently begun to draw attention to the implications of austerity for environmental practices – for instance, there was a session at RGS-IBG (2017) called 'Political ecologies of austerity' than began to address these

issues.[54] Studies have yet to fully explore whether there is a specifically 'austere biopolitics' of conservation in the UK or how 'life' is being re-evaluated under austerity in both urban and rural contexts.

8.3.1 The living labours of plants and 'micro' wilds

The idea of 'nonhuman labour' has recently been developed in more-than-human scholarship, mostly in light of Haraway's (2008) concepts of 'lively commodities' and 'encounter values' that foreground animal ecologies and rework political economic categories of commodity, labour and production in more-than-human terms (Tsing, 2015; Barua, 2016, 2017, 2018). The work of geographer Maan Barua has been particularly productive in this regard, insofar as he advocates that any recognition of nonhumans as 'political subjects' should equally involve a recognition of their important status as 'labouring subjects' (Barua, 2016, p726). By this, he means that more attention needs to be given to the particular ways that nonhumans contribute to political economic systems, whether it be shiitake mushroom trading in Japan (Tsing, 2015), lions as modern 'trophies' in India (Barua, 2017), elephant ecotourism in Sri Lanka (Lorimer, 2010, 2007) or elephant labour in India (Barua, 2014c, 2016).

Building on a Marxist framework, these literatures understand 'nonhuman labour' in terms of the way 'wild' charismatics and 'lively' potentials of nonhumans are harnessed and put into the service of capital (see also Collard, 2013b; Collard and Dempsey 2013; Marx's concept of 'living labour' via Hart and Negri, 2000). However, most if not all of the debates on nonhuman labour have focussed on animals, with little attention given to the living labours of plants, insects and other 'micro' wilds, as they are put in the service of human projects

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[54] Ernwein (2017) addresses austerity ecology through the concept of 'labour' and specifically 'nonhuman labour' – research presented at RGS-IBG 2017. In her study, Ernwein assessed the impact of austerity policies on urban environmental management. She looked at changes to planting regimes in Swiss cities and found that local councils were replacing ornamental flowerbeds that required high maintenance and year-on-year replacement with 'wild' flowers that were thought to need little ongoing management (and therefore seen as more 'lively'). This example illustrates how political-economic circumstance can change entire vegetal assemblages in cities.

(Head et al., 2014, 2015). In Ernesettle, pollination is that function. Here, the indirect reintroduction of pollinators (by way of wildflower meadows) was deemed important not only for the sake of biodiversity, but because it offered a human function/service to Ernesettle that were seen as conducive to the political ecologies that were being promoted.

Official documents for the pollinator project, Urban Buzz, explicitly state: that 'wild insects pollinate our food for free; without our pollinators we wouldn't have crops such as apples, cherries, pears, plums, pumpkins and strawberries' (Buglife, 'B-Lines: Pollinator Factsheet'). Similarly, during official workshops, Viv (Urban Buzz/Buglife) regularly gave facts that emphasised the necessity of pollinators to human survival: such as '80% of Britain's plants are reliant on pollination' and '90% of crop species are pollinated globally' (field observations, 2016-2017). In Ernesettle, the dependency of humans on pollinators was made explicit and urgent. Having planted, pruned and laboured over orchards, hedges and meadows through Active Neighbourhoods, the community (of stakeholders) sought the additional help of pollinators – to support their (newly renatured) landscape, created with urban communities in mind.

Listen to recording 'Ch8 R1 – micro wilds' to get a sense of the invisible labours of nonhumans in Ernesettle, including the (sonic) connections between plants, pollinators and humans, and the range of other biotic and abiotic elements, including wind. Use headphones in right and left ears for full effect. Ensure volume is at an appropriate level to hear the 'micro sounds' that were present. **PLAY:** https://soundcloud.com/user-977605567/ch8-r1-micro-wilds-june-2017

The following reflection helps to situate the recording, which was taken on a sunny morning when Ernesettle's wildflower meadows were in full bloom and pollinators were actively feeding on them. The recording also captures birdlife that was also in the area at the time, likely also feeding.

Between these notes and the sound recording (Ch8, R1), it is possible to get a sense of the 'work' that was taking place that morning. There was a real 'hum' in the air and my own work (field recording) seemed inconsequential in comparison. I wondered how I appeared to these tiny insects, towering and giant-like – although they seemed to barely notice me, so focussed they were on the task at hand. The wind occasionally rattles through the recording, sometimes overshadowing the sound of bees – but the wind was also doing its own work and was clearly part of the ecological soundscape of the place too, perhaps even offering a 'lift' to the pollen of grasses and flowers or the wings of bees that preyed upon them. It had a complex tonality, thick in parts, thin in others, like waves beaching on a shoreline. What the recording suggests is that labour is a

relational affair, involving the biotic and abiotic elements upon which we all rely. However, labour often becomes centred on one single species in conservation (and non-conservation) communities.

The interests in pollinators at Ernesettle mostly arose though the work of Urban Buzz/Buglife, which involved education/training on pollinator identification, habitat creation, and wildflower identification and planting. Audience members of Urban Buzz workshops (Plymouth residents) were particularly interested in pollinator labour for human productivity, asking how they could improve pollination in their gardens and allotments (field observations, 2016). During one pollinator identification workshop, the facilitator explained how honeybees cannot pollinate tomato crops: 'only bumblebees can because they buzz and that's how the tomato plant pollen comes off' and the audience seemed delighted with this new fact (field observations, November 2016). There was a sense of curiosity, of wanting to understand the labours of nonhumans so that they might better invite these creatures into their homes. However, not all pollinators were ascribed equal value within these projects. Flies were of less interest: 'I'm looking at it in terms of their usefulness – do they [flies] pollinate as well as bees?' (audience participant, Urban Buzz, November 2016). This reveals how bees were seen as the 'ultimate' pollinator, commonly talked about in functional terms.

Here it becomes clear that 'labour' is a value that only extends to certain charismatic species (Lorimer, 2007). Viv (Urban Buzz/Buglife) said as much: 'only with things like bumblebees and butterflies do people actually recognise [them] and notice and relate to [them]'. She found that 'generally the kind of cuter and sweeter and fluffier the animal, the more people like it'. This affirmed how visions for wilder cities, brimming with pollinating plants and insects, still emerge within a traditional compositionalist framework (Lorimer, 2012, 2015). While there may be more interest in the labours and services that the nonhuman world provides, 'insects lack charisma' in popular public imaginations and so wild visions become (re)centred on specific species that 'pull people in' (Viv, Urban Buzz/Buglife). While there is likely a vast myriad of creatures that have functional roles in pollinating systems, certain species become popularised as

charismatic ecosystem engineers, often because they correspond to ideas of nativeness and so are seen as a 'good' fit for a revived system (von Essen and Allen, 2016).

8.4 Human/plant/pollinator becomings

The following section ties together the themes of invisible labour and the co-production of wildscapes in order to consider how shared environments are produced in/with multispecies worlds. It considers the extent to which multispecies futures can be planned, that is, achieved through human plans and designs, and whether there are unplanned forms of 'wild work' that take place in the city.

8.4.1 Planning a shared environment

Planning for multispecies futures, say scholars, marks a significant step away from standardised models of urban planning, which are generally imbued with 'deeply humanistic modes for working in and engaging with the social, political and ecological realities of urban worlds and the processes that sustain and make them' (Houston et al., 2017). Multispecies planning would signify that other-than-humans are recognised as part of urban communities, contributing to and living within them. Urban planning theorists with such interests now demand that 'other-than-human animals and other identifiably biological life forms are included into any census of urban inhabitants that should then have a 'Right to the City' (Metzger, 2015, p585). However, *the way* that nonhumans are recognised as urban citizens (or denizens) can vary widely. It can shift between modes of hyper-planning for a 'shared environment' and the simple recognition that most places are *already* shared multispecies zones.

In Ernesettle, practices seemed to shift between these two modes of recognition. The renaturing work embodied a philosophy of planning: these were planned activities, designed specifically to entice (certain) nonhumans into the city. Meadows, orchards and hedgerows were framed as multifunctional corridors or urban greenways that facilitate mobility for nonhuman animals through

anthropogenic landscapes, while connecting human communities to more-than-human landscapes. Other planned activities included 'making homes' for pollinators, such as 'trees for bees', 'buzzing borders', bee hotels, green walls and green roofs (see Figure 8.10). These features were designed to give nonhumans a home in the city because 'actually nesting is just as important' (Viv, Urban Buzz/Buglife) – perhaps a message that gets lost in the current obsession with wildflower meadows (Section 8.2).

Creating suitable habitat so pollinators do not have to travel such long distances to sustain themselves was an essential part of the invitation to pollinators in Plymouth and a desire for them to take up residence across the city (whatever 'residence' might mean for mobile creatures such as flying invertebrates).

Figure 8.10 Bug hotel installed at Plymouth Energy Community solar site in Ernesettle (Source: Active Neighbourhoods/Plymouth City Council)

In addition to planning for pollinators, there was also a recognition that Ernesettle was *already* a multispecies space and that any renaturing works must acknowledge the implicitly entangled worlds of humans and nonhumans. As this exchange illustrates:

'The birds will enjoy the fruit on these new hedges' (Simon, urban ranger, DWT/PCC)

'Yeah, there might not be any left for us' (local resident, Ernesettle)

'It's all right to help out wildlife now and again – to do something for biodiversity' (Simon, urban ranger, DWT/PCC)

This highlights that edible hedges (discussed in Section 7.2) were imagined as edible for both people *and* wildlife. The message 'to help out wildlife now and again' serves as a reminder (to the residents) that people *already* share this space with other living beings; they are inextricably entangled. Likewise, wildflowers were seen to offer a dual purpose, serving both human and nonhuman inhabitants on the estate: 'they are great for people and they're great for wildlife…' (Simon, DWT/PCC). From this point of departure, residents were invited to imagine themselves as part of its newly restored environment, with a duty of care for the creatures that also share the space. Here, civic practices were to achieve outcomes for the 'more-than-human community' as well as the human community (Barry, 2002).

Such inclusions acknowledge that 'biotic citizenship' – if explored in more inclusive ways – can offer a political framework to uphold and honour these entanglements, much like the 'cosmopolitical experiments' that geographers have already proposed for urban wild things (Hinchliffe et al., 2005; see also Paulson, 2001; Hinchliffe and Whatmore, 2006). Politics, in this sense, becomes a more-than-human affair. As Paulson (2001) reminds us:

'It is not enough to decide to include nonhumans in collectives, or to acknowledge that societies live in a physical and biological world, as useful as these steps may be. The crucial point is to learn how new types of encounter (and conviviality) with nonhumans, which emerge in the practice of the sciences over the course of their history, can give rise to new modes of relation with humans, i.e. to new political practices' (2001, p112).

The installation of wildflower meadows, edible hedges and fruit orchards in Ernesettle was a political practice and arguably an experimental one insofar as it recognised the *unplanned* and *unexpected* outcomes of a more-than-human world. There was a recognition that the ecologies of Ernesettle had shifted since their installation, and that these ecologies only *become what they are* if they are used and experienced in new ways by the local community. There was a genuine desire to see residents come into contact with the newly installed meadows, to allow for what Paulson (2001, p112) describes as 'new types of encounter (and conviviality) with nonhumans'.

Speaking of her own experience of working on wild meadows, Viv (Urban Buzz/Buglife) says: 'I think the problem with things we've done before, is that the meadow grows so tall that people feel they're not allowed to go in it and are then excluded from being a part of it'. Instead, now she feels that 'it's better if people do cut through it and do use it, rather than just skirting the edge of it'. The meadows were not designed to exclude people and make them 'skirt around the edge' but instead to encourage them to cut through and immerse themselves and lose those lines of separation (see Figure 8.11). This marks an interesting shift away from the static conception of nature and the zoning practices that characterise the popular 'wilderness model' in conservation (see Chapter 2).

When I asked Viv (Urban Buzz/Buglife) whether it would matter if the meadows received a heavy footfall, incurring trampling and dog mess (revealing my own assumptions), she was confident that 'as long as some of it germinated and does well, it'll be fine'. In fact, she even suggested that some wildflowers will readily seed themselves and germinate in disturbed, open soil. Here, conservationists were not striving for a 'perfect' meadow but simply one that would survive and live with human inhabitants. In this way, the project was not connecting the community to a static nature, but rather an aspirant nature (Parkes, 2006), premised upon the assumption that new multispecies entanglements would inevitably occur. Wildflowers were seen as the start of a new/future dynamic between people, pollinators and plants. In this way, it could be argued that

'nature' is enlivened and ascribed agency precisely because it is not being fenced off, guarded and defended – unlike the 'passive natures' described in Chapter 7.

Figure 8.11 'Cutting through' the wildflower meadows, Ernesettle

The broader point here is that multispecies relations cannot be designed or planned for, nor can they be entirely governed and controlled. They occur when actors 'come into correspondence' and negotiate their own ways of relating, and this requires autonomy (in the sense understood in this thesis; see Section 2.6).

8.4.2 From connectivity to entangled autonomy

There have been efforts (mostly from the field of geography) to unwork the wild/domestic dichotomy that has characterised much of Western conservation, by conceptualising the 'wild' in relational terms, and thereby in back garden ponds, weed-filled pavements and community allotments (Ginn, 2016). Here 'wildness' is equally a relational achievement that can be operationalised among a diverse array of humans and nonhumans in a variety of times, spaces and places (Whatmore and Thorne, 1998; see also Bennett, 2009). Jamie Lorimer, for instance, finds the wild in 'affective sites' of human/nonhuman entanglement

(2008, 2010). His account of living roofs reveals how wildness emerges within specific encounters and relationships – 'not from estrangement and alterity but from relation and togetherness' (Ginn, 2016, p6). It can therefore be found in the seemingly domestic and homely, including urban residential estates. In Ernesettle, the 'renatured' plants, pollinators and humans are neither domesticated nor wild, but rather part of a shared process, co-constituted in constant states of becoming. Here, their autonomy is always fluid and negotiated (DeSilvey and Bartolini, 2018, p2).

In Ernesettle, wildflowers are seen as plants with an entangled autonomy. While they can 'take care of themselves' (Jepson and Schepers, 2016b; Taylor, 2005), they need a little human intervention to truly flourish: 'they literally need cutting once a year and [then] they can just be left to grow… They like nutrient poor soil so that's why we suggest, at the end of every year, to take the cuttings away from the meadow… that's very important in terms of the management of keeping these things going – the longer you do that for the less fertile the ground gets, the more flowers should then want to establish' (Viv, Urban Buzz/Buglife). Here, 'keeping [wildflowers] going' is a case of understanding what soil they thrive in and intervening only at particular points of the year to support their ecological success.

In this way, wildflower agency is understood as 'an achievement that is temporarily gained through interaction within a heterogeneous assemblage of other nonhumans all of which have agency potentials' (Lorimer, 2007, p913). Plants and humans thus become configured and expressed through their involvements or 'connectivities' with one another (Hodgetts, 2017b). Other than one pre-planned intervention (the annual grass cut), Viv (Urban Buzz/Buglife) is keen for all other human/wildflower interactions to be spontaneous and emerging from the community itself. In this sense, the 'wild' or 'wildness' can denote 'interrelations within which [nonhumans] have autonomy' (Collard et al., 2014, p328).

Building on multispecies scholarship and situating it in relation to urban renaturing contexts, one of the important ways that 'community' and

'connectivity' might be reconfigured in more-than-human terms is through the notion of entangled autonomy. Recently scholars have noted the paradoxical relationship between entanglement and autonomy in much of the academic literature (DeSilvey and Bartolini, 2018) where humans and nonhumans are seen as 'inextricably entangled' (Prior and Ward, 2016) but with the capacity to act independently and spontaneously. Here, there is a recognition that entanglement is only possible if actors have autonomy within their encounter – that is, if they are connected in some way.

Connectivity does not mean that subjects are 'bound together'. Following Hodgetts (2017b, p458), 'connectivity becomes less a stable achievement between two different things (people and nature), and more of a process by which multispecies connections are made, unmade, and remade. Connectivities form contingently'. When applied to the practice of renaturing, including the introduction of wildflowers, the connectivities that unfold – whether understood in socio-ecological or ethical terms – are necessarily unstable and contingent. There seems to be an acceptance of this in Ernesettle:

> 'Quite a lot of the meadows won't have worked as brilliantly as we wanted them to because you've always got weather conditions to take into account – the fact that it was a really mild winter, which made the grasses grow a bit longer, which means that the wildflower seed might not have taken as well they would have if we had had a lot of frost' (Viv, Urban Buzz/Buglife).

Equally Simon (DWT/PCC) had high hopes for wildflowers but admitted the consequences were uncertain:

> '…hopefully they will attract in more bees, butterflies and birds than before… You know, the birds might attract bird predators, you know, a sparrow hawk might come in and eat one of the birds [laughs] but it just shows that you've got birds of prey coming in and all sorts of things. And because the grass is longer you might find little voles and mice there and that's food for barn owls and owls. So just simple things can create a

massive, sort of um, almost catalyst for nature then to start to build on that' (Simon, urban ranger, DWT/PCC).

What these comments reveal is that the ecological assemblages or 'vital connectivities' that emerge from renaturing practices such as wildflower introduction are not entirely in the hands of the practitioners that initiate them. They will develop a course of their own because they involve multiple actors, all with 'different degrees' of autonomy that they negotiate in an open-ended, fluid way (DeSilvey and Bartolini, 2018, p2). Wildflower meadow creation in urban peopled places is not too dissimilar to the 'wild experiment' described by Lorimer and Driessen (2014) in relation to the Dutch rewilding initiative, Oostvaarderplassen. Here, the ecological processes established by nonhumans prior to the project were given free reign, while other actors (herds of 'wild' cattle and ponies) were introduced under a policy of minimal intervention in order to make a 'more complete ecosystem' (Vera, 2009). That both human and nonhuman activities were recognised as essential to the co-creation of alternative 'future natures' was arguably an important step in working towards a slightly less anthropocentric Anthropocene – although it was not without ethical controversies (see Chapter 2).

8.5 Conclusion

This chapter has demonstrated that the motivations for wildflower planting are complex and multifarious. In the case of Ernesettle, they speak to diverse conservation interests: to improve biodiversity in cities as well as to address (Western) cultural interests, including a more positive re-evaluation of what are imagined to be typically 'British' (and therefore 'native') meadow landscapes. Wildflower introduction was accompanied by a vision of unmanaged urban space, which is why it often coincides with grass regimes that favour unmanaged grass (long, uncut/infrequently cut). The valorisation of wildflower meadows in Ernesettle can be understood in three main ways: the interest in biodiversity and ecological function; the equation of the 'wild' with native species; and the interest in visually 'wilder' places, that is, an ecological aesthetics that might make the

built environment appear more 'natural'. However the chapter has also revealed the politics involved in wildflower introduction, including the austerity contexts that produce challenges/opportunities for governing urban greenspace in new and different ways, as well as the residential politics that uncovered different aesthetic imaginations.

Together, this chapter has highlighted the 'implicit entanglements' (Prior and Ward, 2016) of creating urban wild space, the outcomes of which are still unknown and continually unfolding. While there was still an attachment to pure nature in Ernesettle (see Chapter 7) and a clear desire to reconnect Ernesettle residents to a particular version of the local environment through ideas of heritage and community, the 'wild work' in Ernesettle went beyond practices that 'couple' nature and society (Zimmerer, 2000) and hegemonic 'reconnection to nature' narratives, which have been critiqued on multiple fronts in recent years (Hodgetts, 2017b; Beery and Wolf-Watz, 2014). However, as this chapter has shown, there are still conceptual boundaries that shape urban renaturing initiatives (ruly/unruly, wild/domestic, native/non-native) and these arguably prohibit the genuine inclusion of *all* humans and nonhumans to produce a fully expanded version of the ethical (multispecies) community.

Chapter 9. Hearing anima urbis: Geese speech in the city

From your big, free, beautiful flight
Arrow straight and jet high
You would stoop at night to honour our farm pond
Like dignitaries from an exotic, foreign land.

Now you hapless stand
Abandoned to handless begging
Homeless at the city park, messing the putting green
Lunging at cigarette butts and reminding me

Of the places I came from and have chosen
And what I have kept of what was once
The big, free, beautiful flyway
Of my heart.

'Canada Geese' by Greg Beattie (2009)

9.1 Introduction

Building on more-than-human geographies, this chapter draws on insights from Walthamstow Wetlands, London, to consider the dilemmas that emerge when certain (unwanted) creatures carve out their territories in the urban environment. It explores what nonhuman territoriality, as a uniquely spatial expression of agency, reveals about 'space' as a more-than-human affair (RQ3). It looks at the case of a distinctive urban bird, the Canada goose, whose contested (non-native) existence at Walthamstow Wetlands prompts reflection on the scope and role of an urban nature reserve, raising questions regarding the production of shared multispecies spaces in the city (RQ4). While these issues are not necessarily exclusive to Walthamstow Wetlands, there they were particularly acute because of the large number of Canada geese that use the reservoirs and the wider Lea Valley.

Where Chapter 6 ('Life in the urban wilds') prompted important questions on the social-spatial practices of animal inclusion and exclusion in city spaces (Wolch, 1998; Philo and Wilbert, 2000), including how creatures become subjects of control, conflict and controversy in conservation practice (Biermann and Mansfield, 2014; Biermann and Anderson, 2017; Hodgetts, 2017a), this Chapter turns to more-than-human approaches to examine *how* urban Canada geese belong, that is, how they make this (urban) space their own, focussing on the notions of animal territoriality and territorialism. It explores how sentient creatures negotiate and learn to inhabit complex, dynamic environments, 'apprehending them according to their own knowledges, speeds and rhythms, with or against the grain of urban design' (Barua, 2017, p2). The study supports the contention that the material and historical geographies of urbanisation are not the result of humans as sole historical agents, planners and place-shapers. Animals also have histories; they too are planners and place-shapers (Jones and Cloke, 2002; Cloke and Jones, 2003; Barua, 2014a, 2014b; Metzger, 2014, 2015; Houston et al., 2017).

With these interventions in mind, Chapter 9 works towards a richer, more expanded sense of nonhuman life in urban Britain by attending specifically to Canada geese at Walthamstow Wetlands; their historical embeddedness and their entangled lifeways. In doing so, it offers a situated understanding of geese that 'resists the politics of closure' (Haraway, 1988, p590) – the kind of closure or closing off of 'geese space' for which existing policy and legislation provide a mandate. There are three areas of study. Firstly, I look at the historical context that shapes the arrival and residence of Canada geese in Britain (*national and transnational entanglements*). Secondly, I look at the geographies of Canada geese at the reservoirs and across the Lea Valley (*local and regional entanglements*). Thirdly, I look at the lived experiences of Canada geese at the reservoirs (through observations and sonic investigations) and situate these in relation to the spatio-historical conditions that may have prompted new 'geese cultures' in urban Britain (*embodied entanglements*).

In this chapter, I situate the precarious status of Canada geese at Walthamstow Wetlands against their historical entanglements with humans as well as their territory-making practices today. Drawing on goose ethology, media narratives, personal and interviewee stories, I explore how Canada geese take part in the co-constitution of urban spaces and identities. In doing so, I seek to question the purpose of an urban nature reserve and contribute to alternative modes of understanding and governing wildlife in a densely populated city. By considering the multiple and situated experiences of Canada geese as contested (non-native) species in urban spaces, the chapter ultimately provokes questions on the possibilities for nonhierarchical modes of cohabitation and the political-ethical responsibilities for living with uncomfortable others.

9.2 Problematising Canada geese

The story of the Canada goose (*Branta canadensis*) in Britain is one of tragedy and survival, resilience and dependency. Having been introduced to the parks and gardens of Britain as an attractive and rare ornament (see Figure 9.1) the Canada goose now finds itself at the centre of strategies that cast it as a common nuisance that needs to be removed. In public and policy arenas, Canada geese are discursively and practically produced as impure, polluting, disruptive occupants of the urban environment where humans alone are supposed to live and work (Philo, 1995). Their non-native status compounds these issues and means that Canada geese are framed both as a nuisance in the urban environment and in a nature reserve, the latter of which is normally seen as a space for the 'pure world of biodiversity' (Lorimer, 2015; see Chapter 2). But having lost their migratory instincts after years in captivity (geese learn their flight-ways from parents), Britain's Canada geese have become attached to the places where they were once introduced (or escaped into), taking up a residential existence alongside human society – fed by some, killed by others. History has thus made the worlds of geese and humans intimately entangled, but this history is rarely given attention in the spatial zoning practices of urban animal governance, including nature conservation.

Not native or wild enough to be considered for the pure spaces of wildlife reserves and yet too feral for the human-oriented functions of public parks, Canada geese appear to have no clear constituency in Britain. They are the ultimate 'awkward other' (Ginn et al., 2014). Yet, like squirrels and pigeons, Canada geese provide an opportunity for people living in urban areas to have close-up, physical and visual encounters with the natural world (for example, through animal feeding), in areas where such opportunities might otherwise be limited (Gaston, 2010). This creates something of an ethical dilemma for Walthamstow Wetlands. On the one hand, the project has an obligation to prioritise the species of conservation importance and so maintain the space as a 'nature reserve' free from 'urban others' (see Chapter 7). On the other hand, the project has an ambition to widen 'access to nature' in the city (see Chapter 3) and arguably this means opening access to all kinds of creatures that carve out a home in the urban environment.

Figure 9.1 Buckingham Palace and St James's Park from Illustrated London by WI Bicknell (1847) (Source: regencyhistory.net)

Like so many creatures that have been subjected to the whims and fancies of Western society, Canada geese were introduced to Britain from North America in 1665 (Allan et al. 1995) as an addition to the waterfowl collection of King Charles II at St James's Park in London (see Figure 9.1). The Canada goose soon became a popular aristocratic ornament in country gardens with lakes and ponds across England, partly because of its striking plumage and call (Goode, 2014). In 1785 Latham wrote, 'they are thought a great ornament to the pieces of water in many gentlemen's seats, where they are very familiar and breed freely'. By 1900 they were widely distributed on such estates and a few pairs were known to breed in the wild. Their population remained low in Britain until the 1950s but started to increase significantly when they were deliberately introduced (NNSS, 'Canada Goose – Factsheet') – particularly after a relocation scheme was implemented by the Wildfowl Trust and Wildfowlers Association between 1953 and 1957 (Baxter and Hart, 2010).[55]

While some colonies settled in country parks and private estates, post-industrial spaces became popular choices for Canada geese and other waterfowl during the twentieth century. According to Goode (2014), the proliferation of new man-made water bodies partly explains the huge increase in numbers of Canada geese in Britain, which saw the population go from 3-4,000 individuals in 1953 to over 64,000 by 1991 (Rehfisch et al., 2002). Flooded gravel pits and water supply reservoirs were increasingly used for breeding after the Second World War, acting as 'natural wetlands' for these birds (Goode, 2014, p186). They provided ideal conditions for breeding since they have an abundance of emergent vegetation around the margins. In London, 'gravel sand pits', 'lakes and ponds in parks', and 'reservoirs' were recorded as the top three sites for breeding pairs of Canada geese (Baker, 1985; data collected in 1983). Oddly, then, these spaces intended for very human functions and services – from water production and mineral mining to fishing and recreation – have been territorialised, even appropriated, by nonhuman actors.

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[55] Interestingly, Canada geese stopped breeding in the London area during the Second World War due to military activity (Goode, 2014, p191). After the war, their numbers rose, suggesting that they also experienced something of the 'baby boom' associated with post-war years.

Canada geese in Britain are largely considered 'residential' because of the circumstances that led to their arrival. It is very possible that being moved across the Atlantic, then bred and raised in captivity, has compromised their migratory instincts – not to mention the disorientating effect of (possibly repeated) relocation thereafter (Quetchenbach, 2013). These 'semi-wild' geese rarely (if ever) take to the skies with their migrating kin; they normally remain close to the site where they hatched, moving only short distances between breeding and wintering sites within their local area (Bradley, 2006). For instance, most recoveries of ringed Canada geese in Britain have found that the individuals concerned were within about 30 miles of the place where they were originally caught (Wernham et al., 2002) Although some Canada geese in Britain do move further – including some quite long-distance movements within Britain to join flocks, and a few movements to the continent – this is the exception rather than the norm (Bradley, 2006). Most Canada geese stay in or around the same water body throughout the year venturing only as far as necessary to find food, safety and breeding sites.

9.2.1 Managing 'problem' occupants

Non-migratory geese have come to be seen as 'problem occupants' in many parks and gardens in Britain. Canada geese are notorious for their 'unsightly and unhygienic' droppings (Defra, 2005) their 'extensive damage' to amenity grassland (Goode, 2014, p193) and for 'hounding humans for food' (Pitchcare Magazine, 26 May 2016), which can include what is perceived to be 'confrontational' behaviour (The Daily Telegraph, 5 March, 2018). As their numbers have grown, Canada geese have come to be commonly regarded as a 'nuisance' in areas where they congregate in large numbers, creating various environmental and health 'hazards' (Defra, 2005; Natural England, 2011a).[56] As such, popular news media spins Canada geese as the epitomic anti-citizen of the animal kingdom: framed as a pest that 'takes over' places where they do not

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[56] These include: damage to amenity grassland and waterside habitat such as reed beds; threatening other birdlife through grazing or trampling nesting sites; excessive fouling and eutrophic effects on water bodies; viruses they might pass on, including avian flu virus, Salmonella and E.coli. (DEFRA, 2005; Natural England, 2011a).

belong (Birmingham Mail, 16 February 2017), making them 'the most loathsome bird in Britain…' (The Daily Mail, 4 June 2008).[57] In 1993, the government's Heritage Department shot 100 Canada geese secretly at dawn on Bird Island in St James's Park, the very place where they were first introduced to Britain as an ornamental species over 300 years ago (The Independent, 19 December 1993). See Figure 9.2.

Anti-geese rhetoric is combined with state-led policies that legitimise the control of any creature that is deemed non-native. Canada geese are listed under Schedule 9 of the Wildlife and Countryside Act 1981, which refers to all species that are not considered native to Britain.[58] As such, it is an offence to release or to allow the escape of Canada geese into the wild (Wildlife and Countryside Act 1981) – in other words, do what some (elite) parts of society did over three hundred years ago. In Europe, Canada geese are considered invasive because of the way they have been able to adapt to their new surroundings and eventually establish themselves 'in the wild' (Sundseth, 2014, p5). Once labelled invasive, a species immediately gets cast as economically or ecologically harmful, a threat to the ecologies or economies of the places it occupies (Holmes, 2015). This in turn legitimises the control and eradication of non-native invasive species.[59] Other creatures have faced similar dilemmas.[60]

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[57] The Daily Mail, for instance, labels Canada geese as 'unwelcome immigrants … winged thugs … lounging around all day doing nothing, claiming every welfare benefit in the book, driving their neighbours out of town and notching up ASBOs around the clock' (The Daily Mail, 4 June 2008).

[58] The UK definition of non-native is any animal 'which is not ordinarily resident in and is not a regular visitor to Great Britain in a wild state' (1981). The EU definition of non-native or 'alien' is a species that has been 'transported outside their natural ecological range as a result of human action' (Sundseth, 2014).

[59] Existing legislation (Wildlife and Countryside Act 1981, Section 16) permits authorised persons to apply for a general licence to manage Canada geese if deemed to be in the interest of (a) preserving public health or safety (GL07), (b) preserving air safety (GL06), (c) conserving flora and fauna (GL08), (d) preventing the spread of disease or serious damage to livestock, foods, fisheries, or inland waters (GL05).

[60] During the 1990s, the ruddy duck (*Oxyura jamaicensis*) found itself the target of ornithological and nature conservation agencies intent on culling (that is, killing) its insurgent population in Britain, in order to preserve the genetic purity and species integrity of the 'indigenous' European white-headed duck (*Oxyura leucocephala*) from the ruddy duck's 'aggressive' mating habits (Lawson, 1997).

Figure 9.2 Canada geese opposite Bird Island in St James's Park, London (Source: Alvin Rose)

Scientific studies of Canada geese are also co-opted into these popular frameworks, emerging from the ontological assumption that the species (*as a whole*) are a 'problem'. A simple internet search reveals that the majority of studies on Britain's residential population of Canada geese have been conducted in relation to their framing as an environmental and social 'problem' (search conducted 16/07/18). Very few studies have explored Canada geese in relation to their historical situation in the UK, which is uniquely entangled with human actors and histories (only three books are held by the British Library on Canada geese in the UK, one of which was a population control guide). For instance, very few (if any) studies have looked at how Canada geese behaviours, movements, territories, breeding and feeding habits have firstly been affected by being introduced to entirely new environments, and, secondly, by being managed and controlled in these environments. The very way that this information is lacking is perhaps testament to the seemingly unworthy status of Canada geese in Britain: 'introduced, non-native, abundant' (RSPB, 'Canada goose – Factsheet') – in other words, not important.

However, it is helpful to examine briefly the complex notion of 'invasiveness' to see how harm and invasion can become conflated in popular discourse about

non-native species. As Chapter 2 suggested, there is a great deal of diversity in the use of the term 'invasive' within the fields of ecology and invasion biology (Warren, 2007; see Chapter 2). Sometimes it is used interchangeably with terms like 'alien' or 'introduced', but others have pointed to the fact that some native species can also act invasively, for example, when they become overabundant or move into new areas (Head and Muir, 2004). Invasion therefore remains a difficult concept to define and quantify (Sagoff, 2005). Ultimately, the term is a relational one, being used not to describe a species as such, but rather a specific population (or populations) of a species that are deemed to be 'out of place' within their current ecological context. Canada geese will likely *appear* invasive in Britain because their primary zones of existence are, more often than not, also human ones. Therefore, the application of the term 'invasive' refers more to the perceived *unnaturalness* of Canada geese when experienced at certain densities in certain contexts. And, of course, such an experience is likely to be subjective.

From a more-than-human perspective, one might argue that the 'problem' with Canada geese has less to do with their (arguably unavoidable) non-native status and more to do with the way their life activities and bodily functions (mating, breeding, defecating) effectively *contest* human spaces through such activities. By laying claim to spaces that are intended for humans, doing all the things that say 'this is my home', Canada geese bring to light their own beastly places within the urban metropolis (Philo and Wilbert, 2000). Even with more evidence that might point towards the socio-environmental impact of Canada geese, there is still the ethical dilemma posed by these creatures in urban areas – namely, what it would mean to *live with* Canada geese in the places they have come to call home, and what are the duties of care associated with doing so?

9.3 Regulating Canada geese in an urban nature reserve

This section introduces the precarious status of Canada geese at Walthamstow Wetlands, Europe's largest urban wetland, and suggests that their acceptance into a nature reserve (even an urban one) is still very much a contested field, which is why subtle management strategies are deployed to deter them. It argues

that this is largely to do with the attachment to the 'pure world of biodiversity' (Lorimer, 2015) in conservation spaces, since Canada geese do not conform to such a vision.

Figure 9.3 Canada geese feeding along the banks of Reservoir No 5, October 2016

The Canada goose is a long-term resident bird at Walthamstow Reservoirs, and this site is one of a handful in London that support a significant number of breeding pairs (London Wildlife Trust, 2017). The first pair of Canada geese were recorded at Walthamstow Reservoirs in 1905-06 and in 1936 more birds were recorded breeding at the site. By 1991, forty-nine pairs bred successfully contributing to a peak count of 1,157 birds. Currently those at the reservoirs contribute to the largest population in Greater London with a high count of 916 individuals in 2006, although numbers dropped to 57 breeding pairs in 2009 and 52 breeding pairs in 2015 (London Wildlife Trust, 2017). It is not clear why numbers fluctuated so much between 2006 and 2009. However, London Wildlife Trust note that these numbers need to be considered in light of the fact that geese are mobile creatures and move within the Lea Valley and so the numbers

recorded at any one site may be part of a mobile population that uses a multiplicity of sites over a large area at any one time (London Wildlife Trust, 2017).

For this reason, conservationists at London Wildlife Trust have advocated a 'precautionary approach' with respect to Canada geese, arguing that:

> 'Any management of Canada geese needs to be based on strong evidence and a comprehensive understanding of their populations on and off site, their distribution on and use of the site (and nearby sites), and the impacts they may cause…. The Trust proposes that a precautionary approach to management of Canada goose is adopted, that is proportionate to any adverse impacts that can demonstrably be shown and with the aim of causing minimum harm to a site's wider ecology and the welfare of individual animals' (London Wildlife Trust, 2017).

This recognises the difficulty (and ethical/welfare issue) of attributing 'blame' to a mobile species. Recognising that they are a mobile species is very different from their popular image as residential birds that are 'invading' public spaces. London Wildlife Trust, who would be responsible for shaping and delivering the policy on Canada geese at Walthamstow Wetlands, argue that 'Yes, in certain circumstances, in certain sites, Canada geese *might* [original emphasis] be a problem. But in the grand scheme of things, at Walthamstow, where's the evidence?' (Frith, London Wildlife Trust).[61] This indicates a more partial, situated response to Canada geese, ensuring management responses are tailored to suit specific populations of geese in specific places, rather than managing Canada geese *in general*. However, it puts Walthamstow's Canada geese in a risky position, subject to new so-called 'facts' that may (or may not) work in their favour. So, while Frith (London Wildlife Trust) assures us that 'We're not going to do anything unless there's evidence that they're causing a problem' these very

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[61] Similarly, one study in south London found that there was a general 'lack of information' about Canada geese and that more 'coordinated' studies were needed (Living Wandle Landscape Partnership, 2015).

words suggest that as soon as the right evidence emerges, the present (tolerated) status of Canada geese at Walthamstow Wetlands might be compromised. [62]

The generation of new 'facts' could happen at any time. For this reason, the opening of Walthamstow Wetlands as a public nature reserve is full of uncertainty. This presents a dilemma and an opportunity for project practitioners: 'The opening up of the reservoirs as Walthamstow Wetlands with a greater public interface raises potential issues with some of the problems that may occur with high numbers of Canada geese' (London Wildlife Trust, 2017). The word 'potential' is key here. Canada geese are a *potential* problem, a problem that may or may not surface once public visitors are using the site. In other words, Canada geese *become* a problem when they exist in spaces that are earmarked for public use (see Section 9.2). Even if new evidence emerges, the project cannot remove Canada geese entirely, even if it wanted to. Such a policy would prove ethically controversial for an organisation that advocates wildlife's 'right to the city' (Frith, London Wildlife Trust; see London Wildlife Trust 'values').

