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# Cultural geographies of extinction: animal culture amongst Scottish ospreys

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## Abstract

This paper explores cultural geographies of extinction. I trace the decline of the Scottish osprey during the nineteenth century, and its enduring, haunting presence in the landscape today. Taking inspiration from the environmental humanities, extinction is framed as an event affecting losses that exceed comprehension in terms merely of biological species numbers and survival rates. Disavowing the 'species thinking' of contemporary conservation biopolitics, the osprey's extinction story pays attention to the worth of 'animal cultures'. Drawing a hybrid conceptual framework from research in the environmental humanities, 'speculative' ethology and more-than-human geographies, I champion an experimental attention to the cultural geographies of animals in terms of historically contingent, communally shared, spatial practices and attachments. In doing so, I propose nonhuman cultural geographies as assemblages that matter, and which are fundamentally at stake in the face of extinction.

## Key Words

Extinction, Conservation, Cultural geography, More-than-human geography, Osprey, Scotland

## Introduction

The species label *Pandion haliaetus* – the osprey – envelopes much lively difference and possibility. Across four subspecies of this brown and white piscivore are variations in size, markings and geographical behaviour. Furthermore, past and present observations suggest multiple osprey life-ways are possible, expressed between, and within, these subspecies. Colonial behavior, for example, characterises certain communities (notably in North America) but not others, perhaps reflecting prey or nest availability (Newton, 1979). In a similar vein, European and North American ospreys (*P.h. haliaetus* and *P.h. carolinensis*) are migratory, whilst Australian (*P.h. cristatus*) and Caribbean (*P.h. ridgwayi*) birds are not. For mobile communities, annual seasonal refrains correspond with sea ice coverage; spring melts driving prey into northern shallows (Poole, 1989). For Scottish ospreys (my focus here), wintering grounds predominate on Africa's western coast. After an initial successful migration south, the young birds reside here for around three years before returning north to seek a mate and nest. Rearing young in summer, breeding adults depart come autumn (Dennis, 2008). Migration studies posit that favoured routes may be shared across generations and regional communities (see Dennis, 2008).

Regional differences, and preferences, suggest osprey lives are geographically contingent. This paper explores such contingency in the context of extinction. Paying close, geographical attention to the lives of birds, I sketch the historical cultural geographies of the osprey in Scotland, from the late-eighteenth to the early-twenty-

first century. Following calls for more ‘beastly’ geographies (Hodgetts and Lorimer, 2015) I take seriously the lived spatio-temporal particulars of osprey life. In conversation with recent work within the environmental humanities, I frame osprey differences in terms of an ‘animal culture’ both spatially and temporally contingent, and at stake amidst the unfolding geographies of extinction. Historical records of ospreys in Scotland reveal such differences, emergent over time, raising questions regarding the nature of extinction and loss.

Consider that in the early-nineteenth century the northern Scottish county of Sutherland hosted a vibrant community of ospreys. In 1848, notorious sportsman and naturalist Charles St John travelled here with professional egg-collector William Dunbar (see St John, 1884). Visiting lochs where ospreys nested on ruins and rocky outcrops – including Assynt, ‘an Laig Aird’ (possibly Laicheard) and an Iasgair (Figure 1) – they took eggs and shot several adult birds. Afterwards, Dunbar wrote to a southern client that they had ‘finally done for the Ospreys in Sutherland’ (Harvie-Brown and MacPherson, 1904: 186).

Over a century later, in August 1961, George Waterston, Scotland’s representative for the Royal Society for the Protection of Birds, holidayed in northwest Sutherland. He had just overseen a third successful nesting season for the ospreys at Loch Garten, Speyside. Dubbed ‘Operation Osprey’, re-colonising birds had raised young in the Cairngorms under Society protections since 1959 (see Brown, 1979). Their presence marked a return from 40 years of breeding extinction in Britain. Now

stewarding the re-colonisation, it seems Waterston was curious to retrace St John's footsteps. He drew on accounts of the 1848 tour when planning his own northern vacation. Waterston subsequently recalled his palpable excitement when standing 'almost exactly' where the infamous sportsman had once observed nesting ospreys (Waterston, 1962: 113).

**[Figure 1 – Map showing the location of Scottish nest sites discussed in this paper. Credit to L. Schofield]**

Whether scouting sites of potential re-colonisation or seeking sober reflection in remote surrounds, the account Waterston offers of his excursion in Sutherland conjures a profound *curiosity* for the ospreys' former geography and lifeworld. This historical vignette also raises a question: how should we reckon with such an absence – less of a biological species than of a particular way of living – when that which was absent *comes back*? This paper, with a desire to craft more interesting, lively accounts of more-than-human historical geographies, argues in response for the need to appreciate extinction in terms beyond the species biopolitics of contemporary conservation. Considering questions of extinction with an eye on contemporary debates around reintroduction, re-wilding, and even 'de-extinction', geographers must attend to that which remains lost even after a species *returns*.

91 Emerging out of a larger project seeking to explore the historical animal geographies  
92 of Scottish osprey conservation (Garlick, 2017), this paper reads the insights of  
93 scientific ornithology and empirical accounts of osprey life through a conceptual  
94 framework rooted in contemporary literature around affect, neovitalist materialism,  
95 biophilosophy and 'speculative ethology'. Thinking in speculative, risky and  
96 creative ways about histories and cultures beyond the human foregrounds  
97 important ethical questions about what is at stake in extinction.

98  
99 My argument is based upon a speculative reading of the surviving traces and stories  
100 of osprey presence, informed by the insights of a broader natural-scientific and  
101 conservation literature concerning their behaviour, ecology and breeding biology. I  
102 am alert to the contradiction here: seeking to challenge essentialist notions of species  
103 whilst relying on literature steeped in this mode of understanding life and its  
104 processes. This corpus enables me to better trace the activities and conditions  
105 characteristic of osprey lived existence, such as it haunts the 'non-innocent'  
106 eighteenth- and nineteenth-century documentary accounts of naturalists, travellers,  
107 artists and sportsmen, comprising a nebulous 'animal archive' of ospreys in Scotland  
108 (Benson, 2011).

109  
110 However, I am careful not to allow such work to delimit *a priori* the capacities of  
111 ospreys, or figure them transcendent of history and geography. Drawing on  
112 scientific literature need not necessitate rigid adherence to a single scientific model,

or overly circumscribe the possible forms that osprey behaviour might take (Lestel *et al*, 2014). Rather, contemporary work on osprey ecology and conservation sharpens attention to how animal existence and agency are historically assembled and expressed in relation to a host of other actors and material conditions (Howell, *forthcoming*).

Similarly, many discussions held during the course of research with individuals who have spent time working with these birds likewise inform my understanding of ospreys' capabilities (see Midgely, 1988). Stories of humans living and working with birds past and present provide 'narratives of affiliation' (H. Lorimer, 2009: 65), helping tune into the elements of the environment affecting, and affected by, animal existence (J. Lorimer *et al*, 2017: 6). In sum, extant writing and reflection on ospreys, by those who have spent years researching with them, assists me in asking the 'right questions' of documents bearing their trace (Despret, 2016).

As much a geographical thought experiment as act of historical-cultural geography scholarship, this paper seeks to fulfil the ambitions of a more-than-human history by speculating on the historical conditions for (and of) osprey existence (Despret, 2013). This is also an ethical project of imagination and recognition. Perhaps, as Dominique Lestel argues, we attribute 'too much' to humans, and 'too little' to others in social theory (2014b: 99). A little epistemological 'courtesy' (albeit critically informed and reflexive [Johnston, 2008: 644-645]) might stem from the recognition that, in certain ways and under certain conditions, animals are '*not* so different from humans' (Philo

and Wilbert, 2000: 25, original emphasis). I frame osprey life as active and contingent: an outcome of situated involvements between birds, humans, and other agencies (after Woodward *et al*, 2010).

The aim is to write historical geography more attuned to ospreys' agential potential. Rather than cry 'anthropomorphism!' I urge the reader to persist and consider the questions such an account opens onto. A more lively account of past ecologies, I argue, offers one route by which to mobilise the care required to live with, and respond to, past and present environmental losses (see Tsing, 2015; Chrulew, 2011). The alternative – divesting ospreys of lived experience and specificity – merely 'mechano-morphises' (Crist, 1999) creatures that, like ourselves, demonstrably perceive the world, respond to it, and 'really are alive' (Ingold, 1994: xxi).

Over the following paper I attend to the more-than-human cultural geographies at stake in extinction. I begin by establishing a conceptual framework that challenges the 'species thinking' of conservation biopolitics and extends 'culture' beyond humans. I then sketch the dimensions of a Scottish osprey 'cultural community' and its unravelling until the point of eradication in 1916. Tracing a disjointed geography of absence and presence, I emphasise the enduring losses that extinction (as the cessation of a 'way of life') affects, demonstrating why thinking with animal culture alerts us to the continuing ethical significance of such loss today.



## Extinction, culture and more-than-human geographies

### *Extinction beyond the biopolitical*

In contemporary wildlife conservation a creature's presence clearly matters, both actually recorded and potentially emergent (Hinchliffe, 2007). Yet, acts of classification, calculation, and distributional mapping often render such presence a series of multiple, differently valued, and sometimes contradictory collectives in (or across) space (Beirmann and Mansfield, 2014; Hodgetts, 2017). Such initiatives, read by geographers through Michel Foucault's 'biopolitics' (see Foucault, 2003), figure life primarily in terms of averaged characteristics, or norms. Despite a diversity of animal presence on the ground, overall conservation strategy deals in populations, and the massifying metrics of bio- or genetic diversity (J. Lorimer, 2006; Srinivasan, 2014; Hennessey, 2015).

Since the mid twentieth century contemporary conservation has been increasingly defined by the perception of an encroaching, human-instigated, 'sixth mass extinction' that it seeks to prevent (Adams, 2004; Kolbert, 2014). Extinction labels *collective annihilation* – potentially of entire taxa (see Smith-Patten *et al*, 2015). Whilst background rates of extinction may be 'ecologically necessary' – with fossil records suggests a species disappearance on average every four years, creating space for (better adapted) others to flourish –identified mass extinction events (where disappearance rates reach 50-1000 times background levels) indicate episodes of extreme ecological upheaval, generating much scientific and cultural interest (Heise, 2010).

181

182 Despite any extinction event entailing multiple, situated stories of decline – such as  
183 that of the Sutherland ospreys – lived differences dissolve with losses rendered in  
184 terms of quantifiable biological species units. In much conservation discourse,  
185 extinction is enacted through numbers. Calculations of vulnerability prioritise what  
186 must be saved. The ‘Red List’, compiled by the International Union for the  
187 Conservation of Nature since 1964 (see IUCN, 2012), exemplifies this biopolitical  
188 (and ethical) triage in action (Pooley, 2015). Meanwhile, conservation looks to  
189 genetics to promote new measures of collective diversity (or value) at molecular  
190 scales (Waterton *et al*, 2013; Hennessey, 2015). Hybrid forms compromising genetic  
191 purity are suppressed (Fredriksen, 2016). Violent incarcerations (and inseminations)  
192 accompany attempts to care for fragmented, remnant populations of rare species  
193 (van Dooren, 2014; Chrulew, 2011). Threatened creatures circulate through multiple  
194 spaces including digital databases, zoos and re-introduction centres (Whatmore and  
195 Thorne, 2000; Braverman, 2015). There remains limited scope for care-full attention  
196 to lived animal geographies within this biopolitical schema.

197

198 Marshalling recent humanities scholarship, I pay a different kind of attention to  
199 species life and death. Specifically, work within ‘extinction studies’ (Rose *et al*, 2017 –  
200 further expanded below) offers opportunities for staying with the particularities of  
201 past osprey presence, and telling the story of the Scottish birds’ decline *and* return  
202 whilst, at the same time, keeping hold of what *remains lost*. Grouping creatures into  
203 collectives on the basis of apparently essential qualities renders them mere ‘units of

exchange' (Mitchell, 2016: 34), ultimately 'killable' to secure species wellbeing (Haraway, 2008; Srinivasan, 2014). Yet crucially, such 'species thinking' fails 'absolutely' to recognise 'what [...] is actually lost' through extinction (van Dooren, 2010: 272). The vital relations and contingent differences comprising actual *ways of living* – what Thom van Dooren terms 'flight ways' (2014) – are excluded from any such biopolitical reckoning with environmental destruction. Writing within the environmental humanities (Rose *et al*, 2017), as well as geography (see Van Patter and Hovorka, 2018: 291), has challenged species essentialism and concomitant conservation discourses of the 'greater good'. Increasingly, 'species' – as atomised units of concern and a 'concrete phenomenon of nature' (Mayr, 1996: 263) – become 'unthinkable' within posthumanism's rhizomatic ontologies (Haraway, 2016: 57; Whatmore, 2002).

#### *More-than-human cultural geographies*

To expand a sense of what is at stake in extinction, I make geographical and historically specific osprey 'ways of living' tangible through the notion of 'animal culture'. 'More-than-representational' (Lorimer, 2005) cultural geographies are just as evidently 'more-than-human' (Whatmore, 2006; J. Lorimer *et al*, 2017). They elude explanation merely in terms of autonomous, exceptional human figures (Whatmore, 2002; Hird, 2010; K. Anderson, 2014). Given 'making worlds is not limited to humans' (Tsing, 2015: 22), consideration of osprey culture is entirely appropriate amidst geographical scholarship long attendant to ways of living, doing and distributing natures (Anderson *et al*, 2002; Kirsch, 2014).

227 And yet, concern with 'culture' in geography remains largely human-focussed  
228 (Anderson *et al*, 2002: 18-21; Anderson, 2014; Hodgetts and Lorimer, 2015).  
229 Meanwhile, biologists, particularly primatologists and cetologists, have long debated  
230 the existence of nonhuman cultures (see Laland and Galef, 2009; Whitehead and  
231 Rendell, 2015). Indeed, culture appears a practical (if implicit) consideration for  
232 many conservation scientists. Van Dooren (2014; 2016) describes various instances  
233 where the management of captive-bred birds – such as crows and cranes – involves  
234 carefully supporting the development of an 'authentic' species being comprising the  
235 behaviours, perceptions and vocalisations that encompass a 'wild' subjectivity. Such  
236 examples feature plastic animal subjects, and testify to the multiple forms of  
237 'animality' possible within different assemblages (Lestel, 2002).  
238  
239 Championing early critical attention to animal geographies, Chris Philo and Chris  
240 Wilbert emphasised the need for attention to animals' own geographies – their  
241 'beastly places' (2000: 5) – alongside the social construction of 'animal spaces'.  
242 Although methodological and conceptual developments have favoured the former  
243 (Hodgetts and Lorimer, 2015), there is growing energy within more-than-human  
244 geography to explore the spatial character of animal life beyond its 'placing' by  
245 humans (H. Lorimer, 2006; Johnston, 2008; Buller, 2014, Buller, 2015; Van Patter and  
246 Hovorka, 2018; J. Lorimer *et al*, 2017). Animals, figured as 'geographers too' (Buller,  
247 2015: 380), enact spatial lives and attachments. Birds, recognised as 'geographical  
248 creatures' (Steinberg, 2010: iii), invest significance in place through migratory

refrains, perceptions and attachments. Such geographies characterise the 'flight way' of osprey existence.

Through the osprey's story I challenge the 'residual humanism' (Lulka, 2009) surrounding cultural geography's central concept: culture. I argue that avian cultures reflect creative capacities to find diverse ways of inhabiting with (or against) the limits of an environment, demonstrating non-linear, 'affective', ecologies (Hustak and Myers, 2012). They take material form through 'non-essential' behavioural adjustments – such as nest preferences – shared socially between groups of birds, and with neither genetics nor environmental factors providing a 'truly satisfying' explanation of their appearance (Lestel, 2014b: 98). Thus, ospreys have a heritage exceeding biology, including group traditions, spatial arrangements and individual experience (Lestel, 2011: 84), which constitutes their very 'personhood' (Ingold, 1994).

I engage osprey cultural geographies via a hybrid conceptual frame (see Hovorka, 2017) drawing inspiration from 'speculative' approaches to ethology (the science of animal behaviour). Such work continues the maverick, creative, creaturely spirit championed by early pioneers of ethological study (see H. Lorimer, 2009). Rejecting a traditional, 'Cartesian-realist' ethology equating behavioural signals with fixed, universalising behavioural models, scholars including Vinciane Despret and Dominique Lestel propose a more open-ended consideration of animals, and their capacity to form contingent communities of meaning and relating (Despret, 2013).

Agential capacities are 'characterised by their historicity' (Lestel, 2002: 58), and constitute an open, empirical question (Despret, 2006).

Culture is thus figured with an emphasis on affect and sense (Lestel, 2014b: 95). I emphasise a corporeal reading of 'affect', foregrounding: the body's capacity to register the impress of worldly forces; the manner in which such impressions mediate a body's potential capabilities; and the various forces that emanate from bodies to enact similar mediations upon surroundings and other bodies (Anderson, 2014). Specifically, I apply Sara Ahmed's concept of 'orientation' to characterize 'different ways of registering the proximity of objects and others' (Ahmed, 2006: 3) as subjects affect and are affected by worlds. Orientations capture *how* spaces are affectively inhabited: the aspects towards which the body extends, or from which it retracts (Ahmed, 2010: 29). I (and others - Wright, 2015) see value in extending Ahmed's thinking beyond humans. In an account of past and present osprey nesting, orientation directs attention to the specific affects of a bird's worldly situation, its 'point of view' (Ahmed, 2006: 12) as an emergent, multi-sensory, perceptual attunement (Stewart, 2011).

In this manner, animal – specifically, avian – cultural life might be mapped, as Deleuze and Guattari suggest, by virtue of 'counting its affects' (2013: 299). That is, by documenting site- and relationally-specific ways of living as part of always-hybrid communities (Lestel, 2014a); or through attention to the (re)articulation of animal being amidst particular 'atmospheres' or fields of forces (J. Lorimer *et al*,

2017). Exploring more-than-human cultural geographies therefore requires attention to processes of 'learning to be affected' by the world, as to mediate future meetings (Despret, 2004: 131). Arising from assembled agential capacities to perceive and respond, 'different worlds [...] come into view'. In turning toward these worldly offerings, bodies acquire 'the very shape of their direction' (Ahmed, 2006: 15-16). Understanding encounters with place, objects or 'others' requires situating subjects amidst 'conditions of their arrival' (Ahmed, 2010: 33) and histories of relating. How ospreys and nest sites become available to each other is a contingent process. Bodies and places are entrained into the refrains of migration, assembly and return, weaving together a creaturely ecology (H. Lorimer, 2009).

Osprey nesting geographies cohere as 'traditions' - social learning across generations (McGrew, 2009) - marking out specific forms of difference *within* the blanket category of 'genetic species'. These geographies emerge through the accumulation of more-than-human traces - nests, perches, migration routes, feeding grounds. In turn, attention to traces and trajectories proposes an ecology of dynamic *places*, as opposed to static *habitats* (Massey, 2005; van Dooren and Rose, 2012: 10).