Canada geese have clearly formed an attachment to the reservoirs over the years: they find it a suitable place to live, which is why breeding numbers have been so high compared to other parts of London (London Wildlife Trust, 2017). They have a certain historical claim to the place, having been on site long before the arrival of the project. They have shared the space with anglers and reservoir staff for decades, many of whom feed them and know them by name. Terry, who had been fishing at the reservoirs since the 1950s, said 'we know where they [geese] lay their eggs, which ones have got a clutch… we know them as individuals' (Terry, 80s, regular coarse fisherman). Canada geese have advocates at the reservoirs who 'know them as individuals' and so the wholesale eradication of the birds on site would likely cause a lot of internal tension among the different user groups and prompt an ethical controversy of sorts.

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[62] During the fieldwork period (2016-2017) there were efforts being made behind the scenes to get up-to-date information on Canada geese at Walthamstow Wetlands (their numbers, behaviours, local movements). Such data had not been collected previously.

To avoid controversy, the project framed their grievance with Canada geese in ecological terms. Speaking of an area where Canada geese were known to congregate on site, Trudy, a London Wildlife Trust representative explained that 'If they are affecting the habitat – so start eating all the meadow we've put in – we'll have to control them humanely… but if they are an annoyance to people then there's nothing we can do, that's just the way things are, we're not going to manage (cull) them for that, we can't be doing that, that's just a bit cruel'. Likewise, the conservation policy states that while 'at most times and in most parts they [Canada geese] do live unimpeded [in nature reserves]. However, where numbers of some species begin to adversely impact on the ecology or operations of a site then proportionate measures may need to be implemented to address this' (London Wildlife Trust, 2017).

In other words, culling in response to human annoyance 'is a bit cruel' but, if they affect the desired ecology of the site or its other operational functions, there is cause to manage them using 'proportionate measures'. In this way, the ethical status of Canada geese remains firm until the point at which they are seen to threaten the enhanced ecology of the site. As at Ernesettle (Chapter 7), the newly enhanced natures at Walthamstow became defended from those who were seen to threaten them. Renatured spaces were seen as vulnerable places, not allowed to evolve in an open-ended way. Under Natural England guidance the project made a recommendation to implement measures that would deter 'undesirable species…. such as gulls and Canada geese', particularly from 'taking over the islands' (Thames Water and Waltham Forest Council, 2014). Rather than directly culling Canada geese, 'proportionate measures' were taken to deter and eventually phase out Canada geese; these consisted of techniques to keep them from particular areas where they were seen to pose an ecological threat.

9.3.1 Deterring Canada geese from renatured zones

In the UK, the techniques for managing Canada geese fall into two broad categories: the control of behaviour, by scaring or excluding from or preventing the birds congregating on the site in question, and the control of numbers, by

manipulating the breeding rate or rate of mortality of adult birds. Some of these techniques, especially those involving the manipulation of bird numbers, require permission by a general licence, and can only be carried out for certain purposes (London Wildlife Trust, 2017). While some involve direct population control (culling, capture techniques, relocation, egg-pricking) others are subtler, including habitat management, scaring and fencing. Many of these strategies have been used to manage Canada geese across Britain.[63] For instance, studies have found that when new vegetation is installed (such as reed beds) it can be 'proofed' from geese by being encircled with fencing to prevent geese from eating the young shoots, thereby helping it establish (Natural England, 2011a). This is considered a 'natural method' for the way it creates 'natural barriers' between areas and reduces the flight paths for Canada geese in and out of water bodies (Natural England, 2011a).[64]

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[63] Various behavioural modification strategies have been trialled by landowners and park managers over the years to deter Canada geese, including visual and acoustic scaring devices (e.g. light laser beams), chemical sprays and border collies (Baxter and Hart, 2010)

[64] Studies also found that vegetating banksides can be used to reduce the public's direct access to the water, potentially reducing bird feeding (throwing food) directly into the water (Wandle Valley Landscape Partnership, 2015).

Figure 9.4 Wire fences installed around the island on Reservoir No 2.

At Walthamstow, a range of techniques were proposed to deter Canada geese without affecting other (more desired) wildlife on site. These were mostly spatial in nature. Firstly, fences were installed to manage geese territories. They were installed around the reservoir islands (Figure 9.4), which were seen as 'havens' for (certain) wildfowl and as one of the key 'long-term opportunities' for site enhancement (Thames Water and Waltham Forest Council, 2014). Fences were also installed around the newly established reed beds and wildflower meadows (Figure 9.5) – literally ring-fenced with flutter tape 'to keep the geese off' (Sebastien, London Wildlife Trust). On guided walks, the public were told that the reason for this was because 'Geese are seen as a pest in the UK; there have been many attempts to cull them because they're messy and tend to dominate the parks...' (Sebastien, London Wildlife Trust). In this way, geese were cast as un-ecological and therefore not fitting for an ecological nature reserve.

Figure 9.5 Wire fences installed around the reed beds by Walthamstow Wetlands

The installation of fences was a calculated decision to restrict goose movement around the site, preventing their access to (certain) food and habitat:

> 'Despite the fact that the geese can fly, even low fences of between 30-100cm high can be effective in excluding them from some areas as they prefer to walk to their feeding and roosting sites if possible, often landing and taking off from water. Barriers that divide an area into smaller units may therefore help to discourage geese from using the site concerned.' (London Wildlife Trust, 2017).

This calculated decision involves using existing knowledge of Canada geese and their flying habits to manage the birds effectively. Yet by not giving geese a choice as to whether they walk or fly to their feeding areas, Canada geese are forced into even more restricted spaces where geese 'problems' might then become more acute. Much of this goes against contemporary calls for a more fluid approach to wildlife (Lorimer, 2008, 2015) and, equally, would be questioned from an ethical/welfare perspective. By dividing areas into smaller discrete units, conservationists can protect habitat for some creatures, in the form of 'natural

enclosures', and create awkward obstacles for other creatures in the form of 'natural exclosures', reinforcing dividing lines and species hierarchies (Biermann and Anderson, 2017; see Chapter 2). This serves as a reminder that nature reserves are (still) very controlled spaces, enacting lines of separation to keep 'the right biodiversity' in the 'right place' (van Dooren, 2014).

If fences were not enough, there were proposals to alter the grass management regimes on site, to discourage geese further and force them into alternative spaces such as parks where grass is kept shorter. It was well known that geese prefer short grass rather than long grass. Canada geese would regularly congregate along the banks of the reservoirs, feeding on the grass that is kept suitably short by Thames Water (field observations 2016-2017; see Figure 9.6). According to a ranger who worked for Lea Valley Regional Park Authority (LVRPA), local Canada geese 'prefer the reservoirs' to the nearby marshes because 'they quite like the short grass' (Rory, ranger, LVRPA). Similarly, one of the project's ecologists observed that 'the short bits around the reservoir edge tend to be more heavily grazed by geese' (Julian, ecologist, Walthamstow Wetlands). Using this knowledge, the project specifically recommended 'establishing areas of dense vegetation along the shores of water bodies' and 'breaking up the grassy areas with planting' in order to 'restrict the birds' view of the water and reduce [their] feeling of safety' (London Wildlife Trust, 2017, p6). Equally, the establishment of wildflower meadows to support pollinators was an indirect way of managing geese.

Figure 9.6 Gaggle of geese on the bank of Reservoir No 4, feeding on the short grass

Such steps quite explicitly reveal that management was geared towards the phasing out (and even total erasure) of Canada geese at Walthamstow Wetlands. While habitat alterations may not seem as violent as egg-pricking or direct culling, from a more-than-human perspective, this form of indirect management is arguably a form of what animal geographers call 'slow violence' (Collard, 2018), displacing creatures from the places they know best.[65] It uses the birds' feeding habits, their biological and biophysical characteristics, against them, changing the habitat so that it no longer becomes viable for them. For although Canada geese are clearly adaptable creatures and can live in a range of climates and conditions, what they cannot alter, at least not in any immediate way, are the structures of their beaks and necks and their feeding and digestive capacities (Mattocks, 1971).

Moreover, such management overlooks the fact that Canada geese have been welcomed (and actively fed) at the reservoirs for decades: *how are they supposed to know that the space is being altered for 'ecological' purposes that do not include them?*

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[65] In addition, the project implemented a 'no feeding' on site: this was seen as 'essential to prevent habitualisation by geese to some areas' (London Wildlife Trust, 2017, p6). There was also a desire to reduce the availability of angling bait, which presumably Canada geese feed on, although it was not clear if or how this would be implemented.

Geese just go where there is food, shelter and opportunities to form kinships. Their marginalisation is a mystery to them. The following section articulates why it is important to take a more-than-human approach when considering the management of Canada geese.

9.4 Encountering geese territories in an urban nature reserve

At Walthamstow Wetlands it is possible to witness the seasonal activities of Canada geese all year round because the birds here are mostly non-migratory. Geese enjoy preening their feathers, foraging for food, and collecting twigs, bark, and leaves to make 'home improvements' to their nests (PETA, 'Hidden Lives of Ducks and Geese'). Once a year in the spring, Canada geese lay eggs (normally six per clutch) and females incubate them for 30 days while their mates guard their well-concealed homes. Some birds like to use the same nest each year if possible (Living Wandle Landscape Partnership, 2015). When geese have been hatched and reared in urban areas, like those at Walthamstow, they lack the instinct for (and experience of) long-distance migrations and so will stay in the same general area throughout their lifetimes (Bradley, 2006).

9.4.1 Geese seasonality

Mating season is a particularly lively time at the reservoirs, with individuals pairing up, marking out their territories, building nests and defending their young vehemently. Here, geese become *visibly* and *audibly* present, as at no other time of the year (field observations, 2016-2017). Mating usually takes place on water. Both birds will start by dipping their heads underwater then lifting them up to throw water over their backs. The male may proceed with a courting ritual called the 'triumph ceremony' (Oskar Heinroth, 1911), where he attacks an imaginary enemy (Bradley, 2006). The ceremony begins when the male swims toward the female and seems to concentrate on an imagined rival next to her. With his mouth open, tongue protruding, neck stretched out and head lowered, he 'attacks' the imaginary enemy, beating his wings, plunging forward, splashing water, and 'cackling' while the female looks on (Lorenz, 1966).

Listen to 'Ch10 R1 – Geese cacophony, March 2017' to get a sense of the lively encounters at Walthamstow Wetlands and what it means to be a bird at this time of year. Use headphones in right and left ears for full effect. Ensure volume is at an appropriate level. **PLAY:** https://soundcloud.com/user-977605567/ch9-r1-geese-cacophony-march-2017

The following extract from my field notes helps to situate the recording and provide a visual cue to the sounds that are heard. You can read this in conjunction with the recording.

Field notes – March 2017

It's an absolute hive of activity today at Reservoir No 2. Geese are honking fiercely at each other. There is a real sense of urgency in their voices. It's a hot afternoon, lunchtime in fact, and everything seems to be either feeding, mating or doing something very important. Flies are buzzing around my head. The newly planted reed beds are rustling in the wind, almost with the same urgency as the birds. Geese fly in pairs overhead. Mallards toddle about the path together – well, one chasing the other! Herons and cormorants are flying about, carrying sticks. And the greylags are battling it out – wings batting each other and slapping the water. So much movement. The atmosphere here is intense. I feel like a very lazy observer on a very arbitrary mission compared to the creatures around me.

The immense cacophony of sound coming from the island (Reservoir No 2) and its surrounding waters is testament to this lively time of year. Not only are Canada geese breeding, but so are greylag geese (*Anser anser*), Egyptian geese (*Alopochen aegyptiaca*), as well ducks and gulls, so there is a lot of territorial activity, with different creatures establishing and defending their space and their sound. As one local birder put it: 'they're going bananas down there… they're competing for the best breeding site and also to attract the best mate. So it's all a bit of an argy bargy' (Paul, local birder, Walthamstow). Several of these can be heard in the recording, including 'honking' ("herr-onk herr-onk") and 'cackling' ("cluck-uck cluck-uck") (Whitford, 1998). These are typical territory calls. It is also possible to hear their 'flight calls', used to communicate where members of

the group are and where they are going (Bradley, 2006). In the recording, a small collection of geese (maybe three of four) fly overhead, leaving the island, most likely in search of other mates within the wider Lea Valley.

At this time of year, human visitors are warned of the beastly ways of geese and other creatures and told to be more 'cautious' by Thames Water staff, especially when they gather in large numbers (see Figure 9.7). For instance, one member of staff explained that an angler had been attacked soon after I took the recording (Ch10, R1): 'he came into the office all bloody, looked a right state [laughs]' (Andy, Thames Water Fishery). This time of year is one of much effort, stress and strain for birds: to protect their young, defend territory, access food. Considering all this, the restrictive measures that are taken around the islands to deter Canada geese appear even more hostile, forcing the birds into smaller spaces and restricting their ways of living. Moreover, these islands are shared by many bird species at this time of year, so measures may inadvertently affect other creatures that are using the islands to breed, such as the Greylag and Egyptian geese.

Figure 9.7 Large congregation of Canada geese at Walthamstow Reservoirs June 2017

9.4.2 Geese territoriality

This section considers the ways in which Canada geese territorialise urban space and make it their own. It begins by exploring the affective encounters that take place between humans and geese and then goes on to situate these, historically and politically.

Encounters are fundamentally spatial and spatialising modes of being in the world; they create zones of contact that can offer new meaning and identity to those they affect (Barua, 2015). It is through spaces of encounter that actors configure their place in the world and how they might be (or choose to be) in relation to those around them. An encounter is a conversation where each is provoked to 'speak *with*, write *with*' or enter into 'agreements … between bodies of all kinds' (Deleuze and Parnet, 2007, p39). During encounters, one accepts that nonhumans are subjects, and that as well as having their own identities, they can also shape the personal and collective identity of human subjects too (Anderson, 1997). Encounters reveal how *being* is always *becoming* and importantly, after Haraway (2008, p244), how 'becoming is always becoming with – in a contact zone where the outcome, where who is in the world, is at stake'.

I had several goose encounters during the fieldwork period. It was through goose encounters that I developed a real sense of more-than-human agency at Walthamstow Wetlands (see Chapter 3). One particularly memorable encounter was during a site walk with Paul (local birder, Walthamstow) and Sebastien (London Wildlife Trust) where we met (or were met by) a gaggle of geese, perhaps twenty or more individuals. I had not intended to record this encounter – it was only by coincidence that my audio recorder was already switched on because I had been recording our walk. The encounter prompted me to reflect on goose territorialisation and what is commonly referred to as 'goose aggression'.

Listen to 'Ch9 R2 – geese territories, April 2017' to get a sense of how these geese were experiencing our presence, determined to 'hold open' that space as their own (van Dooren, 2016). Use headphones in right and left ears for full effect.

Ensure volume is at an appropriate level. **PLAY**: https://soundcloud.com/user-977605567/ch9-r2-geese-territories-april-2017

The following reflection helps to situate the recording and provide a visual cue. I wrote this while listening to the recording, recalling the experience as if for the first time. You can read this in conjunction with the recording.

Reflecting on the encounter, January 2018

The strain in their throats is unmissable; the stretched vibration sounds almost painful, discomforting. I tried to move away, give the geese a wide berth. It felt as though they were barking directly at me. The birder suggested as much when he said 'it's all territory' (Paul, local birder, Walthamstow) but this is not much of a comfort, it didn't dispel the anxiety I experienced. I edged further away from the geese, even said 'Oh God, I'm worried'. Paul tried to reassure: 'They won't do anything. Look [and he raises his arms wide like a goose spreading its wings]. They're more frightened of us – well they should be more frightened of us than you are of them.' By stretching his arms and making himself appear to be a large human goose, Paul tried to demonstrate to me (and to the geese?) that he had the upper hand and was in control. I, however, did not feel in control: I stood down, walked away, fully accepting that this was geese territory; that I was no match for one defensive/territorial goose let alone twenty.

The encounter created a peculiar atmosphere that brought the (already associated) worlds of humans and geese directly into contact. Atmospheres, particularly more-than-human atmospheres, have received little attention in academic scholarship (Lorimer et al., 2017) but they offer a place or zone to 'tune into' animal worlds. Human geographers with interests in non-representational accounts of shared animal/human worlds are increasingly incorporating the sensed, lived and felt geographies into their work – and this includes atmospheric geographies (see for example, Lorimer H, 2006; Lulka, 2009; McCormack, 2008, 2014; Gallagher et al. 2017). Following Lorimer et al. (2017), these refer to the 'atmospheric experiences' of humans and animals as they are shaped through encounter(s). Specifying the atmosphere created through encounter can help animate established concepts like territory, place and milieu (environment).

In the case of our goose/human encounter, the atmosphere was (to my sense experience) tense/intense, almost stifling – this is perhaps audible in the recording above. The low throat rumbles stir and disturb, while the more rapid and higher pitched honks speak of urgency – pressing us to leave in all likelihood. We try to continue our conversation as normal, but the geese appear to be competing with our words, calling us to attention, demanding we hear their cries. Finally, the screeching rattling train works us all into relative silence, but the tension and intensity lingered. This affective encounter had all the markings of territory-making, and territorialisation here refers to those active processes and performances of shaping territory, although 'the expressive life territory is rich and complex' (Lorimer H, 2010, p62). The encounter was not static or solid, it was fluid and negotiated, formed through reciprocity and intra-action among the heterogeneous entourage of bodies (animate and inanimate) that were present, along with their 'concomitant sights, smells, scents and tastes' (Lorimer et al., 2017, p7).

In the case of our goose encounter, the encounter itself was interpreted as goose aggression: 'I don't know if they wanted a bit of food or what. But they did come round here quite aggressively. I expect it is just that [territory]' (Paul, local birder, Walthamstow). Here, Paul's experience of geese territoriality was, very quickly, cognised and labelled in human terms as aggression. In this way, the defence of space by Canada geese was taken personally, with the assumption that the geese wanted something *from* us humans. Konrad Lorenz (1966) proposed that aggression in animals is often ritualistic, which he argued is more adaptive than direct aggression in that it has a more performative and cultural function. In cases of goose aggression, argues Lorenz (1966), the ritualistic aspect of it:

> '… holds them [the group] together and enables them to stand by each other against a hostile world. The principle of the bond [is] formed by having something in common which has to be defended against outsiders… In all these cases aggression is necessary to enhance the bond and the bond it forms is so largely independent of aggression' (1966, p184).

In this way, any interpretation of goose territoriality needs to be contextualised and understood in relation to the identity-forming practices of the collective, as they appear at specific times and in specific places. This is because geese are beings with worlds, 'with their own familial, social, and ecological networks, their own lookouts, agendas and needs' (Collard et al., 2014, p328; see also Despret, 2016; Deleuze and Parnet, 2007).

More-than-human scholarship in geography and other fields can provide an important contribution to ethological and behavioural work insofar as it situates animal experiences and practices in relation to their spatio-temporal contexts and political ecologies (see for example Lestel et al., 2014; Despret, 2016; van Dooren, 2016). Ethologists and behavioural ecologists have dealt with aspects of animal territorialisation at great length, often illuminating how animals apprehend and construct space. Combining this with animal geographies, where the question of space is often a political one, the 'ethological turn' in animal geography offers a particularly fruitful place to explore these ideas (Lorimer, 2007). These accounts highlight nonhuman capacities for recalcitrance and the ability to challenge human affairs, and in doing so demonstrate the importance of ensuring that understandings of agency are spatially and temporally grounded – so as to elicit better appreciations of why animals act in particular ways and learn particular behaviours.

Animal beings will speak 'in their own terms, through song, through vision, through scent' (Barua, 2015, p268). It is therefore important to slow down (and even disrupt) the apparent logic between the *experience* of territoriality as aggression and the popular *label* that Canada geese often find themselves with – namely, 'aggressive animals' (see Section 9.2). It was, after all, our presence that prompted such a response. During our encounter, the Canada geese had no real way of knowing that our presence was not a threat. We (Sebastien, Paul and I) emerged unexpectedly from around the corner, surprising the geese at a critical stage in their life development. As we did so, we posed a threat to goose-place: clipboards in hand, cameras and binoculars around necks, sound recording equipment pointed in every direction (Paul was carrying a giant parabolic

microphone, which soared metres into the sky). These became instruments of threat, representing the potential appropriation of space and so the potential loss of a (future) goose-place.[66]

From a goose perspective, at this time of year, the primary purpose in life is to defend the spaces that they have laid claim to in order to rear their young safely. They are naturally 'on guard' during the spring as it might be the only chance they have to secure a future in this world. Their behaviour was in direct response to our presence. As Despret's (2014, 2016) account of scientists' relations to Arabian babblers in the Negev desert artfully reveals, humans 'visit' animals' worlds (whether it be the casual birdwatcher or the observational scientist) and when they do so they become entangled in the behaviours and practices of the creatures they are meant to be apprehending. The consequence is that 'what scientists actually do in the field affects the ways "animals see their scientists seeing them" and therefore how animals respond' (cited in Haraway, 2016, p128). This is because 'every bird is compelled into the incessant work predicting and translating the intentions of others. This is the very life of social beings' (Despret, 2014, p44).

At this time of year, the display of 'beastly qualities' becomes the primary way these animals forge their own 'beastly places' (Wolch, 1998; Johnston, 2008). Territorialism thus becomes the protection of *place* and *future place*, where place means the constituents of the environment that are known to geese, with which they have a personal relationship and a shared history. Places are continually shifting, made and remade by a multiplicity of actors (Massey, 2005): they are not, as Ingold (2005) puts it, 'static nodes but are constituted in movement, through the comings and goings of people and animals' (Ingold, 2005, p507). The defence of place is an ongoing task in the associated worlds of animals and humans and any form of 'aggression' needs to be seen in light of the cultural signals and identities it serves to perform. In the case of geese, it is a specific way

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[66] As Chapter 2 outlined, places are fleeting and open, yet through them identities are constructed, as 'interrelations [that] not only challenge notions of past authenticities but also hold open the possibility of change in the future' (Massey 1999, p288).

of negotiating territory and demonstrating an attachment to (and defence) of place. But it needs to be understood in light of the political ecologies of Canada geese and their historical lifeways.

9.5 Grounding 'response-ability' for Canada geese

Grounding (that is, contextualising) human experiences of Canada geese in political-historical ways might prompt a more ethical response to Canada geese, beyond the label of 'aggressive nuisance', and more akin to what Haraway (2008) calls 'response-ability'. This means there is a certain need to consider historical experiences of Canada geese in Britain that have led to their defence of place. First separated from kin and introduced to unknown lands, Canada geese would have been subjected to continual capture, removal, relocation, hunting for sports and, eventually, population control and eradication. It is hardly surprising that geese are wary of humans at sensitive times of year. As Ingold (2005) observes, a great deal of the distress of nonhumans is attributable to humans as well as other nonhumans: 'History brings pain and suffering as well as growth and prosperity…. Against this affliction, most creatures attempt various means of protection' (2005, p506). Just as human beings are generally concerned to protect themselves, their homes, their families, their fields and gardens, so are animal beings (Ingold, 2005).

From a relational perspective (see Chapter 2), encounters with nonhuman others have 'ethical shadowings' (Jones, 2000) – they bring nonhumans into the ethical community and demand a response. As Whatmore (2002, p159) puts it, 'ethical praxis emerges in the performance of multiple lived worlds, weaving threads of meaning and matter through the assemblage of mutually constituting subjects and patterns of association that compromise the distinction between the human and the nonhuman'. In other words, ethical work must speak to the relational formations that emerge *through* association or encounter. Cloke and Jones (2003) argue that this 'relational ethics' needs to be grounded 'both in the particularities of the relational context in which encounters occur, and with an ethical mindfulness for the particular embodied characteristics of the mutually

constituting subjects involved' (2003, p200). Particular space-time contexts become the grounds for ethical understanding and even empathy. But space-time contexts can throw up all manner of objects that one must negotiate and this is when the ethical question also becomes a political one.

Ethical responses do not emerge from encounters alone. Many early animal geographers seemed to believe that encounters with nonhuman others led to a political practice of care/empathy. This is the position Michel (1998) took as she recounted her experience of working with rescued golden eagles. Likewise, Wolch (1998, p124) argued that the animal encounters could lead to new knowledges of 'animal standpoints or ways of being in the world' and that this ultimately motivated political action. But this is not always the case: the angler does not necessarily develop more empathy towards fish the more he encounters them, nor does the conservationist necessarily develop more empathy towards the invasive plants he/she tears out on a daily basis. There is always a political step involved in ethical work, such as the kind that emerges from the question, 'how can we more *justly* share space?' as posed by critical animal geographers Collard and Gillespie (2015, p8). Here, they acknowledge that the quest to recognise *difference* is itself caught up in power and human modes hierarchy (like those that mark the concept of 'tolerance'). Thus, there is a politics to 'response-ability' (Haraway, 2008).

9.5.1 Between tolerance and acceptance

Shifting from a place of tolerance to a place of acceptance with respect to Canada geese requires addressing the hegemonic narrative that exists about them (described in 9.2) underpinned by a 'general concern' for their non-native status and common presence in what are thought of as human spaces. Because of the preference for certain (native) species in nature reserves, based on ideas of 'pure' biodiversity, Canada geese are *tolerated* at Walthamstow Wetlands (for now) but they are not *accepted*. This is why the encounter with Canada geese described above (Ch10, R2) quickly descended into a discussion about the so-called 'goose threat' and the 'need' to manage their numbers, as this exchange highlights:

'I'm not *anti* them [geese] but I think London Wildlife Trust are going to be managing them, they have to manage them, I'm sure you're aware of that' (Sebastien, London Wildlife Trust).

'They do need to. I'm well up for that. I have to go on site and manage Canada geese 'cus they do breed so much. These geese can live up to 30 years and each season they can produce up to six young or so. They cause lots of trouble with the overgrazing, their poo is quite dangerous as well, and of course it knocks out other creatures that could be breeding as well, ducks that could be breeding' (Paul, local birder, Walthamstow).

In no time at all, the encounter with aggressive geese turned into a *general* discussion about the *general* 'goose problem' and very smoothly and swiftly, these creatures were rendered killable (Srininvasan, 2017). Popular sentiments are used to frame Canada geese as too numerous and too ecologically hazardous for Walthamstow Wetlands as a nature reserve. This was not a one-off occasion. When I recounted my first goose encounter to the group of volunteers (April 2017) they too were quick to respond in defensive ways: 'you just need to be bold. Flap around. They'll back off then' (volunteer, London Wildlife Trust); 'yes they might need to be managed' (staff, London Wildlife Trust); 'why not try egg pricking… they do that elsewhere' (volunteer, London Wildlife Trust); 'we would need a licence to do that [egg pricking]… but we do have a geese problem' (staff, London Wildlife Trust). All suggestions pointed towards the goose as a problem, an obstacle that needed to be resolved. There was no mention of co-existence, tolerance or outright acceptance. The 'goose problem' was forever in the background at Walthamstow Wetlands and although they were not managed directly during the fieldwork period (2016-2017), they were indirectly made outsiders, placed on the outside of future visions for the space (as discussed in Chapters 4 to 6).

Much of this has to do with the construction of a nature reserve in the city – a vision that carefully selects the bodies and voices that fall under the banner of 'biodiversity' and are made worthy of concern. As Chapter 2 suggested, the 'urban' has generally been cast aside in conservation worlds, generally imagined

and conceptualised as the exclusively human domain *par excellence* (Hinchliffe, 1998). When nature reserves are established to provide a home for nature in the city, this has largely excluded all those creatures that are typically considered 'urban animals' (Nagy and Johnson, 2013). However, when posthumanist scholars call for nonhumans to be considered planners and place-makers in the city, they do not reserve their sentiments for *conserved* species alone (for example, Metzger, 2014, 2015; Houston et al., 2017). Metzger (2015) for one asks planners 'to recognise that there are myriads of other-than-human urban denizens that hold a legitimate claim to life, liberty and the pursuit of happiness in urban environments' (2015, p9). Democratising urban space equally means democratising the 'nature' that is afforded a right to that space, and this would mean extending the role of an urban nature reserve to *all beings* that might consider it home.

9.6 Conclusion

This Chapter has provided a storied approach to human/geese relations at Walthamstow Wetland, capturing the multiple and situated experiences that emerge with Canada geese in diverse urban spaces, and the politics involved when sites transition from being 'urban reservoirs' to being supposedly 'wild wetlands'. As the identity of the site shifted from an 'industrial reservoir' to a 'wild wetland', Canada geese became a collection of unwanted tenants at the reservoirs, waiting to be evicted – or at least that was their 'in-limbo' status during the fieldwork period (2016-2017). Conceptual boundaries were erected around the Canada goose as a 'non-native' species and such boundaries have important implications when considering the pathways towards more inclusive Anthropocene futures. For if an urban nature reserve cannot stand up for the urban animals that have made a home there, then what kind of precedent does this set for all those who look to 'nature conservation' for hope and inspiration for abundant multispecies futures?

The Chapter has sought to contribute to efforts within animal geography to account for nonhuman spaces and territorialities in cities, as captured in the term

'spaces to be nonhuman' (Hinchliffe et al., 2005). It has contributed to these discussions by exposing how nonhumans, by constructing their worlds in human spaces, contest ideas of space itself. It has built upon the ambition to 'animate the urban' as Barua and Sinha (2017) put it, and so 'elicit understandings of what urbanisation might entail and mean for animals themselves' (2017, p2). This chapter has sought to animate Europe's largest urban wetland from the world of Canada geese, in the hope that it might prompt different ethical responses and a deeper questioning of the purpose of an urban nature reserve.

The chapter has demonstrated the importance of paying attention to multispecies *contact zones* in urban places. Contact zones are places where the lives of humans and other species biologically, culturally and politically intersect. Geese and humans are thrown into uncomfortable encounters at certain times of the year, particularly when the birds are breeding. Attending to these 'zoned' encounters sensitively and attending to their historical situatedness can challenge the popular narrative of 'goose-as-pest' and offer an expanded sense of 'tolerance', 'acceptance' and 'living with' – by suggesting new modes of relating that go beyond the extremes of calculated governance or total avoidance. This chapter has shown that contact zones are already historical, political and precariously balanced, and that there are always possibilities open for nonhierarchical modes of cohabitation, and renewed ethical response-abilities in living with 'uncomfortable others' (McKiernan and Instone, 2015).

Figure 9.8 Canada geese waddling along the bank of Reservoir No 5, October 2017

Chapter 10. Entangled ecologies and Anthropocene avians

10.1 Introduction

This final analysis Chapter is a particularly 'forward-facing' one insofar as it anticipates and addresses some of the issues that arise for nonhumans in a 'human-dominated planet' (Whitehouse, 2015) and asks *what matters* when making decisions about nature? Where previous chapters have highlighted the dilemmas involved when conservation strategies focus on the governance of wildlife and wild-living in the defence of particular visions of nature, this section contributes to the circulation of ideas relating to self-rewilding and self-governance, where certain nonhumans unexpectedly take advantage of the unplanned opportunities offered in urban environments. In this way, the section contributes to current debates on 'conservation in the Anthropocene' by emphasising the indeterminacy of ecological futures and so the contested nature of any aspirations toward a standardised/homogenised approach to 'nature' and to environmental management (see Chapter 2).

The chapter is about the shifting territories of great cormorants (*Phalacrocorax carbo*) in Britain and how their colonisation inland represents a 'post-normal' and 'post-natural' situation, unsettling ideas of what counts as 'nature' and where it should be found (Francis and Goodman, 2010; Lorimer, 2016). It turns to the site of Walthamstow Wetlands, where the birds have established an autonomous and self-sustaining population on the reservoirs' islands, which now represents the largest inland colony in Britain. Here, the birds have become embroiled in contested ideas of nature, celebrated by conservationists for their 'resilience' and 'adaptability' and yet hounded by anglers for launching 'ecological chaos' on rivers and reservoirs, disrupting the so-called ecological 'balance' that is imagined for these urban inland waters. Moving beyond these polarised debates, the chapter attempts to hear from the birds themselves; the unplanned dynamics they have created and the dilemmas they have caused in this multifunctional space in transition.

The reality of great cormorants thriving on urban fishing reservoirs disrupts normal visions for urban recreational space, unsettling the boundaries laid out in human imaginations (RQ2). It is with some irony that great cormorants are responding to the (fishing) conditions created by a group of humans who most despise them – namely, anglers. It is within this awkward entanglement of mismatched activities, disrupted purposes, and 'out of place' creatures, that the chapter prompts a deeper discussion on the implications of the 'post-natural' status of inland great cormorants, where the effects of an altered and globalised world have 'scrambled established biogeographies of what might belong where' (Lorimer, 2016, p126) and thrown into question the 'normal' trajectories presupposed for ecological systems (Zimmerer, 2000). For this reason, it is an important concluding chapter for this thesis, anticipating a post-normal situation where these birds might be considered (and conserved as) 'Anthropocene avians' – agents that work with and against the grain of global environmental change.

The first section (10.2) introduces great cormorants as a fishing bird whose skills have brought them into contact (and conflict) with humans for millennia. The second section (10.3) tells the tale of inland cormorants in Britain, the largest colony of which happens now to reside at the newly established project 'Walthamstow Wetlands'. Here, it explores great cormorants as 'boundary crossing' creatures that have polarised debates between the angling community and bird advocates – and, in turn, revealed very different understandings of urban nature. Section 10.4 contextualises inland great cormorants by detailing the political ecologies that surround their arrival. Finally, 10.5 draws together what inland great cormorants mean for environmental management in light of the Anthropocene.

10.2 The shape of a fishing bird – great cormorant

This section offers an overview of the great cormorant, a bird that has been the source of much debate in Europe between conservation and fishing communities, now commonly called the 'cormorant conflict' (Cowx, 2013). This debate has intensified in recent years as their numbers have grown, their distributions have

changed, and the expansion of commercial fisheries has opened up alternative food sources, at a time when oceanic fish stocks are rapidly in decline. The distinct biophysical characteristics and fishing instincts of great cormorants are frequently referred to within debates on the cormorant conflict, which is why this section offers an account of them. It uses illustrative figures to highlight the relationship between cormorants, fish and water (Figures 10.1, 10.2, 10.3) – a relationship that carries much meaning in the context of Walthamstow Wetlands.
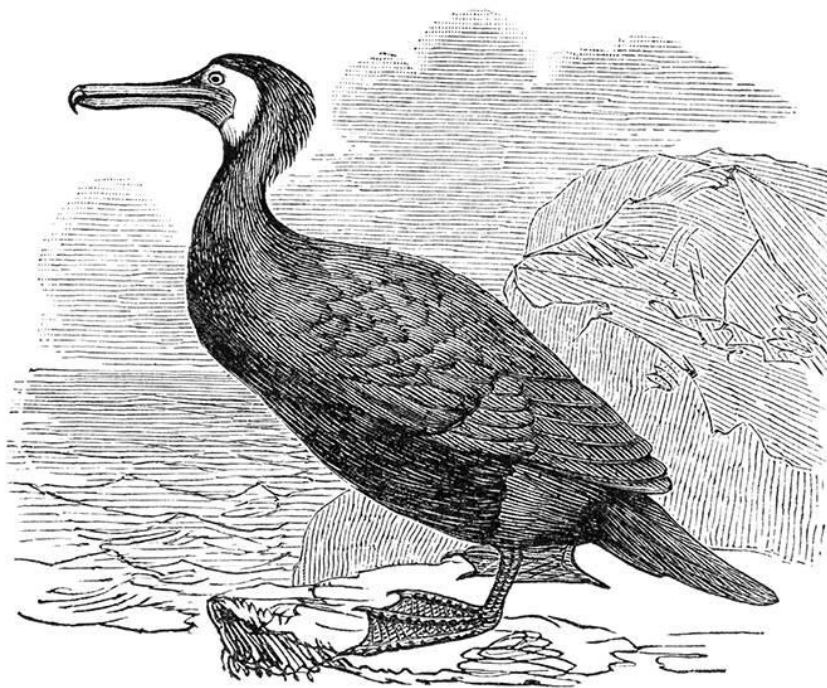
Cormoran commun (Graculus carbo).

Figure 10.1 Great cormorant (*Phalacrocorax carbo*), Trousset, 1885-1891 (Source: La Librairie Illustré/oldbookillustrations.com)

The great cormorant is part of the *Phalacrocoracidae* family, a family of some forty species of aquatic birds commonly known as 'cormorants' and 'shags'.[67] Until at least the sixteenth century they were thought to be related to the common raven

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[67] The two names are often used interchangeably, although historically 'shag' referred to the crest of head feathers that develops during the breeding season in some (but not all) phalacrocoracids (*skegg* in Old Norse means 'beard'). Scientists that categorise phalacrocoracids according to behaviour and morphology will refer to the birds that inhabit coastal environments and cold waters as 'shags', while those that inhabit warmer waters both inland and on the coast are referred to as 'cormorants' (Siegel-Causey, 1980). The confusion perhaps highlights the issue of separating biological organisms from their environment in taxonomic processes (see Whatmore, 2002, for a critique).

(*Corvus corax*) and so the word 'cormorant' is a contraction likely derived from the Latin *corvus marinus* meaning 'sea raven' (Jobling, 2010), although studies today suggest it has a much more ancient origin. Fossil records and biogeographic studies indicate that cormorants are distantly related to the hesperonithiformes, an order of foot-propelled diving seabirds that had its origins of earth some 80 million years ago (Feduccia, 1980, 1999; Wires, 2014) During the nineteenth and twentieth centuries, the family *Phalacrocoracidae* was included in the order of *Pelecaniformes*, a diverse group of fish-eating water birds that includes frigate birds, boobies, gannets, darters, and pelicans (Kennedy et al., 2000).

Figure 10.2 Great cormorant (*Phalacrocorax carbo*), Thorburn, 1925 (Source: Antiqua Gallery)

The great cormorant is an exceptional fish hunter with a unique set of biophysical characteristics that enable the bird to pursue a variety of fish, at a variety of depths, in a variety of aquatic environments (Wires, 2014). Cormorants are pursuit diving birds, along with penguins, albatrosses, loons, mergansers and others that dive and pursue fish underwater. They have long thin hooked bills that enable them to pierce their prey when diving from the surface, while their long necks allow them to swallow fish of various sizes, including eels (King,

2014). Underwater, they propel themselves with their webbed feet and with help from their long wings.

Unlike most birds that feed on aquatic prey, the body feathers of cormorants have a dual structure, which creates a 'delicate balance between buoyancy and insulation' (Wires, 2014, p4) and allows the bird to dive and actively pursue fish with relative ease in a range of water depths and temperatures (see also Gremillet et al., 2005; White et al., 2008). After fishing, cormorants go ashore and are frequently seen holding their wings out in the sun, most likely to dry them, but also to aid digestion (Sellers, 1995) – this is sometimes referred to as the 'heraldic pose' or 'crucifix form' (The Independent, 21 November 1995) (see Figure 10.2). The birds' amphibious lifestyle opens a world of feeding opportunities for great cormorants (Wires, 2014, p4), making them an adept competitor for anglers, such as those at Walthamstow Wetlands.
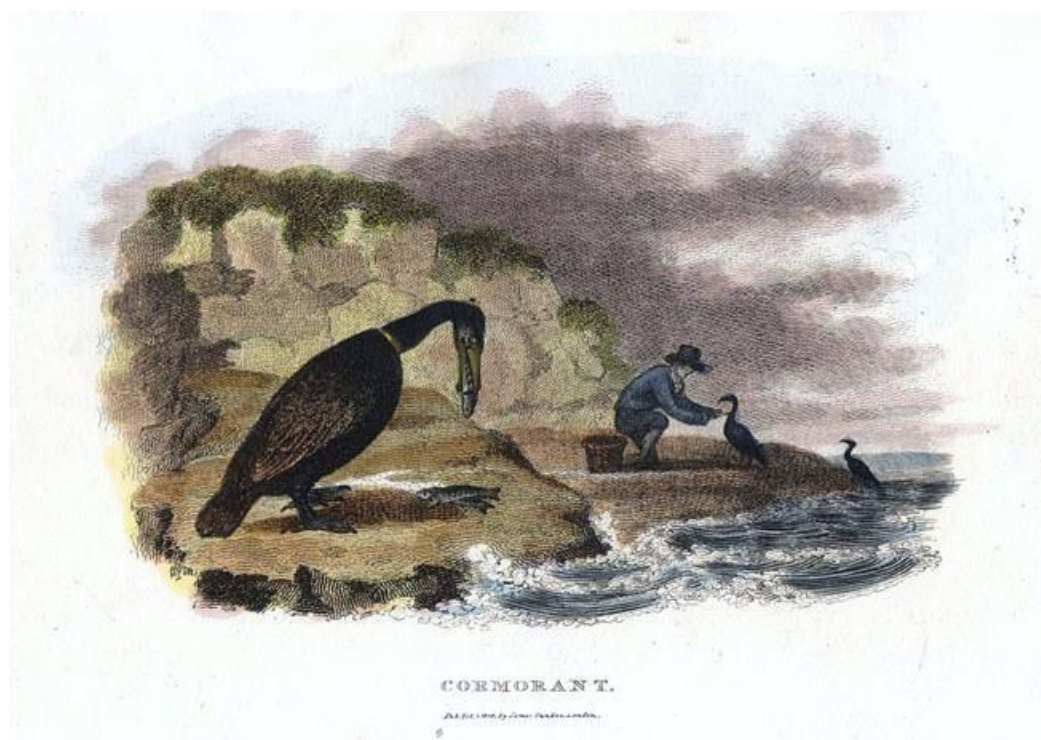
Figure 10.3 Pêche au cormorant 1806 (anonymous engraver) (Source: commons.wikimedia.org

Their fishing skill has captured the human imagination and is a defining feature for most people familiar with the bird (Wires, 2014). Fishermen began exploiting the skill of great cormorants by taming individual birds and teaching them to bring back fish more than 2,000 years ago – the earliest known record is from China in 317 BC (Chadd and Taylor, 2016). For instance, in Japan, people living along the Nagara River have engaged in the traditional practice of *ukai* (cormorant fishing) as early as the eighth century AD: harnessing cormorants' fishing abilities and reportedly catching up to 150 fish an hour (King, 2013; Wires, 2014). While such a practice has been usurped by more efficient methods of catching fish, it is still practised as a cultural tradition and to attract tourists (King, 2013). In Europe, fishing with cormorants was practised in England, France and Belgium in the sixteenth and seventeenth centuries, although it was more done for sport than commercial fishing (von Brandt, 2005). Figure 10.4 depicts the use of cormorants on inland watercourses in England.

Figure 10.4 Pictorial writing paper showing cormorant fishing by Amoret Tanner, 1890 (Source: Alamy)

The cormorant's fishing talents has brought it fame but also threats, since it brings the bird into direct competition with humans and predisposes it to 'conflict' with the resources and spaces that are typically seen as belonging to people. Cormorants are versatile birds: they can occupy a great range of aquatic habitats and nest equally well on the ground or in trees (Gremilett et al., 1999; Wires, 2014). This means that they can survive and even thrive in different environments if the food sources are available. Moreover, they are not particularly selective about the fish they eat: cormorants can consume a wide variety of fish species as well as a variety of fish sizes (Wires, 2014). They also operate *en masse*: like most seabirds, cormorants will gather in large concentrations when they have identified areas with an easily available supply of fish. Once a colony has found a plentiful supply of food and the right breeding conditions, it is likely they will remain there year on year (Frederiksen et al., 2002). Even the establishment of new inland colonies tends to be at sites already used by cormorants (Newson, 2007).

10.2.1 Cormorant conflict – a 'national problem'

Partly as a result of the way they live (in colonies), their site fidelity (Frederiksen et al., 2002) and their size and means of hunting, cormorants are felt to cause more damage to fisheries in a shorter time than can any other fish-eating bird in European waters (Cowx, 2013). As the wintering populations of inland great cormorants grew in England during the 1990s, tensions over their (inland) presence escalated, with angling groups referring to the birds as 'black plague', a 'national problem' that 'must be killed' (Angling Times, 1996; cited in King, 2013). Great cormorants are a protected species in Britain and Europe: the EU Birds Directive (2009/147/EC) and the UK Wildlife and Countryside Act 1981 makes it illegal to kill them or to take or destroy their eggs and nests when in use or being built, except under licence. However, the fishing lobbies have a strong voice in the UK and several hundred licences are normally granted every year (Natural England, 2011b).

Over the years, concerns over the impact of cormorants have prompted interest groups to call for national culls, suggesting that cormorant numbers were 'out of control' and 'emptying' rivers and lakes of fish (The Guardian, 11 August 2012). This has sparked intense rows between angling and bird groups, with each laying claim to more superior knowledge of the birds, producing various 'factsheets' to legitimise their positions (Figure 10.5). Bird groups argue that while great cormorants were 'not of current conservation concern' there has been an *overall* population decline since the early 2000s, with 'shooting – licensed and unlicensed – a probable contributory factor in their recent decline, as well as possible changes in food availability' (RSPB, 2011).

Figure 10.5 'Cormorants - The Facts' by Moran Committee Joint Bird Group (source: National archives, archived 2 July 2007

10.2.2 Cormorants at Walthamstow – 'enough to matter'

Walthamstow Reservoirs presented an attractive site for fish-eating birds like cormorants during the 1990s. It has been used (formally and informally) as a fishery since the Second World War: at first, fish would have entered the reservoirs via the River Lea, but over the last thirty years the water has been regularly stocked with fish (common carp (*Cyprinus carpio)*, rainbow trout (*Oncorhynchus mykiss*) and brown trout (*Salmo trutta*) for commercial and recreational purposes. Reservoirs No 4, No 5 and East Warwick are stocked with 11,000 trout a year and at a minimum weight of 2lb 4oz (Thames Water website, accessed July 2018). This regular supply of fish is thought to have attracted large colonies of great cormorants to the reservoirs since the 1980s (Ibbotson, 1996). Studies have shown that the number of cormorants increases dramatically in the immediate days after the stocking of trout, with numbers of up to 150-200 feeding birds estimated (Ibbotson, 1996). The arrival of cormorants at the reservoirs is therefore intimately entangled with fish stocks and recreational fishing.

Figure 10.6 Great cormorant (*Phalacrocorax carbo*) catching a fish on the River Bure in the Norfolk Broads, South East England. (Source: Steve Allen/Getty Images)

Cormorants began nesting at Walthamstow in 1991 and the colony rapidly grew to a peak of 360 nests in 2004 (Walthamstow Wetlands – 'Cormorant Island'). Overall in England, numbers have increased from just a few pairs in 1981 to just over 2,000 breeding pairs in 2005 and this number has remained relatively stable since: 2,362 breeding pairs were last recorded in 2012 (Newson et al., 2013). Anglers familiar with the site noted this population shift and marked their fishing experience by it. Jerry, a prominent figure in the local fly-fishing group, had conducted his own five-year study on cormorants at the reservoirs and explained that:

> 'In the early days when we had the cormorants here first, they used to still go and nest in the West Country. They would've stayed here through winter and by about April most of them had left and gone to the West Country and then they came back with their young in about August so we had a bit of a reprieve over that – just a few non-breeding birds that stayed. But never enough to matter' (Jerry, 80s, fly-fisherman).

Jerry's comment suggests cormorants were not deemed an issue when they existed in low numbers at the Reservoirs. In low numbers they did not affect the quality of fishing, not in a way that 'mattered'. But by the mid-1990s, when the cormorants began to breed on the reservoir islands, anglers began to take note. As numbers increased, cormorants became seen as direct competition for anglers: 'they take a kilo of fish a day…. You'll see them take trout *this big* [stretching his hands over a foot apart]' (Jerry, 80s, fly-fisherman). It was the 'sheer amount' that cormorants were consuming that concerned anglers (Mickey, 60s fly-fisherman). Much of the blame for the perceived decline of Walthamstow Fishery during the late 1990s was placed on the presence of large numbers of cormorants (Ibbotson, 1996).

Most fly-fisherman (trout fishermen) that I encountered were of the opinion that cormorants should be culled for being an ecological threat to inland waters: 'I support Greenpeace an' all that, I love wildlife, but they're an evil bird. They're a killing machine, there's nothing like them. They're indiscriminate with what they kill. They kill anything, even little ducklings and baby geese' (Arnold, 50s,

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fly-fisherman). Arnold seems to imply that cormorants are conscious of their fishing practices, directly inflicting harm on their victim. Anglers used graphic imagery to enrich their tales of cormorant fish predation: cormorants were seen to 'terrorise' fish in the open waters when they hunt (comment, local angling forum, January 2015), while their 'terrible' hooked bill was seen as a tool of violence against fish (Norman, 70s, fly-fisherman).

Figure 10.7 Scarred trout caught by Norman, 70s, fly-fisherman, May 2017

Anglers I encountered were keen to show me the 'damage' the birds can inflict on fish (see Figure 10.7). Holding up a trout he caught, Norman, a regular fly-fisherman, explained:

> 'that's a cormorant gone through it… their beak has got a hook on it; they go in and they tear and that's why you've got the slashes on the fish… When I take my trout home, I have to go around that [the tear], clean it, because it could be infected… you'll see fish swimming around and they've got great big cuts and their gut is hanging out and they're just wasted.' (Norman, 70s, fly-fisherman).

The graphic image of 'wasted fish' frames cormorants as ill-natured fishers that inflict unnecessary violence on their prey. Norman told me he 'wouldn't mind [the violence] so much if they [cormorants] took it [fish] for food, but they just….' and he intimated that the cormorants do not always consume what they hunt,

which is what makes them wasteful. To my mind as a non-angler, Norman's words were beyond ironic: recreational angling regularly involves hooking a fish by its mouth, dragging it to shore, hauling it onto land where it can no longer breath, and then throwing it back into the water with its injuries.[68] The image of cormorants as ruthless and 'wasteful' predators did not appear to me a particularly reflective position (see Chapter 2).[69] Nevertheless, the image of cormorants as unsustainable predators that 'waste' their prey served a purpose for anglers, lending weight to a scientised 'ecological' argument about them.

10.3 Crossing boundaries? The contested status of inland great cormorants

There are two sub-species of great cormorant in Europe: the Atlantic sub-species (*Phalacrocorax carbo carbo*) and the continental sub-species (*Phalacrocorax carbo sinesis*). Both sub-species live and breed in Britain and are protected in Britain under the UK Wildlife and Countryside Act 1981.[70] However, the Atlantic sub-species (*carbo*) are primarily coastal-dwelling birds and generally considered to be more 'native' to Britain (Newson et al., 2013). Prior to 1981, great cormorants in Britain rarely attempted to breed away from coastal cliffs, stacks and offshore islands (Newson et al., 2007). But since the establishment of a tree-nesting colony of great cormorants in 1981 at Abberton Reservoir, Essex, the breeding population in Britain has taken up residence in many inland areas, to nest and feed on freshwater habitats such as wetlands, rivers and reservoirs. Here, they have met and bred with the continental sub-species (*sinesis*) that has historically used inland as well as coastal sites (Newson et al., 2007).[71] These distinctions may

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[68] In fact, 'angle' (derivative of angling) is an Old English work for 'hook', arguably acting in a similar way as the cormorant's 'terrible' hooked bill.

[69] Anglers were certainly knowledgeable about their fish – and there have been social science studies on how anglers come to *know* fish (habits, behaviours, routines) and even come to 'think like a fish' (Bear and Eden, 2011). However, such knowledges are generally for the purposes of catching and killing and so rarely step into the realm of what it might be to *feel like a fish*.

[70] In speaking of the birds at Walthamstow Wetlands, I do not make this distinction since both sub-species are present and most likely interbreeding (London Wildlife Trust, 2016).

[71] While inland breeding in England has mostly been initiated by birds of the Continental sub-species (*Phalacrocorax sinesis*) from mainland Europe, many nominate Atlantic sub-species (*Phalacrocorax carbo*) from coastal colonies in Wales and England have contributed to this development (European Commission, 2016).

not matter to the birds themselves but they matter to fishing communities who see their shifting biogeographies as unnatural.

10.3.1 Inland cormorants as 'outside invaders'

Both anglers and conservationists at Walthamstow agreed that the situation with inland cormorants was unusual – yet, while anglers saw their presence as unnatural, conservationists saw it as resilient and a sign of urban adaptability. Anglers framed inland cormorants as an 'ecological disaster' for the site: 'they've just had a devastating effect on the general ecology... they wiped out the Coppermill [stream] completely and now lots of the reservoirs too' (Jerry, 80s, fly-fisherman). Others called cormorants an 'environmental hazard' because of the way they had 'wiped out' local rivers (Paddy, 70s, fly-fisherman). The ecological arguments used to explain the 'unnatural' status of great cormorants inland drew upon equilibrium concepts and biogeographical norms, which often rest upon the powerful (but contested) notion of 'nature in balance' (Cooper, 2001; Cuddington, 2001; Trudgill, 2008; see Chapter 2).

Views like these were directly informed by past experience and memories of fishing inland rivers and streams across England during the 1950s and 1960s when fish were felt to be more abundant. Most of the anglers I spoke to had been fishing at Walthamstow Reservoirs for over thirty years, many since the Second World War. They 'knew' these water bodies before the rapid increase in inland cormorants and had come to associate the birds' presence with the decline in the number and variety of fish (see Appendix 6). As such, anglers made an association between the decline of the quality of (*their*) river fishing in England and the presence of cormorants. However, the fluctuations in river fish diversity and abundance in England are likely due to multiple reasons including changes to water quality, the number of invasive species, nutrient enrichment, climate change and so on (Miller and Hutchins, 2017). It could also be a case of what environmental theorists have labelled 'shifting baseline syndrome' (Pauly, 1995) where each generation defines what is normal or natural based on (limited) human perceptions of environmental change.

The reason anglers drew upon these ecologised arguments was because they felt that the normal (natural) place of residence for great cormorants was on the coast, where they were seen to operate in an equilibrium state. This belief became a powerful means to frame inland cormorants as illegitimate creatures, 'out of place invaders', disrupting the (imagined) harmony of the place. As Norman said: 'They're a seabird so really they shouldn't be here' (Norman, 70s, fly-fisherman). Similarly, Arnold argued that 'They're designed to catch thousands of little fish out in the sea, not this here….' (Arnold, 50s, fly-fisherman). Anglers reasoned that the 'ecological disaster' wrought by cormorants on inland waterways is 'what you get when you get an outside predator coming in' (Jerry, 80s, fly-fisherman). In this way, the cormorant colony at Walthamstow were seen as 'unnatural' outside predators that have entered a finely-tuned ecological space.

Geographers have noted how anglers will often invoke this model of nature in their angling talk (Eden and Bear, 2012): although anglers do not necessarily see fished spaces (rivers, lakes, reservoirs) as 'pure spaces' in the way some conservationists might (Eden and Bear, 2012), they nevertheless frame their (human) practices as natural, while the practices of unwanted others (in this case, cormorants) are seen as wholly unnatural. This is because the birds are felt to pose a threat to the quality of recreational fishing – and, oddly, the supply of fish in the reservoirs then becomes seen as a 'natural' bounty. It is also because the arrival of inland cormorants represents a crossing of boundaries (Francis et al., 2011) that obscures the 'natural place' that is imagined for these creatures. Arguably, much of this overlooks the historical urban development of the site and the array of socio-economic factors that have may have contributed to biodiversity declines.[72] Moreover, we may never fully understand what prompts nonhuman mobilities and 'self-relocations' in cities (Metzger, 2015).

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[72] The decline of biodiversity in the area cannot be entirely pinned upon great cormorants. The River Lea has been pumped with industrial toxins for decades (see Chapter 4), while run-off water and waste from local human communities is an ongoing issue for urban waterways (Rupert, Thames21)

Cormorants use a variety of sites across London on a daily basis, not just Walthamstow Reservoirs (London Wildlife Trust, 2017). They fly long distances throughout the day, expending vital energy for their sustenance. Anglers even recognised as much: 'They fly long distances. They've been registered flying a hundred miles out in the day to feed. We've had some flying from the reservoirs all the way to Morecombe Bay to feed.' (Jerry, 80s, fly-fisherman). At sunset, I regularly witnessed flocks of cormorants returning to the reservoirs to roost together at night, after a day's fishing on the River Thames (field observations, 2016-2017). Labels such as 'outside invaders' can overlook these vital mobilities and give the birds a static nature or permanent presence – discounting how they might participate in the construction of the 'fluid ecologies' in which they are enmeshed (Whatmore and Thorne, 1998, p451).

10.3.2 Inland cormorants as 'welcome residents'

While inland cormorants were a major concern for anglers, conservationists at Walthamstow Wetlands (working for London Wildlife Trust) welcomed their arrival. Great cormorants were celebrated as an urban success story, offsetting the (imagined) artificiality of the reservoirs and providing an antidote to the 'degraded' urban environment. Cormorants were ascribed a wild aesthetic, described as 'sleek and skilful kings of the waterways… [that] wouldn't look out of place in the Camargue or the Serengeti' (London Wildlife Trust – 'Walthamstow Wetlands'). On guided walks with the public, conservationists ascribed positive value to their life-making practices at the reservoirs, referring to their 'unique and awe-inspiring' nests. Staff would also remark on their unusual appearance, describing cormorants as 'regal' and 'prehistoric looking' with their wings held cruciform in a 'fun heraldic pose' (staff comments, London Wildlife Trust). There was almost a romanticised element to this: 'if you see several of them on the trees it's quite gothic really' said Sebastien (London Wildlife Trust).

Wildlife partners glamorised great cormorants at Walthamstow and used their story (colonising an 'urban jungle') to make an appeal to the naturalisation of the

reservoirs as an urban wilderness. Recalling Chapter 7, birds (of conservation importance) that took up residence at the reservoirs of their *own volition* were ascribed a 'wild' status at Walthamstow. Great cormorants were one such bird: wild creatures that made an *active choice* to colonise the reservoirs – although as the following section suggests, this needs to be further untangled. The presence of large numbers of cormorants supported the project's self-image as an *urban* nature reserve for the way it seemingly provided an important home to species in the urban metropolis:

> '…over recent decades they've steadily colonised inland sites, favouring reservoirs and lakes. In most places this means a temporary presence, but at certain sites - where a combination of both nesting and feeding conditions are just right - cormorants have established their impressive, bustling breeding colonies. Walthamstow Reservoirs is one such special place; in fact, it's one of the largest and most important breeding sites in the UK.' (London Wildlife Trust, 'Walthamstow Wetlands – Key natural history').

By representing the largest inland colony in Britain, these particular birds were safeguarded from the animosity of anglers, couched in conservation terms for the way they presented ideas of nonhuman resilience, adaptability and survival in the urban metropolis. Through the project, Walthamstow Reservoirs became a 'special place' that provided 'just the right' conditions for these birds. Local birders were also in favour of inland cormorants at Walthamstow. As one birder put it to the group during a guided walk: 'This is one of the few spots – it's the only spot I know of in London – where you can see cormorants really well' (Reggie, bird surveyor at Walthamstow Reservoirs since 1980s). Likewise, (urban) birders saw them as resilient and adaptable: 'it's a great example of wildlife utilising stuff' (Paul, local birder, Walthamstow). This makes *these* cormorants a conservation concern.

As this section illustrates, different stakeholder groups can conceive 'balance' and 'disturbance' in very different ways, which can produce divided views on where nonhumans belong. Ecological themes have power and can be used to

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support particular logics and rationales in relation to unwanted others. This an issue that has often plagued conservation discourse, reproduced through 'tabular representations' (Frangsmyr, 1988) of nature, as well as through the bifurcations set out in Cartesian philosophy (see Chapter 2) where 'urban' and 'nature' are flung apart and held together in awkward and contested ways. From a relational perspective, leaning on new ecological literature (Section 2.4) the arrival of inland cormorants serves as a reminder of the 'scrambled biogeographies' (Lorimer, 2016) of the Anthropocene, where the myth of nature, singular and in-balance, is made to unravel.

10.4 Arrivals of the Anthropocene – the co-production of inland cormorants in Britain

This section offers a deeper account of why cormorants have shifted their territories in recent years, to understand the complex political ecologies of cormorant migration inland and their subsequent life-making practices in urban environments. It explores the co-production of inland great cormorants in Britain, where a myriad of activities and processes – human and nonhuman – have produced new (and continually shifting) population dynamics. It argues that while certain human activities may have created the conditions for change, these activities have been met by a very nonhuman response.

10.4.1 Cormorants and coastal industries – entangled dynamics

At Walthamstow, overfishing on British coastlines was seen as one of the main reasons that cormorants began moving inland. Mickey, 50s, a regular angler, admits that '…because the coast fishing is so poor, they come in to the Thames, to places like Hanningfield and Abberton and here. And they stayed. We made them a bit comfortable unfortunately!' (Mickey, 60s, fly-fisherman). Arnold, similarly, agrees that 'they [cormorants] usually catch sand eels and sardines on the coast but because there's no sand eels left … that's why they've come inland.' (Arnold, 50s, fly-fisherman). Likewise, Jerry acknowledges that 'Cormorants just don't do well out at sea anymore…' (Jerry, 80s, fly-fisherman). After spending

time on the Hebrides in Scotland, Jerry bore witness to the 80-foot trawlers that were stripping the seas: 'I mean what a *disastrous* thing to do [original emphasis].... That's all the life-blood of these inshore birds. And because they [cormorants] are persecuted a lot more on the continent, they're wiping out fish farms and rivers here.'

These anglers were well aware that the supposed 'disequilibrium' created by great cormorants on inland water bodies is, in part, a product of human activity. They actively made the connection between declining fish stocks and the adaptation of birds to these changing environmental conditions, revealing the relationality of humans, birds and fish (Bear and Eden, 2011, p400). The global exploitation of fish stocks forms part of a key political ecological context for inland cormorants. The development of steam trawlers in the 1880s marked the beginning of a rapid expansion of fishing effort that continued until the late twentieth century (Robinson, 1996).[73] It is thought that stocks of commercially fished bottom-living fish (most affected by trawlers) collapsed by 94% between 1889 and 2007 (Thurstan et al., 2010) and this would have had a profound effect on the organisation of seabed ecosystems – one of the most important parts of the marine world. Around ninety per cent of global fish stocks are now fully exploited or overexploited according to the UN Food and Agriculture Organisation (2016), leaving only ten per cent that are not threatened.

Recent research (Paleczny et al., 2015) suggests that seabird abundance has dropped almost 70 per cent in just 60 years partly as a result of overfishing, as well as a litany of other human activities, including drowning in fishing lines or nets, plastic pollution, oil and gas development, toxic pollution, and climate change. With so little of the ocean theoretically closed to fisheries (less than 1%) it is not surprising that many seabirds are suffering from overfishing (Croxall et al., 2012; The Guardian, 10 August 2012). As such, any 'ecological disaster' by inland cormorants must be seen in light of broader ecological crises that are being

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[73] Steam power enabled vessels to fish further offshore, for longer durations, with larger gear, which could reach deeper. In the UK, steam trawlers competed for fish with line fishers and trawling became highly controversial, leading to a government enquiry in 1885 to examine claims of reducing fish stocks and habitat damage (Eyre and Spottiswoode, 1885).

propelled by human activity. Saying this, it is important not to overlook the ways in which cormorants are responding to specific conditions generated by people – the birds are clearly operating both *with* and *against* these trajectories in complex ways, co-producing new inland conditions. This interplay is distinctly marked at Walthamstow, where the birds have dramatically altered the islands they have colonised.

10.4.2 Cormorants as 'ecosystem engineers'

Cormorants are powerful agents of change, often described as ecological 'engineers' that design and transform their environment over time (see Wires, 2014, p25). Through their nesting and roosting activities, they exert a strong physical influence on the habitats they occupy. They are especially impressive nest builders, creating substantial nest structures both on the ground and in trees (Figure 10.8). Nests can be maintained and added to over many years (King, 2013; Wires, 2014). While tree nests are generally not as large as ground nests (which can get up to heights of six feet or more), the landscapes changes that sometimes result from tree nests are no less dramatic. As Wires (2014) explains: 'nest trees often die as a result of cormorant activities, and over time a forested island can become a bare, scrubby one' (2014, p26).

When cormorants occupy trees in dense numbers, they affect both the abiotic components and the biotic community on islands in numerous ways, from changing soil chemistry to causing changes in the plant canopy and types of plants that are able to persist under guano conditions (Rippey et al., 2002). What is unusual about cormorants is the extent and rapidity with which they can transform islands (Wires, 2014). To a large extent this is a function of the cormorants' ability to form dense colonies and roost quickly. At Walthamstow Reservoirs, in just twenty years, the cormorants had altered the islands beyond recognition. Figures 10.9 and 10.10 show the broad change in vegetation density, with one aerial image taken in 1933 (prior to cormorants) and the other image taken 2017 (post cormorants). Great cormorants have clearly created a guano

effect, turning the islands into something that represents their 'natural' coastal cliff territories.

Figure 10.8 Cormorants building nests in in trees at Walthamstow Reservoirs (Source: Laurent Geslin/Nature Picture Library/Getty Images)

Figure 10.9 Aerial photograph of Walthamstow Reservoirs taken in 1933 (Source: UK Archives/Twitter). The island known as Cormorant Island is circled in red.

Figure 10.10 Aerial photograph of Walthamstow Reservoirs taken in 2017 (Source: Luke Massey/National Park City). The island known as Cormorant Island is circled in red.

The engineering feats of great cormorants were met with a mixture of delight and potential concern by actors at Walthamstow. During guided walks led by Walthamstow Wetlands, the public would often be instructed to pause at Reservoir No 5 (Figure 10.11) to overlook what had been dubbed 'Cormorant Island'. We would be told that the cormorants had transformed the ecology of the islands: 'they have knocked down those trees. They have created their own habitat…Normally they nest on cliffs but they have remade this habitat to suit them… [Their] poo is acidic, so it actually burns the leaves of the trees… kills off everything…The trees suffocate, die and fall into the reservoirs' (volunteer, London Wildlife Trust). Guides were keen to emphasise the dramatic nature of the transformation.

Figure 10.11 'Cormorant engineering' on Reservoir No 5, September 2014 (Source: Alan Denney/Flickr)

Ecological engineering by cormorants was seen by some as 'impressive' (they admire their ability to refashion the islands into a home) and 'ecologically hazardous' by others (the see their island activity as unsustainable). On guided walks, members of the public (often birdwatchers) would make comments such as: 'it [the island] looks like a desert'; 'the island are as bare, bleak and spectral as they [the cormorants] are'; 'looks like they're ruined it'; 'Look at the white lime droppings on those other trees!' (public comments, Walthamstow Wetlands, 2016-2017). Anglers, unsurprisingly, were particularly negative about the transformation of the islands by cormorants: 'that [island] was thick bush years ago. Trees 10-15 foot over the water, you couldn't see the island. In another 10-15 years that one [points to a different island] is gonna be the same – killed off.' (Paddy, 70s, fly-fisherman). Anglers were keen to emphasise the cormorants' ability to 'shit their own island to death', (Jerry, 80s, fly-fisherman) – suggesting that cormorants are (in their view) unsustainable and not intelligent enough to secure their own futures. Figure 10.12 depicts cormorants drying and preening their features on the bare-looking island.

Figure 10.12 Cormorant habitats at Walthamstow Reservoirs, May 2017 (Source: Walthamstow Wetlands)

However, these opinions need to be unpacked and contextualised. Firstly, it is important to note how these interests speak to many nature/conservation orthodoxies that exist in Britain where trees are framed as 'good' (a sign of a healthy ecosystem), while bare earth is framed as 'bad' (barren or lacking in life) – or at least a disturbance from what is 'normal' or 'natural' (see for example Monbiot, 2014). In the case of cormorant engineering at Walthamstow Reservoirs, their guano islands are spun in negative terms because of the particular attachment to wooded islands. In official narratives for Walthamstow Wetlands the 'ideal' landscape wildness was understood according the historic mosaic of marshland and woodland that once characterised the Lea Valley (Vestry House Museum, 2016). Thus anything that appears a barren desert – whether it be reservoir islands or the built environment itself – is a shift away from that imaginary.

Political ecologists have attempted to deconstruct the myths that are harboured within desertification and deforestation narratives (Forsyth, 2003). Meanwhile historians and restoration theorists have situated these debates within specific cultural contexts (Schama, 1996; Hall, 2010; Rotherham, 2014). They suggest that

arguing that how a habitat is framed (as good/bad) depends on the 'ideal' landscape that is envisaged in the first place. As the comments above suggest, the cliff-making practices of great cormorants at Walthamstow were a contested field, partly admired but partly out of sync with what was imagined for the place. This is perhaps because the islands themselves had no clear ecological baseline – they are the result of human endeavours. This brings me on to the second point.

The transformation of the islands needs to be understood as an experimental endeavour for great cormorants who are working with a landscape other than cliffs. This 'engineering' of the islands is not an intentional act and cormorants would not necessarily experience their islands as decaying or dying, which means it is important not to associate the loss of trees with a negative (unhealthy) ecological trajectory. They are responding with their bodies to the conditions they find themselves in (and actively produce). While there is a risk that cormorants may permanently eradicate or alter specific features or instigate a process of erosion, the islands were always starting from an artificially-constructed baseline dating to the Victorian period. For this reason, it seems reasonable to expect the unexpected with these islands.

The dynamics on so-called Cormorant Island are arguably a lot more intricate than a simple case of 'cormorant colonisation'. During my many visits to the reservoirs, I noticed that a host of other bird species were taking advantage of the remote islands (field observations, 2016-2017). On most birding walks, I would observe gulls, tufted ducks, geese, coots and mallards either on or near the islands. Local birders explained that 'things like the islands are actually really important because they provide somewhere where they can all sit out of the water and not get disturbed at all by land predators' (Paul, local birder, Walthamstow). Similarly, local volunteer explained that he had seen kingfishers nesting in the sandy banks of the islands, as well as young gulls 'so other things are attracted to them' (volunteer, London Wildlife Trust). These reveal the islands encompass wider dynamics that are not captured in the overriding name 'Cormorant Island'. The dynamics are equally *below* the surface, although these

were 'subterranean ecologies' were of little interest to conservationists (see Appendix 7).

Listen to 'Ch10, R1 – Cormorant Island soundscape, May 2017' to hear how Cormorant Island is not just an island of cormorants; it is an island of winds, waters, sands and soils, framed and shaped by great bowls of concrete and the city beyond.

Use headphones in right and left ears for full effect. Ensure volume is at an appropriate level. **PLAY:** https://soundcloud.com/user-977605567/ch10-r1-cormorant-island-soundscape-may-2017

The following reflection helps to situate the recording and provide a visual cue to the sounds that are heard. I wrote this while listening to the recording and comparing it with my field notes, written at the time. You can read this in conjunction with the recording.

Reflections on Cormorant Island, May 2017

It was quite hot and clammy at the reservoir that day. The skies were clouded over, suggesting a storm was on the way. The hum of the city is inescapable; trucks rattle along Coppermill lane, while a vehicle reverses, bleeping its way backwards. A cormorant beats its wings on the water as part of a cleaning ritual (00:27). The aeroplane rumbles overhead and a train sounds its horn, which bounces its echo across the concrete reservoir – serving as a reminder of its bowl-shape (00:40). The shape contains sound, just as it contains the creatures that live below the surface (at least until they are caught or escape through the pipework). That day a local angler told me that these 'concrete bowls' are the ideal shape for cormorants because the birds can flush the fish to the edges of the reservoir and 'take their pick.'

The gulls screech around the skies, while geese gently land on the water (02:43). As the winds pick up the gulls appear to circle more, carried by the wind. Some dive towards me, back and forth between the island and the bank of the reservoir where I sit. They appear to be looking for something, something I cannot detect. Meanwhile, the adult cormorants sit relatively 'silently' on the edge of the island, apart from the individual that continues

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to flap its wings in the water occasionally. Their young, on the other hand, are not so silent: they call incessantly from their nests for food (high-pitched screeching sound). The angler later told me that the adults are out feeding at the moment; they will come back at different times in the evening, from different parts of London. This explains why the island looks relatively empty of adult cormorants today and why it feels more like 'gull island'. The recording ends with another train sounding its horn in echoes across the reservoir (05:30).

Figure 10.13 Cormorant Island, May 2017. Photograph taken while recording.

Tuning into this recording, it is clear that Cormorant Island is immersed within a wider ecology, with atmospheric and weather components, all of which affected the presence and behaviours of creatures: gulls would not be able to sustain their circular flights, hovering, without lifts from the winds; while cormorants would not be able to beat their wings clean were it not for the water; they might not even be so successful at fishing were it not for the materials and shape of the bowl-like reservoirs. Interestingly, while the island is commonly thought to 'belong' to cormorants, this recording illustrates that island also belongs to gulls who were most audibly (and visibly) present that day. What this reveals is that humans can never fully know the dynamics of bird-life – that is 'all of the ways in which our world is lively and responsive' (van Dooren, 2016, p82).

Moreover, it illustrates that a visual-only approach to islands (from a distance) is not enough and can lead to simplistic assumptions – something that Chapter 6 explored in terms of the scientific practices that are framed as ecological but are in reality 'just counting species' (6.3).

10.5 Unplanned and unpredictable wildlife

The final section of this chapter continues the theme of 'urban islands' to explore some of the unplanned ecologies that have occurred at Walthamstow Reservoirs over the years and consider the implications of unknown and unknowable futures for the science and practice of nature conservation. The arrival of great cormorants inland presents just one example of the unpredictable way living beings will respond to large-scale human activity. The conditions at Walthamstow unwittingly (without intention) have provided alternative life-making possibilities for cormorants – an unforeseeable outcome for site managers. In a rapidly urbanising and heavily globalised world, with increasingly unstable climatic conditions, there will likely be many more cases of 'Anthropocene wilds'. Yet the particularities of nonhuman responses can never be entirely predicted.

The recognition that ecosystems (and their components) are highly dynamic, complex and unpredictable (Pahl-Wostl, 1995; Kay et al. 1999; Francis, 2009) presents an important challenge to conservation (see Chapter 2). This Section uses the case of 'urban islands' to contribute to these debates. It focusses on islands because urban islands have been little explored in geographical literature that emphasises the importance of 'spaces to be nonhuman' (Hinchliffe et al., 2005). Islands are often afforded a special status in nature conservation contexts. They are often seen as 'refugia', places of escape for wildlife, and are therefore often highly managed spaces (e.g. van Leeuwen et al. 2008 on the Galapagos). Yet these islands became wild refugia through no planning or design on the part of conservationists. Rewilding debates have much to contribute in this regard and so the following section works with this body of literature to raise questions

regarding the purpose of environmental governance in highly dynamic multispecies settings.