To conclude this section: cultural geography - in concert with scholarship drawn from across the environmental humanities - has both scope and resource to engage more-than-human culture. The specifics of 'nonhuman' presence matter, revealing difference and diversity (see Lulka, 2009: 382). Attention to animal culture means examining how orientations of creaturely being emerge in relation and become

sustained through inheritance. Over the remainder of the paper I discuss the osprey in Scotland, making specific lives (and losses) visible and significant amidst processes of mass death.

### **An osprey cultural community**

Ospreys are creatures with the capacity to form, share and inherit place attachments. On the basis of shared orientations towards 'nestable' sites I advance the claim that nineteenth-century Scottish ospreys constituted a now-lost cultural community.

Nesting is a fundament of bird life, offering containment, insulation and protection for eggs and young (Hansell, 2000). Sites of vital reproductive work (biological and cultural), nests are 'key nodes' (Reinert, 2013: 17) connecting individual existence to the assemblage of collective being (Chrulew, 2011: 147). One can understand nests as 'animal architecture': nonhuman structures affecting local stability amidst volatile environmental conditions (Hansell, 2000). Richard Dawkins theorises such constructions in terms of an 'extended phenotype': the blueprints for building being genetically encoded, as much a reflection of evolutionary development as physiological capacities (Dawkins, 1982 in Ingold, 2000). Today, however, biologists emphasise multiple inheritance systems *beyond* the genetic (e.g. Laland and Galef, 2009). Nests offer an example of 'niche construction'. Coined by biologist John Odling-Smee, this concept refers to species' capacities for altering environments, maintaining spaces across generations that mediate selection pressures and enable



the emergence – and persistence – of particular forms of (social) life (Laland *et al*, 2016).

My own speculative reading frames situated niche-building by a particular group of the same ‘species’ as demonstrative of cultural diversity. I follow Tim Ingold (2000: 175) in rejecting the genetic essentialism of ‘extended phenotypes’, treating animal dwelling as embodied, perceptive, active.

#### *Cultures of nesting*

Ospreys historically display wide-ranging recognition for ‘nestable’ places. By nestable I mean evoking the capacities for successful nesting. This definition is derived from Gaston Bachelard’s phenomenological account of nesting as the expression of locatable ‘confidence in the world’ (1994: 94-103). Crucially, such a phenomenology defers to the animal: I place significance in where (and how) ospreys direct perception.

Cultural activity is embodied: the potential capacities of creatures in relation to environmental affordances define the limits of emergent cultural permutations (Lestel, 2014b). Consequently, commonalities exist between osprey nest sites globally. Proximate (<20km), plentiful fishing is key. Likewise, many birds favour prominent, elevated, open sites: ‘landmarks’ for human and osprey alike (Poole, 1989: 85). Such features offer easier landings when laden with prey, and a vantage to spot intruders (Hardrey *et al*, 2009). Being large raptors, osprey eyries (nest

structures) often exceed a metre in diameter. Viable sites offer a stable base for the amassed sticks (and supplementary materials) held together by friction (Dennis, 2008).

Many places have hosted ospreys, so how do differences in site preference emerge? Some attention is given to the affects of site attachment in accounts of osprey nesting, noting the 'magical attraction' (Poole, 1989: 89) of 'special places' (Newton, 1979: 39). I offer here a speculative account of nesting processes, contextualising ospreys within their affective ecologies, and connecting emergent orientations to site within birds' unfolding 'lifelines' (Ahmed, 2006: 17).

In forming attachments to specific places, male ospreys demonstrate a particular tendency to display 'natal philopatry': upon maturity they are likely to return to their 'birth region' to breed. Sightings and recoveries of colour-ringed ospreys in Scotland found 25 of 29 recorded birds nesting within 50km of their natal site – and 17 within 25km (compared to 2 of 34 females) (Dennis, 2008: 109). Results from studies involving the ringing of Fennoscandian ospreys propose that 'a circle drawn at 50km radius of the birth place' would account for over 40% of ospreys, again reflecting the propensity for male birds to inherit attachments to place (Newton, 1979: 176). With regard to attachments to particular nesting *situations*, young ospreys show a preference for sites echoing the characteristics of natal nests. Such a process of 'imprinting to area' (Newton, 1979: 282) is elsewhere evoked to explain, for example, the increasing colonisation of utility structures across generations by

ospreys in Europe (Meyburg *et al*, 1996). It is suggested that early flights from the nest might orient fledgling ospreys to their surroundings, making 'sticky' (Ahmed, 2010) certain features within emergent avian geographical perceptions. Together, such mechanisms demonstrate young ospreys' 'ontological openness' (van Dooren, 2014: 102) for geography.

Once a pair of ospreys has settled a site they will generally return to the same nest annually, so long as both survive migration and the site remains productive (Poole, 1989). In this way, as adults maintain eyries, preferences for region (through male progeny) and nesting situation become inheritable. Subsequently, orientations towards particular *kinds* of nest site emerge as 'local traditions of preference' (Newton, 1979: 82; Poole, 1989: 89).

Osprey nesting preference thus enacts landscape as a communally-inherited, 'learned skill' (H. Lorimer, 2006: 504) and recognition of the post-fledging period as crucial for assembling the geographical subjectivity of young ospreys informs the contemporary practice of translocation. From 1996 to 2005 young ospreys were taken from Scottish nests, cage-reared at Rutland Water, Oakham, and released at the point of fledging. From 2001, the first of these birds returned to nest, establishing a breeding population here (Mackrill *et al*, 2012). Given natal philopatry is unevenly observed (and varyingly expressed) an additional outcome of this project included the tandem emergence of an osprey community in Wales with dispersal on return migration.

409

410 The relocation example attests that despite certain tendencies being recorded,  
411 geographical orientations are not pre-given. Rather, nesting geographies remain  
412 contingent over the life-course, textured by osprey experience, even 'memory' (see  
413 Despret and Meuret, 2016). Site faith is tied to the persistence of seasonal  
414 monogamy. If birds die on migration their remaining partners will likely return,  
415 drawn north by an enduring place association. Equally, sites can be abandoned if  
416 eggs or young are lost due to extra-species intrusions or storms (Hardey *et al*, 2009).  
417 In this way, nests are (re)opened to colonisation by roving, nestless birds, entrained  
418 into new sets of osprey relations. A site's 'stickiness' for particular individuals  
419 reflects an on-going, creaturely storying of place (van Dooren and Rose, 2012). I turn  
420 to explore such processes at work amongst the ospreys of nineteenth-century  
421 Scotland.

422

### 423 *Scottish osprey culture*

424 Several authors label the demise of the Scottish osprey as 'extinction' (Brown, 1979;  
425 Poole, 1989; Kitchener, 1998; Dennis, 2008). Yet, within a biological species-centred  
426 definition of extinction such loss would be termed 'extirpation': the eradication of a  
427 given *population* of a species 'in a specific area' (Smith-Patten *et al*, 2015: 482).  
428 Extirpation implies that losses only register significance if *genetic* survival or  
429 diversity is threatened. Here, in developing a conception of extinction in which *ways*  
430 *of life* are at stake, I problematise extirpation as a concept for the way in which it  
431 renders disparate populations interchangeable.

432

433 Extinction studies scholarship challenges the essentialism inherent to biological  
434 definitions of species, expanding the registers of significant loss (Mitchell, 2016).  
435 Doing so requires telling alternative 'extinction stories': offering generative openings  
436 (van Dooren, 2010: 272-273) onto the 'intimate peculiarities' of environmental  
437 destruction (van Dooren, 2014: 7-8; Rose *et al*, 2017). Extinction is refigured as a  
438 broader, slower process of detachment from conditions of dwelling in which the end  
439 of a way of life precedes the disappearance of the last, lingering one (Rose, 2012).  
440 Absence is felt beyond the biological, encompassing lost vocabularies, behaviours,  
441 sensory knowledges and future possibilities (Smith, 2013). Recognising such losses  
442 attests to more-than-human lives lived amidst relational *communities*, characterised  
443 by situated forms of animal existence and worlding (see Yusoff, 2012: 587). As  
444 Despret and Meuret articulate:

445

446 'Extinction begins when the world to which an animal was associated is reduced to  
447 nothing, or almost nothing. Extinction begins when the ways an animal composes  
448 the world and composes with the world are ended, when the ways he or she makes  
449 a world exist, according to the ways his or her ancestors had created it, have  
450 disappeared' (2016: 28-29)

451

452 In this spirit, I characterise the nineteenth-century Scottish osprey and its eradication  
453 with reference to a collectively constituted orientation towards place. Doing so  
454 makes legible osprey cultural geographies as a register of significant loss.

455

456 Prior to disappearance in the early twentieth century, there is limited data regarding  
457 the osprey's extent in Britain. Virtually no records precede the 1800s (Waterston,  
458 1962). Likewise, there is little evidence as to its persecution, particularly outside of  
459 Scotland. By 1800 the birds had probably disappeared from Ireland and a handful  
460 remained in England until 1847 (Lovegrove, 2007). A clear (if loosely documented)  
461 trajectory of decline accompanies this geographical contraction. With the osprey  
462 confined effectively to Scotland by 1850, one estimate puts their numbers between 40  
463 and 50 breeding pairs (Dennis, 1991). The same year, however, other writers note the  
464 ultimate demise of the Sutherland-based population (see Brown, 1979; Lovegrove,  
465 2007) described barely a decade earlier by Scottish naturalist William Jardine as so  
466 abundant that one might see four or five birds a day in certain localities (Waterston,  
467 1962: 81; also Selby, 1836: 287). By 1895 there were at most four pairs nesting  
468 (Harvie-Brown and Buckley, 1895: 71). This had declined to just two by the early  
469 years of the twentieth century (see Cameron, 1948), and a final (recorded) pair bred  
470 at Loch Loyne in 1916 (Gordon, 1949).

471

472 A notable feature of nineteenth-century accounts documenting encounters with  
473 Scottish ospreys is their descriptions of nests, which suggest particular site  
474 preferences. In northwest Sutherland, ospreys nesting on rock and ruin sites – rather  
475 than the trees recorded elsewhere – were apparently common. For example, in  
476 Charles St John's (1863: 138) writing he describes eyries 'placed either on the highest  
477 part of some old ruin, on the peak of some rock which stands out from the water in a

lonely highland loch, or, rarely on the very summit of an old tree'. Elsewhere, Jardine alleged to *only* have observed such behaviour, asserting Scottish nests were 'always' sited on ruined structures (Jardine, 1838: 184). Despite trees in abundance, ruins were 'preferred if near' (Jardine, 1832 quoted by Yarrell, 1871). Similarly, ornithologist William Yarrell, writing five years later, endorsed Jardine's descriptions. Nesting ospreys are recalled on 'rocky islets' and 'old ruins', only 'sometimes on high trees' (1871: 32). In 1879, one newspaper article boldly claimed ospreys built on trees only where ruins or rocks were not available ('Loch-an-Eilan and its Ospreys', 9 June 1879). That rocks and ruins were central to natural historians' understanding of the Scottish osprey, suggests their prominence within the birds' own spatial perception during this period.

Ruin eyries offer an early example of the osprey's widely documented adaptability to local conditions. The earliest record of ruin nesting occurs in the late-eighteenth-century travel writing of Welsh naturalist Thomas Pennant (Baxter and Rintoul, 1954). At Loch Lomond, he describes 'sea eagles'<sup>1</sup> that 'quit the country in winter' nesting on the ruins of Inchgalbraith island (Pennant, 1771: 80). Their presence is corroborated in other late-eighteenth-century accounts – notably the writings of Samuel Johnson, and within Gilpin's *Observations on the Picturesque*, compiled 1776 (1792: 27). Birds allegedly returned here until at least 1840 (Colquhoun, 1840), suggesting cross-generational inhabitancy. In the diaries of Elizabeth Grant (1972:

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<sup>1</sup> Whilst Pennant describes the birds as 'sea eagles', it is generally accepted that he was referring to ospreys (*Pandion haliaetus*) and not white-tailed eagles (*Haliaetus albicilla*), also persecuted during this period (see discussion in Baxter and Rintoul, 1954).

60) – of the Grants owning Rothiemurchus estate, Speyside – ospreys appear nesting atop ruins at Loch an Eilein in 1808. Like Inchgalbraith, this site was long tenanted; ospreys appearing here (with periods of absence) until 1902 (Cash, 1914).

Many of the structures reportedly colonised – including Kilchurn Castle, Loch Awe (Pearson, 1987); Lochindorb Castle, Lochindorb (Wilson, 2007); and Ardvreck Castle, Loch Assynt (St John, 1884) – if not already long-abandoned (like Lochindorb) were certainly in a ruined state by the nineteenth century (see Simpson, 1937). As Highland society was violently restructured under Hanoverian rule, possibilities emerged for recombinant osprey ecologies. The avian attraction of such sites is clear: they were (relatively) stable, prominent, and often near water. I speculate that the perception of ruins as ‘nestable’ may reflect their resonance with the form of those rock sites utilised elsewhere. In such a reading, a distinctive culture of nesting emerges at the ‘contact zone’ (Haraway, 2008) between birds and the detritus of human activity, subsequently propagated across generations.

The distribution of this practice, and its documented persistence amidst periods of absence and re-colonisation, suggests rock and ruin nesting was not exceptional but typical of this osprey community. Sites were made recognisable according to the involvements orienting avian sensibilities to place. Once settled, the on-going association between birds and site emerged via the affects of nesting elaborated above. Ospreys nested on tree sites too (as observed today) but this does not contradict a claim that their spatial perception of nestable landscapes was



demonstrably *different*. If we understand extinction to result in a ‘diminishment of the prospects for becoming’ (Whale and Ginn, 2017: 98) then the demise of the Scottish osprey is significant, their absence marking the end of a particular kind of *being*.

### **Unravelling a cultural community**

Conceptualising osprey existence as a communally-sustained way of life better-captures what is at stake in extinction. Attention to animals’ geographies foregrounds the lived spatiality of extinction stories. Scottish ospreys, as a cultural community, would become extinct as intergenerational ties were severed or unravelled (van Dooren, 2014: 22-27). Where survival necessitated the forging of ‘liveable collaborations’ (Tsing, 2015: 28), osprey deaths occurred as violent and death-filled relations proliferated. Importantly, the geographies and affects of human-led extinctions appear less spectacular or discrete than the distributed aggregate of ‘business as usual’ (Yusoff, 2012). The extinction of osprey culture occurred with a sustained and cumulative violence enacted across lived geographies and down through generations.<sup>2</sup>

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<sup>2</sup> Due to the constraints of space this paper focuses primarily on the impacts of persecution carried out against ospreys in Britain and Ireland, rather than across the full stretch of their migratory geographies between Britain and West Africa.

541 In the nineteenth century, two sources of persecution emerged and combined to  
 542 whittle away osprey existence. The first was a natural history epistemology of  
 543 specimen collection, credited with fragmenting populations in the north. The second  
 544 was highland sport, linked to the killing of ospreys on managed estate lands at the  
 545 nest and on migration (McGowan, 2009).

546  
 547 Regarding collecting naturalism: a specific enthusiasm for the study and  
 548 classification of birds, emerging from the late eighteenth century, was predicated  
 549 upon the categorisation and comparison of specimens and eggs (see Farber, 1997).  
 550 Charles St John and William Dunbar's Sutherland tour typifies the 'peak' of such  
 551 collecting enthusiasm during the 1840s, allegedly contributing to the near-total  
 552 annihilation of the region's ospreys. Collectors also visited other well-known sites,  
 553 such as Loch an Eilein (see Harvie-Brown and Buckley, 1895: 75). There, the nest was  
 554 robbed by collector Lewis Dunbar (brother to St John's companion) annually from  
 555 1848 to 1852, his spoils going to southern clients (Wolley and Newton, 1864: 58-66).  
 556 Such actions prompted the ospreys to desert the ruin for over two decades (Cash,  
 557 1914).

558  
 559 Alongside collecting, ospreys suffered the wrath of landowners managing estates for  
 560 Highland sport. The arrival of the Royal Family on Deeside popularised a nature-  
 561 culture of romantic Highlandism, including the hunting of red deer (*Cervus elaphus*)  
 562 and grouse (*Lagopus lagopus scotica*) (Pringle, 1988). Hired gamekeepers zealously

pursued all raptors as 'vermin', fearing the propensity of some to predate game (Lovegrove, 2007). Definitive figures for such destruction are elusive, with limited information sourced from surviving estate and taxidermists' books (see McGhie, 1999). Oft-quoted records for Glengarry estate between 1837-1840 suggest the scale of persecution: over three years 1,498 birds of prey were killed, including 18 ospreys (given in Ellice, 1898: 27). Appreciating that by 1850 the *entire* Scottish community likely comprised 40-50 breeding pairs, such figures suggest major losses on estate lands.

The relationship between osprey nesting culture and the impacts of persecution is hard to determine. Their nests may have been more accessible than those of other raptors (see Selby, 1836: 286). Moreover, a strong 'faith' for nests and favoured perches made them easier to kill or trap (Lovegrove, 2007: 107). Sportsman John Colquhoun recalls how, 'aware of their habit', he rowed to Inchgalbraith ruin, waited, and killed both ospreys upon their return, emptying a site 'occupied for generations' (Colquhoun, 1840: 86-7).

#### *Protection and decline*

On some estates ospreys were given sanctuary. Eyries around Loch Arkaig were protected under instructions from laird Donald Cameron of Locheil until abandoned in 1914 (Cameron, 1948). At Loch an Eilein, resident ospreys were celebrated by early-century artists and travelers in search of the picturesque (see MacCulloch, 1824: 400; Beattie, 1834: 75). After visiting in 1879, HM Inspector for Schools William

586 Jolly, writing for *The Scotsman*, bid the public, ‘go to Rothiemurchus!’ where they  
587 might come as close to the birds as to ‘a specimen in a museum’ (‘Loch an Eilan’,  
588 1879: 5). Subsequent tourist interest stimulated the estate’s proprietors to safeguard  
589 the nest, banning boats on the loch and setting keepers on watch (see Lambert, 2001).  
590

591 Despite attempts to prevent persecution, 15 of 24 recorded osprey breeding attempts  
592 at Loch an Eilein between 1846 and 1899 culminate with eggs being taken (Ritchie,  
593 1920: 192). The removal of eggs likely spelled the end of the season. Given threats  
594 faced on migration – estimate mortality rates for ospreys in the first year, derived  
595 from observations in the Eastern USA, are around 57% (Newton, 1979: 368) – any  
596 disruption to reproduction threatened a small community’s capacity to endure. By  
597 1871 the osprey was being described as ‘the rarest of our native species’ (Gray, 1871:  
598 18),  
599

600 Even where successful, isolated protections achieved little given the mobile lives of  
601 ospreys spanned a seasonal, migratory refrain. As early as the 1810s migrating  
602 ospreys were shot annually in southern counties (Montagu, 1831: 347). The killing of  
603 birds on the move evokes recent criticism of ‘static’ conservation initiatives that fail  
604 to recognise animal mobilities (see Lulka, 2004; Reinert, 2015). The osprey’s existence  
605 in Scotland was sustained through a migratory assemblage. Death *en route* was not a  
606 discrete event, but affected a delocalised, ‘reverberating absence’ (Reinert, 2015: 52)  
607 felt through diminishing returns over following seasons. In autumn, birds travelling

south stopped to roost or fish in less-friendly landscapes (see Harvie-Brown, 1896; Dennis, 2008).