10.5.1 Unplanned islands

Western conservation has always maintained a deep fascination with islands, ever since the early architects of conservation biology, E.O. Wilson and Robert MacArthur, focussed their research on undisturbed islands and put forward their theory of island biogeography (1967). This was because islands provided scientists with 'model systems' for exploring species-area relationships. In the words of Slud (1976) '…islands come closest to constituting discrete independent ecosystems or natural laboratories; this makes islands desirable for the study of geographical variation'. From these island laboratories, a conceptual toolkit for conservation emerged, centred on ways to understand, predict and manage the biodiversity impacts of habitat loss and fragmentation (Whittaker et al., 2005; Whittaker et al., 2007).

Island biogeography theory, as proposed by MacArthur and Wilson (1967) has offered a powerful message to conservationists concerned with maintaining levels (and types) of biodiversity: it assumes an 'equilibrium point' for species (taxa) living on islands and therefore supports the popular agenda to enclose territories – that is, make 'islands' (nature reserves) away from the disturbance wrought by modern humans (Lorimer, 2015). Such an approach has been critiqued for purifying space and stabilising time, 'pre-empting and forestalling ecological processes' under an agenda of conserving (Lorimer, 2015, p163-164). While the notion of 'fixing ecologies' corresponds little to contemporary ecological theory (see Botkin, 1990; Francis and Goodman, 2010), the quest for pure spaces untrammelled by anthropogenic activity is still a powerful image and continues to inform (invented) baselines that risk 'cutting-off' major aspects of ecological history.

Dredged up from Victorian imaginations, the islands at Walthamstow represent the sculpted leftovers of dugout reservoirs, piled into shape for distant visual appreciations. Deposits of silts, sands and soils, the London basin and its earthly

clays, are layered into these reservoir islands; plants and microfossils deeply etched inside them. They were not intended for nonhuman others. They were the cast-away material of functional human endeavours, to provide London's booming economy with a steady supply of clean water. First appearing as mounded sculptures for Victorian eyes, only much later did the islands become recognised as ecological features. Today, the islands are recognised as 'distinctive features' that make up the SSSI citation for Walthamstow Reservoirs (Thames Water and Waltham Forest Council, 2014). The islands at Walthamstow were therefore given a special status by conservationists, and yet it is important to remember that they only exist because of human activity – they were not intentionally designed to be refuge for wildlife.

Over the years, the islands have been managed in particular ways to accentuate certain habitats and species, but they have not always produced intended outcomes. For instance, Arnold explains how the endeavours to discourage cormorants from breeding at Walthamstow have simply displaced them:

> 'When I was a kid fishing here, they [cormorants] used to be on another island, over on the Warwick. But someone had the brainwave to knock the island down so they won't roost, but they just jumped into these ones instead [points to Cormorant Island on Reservoir No 5]. And so if anyone has the brainwave to cut down those remaining trees [points to a second island on Reservoir No 5] they better be careful 'cus they'll just jump onto the heronry, the islands on No 1 and No 2' (Arnold, 50s, fly-fisherman).

Arnold's story demonstrates how human initiatives or 'brainwaves' can backfire. While the habitat alterations did discourage cormorants from that particular island, the birds then took up residence on another neighbouring island – something project managers at the time (Thames Water) did not foresee. Similarly, the island on East Warwick reservoir was re-sculptured in the 1990s to provide better habitat for breeding terns and other migrating waterfowl and waders – instead, the islands were 'unexpectedly taken over' by lesser black-backed and herring gulls as a breeding location (project ecologist, Walthamstow Wetlands). The 'unexpected' nature of the outcome illustrates the limitations of

human knowledge and planning. But it also reveals that humans cannot always predict the preferences of nonhuman nature:

> 'Thames Water wanted terns to breed because they come round here every year at certain times and they wanted them to feed off the fly-life that comes off the water. But, of course, it didn't take off. There was four or five last week but I never see them breed. They come but they don't settle. I don't think it's good enough for them' (Norman, 70s, fly-fisherman).

Knowing what is 'good enough' can come with experience and judgement, but even then, intended outcomes are never guaranteed. With the steady increase of (unwanted) gulls on East Warwick island, conservationists complained that tufted duck (*Aythya fuligula*) numbers had decreased (Thames Water and Waltham Forest Council, 2014). However, fishermen who had observed these changes argued that tufted ducks had declined because of *human* interventions: 'that used to be a lovely little island. It had all rhododendrons on. Huge. Really clustered. And you used to get loads of ducks breeding on there… But after they [Thames Water] took out the rhododendrons you don't see them. They haven't got the cover, you see?' (Norman, 70s, fly-fisherman). Grey herons (*Ardea cinerea*) were a similar case (see Appendix 8). The 'truth' of the matter may never be fully known, since like most places, 'Walthamstow is a place of unintended consequences…' (Mann, architect, Walthamstow Wetlands) because of the sheer number of ways a human intervention gets a nonhuman response.

What these short stories teach is that planning for nonhuman futures cannot rely entirely on human knowledge; there must be a sensitivity towards the particularities and nuances of nonhuman place-making. This requires a more open-ended 'experimental' approach to nonhuman futures (Lorimer and Driessen, 2014; Lorimer, 2015; van Dooren and Bird Rose, 2016). As Cheney and Weston (1999, p126) note,

> '…the kind of practice asked of us is to venture something, to offer an invitation . . . and see what comes of it. We are called, in fact, to a kind of

etiquette . . . in an experimental key: the task is to create the space within which a response can emerge or an exchange coevolve.'

This has been lauded in rewilding circles as a form of (anti-)management that 'allow[s] nonhuman nature to lead the way in some areas at least' (Taylor, 2005, p5) such that it becomes 'self-sustaining' (Jepson and Schepers, 2016). How this emerges in practice is dependent upon specific contexts, where specific human/nonhuman relations have historically existed and are continually renegotiated. For where a rights-based version of 'autonomy' would see the nonhuman as a bounded entity set against others of its kind, recent interventions have suggested a version of autonomy that is relational and historically situated (DeSilvey and Bartolini, 2018). In the case of cormorants and islands, this would be recognising that their history is a post-industrial one, linked to global economies and the shifting ecologies bring together different actors – from anglers and conservationists, to fish and waters, to cormorants and islands – in a thoroughly hybrid affair.

10.6 Conclusion

The presence of cormorants at an urban industrial reservoir reveals that despite the learnings that are produced and shared in conservation worlds, there are limitations to human knowledge and designs will always be met with surprises. As Chapter 2 illustrated, geographers now actively challenge the privilege of the human subject in accounts of environmental change and suggest that, in light of the Anthropocene, what is essential is an 'openness toward the world… a commitment *not* to assume that we know, that we could know, all of the ways in which our world is lively and responsive' (Bird Rose and van Dooren, 2016, p82; see also Haraway et al. 2016). This chapter has equally considered the kind of logics and knowledges, politics and ethics that might be warranted for 'conservation in the Anthropocene' – a future where the unplanned activities of the more-than-human world *matter* if they are to facilitate what Lorimer calls 'a post-Natural epoch of multispecies flourishing' (2015, p4).

It has demonstrated the importance of 'holding open space' (van Dooren, 2016) for the autonomous activities of nonhuman actors in urban environments (RQ4). It has also shown that understandings of 'shared space' must necessarily involve a look at the shared political ecologies and histories that force us to acknowledge 'that human and nonhuman worlds are inextricably entangled' (Prior and Ward, 2016, p135) (RQ1). The reservoirs represent landscape 'emblematic of processes marking the Anthropocene' (Matless, 2017, p363), where the relationship to the past has a critical bearing on what might be possible in the future, and when and where 'acts of looking' (2017, p364) and *hearing* might activate new 'boundary crossings' and human/nonhuman relationality (RQ3).

Chapter 11. Conclusion

11.1 Introduction

This thesis has explored some of the ways in which urban zones are re-envisioned in light of contemporary environmental challenges and what some of the implications are for human/nonhuman relations. The purpose of the conclusion is to draw these together and explain how and why renaturing initiatives are re-scripting conservation, human/nonhuman relations, and urban environments. Renaturing in urban Britain is clearly a complex and multifarious task, heavily shaped by place-based contexts and specific human/nonhuman communities. This thesis has revealed how localised efforts to make space for nature in cities involves multiple stakeholders and is imbued with cultural preferences, multiple temporalities, hybrid geographies and different political economic trajectories. It has also revealed how 'wild work' in the city is not an entirely human endeavour; that nonhumans also construct worlds within worlds or 'beastly places' within human spaces. The remaining task, therefore, is to discuss the implications of these findings and relate them back to the research aim, so as to answer the critical question: *what does urban renaturing mean for multispecies relations and why do these issues matter for contemporary environmentalism?*

This final concluding chapter will begin by summarising and reflecting upon the main findings of this thesis in relation to this study's four guiding questions reiterated below (11.2). To give these findings structure and coherence, the conclusion firstly discusses the 'visions' and 'dilemmas' of urban renaturing and then then draws together the thesis' underlying concern with the ethical import of urban renaturing in Britain – that is, the environmentalisms and human/nonhuman relationships that are engendered. Informed by the findings, the next section (11.3) reflects on the contribution the thesis makes to contemporary debates on nature-society relations, and what can be learnt about contemporary environmental practice through specific cases of urban renaturing in Britain. Here I refer to the issues identified in Chapter 2 (Literature Review) and make explicit the theoretical intervention of this thesis. Finally (11.4) explores

the conceptual and practical implications of these findings for environmental practice, and suggests pathways for future research.

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Research questions (RQs)

1) How does wildlife and wildspace get negotiated in human-modified systems such as cities? (RQ1)

2) How does the past get mobilised in practices of urban renaturing, as 'wild work' in the city? (RQ2)

3) How are boundaries created and crossed in urban multispecies settings? (RQ3)

4) What does all this reveal about 'shared space' in a multispecies city? (RQ4)

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11.2 Key findings

The findings detailed here are systematically developed into an argument that cements the overall contribution of the thesis (11.3). The argument begins by relaying the main guiding visions of renaturing in urban environments, including how they are constructed, by whom and to what end. This raises key themes in relation to research questions 1 and 2. The argument then moves onto how visions meet daily realities and the practical and ethical dilemmas produced in the process, including how these touch upon the experiential relationships between humans and nonhumans – reflecting on research questions 3 and 4. Finally the argument addresses urban renaturing from a 'more-than-human' perspective and what this suggests for contemporary environmental practice.

Visions of urban renaturing

This study has highlighted how visions of nature are consciously and unconsciously constructed in the context of human modified systems. Chapter 2 (Literature Review) developed a theoretical and practical approach to the diversity of practices that are referred to within this thesis as 'renaturing'. While this approach was broadly aligned with the raft of scholarly interventions that challenge how the nonhuman world has been construed in Western philosophies

of nature, this research on renaturing revealed that there is no one singular homogenous vision of nature in contemporary urban environmentalism. In exploring issues of access and ownership at urban renaturing sites, Chapter 4 revealed that *who* is involved in questions of nature has important consequences for how nature is understood and enacted. In relation to Walthamstow Wetlands, nature was largely predefined by official stakeholders (mostly at council-level) who combined their interest in 'access to nature' with the legal parameters set by the water company (Thames Water) and the conservation requirements laid out in the SSSI/SPA designations. This meant that renaturing was largely a 'top down' process and other site users such as anglers were largely excluded from questions of nature. In contrast, in relation to Active Neighbourhoods in Ernesettle, Plymouth, nature was largely defined by community stakeholders who were directly incorporated into the decision-making process. While this may appear a more inclusive and participatory approach, Chapter 7 revealed how 'nature' can still become an exclusive affair when select (and self-elected) members of the community assert/insert their interests into questions of nature. These insights highlighted the politics involved in cases of urban renaturing, as the production of shared multispecies spaces. They revealed how nature can be radically shaped through elite groups who often have predetermined/vested interests, even in supposedly democratic public spaces (Valentine, 1996a; Bell et al, 2003).

Chapter 5 explored the historical geographies and political ecologies of urban renaturing and served to highlight the ways in which visions of urban renaturing are reconciled with/against the grain of urban conditions and process. Firstly, renaturing initiatives were immediately situated in relation to the cities within which they took place. Walthamstow Wetlands in London was seen as an urban oasis, a remote wild space that could be held against the backdrop of the city. Similarly, renaturing in Ernesettle (Plymouth) was continually developed with people in mind as it worked to enhance 'nature on doorsteps' – that is, the green spaces that were seen as essential parts of the residential housing estate. However, spatio-temporal differences emerged when questions of the past were brought to bear on urban renaturing. Part of the process of reconciling nature in

the city involved re-imagining the environmental past and the historic relations between humans and the environment. In the case of Walthamstow, London's industrial past and the material consequences of capitalist production were romantically woven into a vision of *future nature* for the city. Such imaginative geographies framed nonhuman nature as resilient, able to thrive even in 'toxic wastelands'. In a similar way, the development of wild space in Ernesettle was done so through a (re)imagination of the agricultural past, recast as a multispecies community living harmoniously off the land. In order to give this (re)imagination a contemporary inflection, Ernesettle was framed as a deprived place of sorts and this served an underlying development agenda, linked to contemporary interests in human health and wellbeing. These insights revealed how urban renaturing projects are expanded to include different human objectives relative to cities. But rather than recreating the past (as is the case with environmental restoration), urban renaturing initiatives mobilised the past in futuristic ways, so as to engender new environmentalisms and 'aspirant ecologies' (Parkes, 2006).

Together, the findings laid out Chapters 4 and 5 suggest several important responses to the research questions. Firstly, both case study sites affirmed how 'nature' is a relational category, defined in relation to urban conditions and processes, including the socioeconomic opportunities afforded in particular times and places, and according to the (perceived) requirements of the local community. At Walthamstow Wetlands, nature was neatly 'knitted together' with the historical-economic processes of the city, which in turn offered a romanticised and ecologised image of the 'industrial wild' character of the site. In Ernesettle, renaturing was mobilised to work with the challenges wrought by post-2008 austerity and while in some ways this generated a landscape of 'community-owned' natures, in other ways it generated short-term natures, quick fixes and 'win-win' environments, seen in functional and utilitarian terms. In both instances, visions of nature were performed (Lorimer, 2015) in accordance with political economies, historical geographies, and place-based community contexts. This suggests that the 'social construction of nature' (Chapter 2) is not a homogenous or straightforward endeavour.

Dilemmas of urban renaturing

The following section summarises the ethical, political and practical dilemmas of urban renaturing, as revealed through the competing, neglected and even silent (and silenced) visions of nature explored in Chapters 6 and 7.

Chapters 6 and 7 explored the governance aspects of urban renaturing in order to shed light on the boundaries that were created in urban renaturing initiatives and what these meant for 'shared space'. Chapter 6 explored the precautionary approach that was assumed at Walthamstow Wetlands, which involved cultivating a sensitive/non-intrusive approach to wildlife so as to mitigate the potential impact of increased visitors. Reed beds were installed to enhance the reservoirs and create new habitat, but they were also installed to offer more protection to birdlife (to create screening between birds and visitors). Likewise, visitors were drawn to 'honeypot' areas so that (certain) birds could have respite at particular times of the year. The chapter demonstrated that although these measures for urban wild spaces involved aspects of care (to protect what were seen as vulnerable species), they were produced within an agenda of fear, risk and threat. As a result, the ambition to 'open up' the reservoirs and create a 'wetland for all' had the effect of creating a highly managed/prescribed experience – informed by the long-standing conservation attachment to ideas of balance and equilibrium (Forsyth, 2003; discussed in Chapter 2).

Chapter 7 focussed on the exclusionary effects of (visions for) 'communal nature', which revealed the kinds of ethical dilemmas involved in renaturing in community settings. At Ernesettle, it was hoped that renaturing practices (hedge laying, meadow creation, orchard tending) would create 'active residents' and 'biotic citizens' who would come to see themselves as part of a shared space and shared biotic community. Lively visceral knowledges regarding the nonhuman world were promoted in order to help these relations develop, along with an *ethic of care* (Gibson et al., 2015). However, this vision did not extend to all parts of society so 'care for nature' became an exclusive endeavour. Teenagers were cast as an urban problem for nature and the renatured spaces of Ernesettle, which meant that access was granted in uneven ways: orchards were barricaded in, wild

hedges were ring-fenced and passageways through the woodlands were gated to prevent 'unruly youth' from accessing them. The chapter demonstrated that more academic work is needed on the subtle expressions of 'nature care'. While scholars have looked at the exclusionary effects of conservation on (undesired) nonhumans (van Dooren, 2011, 2014; Biermann and Mansfield, 2014; Srinivasan, 2014, 2017) few studies have explored the exclusionary effects on (undesired) humans and what the implications are for what comes to 'count' as nature.

Together, Chapters 6 and 7 drew attention to the ways in which wild spaces can quickly become defended places when particular elite groups who have predefined ideas/agendas for nature then insert these interests into renaturing programmes. These chapters raised important questions regarding who is permitted a relationship with the environment and, relatedly, who speaks for nonhuman nature, where and how. This in turn highlighted how academic interests in 'multiple natures' (Hinchliffe, 2008) and 'hybrid geographies' (Whatmore, 2002) are not yet common themes in contemporary environmental practice and this research exposes a disjuncture between academia and practice, which has not been fully explored in the literature. Despite presenting a potential opportunity to re-engage and re-invent questions of nature (and thereby highlight its multiplicity), this **research** revealed how renaturing initiatives can risk homogenising ecological and cultural difference (Hall, 2010; Rotherham, 2013, 2014; Drenthen and Keulartz, 2014), especially when they fall to particular parts of society with predefined agendas. Nonetheless the emphasis on 'community' in Active Neighbourhoods (Ernesettle) was markedly different from the traditional colonising agenda of conservation as noted in the literature (Cronon, 1995; Plumwood, 2002; Merchant, 2003).

Politics of the urban wild

Another key facet of this thesis has been to explore how ideas of 'the wild' are articulated and incorporated into urban renaturing schemes. As Chapter 2 outlined, there has been a recent surge of interest in the wild in European and Anglo-American conservation debates. These interests have clearly filtered through to urban renaturing initiatives in Britain and the popular ambition for

'wilder cities' (London Wildlife Trust, 2015) and 'greener cities' (e.g. 'National Park City' in London). Chapters 8-10 explored the various articulations of the wild at both case study sites. This in turn sets the scene for a deeper discussion on what 'wilder cities' means (ethically-politically) for contemporary environmentalism and human/nonhuman relationships.

In the case of Active Neighbourhoods (Ernesettle/Plymouth), the category of the wild was broadly expressed through the introduction of wildflowers to marginal areas across the city – seen as an ecological intervention to create 'corridors' and 'greenways' for wildlife, particularly pollinating insects. Chapter 8 explored the politics of wildflower introduction in Plymouth and how the category of the 'wild' was operationalised through the mechanics of austerity. Wildflower meadows were seen to require less management (and so less time/resources) than ornamental planting, while altering grass-cutting regimes was seen as a direct way of reducing expenditure for local authorities. The chapter revealed that while the introduction of wildflowers often appears (in popular environmental debate) as a lively, proactive, and more-than-human solution to global biodiversity loss (and under these terms it could be considered rewilding), there is an underlying politics to these moves, including the strategic alignment of 'wild' environmental practices with the cost-saving agendas of local councils under austerity. While nature has been explored from the perspective of neoliberal capitalism (Brockington and Duffy, 2011; Apostolopoulou and Adams, 2017) few studies have looked at the specific effects of austerity on nature and nature conservation.

Chapter 8 also identified a politics around what *counted as wildlife* in urban renaturing initiatives. In the case of Active Neighbourhoods, ideas of nativeness and naturalness were ushered (or 'seeded') into the city through wildflower meadow introduction. Wildflowers were seen to 'brighten up the estate' but they were also used divisively/politically, to revive an image of the traditional English grassland and therefore a particular (native) idea of urban nature. In Ernesettle wildflowers were 'sold' through the powerful notion of heritage and while most stakeholders accepted this narrative because it corresponded to their

(pre-existing) interests in English heritage, tradition and localness, not all residents were convinced. Wildflower meadows were established without a real acknowledgement of the multiple ways that 'wildlife' and 'wildness' was understood by different actors.

In the case of Walthamstow Wetlands (London), wildness was generally articulated through the birds on site and their ability to 'come and go' of their own accord. Swifts, for instance, were celebrated for their epic long-distance journeys: conservationists marvelled at their 'natural' migratory patterns and their potential arrival at the wetlands, having travelled 'all the way from the Congo'. They saw them as an 'emblem of wildness' – that is 'creatures [that] are really free and… really, kind of, out there' (Lucy, London Wildlife Trust). Chapter 6 highlighted how this version of wildness served an important role distancing Walthamstow Wetlands from the zoo-model. However, Chapter 9 uncovered (in the discussion on Canada geese) an exclusionary politics to this articulation of the wild – namely, how the interest in free movement did not extend to all creatures. Fences and other spatial deterrents were used for Canada geese, to keep these 'non-native' birds from accessing certain areas, thereby limiting their (otherwise free) movement. This revealed how 'wildness' can become an exclusive category in renaturing agendas that only applies to certain (native) species.

More-than-human dilemmas

One primary ambition of this thesis was to explore urban renaturing from a more-than-human perspective, in order to shed light on the purpose of contemporary environmental endeavours and who they ultimately serve. Chapters 9-10 drew attention to the ethical and ecological dilemmas that are generated by other-than-humans in renaturing settings. Chapter 9 explored the ethical status of Canada geese at Walthamstow Wetlands. It examined the rationale for framing Canada geese as 'outsiders' and critically exposed how this framing legitimised (normalised/naturalised) actions against them. It explored how Canada geese are continually subject to 'new facts' about their socio-environmental impact, which are invariably produced within UK/EU

conservation frameworks oriented towards native/non-native distinctions. The second half of the chapter explored the ways in which populations of Canada geese visibly and audibly assert their territories at Walthamstow Wetlands, vehemently defending goose-space in the city. It revealed how Canada geese contest their 'outside' status at Walthamstow Wetlands, and so effectively challenged the very idea and purpose of an *urban nature reserve*. The chapter reflected on what this might mean for contemporary environmental governance, especially in cities where a myriad of creatures are marked with a non-native status. It also reflected on the hypocrisy of popular moves to vilify the Canada goose – a creature that only acquired a residential status in Britain because it was introduced as an ornament by landowning elites (Goode, 2014). This in turn revealed how what is commonly framed as a 'goose problem' is in fact a 'human problem'.

Another more-than-human dilemma that was explored in this thesis concerned the shifting biogeographies of great cormorants in Britain in response to human activity. Chapter 10 discussed the ways in which cormorants represent a post-normal and post-natural status, one that is 'inextricably entangled' (Prior and Ward, 2016) with humans (fish stocks and recreational fishing). The Chapter illustrated how, at Walthamstow, different groups used the unnatural/post-natural situation with cormorants to further their own beliefs and agendas: great cormorants were seen as 'out of place' invaders by the angling community and 'resilient' and 'adaptable' by the conservation community. It suggested that neither of these positions fully acknowledges the complex ways in which the contemporary predicament of cormorants is entangled with human history. Nor does it recognise the nuanced ways in which cormorants work both with and against the grain of a 'human-dominated world' (both exploiting and suffering under human conditions).

Together, Chapters 9 and 10 had the effect of both highlighting the *humanness* of urban renaturing projects (centred around designs, plans, visions) as well as the sheer fact of nonhuman agency in urban wild spaces (centred around unpredictability and surprise). For this reason, the final part of the chapter

explicitly focussed on the themes of 'undesign' and 'unplanning' at Walthamstow Wetlands, in the context of the site's islands ecologies. It explored how recent attempts to manage the islands (to favour certain species) produced unintended outcomes, while the very same islands became 'wild refugia' through no human design or planning (they were simply the cast-offs of Victorian endeavours to supply water to London's burgeoning population and industrial expansion). Walthamstow Wetlands wanted a 'better managed' space to secure more wildlife, but the findings of this chapter suggest that planning, design and management is not the only way to secure a future for nonhumans in the city.

11.3 Contribution to knowledge

In carrying out this investigation into the practice and import of renaturing for multispecies relations in urban Britain, this thesis has critically engaged the burgeoning literature on nature-society relations from the fields of geography, ecology, political ecology and science studies. The following section links this body of literature to the research findings and explains how the thesis has contributed to better understandings of contemporary environmental practice and what it means to do 'conservation in the Anthropocene'.

Nature is widely recognised as a socially constructed concept in the academic literature (see 2.2.1). Chapter 2 outlined how cultural and ecological diversity can be totalised through the concept of nature. This is because nature is often presented ahistorically and therefore removed from context (Whatmore, 2002; Plumwood, 2006). Plumwood (2006, p133) terms this 'deceptive naturalness' whereby certain phenomenon are politically made to appear unchangeable, masking or denying the human social relations that have gone into constructing such phenomena. For this reason, a large part of this investigation involved attending to what was 'missing' from predominant narratives; whose voices were lost, where and how; and what political ecological processes have brought humans and nonhumans into new 'forms of correspondence' in urban environments.

The findings described in Section 11.2 indicate that the construction of nature does not happen in a vacuum. Nature is problematised relationally, in relation to specific social and environmental problems. The more difficult (but arguably more interesting) task involves identifying how nature is problematised and by whom. The discussion chapters of the thesis (specifically Chapters 6-9) provided the groundwork for this and subsequently opened up the specific and unique ways in which nature is either homogenised or made multiple within environmental projects. Strong constructivist positions (see 2.2.1) that are developed from a distance (i.e. not through relational practice in the field) can quickly jump to nature as a 'non-reality' and so miss the complex ways reality itself is made through specific contestations and emergent processes. This is why a grounded and relational-material approach acts as an important way to understand the construction and form of urban renaturing.

This research revealed important insights on how cities are being reimagined in late modern societies. In the case of Walthamstow Wetlands, the desire to see a more 'ecological city' was woven together with the creation of a public nature reserve. Species that might have otherwise been valued for their conservation status and 'charisma' (Lorimer, 2007), were also valued because of their (imagined) ecological contribution to the space or because of how they symbolised the (imagined) transition from the 'age of industry' to the 'age of ecology'. While these moves appear to overcome the foundational stories laid out in Western thought that hold 'nature' and the 'urban' as two separate domains (Hinchliffe, 1999) they can in fact reinforce nature-society dichotomies by creating distant (and distancing) understandings of particular 'official' natures. Certain birds became spectacles for human (visitor) consumption or were otherwise spun as symbols of a remedied urban environment, such as the case with bittern (see Chapter 7). This serves as a reminder of the potent ways in which cities can be reimagined through ecological metaphors (Barua, 2011) with homogenising effects on the categories of 'nature' and 'culture' (Hinchliffe, 2007). This research has demonstrated that there is a lot more *taking place* within, between and behind these visions.

Participating in the 'nature' of urban renaturing

This research argues that the possibility of 'multiple natures' (Hinchliffe, 2007) and 'multinatural geographies' (Lorimer, 2012) hinges upon wider parts of society participating in nature. The findings reveal that while 'nature participation' and 'access to nature' are key facets of urban renaturing – often framed in terms of connectivity (Hodgetts, 2017b) – these can be understood in limited ways, often in terms of providing physical access to nature spaces and not always for all parts of society. The research demonstrated renaturing risks becoming another means to assert predetermined/hegemonic interests in nature, which is an issue that has been identified in contemporary examples of rewilding (Wynne-Jones et al., 2018).

The investigations of this thesis have demonstrated how the understandings of 'nature access' also need to include how nature knowledge is constructed and by whom. There are multiple and complex ways that humans are entangled with their environments. This is because there is no generic 'the environment' as Ingold (2000) says, there is only 'my environment, your environment' (2000, p19). What emerges from shifting conceptions and experiences of place is an ethics of entanglement or 'ethics of relationality' (Castree, 2013). Attending to the diversity of nature-based engagements (and by this I mean any activity or involvement that implicates nonhuman others), as well as the multiplicity of bodies and voices implicated in these networks, can disrupt hegemonic views of nature and locate more meaningful engagements with human/nonhuman relations.

Conscious of these interventions, the research has worked to listen (quite literally) to what was going on in the margins of renaturing endeavours and develop a more historically situated understanding of human/nonhuman relations. This also meant incorporating more-than-human histories and knowledges into the study. Historical ecological views of 'nature' and the 'urban' recognise the ways of life that are 'shared, produced, and nurtured in the world through the work of successive generations of living beings' (van Dooren, 2016, p22). This thesis sought to make explicit the ways in which nonhumans also

participate in the urban environment, and so could thus be construed as citizens, denizens or members of the urban community (Houston et al., 2016; Metzger, 2015). This brings me on to an important point regarding the construction of nature and nature knowledge *beyond the human* (see next section).

Knowing nature in urban renaturing

Epistemological tensions were visible at both case study sites in terms of the way knowledge was produced through 'expert' frameworks as well as 'on the ground'. Conservationists involved in renaturing projects were a particularly interesting group to analyse because they appeared to negotiate the fine lines between official expertise and experiential knowledge. Of the conservationists I spoke to (fifteen in total) almost all of them started out their careers either as volunteers or trainees with conservation NGOs, or by attend training courses in countryside management where placements were offered in conservation settings. Although they would take their cue from science and policy (UK/EU) there was a considerable amount of knowledge that was either formulated 'on the job' or inherited from other practitioners, mentors. For instance, with respect to the ongoing management of sycamore – undertaken at both case study sites – it was very much a learnt practice, heavily normalised in the conservation community. The Director of Conservation at London Wildlife Trust confirmed as much:

> '…sometimes dogma is still there. I hear so many times: *We've got a woodland, we've got to coppice it.* Why? Coppicing was done for us, it wasn't done for wildlife… But it's what we learn… Why don't we allow sycamore to grow into mature trees? Because we're made to cut it down. I'm glad we've moved away from that in a way, but you know they're still seen as: *Well if they're in a wood then we've gotta look at those sycamore* and actually, Why?' (Frith, LWT).

Frith advocated a more reflexive approach: to 'resist the attempt to make [a personal] mark in habitat management' (Frith, LWT, interview) and instead 'watch, listen and just try to get a feel for what the site is actually doing' (Frith,

LWT). At Walthamstow Wetlands, while conservation dogma did exist, there was also an interest in learning from the site itself. Even with a prescribed conservation management plan (the 'bible for the site' as it was called at Walthamstow) practitioners still made their own choices. For instance, the management plan recommended that the sycamore around the edges of the reservoirs be thinned to 'let more light in' and 'allow other things to grow'. However, Fabien, who was tasked with implementing the plan on behalf of London Wildlife Trust, found that there was an element of seeing what works and 'learning about the nuances of the site' (Fabien, London Wildlife Trust). After working on site for a while, Fabien discovered how the winds blow north-south across the open waters of the site. He reflected on this: he was concerned that 'by punching too many holes in it [the sycamore], especially in winter when the wind rips through what is a very open expanse anyway, it would actually damage the habitat and make it less hospitable for wildlife' (Fabien, LWT).

This illustrates an element of reflexivity, of 'tuning in' to the site and imagining the kinds of conditions that might be suitable, hospitable, for wildlife. In our interview, I asked whether the (conservation) work was about 'sticking to the page' (i.e. the conservation bible) and he quickly responded: 'absolutely not. You're always learning'. To this extent, there was an openness to moving beyond conservation dogma in ways that allow more-than-human agencies (biotic and even abiotic factors such as the wind) into the framework of knowledge. This suggests a more reflexive, mutually aware and iterative re-scripting of human/nonhuman relationships, something more akin to 'response-ability' in Haraway's (2018) sense.

While this has been discussed in terms of open-ended 'experimental' approaches in the context of rewilding (Lorimer and Driessen, 2014; Lorimer, 2015) this investigation has revealed that more work is needed to understand the shifting paradigms of conservation knowledge (inherited/maintained) and whether renaturing (future-oriented and context-driven) prompts knowledge that is more emergent and situated in nature; cultivated through sustained interactions with a place and its inhabitants. There is little in the literature to suggest that

'experimental' approaches engender more ethical human/nonhuman relations (if anything they can prompt or overlook important animal welfare issues; see Lorimer and Driessen, 2014). What is perhaps more important is a humble acceptance of human limits: 'a commitment *not* to assume that we know, that we could know, all of the ways in which our world is lively and responsive' (Bird Rose and van Dooren, 2016, p82; see also Haraway et al. 2016; Duffy, 2015).

Knowledge production directly shapes the inclusivity of shared spaces generated through renaturing endeavours. Chapter 9 revealed how the 'cries' of Canada geese were interpreted as aggression by visitors and practitioners on site and therefore coded into a framework that framed the animal as a pest. This suggests the importance of critical reflection when interpreting animal voices, including the conceptual boundaries that might be placed when framing such interpretation (i.e. native/non-native distinctions). Constructing knowledge about nonhumans is by no means easy. As Chapter 3 suggested, it involves incorporating a considerable amount of contextual information to situate the animal voice, historically, politically, ethically. It also involves being open to other possible interpretations and working with range of perspectives developed through different skills and expertise (van Dooren, 2016). This approach to environmental knowledge is slow, careful and contextually-driven. Given the rapid industrious activity that has accelerated environmental change (and provided the platform for the Anthropocene) this approach is perhaps welcome, allowing the space/time for different ethical 'response-abilities' to develop.

Between conserving and enhancing

The findings have demonstrated that urban renaturing is not simply a case of 'enhancing' nature in urban spaces; it also involves defending and protecting nature in those spaces. The findings suggest that in order for projects to consolidate their version of the urban wild and secure what they consider to be autonomous 'wild natures', they had to not only construct habitats and features within which these wild-lives can dwell (and then oddly remain), but they also had to secure habitats/features from any perceived outside threat. Fear and the modern obsession with *balance/equilibrium* dictated these measures for urban

wild spaces – a common refrain in conservation worlds (see Chapter 2). Both case studies revealed that while projects had ambitions to promote wilder cities, these are often undermined by a politics of fear and an interest in maintaining (conserving) hegemonic views of nature, as well as what counts as appropriate behaviour in so-called nature.

Saying this, the findings also revealed that there was an underlying ethic of care for nonhuman futures that spoke to something beyond the fearful/precautionary agendas often associated with conservation. In the case of Ernesettle, there was a genuine desire to tackle the plight of pollinators and make it an urban issue. Practitioners were concerned about the long distances these critters now need to fly in order to access food and nesting ground. In response, urban environments were identified as having the potential to dramatically reverse pollinator declines and urban communities were tasked with taking care of (or responsibility for) them by making human spaces more pollinator-friendly (see Chapter 8). Here, pollinators are seen as *belonging* to the city and even as having a 'right to the city' (Metzger, 2015). Urban renaturing thus offers an interesting juxtaposition between conserving (generally about the present and the past) and enhancing (generally about the future). Yet, more work needs to be done to untangle the different sentiments associated with renaturing, including the ways that different forms of *care* and *concern* are expressed through renaturing (but also co-opted into other agendas). This involves considering the kinds of duties and responsibilities that are warranted *after* landscapes have been renatured. For it might be that 'quick fixes' and an ethic of 'non-intervention' in fact appear *careless* in the face of environmental change.

Between governance and co-becoming

While many of the findings imply that efforts to create wilder natures are matched with efforts to secure space and govern nonhuman nature, there were signs of alternative (non-governance) approaches within renaturing schemes. For instance, in Ernesettle wildflower meadow were recognised (perhaps unconsciously) as a fluid and relational achievement, simultaneously autonomous and coproduced (see Chapter 8). On the one hand, they were

thought to 'take care of themselves' once they had been sown, taking on a 'life of their own' (especially once passing pollinators would then conduct their own 'wild work' in response to them). On the other hand, they were felt to need minimal human intervention – one annual cut just to 'keep things going'. Human intervention was therefore not avoided entirely in the quest for autonomous 'wild' natures. In fact, conservationists actively encouraged communities to 'cut through them', interact with them, and even trample them. In this instance, wildflower meadows became a coproduced feature of Ernesettle, which offered up an account of wildness that went beyond spatial parameters (e.g. as contained in the idea of wilderness; see Chapter 2). Plant-pollinator meadows are not seen as static features, but rather as living entities that become configured/expressed through the correspondence of people, plants and pollinators.

To take these matters further and link the theme of participation to the theme of non-governance, the findings in relation to young people (cast as unruly and deviant, i.e. autonomous) also have a bearing on the idea of a 'wilder city'. Young people test the strength of nature governance in these settings (and indeed the publicness of public spaces). This would be a potentially interesting area to explore in relation to the rewilding literature and the 'values of freedom, spontaneity, resilience and wonder' (Jepson and Schepers, 2016). Oddly, young people almost became (cast as) autonomous 'wild' others that constructed their own relationships to the environment – ones that did not resonate with the cohort of active residents. This tension (between governance and autonomy) has been little explored in the literature in the context of urban wild space – particularly in relation to how different human actors contest the governance strategies that are laid out in official visions of renaturing. This thesis therefore argues that urban renaturing brings to the fore and makes explicit the tension between autonomy and governance when it comes to creating wilder cities.