Ospreys 'slipped through the cracks' of legal frameworks intended to protect them (see Srinivasan 2013: 109). The earliest legislation to offer blanket protection to wild birds, introduced in 1880, did little to stem the killing unless local councils granted special protections. However, by 1896 extra protection applied to a handful of UK counties. A leaflet published by the fledgling 'Society for the Protection of Birds' the same year decried this 'patchwork' of legislation as fatally mismatched to avian flight-ways (Harvie-Brown, 1896). Protections fitted to human political boundaries did little for birds running 'a gauntlet of innumerable shotguns' (Kearton, 1899: 61) across a mobile, migratory geography (Lulka, 2004).

The maintenance of an osprey nesting culture required annual supplies of 'young blood' (Harvie-Brown and MacPherson, 1904: 204). Yet at home, and on passage, the community was diminishing. In the final 12 years of attempted breeding at Loch an Eilein, just five produced young. In both 1888 and 1896, intruding ospreys instigated skirmishes in which the eggs were smashed (and, in 1888, a female was killed) (Cash, 1914: 115). The result was a frayed, precarious existence for birds at the 'edge' of extinction (van Dooren, 2014). The last pair to breed at Loch an Eilein did so in 1899, though single ospreys appeared until 1902. Elsewhere, they bred at Loch Arkaig until 1910 and Loch Loyne until 1916. A significant and specific form of osprey culture had vanished.

631

## 632 **Hauntings of osprey culture**

633 Today, absence haunts the nesting geographies of re-colonising Scottish ospreys.  
634 Before concluding, I argue that encounters with past osprey culture in the present  
635 are both possible and necessary in the context of technoscientific discussions of  
636 'genetic rescue' (Heatherington, 2012), rewilding (Lorimer and Dreissen, 2014), and  
637 even 'de-extinction' (van Dooren and Rose, 2017). Haunted landscapes evoke the  
638 'present-absence' of osprey life, serving to put contemporary avian geographies 'out  
639 of joint' (see Derrida, 2006). The notion of haunting emphasises the composition of  
640 geographies through absence as well as presence (Wylie, 2009). Sites such as those  
641 Sutherland lochs encountered by Waterston in the paper's opening – or the ruins at  
642 Loch an Eilein (Figure 1) – exhibit 'shadowy density' (Pile, 2005: 142). Their ghosts  
643 invite us into counter-histories; transforming, renegotiating and re-evaluating  
644 celebrated pasts (Gordon, 2008: 8). Taking osprey culture seriously creates space  
645 outside of triumphant conservation narratives to ask: what remains lost when a  
646 species *comes back*?

647

## 648 *Avian spectres*

649 More-than-human cultural geographies are woven from the affective traces of lived  
650 activities, relations and attachments. Such traces outlast the existence of their  
651 authors. They are witnessed, amidst the collapse of ecological communities, as  
652 animals remain drawn 'to places that no longer exist' (van Dooren, 2014: 66). At

locations including Loch Awe and Loch Maree, ornithologist Robert Gray recalls, in the latter half of the nineteenth century, lone ospreys ‘hovering in the vicinity of islets where nests were formerly placed’ (Gray, 1871: 18-19). Similarly, at Loch an Eilein, single birds appeared for three years following the last successful breeding (Cash, 1914: 157). These ghosts map more-than-human geographies of absence affected by extinction. Osprey site faith manifests as a performative trace of the pan-generational work of pairs to invest in and maintain meaningful places. Spectral birds conveyed the futility of such work in Gray’s time of writing. They signal that the loss of ‘connectivity and mutuality’ required to sustain communities often precedes their ‘final death’ (Rose, 2012: 138).

Cultural expressions of avian life also haunted encounters with re-colonising ospreys. In 1955, word reached George Waterston in Edinburgh, newly recruited by the RSPB, of the species’ potential return. Travelling to Speyside to investigate, his tentative plans, sketched in conversation with local landowners and Nature Conservancy representatives, were guided by an understanding of *past* osprey cultural geographies. He assumed the birds would surely attempt to nest on Loch an Eilein’s ruins – the site now home to a large jackdaw colony (*Corvus monedula*) requiring removal before re-colonisation could occur (‘Ospreys at Loch Garten’, 2 July 1955). Upon their return, however, it became clear the birds had different interests. Failing to breed in 1956 and 1957, eventually a pair settled atop a Scot’s pine in the marshland south of Loch Garten. Following the robbery of that nest, they colonised another tree northeast of the loch in 1959. There they succeeded in rearing

676 chicks under RSPB guard and their kin continue to return to this day (Dennis, 2008).  
677 As other ospreys began to re-colonize – all tree-nesting – Loch an Eilein remained  
678 empty.

679

680 With jackdaws present, the ruin was a niche closed in ecological terms. Yet the  
681 enduring absence of ospreys from *all* former rock or ruin haunts in north and west  
682 Scotland (see Dennis, 1983; Thom, 198: 146) suggests such places are also no longer  
683 *culturally* available. The *orientation* of contemporary birds to the landscape is  
684 different. Today's ospreys are predominantly tree-nesting, like those in Scandinavia  
685 from where the current community is believed to have originated (Österlof, 1977:  
686 75). These birds exist 'out of line' with the dimensions of a past affective community  
687 (Ahmed, 2010: 37). Culturally, they are 'strangers [...] in a familiar land' (Lambert,  
688 2011: 169).

689

690 Former sites like Loch an Eilein constitute 'signifiers for the dead' (Haraway, 2016:  
691 69). I extend to place this concept developed by Haraway, after science fiction writer  
692 Orson Scott Card, to characterise the spectral baggage that accompanies creatures  
693 which, having evolved through symbiotic partnership, later find themselves  
694 abandoned after extinction. She uses the example of an orchid, its flower continuing  
695 to imitate the sexual organs of the now-absent bee once pollinating its kin. In a  
696 similar vein, writer Connie Barlow discusses 'ecological anachronisms' like the  
697 avocado. Characteristically large seeds and thick, oily flesh evoke the ghostly  
698 presence of the long-extinct jungle herbivores once facilitating seed dispersal



(Barlow, 2000). In the landscape the materiality of a previous osprey affective ecology outlasts the birds' annihilation. These ruins and rocks, apparently unrecognisable to contemporary ospreys, can still offer *us* a meaningful encounter with past avian lives.

#### *Haunted geographies*

Appreciating a historical, cultural osprey existence attunes one in potentially transformative ways to contemporary avian lives and landscapes. Annually in the UK, the number and range of pairs expands (now 300 – Dennis, 2016, pers. comm.). This growth has been aided by the construction of new nest sites since the 1970s, to which ospreys increasingly adapt (Dennis, 2008: 131-146). Evidence from mainland Europe suggests successfully colonising such structures affects subsequent geographical preferences. Young born of platform nests appear predisposed to settle similar sites elsewhere (Henny and Kaiser, 1996). Nearly 40% of ospreys in the Scottish Highlands utilise human (re)constructed platforms over osprey-constructed sites (Dennis, 2008: 142). They appear more tolerant of humans and elsewhere show interest in landscape objects like utility pylons (R. Thaxton, 2014 – pers. comm.). Arguably, a 'cultural shift' has occurred (Dennis, 2008: 130). The expansion of conservation involvement with ospreys in the UK over the twentieth century propagates new geographical associations within this re-colonised community, activating new forms of osprey life (Garlick, 2017).

Meanwhile, ruins and rocks remain empty. On Speyside, attention to osprey culture unsettles narratives of triumphant return. Since 1959, ospreys have nested within a 15-kilometre flight of Loch an Eilein. They catch their prey at the Rothiemurchus estate fisheries, just four kilometres away (see Lambert, 1999). Such disjointed geographies of presence and absence haunt one another (Pile, 2005). This haunting emphasises qualitative differences in what it means to *be* a Scottish osprey, now and in the past.

What does this change mean? Is an absence from rocks and ruins significant? In their discussion of London's declining house sparrows (*Passer domesticus*), Whale and Ginn document the responses of local birders. One interviewee expresses sadness, but not merely at encountering sparrows less frequently. Rather, their rarity means that encounters with these usually convivial birds are themselves different. In the absence of other sparrows, '[s]omething is missing in the very appearance of sparrows themselves' (Whale and Ginn, 2017: 22). This is profoundly unsettling.

I likewise find the changes that extinction has wrought for Scottish osprey life unsettling. This is not a wish to wallow in the past or appeal to static concepts of Nature. Neither do I want to neglect the flourishing of today's birds, whose success is cause for celebration. Such nostalgia blinds us to the value of ecologies existing now, despite past destruction (Tsing, 2015). But I do want the loss of nineteenth-century osprey lives to *matter*. Cultural concern expands and thickens creaturely presence in accounts of extinction and cautions against the arrogant presumption

that human innovation can *reverse* environmental wrongs. Rendering the decline of historical animal culture as a *significant loss* invests it with ethical value (see Butler, 2009).

Understanding ecological existence in terms of shared cultural relations, rather than interchangeable species units serving set 'functions', means recognising that the loss of one set of beings engenders a host of (often unforeseen) communal losses (Smith, 2013). What potential cultures – what 'lines of flight' (Deleuze and Guattari, 2013) onto new forms of being – have been foreclosed upon by the eradication of this osprey community? Equally, what alternative futures are now possible, following re-colonisation, that were not before?

## Conclusion

This paper has drawn from the work of geography and the environmental humanities to position 'animal culture' – the relationally-constituted, shared orientations of a community of creatures – as a valid object of geographical inquiry. Elaborated here in terms of material, embodied, affective and historically contingent relations of perception, niche-building, maintenance, inheritance and site attachment, osprey cultural geographies trace the lives of birds on 'beastly', dwelt terms (after Philo and Wilbert, 2000; Johnston, 2008). I argue the lives of ospreys matter on terms more than their contributions towards overall genetic integrity or species survival. Tracing the geographies of extinction and conservation means attending to the differently lived geographies collected under general categories of

767 'species'. Crafting more nuanced extinction stories stays with the trouble of  
768 biopolitical conservation, and the (epistemological) violence of essentialist thought.

769  
770 Such an argument demands a more speculative historical project, attentive to the  
771 assembling of animal agency across sites and relations (Despret, 2013). My paper  
772 demonstrates the potential to inject more lively animal presences into what might  
773 otherwise persist as primarily anthropocentric historical projects, regaling things  
774 *done to* – rather than *with* or *by* – other creatures (see Howell, *forthcoming*). Defining  
775 the limits of this project remains an on-going concern. How far might the cultural-  
776 historical animal geographies proposed here be extended into the past, and what  
777 challenges arise when attempting to trace the stories of creatures less expressive of a  
778 certain 'archival charisma'? More specific to my argument, can more (temporally)  
779 distant extinctions be made to matter ethically as those closer to hand? I invite others  
780 to consider these questions.<sup>3</sup>

781  
782 Crucially, appreciating the manner in which the Scottish ospreys' cultural extinction  
783 haunts contemporary landscapes counters the implicit narrative of conservation's  
784 'molecular turn' (Hennessey, 2015) whereby often-distributed members of a species  
785 are collected, known and secured in terms of contributions to genetic diversity  
786 (Chrulew, 2011). Encounters with genetic material offer promises of technocratic  
787 redemption through re-wilding, de-domestication, and de-extinction initiatives. Yet,  
788 such narratives too-often require an essentialised animal referent, comprising little

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<sup>3</sup> I am grateful to an anonymous reviewer for these reflections.

more than a collection of genetic traits and ecological functions; trading on classic dichotomies that set animal existence apart from collaborative human becomings (see Jørgensen, 2015).

Such thinking is evident in the osprey's story as early as 1949. An article summarising the history of the birds in Scotland by naturalist Seton Gordon concluded that whilst their eradication was lamentable, the reader should not fear: 'there is no danger of this fine bird disappearing from the face of the earth' (Gordon, 1949: 675). Such statements engage this 'fine bird' in terms of its collective population status, rather than the myriad situated forms osprey life actually takes. These sentiments resonate with contemporary conservation biopolitics in which threats of extinction are evaluated at the scale of the species-collective. The promise of scientifically-worked atonement goes unchallenged (van Dooren and Rose, 2017). As long as *some creatures exist somewhere* nothing has truly been lost.

I have shown how telling stories about animal cultures makes the lived specificities of animal presence legible, perceptible and the subject of care. For some conservation biologists, recognising animal culture might mean acknowledging our responsibilities to steward more-than-human 'cultural diversity' and ensure other creatures achieve 'their varied cultural potentials' (McGrew, 2009: 69). As cetologists Hal Whitehead and Luke Rendell note, incorporating culture into existing conservation frameworks challenges the genetic basis upon which wildlife 'stocks' are been safeguarded, or sacrificed (e.g. to meet hunting quotas). For whales,

‘culture complicates conservation’ (Whitehead and Rendell, 2015: 268). It is therefore vital that more-than-human geographers engage with the arguments around the existence, character, epistemology and significance of culture beyond humanity.

The return of the osprey is a story of conservation triumph. The re-colonisation of Britain’s skies by native raptors is widely (and rightly) celebrated (Lambert, 2011). However, narratives of success must be read critically. Exploring the meaning of extinction beyond the loss of biological species does not mean abandoning the idea that extinction is irreversible (as some suggest – Smith-Patten *et al*, 2015). Rather, it is to question what counts as *significant* loss. Given the compatibility of genetic rescue, restoration and rewilding schemes with neoliberal discourse – the fear that relational ontologies of nature render ecology fungible (see J. Lorimer, 2015) – I make this point emphatically. No return is clean, things remain lost.

## References

- Adams W** 2004 *Against extinction: the story of conservation* Earthscan, London
- Ahmed S** 2006 *Queer Phenomenology* Duke University Press, London
- Ahmed S** 2010 Happy Objects in **Gregg M** and **Seigworth G** eds *The Affect Theory Reader* Duke University Press, London 29-51
- Anderson K** 2014 Mind over matter? On decentring the human in Human Geography *Cultural Geographies* 21(1) 3-18

- 833 **Anderson K, Domosh M, Pile S and Thrift N** eds 2002 *Handbook of cultural geography*  
834 Sage, London
- 835 **Bachelard G** 1993 *The Poetics of Space* Beacon, Boston MA.
- 836 **Barlow C** 2000 *The ghosts of evolution: nonsensical fruit, missing partners, and other*  
837 *ecological anachronisms* Basic Books, New York
- 838 **Baxter E and Rintoul L** 1953 *The Birds of Scotland: Their History, Distribution, and*  
839 *Migration Vol. 1.* Oliver and Boyd, Edinburgh
- 840 **Beattie W** 1838 *Scotland Illustrated Vol. 2* George Virtue, London
- 841 **Benson E** 2011 *Animal Writes: Historiography, Disciplinarity, and the Animal Trace*  
842 in **Kalof L and Montgomery G** eds *Making Animal Meaning* Michigan State  
843 University Press, East Lansing MI 3-16
- 844 **Biermann C and Mansfield B** 2014 Biodiversity, purity, and death: conservation  
845 biology as biopolitics *Environment and Planning D: Society and Space* 32 257-73.
- 846 **Braverman I** 2015 *Wild Life: The Institution of Nature* Stanford University Press,  
847 London
- 848 **Brown P** 1979 *The Scottish Ospreys: From Extinction to Survival* Heineman, London
- 849 **Buller H** 2014 *Animal geographies I* *Progress in Human Geography* 38(2) 308-18
- 850 **Buller H** 2015 *Animal geographies II: Methods* *Progress in Human Geography* 39(2)  
851 374-84
- 852 **Butler J** 2009 *Frames of War: When is Life Grievable?* Verso, New York

- 853 **Cameron D** 1948 Recollections about the Ospreys at Achnacarry *British Birds* 36(9)  
854 184
- 855 **Cash C** 1914 History of the Loch an Eilein Ospreys *The Scottish Naturalist* 31(July)  
856 149-58
- 857 **Chrulew M** 2011 Managing Love and Death at the Zoo: The Biopolitics of  
858 Endangered Species Preservation *Australian Humanities Review* 50 137-57
- 859 **Colquhoun J** 1840 *The Moor and the Loch* William Blackwood & Sons, Edinburgh
- 860 **Crist E** 1999 *Images of Animals: Anthropomorphism and the Animal Mind* Temple  
861 University Press, Philadelphia PA
- 862 **Deleuze G and Guattari F** 2013 *A Thousand Plateaus: Capitalism and Schizophrenia*  
863 Bloomsbury, London
- 864 **Dennis R** 1983 Population Studies and Conservation of Ospreys in Scotland' in **Bird**  
865 **D** ed *Biology and Management of Bald Eagles and Ospreys* Harpell Press, Montreal 207-  
866 14
- 867 **Dennis R** 1991 *Ospreys* Colin Baxter, Lanark
- 868 **Dennis R** 2008 *A Life of Ospreys* Whittles Publishing, Caithness
- 869 **Derrida J** 2006 *Specters of Marx: The State of the Debt, the Work of Mourning and the New*  
870 *International* Routledge, London
- 871 **Despret V** 2004 The Body We Care For: Figures of Anthro-zoo-genesis *Body &*  
872 *Society* 10(2-3) 111-134



- 873 **Despret V** 2006 Sheep Do Have Opinions in **Latour B** and **Weibel P** eds *Making*  
874 *Things Public: Atmospheres of Democracy* MIT Press, London 360-9
- 875 **Despret V** 2013 From Secret Agents to Interagency *History and Theory* 52(4) 29-44
- 876 **Despret V** 2016 *What Would Animals Say If We Asked The Right Questions?* University  
877 of Minesotta Press, London
- 878 **Despret V and Meuret M** 2016 Cosmoecological sheep and the arts of living on a  
879 damaged planet *Environmental Humanities* 8 24-36
- 880 **Ellice E** 1898 *Place-Names in Glengarry and Glenquoich and Their Origin* Swan  
881 Sonnenschein & Co., London
- 882 **Farber P** 1997 *Discovering Birds: The Emergence of Ornithology as a Scientific Discipline,*  
883 *1760-1850* Johns Hopkins University Press, London
- 884 **Foucault M** 2003 *Society must be Defended: Lectures at the Collège de France, 1975- 1976*  
885 Penguin, London
- 886 **Fredriksen A** 2016 Of wildcats and wild cats: Troubling species-based conservation  
887 in the Anthropocene *Environment and Planning D: Society and Space* 34(4) 689-705
- 888 **Garlick B** 2017 *Osprey Involvements: Historical animal geographies of extinction and*  
889 *return.* PhD Thesis, University of Edinburgh
- 890 **Gilpin W** 1792 *Observations on the Picturesque (Vol. 2)* R. Blamire, London
- 891 **Gordon A** 2008 *Ghostly Matters: Haunting and the Sociological Imagination* University  
892 of Minnesota Press, London
- 893 **Gordon S** 1949 'Haunts of the Osprey' *Country Life* 25 March 1949 674-5