It is also necessary for future research to look at governance from the perspective of nonhumans. The story of inland great cormorants and the island ecologies they co-constructed (Chapter 10) revealed that governance/autonomy is not a concern for humans alone – nonhuman creatures self-govern and self-rewild all the time,

alongside or in spite of people. Most definitions of rewilding fail to fully acknowledge this as they focus on the placement of animals in human-disturbed landscapes to aid ecosystem services or to enhance biodiversity (see Chapter 2). More recent interventions have sought to emphasise 'spontaneous' and 'self-willed' natures – that is, the self-sustaining quality of nonhuman world (Prior and Ward, 2016; Jepson and Schepers, 2016). Generally these refer to the nonhuman autonomy that is achieved after an initial intervention by humans, but it is also important to acknowledge instances of self-rewilding or auto-rewilding, which refers to the 'activities of animals themselves' (Tsing, 2017, p6) – activities that are no less historically situated, entangled in cultural worlds. Great cormorants at Walthamstow were an example of auto-rewilding insofar as they have moved away from (and oddly into) the conditions created by human activity – from declining fish stocks to amply supplied inland fishing waters. This was not a planned or intended 'wild arrival' to urban inland waters, but an unintended consequence of human activity. They might be understood as 'weeds' in Tsing's (2017) sense and, much like weeds, these great cormorants have moved into urban spaces in response to the conditions of human disturbance. Unexpected, emergent and sometimes aggressive, these cormorants are therefore particularly relevant to the kinds of places that characterise the Anthropocene (Tsing, 2017), i.e. places of industrial ruin or 'blasted landscapes' (Tsing 2015). Yet, the ethical decision of when and how to intervene to sustain nonhuman lives in urban places is ultimately best made with an awareness of the historical conditions that led to their predicament as well as the attachments they have formed within/alongside urban communities.

Urban renaturing clearly engenders new forms of engagement with the nonhuman world and slips between 'intervention' and 'non-intervention' in nuanced ways that are not necessarily picked up in the literature on rewilding (see Chapter 2). The academic literature generally sees conservation as static and rigid in its approach to nature (Taylor, 2005; Lorimer, 2015) while rewilding is seen as more fluid and open-ended (Lorimer et al., 2015). Urban renaturing entails elements of both these approaches. It entails the desire to promote/engender wilder natures in the city and so reduce human management,

but it also entails the desire to secure a 'balance' between wildlife and urban society, which requires ongoing intervention. This highlights a tension in the vision for wilder natures – perhaps one that is unique to the urban context where there are different pressures on space. But it also highlights the difficulties of neatly categorising nature-based practices as strictly 'conservation', 'restoration', 'rewilding' or something else (practices that are themselves defined in multiple ways; see Chapter 2). While renaturing may now appear messy, contradictory and ill-defined, this in itself reveals the messy business of 'doing nature' in an urban environment, and perhaps hints towards the ways in which practices are shifting and hybridising to meet the multiplicity of natures now found in late modern societies.

11.4 Final remarks

This thesis has contributed to contemporary environmental debates by highlighting what *matters* when nature gets remade in urban spaces. Renaturing practices reinvent space and place and in doing so put nature and society into new modes of relation. However, renaturing visions do not exist in a vacuum. Nature is co-opted by funding agendas and silently structured according to urban political economies – from regeneration to austerity. Therefore it is critical to ask what *matters* in urban renaturing. This thesis has responded to this question by highlighting the importance of *participation* and *inclusion* – that is, the importance of including diverse actors in urban renaturing practices (to diversify nature/knowledge itself). It has also highlighted the importance of acknowledging *nonhuman territoriality* – the way that cities are always already more-than-human zones. It has drawn much-needed attention to the *multiple temporalities* that are called upon in urban renaturing practices – the way that the proponents of urban renaturing *re-lay* the environmental past for urban multispecies futures. This in turn has shed critical light on the 're' in renaturing – that is, the relational and cyclical nature of environmental practices, where the past is reimagined *in view of* the present as well as the future. Finally, it has related these issues to ideas of *shared space*, in terms of the conceptual barriers that are impeding different environmentalisms for urban multispecies settings.

Ultimately, this thesis has highlighted the importance of attending to the nuances and particularities of place (and place makers) when considering options for 'conservation in the Anthropocene'.

Appendix 1. Poster for the 'Water and Life' exhibition for Walthamstow Wetlands

The exhibition took place from 26 May to 16 October 2016 at Vestry House Museum in London. It was curated by the partners for Walthamstow Wetlands, organised through Waltham Forest Council. [Poster source: Vestry House Museum].
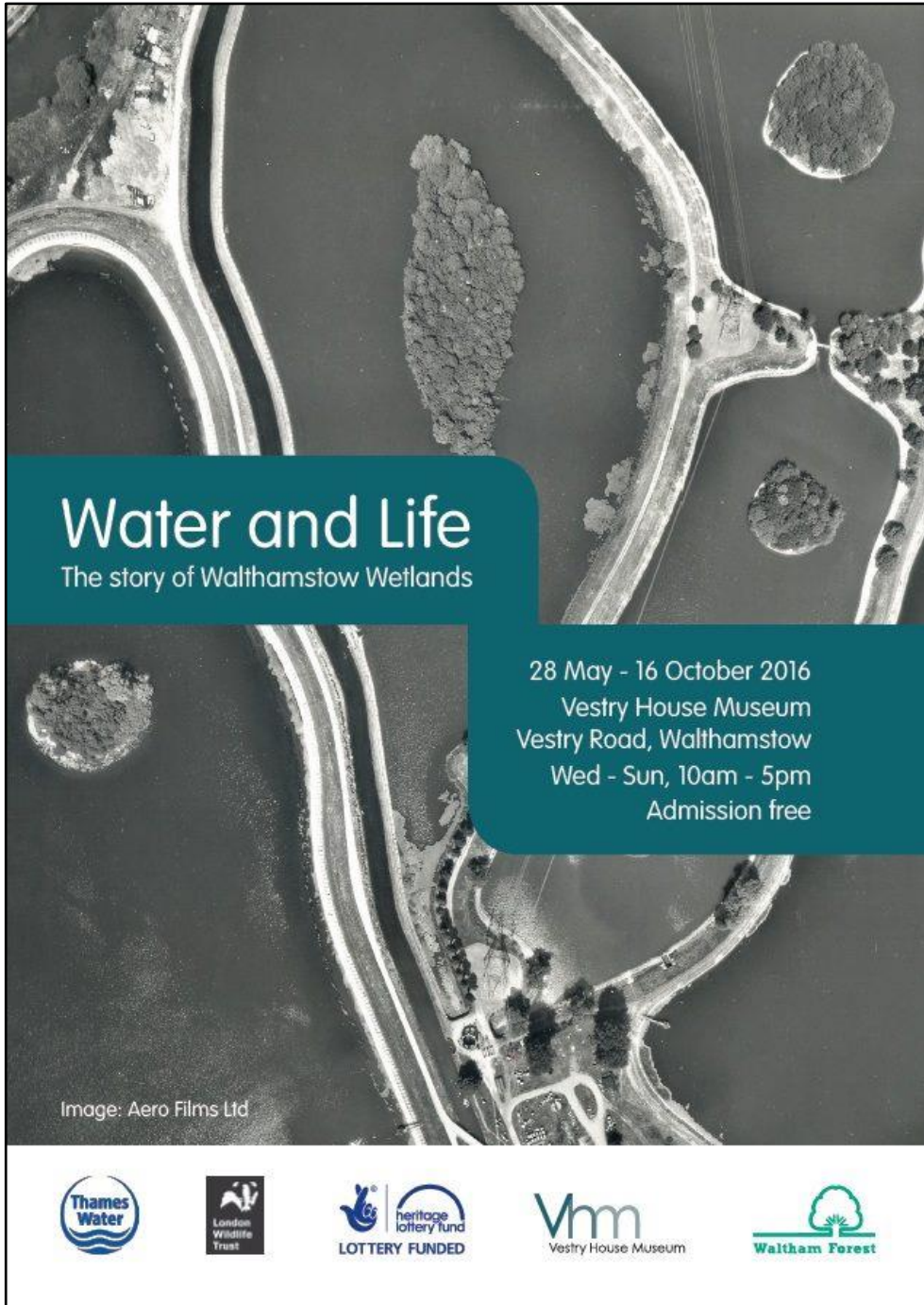
Water and Life
The story of Walthamstow Wetlands

28 May - 16 October 2016
Vestry House Museum
Vestry Road, Walthamstow
Wed - Sun, 10am - 5pm
Admission free

Image: Aero Films Ltd

Appendix 2. Promoting the research at Walthamstow Wetlands

This was a post I wrote to promote the research at Walthamstow Wetlands and recruit participants (6 February 2017). It was subsequently shared on the Walthamstow Wetlands Facebook page. [Source: walthamstowetlands.org.uk – site no longer available].

Appendix 3. Participatory listening walks in Ernesettle

This is a promotional flyer for the participatory listening walks I ran in Ernesettle on 8 and 10 May 2017. The walks were advertised on local community forums, in shop windows, and in the local library. I also handed out the flyers along the main shopping street in Ernesettle and posted them through letterboxes.

Appendix 4. Participatory listening walks at Walthamstow Wetlands

This is a promotional flyer for the participatory listening walks I ran at Walthamstow Wetlands on 6 and 7 May 2017. The walks were advertised on local community forums, the angling office, and through Walthamstow Wetlands social media channels.

LISTENING WALKS

SONICALLY EXPERIENCE LONDON'S LARGEST URBAN WETLANDS

6TH & 7TH MAY, 2017

10AM – 12PM
FISHERIES OFFICE, 2 FOREST RD, N17 N9H

RSVP – CARA.CLANCY@PLYMOUTH.AC.UK / 07510515340
PLACES LIMITED

Appendix 5. 'Nature reserve for hire' – the challenge of opening up Walthamstow reservoirs

In the summer of 2017, Waltham Forest Council applied for a premises licence to serve alcohol at events and functions; there were several objections to this, mostly from residents who lived within the vicinity and were worried about noise, but also from anglers and bird enthusiasts who were worried about the impacts on wildlife: some even suggested that establishing a late licence venue at the reservoirs would be in breach of the Wildlife and Countryside Act 1981 (field observations at a Licensing Sub-Committee meeting at Waltham Forest Council, 12 September 2017; see also Meeting Minutes, Waltham Forest Council, 12/09/17). The licence went ahead (Waltham Forest Council, 15 September 2017).

Appendix 6. River death – shrine to mark the boy who lost his life in Ernesettle

In 2006, a local boy drowned in Ernesettle Creek after taking a boat out with his friends. The shrine under the bridge serves as a constant reminder of his death for anyone who walks along the Creek and Headland Path in Ernesettle.

Appendix 7. Anglers, cormorants and fish – memories of fishing in London

At Walthamstow, anglers' views of cormorants were directly informed by past experience and memories of fishing inland rivers and streams across England during the 1950s and 1960s when fish were felt to be more abundant. Most of the anglers I spoke to had been fishing at Walthamstow Reservoirs for over thirty years, many since the Second World War. They 'knew' these water bodies before the rapid increase in inland cormorants and had come to associate the birds' presence with the decline in the number and variety of fish. Mickey, for instance, noted how 'The Coppermill stream [River Lea tributary] was absolutely full of silver fish, roach mostly. And then in the 80s and into the 90s they [cormorants] were in there by the hundreds and they [cormorants] completely wiped out all the fish in the river.' (Mickey, 60s, fly-fisherman). Similarly, Paddy pointed to the Coppermill stream and said: 'that river probably used to have the most species of fish in southern England years ago and they've wiped it out' (Paddy, 70s, fly-fisherman). The anglers made an association between the decline of the quality of (*their*) river fishing in England and the presence of cormorants.

Appendix 8. Subterranean ecologies – the hidden worlds of 'artificial' reservoirs

The ecologies that existed *below the surface* of reservoirs were largely overlooked by conservationists at Walthamstow Wetlands. This was because the water bodies were seen as 'artificial', comprising 'introduced fish' and 'invasive aquatics' (comments, London Wildlife Trust). During the fieldwork period (May 2017) over 300 introduced fish died from a virus called carp edema virus (CEV), which is a slow death involving loss of appetite, erosions or haemorrhages of the skin, swollen gills, and eventually suffocation. The death was of little concern to conservationists at Walthamstow Wetlands. Representatives saw the fish as the responsibility of the fishery: 'to be honest, it's not a real concern of mine whatsoever' (staff, London Wildlife Trust, June 2017). Dealing with fish was not considered nature conservation, for fish were seen as unnatural beings that did not contribute to what was imagined as a 'vibrant, balanced habitat' (staff, London Wildlife Trust). And yet, the fish formed a fundamental part of the ecology and ecological processes of reservoir waters – from eutrophication to a potential food source for other species.

Figure 8a. Half-eaten carp carcass, pulled out of the water by a bird or mammal, March 2017

Likewise, Zebra mussels (*Dreissena polymorph*) were a cause for conservation concern and there was talk of trapping and removing invasive American crayfish (*Pacifastacus leniusculus*) (internal communication, London Wildlife Trust, 2017). Keeping waterways 'healthy' meant keeping them 'free of pollution, free of invasives like Himalayan balsam, giant hogweed, Japanese knotweed, all those things' (staff, London Wildlife Trust). And yet, these 'invasive' species provide yet another food source for other creatures, including those of conservation concern. During my field investigations (2016-2017), I regularly saw the remains of mussels that had been collected and eaten by birds (see Figures 8a and 8b within this Appendix). But these dependencies were given little regard in official narratives for Walthamstow Wetlands, Europe's largest urban wetland. The ecologies below the surface of the water appeared (to earthly humans) as dark and mysterious, but their atmospheres, temperatures, soils and plants were clearly essential to the lifeworlds (*umwelt*) of many on site – including what fly-fishermen noted as the 'very tiny microscopic life' that fill the reservoirs.

Figure 8b. Shells of zebra mussels, emptied by scavenging birds and other land creatures.

Appendix 9. Shifting island ecologies – the case of Grey herons

Grey herons (*Ardea cinerea*) were another example of the unpredictable nature of wildlife. Populations of grey herons have been on site since Victorian times, but in recent years they have begun to shift their colony, moving from one 'wooded island' to another. Some thought that cormorants were responsible, while others suggested that 'it wasn't the cormorants that did it…. as I understand it, some photographer was trying to get a hide up there and disturbed them all [herons] and they [the herons] moved on' (Rodney, 50s, birdwatcher). Others thought that the herons 'could've been affected by the issues with the fish, here particularly, if there has been a bit of a die-off. Could be disturbance. Could just be that the population is declining for some reason… or they've moved elsewhere. There's a lot of things and it'll take time to fully understand it' (project ecologist, Walthamstow Wetlands). Again, it may never be fully understood, for there will always be aspects of nonhuman lives that are shrouded in mystery.

Appendix 10. The aftermath of renaturing – Walthamstow Wetlands

Whilst it was beyond the scope (and time) of this study to assess the consequences of increased visitor numbers to Walthamstow (either in terms of new relations produced or alterations to species assemblages) it was clear that dynamics were shifting and the angling community particularly were beginning to notice them. On one of my final visits to the Wetlands as part of the research (October 2017) I was brought into a conversation between two fishermen who had been fishing there since the 1950s. Although their comments need to be taken in context, with an awareness of their nostalgia and place-attachment (Drenthen, 2009), they are nonetheless provocative:

Field observations, October 2017

'It's all changed. You've got groups of 20 people walking around and all the wildlife is leaving' (Del Boy)

'I haven't seen the swans for ages, they've all gone… and the foxes, they don't come anymore' (Joe)

'No I don't seem them no more… we used to get squirrels sitting next to us, eating with us… not anymore' (Del Boy)

'A kingfisher would just land on the end of your fishing rod… and a goose would come under your umbrella when it rained….' (Joe)

'Foxes would come right up to you… pinched my sandwiches from my boot once… I didn't mind though' (Del Boy)

'And those big beautiful trees by the little bridge over the Coppermill [stream] – why did they take those out? OK they wanted to put in wildflowers, fine, but why couldn't they have left the trees? They were so beautiful in the autumn, bright red leaves….' (Joe)

> *They are speaking in the past tense 'Yeah it's a disaster this project …. I don't know why they couldn't just have a called it "wetlands" and left it as it was, with all the wildlife as it was…' (Del boy)*
>
> *'Such a shame. People will stop coming. Have you noticed [speaking to Del Boy] – I don't even see bird watchers coming here anymore' (Joe)*
>
> *'I don't know why they're putting gorse in along there… It used to be all blackberries along here and we used to have birds along here eating it and things underneath… Now all you'll get is rats and mink…' (Tony, angler).*
>
> *'Not sure what likes gorse… Not even foxes would go in there, it's too prickly' (Reggie, bailiff, Thames Water).*

What these comments reveal is there was much contestation over whether the changes at Walthamstow Wetlands were 'ecological'. The comments also reveal that anglers felt decisions to either 'enhance' or 'conserve' were not necessarily made with an awareness of wider ('invisible') ecologies – ecologies that only anglers would be familiar with having spent much time observing, in some cases for over fifty years, wildlife from a place of relative stillness (Bear and Eden, 2011). Relatedly, the comments reveal that certain groups (mostly anglers) were pushed to the fringes of conservation and as a result, local/lay knowledges were little incorporated into the process of making an 'urban nature reserve'.

Appendix 11. The Tottenham Heron

Every day, this heron (below) would wait patiently below a block of flats in Tottenham, northeast London. It was fed canned fish by a local resident, who would throw the fish from her balcony.

References

Abercrombie, P. & Watson, J. (1943) *A Plan for Plymouth*. Plymouth: Underhill

Abercrombie, P. (1945) *Greater London Plan 1944*. London: HMSO.

Abrahamsson, S., Bertoni, F., Mol, A. & Ibánez, M. (2015) 'Living with Omega-3: New Materialism and Enduring Concerns.' *Environment and Planning D: Society and Space.* 33(1): 4-19

Adams, L. (2005) 'Urban Wildlife Ecology and Conservation: A Brief History of the Discipline.' *Urban Ecosystems*. 8: 139–56.

Adams, L. & Leedy, E. (eds) (1991) *Wildlife Conservation in Metropolitan Environments*. Columbia. MD: National Institute for Urban Wildlife.

Adams, W. & Mulligan M (2003) *Decolonizing Nature: Strategies for Conservation in a Postcolonial Era.* Routledge

Adams, W. (1997) *Rationalisation and conservation: ecology and the management of nature in the United Kingdom*. Transactions

Adams, W. (ed) (2008) *Conservation*, Routledge

Adams, W., & Hutton, J. (2007) 'People, parks and poverty: political ecology and biodiversity conservation.' *Conservation and society*. 5(2) 147-183.

Adams, W., 2003. *Future Nature: a vision for conservation*. Revised edition. Earthscan. 250pp

Adams, W., 2004. *Against Extinction: the story of conservation*. Earthscan. 311pp.

Adams, W., 2014. '*Conservation. The value of valuing nature*.' Science, v. 346, p.549-551.

Adams, W., Hodge, I. & Sandbrook, L. (2014) 'New spaces for nature: The re-territorialisation of biodiversity conservation under neoliberalism in the UK.' *Transactions of the Institute of British Geographers*. v.39, p.574-588.

Adger, W., J. Barnett, J. Chapin, F. & Ellemor, H. (2011) 'This must be the place: underrepresentation of identity and meaning in climate change decision-making.' *Global Environmental Politics* 11(2): 1–25.

Agnoletti, M. (ed) (2006) *The Conservation of Cultural Landscapes*. CAB International, Wallingford, Oxon, UK

Agrawal, A. (2005) *Environmentality: technologies of government and political subjects*. Duke Press.

Agrawal, A. & K. Redford (2009) 'Place, conservation, and displacement.' *Conservation and Society* 7(1): 56–58.

Agrawal, A. & Redford, K. (2006) *Poverty, Development and Biodiversity Conservation: Shooting in the Dark?* Working Paper No. 26, Wildlife Conservation Society

Aisher, A., & Damodaran, V. (2016) 'Introduction: Human-nature Interactions through a Multispecies Lens.' *Conservation and Society*, 14(4) 293-304

Alexandra, J. (2001) 'Life-Fulfilling Ecosystem Services.' *Natural Assets: An Inventory of Ecosystem Goods and Services in the Goulburn Broken Catchment.* C. Binning, S. Cork, R. Parry & D. Shelton. (Eds) Canberra, CSIRO Sustainable Ecosystems, 60 – 63.

Allan, J., Kirby, J. & Feare, C. (1995) 'The biology of the Canada Goose Branta canadensis in relation to the management of feral populations.' *Wildlife Biology* 1:129-143

Allen, T. & Hoekstra, T. (1992) *Toward a Unified Ecology.* New York: Columbia University Press.

Allison, S. (2012) *Ecological Restoration and Environmental Change: Renewing Damaged Ecosystems.* Earthscan Press, a division of Routledge, Abingdon, UK. [eBook]

Allman, D. (2015) 'Community centrality and social science research.' *Anthropology & Medicine.* 22:3, 217-233

Amin, A. & Thrift, N. (2002) *Cities: reimagining the urban.* Malden. MA: Polity.

Amit, V., & Rapport, N. (2002) *The Trouble with Community: Anthropological Reflections on Movement, Identity and Collectivity.* London; Sterling, Virginia: Pluto Press

Amoore, L., (2013) *The politics of possibility: Risk and security beyond probability.* Duke University Press

Anderson, K. (2003) 'White Natures: Sydney's Royal Agricultural Show in Post-humanist Perspective, *Transactions of the Institute of British Geographers* 28: 422 – 41 .

Anderson, B. & Harrison, P. (2012) *Taking Place: Non-Representational Theories and Geography.*

Anderson, B., (2010) Preemption, precaution, preparedness: Anticipatory action and future geographies. *Progress in Human Geography*, 34(6) pp.777-798.

Anderson, J. (2004) Talking whilst walking: a geographical archaeology of knowledge *Area* 36 254-61

Anderson, K. (1997) A walk on the wild side: a critical geography of domestication. *Progress in Human Geography* 21: 463-485

Andersson, E. 2006. Urban landscapes and sustainable cities. *Ecology and Society* 11(1): 34. [online] URL: http://www.ecologyandsociety.org/vol11/iss1/art34/

Anon. (2013) ' Who, What and, Why: Are Urban Fox Numbers Rising ?.' available online at www.bbc.co.uk/news/magazine-21409631, accessed 11 February 2013.

Apostolopoulou E. and Adams, W. M. (2017) Biodiversity offsetting and conservation: reframing nature to save it. *Oryx* 51:23-31

Appleby, M. (2012) 'Gardens: wildflowers at the Olympic Park.' [online]. Available at: https://www.theguardian.com/lifeandstyle/2012/jul/20/gardens-wildflowers-olympic-park (accessed 16/05/18)

Arkette, S. (2004) Sounds like the city. *Theory Cult. Soc.* 21 (1) 159e168.

Arts, K., Fischer, A., & van der Wal, R. (2016) Boundaries of the wolf and the wild: A conceptual examination of the relationship between rewilding and animal reintroduction. *Restoration ecology*, 24(1) 27-34.

Asafu-Adjaye, J, Blomqvist L, Brand S, et al. (2015) *An Ecomodernist Manifesto*. Oakland, CA: Breakthrough Institute.

Baker, H. (1985): The status of the Canada Goose in the London Area.-*London Bird Report* 49: 111–126

Baker, P.J, Dowding, C.V., Molony, S.E., White, P.C.L., & Harris, S. (2007) ' Activity Patterns of Urban Red Foxes (Vulpes vulpes)Reduce the Risk of Traffi c-Induced Mortality.' *Behavioral Ecology* 18 (4): 716 – 24 .

Bakker, K (2010) The limits of ''neoliberal natures'': Debating green neoliberalism. *Progress in Human Geography* 34: 715–735.

Banzhaf, S. Walsh, R. (2006) 'Do People Vote with Their Feet? An Empirical Test of Environmental Gentrification'; *Resources for the Future*: Washington, DC, USA

Barley, S. (2010) 'Toxic waste clean-up on Olympic site cost taxpayers £12.7m.' The Guardian, 12 November 2010. [online]. Available at: https://www.theguardian.com/environment/2010/nov/12/toxic-waste-clean-up-olympic (accessed 04/04/18)

Barry, J. (1999) *Rethinking Green Politics: Nature, Virtue and Progress*. SAGE.

Barua, M. (2014a) Volatile Ecologies: Towards a material politics of human-animal relations' *Environment and Planning A* (46:6)

Barua, M. (2014b) 'Bio-geo-graphy: Landscape, dwelling and political ecology of human-elephant relations' *Environment and Planning D: Society and Space* (32): 915-934

Barua, M. (2014c) Circulating elephants: Unpacking the geographies of a cosmopolitan animal. *Transactions of the Institute of British Geographers* 39: 559–573.

Barua, M. (2015) Encounter: Living lexicon for the environmental humanities. *Environmental Humanities* 7: 265–270.

Barua, M. (2016) Lively commodities and encounter value *Environment and Planning D: Society and Space*, Vol. 34(4) 725–744

Barua, M. (2017) Nonhuman labour, encounter value, spectacular accumulation: the geographies of a lively commodity. *Transactions of the Institute of British Geographers*. Volume 42, Issue2: 274-288

Barua, M. & Jepson, P. (2010) The Bull of the Bog: Bittern Conservation Practice in a Western Bio-cultural Setting in *Ethno-ornithology: Birds, Indigenous peoples, culture and society* by Tidemann, S. & Gosler, A. (eds)

Barua, M. & Sinha, A. (2017) Animating the urban: an ethological and geographical conversation. *Social & Cultural Geography.*

Barua, M., (2011) Mobilizing metaphors: the popular use of keystone, flagship and umbrella species concepts. *Biodiversity and Conservation*, v. 20, p.1427-1440

Barua, M. (2018). Animal Work: Metabolic, Ecological, Affective. *Cultural Anthropology*.

Bastian, M., 2012. Fatally confused: telling the time in the midst of ecological crises. *Environmental Philosophy*, 9(1) pp.23-48.

Baxter, A & Hart, J (2010) A Review of Management Options for Resolving Conflicts with Urban Geese, *Bird Management Unit*, York

Baynes-Rock, M. (2013) Life and death in the multispecies commons. *Social Science Information*, 52(2) 210-227.

Bear, C. & Eden, S. (2011) Thinking like a fish? Engaging with nonhuman difference through recreational angling. *Environment and Planning D-Society & Space* 29(2): 336–352

Beard, R. (2007) Interviews with Wildlife Sound Recordists, online at [https://sounds.bl.uk/Environment/Interviews-with-wildlife-sound-recordists-/022M-C1627X0001XX-0001V0]

Beattie, G. (2009) 'Canada Geese' [unpublished].

Beery, T. (2014) 'People in Nature: Relational Discourse for Outdoor Educators.' *Research in Outdoor Education*. Volume 12, pp. 1-14

Beery, T. & Wolf-Watz, D. (2014) 'Nature to place: Rethinking the environmental connectedness perspective' *Journal of Environmental Psychology* Volume 40, pp 198-205

BELL, S., THOMPSON, C. W. & TRAVLOU, P. (2003) Contested views of freedom and control: Children, teenagers and urban fringe woodlands in Central Scotland. *Urban Forestry & Urban Greening*, 2, 87-100

Bennett, J. (1994) *Thoreau's Nature: Ethics, Politics, and the Wild*, New York: Sage .

Bennett, J., (2009) *Vibrant matter: A political ecology of things*. Duke University Press.

Bennett, M. & D. Teague (eds) (1999) *The Nature of Cities*, Tuscon: University of Arizona Press .

Berger, J. (1980) *Why Look at Animals?* Harmondsworth: Penguin.

Biermann, C., & Anderson, R. M. (2017) Conservation, biopolitics, and the governance of life and death. *Geography Compass*, 11(10)

Biermann, C., & Mansfield, B. (2014) Biodiversity, purity, and death: conservation biology as biopolitics. *Environment and Planning D: Society and Space,* 32(2) 257-273.

Bingham, N., Enticott, G. & Hinchliffe, S., (2008). *Biosecurity: spaces, practices, and boundaries*. SAGE.

Bird Rose, D. (1996) Nourishing terrains: Australian Aboriginal views of landscape and wilderness, *Australian Heritage Commission*, Canberra

Bird Rose, D. (2011) 'Flying Fox: Kin, Keystone, Kontaminant.' *Australian Humanities Review* 50: 119-36

Bird Rose, D. (2012) 'Cosmopolitics: The Kiss of Life.' *New Formations*, no. 76: 101–13.

Bird Rose, D. (2012) Multispecies knots of ethical time. *Environmental Philosophy*, 9(1) pp.127-140.

Bird Rose, D. (2013) 'Anthropocene Noir.' *Conference: Transforming the Future,* RMIT University, Melbourne, Australia, 2–4 July.

Bird Rose, D. (2013) 'Death & Grief in a World of Kin.' In *The Handbook of Contemporary Animism*, edited by Graham Harvey, 137–47. Durham, UK: Acumen.

Bird Rose, D. & Fincher, R. (eds) (2015) *Manifesto for Living in the Anthropocene*. Brooklyn, NY: Punctum Books.

Bonthoux, S., Brun, M., Di Pietro, F., Greulich, S., Bouché-Pillon, S., (2014) How can wastelands promote biodiversity in cities? A review. *Landscape and Urban Planning* 132, 79–88

Botkin, D (1990) *Discordant Harmonies: A New Ecology for the Twenty-First Century*. New York: Oxford University Press

Bowen, G. (2009) 'Document Analysis as a Qualitative Research Method.' *Qualitative Research Journal*, Vol. 9 Issue: 2, pp.27-40

Bowker, G (2005) Time, money and biodiversity. In: Ong A and Collier S (eds) *Global Assemblages: Technology, Politics, and Ethics as Anthropological Problems*. Oxford: Blackwell, 107–123.

Bowler, D., Buyung-Ali L., Knight, T. & Pullin, A. (2010) A systematic review of evidence for the added benefits to health of exposure to natural environments. *BMC Public Health* 10 (456) 1-10

Boyd, C., Duffy, M. (2012) Sonic geographies of shifting bodies *Interference. A J. Audio Cult*. Online: www.interferencejournal.com/articles/a-sonicgeography/sonic-geographies-of-shifting-bodies

Bradley, J. (2006) 'The Canada Goose.' Chelsea Clubhouse Publishers.

Bradley, R. (2000) *An Archaeology of Natural Places*. Routledge.

Braun, B (2008) 'Environmental issues: global natures in the space of assemblage' *Progress in Human Geography* 30(5): 644-654.

Braun, B. & Castree, N. (eds) (1998) *Remaking Reality: Nature at the Millenium*, London: Routledge.

Braun, B. (2003) Nature and Culture: On the Career of a False Problem, in J. S. Duncan, N. C. Johnson and R. H. Schein, (eds) *A Companion to Cultural Geography*, Oxford: Blackwell, 149-179.

Braun, B. (2005) 'Environmental Issues: Writing a More-than-Human urban Geography.' *Progress in Human Geography* 29.5: 635 – 50.

Braun, B. (2006) 'Environmental Issues: Global Natures in the Space of Assemblage' *Progress in Human Geography* 30, No.5 (2006): 644-54

Braun, B. (2015) 'Rethinking political ecology for the Anthropocene' in Perreault, T., Bridge, G., McCarthy, J., (eds) *The Routledge Handbook of Political Ecology*. London: Routledge, pp. 102-115.

Braun, B. (2008). Environmental issues: inventive life. *Progress in Human Geography*, 32(5) pp.667-679.

Braun, H. (2013). Turning a deaf ear? Industrial noise and noise control in Germany since the 1920s. In: Pinch, Trevor, Bijsterveld, Karin (Eds.) *The Oxford Handbook of Sound Studies*. Oxford University Press, Oxford & New York, pp. 58e78.

Braverman, I (2015) *Wild Life: The Institution of Nature*. Stanford University Press.

Braverman, I. (2013) *Zooland*, Stanford, CA: Stanford Law Books .

Bravermann, (2015) *En-listing Life: Red is the color of threatened species lists Critical Animal Geographies: Politics, Intersections and Hierarchies*. Edited by Gillespie and Collard. Routledge.

Britton, P. (2016) 'Canada geese – Britain's most hated bird?.' Pitchcare Magazine, 26 May 2016. [online]. Available at: https://www.pitchcare.com/news-media/canada-geese.html (accessed 15/04/18)

Brockington, D & Duffy, R. (eds) (2011) *Conservation and Capitalism*. Wiley-Blackwell, Oxford

Brockington, D. (2002). F*ortress Conservation. The preservation of the Mkomazi Game Reserve*. James Currey, African Issues series, Oxford.

Brockington, D., Duffy, R. & Igoe, J. 2008. *Nature Unbound. Conservation, Capitalism and the Future of Protected Areas*. Earthscan, London

Brown, L., & Durrheim, K. (2009) Different Kinds of Knowing: Generating Qualitative Data Through Mobile Interviewing. *Qualitative Inquiry*-QUAL INQ. 15. 911-930

Brownlow, Alec. 2000. 'A Wolf in the Garden: Ideology and Change in the Adirondack Landscape.' Pp.141–58 in *Animal Spaces, Beastly Places: New Geographies of Human-Animal Relations*, ed. C. Philoand C. Wilbert. London: Routledge.

Buglife (2016) 'Plymouth city centre gets a buzzing boost.' [online news]. Available at: https://www.buglife.org.uk/news-and-events/news/plymouth-city-centre-gets-a-buzzing-boost (Accessed 01/08/18)

Buglife 'B-Lines: Pollinator Factsheet.' [online]. Available at: https://www.buglife.org.uk/b-lines-hub (accessed 17/10/18)

Buller, H. (2004) ' Where the Wild Things Are: The Evolving Iconography of Rural Fauna.' *Journal of Rural Studies* 20: 131 – 41 .

Buller, H. (2008) Safe from the wolf: biosecurity, biodiversity, and competing philosophies of nature. *Environment and Planning A*, 40(7) 1583-1597.

Buller, H. (2014a) Animal Geographies I *Progress in Human Geography* 2014, Vol. 38(2) 308–318

Buller, H. (2014b) Reconfiguring wild spaces: the porous boundaries of wild animal geographies. In Marvin G, McHugh S (Eds.) *Routledge Handbook of Human-Animal Studies*, London: Routledge, 233-245

Buller, H. (2015) Animal Geographies II: Ethics *Progress in Human Geography* 2015, Vol. 39(3) 374–384

Buller, H. (2016) Animal Geographies III: Methods *Progress in Human Geography* 2016, Vol. 40(3) 422–430

Bunce, S. (2018) *Sustainability Policy, Planning, and Gentrification in Cities* Earthscan/Routledge, Abingdon, UK

Burger, J, Gochfeld M. (2009) Exotic Monk Parakeets (Myiopsitta monachus) in New Jersey: nest site selection, rebuilding following removal, and their urban wildlife appeal. *Urban Ecosystems*. 2009;12:185–196

Buscher, B., Sullivan, S., Neves, K., Igoe, J. & Brockington, D. (2012) Towards a synthesized critique of neoliberal biodiversity conservation. *Capitalism Nature Socialism* 23 (2) pp. 4-30.

Byrne, J., Wolch, J. & Zhang, J. (2009) Planning for environmental justice in an urban national park, *Journal of Environmental Planning and Management*, 52:3, 365-392

C.R.Warren, 'Perspectives on the 'Alien' versus 'Native' Species Debate: A Critique of Concepts, Language and Practice.' *Progress in Human Geography*, 31(4) 2007, pp. 427–46

CABE (2007) 'Spaceshaper Toolkit.' [online]. Design Council. Available at: https://www.designcouncil.org.uk/resources/guide/spaceshaper-users-guide (accessed 31/11/2016)

CACHELIN, A., NORVELL, R., & DARLING, A. (2010) Language Fouls in Teaching Ecology: Why Traditional Metaphors Undermine Conservation Literacy. *Conservation Biology*, 24(3) 669-674

Caffyn, A., Prosser, B. (1998) A review of policies for 'quiet areas' in the National Parks of England and Wales. Leis. Stud. 17 (4) 269e291

Cahill, S. 1990. 'Childhood and public life: reaffirming biographical divisions.' *Social Problems*, vol. 37, no. 3, pp. 390–402

Callicott, J., Crowder, L. & Mumford, K. 'Current Normative Concepts in Conservation.' *Conservation Biology*, 13(1) 1999, pp. 22–35

Callicott, J.B. & Nelson, M.P. eds., 1998. *The great new wilderness debate*. University of Georgia Press.

Calvário, R. Velegrakis, G. & Kaika, M. (2017) The Political Ecology of Austerity: An Analysis of Socio-environmental Conflict under Crisis in Greece, *Capitalism Nature Socialism*, 28:3, 69-87

Canguilhem, G. 2001 The living and its milieu. *Grey Room* 3: 7 – 31

Carignan, V, Villard M (2002) Selecting indicator species to monitor ecological integrity: a review. *Environ Monit Assess* 78:45–6

Casagrande, D. & Vasquez, M (2010) Restoring for Cultural-Ecological Sustainability in Arizona and Connecticut.' In Hall, M (ed) *Restoration and History: The Search for a Usable Environmental Past*. Routledge

Casey, E. (1993) *Getting Back into Place: Toward a Renewed Understanding of the Place-World*. Bloomington, IN: Indiana UP.

Casey, E. (1996) 'How to get from space to place in a fairly short stretch of time: Phenomenological Prolegomena'. *Senses of place* Feld & Basso (Eds).

Cassidy, R. & Mullin M. (2007) *Where the Wild Things are Now: Domestication Reconsidered*. Oxford: Berg.

Castree, N (2010) Neoliberalism and the biophysical environment 2: Theorising the neoliberalisation of nature. *Geography Compass* 4: 1734–1746.

Castree, N. (2005) *Nature*, London: Routledge.

Castree, N. (2013) '*Making sense of nature*.' London: Routledge

Castree, N. (2014a) 'Anthropocene I: The Back Story.' *Geography Compass*. Vol 8. Issue 7. pp 436-449.