- 894 **Grant E** 1972 *Memoirs of a Highland Lady* John Murray, London
- 895 **Gray R** 1871 *The Birds of the West of Scotland Including the Outer Hebrides* Thomas
- 896 Murray & Son, Glasgow
- 897 **Hansell M** 2000 *Bird Nests and Construction Behavior* Cambridge University Press,
- 898 Cambridge
- 899 **Haraway D** 2008 *When species meet* University of Minnesota Press, London
- 900 **Haraway D** 2016 *Staying with the trouble: Making kin in the Chthulucene* Duke
- 901 University Press, London
- 902 **Hardey J, Crick H, Wernham C, Riley H, Etheridge B and Thompson D** (2009)
- 903 *Raptors A Field Guide for Surveys and Monitoring (3<sup>rd</sup> Ed)* Stationary Office, Edinburgh
- 904 **Harvie-Brown J** 1896 No.6 – Osprey *The Society for the Protection of Birds Educational*
- 905 *Series, 1896-1898*
- 906 **Harvie-Brown J and Buckley T** 1887 *A Vertebrate Fauna of Sutherland, Caithness, and*
- 907 *West Cromarty* David Douglas, Edinburgh.
- 908 **Harvie-Brown J and MacPherson H** 1904 *A Fauna of the North-West Highlands and*
- 909 *Skye* David Douglas, Edinburgh
- 910 **Heatherington T** 2012 From Ecocide to Genetic Rescue: Can Technoscience Save the
- 911 Wild? in **Sodikoff G** ed *The Anthropology of Extinction: Essays on Culture and Species*
- 912 *Death* Indiana University Press, Indianapolis 39-66
- 913 **Heise U** 2010 Lost Dogs, Last Birds, and Listed Species: Cultures of Extinction
- 914 *Configurations* 18(1-2) 49-72

- 915 **Hennessy E** 2015 The Molecular Turn in Conservation: Genetics, Pristine Nature,  
 916 and the Rediscovery of an Extinct Species of Galapagos Giant Tortoise *Annals of the*  
 917 *Association of American Geographers* 105(1) 87-104
- 918 **Henny C and Kaiser J** 1996 Osprey Population Increase along the Willamette River,  
 919 Oregon, and the Role of Utility Structures, 1976-93 in **Bird D, Varland D and Negro**  
 920 **J** eds *Raptors in Human Landscapes* Academic Press, London 97-108
- 921 **Hinchliffe S** 2007 *Geographies of nature* Sage, London
- 922 **Hird M** 2010 Meeting with the microcosmos *Environment and Planning D: Society and*  
 923 *Space* 28 36-8
- 924 **Hodgetts T** 2017 Wildlife conservation, multiple biopolitics and animal  
 925 subjectification: Three mammals' tales *Geoforum* 79 17-25
- 926 **Hodgetts T and Lorimer J** 2015 Methodologies for animals' geographies: cultures,  
 927 communication and genomics *Cultural Geographies* 22(2) 285-95
- 928 **Hovorka A** 2017 Animal geographies II: Hybrizing *Progress in Human Geography*  
 929 Early access, doi: 0309132517699924
- 930 **Howell P** forthcoming Animals, agency and history in **Kean H and Howell P** eds *The*  
 931 *Routledge Companion to Animal-Human History* Routledge, Abingdon.
- 932 **Hustak C and Myers N** 2012 Involuntary Momentum: Affective Ecologies and the  
 933 Sciences of Plant/Insect Encounters *differences* 25(3) 74-118
- 934 **Ingold T** ed 1994 *What is an animal?* Routledge, London.

- 935 **Ingold T** 2000 *The Perception of the Environment: Essays on Livelihood, Dwelling and*  
936 *Skill* Routledge, London
- 937 **IUCN** 2012 *IUCN Red List Categories and Criteria Version 3.3 (2<sup>nd</sup> Ed)* IUCN, Gland,  
938 Switzerland.
- 939 **Jardine W** 1838 *The Naturalist's Library, Ornithology Vol. IX, Birds of Great Britain and*  
940 *Ireland Part 1: Birds of Prey* W.H. Lizars, Edinburgh
- 941 **Johnston C** 2008 Beyond the clearing: towards a dwelt animal geography *Progress in*  
942 *Human Geography* 32(5) 633-49
- 943 **Jørgensen D** 2015 Rethinking rewilding *Geoforum* 65 482-8
- 944 **Kearton R** 1899 *Our Rarer British Birds: Their Nests, Eggs and Summer Haunts* Cassell  
945 and Company, London
- 946 **Kirsch S** 2014 Cultural geography II: Cultures of nature (and technology) *Progress in*  
947 *Human Geography* 38(5) 691-702
- 948 **Kitchener A** 1998 Extinctions, Introductions and Colonisations of Scottish Mammals  
949 and Birds since the Last Ice Age in **Lambert R** ed *Species History in Scotland:*  
950 *Introductions and Extinctions since the Ice Age* Scottish Cultural Press, Edinburgh 63-92
- 951 **Kolbert E** 2014 *The sixth extinction: an unnatural history* Bloomsbury, London
- 952 **Laland K and Galef B** 2009 Introduction in **Laland K and Galef B** eds *The Question*  
953 *of Animal Culture* Harvard University Press, London 1-18
- 954 **Laland K, Matthews B and Feldman M** 2016 An introduction to the niche  
955 construction theory *Evolutionary Ecology* 30 191-202

- 956 **Lambert R** 1999 In Search of Wilderness, Nature and Sport: The Visitor to  
 957 Rothiemurchus, 1780-2000 in **Smout C** and **Lambert R** eds *Rothiemurchus: Nature and*  
 958 *People on a Highland Estate, 1500-2000*. Scottish Cultural Press, Edinburgh. 32-59.
- 959 **Lambert R** 2001 *Contested Mountains: Nature, Development and Environment in the*  
 960 *Cairngorms Region of Scotland, 1880-1980*. White Horse, Cambridge
- 961 **Lambert R** 2011 Strangers in a Familiar Land: The Return of the Native 'Aliens' and  
 962 the Re-Wilding of Britain's Skies, 1850-2010 in **Rotherham D** and **Lambert R** eds  
 963 *Invasive and Introduced Plants and Animals: Human Perceptions, Attitudes and*  
 964 *Approaches to Management* Earthscan, London 169-84
- 965 **Lestel D** 2002 The biosemiotics and phylogenesis of culture *Biology and social life*  
 966 41(1) 35-68
- 967 **Lestel D** 2011 What Capabilities for the Animal? *Biosemiotics* 4 83-102
- 968 **Lestel D** 2014a Hybrid Communities *Angelaki* 19(3) 61-73
- 969 **Lestel D** 2014b Dissolving Nature in Culture *Angelaki* 19(3) 93-110
- 970 **Lestel D, Bussolini J and Chrulew M** 2014 The Phenomenology of Animal Life  
 971 *Environmental Humanities* 5 125-48
- 972 **'Loch-an-Eilan and its Ospreys'** *The Scotsman* 9 June 1879 Accessed via the Scotsman  
 973 Digital Archives, 25/2/16, BL0000540.18790609.119.0005
- 974 **Lorimer H** 2005 Cultural geography: the busyness of being more-than-  
 975 representational *Progress in Human Geography* 29(1) 83-94

- 976 **Lorimer H** 2006 Herding memories of humans and animals *Environment and*  
 977 *Planning D: Society and Space* 24 497-518
- 978 **Lorimer H** 2009 Forces of Nature, Forms of Life: Calibrating Ethology and  
 979 Phenomenology in **Anderson B** and **Harrison P** eds *Taking-Place: Non-*  
 980 *Representational Theories and Geography* Ashgate, Farnham 55-78
- 981 **Lorimer J** 2006 What about the nematodes? Taxonomic partialities in the scope of  
 982 UK biodiversity conservation *Social and Cultural Geography* 7(4) 539-58
- 983 **Lorimer J** 2015 *Wildlife in the Anthropocene: conservation after nature* University of  
 984 Minnesota Press, London
- 985 **Lorimer J and Driessen C** 2014 Wild experiments at the Oostvaardersplassen:  
 986 rethinking environmentalism in the Anthropocene *Transactions of the Institute of*  
 987 *British Geographers* 39(2) 169-81
- 988 **Lorimer J, Hodgetts T and Barua M** 2017 Animal's atmospheres *Progress in Human*  
 989 *Geography* Early access, doi: 10.1177/0309132517731254
- 990 **Lovegrove R** 2007 *Silent Fields: The long decline of a nation's wildlife* Oxford University  
 991 Press, Oxford
- 992 **Lulka D** 2004 Stabilizing the herd: fixing the identity of nonhumans *Environment and*  
 993 *Planning D: Society and Space* 22(3) 439-63
- 994 **Lulka D** 2009 The Residual Humanism of Hybridity: Retaining a Sense of the Earth  
 995 *Transactions of the Institute of British Geographers* 34(3) 378-93
- 996 **MacCulloch J** 1824 *The Highlands and Western Isles of Scotland* Longman & Co.,  
 997 London