Castree, N. (2014b) 'Anthropocene II: Current Contributions.' *Geography Compass*. Vol 8. Issue 7. pp 450-463

Castree, N. (2014c) 'Anthropocene III: Future Directions.' *Geography Compass*. Vol 8. Issue 7. pp 464-476

Castree, N. & Braun, B. (eds) (2001) *Social Nature: Theory, Practice and Politics*, Oxford, Blackwell.

Castree, N. & Braun, B. (2006) Constructing Rural Natures, in Cloke, P., Marsden, T. & Mooney, P. H. (eds) *Handbook of Rural Studies*, London: Sage.

Chadd, R. & Taylor, M. (2016) *Birds: Myth, Lore and Legend*. Bloomsbury Natural History

Chapman, R. 2006. 'Ecological restoration restored.' *Environmental Values* 15: 463–478

Cheney, J. & Anthony Weston. 'Environmental Ethics as Environmental Etiquette.' *Environmental Ethics* 21, no. 2 (1999): 115–34.

Chrulew, (2011) Managing love and death at the zoo: the biopolitics of endangered species preservation. *Australian Humanities Review* 50: 135-157

Clancy, C. (2017) 'London's National Park City: Towards a new urban ecosystem.' *ECOS: A review of conservation*. 38(6) [online]. Available at: https://www.banc.org.uk/ecos-38-6-londons-national-park-city/. (Accessed 12/12/17)

Clark, A & Emmel, N (2009) 'The Methods Used in Connected lives: Investigating Networks, Neighbourhoods and Communities.' *Qualitative Researcher* 11 9–11

Clarke, A. (2005) *Situational Analysis: Grounded Theory after the Postmodern Turn*. SAGE.

Clarke, P. (2011) *Ernesettle history*. [written historical notes, unpublished].

Cloke, P. & Jones, O. (2003) 'Grounding Ethical Mindfulness for/in Nature: Trees in Their Places.' *Ethics, Place and Environment*. 6:3, 195-213

Closs Stephens, A. & Squire, V. (2012a) 'Citizenship without community?.' *Environment and Planning D: Society and Space*. 30: 434-6

Closs Stephens, A., & Squire, V. (2012b) 'Politics through a web: citizenship and community unbound.' *Environment and Planning D: Society and Space*, 30: 551-67

Cocker, M. & Mabey, R. (2005) *Birds Britannica*. London: Chatto & Windus

Coles, J. (2015) 'Why wildflowers are worth saving.' BBC NEWS. [online]. Available at: http://www.bbc.co.uk/earth/story/20150702-why-meadows-are-worth-saving (accessed 16/05/18)

Collard, R. & Gillespie, K. (2015) *Critical Animal Geographies: Politics, Intersections and Hierarchies in a Multispecies World*. Routledge.

Collard, R. & Dempsey, J. (2013) 'Life for sale? The politics of lively commodities.' *Environment and* Planning A 45(11): 2682-2699

Collard, R. (2013) 'Putting animals back together, taking commodities apart' *Annals of the Association of American Geographers* 104 151–65

Collard, R. (2018) 'Disaster Capitalism and the Quick, Quick, Slow Unravelling of Animal Life.' *Antipode*. Volume 50, Issue 4, pp 910-928.

Collard, R.C., J. Dempsey, & J. Sundberg. 2014. 'A manifesto for abundant futures.' *Annals of the Association of American Geographers* 105(2): 322-330.

Cook, I., Cloke, P., Crang, P., Philo, C., Goodwin, M. & Painter, J. (2007) *Practising human geography*. London, Sage

Cook, I. (2005) 'Participant Observation' in Flowerdew, R. & Martin, D. *Methods in human geography: a guide for students doing research projects*. Routledge, pp167-188

Coole, D. & Frost, S. (2010) Introducing the New Materialisms. In: Coole D & Frost S (eds) *New Materialisms: Ontology, Agency and Politics*. Durham and London: Duke University Press.

Cooney, R. & Dickson, B. (2012) *Biodiversity and the Precautionary Principle: Risk, Uncertainty and Practice*. Routledge.

Cooper, C., Dickinson, J., Phillips, T. & Bonney, R. (2007) Cooper CB, J. Dickinson, T. Phillips, & R. Bonney. 2007. 'Citizen Science as a Tool for Conservation in Residential Ecosystems.' *Ecology and Society* 12(2):11. Ecology and Society. 12. 11.

Cooper, G (2001) 'Must There Be A Balance of Nature?' *Biology & Philosophy*. (2001) 16: 481

Cope, M. (2009) 'A History of Qualitative Research in Geography.' in DeLyser, D. Herbert, S., Aitken, S. Crang, M. & McDowell, L. (eds) *The SAGE Handbook of Qualitative Geography* London: SAGE pp.25–46

Corbin, J., & Strauss, A. (2008) *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory* (3rd ed.) Thousand Oaks, CA: Sage

Corcoran, J., Halsey, C., Spurr, G., Burton, E. & Jamieson, D. (2011) 'Mapping past landscapes in the lower Lea valley: A geoarchaeological study of the Quaternary sequence.' *Museum of London Archaeology*. MOLA Monograph 55.

Corlett, R. (2013) 'The shifted baseline: prehistoric defaunation in the tropics and its consequences for biodiversity conservation.' *Biological Conservation* 163, 13–21.

Cowx, I. (2013) *Between fisheries and bird conservation: the cormorant conflict*. Report for European Parliament: Directorate-General for Internal Policies of the European Union. [online]. Available at: http://ec.europa.eu/environment/nature/cormorants/files/Cowx_Report_for_Parliament.pdf accessed 18/07/18)

Crang, M. & Cook, I. (1995) *Doing ethnographies*. Norwich: Geobooks

Cresswell, T. (2007) *Place: A short introduction*. Malden, MA: Blackwell Publishing

Cronon, (1995) 'The Trouble with Wilderness; or, Getting Back to the Wrong Nature.' *Uncommon Ground: Rethinking the Human Place in Nature*. New York: W. W. Norton & Co. pp69-90

Crooks K. R., & Sanjayan M. A. (2006) *Connectivity conservation*. Cambridge: Cambridge University Press

Crowley, S. L., Hinchliffe, S., & McDonald, R. A. (2017) 'Nonhuman citizens on trial: The ecological politics of a beaver reintroduction.' *Environment and Planning A*, 49(8) 1846-1866.

Croxall, J.P., Butchart, S.H.M., Lascelles, B., Stattersfield, A.J., Sullivan, B., Symes, A., Taylor, P. (2012). Seabird conservation status, threats and priority actions: a global assessment. *Bird Conservation International* 22: 1-34.

Crutzen, P.J. & Stoermer, E.F. 2000. 'The Anthropocene.' *Royal Swedish Academy of Sciences* IGBP Newsletter 41: 17–18

Cuddington, K. (2001) 'The "balance of nature" metaphor and equilibrium in population ecology' *Biology and Philosophy* 16 (4):463-479

Cunliffe, B. (1988) 'Mount Batten, Plymouth. A prehistoric and Roman port.' *Oxford University Committee for Archaeology Monograph 26*. Oxford, Oxford University Committee for Archaeology

Curtis, S., Gesler, W., Smith, G. & Washburn, S. (2000) 'Approaches to Sampling and Case Selection in Qualitative Research: Examples in the Geography of Health.' *Social science & medicine*. 50. 1001-14

Cury, PM., Boyd, I., Bonhommeau, S., Anker-Nilssen, T., Crawford, R., Furness, R. Mills, J., Murphy, E., Osterblom, H., Paleczny, M., Piatt, J., Roux, J., Shannon, L. & Sydeman, W. (2011) 'Global Seabird Response to Forage Fish Depletion--One-Third for the Birds.' *Science*, 334 (6063): 1703

Daily Mail (2006) 'Teenager dies in river boat tragedy.' The Daily Mail, 10 July 2006. [online]. Available at: https://www.dailymail.co.uk/news/article-394968/Teenager-dies-river-boat-tragedy.html (accessed 17/01/18)

Dalby, S. (2016) 'Framing the Anthropocene: The good, the bad and the ugly.' *The Anthropocene Review* 3(1): 33–51

Davis, M.A., Chew, M., Hobbs, R., Lugo, A., Ewel, J., Vermeij, G., Brown, J., Rosenzweig, M., Gardener, M. Carroll, S., Thompson, K., Pickett, S., Stromberg, J., Del Tredici, P., Suding, K., Ehrenfeld, J., Grime, J., Mascaro, J., & Briggs, J. (2011) 'Don't Judge Species on their Origins.' *Nature* 474, no. 7350: pp 153–54.

De Angelis, D., Waterhouse, J. (1987) `Equilibrium and nonequilibrium concepts in ecological models' *Ecological Monographs* 57 1-21

De Sousa, C., (2014) 'The greening of urban post-industrial landscapes: past practices and emerging trends.' *Local Environment*. 19:10, 1049-1067

de Wit, C. (2012) 'Interviewing for Sense of Place.' *Journal of Cultural Geography*. 30:1, 120-144

Deary, H. & Warren, C.R. (2017) 'Divergent visions of wildness and naturalness in a storied landscape: Practices and discourses of rewilding in Scotland's wild places.' *Journal of Rural Studies*. 54, pp.211-222.

Deary, H., & Warren, C. R. (2018) 'Trajectories of rewilding: A taxonomy of wildland management.' *Journal of Environmental Planning and Management*. 1-26.

DEFRA (2001) *SPA Description Tamar Estuaries Complex* [online]. Available at: http://jncc.defra.gov.uk/default.aspx?page=2033 (Accessed 22/03/18)

DEFRA (2005) 'The management of problems caused by Canada geese: a guide to best practice.' Technical Advice Note 51. [online]. Available at: https://webarchive.nationalarchives.gov.uk/20070101104205/http://www.defra.gov.uk/rds/publications/technical/tan_51.pdf. (accessed 15/04/18)

DEFRA (2011) 'Rural-Urban Classification of Local Authority Districts and Similar Geographic Units in England: A User Guide' [online]. Available:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/591465/RUCLAD2011_User_Guide__January_2017_.pdf (accessed 13/07/2017)

DEFRA (2014a) 'New environmental scheme for farmers to prioritise biodiversity' [online]. Available at: https://www.gov.uk/government/news/new-environmental-scheme-for-farmers-to-prioritise-biodiversity (accessed 16/05/18)

DEFRA (2014b) 'The National Pollinator Strategy (2014-2024): for bees and other pollinators in England [Online]. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/409431/pb14221-national-pollinators-strategy.pdf (Accessed 01/08/18)

Del Tredici, P. (2010) 'Spontaneous Urban Vegetation: Reflections of Change in a Globalized World.' *Nature and Culture* 5(3): 299–315

Deleuze, G. & Guatarri, F. (1989) *A Thousand Plateau.,* B. Massumi (trans.) London: Continuum Press

Deleuze, G. & Guattari, F. (2000) 'Anti Oedipus.' *Capitalism and Schizophrenia* Vol. 1: 2. 135

Deleuze, G. & Parnet, C. (2007) *Dialogues II.* Columbia University Press

Delyser, D., Atkin, S., Crang, M. (eds) (2009) *Handbook of Qualitative Research in Human Geography.* London: SAGE

Demeritt, D. (2001a) 'Being constructive about nature.' in N. Castree & B. Braun (eds) *SocialNature: Theory, Practice, and Politics.* Malden, MA: Blackwel

Demeritt, D. (2001b) 'he construction of global warming and the politics of science.' *Annals of the Association of American Geographers.* 91.

Demeritt, D. (2002) 'What is the 'social construction of nature'? A typology and sympathetic critique' *Progress in Human Geography* 26,6 (2002) pp. 767–790

Department for Food Environment and Rural Affairs (2008) 'Invasive Non-Native Species Strategy Invasive.' [online]. Available at: http://www.nonnativespecies.org/home/index.cfm (Accessed 03/03/18)

Department for Work and Pensions (2011) '2011 Census: Key Statistics for Local Authorities in England and Wales.' [online]. Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/2011censuskeystatisticsforlocalauthoritiesinenglandandwales (accessed 14/11/17)

Descola, P., Palsson, G. (Eds.) (1996) *Nature and Society: Anthropological Perspectives.* Routledge, London.

DeSilvey, C., & Bartolini, N. (2018) 'Where horses run free? Autonomy, temporality and rewilding in the Côa Valley, Portugal.' *Transactions of the Institute of British Geographers.*

Desmond, M. (2014) 'Relational Ethnography.' *Theory and Society* 43: 547–579

Despret, V. (2014) 'Domesticating Practices: The Case of Arabian Babblers' in Marvin, G., McHugh, S. (eds) *Routledge Handbook of Human–Animal Studies.*

Despret, V. (2016) *What Would Animals Say if we Asked the Right Questions?* University of Minnesota Press.

DeStefano, S. & DeGraaf, R.M. (2003) 'Exploring the Ecology of Suburban Wildlife.' *Frontiers in Ecology and Environment* 1.2: 95 – 101 .

Devictor, V., Whittaker, R. & Beltrame, C. (2010) 'Beyond scarcity: Citizen science programmes as useful tools for conservation biogeography.' *Diversity and Distributions.* 16. 354-362

Dewsbury, J. D. (2011) 'The Deleuze-Guattarian Assemblage: Plastic Habits.' *Area*/ 43, 148-153

Dewsbury, J., & Naylor, S. (2002) 'Practising Geographical Knowledge: Fields, Bodies and Dissemination.' *Area*, 34(3) 253-260

Diamond, J. (1987) 'Reflections on Goals and on the Relationship between Theory and Practice.' In Jordan, W., Gilpin, M. and Aber, J. (eds) 329–336. Cambridge: Cambridge University Press.

Dickinson, J, Zuckerberg, B & Bonter, D. (2010) 'Citizen Science as an Ecological Research Tool: Challenges and Benefits.' *Annual Review of Ecology and Systematics.* 41. 149-172

Dirzo, R. et al. (2014) 'Defaunation in the Anthropocene.' *Science* 345, 401-406.

Ditchkoff, S., Saalfield, S., & Gibson, C.J. (2006) 'Animal Behaviour in Urban Ecosystems: Modifi cations Due to Human Stress.' *Urban Ecosystems* 9: 5 – 12 .

Dixon, T. (1999) 'Inculcating Wildness: Ecocomposition, Nature Writing, and the Regreening of the American Suburb.' in Bennett, M. & Teague, D. (eds) *The Nature of Cities*, Tuscon: University of Arizona Press.

Dixon, T. (ed) (2002) *City Wilds: Essays and Stories about Urban Nature.* Athens: University of Georgia Press.

Dobson, A. (2003) *Citizenship and the Environment.* Oxford University Press

Dolphijn, R. & van der Tuin. I. (2012) *New Materialism: Interviews & Cartographies.* Ann Arbor: Open Humanities Press.

Donaldson, S. & Kymlicka, W. (2011) *Zoopolis: A Political Theory of Animal Rights*, Oxford: Oxford University Press.

Donlan, J. 2005. 'Re-wilding North America.' *Nature* 436(7053): p. 913-914.

Doward, J. (2012) 'Anglers vs 'the Black Death': cormorants have the edge in battle of the riverbanks.' The Guardian, 11 August 2012. [online]. Available at: https://www.theguardian.com/environment/2012/aug/11/anglers-cormorants-cull (accessed 27/08/18)

Drenthen, M. 2009. Ecological restoration and place attachment: Emplacing non-places? *Environmental Values* 18(3): 285-312

Drenthen, M. (2018) 'Rewilding in Culturally Layered Landscapes.' *Environmental Values* 27, 325-330

Drenthen, M. (2015) 'The return of the wild in the anthropocene. Wolf resurgence in the Netherlands.' *Ethics, Policy & Environment*. 18(3) 318-337.

Duffy, M., Waitt, G. & Harada, T. (2016) 'Making sense of sound: Visceral sonic mapping as a research tool.' *Emotion, Space and Society*. 20 49-57

Duffy, R. (2002) *A Trip Too Far: Ecotourism, Politics and Exploitation*. London: Earthscan.

Duffy, R. (2013) 'The international political economy of tourism and the neoliberalisation of nature: Challenges posed by selling close interactions with animals.' *Review of International Political Economy*. 20(3) 605-626

Duffy, R. (2014) 'Interactive elephants: nature, tourism and neoliberalism.' *Annals of Tourism Research*. 44 88–101

Duffy, R. (2014) 'What Does Collaborative Event Ethnography Tell Us About Global Environmental Governance?' *Global Environmental Politics*. 14(3) 125-131.

Eckerd, A. (2011) 'Cleaning up without clearing out? A spatial assessment of environmental gentrification.' *Urban Aff. Rev.* 47, 31–59

Eden, S. & Bear, C. (2012) 'The Good, the Bad, and the Hands-on: Constructs of Public Participation, Anglers, and Lay Management of Water Environments.' *Environment and Planning A: Economy and Space* Vol 44, Issue 5

Eden, S. (2016) *Environmental publics*. Routledge.

Elden, S. (2010) 'Land, terrain, territory.' *Progress in Human Geography*. 34(6) p. 799-817.

Elden, S. (2013) *The Birth of Territory*. Chicago: University of Chicago Press.

Ellis, E.C. & Ramankutty, N. (2008) 'Putting people in the map: anthropogenic biomes of the world.' *Front. Ecol. Environ.* 6. 439–447

Ellis, EC. (2013) 'Sustaining biodiversity and people in the world's anthropogenic biomes.' *Current Opinion in Environmental Sustainability* 5:368–372.

Ellis, EC., Kaplan, JO., Fuller, DQ., Vavrus, S., Goldewijk, K., Verburg, P (2013) *Used planet: A global history Proceedings of the National Academy of Sciences*. 110 (20) 7978-7985

Elwood, S.A & Martin, D G (2000) ''Placing' interviews: location and scales of power in qualitative research.' *The Professional Geographer*. 52:649-57

Eric, P. (1958) *Origins: A short Etymological Dictionary of Modern English*. Macmillan. 2nd edn.

Ernwein, M. (2017) 'Ecological engineers: ecologies of austerity and the transformation of nonhuman work in landscaping and conservation.' [paper presentation]. *RGS-IBG 2017*. Session 262: 'Political ecologies of austerity: Conservation and park management in an age of austerity.'

Escobar, A. (1998) 'Whose Knowledge, Whose nature? Biodiversity, Conservation, and the Political Ecology of Social Movements.' *Journal of Political Ecology* Vol.5 1998

Essex, S. & Ford, P.(2015) 'Urban regeneration: thirty years of change on Plymouth's waterfront.' *Transactions of the Devonshire Association*. 147. 73-102

European Commission (2016) 'Cormorant ecology –FAQs.' [online]. Available at: http://ec.europa.eu/environment/nature/cormorants/faq.htm (accessed 19/10/18).

Evans, J. & Jones, P. (2011) 'The walking interview: methodology, mobility and place.' *Applied Geography*. 31(2) 849-858.

Evans, P. (1996) 'Biodiversity? Nature for Nerds.' *ECOS*. Vol 17. Issue 2.

Ezzy, D. (2002) *Qualitative analysis: Practice and innovation*. Crows Nest. Australia: Allen & Unwin

Fanon, F. (2004) *The Wretched of the Earth*. New York: Grove Press

Featherstone, D., Ince, A, Mackinnon, D, Strauss, K. & Cumbers, A. (2012) 'Progressive Localism and the Construction of Political Alternatives.' *Transactions of the Institute of British Geographers*. 37. 177-182

Feduccia, A. (1980) *The age of birds*. Cambridge. MA: Harvard University Press

Feduccia, A. (1999) *The origin and evolution of birds*. 2nd edition. New Haven: Yale University Press.

Firth, A., Watson, K. & Ellis, C. (1998) 'Tamar Estuaries Historic Environment: A review of marine and coastal Archaeology.' *Plymouth Archaeology Occasional Publication No.3*. 1998. p8

Fisher, M. (2011) Blog Entry. 10 January 2011 and 17 January 2011. Available online at www.selfwilled- land.org.uk/articles/tayside_beaver.htm. accessed 18 May 2013.

Fitzsimmons, M. (1989) 'Reconstructing Nature.' *Environment and Planning D: Society and Space.* 1989. volume 7. pages 1-3

Fletcher, R. (2010) 'Neoliberal environmentality: towards a poststructuralist political ecology of the conservation debate.' *Conservation and society.* 8(3) 171-181.

Fletcher, R. (2017) 'Environmentality unbound: Multiple governmentalities in environmental politics.' *Geoforum.* 85. pp.311-315.

Foot, S. (1989) *The River Tamar.* Bossiney Books

Foreman, D. (2004) *Rewilding North America: a vision for conservation in the 21st century.* Island Press.

Forsyth, T. (2003) *Critical Political Ecology: The politics of environmental science.* Routledge.

Foucault, M. (2003a) 'So is it important to think?' In: Rabinow, P. & Rose, N. (eds) *The Essential Foucault.* New York: The New Press, p170-173

Foucault, M. (2003b) *Society must be defended: Lectures at the College de France, 1975-1976.* Allen Lane: London.

Foucault, M. (2008) *The Birth of Biopolitics.* Palgrave MacMillan, New York

Foucault, M. (2009) *Security, Territory, Population: Lectures at the College de France, 1977-1978.* Basingstoke: Palgrave Macmillan.

Foucault, M., 1991, 'Governmentality.' In: Burchell, G., Gordon, C., Miller, P. (Eds.) *The Foucault Effect: Studies in Governmentality.* Harvester Wheatsheaf. pp. 87–104.

Francis, R. & Goodman, M. (2010) 'Post-normal science and the art of nature conservation.' *Journal for Nature Conservation* 18: 89—105

Francis, R. A. (2011) 'Wall ecology: A frontier for urban biodiversity and ecological engineering.' *Progress in Physical Geography: Earth and Environment.* 35(1), 43–63

Francis, R. & Chadwick, M. (2012) 'What Makes a Species Synurbic?.' *Applied Geography*, 32, pp.514–21

Francis, R. & Lorimer, J. (2011) 'Urban reconciliation ecology: the potential of living roofs and walls.' *Journal of Environmental Management*, 92(6): 1429-1437.

Francis, R. (2012) 'Positioning urban rivers within urban ecology'. *Urban Ecosystems.* 15. 285-291.

Francis, R., Lorimer, J. & Raco, M. (2011) 'Urban ecosystems as 'natural' homes for biogeographical boundary crossings.' *Transactions of the Institute of British Geographers*, 37(2): 183-190.

Francis. R. (2009) 'Perspectives on the potential for reconciliation ecology in urban riverscapes.' *CAB Reviews: Perspectives in Agriculture, Veterinary Science, Nutrition and Natural Resources* 4, art 73:1–20

Frangsmyr, T. (ed.) (1988) '*Linnaeus: The Man and His Work.*' Berkely; University of California Press

Frederiksen, M., Bregnballe, T., van Eerden, M.R., van Rijn, S. & Lebreton, J-D. (2002) 'Site fidelity of wintering cormorants Phalacrocorax carbo sinensis in Europe.' *Wildl. Biol.* 8: 241-250

Friends of the Earth/Buglife (2016) 'Helping pollinators locally.' [online]. Available at: https://friendsoftheearth.uk/bees/habitats-pollinators (Accessed 01/08/18)

Friends of the Earth/Buglife (2018) 'Councils urged to adopt bee-friendly grass cutting and introduce pollinator action plans.' [online]. Available at: https://www.buglife.org.uk/news-and-events/news/councils-urged-to-adopt-bee-friendly-grass-cutting-and-introduce-pollinator (Accessed 01/08/18)

Fuentes, A. (2007) 'Monkey and human interconnections: The wild, the captive, and the in-between.' In R. Cassidy & M. Mullin (Eds.) *Where the wild things are now: Domestication reconsidered* pp. 123–146. Oxford: Berg

Fuentes, A. (2010) 'Natural Cultural Encounters in Bali: Monkeys, Temples, Tourists, and Ethnoprimatology.' *Cultural Anthropology*. 25, no. 4: 600–24.

Furneaux, R. (1992) *The Tamar: A Great Little River,.* Ex Libris Press

Gabbatis, J. (2018) 'Nearly all British wildflower meadows have been eradicated, prompting calls for urgent government action.' [online]. Available at: https://www.independent.co.uk/environment/wildflower-meadows-farms-agriculture-flowers-environment-brexit-butterflies-bees-defra-a8433541.html (16/05/18)

Gallagher, M. & Prior, J. (2017) 'Listening Walks: A Method of Multiplicity.' In Bates, C. & Rhys- Taylor, A. (eds.) *Walking Through Social Research*. New York and Oxon: Routledge

Gallagher, M., Kanngieser, A. & Prior, J. (2017) 'Listening geographies: Landscape, affect and geotechnologies.' *Progress in Human Geography: an international review of geographical work in the social sciences and humanities*, 41 (5) 618-637

Gammon, A. (2018) 'The Many Meanings of Rewilding.' *Environmental Values*. 27, 331-340

Gandy, M. (2002) *Concrete and Clay: Reworking Nature in New York*. Boston: MIT Press .

Gandy, M. & Jasper, S. (2017) 'Geography, materialism, and the neo-vitalist turn.' *Dialogues in Human Geography.* Vol 7. Issue: pp 140-144.

Gandy, M., (2015) 'From urban ecology to ecological urbanism: an ambiguous trajectory.' *Area*, v. 47, p.150-154

Gandy, M., 2004. 'Rethinking urban metabolism: water, space and the modern city.' *City* 8 (3) 363e379.

Garrett, B. L. (2011) 'Videographic geographies: Using digital video for geographic research.' *Progress in Human Geography*, 35(4) 521-541

Gaston, K. J. (ed) (2010) *Urban Ecology*. Cambridge: Cambridge University Press

Gates, C. (2003) *Ancient cities: the archaeology of urban life in the ancient Near East and Rome*. Routledge, Abingdon.

Gedge, D. & Kadas, G. (2005) 'Green roofs and biodiversity.' *Biologist.* 52. 161-169

Ghose, R. (2005) 'The complexities of citizen participation through collaborative governance.' *Space and* Polity, 9:1, 61-75

Gibson, K., Bird Rose, D. & Fincher, R. (2015) *Manifesto for Living in the Anthropocene*. Punctum Books.

Gibson-Graham, JK. (2006) *A Postcapitalist Politics*. Minneapolis, MN: University of Minnesota Press.

Gibson-Graham, JK. (2011) 'A feminist project of belonging for the Anthropocene.' *Gender, Place and Culture*, 18(1): 1–21.

Gilbert, G., Tyler, G. A. & Smith, K. W. (2002) 'Local annual survival of booming male Great Bittern Botaurus stellaris in Britain, in the period 1990–1999.' *Ibis*, vol 144, pp51–61

Gilbert, G., Tyler, G. A., Dunn, C. J. & Smith, K. W. (2005) 'Nesting habitat selection by bitterns Botaurus stellaris in Britain and the implications for wetland management.' *Biological Conservation,* vol 124, pp547–553

Gillson, L. 2015. Chapter 3: 'Re-wilding and the 6th extinction.' In: *Biodiversity Conservation and Environmental Change; using palaeoecology to manage dynamic landscapes in the anthropocene*. Oxford, OUP, pp. 30-53.

Ginn, F, (2014) 'Sticky lives: slugs, detachment and more-than-human ethics in the garden.' *Transactions of the Institute of British Geographers*, vol 39., pp. 532-544

Ginn, F. (2015) 'When horses won't eat: Apocalypse and the Anthropocene.' *Annals of the Association of American Geographers* 105(2): 351–359.

Ginn, F. (2016) *Domestic Wild: Memory, Nature and Gardening in Suburbia*. Routledge

Ginn, F. & Francis, R (2014) 'Urban greening and sustaining urban natures in London.' in L Lees & R Imrie (eds) *Sustainable London? The future of a global city*. Policy Press, pp. 283-302

Ginn, F., Beisel, U. & Barua, M., (2014) 'Flourishing with Awkward Creatures: Togetherness, Vulnerability, Killing.' *Environmental Humanities*, v. 4, p.113-123

Gobster, P., Hull, R.B. (Eds.) (2000) *Restoring Nature: Perspectives From the Social Sciences and Humanities*. Island Press, Washington

Goode, D. (2014) *Nature in Towns and Cities*, William Collins

Gooley, T. (2014) *How to Connect with Nature*, Macmillan

Gould, J. (2011) 'Plymouth: Vision of a Modern City,. *Historic England*, p41

Green, DR. (1995) *From Artisans to Paupers: Economic Change and Poverty in London, 1790-1870.* Scolar Press

Gregory, R.D., Wilkinson, N. I., Noble, D. G., Robinson, J. A., Brown, A. F., Hughes, J., Procter, D. A., Gibbons, D. W. & Galbraith, C. A. (2002) 'The population status of birds in the United Kingdom, Channel Islands and the Isle of Man: An analysis of conservation concern 2002–2007.' *British Birds*, vol 95, pp410–450

Gremilett, D. (2005) 'Cormorants dive through the polar night.' *Biology Letters* 1: 469-471

Gremilett, D., Wilson, Wanless, S., & Peters, G. (1999) 'A tropical bird in the Arctic (the cormorant paradox).' *Marine ecology Progress Series* 188: 305 – 309

Grey, L. (2008) 'Parakeets now outnumber native British birds after escaping into the wild.' The Telegraph, 27 November 2008)[online]. Available at: https://www.telegraph.co.uk/news/earth/wildlife/3531948/Parakeets-now-outnumber-native-British-birds-after-escaping-into-the-wild.html

Griffiths, C. J., D. M. Hansen, C. G. Jones, N. Zuel, & S. Harris. 2011. 'Resurrecting extinct interactions with extant substitutes'. *Current Biology* 21,762–765.

Gudeman, S. F., & Rivera, A. (1990) *Conversations in Colombia: The Domestic Economy in Life and Text.* Cambridge: Cambridge University Press.

Haas, P. (1992) 'Introduction: Epistemic Communities and International Policy Coordination.' *International Organization*, 46(1) 1-35

Hajer, M. & Zonneveld, W. (2000) 'Spatial Planning in the Network Society – Rethinking the Principles of Planning in the Netherlands.' *iEuropean Planning Studies.* 8

Hall, M. (2014) 'Extracting Culture or Injecting Nature? Rewilding in transatlantic perspective in Josef Kuelarz & Martin Drenthen, eds. *Old World*

and New World Perspectives on Environmental Philosophy. New York: Springer: 17-35.

Hall, M. (Ed) (2010) *Restoration and History: The Search for a Usable Past*. Routledge

Hamilton, C. (2013) *Earthmasters: Playing God with the Climate*. Allen & Unwin.

Hamilton, C. (2015a) 'The technofix is in.' *Earth Island Journal News*, 21 April. Available at: http://www.earthisland.org/journal/index.php/elist/eListRead/the_technofi x_is_in/ (accessed on 21 September 2016)

Hamilton, C. (2015b) 'Getting the Anthropocene so wrong.' *The Anthropocene Review* 2(2):102–107.

Hamilton, C. (2016) 'The Anthropocene as rupture.' *The Anthropocene Review* 3(2): 93–106.

Hance, J. (2012) 'Easing the collateral damage fisheries inflict on seabirds.' The Guardian, 10 August 2012. [online]. Available at: https://www.theguardian.com/environment/2012/aug/10/birds-marine-life (accessed 29/08/18)

Hannigan, J. (1995) *Environmental Sociology: A Social Constructionist Perspective*. London: Routledge

Hansen, D. M., C. J. Donlan, C. J. Griffiths, & K. J. Campbell. 2010.' Ecological history and latent conservation potential: large and giant tortoises as a model for taxon substitutions.' *Ecography* 33:272–284.

Haraway, D. (2000) *How Like a Leaf*. London: Routledge.

Haraway, D. (1988) 'Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective.' *Feminist Studies*, Vol. 14, No.

Haraway, D. (1991) *Simians, Cyborgs, and Women: The Reinvention of Nature*. New York: Routledge.

Haraway, D. (1992) 'The Promises of Monsters: A Regenerative Politics for Inappropriate/d Others' in Grossberg L, Nelson C, Treichler P (eds) *Cultural Studies* (Routledge; New York): 295-337.

Haraway, D. (1997) 'Modest_Witness@Second_Millenium.FemaleMan©_Meets_Oncomouse™' *Feminism and Technoscience*. Routledge; New York & London.

Haraway, D. (2008) *When Species Meet*. Minneapolis: University of Minnesota Press.

Haraway, D. (2011) 'Speculative fabulations for technoculture's generations: Taking care of unexpected country.' *Australian Humanities Review* 50: 182–219.

Haraway, D. (2015) 'Anthropocene, capitalocene, plantationocene, chthulucene: Making kin.' *Environmental Humanities* 6: 159–165.

Haraway, D. (2016) *Staying with the Trouble. Making Kin in the Chthulucene.* Durham and London: Duke University Press.

Haraway, DJ. (1993) 'Teddy Bear Patriarchy: Taxidermy in the Garden of Eden, New York City, 1908–36.' Pp. 49–95 in *Culture/Power/History*. Princeton University Press

Haraway. D. (1991) *Simians, cyborgs, and women: the reinvention of nature.* Routledge.

Harding, S. (1991) *Whose science? Whose knowledge?* New York: Cornell University Press.

Hardman, R. (2008) 'The most loathsome bird in Britain: Robert Hardman says Canada Geese deserve ASBOs.' The Daily Mail, 4 June 2008. [online]. Available at: https://www.dailymail.co.uk/news/article-1024314/The-loathsome-bird-Britain-Robert-Hardman-says-Canada-Geese-deserve-ASBOs.html (accessed 16/04/18)

Hardt, M. & Negri, A. (2000) *Empire.* Cambridge, MA: Harvard University Press

Haringey Council (2011) 'Index of Multiple Deprivation 2010: Headline Report for Haringey.' [online]. Available at: https://www.haringey.gov.uk/sites/haringeygovuk/files/indices_of_deprivation_2010.pdf (accessed 24/02/18)

Harper, K. (2001) 'The Environment as Master Narrative: Discourse and Identity in Environmental Conflicts.' *Anthropological Quarterly* 74(3): pp. 101-103

Harrison, C. & Burgess, J. (1994) ' Social Constructions of Nature: A Case Study of Conflicts over the Development of Rainham Marshes.' *Transactions of the Institute of British Geographers,* 19.3: 291 – 310 .

Harrison, C. & Davies, G. (2002) 'Conserving Biodiversity that Matters: Practitioners' Perspectives on Brownfield Development and Urban Nature Conservation in London.' *Journal of Environmental Management* 65.1: 95 – 108 .

Harrison, R. (2010) *Understanding the politics of heritage*. Manchester University Press.

Harrison, R. (2012) *Heritage: critical approaches.* Routledge

Harrison, R. (2015) 'Beyond 'Natural' and 'Cultural' Heritage: Toward an Ontological Politics of Heritage in the Age of Anthropocene' *Heritage and Society*, Volume 8, Issue 1, p24-42

Harvey, D. (1996) *Justice, Nature and the Geography of Difference*. Oxford: Blackwell .

Harvey, D. (2010) 'Heritage Pasts and Heritage Presents: temporality, meaning and the scope of heritage studies.' *International Journal of Heritage Studies*, Volume 7

Head, L. & Atchison, J. (2015) 'Entangled invasive lives: indigenous invasive Plant Management in northern Australia.' *Geografiska Annaler* Series B. 97 (2): 169-182.

Head, L. & Muir, P. (2004) 'Nativeness, invasiveness and nation in Australian plants.' *The Geographical Review* 94, 199–217.

Head, L., Atchison, J. & Phillips, C. (2015) 'The distinctive capacities of plants: re-thinking difference via invasive species.' *Transactions Institute of British Geographers*, 40(3): 399-413

Head, L., Atchison, J., Phillips, C. & Buckingham, K. (2014) 'Vegetal politics: belonging, practices and places.' *Social and Cultural Geography* 15(8): 861-870.

Head, L., Larson, B., Hobbs, R., Atchinson, J., Gill, C., Kull, C., Rangan, H. (2015) 'Living with Invasive Plants in the Anthropocene: The Importance of Understanding Practice and Experience.' *Conservation & Society*. Vol. 13. Issue 3. pp 311-318.

Healey, P. (2006) *Collaborative planning: Shaping Places in Fragmented Societies.* 2 ed. Palgrave MacMillian

Hearn, R., Watkins, C., & Balzaretti, R. (2014) 'The cultural and land use implications of the reappearance of the wild boar in North West Italy: a case study of the Val di Vara.' *Journal of Rural Studies*, 36, 52-63.

Heathcote, E. (2005) 'The East's New Eden.' The Financial Times, 28 October 2005. [online]. Available at: https://www.ft.com/content/1f97ce60-46ac-11da-b8e5-00000e2511c8 (accessed 04/04/18)

Heinroth, O. (1911) Beitrag zur Biologie, namentlich Ethologie und Psychologie der Anatiden. Ber V. Internat OrnithologKongrBerlin 1910:589–702

Herda-Rapp, A. & Marotz, K. (2005) 'Contested Meanings: The Social Construction of the Mourning Dove in Wisconsin.' in A. Herda-Rapp & T.L. Goedeke (eds) *Mad about Wildlife*, Boston: Brill, pp. 73–122 .

Hess, D. (1997) *Science Studies: An Advanced Introduction*. NYU Press

Heynen, N.C., Kaika, M., Swyngedouw, E., (2005) *In the Nature of Cities: Urban Political Ecology and the Politics of Urban Metabolism.* Routledge

Higgs, E., 2003. *Nature by Design: People, Natural Process, and Ecological Restoration*. The MIT Press, London

Hilderbrand, R, Watts, A, & Randle, A, (2005) 'The myths of restoration ecology.' *Ecology and Society*. 10 (1):19

Hinchliffe, S, (2008) *Geographies of Nature*. London: SAGE

Hinchliffe, S. (1999) Cities and Natures: Intimate Strangers.' in Allen, J., Massey, D & Pryke, M. (eds) *Unsettling Cities*, London: Routledge, pp138 – 76 .