- 998 **Makrill T, Appleton T and McIntyre H** 2012 *The Rutland Water Ospreys* Bloomsbury,  
999 London.
- 1000 **Massey D** 2005 *For space* Sage, London
- 1001 **Mayr E** 1996 What Is a Species, and What Is Not? *Philosophy of Science* 63(2) 262-77
- 1002 **McGhie H** 1999 Persecution of birds of prey in north Scotland as evidenced by  
1003 taxidermists' stuffing books *Scottish Birds* 20(2) 98-110
- 1004 **McGowan R** 2009 The decline of the Scottish Ospreys: who was to blame? *Scottish*  
1005 *Birds* 29(1) 55-8
- 1006 **McGrew W** 2009 Ten Dispatches from the Chimpanzee Culture Wars, plus  
1007 postscript (revisiting the battlefronts) in **Laland K** and **Galef B** eds *The Question of*  
1008 *Animal Culture* Harvard University Press, London 41-69
- 1009 **Meyburg B-U, Manowsky O and Meyburg C** 1996 The Osprey in Germany: Its  
1010 Adaption to Environments Altered by Man in **Bird D, Varland D** and **Negro J** eds  
1011 *Raptors in Human Landscapes: Adaptions to Built and Cultivated Environments* Academic  
1012 Press, London 125-35
- 1013 **Midgely M** 1988 Beasts, Brutes and Monsters in Ingold T ed *What is an animal?*  
1014 Routledge, London 35-46
- 1015 **Mitchell A** 2016 Beyond Biodiversity and Species: Problematizing Extinction *Theory,*  
1016 *Culture and Society* 33(5) 23-42
- 1017 **Montagu G** 1831 *The Dictionary of Ornithology* (2<sup>nd</sup> Ed.) Hirst, Chance & Co., London.
- 1018 **Newton I** 1979 *Population Ecology of Raptors* T&A Poyser, Birkhamsted

- 1019 **'Ospreys at Loch Morlich'** 2 July 1955 Letter from George Waterston to Peter  
 1020 Conder, RSPB Archives, Sandy Classmark 01.05.709.
- 1021 **Österlof S** 1977 Migration, Wintering Areas, and Site Tenacity of the European  
 1022 Osprey *Pandion h. haliaetus* (L.) *Ornis Scandinavica* 8(1) 61-78
- 1023 **Pearson W** 1987 *The Osprey* Oriel Stringer, Brighton
- 1024 **Pennant T** 1771 *A Tour In Scotland* John Monk, Chester
- 1025 **Philo C and Wilbert C** 2000 Animal spaces, beastly places: an introduction in **Philo**  
 1026 **C and Wilbert C** eds *Animal spaces, beastly places: new geographies of animal-human*  
 1027 *relations* Routledge, London 1-34
- 1028 **Pile S** 2005 *Real Cities: Modernity, Space and the Phantasmagorias of City Life* Sage,  
 1029 London
- 1030 **Poole A** 1989 *Ospreys: A Natural and Unnatural History* Cambridge University Press,  
 1031 Cambridge
- 1032 **Pooley S** 2015 Endangered *Environmental Humanities* 7(1) 259-63
- 1033 **Pringle T** 1989 The privation of history: Landseer Victoria and the Highland myth in  
 1034 **Cosgrove D and Daniels S** eds *The Iconography of Landscape* Cambridge University  
 1035 Press, Cambridge 142-61
- 1036 **Reinert H** 2013 The Care of Migrants: Telemetry and the Fragile Wild *Environmental*  
 1037 *Humanities* 3 1-24



- 1038 **Reinert H** 2015 'The Landscape Concept as Rupture: Extinction and Perspective in a  
 1039 Norwegian Fjord in **Sooväli-Sepping H, Reinert H and Miles-Watson J** eds  
 1040 *Ruptured Landscape: Landscape, Identity and Social Change* Springer, London 41-54
- 1041 **Ritchie J** 1920 *The Influence of Man on Animal Life in Scotland* Cambridge University  
 1042 Press, London
- 1043 **Rose DB** 2012 Multispecies knots of ethical time *Environmental Philosophy* 9(1) 127-40
- 1044 **Rose DB, van Dooren T and Chrulew M** eds 2017 *Extinction Studies: Stories of Time,*  
 1045 *Death and Generations* Colombia University Press, New York
- 1046 **Selby P** 1836 On the Quadrupeds and Birds inhabiting the County of Sutherland,  
 1047 observed there during an Excursion in the Summer of 1834 Part 2 *Edinburgh New*  
 1048 *Philosophical Journal* 20(April 1836) 286-95
- 1049 **Simpson W** 1937 Lochaneilean Castle, Invernesshire *Antiquarian's Journal* 17 56-62
- 1050 **Smith M** 2013 Ecological community, the sense of the world, and senseless  
 1051 extinction *Environmental Humanities* 2(1) 21-41
- 1052 **Smith-Patten B, Bridge E, Crawford P, Hough D, Kelly J and Patten M** 2015 Is  
 1053 extinction forever? *Public Understandings of Science* 24(4) 481-95
- 1054 **Srinivasan K** 2013 The biopolitics of animal being and welfare: dog control and care  
 1055 in the UK and India *Transactions of the Institute of British Geographers* 38(1) 106-19
- 1056 **Srinivasan K** 2014 Caring for the collective: biopower and agential subjectification in  
 1057 wildlife conservation *Environment and Planning D: Society and Space* 32 501-17

- 1058 **St John C** 1863 *Natural History and Sport in Moray: Collected from the Journals and*  
 1059 *Letters of the Charles St John* Edmonston and Douglas, Edinburgh
- 1060 **St John C** 1884 *A Tour in Sutherland with Extracts from the Field Books of a Sportsman*  
 1061 *and a Naturalist, Vol. 1 (2<sup>nd</sup>Ed.)* David Douglas, Edinburgh
- 1062 **Steinberg M** 2010 Avifaunal Research and Geographical Perspectives *Geographical*  
 1063 *Review* 100(2) i-iii
- 1064 **Stewart K** 2011 Atmospheric attunements *Environment and Planning D: Society and*  
 1065 *Space* 29(3) 445-53
- 1066 **Thom V** 1986 *Birds in Scotland* T&AD Poyser, Edinburgh
- 1067 **Tsing A** 2015 *The Mushroom at the End of the World: On the possibility of life in Capitalist*  
 1068 *Ruin* Princeton University Press, Oxford
- 1069 **van Dooren T** 2010 Pain of extinction: The death of a vulture *Cultural Studies*  
 1070 *Review* 16(2) 271-89
- 1071 **van Dooren T** 2014 *Flight Ways: Life and Loss at the Edge of Extinction* Colombia  
 1072 University Press, New York
- 1073 **van Dooren T** 2016 Authentic crows: Identity, captivity and emergent forms of  
 1074 life *Theory, Culture & Society* 33(2) 29-52
- 1075 **van Dooren T and Rose DB** 2012 Storied-places in a multispecies city *Humanimalia*  
 1076 3(2) 1-27
- 1077 **van Dooren T and Rose DB** 2017 Keeping Faith with the Dead: Mourning and De-  
 1078 extinction *Australian Zoologist* 38(3) 375-8

- 1079 **Van Patter L and Hovorka A** 2018 'Of place' or 'of people': exploring the animal  
 1080 spaces and beastly places of feral cats in southern Ontario *Social & Cultural Geography*  
 1081 19(2) 275-95
- 1082 **Waterston G** 1962 The Natural History of the Osprey in **Brown P** and **Waterston G**  
 1083 eds *The Return of the Osprey* Collins, London 65-160
- 1084 **Waterton C, Ellis R and Wynne B** 2013 *Barcoding Nature: Shifting Cultures of*  
 1085 *Taxonomy in an Age of Biodiversity Loss* Routledge, Abingdon
- 1086 **Whale H and Ginn F** 2017 In the Absence of Sparrows in **Cunsolo A** and **Landman**  
 1087 **K** eds *Mourning Nature: Hope at the Heart of Ecological Loss and Grief* McGill University  
 1088 Press, London 92-116
- 1089 **Whatmore S** 2002 *Hybrid Geographies* Sage, London
- 1090 **Whatmore S** 2006 Materialist returns: practising cultural geography in and for a  
 1091 more-than-human world *cultural geographies* 13(4) 600-9
- 1092 **Whatmore S and Thorne L** 2000 Elephants on the move: spatial formations of  
 1093 wildlife exchange *Environment and Planning D: Society and Space* 18 185-203
- 1094 **Whitehead H and Rendell L** 2015 *The Cultural Lives of Whales and Dolphins*  
 1095 University of Chicago Press, London
- 1096 **Wilson J** 2007 *Tales and Travels of a School Inspector* Birlinn, Edinburgh
- 1097 **Wolley J and Newton A** (1864) *Ootheca Wolleyana: An Illustrated Catalogue of the*  
 1098 *Collection of Birds' Eggs Formed by the Late John Wolley (Part 1: Accipitres)* John Van  
 1099 Voorst, London

- 1100 **Woodward K, Jones J and Marston S** 2010 Of eagles and flies: orientations toward  
1101 the site *Area* 42(3) 271-80
- 1102 **Wright S** 2015 More-than-human, emergent belongings: A weak theory  
1103 approach *Progress in Human Geography* 39(4) 391-411
- 1104 **Wylie J** 2009 Landscape, absence and the geographies of love *Transactions of the*  
1105 *Institute of British Geographers* 34(3) 275-89
- 1106 **Yarrell W** 1871 *A History of British Birds Vol. 1 (4<sup>th</sup> Ed)* John Van Voorst, London
- 1107 **Yusoff K** 2012 Aesthetics of loss: biodiversity, banal violence and biotic subjects  
1108 *Transactions of the Institute of British Geographers* 37 576-92
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