Hinchliffe, S., Kearnes, M., Degen, M., & Whatmore, S. (2005) 'Urban Wild Things: A Cosmopolitical Experiment.' *Environment and Planning D: Society and Space* 23: 643 – 58 .

Hinchliffe, S. & Whatmore, S. (2006) 'Living Cities: Towards a Politics of Conviviality.' *Science as Culture* 15.2: 123 – 38 .

Hinchliffe, S., (2007) *Geographies of nature: societies, environments, ecologies*. Sage.

Hinchliffe, S., Allen, J., Lavau, S., Bingham, N. & Carter, S. (2013) 'Biosecurity and the topologies of infected life: from borderlines to borderlands.' *Transactions of the Institute of British Geographers*, 38(4) pp.531-543.

Hobbs, R., Higgs, E., & Harris, J. (2009) 'Novel ecosystems: implications for conservation and restoration.' *Trends in Ecology & Evolution*. Volume 24, Issue 11

Hobbs, R.J. et al., eds (2013) *Novel Ecosystems: Intervening in the New Ecological World Order*. Wiley–Blackwell

Hodgetts, T. (2017b) 'Connectivity as a multiple: in, with and as 'nature.'' *Area*

Hodgetts, T. (2017c) 'Connectivity.' *Environmental Humanities*, 9:2

Hodgetts, T., (2017a) 'Wildlife conservation, multiple biopolitics and animal subjectification: Three mammals' tales.' *Geoforum*. VOL 79, 17-25

Hoggart, K., Davies, A., Lees, L. (2002) *Researching Human Geography*. Arnold: London.

Holland, A. & Rawles, K. (1993) 'Values in conservation.' *Ecos: A review of conservation* 14:1, (banc)

Holloway L & Morris C (2012) 'Contesting genetic knowledge-practices in livestock breeding: biopower, biosocial collectivities and heterogeneous resistances.' *Environment and Planning D: Society and Space* 30:60-77

Holmes, G. (2015) 'What do we talk about when we talk about biodiversity conservation in the anthropocene?' *Environment and Society*, 6(1) 87-108.

Holmes, G., Sandbrook, C. & Fisher, J. (2016) 'Understanding conservationists' perspectives on the new-conservation debate.' *Conservation Biology*, 31, 2

Holton, Mark & Riley, Mark. (2014) 'Talking on the move: Place-based interviewing with undergraduate students.' *Area*.

Hood, W. 1995. 'Strengthening a Neighborhood Through Stream Restoration.' *Places* 9(3): 46.

Houston, D., Hillier, J., MacCallum, D., Steele, W., & Byrne, J. (2017) 'Make kin, not cities! Multispecies entanglements and'becoming-world'.' *Planning Theory*.

Hovorka, A. (2008) 'Transspecies Urban Theory: Chickens in an African City.' *Cultural Geographies* 15: 119 – 41 .

Howitt, R., Suchet-Pearson, S. & Annaler, G. (2006) 'Rethinking the Building Blocks: Ontological Pluralism and the Idea of 'Management.' *Series B, Human Geography* Vol. 88, No. 3, *Encountering Indigeneity: Re-imagining and Decolonizing Geography*, pp. 323-335

Hudson, P. (ed) (1989) *Regions and Industries: a perspective on the industrial revolution in Britain*. Cambridge University Press

Hudson-Edwards, KA., Macklin, MG., Brewer, PA. & Dennis, IA. (2008) A'ssessment of Metal Mining-Contaminated River Sediments in England and Wales Science.' *Environment Agency Report: SC030136/SR4*

Hutton, J., Dickson, B. & Adams, W.M. (eds.) 2009. *Recreational Hunting, Conservation and Rural Livelihoods*. Wiley-Blackwell. 382pp.

Ibbotson, AT. (1996) *Assessment of the Fishery at Walthamstow Reservoir*

Igoe, J. (2010) 'The spectacle of nature in the global economy of appearances: anthropological engagements with the spectacular mediations of transnational conservation.' *Critique of Anthropology* 30(4): 375-397.

Igoe, J. & Brockington, D. (2007) 'Neoliberal conservation. A brief Introduction.' *Conservation and Society* 5 (4): 432-449.

Imam, K. (2006) 'Role of urban greenway systems in planning residential communities: a case study from Egypt.' *Landscape and Urban Planning* 76,

Indices of Deprivation Explorer (2015) [online]. Available at: http://dclgapps.communities.gov.uk/imd/imd-by-postcode.html (accessed 30/11/17)

Ingold, T. (1983) 'The Architect and the Bee: Reflections on the Work of Animals and Men.' *Man, New Series,* Vol. 18, No. 1 (Mar., 1983) pp. 1-20P. Royal Anthropological Institute of Great Britain

Ingold, T. (2017) 'On human correspondence.' *Journal of the Royal Anthropological Institute* (N.S.) 23, 9-27

Ingold, T. (2000) *The Perception of the Environment: Essays on livelihood, dwelling and skill*. London: Routledge.

Ingold, T. (2008) 'Bindings against boundaries: entanglements of life in an open world.' *Environment and Planning A*

Ingold, T. (2011) *Being Alive: Essays on movement, knowledge and description*. Abingdon: Taylor & Francis.

Ingold, T. (2014) 'That's enough about ethnography.' *Hau* 4 (1):383-395.

Ingold, T. & G. Palsson. (ed) 2013. *Biosocial becomings: integrating social and biological anthropology.* Cambridge University Press

Ingold, T. (2005) 'Epilogue: towards a politics of dwelling.' *Conservation and Society*, 3(2) 501-508

Ingold, T. (2013) 'nthropology beyond humanity.' *Suomen Antropologi: Journal of the Finnish Anthropological Society*, 38(3) 5-23

Jacobs, J. (1992) *The Death and Life of Great American Cities*, New York: Vantage.

Janzen, D H.; Martin, PS. (1982) 'Neotropical Anachronisms: The Fruits the Gomphotheres Ate' *Science* 215 (4528): 19–27.

Jeffries, M. (1997) *Biodiversity and Conservation*. London: Routledge.

Jepson, P. (2016) 'A rewilding agenda for Europe: creating a network of experimental reserves.' *Ecography*, 39

Jepson, P. (2018) 'Recoverable Earth: a twenty-first century environmental narrative.' *Ambio*, 1-8.

Jepson, P. & Barua, M., (2015) 'A Theory of Flagship Species Action.' *Conservation and Society*, v. 13, p.95-95

Jepson, P., & Schepers, F. (2016a) 'Rewilding in a European context.' *International Journal of Wilderness*, 22, 25–30.

Jepson, P., & Schepers, F. (2016b) 'Making space for rewilding: Creating an enabling policy environment' Policy Brief. Oxford/Nijmegen: *Rewilding Europe*. Retrieved from https://www.rewildingeurope.com/wp-content/uploads/2016/05/Making-Space-for-Rewilding-Policy-Brief1.pdf

Jepson, P., Buckingham, K. & Barua, M. (2011) 'What is a conservation actor?' *Conservation and Society*, v. 9, p.229-229

Jerolmack, C. (2007) 'Animal Archaeology: Domestic Pigeons and Nature-Culture Dialectic.' *Qualitative Sociology Review*, 3.1: 74 – 94 .

Jerzac, L. (2001) 'Synurbanisation of the Magpie in the Palearctic.' in Marzluff, J. Bowman, R. & Donnelly, R. (eds) *Avian Ecology and Conservation in an Urbanising World*, Dortrecht: Kluwer, pp. 403–25 .

JNCC (2010) 'Handbook for Phase 1 habitat survey-a technique for environmental audit.' *Joint Nature Conservation Committee.*

Jobling, James A (2010) *The Helm Dictionary of Scientific Bird Names*. London: Christopher Helm. p.301.

Johnston, C. (2008) 'Beyond the clearing: Towards a dwelt animal geography.' *Progress in Human Geography*, 32(5) 633-649.

Jones, O & Cloke, P. (2002) *Tree Cultures: the place of trees and trees in their place.* Oxford ; New York: Berg

Jones, O. (2006) 'Non-Human Rural Studies.' in P. Cloke, P.,Marsden, T. & Mooney, P. (eds) *Handbook of Rural Studies*, London: Sage, pp. 185 – 200 .

Jones, O. (2000) '(Un)ethical geographies of human/non-human relations: encounters, collectives, spaces.' in: Philo, C, & Wilbert, C, (eds) *Animal Spaces, Beastly Spaces: New Geographies of Human–Animal Relations*, London: Routledge, 268–291

Jones, O. (2009) 'Nature-culture.' In: Kitchen, R. & Thrift, N., eds. (2009) *International Encyclopedia of Human Geography.* (7) Elsevier, pp. 309-323. ISBN 9780080449111

Jones, O. & Cloke, P. (2008) 'Chapter 5 Non-Human Agencies: Trees in Place and Time' in Carl Knappett, C. and Malafouris, L. (eds) *Material Agency Towards a Non-Anthropocentric Approach.* Springer

Jones, P., Bunce, G., Evans, J., Gibbs, H (2008) 'Exploring space and place with walking interviews.' *Journal of Research Practice*, 4 (2) Article D2

Jongman, R., Pungetti, G. (2004) *Ecological Networks and Greenways: Concept, Design, Implementation.* Cambridge University Press, Cambridge

Jordan III, W. R. (2003) *The Sunflower Forest: Ecological Restoration and the New Communion with Nature.* Berkeley: University of California Press.

Jørgensen, D., (2015) 'Rethinking rewilding.' *Geoforum* 65, 482–488.

Jowitt, J., Carrell, S. & Vidal, J., (2010) Plan to sell off nature reserves risks 'austerity countryside.' The Guardian, 13th August 2010

Kaika, M. (2004) *City of Flows: Modernity, Nature and the City*, London: Routledge

Kareiva, P & Lalasz, R & Marvier, M. (2012) 'Conservation in the Anthropocene: Beyond Solitude and Fragility.' *Breakthrough Journal.* 2. 29-37.

Kareiva, P., Watts, S. McDonald, R. & Boucher, T. (2007) 'Domesticated nature: shaping landscapes and ecosystems for human welfare.' *Science*,316 5833

Katz, E. (1992) 'The call of the wild: The struggle against domination and the technological fix of nature.' *Environmental Ethics* 14 (3):265-273.

Katz, E. (1996) 'The problem of ecological restoration.' *Environmental Ethics*. 18 (2):222-224.

Kay, J.J.,Regier,H.A.,Boyle,M.,& Francis,G.(1999) 'An ecosystem approach for sustainability: Addressing the challenge of complexity.' *Futures*, 31, 721–742.

Kean, H. (2011) 'Traces and Representations: Animal Pasts in London's Present.' *London Journa.l* 36.1: 54 – 71 .

Keenan, R & Jorgensen, A. (Eds) (2012) *Urban Wildscapes*. Routledge

Kelly, K., & T. Caputo. (2011) *Community: A Contemporary Analysis of Policies, Programs, and Practices.* Toronto: University Of Toronto Press

Kennedy, R, ed. (2000) *A guide to the birds of the Philippines*. Oxford: Oxford University Press

Keulartz, J. (2012) 'The emergence of enlightened anthropocentrism in ecological restoration.' *Nature and Culture*, 7(1) 48-71.

King, R. (2013) *The Devil's Cormorant: A natural history*. Durham: University of New Hampshire Press

Kirksey, E. (2015) *Emergent Ecologies*. Durham, NC: Duke University Press.

Kirksey, S. & Helmreich, S. (2010) 'The Emeregence of Multispecies Ethnography.' *Cultural Anthropology,* 25(4) 545-576. doi: 10.1111/j.1548-1360.2010.01069.

Kirksey, SE., Shapiro, N. & Brodine, M. (2013) 'Hope in blasted landscapes.' *Social Science Information* 52(2): 228–256.

Kitchen, R & Thrift, N (eds.) (2009) 'Nature-Cultures.' *International Encyclopaedia of Human Geography.*

Knight, J. (2000) ' Introduction.' in J. Knight (ed.) *Natural Enemies: People-Wildlife Conflicts in Anthropological Perspective*. London: Routledge, pp. 1 – 35 .

Knights, A, Firth, L, Thompson, R, Yunnie, A, Hiscock, K & Hawkins, S. (2016) Plymouth — A World Harbour through the ages. Regional Studies in Marine Science

Knorr-Cetina, K. (1999) *Epistemic Cultures: How the Sciences Make Knowledge.* Harvard University Press

Kolinsky, H. (2016) *Ernesettle Everyday life in 'a lovely estate':post-war council housing and cultural incorporation 1950-1980*. Unpublished PhD thesis, University of the Arts London and Falmouth University

Kosek, J. (2006) *Understories: The Political Life of Forests in Northern New Mexico*. Durham, NC: Duke, University Press

Krause, B, Gage, SH. & Joo, W. (2011) 'Measuring and interpreting the temporal variability in the soundscape at four places in Sequoia National Park.' *Landscape Ecol.*

Kuemmerle, T., Levers, C., Erb, K., Estel, S., Jepsen, M. & Müller, D. (2016) 'Hotspots of land use change in Europe.' *Environ*. Res. Lett. 11: 064020

Kumar, C. (2005) 'Revisiting 'community' in community-based natural resource management.' *Community Development Journal*, Volume 40, Issue 3, pp275–285

Kusenbach, M. (2003) 'Street phenomenology: The go-along as ethnographic research tool.' *Ethnography* 4: 455–485.

Kushlan, J. A. & H. Hafner (Eds.) 2000. *Heron Conservation*. Academic Press, London

Kvale, S. (2007) *Doing Interviews*. Sage Publications, Thousand Oaks

Lachapelle, P. (2008) 'A Sense of Ownership in Community Development: Understanding the Potential for Participation in Community Planning Efforts.' *Community Development*, 39:2, 52-59,

Lakoff, G. & Johnsen, M. (2003) *Metaphors we live by*. London: The university of Chicago press

Lambert, R. A., (2013) 'Strangers in a familiar land: The return of the native 'aliens' and the (re)wilding of Britain's skies (1850-2010)' in pp169-183) in *Invasive and Introduced Plants and Animals: Human Perceptions, Attitudes and Approaches to Management*, 2013, Rotherham and Lambert (eds): Routledge.

Larsen, P. B., & Brockington, D. (2018) *The Anthropology of Conservation NGOs*. Palgrave Macmillan, Cham.

Larson, B. (2016) 'New Wine and Old Wineskins? Novel Ecosystems and Conceptual Change' *Nature and Culture*

Latham, J., (1785) *A general synopsis of birds – Vol III*. Printed: Leigh, Sotheby, & Son, Covent Garden [1801/1802].

Latimer, J. & Miele, M. (2013) 'Naturecultures? Science, Affect and the Non-human.' *Theory, Culture & Society,* 30 (7-8) pp 5-31.

Latour, B. (2007) *Reassembling the Social.* Oxford: Blackwell .

Latour, B & Woolgar, S. (1979) *Laboratory Life: The Construction of Scientific Facts.'* SAGE, Beverely Hills

Latour, B. (1993) *We Have Never Been Modern* (trans. C Porter) Cambridge, MA: Harvard University Press.

Latour, B. (1999) *Pandora's hope: essays on the reality of science studies*. Harvard University Press)

Latour, B. (2004) 'How to Talk About the Body? The Normative Dimension of Science Studies.' *Body & Society*, SAGE Publications, Vol. 10(2–3): 205–229

Latour, B. (2004) *The Politics of Nature: How to Bring the Sciences into Democracy* (trans. C Porter) Cambridge, MA: Harvard University Press.

Latour, B. (2004b) 'Why Has Critique Run out of Steam? From Matters of Fact to Matters of Concern.' *Critical Inquiry* 2004 30:2, 225-248

Laurier, E & Philo, C. (1999) 'X-morphising: Review essay of Bruno Latour's Aramis, or the love of technology.' *Environment and Planning* A 31:1047–1071.

Laurier, E. (2003) 'Participant Observation.' In N. Clifford, & G. Valentine (Eds.) *Research Methods in Human and Physical Geography*. SAGE Publications Ltd.

Lavau, S. (2011) 'The Nature/s of Belonging: Performing an Authentic Australian River.' *Ethnos*, 76:1, 41-64

Lawson, T. (1997) 'Brent duck.' *ECOS*, 17:27-34. British Association of Nature Conservationists.

Lawton, J.H., Brotherton, P.N.M., Brown, V.K., Elphick, C., Fitter, A.H., Forshaw, J., Haddow, R.W., Hilborne, S., Leafe, R.N., Mace, G.M., Southgate, M.P., Sutherland, W.J., Tew, T.E., Varley, J., & Wynne, G.R. (2010) 'Making Space for Nature: a review of England's wildlife sites and ecological network.' *Report to Defra*.

Lea Valley Regional Park (2016) '50 years of a world class park' [online]. Available at: https://www.leevalleypark.org.uk/en/content/cms/corporate/about-us/news/50-years-of-a-world-class-park/. (Accessed 13/09/18)

Lean, G. (1993) 'Whitehall wages war on Canada geese.' The Independent, 19 December 1993. [online]. Available at: https://www.independent.co.uk/news/uk/whitehall-wages-war-on-canada-geese-1468476.html (accessed 16/04/18)

Leary, JP. (2012) *Detroitism*. Guernica. Web: https://www.guernicamag.com/leary_1_15_11/

Lee, R. 'These Birds Must Be Killed' *Angling Times*, no. 2266, December 4, 1996, p8-9

Lemke, T. (2015) 'New materialisms: Foucault and the 'government of things.'' *Theory, Culture & Society*, 32(4) 3-25.

Lemke, T. (2018) 'An Alternative Model of Politics? Prospects and Problems of Jane Bennett's Vital Materialism. Theory.' *Culture & Society*, 35(6) 31–54

Leopold, A. (1949) *A Sand County Almanac and Sketches Here and There*. Oxford University Press, New York

Lepczyk, CA., Aronson, M., Evans, K., Goddard, M., Lerman, S., Scott, J., 'Biodiversity in the City: Fundamental Questions for Understanding the Ecology of Urban Green Spaces for Biodiversity Conservation.' *BioScience*, Volume 67, Issue 9, 1 September 2017, Pages 799–807MacIvor,

Lestel, D., Bussolini, J. & Chrulew, M. (2014) 'The Phenomenology of Animal Life.' *Environmental Humanities* 5: 125–48

Lethem, J. (2010) *Chronic City.* London: Faber and Faber .

Lewis, J. (2007) *London's Lea Valley: Britain's Best Kept Secret*. Phillimore & Co Ltd.

Lewis, J. (2017) *From Ice Age to Wetlands: The Lea Valley's Return to Nature*. Redshank Books.

Lewis-Williams, D. (2002) *The Mind in the Cave.* London: Thames and Hudson .

Lindenmayer, D. B., & Fischer, J. (2013) *Habitat fragmentation and landscape change: an ecological and conservation synthesis*. Island Press.

Ling Wong, J. (2002-2004) 'Ethnic Community Environmental Participation, Community and Sustainable Development-Participation in the Future.' [online]. Available at: http://www.ben-network.org.uk//uploaded_Files/Ben_1/Ben_file_1_21.pdf (accessed 16/12/18)

Living Wandle Landscape Partnership (2015) 'Canada Goose Management in the Wandle Valley.' [online]. Available at: https://wandlevalleypark.co.uk/wp-content/uploads/2018/01/2015-Summary-of-Goose-Management-in-WV.pdf (accessed 18/07/18)

Lockley, M. (2017) 'Calls for geese cull after HUNDREDS of birds swoop into Birmingham park.' Birmingham Mail, 16 February 2017. [online]. Available at: https://www.birminghammail.co.uk/news/midlands-news/calls-geese-cull-after-hundreds-12586769 (accessed 16/04/18)

London Ecology Unit (1995) *Canada geese in urban areas; problems and legal control methods*. LEU.

London Wildlife Trust (2009) 'Position statement: Ring-necked parakeet.' [online]. Available at: https://www.wildlondon.org.uk/sites/default/files/files/Ring-necked%20parakeets.pdf

London Wildlife Trust (2010) 'Nature Reserves: Policy Statement.' [online]. Available at: http://www.wildlondon.org.uk/sites/default/files/files/Nature%20reserves.pdf (accessed 25/08/18)

London Wildlife Trust (2014a) 'Walthamstow Wetlands: Activity Plan' [unpublished].

London Wildlife Trust (2014b) 'Wonder of the peregrine falcon.' [online news]. Available at: https://www.wildlondon.org.uk/blog/trustadmin/2018/02/21/wonder-peregrine-falcon (accessed 07/07/18)

London Wildlife Trust (2016) 'Tour Guide Summary Script.' [unpublished].

London Wildlife Trust (2017) 'Management of Canada goose (at Walthamstow Wetlands).' Policy statement. [unpublished]

London Wildlife Trust [undated] 'Walthamstow Wetlands – Key natural history and structural features.' [online]. Available at: https://www.wildlondon.org.uk/walthamstow-wetlands-key-natural-history-and-structural-features (accessed 14/08/18)

Lorenz, K. (1966) *On aggression*. New York: Harcourt, Brace & World.

Lorimer, H. (2006) 'Herding Memories of Humans and Animals.' *Environment and Planning* D: Society and Space 2006, volume 24, pages 497 ^ 518

Lorimer, H. (2010). Forces of nature, forms of life: Calibrating ethology and phenomenology. In: Anderson B and Harrison P (eds) *Taking-Place: Non-Representational Theories and Geography*. London: Ashgate, 55–78.

Lorimer, H. (2010) *Taking-Place: Non-representational theories and geography*. In: Ben Anderson and Paul Harrison (2010)

Lorimer, J. (2006) *What about the nematodes? Taxonomic partialities in the scope of UK biodiversity conservation.*

Lorimer, J. (2007) 'Nonhuman charisma.' *Environment and Planning D: Society and Space*, 25(5): 911-932

Lorimer, J. (2008) 'Living Roofs and Brownfield Wildlife: Towards a Fluid Biogeography of UK Nature Conservation.' *Environment and Planning* A 40: 2042 – 60 .

Lorimer, J. (2010) 'Moving image methodologies for more-than-human geographies.' *Cultural Geographies,* 17(2) 237-258.

Lorimer, J. (2012) 'Multinatural geographies for the Anthropocene.' *Progress in Human Geography,* 36(5) 593–612.

Lorimer, J. (2012) 'Touching environmentalisms: The place of touch in the fraught biogeographies of elephant captivity.' *Touching Space, Placing Touch* (pp. 169-189)

Lorimer, J. (2016) T'he Anthropo-scene: A guide for the perplexed.' *Social Studies of Science*. 47.

Lorimer, J. & Driessen, C. (2013) 'Bovine biopolitics and the promise of monsters in the rewilding of Heck cattle.' *Geoforum*, 48: 249-259.

Lorimer, J. & Driessen, C. (2014) 'Wild experiments at the Oostvardersplassen: rethinking environmentalism for the Anthropocene.' *Transactions of the Institute of British Geographers*, 39(2): 169-181.

Lorimer, J. & Driessen, C., 2016. 'From 'Nazi cows' to cosmopolitan 'ecological engineers': Specifying rewilding through a history of Heck cattle.' *Annals of the American Association of Geographers*, 106(3) pp.631-652.

Lorimer, J. (2015) *Wildlife in the anthropocene: conservation after nature*. University of Minnesota Press, Minneapolis MN

Lorimer, J., Hodgetts, T. & Barua, M., 2017. 'Animals' atmospheres.' *Progress in Human Geography*

Lorimer, J., Sandom, C., Jepson, P., Doughty, C., Barua, M., & Kirby, K. J. (2015) 'Rewilding: Science, practice, and politics.' *Annual Review of Environment and Resources*, 40, 39-62.

Loures, L., (2008) 'Industrial Heritage: a gear to redevelopment.' Proceedings of the EURAU 08 – Cultural Landscape, 4th European Symposium on Research in Architecture and Urban Design, January 16-19, 2008, Madrid, Spain, pp. 1-7

Loures, L., (2008a) 'Post-industrial landscapes: dereliction or heritage?' (Conference Paper) 1st WSEAS International Conference on Landscape Architecture, 2008)

Loures, L., (2008b) 'Post-industrial landscapes as renaissance locus: the case study research method' WIT Transactions on Ecology and the Environment, Vol 117, 2008 WIT Press

Louys, J. et al. 2014. 'Rewilding the tropics, and other conservation translocations strategies in the tropical Asia-Pacific region.' *Ecology and Evolution* 4(22): 4380– 4398.

Lovell, R, et al, (2014) 'A systematic review of the health and wellbeing benefits of biodiverse environments.' *Journal of Toxicology and Environmental Health* B 17:1-20

Lowe, B. & Ginsberg, C. (2002) 'Animal rights as a post-citizenship movement.' *Society and Animals*, 10: 203-15

Lowe, C. (2006) *Wild Profusion: Biodiversity Conservation in an Indonesian Archipelago*. Princeton, NJ: Princeton University Press.

Lowenthal, D. (2005) 'Natural and cultural heritage.' *International Journal of Heritage Studies*, 11:1, 81-92,

Lulka, D (2004) 'Stabilizing the herd: Fixing the identity of nonhumans.' *Environment and Planning D: Society and Space* 22: 439–463.

Lulka, D. (2009) 'The residual humanism of hybridity: retaining a sense of the earth.' *Transactions of the Institute of British Geographers* 34: 378-393

Luniak, M. (2004) 'Synurbanisation – Adaptation of Animal Wildlife to Urban Development.' in J. Shaw et al . (eds) *Proceedings of the 4th International Urban Wildlife Symposium*, pp. 50 – 55 .

Luther, E. (2013) 'Tales of Cruelty and Belonging: In Search of an Ethic for Urban Human-Wildlife Relations.' *Animal Studies Journal* 2.1: 35 – 54 .

Lynn, W.S. & Sheppard, E. (2004) 'Cities.' in S. Harrison, S. Pile, & N. Thrift (eds) *Patterned Ground: Entanglements of Nature and Culture.* London: Reaktion, pp. 53 – 5 .

M. Davis, 'Biotic Globalisation: Does Competition from Introduced Species Threated Biodiversity?' (2003) *Bioscience* 53, no. 5, p481-489

Mabey, R. (1973) *The Unofficial Countryside*. London: Little Toller .

MacArthur, H. & Wilson, E. (1967) *The Theory of Island Biogeography.* Princeton University Press

MacDonald, D.W. & Newdick, M.T. (1982) ' The Distribution and Ecology of Foxes in Urban Areas.' in R. Bornkamm, J.A. Lee, & M.R.D. Seaward (eds) *Urban Ecology*. Oxford: Oxford University Press, pp. 123 – 38 .

MacFarlane, R. (2007) *The Wild Places*, Cambridge: Granta .

MacGregor-Fors, I. (2011) 'Misconceptions or misunderstandings? On the standardization of basic terms and definitions in urban ecology.' *Landscape and Urban Planning* 100, 347–349

MacQueen, K. M., McLellan, E., Metzger, D. S., Kegeles, S., Strauss, R. P., Scotti, R., Blanchard, L. & Trotter, R. T. (2001) What is community? An evidence-based definition for participatory public health. *American journal of public health,* 91(12) 1929-38.

Maes, J., Barbosa, A., Baranzelli, C. et al. *Landscape Ecol* (2015) 30: 517

Mann, W. (2003) 'Bastard Countryside: The Mixed Landscape of London's River Lea.' Scroope 15, Cambridge Architecture Journal, Cambridge University School of Architecture

Manning, A., Fischer, J., Felton, A., Newell, B., Steffen, W., Lindenmayer, D., & Parr, K. (2009) 'Landscape Fluidity: A Unifying Perspective for Understanding and Adapting to Global Change.' *Journal of Biogeography,* 36(2) 193-199

Marris, E. (2011) *Rambunctious Garden: Saving Nature in a Post-Wild World*. New York: Bloomsbury Publishing.

Marsh, G. (2003) *Man and Nature; or, Physical Geography as Modified by Human Action.* Edited by David Lowenthal. Seattle: University of Washington Press

Marx, K. (1973) *Grundrisse: introduction to the critique of political economy.* Nicolaus M trans Penguin Books, Harmondsworth

Marx, K. (1976) *Capital: a critique of political economy, volume.* I Fowkes B trans. Penguin Books, London

Marx, K. & Engels, F. (1976) *The German ideology.* Moscow: Progress

Maslin, MA. & Lewis, SL. (2015)' Anthropocene: Earth system, geological, philosophical and political paradigm shifts.' *The Anthropocene Review* 2(2): 108–116.

Massey, D. (1999) *Power-geometries and the politics of space–time*. Hettner-Lecture. Heidelberg: Department of Geography, University of Heidelberg

Massey, D. (2003) 'Imagining the field.' In: Pryke, M., Rose, G. & Whatmore, S. (eds). *Using social theory: thinking through research*. UK: Sage Publications

Massey, D., (2005) *For Space*. Sage.

Matless, D. (1997) 'Moral geographies of English landscape.' *Landscape Research*. Vol. 22. Issue 2. pp. 141-155.

Matless, D. (1998) *Landscape and Englishness*. London: Reaktion.

Matless, D. (2005) 'Sonic geography in a nature region.' *Social and Cultural Geography*. Vol 6. Issue 5. pp. 745-766.

Matless, D. (2017) 'The Anthroposcenic.' *Transactions of the Institute of British Geographers* 42, pp 363–376.

Matthews, J. (2012) 'Compassion, geography and the question of the animal.' *Environmental Values*, 21(2) 125-142.

Mattocks, J. (1971) *Goose feeding and cellulose digestion*. Wildfowl and Wetlands Trust.

McAfee, K. (1999) 'Selling nature to save it? Biodiversity and green developmentalism.' *Environment and Planning D: Society and Space* 17 (2): 133–54

McCarthy, I. (201) 'Parakeets cause problems for British wildlife.' The Independent, 20 December 201. [online]. Available at: https://www.independent.co.uk/environment/nature/parakeets-cause-problems-for-british-wildlife-2165449.html (accessed 03/03/18)

McCleery, R., Moorman, C. & Peterson, M. (2014) *Urban Wildlife: Theory and Practice*. Springer.

McCormack, D. P. (2008) 'Engineering affective atmospheres on the moving geographies of the 1897 Andrée expedition.' *Cultural Geographies*, 15(4) 413-430

McKibben, B (2003) *The End of Nature*. London: Bloomsbury Publishing PLC

McKiernan, S., Instone, L. (2015) 'From pest to partner: rethinking the Australian White Ibis in the more-than-human city.' *Cultural geographies*. Vol 23, Issue 3.

Meffe GK, Carroll CR & Groom MJ (2006) 'What is conservation biology?' In: Groom MJ, Meffe GK, & Carroll CR (eds) *Principles of Conservation Biology*. Sunderland, Massachussetts: Sinauer Associates Inc., pp. 3–25

Meffe, GK, Nielsen, LA, Knight, RL & Schenborn, DA (2002) *Ecosystem Management: Adaptive, Community-Based Conservation*. Washington: Island Press, 304 pp. 2002

Meillassoux, Q. (2012) *Metaphysics and fiction about the worlds beyond science*

Menon, A. & Karthik, M. (2017) 'Beyond human exceptionalism: political ecology and the non-human world.' *Geoforum* 79, 90–92

Merchant, C (2003) *Reinventing Eden: The Fate of Nature in Western Culture*. Routledge

Merchant, C. (1989) *The Death of Nature: Women, Ecology, and the Scientific Revolution*. New York: Harper & Row.

Merchant, C. (2015) *Autonomous Nature: the problems of prediction and control from ancient times to the scientific revolution Routledge.* New York: Taylor and Francis

Merchant, C. (2017) *Science and Nature: Past, Present and Future*. Routledge,

Metzger, J. (2014) 'Spatial planning and/as caring for more-than-human place.' *Environment & Planning A*. 46 (5); 1001-1011

Metzger, J. (2015) 'Expanding the subject of planning: Enacting the relational complexities of more-than-human urban common(er)s.' In Kirwan, S., Brigstocke, J. & Dawney, L. (eds.) *Space, Power and the Commons.* London: Routledge

Michel, S. (1998) 'Golden eagles and the environmental politics of care.' In Wolch, J. & Emel, J. (eds). *Animal geographies: place, politics, and identity in the nature-culture borderlands.* London: Verso, 162–90

Middleton, J & Yarwood, R (2015) 'Christians out here? Encountering Street-Pastors in the post-secular spaces of the UK's night-time economy.' *Urban Studies,* 52, 501-516

Miller, J. & Hutchins, M. (2017) 'The impacts of urbanisation and climate change on urban flooding and urban water quality: A review of the evidence concerning the United Kingdom.' *Journal of Hydrology: Regional Studies* Vol 12, pp 345-362

Miller, L., Dickinson, J., Pearlman-Houghie, D. (2001) 'Quiet enjoyment in the national parks of England and Wales: public understanding of the term and its influence on attitudes towards recreational activities'. *Leis. Stud.* 20 (1) 19-40.

Miller, T. R., Minteer, B. A., & Malan, L. C. (2011) 'The new conservation debate: The view from practical ethics.' *Biological Conservation*. 144(3) 948-957.

Mitchell, R. & Popham, F. (2007) 'Greenspace, urbanity and Health: Relationships in England'. *Journal of Epidemiol Community Health* 61, 681

Mol, A. (1999) 'Ontological Politics. A Word and Some Questions'. *The Sociological Review* 47(1): 74–89.

Monbiot, G. (2014) *Feral: Rewilding the Land, Sea and Human Life*. Penguin.

Moore, D., Pandian, A. & Kosek, J. (2003) *Race, Nature, and the Politics of Difference*. Duke University Press, Durham.

Morris, B. (1998) *The Power of Animals*. London: Berg.

Müller, A., Bøcher, P., Fischer, C., Svenning, C. (2018) ''Wild' in the city context: Do relative wild areas offer opportunities for urban biodiversity?' *Landscape and Urban Planning*. 170: 256–265

Murphy, R. (1994) *Rationality and nature: A Sociological Inquiry Into A Changing Relationship*. Westview Press

Nagy, K. & Johnson, P. (Eds.) (2013) *Trash Animals: How We Live with Nature's Filthy, Feral, Invasive, and Unwanted Species*. University of Minnesota Press

Nash, R. (1973) *Wilderness and the American Mind*. Yale University Press, New Haven.

Natural England (1986) 'Walthamstow Reservoirs SSSI Citation.'

Natural England (1994) 'Tamar-Tavy Estuary SSSI' [online]. Available at: https://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s1005917 (Accessed 22/03/18)

Natural England (2009) 'Special Protection Areas (SPAs).' [online]. Available: www.naturalengland.org.uk/ourwork/conservation/designations/spa (accessed 01/02/2017)

Natural England (2009) 'General Licences under wildlife legislation in England; Summary of Consultation Responses & Decisions'. December 2008-March 2009.

Natural England (2011a) 'The management of problems caused by Canada geese: a guide to best practice'. *Technical Information Note TIN009*, Natural England, Peterborough.

Natural England (2011b) 'Fisheries and the presence of cormorants'. *Technical Information Note TIN041*. Natural England, Peterborough.

Natural England (2012) 'National Park Facts and Figures.' [online]. Available at: http://www.nationalparks.gov.uk/students/whatisanationalpark/factsandfigures (accessed 23/11/18)

Natural England (2013) 'National Vegetation Classification: MG5 grassland'. *Technical Information Note TIN147*. Natural England.

Natural England (2017a) 'National Nature Reserves-At the heart of conservation in 21st century' [online]. Available at:

http://publications.naturalengland.org.uk/publication/6291868196798464 (Accessed 06/10/18)

Natural England (2017b) 'How to create a wildflower meadow.' [online]. Available at: https://naturalengland.blog.gov.uk/2017/08/15/how-to-create-a-wildflower-meadow/ (accessed 16/05/18)

Natural England (2018) 'Local Nature Reserves (England).' [online]. Available at: https://data.gov.uk/dataset/acdf4a9e-a115-41fb-bbe9-603c819aa7f7/local-nature-reserves-england (Accessed 28/09/18)

Navarro, L. M., & Pereira, H. M. (2015) *Rewilding European Landscapes*. Springer, Cham.

Navarro, L.M. & Pereira, H.M. (2012) *Rewilding Abandoned Landscapes in Europe Ecosystems* 15-6 900-912

Neale, J. (2012) *Discovering the River Tamar*. Amberley

Nelleman, C. & Corcoran, E. (Eds) 2010. *Dead planet, living planet – biodiversity and ecosystem restoration for sustainable development. A rapid response assessment.* Arendal, Norway: United Nations Environment Programme

Neumann, R. (2015) Nature conservation in Perreault, T., Bridge, G. & McCarthy J. (Ed) *The Routledge Handbook of Political Ecology*. Routledge

Neumann, R.P. (1998) *Imposing Wilderness: Struggles over Livelihood and Nature Preservation in Africa*. Berkeley: University of California Press.

New York Herald (1874) originally published 9 November 1874, unpaginated full text available online at http://www.museumofhoaxes.com/hoax/text/display/the_central_parl_zoo_escape_text, accessed 3 September 2013)

Newson, S., Marchant, J., Ekins, G. & Sellers, R. (2007) The status of inland-breeding Great Cormorants in England. *British Birds*. 100. 289-299.

Newson, S.E., Marchant, J.H., Sellers, R.M., Ekins, G.R., Hearn, R.D. & Burton, N.H.K. 2013. Colonisation and range expansion of inland-breeding Cormorants in England. *British Birds* 106: 737-743

Nicholson, E.M. (1957) 'Britain's Nature Reserves.' *Country Life Limited*, p20

Nixon, R. (2011) *Slow Violence and the Environmentalism of the Poor*. Cambridge: Harvard University Press

NNSS 'Canada goose – Factsheet' [online]. Available at: http://www.nonnativespecies.org/factsheet/factsheet.cfm?speciesId=533 (accessed 17/04/18)

Nosworthy, C. (2013) *A Geography of Horse Riding: The Spacing of Affect, Emotion and (Dis)ability Identity through Horse-Human Encounters.* Newcastle: Cambridge Scholars Publishing.

Notzke, C. (2013) 'An exploration into political ecology and nonhuman agency: The case of the wild horse in western Canada'. *Canadian Geographer*, 57(4) 389-412.

Ogden, L., Hall, B. & Tanita, K. (2013) 'Animals, Plants, People, and Things: A Review of Multispecies Ethnography.' *Environment and Society: Advances in Research* Vol 4, Issue 1: 5–24

Oliveira-Santos, L. G., & F. A. Fernandez. (2010) 'Pleistocene rewilding, Frankenstein ecosystems, and an alternative conservation agenda'. *Conservation Biology* 24, 4–5.

Oliver, K. (2009) *Animal Lessons.* New York: Columbia University Press .

Olson, V. (2010) 'The Ecobiopolitics of Space Biomedicine'. *Medical Anthropology*. 29:2, 170-193

Omi, M. & Winant, H. (1994) *Racial Formation in the United States: From the. 1960s to 1990s. Second Edition.* New York: Routledge

O'Reilly, K. (2012) *Ethnographic Methods.* London: Routledge.

Ortega y Gasset, J. (1941) *History as a System and Other Essays Towards a Philosophy of History.* New York: Norton

Packer, J., Meyerson, L., Skalova, H., Pysek, P., Keuffer, C. (2017) 'Biological Flora of the British Isles: Phragmites australis.' *Journal of Ecology*. Volume 105, Issue 4.

Pahl-Wostl, C. (1995) *The Dynamic Nature of Ecosystems: chaos and order intertwined.* Wiley, Chichester.

Paleczny, M., Hammil,l E., Karpouzi, V. & Pauly, D. (2015) 'Population Trend of the World's Monitored Seabirds, 1950-2010'. *PLoS ONE* 10(6): e0129342.

Panelli, R., Nairn, K., & Mccormack, J. (2002) 'We make our own fun': Reading the politics of youth with(in) community. *Sociologia Ruralis*. 42. 106-130

Parkes, P. (2006) '*Aspirant ecologies: a geography of rewilding in England and Wales*' (Doctoral dissertation, University of Nottingham)

Parmesan, C. (2006) 'Ecological and evolutionary responses to recent climate change'. *Annu Rev Ecol Evol Syst* 37:637–669

Parr, H. (2001) 'Negotiating different ethnographic contexts and building geographical knowledges: empirical examples from mental health research'. in M. Limb and C. Dwyer (eds) *Qualitative Methodologies for Geographers: Issues and Debates.* London: Arnold, 181–95

Paulson, W. (2001) 'For a cosmopolitical philology: lessons from science studies'. *Substance*, No. 96, 30(3) pp. 101–119

Pauly, D. (1995) 'Anecdotes and the shifting baseline syndrome'. *Trends Ecol. Evol*. 10: 430.

Pearsall, H. (2012) Moving out or moving in? Resilience to environmental gentrification in New York City. *Local Environ*. 17, 1013–1026

Perring, M. & Ellis, E. (2013) 'The Extent of Novel Ecosystems: Long in Time and Broad in Space' in Hobbs, T., Higgs, E., Hall, C. (eds) *Novel Ecosystems: Intervening in the New Ecological World Order*. John Wiley & Sons, Ltd

Perry, R. (2001) 'Cornwall's Economic Collapse Revisited: An empirical survey of economic re-adjustment in Late-Victorian and Edwardian Cornwall.' *Cornish History,* Journal of the Cornish History Network.

PETA 'Hidden Lives of Ducks and Geese' [undated]. [online]. Available at: https://www.peta.org/issues/animals-used-for-food/factory-farming/ducks-geese/hidden-lives-ducks-geese/ (accessed 04/04/18)

Pettorelli, N., Durant, S. & du Toit, J (eds) (2018a) *Rewilding*. Cambridge University Press.

Pettorelli, N., Barlow, J., Stephens, P.A., Durant, S.M., Connor, B., Schulte to Bühne, H., Sandom, C.J., Wentworth, J. & du Toit, J.T. (2018b) 'Making rewilding fit for policy'. *Journal of Applied Ecology* 1-12

Phillips, C. & Atchison, J. (2018): Seeing the trees for the (urban) forest: more-than-human geographies and urban greening, *Australian Geographer*. pp 1-14.

Philo, C. (1995) 'Animals, Geography, and the City: Notes on Inclusions and Exclusions.' *Environment and Planning D: Society and Space* 13.6: 655 – 81.

Philo, C. & Wilbert, C. (2000) *Animal Spaces, Beastly Places: New Geographies of Human-animal Relations*. Psychology Press

Pijanowski, B., Farina, A., Gage, S., Dumyahn, S., Krause, B., (2011b) 'What is soundscape ecology? An introduction and overview of an emerging new science'. *Landsc. Ecol*. 26, 1213–1232

Plumwood, V. (1993*) Feminism and the Mastery of Nature*. London: Routledge.

Plumwood, V. (2002) *Environmental Culture: The Ecological Crisis of Reason*. London: Routledge

Plumwood, V. (2006) 'The Concept of a Cultural Landscape: Nature, Culture and Agency in the Land'. *Ethics and the Environment*; Vol. 11, No. 2,

Plumwood, V. (2009) 'Nature in the Active Voice.' *Australian Humanities Review*. No. 46: 113–29.

Plymouth City Council (2007) 'Plymouth Sustainable Neighbourhoods Study: Ernesettle.' Available at: https://www.plymouth.gov.uk/sites/default/files/ErnesettlePages1-9.pdf (accessed 01/08/2017)

Plymouth City Council (2011) 'Summary 2011 Census Profile: Ernesettle Neighbourhood' [online]. Available at: https://www.plymouth.gov.uk/sites/default/files/ErnesettleNeighbourhoodSummaryProfile.pdf (accessed 13/07/2017)

Plymouth City Council (2014) 'Area Profile: Ernesettle Neighbourhood.' [online]. Available at: https://www.plymouth.gov.uk/sites/default/files/Ernesettle%20Profile.pdf (accessed 01/08/2017)

Plymouth City Council (2016a) 'Active Neighbourhoods officially launched.' [online]. Plymouth Newsroom, 25 January 2016. Available: http://plymouthnewsroom.co.uk/4616-2/ (accessed 26/01/16)

Plymouth City Council (2016b) 'Active Neighbourhoods: Communications Plan.' [unpublished].

Plymouth City Council (2016c) 'Active Neighbourhoods: Update: July 2016.' [unpublished].

Plymouth City Council (2016d) 'Index of Multiple Deprivation 2015: Plymouth Summary.' [online]. Available at: https://www.plymouth.gov.uk/sites/default/files/IndexMultipleDepravation.pdf (accessed 30/11/17)

Plymouth City Council (2017) 'Plymouth Report: October 2017.' [online]. Available at: https://www.plymouth.gov.uk/sites/default/files/Plymouth%20Report%20October%202017.pdf (accessed 05/05/18)

Plymouth City Council and Devon Wildlife Trust (2017) 'Site Improvement Plan: Ernesettle and Budshead Wood.' [unpublished].

Pooley, S., Barua, M., Beinart, W., Dickman, A., Holmes, G., Lorimer, J., Loveridge, A.J., Macdonald, D.W., Marvin, G., Redpath, S. & Sillero-Zubiri, C., 2017. 'An interdisciplinary review of current and future approaches to improving human–predator relations'. *Conservation Biology*. 31(3) pp 513-523.

Porcher, Jocelyn. (2015) 'Animal Work' in Kalof, L (ed) *The Oxford Handbook of Animal Studies*, pp 302–318. New York: Oxford University Press

Pratt, M. (1992) *Imperial Eyes: Travel Writing and Transculturation*. London: Routledge.

Prior, J & Brady, E (2016) 'Environmental Aesthetics and Rewilding. *Environmental Values*. 26 (1):31-51.

Prior, J. & Ward, K. (2016) 'Rethinking rewilding: A response to Jørgensen'. *Geoforum* 69, pp. 132-135

Proctor, J. (1998) 'Expanding the Scope of Science and Ethics'. *Annals of the Association of American Geographers*. 88(2) pp 290-296

Pyle, R. (2002) 'The Extinction of Experience' in T.F. Dixon (ed.) *City Wilds: Essays and Stories about Urban Nature*. Athens: University of Georgia Press.

Quetchenbach, B. (2013) 'Canadas: From Conservation Success to Flying Carp' in Nagy, K. & Johnson, P. (Eds) *Trash Animals: How We Live with Nature's Filthy, Feral, Invasive, and Unwanted Species*. University of Minnesota Press.

Quinn, B. (2018) 'London's Labour leaders in new row over Walthamstow regeneration plans.' The Guardian, 17 February 2018. [online]. Available at: https://www.theguardian.com/uk-news/2018/feb/17/waltham-forest-regeneration-stella-creasy-coghill-private-finance (accessed 30/09/18)

Rabinow, P. & Rose, N. (2006) Biopower today. *BioSocieties*. 1(2) 195-217.

Raffles, H. (2010) *Insectopedia*. New York: Pantheon

Ramalho, C. & Hobbs, R. (2012) 'Time for a change: dynamic urban ecology'. *Trends Ecol Evol.* 27(3):179-88.

Rawles, K. (2004) 'Biological Diversity and Conservation Policy' in Oksanen, Markku & Juhani Pietarinen (eds) *Philosophy and Biodiversity*. Cambridge: Cambridge University Press.

Rawlins, B.G., O'Donnell, K. & Ingham, M. (2003) 'Geochemical survey of the Tamar catchment (South West England)'. *British Geological Survey Report*. CR/03/027/NERC 2003.

Rehfisch, MM., Austin, GE., Holloway, SJ. Allan, JR. & O'Connell, M. (2002) 'An approach to the assessment of change in the numbers of Canada Geese Branta canadensis and Greylag Geese Anseranser in southern Britain'. *Bird Study*. 49:1, 50-59

Ribak, G., Weihs, D., Arad, Z. (2004) 'How do cormorants counter buoyancy during submerged swimming?' *Journal of Experimental Biology* 207: 2101-2114

Rich, KJ., Ridealgh, M., West SE., Cinderby, S. & Ashmore, M. (2015) 'Exploring the Links between Post-Industrial Landscape History and Ecology through Participatory Methods'. *PLoS ONE* 10(8): e0136522.

Richards, L. (2005) *Handling Qualitative Data: A Practical Guide*. London: Sage Publications

Robbins, P. & Moore, SA. (2013) 'Ecological anxiety disorder: Diagnosing the politics of the Anthropocene'. *Cultural Geographies*. 20(1): 3–19.

Robinson, R. (1996) *Trawling: The Rise and Fall of the British Trawl Fishery*. University of Exeter Press.

Rose G. (1997) 'Situating knowledges: positionality, reflexivities and other tactics'. *Progress in Human Geography*. 21: 305-20

Rose G. (1997) 'Spatialities of 'community': power and change: the imagined geographies of community arts projects'. *Cultural Studies*. 11: 1-16.

Rosenzweig, M. L. (2003) 'Reconciliation ecology and the future of species diversity'. *Oryx*. 37(2) 194-205.

Rotherham, I.D. & Lambert, R.A. (eds) (2011) *Invasive and Introduced Plants and Animals: Human Perceptions, Attitudes and Approaches to Management*. EARTHSCAN, London. 9.

Rotherham, I.D. (2014) *Eco-History: An Introduction to Biodiversity & Conservation*. The White Horse Press, Cambridge.

Rotherham, I.D. (ed.) (2013) *Cultural Severance and the Environment: The Ending of Traditional and Customary Practice on Commons and Landscapes Managed in Common*. Springer, Dordrecht.

RSBP 'Canada goose – Factsheet.' [online]. Available at: https://www.rspb.org.uk/birds-and-wildlife/wildlife-guides/bird-a-z/canada-goose/ (accessed 16/07/18)

RSPB (2011) *State of UK birds* [NGO report].

RSPB [undated] 'Ring-necked parakeet.' [online]. Available at: https://www.rspb.org.uk/birds-and-wildlife/wildlife-guides/bird-a-z/ring-necked-parakeet/ (accessed 14/10/18)

RSPB 'Reserves and Events.' [online]. Available at: https://www.rspb.org.uk/reserves-and-events/ (Accessed 16/11/18)

Rupprecht, C. & Byrne, J., (2014) 'Informal urban greenspace: a typology and trilingual systematic review of its role for urban residents and trends in the literature'. *Urban Forestry & Urban Greening* 13, 597– 611

Rutherford, S. (2007) 'Green governmentality: insights and opportunities in the study of nature's rule'. *Progress in human geography*. 31(3) 291-307.

Rutz, C. (2008) 'The Establishment of an Urban Bird Population.' *Journal of Animal Ecology* 77: 1008: 19.

Ryan, JR. (2000) 'Hunting with the camera' in Philo, C. & Wilbert, C. (eds) *Animal Spaces, Beastly Places: New Geographies of Human-animal Relations*. Psychology Press. pp 206-221.

Sagoff, M. (2005) 'Do Non-Native Species Threaten the Natural Environment?' *Journal of Agricultural and Environmental Ethics.* 18, 215-236

Sahlins, M. (1976) *The use and abuse of biology: An anthropological critique of sociobiology*. London: Tavistock Publications.

Said, E. (1979)'*Imaginative Geography and Its Representations: Orientalizing the Oriental*. Orientalism. New York: Vintage

Sanderson, E. W., Jaiteh, M., Levy, M., KRedford, K., Wannebo, A. & Woolmer, G. (2002) 'The human footprint and the last of the wild'. *BioScience* 52:891–904

Sandom, C. & Wynne-Jones, S. (2018) 'Rewilding a Country: Britain as a Case study'. In Pettorelli, N., Durant, S. & du Toit, J (eds) (2018) *Rewilding*. Cambridge University Press.

Sandom, C., Donlan, C. J., Svenning, J. C., & Hansen, D. (2013) 'Rewilding'. In Macdonald, D. & Willis, K. (Eds.) *Key topics in Conservation Biology*. John Wiley & Sons.

Sarantakos, S. (2005*) Social Research.* (3rd ed.) New York, NY: Palgrave Macmillan

Schafer, RM. (1969) *The new soundscape*. Scarborough, Ont and New York, US: Berandol Music and Associated Music Publishers

Schafer, RM. (1977) *The Tuning of the World*. New York: Knopf

Schama, S. (1996) *Landscape and Memory*. London, Fontana Press.

Schlosser, K. (2008) 'Bio-political geographies'. *Geography Compass* 2(5) 1621-1634.

Scoones, I. (1999) 'New Ecology and the Social Sciences: What Prospects for a Fruitful Engagement'. *Annual Review of Anthropology*. Volume 2.

Segerstrale, U. (2000) *Beyond the Science Wars: The Missing Discourse About Science and Society.* State Univ of New York Press.

Sellers, R. M. (1995) 'Wing-spreading behavior of the cormorant Phalacrocorax carbo'. *Ardea*. 83: 27–36

Shiva, V (1988) *Staying Alive: Women, Ecology and Survival in India*. Zed Press, New Delhi

Shukin, N. (2009) *Animal Capital: Rendering Life in Biopolitical Times*. Minneapolis, MN: University of Minnesota Press.

Siegel-Causey, D. (1988) 'The phylogeny of the Phalacrocoracidae'. *Condor* 90: 885-889

Silk, M. (2014) 'The London 2012 Olympics: The cultural politics of urban regeneration'. *Journal of Urban Cultural Studies,* Volume 1, Number 2, 1, pp. 273-293(21)

Silvertown, J. (2009) 'A new dawn for citizen science'. *Trends in Ecology and Evolution*, 24, 467-471

Simpson, L., Wood, L., Daws, L. (2003) 'Community capacity building: Starting with people not projects' *Community Development Journal*, Volume 38, Issue 4, pp 277–286

Singh, N. M. (2013) 'The affective labor of growing forests and the becoming of environmental subjects: Rethinking environmentality in Odisha, India.' *Geoforum* 47: 189– 198

Smith, L. (2006) *Uses of Heritage*. Routledge

Smith, M. (1995) 'Crucifixion of the cormorant.' The Independent, 21 November 1995. [online]. Available at: https://www.independent.co.uk/news/science/crucifixion-of-the-cormorant-1582972.html (accessed 01/09/18)

Smith, R. (2003) World City Actor Networks, SAGE

Smith, R. (2010) Social work, risk, power in Sociological Research Online 15(1)4

Society for Ecological Restoration (2004) 'SER International Primer on Ecological Restoration.' [online] Available at: https://www.ser.org/page/SERDocuments (Accessed 31/12/17)

Soule, M. & Noss, R. (1998) Rewilding and biodiversity: complementary goals for continental conservation. *Wild Earth*. 8, pp.18-28.

Spary, S. (2018) 'Geese to be banned from Regent's Park Boating Lake because visitors keep slipping over.' The Daily Telegraph, 5 March, 2018. [online]. Available at: https://www.telegraph.co.uk/news/2018/03/05/geese-banned-one-britains-popular-public-parks-visitors-keep/ (accessed 15/04/18)

Srinivasan, K. & Kasturirangan, R. (2016) 'Political ecology, development, and human exceptionalism'. *Geoforum*. 82, 87–88

Srinivasan, K. (2014) 'Caring for the collective: biopower and agential subjectification in wildlife conservation'. *Environment and Planning D: Society and Space*, 32(3) 501-517.

Srinivasan, K. (2017) 'Conservation biopolitics and the sustainability episteme'. *Environment and Planning* A. 2017 Vol. 49(7) 1458-1476

Staeheli, L. (2008a) 'Citizenship and the problem of community.' *Political Geography*, 27: 2-21

Staeheli, L. (2008b) 'More on the 'problems' of community.' *Political Geography*, 27: 35-9

Stengers, I. (2000) *Invention of Modern Science (Theory Out of Bounds)*. Univ Of Minnesota Press

Stengers, I. (2005) 'The cosmopolitical *proposal*'. In B. Latour & P.Weibel. (eds) *Making things public: Atmospheres of democracy* pp 994–1003. Cambridge, MA: MIT Press.

Stevens, M. (2005) 'Managing Canada geese, Conservation Land Management'. *English Nature*. Peterborough.

Strathern, M. (1996) 'Cutting the Network'. *The Journal of the Royal Anthropological Institute*. 2(3) 517-535

Strubbe, D. & Matthysen, E. (2007) 'Invasion of Ring-necked Parakeets in Belgium: habitat selection and impact on native species'. *Ecography*. 30: 4. pp 578–588.

Strubbe, D. & Matthysen, E. (2009) 'Experimental evidence for nest-site competition between invasive ring-necked parakeets (Psittacula krameri) and native nuthatches (Sitta europaea)'. *Biological Conservation*. 142: 8. pp 1588-1594.

Stryker, S. (1980) *Symbolic interactionism: A social structural version*. Menlo Park, CA: Benjamin/Cummings Publishing Company

Sundseth, K. (2014) 'Invasive Alien species – a European response.' Report for the European Commission. [online]. Available at: http://ec.europa.eu/environment/nature/invasivealien/docs/ias-brochure-en-web.pdf (accessed 18/04/18)

Svenning, J.C., Pedersen, P.B.M., Donlan, C.J., Ejrnaes, R., Faurby, S., Galetti, M., Hansen, D.M., Sandel, B., Sandom, C.J., Terborgh, J.W. & Vera, F.W.M. (2016). 'Science for a wilder Anthropocene: Synthesis and future directions for trophic rewilding research'. *Proceedings of the National Academy of Sciences of the United States of America*. 113, 898-906.

Swyngedouw, E. (1999) 'Modernity and hybridity: Nature, regeneracionismo, and the production of the Spanish Waterscape, 1890–1930.' *Annals of the Association of American Geographers*, 89 (3) pp 443-465

Swyngedouw, E. (2006) 'Circulations and metabolisms: (Hybrid) Natures and (Cyborg)'. *Science as Culture* 15 (2) 105–121.

Takacs, D. (1996) *The Idea of Biodiversity: Philosophies of Paradise*. John Hopkins University Press

Taylor, C. Scott., A & Carter, J. (2013) 'The Agency of Dolphins: Towards Inter-species Embassies as Sites of Engagement with 'Significant Otherness.' *Geographical Research*. 51(1) 1-10.

Taylor, P. (2005) *Beyond Conservation: A Wildland Strategy*. London: Routledge.

Taylor, P.D., Fahrig L., Henein K. & Merriam G. (1993) 'Connectivity is a vital element of landscape structure'. *Oikos* 68: 571– 573

Thames Water & Waltham Forest Council (2014) 'Walthamstow Wetlands Conservation Management Plan' [unpublished].

The Evening Standard (2017) 'Escaped pet parakeets bring exotic colour to the capital's skies.' [online]. Available at: https://www.standard.co.uk/comment/letters/es-views-wild-london-escaped-pet-parakeets-bring-exotic-colour-to-the-capital-s-skies-a3637401.html (accessed 07/07/18)

The Guardian, 18 February (2018) https://www.theguardian.com/uk-news/2018/feb/17/waltham-forest-regeneration-stella-creasy-coghill-private-finance

Thomas C., Cameron A., Green R., Bakkenes M., Beaumont L., Collingham Y. & Hughes L. (2004) 'Extinction risk from climate change'. *Nature*. 427, 145–148

Thomas, C. (2011) 'Translocation of species, climate change, and the end of trying to recreate past ecological communities'. *Trends in Ecology and Evolution* 26, 216–221.

Thompson C. J., Boddy, K., Stein, K., Whear, R., Barton, J., & Depledge, M. (2011) 'Does participating in physical activity in outdoor natural environments have a greater effect on physical and mental wellbeing than physical activity indoors? A systematic review'. *Environmental Science and Technology* 45, 1761-1773

Thrift, N. (1999) 'Steps to an ecology of place.' in D. Massey, P. Sarre & J. Allen (eds) *Human Geography Today*. Oxford: Polity. pp 295-352.

Thrift, N. (2000) Actor-network. In D. Gregory, RJ. Johnston, G. Pratt, D. Smith, & M. Watts (Eds.) *Dictionary of Human Geography* (fourth edition) (pp. 4-5) Blackwell

Thrift, N. (2008) *Non-Representational Theory: Space; politics; affect*, London: Routledge.

Thurstan, R., Brockington, S. & Roberts, C. (2010) 'The effects of 118 years of industrial fishing on UK bottom trawl fisheries.' *Nature Communications*. Vol 1. Article 15.

Tischendorf, L. & Fahrig L. (2000) 'On the usage and measurement of landscape connectivity'. *Oikos* 90: 7–19

Tree Council (2016) 'Communities go wild for new urban food growing initiative.' [online news]. Available at: https://www.treecouncil.org.uk/Press-News/Communities-go-wild-for-urban-food-growing-initiative (accessed 15/08/18)

Trudgill, S. (2008) 'A requiem for the British flora? Emotional biogeographies and environmental change'. *Area* 40, 1, 99-107

Tsing, A. (2005) *Friction: an ethnography of global connection*. Princeton University Press. Princeton NJ.

Tsing, A. (2013a) 'More-than-human sociality: a call for critical description'. In Hastrup, K (ed) *Anthropology and nature* pp. 27–43. London: Routledge.

Tsing, A.L. (2013b). 'Catachresis for the Anthropocene: three papers on productive misplacements'. In: *Aura's Openings*. Vol 1. pp. 1–10.

Tsing, A. (2015) *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins*. Princeton University Press

Tsing, A., Swanson, H., Gan, E., & Bubandt, N. (Eds.) (2017) *Arts of Living on a Damaged Planet: Ghosts and Monsters of the Anthropocene*. Minneapolis: London. University of Minnesota Press

Tsing, A. (2017). The Buck, the Bull, and the Dream of the Stag: Some unexpected weeds of the Anthropocene. *Suomen Antropologi: Journal of the Finnish Anthropological Society*, 42(1), 3-21.

Tucker, G. M. & Heath, M. F. (1994) 'Birds in Europe: Their Conservation Status'. *BirdLife Conservation Series* No 3, BirdLife International, Cambridge, UK.

UN Food and Agriculture Organisation (2016) 'General situation of world fish stocks.' [online]. In FAO 2016 report: Review of the State of World Marine Fisheries Resources. Available at: http://www.fao.org/NEWSROOM/common/ecg/1000505/en/stocks.pdf (accessed 24/08/18)

Underhill, M. (1999) 'Integrated Management of Urban Canada Geese'. *Proceedings of 'Waterfowl' Information Network International Conference*. 16-17th September 1999, The Royal Veterinary College, London.

Robert A. McCleery, C., Moorman, M., & Peterson, N. (2014) *Urban wildlife conservation: Theory and practice*. Routledge.

Urbanik, J. (2012) *Placing Animals: An introduction to the geography of human-animal relations*. Rowman and Littlefield: Landham MD

Urry, J. (1991) 'The Tourist Gaze 'Revisited'.' *American Behaviour Scientist*. Volume: 36 issue: 2, page(s): 172-186

Urry, J. (2016) *What is the Future?* John Wiley & Sons.

Vaccaro, I., Beltran, O., & Paquet, P.A (2013) Political Ecology of Conservation: some theoretical genealogies. *Journal of Political Ecology* 20: 255-272.

Valentine, G. (1996a) 'Angels and Devils: Moral Landscapes of Childhood.' *Environment and Planning D: Society and Space* 14: 581–99.

Valentine, G. (1996b) 'Children Should Be Seen and Not Heard: The Production and Transgression of Adults' Public Space.' *Urban Geography* 17: 205–20

Valentine, G. (2000) 'Exploring children and young people's narratives of identity.' *Geoforum* 31, pp. 257-267

Valentine, G. (2005) 'Tell Me About…: Using Interviews as a Research Methodology' in Flowerdew, R. & Martin, D. (eds) *Methods in human geography: a guide for students doing research projects*. Routledge, pp 110-127

van Dooren, T. (2011) 'Invasive Species in Penguin Worlds: An Ethical Taxonomy of Killing for Conservation.' *Conservation and Society* 9. no. 4.

van Dooren, T. (2012) 'Nature in the Anthropocene? A reflection on a photograph'. *The Yearbook of Comparative Literature* 58: 228–234

van Dooren, T. (2014) 'A Day with Crows-Rarity, Nativity and the Violent-Care of Conservation'. *Animal Studies Journal*, 4(2) 2015, 1-28.

van Dooren, T. (2016) *Flight Ways: Life and Loss at the Edge of Extinction*, Columbia University Press: New York.

van Dooren, T. & Bird Rose, D. (2012) 'Storied-places in a Multispecies City.' *Humanimalia*, 3.2, pp. 1-27.

van Dooren, T. & Bird Rose, D. (2016) Lively Ethnography: Storying Animist Worlds *Environmental Humanities* (2016) 8 (1): 77-94.

van Dooren, T., Kirksey, E., & Münster, U. (2016) *Multispecies studies: Cultivating arts of attentiveness*. Duke Press.

van Leeuwen, J., Froyd, C., van der Knaap, O., Coffey, E., Tye, C., Willis, K. (2008) 'Fossil Pollen as a Guide to Conservation in the Galápagos' *Science*. Vol. 322, Issue 5905, pp. 1206

Vanderbeck, R. & J. Johnson (2000) ''That's the Only Place Where You Can Hang Out': Urban Young People and the Space of the Mall.' *Urban Geography* 21(1): 5–25

Vannini, P. (2014) Non-representational ethnography: new ways of animating lifeworlds. *Cultural geographies*. 22. 317-327

Vaughan, A. (2015) 'When animals go wild in the city.' The Guardian, 8 March 2015. [online]. Available at: https://www.theguardian.com/environment/2015/mar/08/urban-wildlife-animals-in-city (accessed 07/07/18)

Vera, F. (2000) *Grazing Ecology and Forest History*. CABI Publishing Wallingford

Vera, F. (2009) 'Large-scale nature development – the Oostvaardersplassen'. *British Wildlife*. 28-36.

Vestry House Museum (2016) 'Water and Life.' [Walthamstow Wetlands exhibition] (28 May – 16 October 2016)

von Brandt, A. (2005) *Fish Catching Methods of the World*. Blackwell

von Essen, E. & Allen, M. (2016) 'Wild, but Not Too-Wild Animals: Challenging Goldilocks Standards in Rewilding'. *Between the Species*.

Wadiwel, D. & Chrulew, M (eds) (2017) *Foucault and Animals*. Leiden and Boston: Brill

Wagstaff, G. (2000) 'From the Isles of Lewis and Harris.' Soundscape. *The Journal of Acoustic Ecology*. 1:1. p19.

Waitt, G.,Gill, N. & Head, L. (2009) 'Walking Practice and suburban nature-talk'. *Social and Cultural Geography*. 10:41-60

Waley, P. (2000) 'What's a River Without Fish? Symbol, Space and Ecosystem in the Waterways of Japan.' Pp. 159–81 in *Animal Spaces, Beastly Places: New Geographies of Human-Animal Relations*, ed. C. Philo & C. Wilbert. London: Routledge

Walthamstow Wetlands [undated] 'Cormorant Island.' [online]. Accessed at: https://walthamstowwetlands.com/explore9-12 (accessed 18/10/18)

Waterton, E. & Watson, S. (2013) 'Framing theory: towards a critical imagination in heritage studies.' *International Journal of Heritage Studies*. Vol 19. Issue 6

Waterton, E. & Watson, S. (2015) (eds) *The Palgrave Handbook of Contemporary Heritage Research*. Palgrave Macmillan

Waterton, E. & Watson, S. (Eds) (2010) *Heritage and Community Engagement: Collaboration or Contestation?* Routledge

Weir, J. (2008) 'Connectivity.' *Australian Humanities Review*. no. 45, pp. 153-64.

Wernham, C., Toms, M., Marchant, J., Clark, J., Siriwardena, G., Baillie, S. (2002) 'The Migration Atlas-Movements of the birds of Britain and Ireland.' *British Trust for Ornithology*.

Whatmore, S. (1999) 'Hybrid geographies: rethinking the human in human geography.' in Massey, D., Allen, J. & Sarre, P. (eds) *Human Geography Today*. London: SAGE.

Whatmore, S. (2002) *Hybrid geographies*. London: SAGE

Whatmore, S. (2003) 'Generating Materials' in Pryke, M., Rose, G., Whatmore, S. (eds) *Using Social Theory*. SAGE.

Whatmore, S. (2006) 'Materialist returns: practising cultural geography in and for a more-than-human world'. *Cultural Geographies*. 13(4) 600-609

Whatmore, S. & Thorne, L. (1998) 'Wild(er)ness: Reconfiguring the geographies of wildlife.' *Transactions of the Institute of British Geographers*, 23(4) pp.435-454.

Whatmore, S.& Thorne, L. (2000) 'Elephants on the move: Spatial Formations of Wildlife Exchange.' *Environment and Planning D: Society and Space* 18, no.2: 185-203

Wheeler, B., Lovell, R., Higgins, S., White, M., Alcock, I., Osborne, N., Husk, K., Sabel, C. & Depledge, M. (2015) 'Beyond greenspace: an ecological study of population general health and indicators of natural environment type and quality'. *International Journal of Health Geographies* 14:17

White, C., Butler, P., Gremillet, D. & Martin, G. (2008) 'Behavioural strategies of cormorants (Phalacrocoracidae) foraging under challenging light conditions'. *Ibis* 150 (SI): 231-239

White, C., Day, N., Butler, P. & Martin, G. (2007) 'Vision and foraging in cormorants: More like herons than hawks?' *PLoS ONE* 2 (7): e639

Whitehouse, A. (2015) 'Listening to Birds in the Anthropocene: The Anxious Semiotics of Sound in a Human-Dominated World.' *Environmental Humanities*. vol. 6, pp. 53-71.

Whitford, P. C. (1998) 'Vocal and visual communication of Giant Canada Geese.' In D. H. Rusch, M. D. Samuel, D. D. Humburg & B. D. Sullivan (eds). *Biology and management of Canada Geese*. 375-386. Milwaukee, WI: Proc. Int. Canada Goose Symp.

Whittaker, R. (2007) *Island Biogeography: Ecology, Evolution, and Conservation*. Oxford University Press

Whittaker, R., Araujo, M., Jepson, P., Ladle, R., Watson, J. & Willis, K. (2005) 'Conservation Biogeography: assessment and prospect'. *Diversity and Distributions*. 11, 3–23

Willems-Braun, B (1997) 'Buried epistemologies: the politics of nature in (post)colonial British Columbia'. *Annals of the Association of American Geographers* 87, 3–31.

Williams, A., Goodwin, M. & Cloke, P (2014) 'Neoliberalism, big society, and progressive localism'. *Environment and Planning A* 46 (12), pp. 2798-2815

Willis, K. & Bhagwat, S. (2010) 'Questions of importance to the conservation of global biological diversity: answers from the past'. *Climate of the Past*. 6: 1139-1162.

Wilson, G. (2010) 'Multifunctional 'quality' and rural community resilience'. *Transactions of the Institute of British Geographers* 35: 364-381.

Wilson, G. (2012) *Community Resilience and Environmental Transitions*. Routledge

Wires, L. (2014) *Double-Crested Cormorant: Plight of a Feathered Pariah.* Yale University Press, New Haven and London

Wolch, J. & Emel, J. (eds). *Animal geographies: place, politics, and identity in the nature-culture borderlands.* London: Verso, 162–90

Wolch, J. (1989) 'The shadow state: transformations in the voluntary sector.' in J. Wolch & M. Dear (eds) *The Power of Geography: How Territory Shapes*. Boston: Unwin Hyman, 197-221.

Wolch, J. (1990) *The shadow state: Government and Voluntary Sector in Transition*. New York: The Foundation Centre

Wolch, J. (1998) 'Zoopolis' in J. Wolch & J. Emel (Eds) *Animal geographies: place, politics, and identity in the nature-culture borderlands.* London: pp. 119–138 (London: Verso)

Wolch, J. (2002) 'Anima urbis'. *Progress in Human Geography*, 26(6) 721–742

Wolch, J., Byrne, J. & Newell, J. (2014) 'Urban green space, public health, and environmental justice: The challenge of making cities 'just green enough'.' *Landscape and Urban Planning*, Volume 125, pp234-244

Wolch, J., West, K. & Gaines, T. (1995) 'Transspecies Urban Theory'. *Environment and Planning D: Society and Space*, 13(6) 735–760.

Woods, M. (2005) 'Ecological restoration and the renewal of wildness and freedom.' In T. Heyd (ed.) *Recognizing the Autonomy of Nature: Theory and Practic*e, pp.170-188. New York: Columbia University Press

Woods, M. (2006a) 'Political articulation: the modalities of new critical politics of rural citizenship.' in P. Cloke, M. Goodwin & Mooney (eds) *Handbook of Rural Studies*. London: Sage, 457-72

Woods, M. (2006b) 'Redefining the 'rural question': the new 'politics of the rural' and social policy.' *Social Policy and Administration*, 40: 579-95

Woolfson, E., (2013) *Field Notes from a Hidden City*. Granta.

World Bank (2016) 'Urban Development.' [online]. https://www.worldbank.org/en/topic/urbandevelopment (Accessed 23/01/18)

Worster D, (1994) *Nature's Economy.* Cambridge: Cambridge University Press

Wright, M. (2007) 'Interviews with Wildlife Sound Recordists: Richard Beard.' [British Library Archive online]. Available at: https://sounds.bl.uk/Environment/Interviews-with-wildlife-sound-recordists-/022M-C1627X0001XX-0002V0

Wright, S. (2015) 'More-than-human, emergent belongings: A weak theory approach.' *Progress in Human Geography.* Vol. 39(4) 391–411

Wu J. & Loucks, O. (1995) `From balance of nature to hierarchical patch dynamics: a paradigm shift in ecology.' *Quarterly Review of Biology* 70 439-466

Wulf, A. (2009) *The Brother Gardeners: Botany, Empire and the Birth of an Obsession*. Windmill Books

Wylie, J. (2005) 'A single day's walking: Narrating self and landscape on the South West Coast Path'. *Transactions of the Institute of British Geographers* 30: 234–247

Wynne-Jones, S., Strouts, G. & Holmes, G. (2018) Abandoning or Reimagining a Cultural Heartland? Understanding and Responding to Rewilding Conflicts in Wales – the case of the Cambrian Wildwood. *Environmental Values*. 27, 377-403

Yarwood, R. (2014) *Citizenship.* Routledge, London

Yin, R. (1994) *Case study research: Design and methods* (2nd ed.) Newbury Park, CA: Sage Publications

Youatt, R. (2008) Counting species: Biopower and the global biodiversity census. *Environmental Values*. 17(3) 393-417.

Zimmerer, K. (2000) The reworking of conservation geographies: Nonequilibrium landscapes and nature-society hybrids. *Annals of the Association of American Geographers*, 90(2) 356-369.

Zimov, S. (2005) Pleistocene park: Return of the mammoth's ecosystem. *Science*, 308(5723) 796-798.

Zimov, S., Zimov, N., Tikhonov, A. & Chapin III, F. (2012) Mammoth steppe: A high-productivity phenomenon. *Quaternary Science Reviews* 57, 26-45.