Nonhuman citizens on trial: the ecological politics of a beaver reintroduction

Abstract

Wildlife reintroductions can unsettle social and ecological norms, and are often controversial. In this paper, we examine the recent (re)introduction of Eurasian beavers to England, to analyse responses to an unauthorised release of a formerly resident species. Although the statutory response to the introduction was to reassert ecological and political order by recapturing the beavers, this action was strongly opposed by a diverse collective, united and made powerful by a common goal: to protect England's 'new' nonhuman residents. We show how this clash of state resolve and public dissent produced an uneasy compromise in the form of a formal, licensed 'beaver reintroduction trial', in which the new beaver residents have been allowed to remain, but under surveillance. We propose that although the trial is unorthodox and risky, there is an opportunity for it to be treated as a 'wild experiment' through which a more open-ended, experimental approach to co-inhabiting with wildlife might be attempted.

Introduction

In winter 2013, unusual signs of wildlife activity appeared along the River Otter in Devon, England: pencil-sharpened tree-stumps and gnawed vegetation. Curiosity aroused, local people set up camera traps to identify the culprit, and in so doing catalysed a series of events with far-reaching implications for ecological politics in the United Kingdom. The camera traps revealed that at least three Eurasian beavers (*Castor fiber*) were inhabiting the river. These large, herbivorous, water-dwelling rodents were historically resident across Britain,[1] but were hunted to extinction several hundred years ago. The discovery of free-living beavers in Devon was, therefore, a significant national event.

Here, we follow the story of Devon's beavers as they are discovered, draw attention, inspire debate, and make themselves residents of the River Otter. In telling this story we aim, first, to consider how people responded to and negotiated about beavers and their reintroduction, whilst recognising the roles beavers play in shaping their own story. Second, we aim to examine British environmental politics as a series of practices and tensions that emerge in relation to specific events and circumstances. In other words, we consider how beaver reintroduction has been, and is being, done in Britain. We are therefore

pursuing a relational, vitalist political ecology in which “humans and animals inhabit a lively earth, with and against the grain of political design” (Barua 2014a, page 916; see also Hinchliffe and Whatmore, 2006). In situating the work in this way, we are operating at a confluence of several streams of social research, including political ecologies of wildlife management and conflict (Barua, 2014; Collard, 2012; Rikoon, 2006); (more-than) human geographies of conservation (Adams et al., 2014; Hinchliffe, 2008; Hodgetts, 2017; Lorimer, 2015); and studies of environmental ‘knowledge controversies’ (Maye et al., 2014; Robbins, 2006; Whatmore, 2009). Our focus on environmental controversies enables us to examine not only how conservation is organised and done, but also how and why it is contested, and how subsequent disputes might be generative of novel forms of conservation practice and public engagement. This work also contributes, more specifically, to the growing literature on species reintroductions, which to date has mostly been produced from within conservation science. Although increasingly attentive to the ‘social dimensions’ of reintroduction initiatives, this work is often oriented towards assessing (and sometimes influencing) human attitudes towards them, and the ‘social feasibility’ of potential projects. Comparatively little work, however, has offered detailed social scientific analyses of the processes and practices of species reintroductions. Our research therefore also aims to inform

conservation science, by illuminating and exploring the contextualised socio-political complexity and implications of a wildlife reintroduction.

This case study was conducted as part of a larger project investigating how introduced wildlife is received and managed in the United Kingdom. Studies of acute environmental disputes are often conducted retrospectively, but we followed this story from an early stage. Our research methods were therefore influenced by the shifting dynamics of events as they unfolded. We gathered and analysed print and online media sources and documents published by civil society organisations and the UK Government (including its agencies and public bodies). We also analysed anonymised written responses to public consultations administered by the Devon Wildlife Trust (a regional environmental NGO associated with a national federation of Wildlife Trusts) and Natural England (a statutory nature conservation agency). We interviewed ten key informants between June 2014 and March 2015, and the lead author additionally attended consultation meetings and undertook field observations in Devon. Our inductive analysis began with a detailed chronicling of events, based on close reading of, and triangulation between, sources. We then placed beavers at the centre of our analysis, 'tracking' (Dempsey, 2010; Barua, 2014a) their appearance and representation through events. We considered the

beavers' history and interactions on the River Otter, and how different human actors responded to their presence, portrayed their meaning to others, and influenced their prospects. We interpreted both discursive and material practices, drawing on contemporary social theory to build explanations as to how and why this story developed as it did (Yin, 2014).

We found that the presence of beavers prompted efforts (on behalf of the Government and its agencies) to reassert ecological and political order through recapturing the Devon animals. These efforts were challenged, however, by key actors and interested publics who rejected the casting of beavers as illegal, out of place, and as a biological threat (Buller, 2008). Instead, they made political and material moves to protect beavers on the grounds that they 'belonged here': as community members, wild lives and British/European natives. This multi-pronged challenge to an established British model of wildlife conservation and management produced tensions that have been alleviated, to some extent, by an uneasy compromise in the form of the 'River Otter Beaver Trial' (ROBT). The ROBT is a retrospectively licensed socio-ecological experiment that aims to monitor the movements, interactions and effects of the Devon beavers. The ROBT's development and implementation, we suggest, constitutes a series of regulating practices that attempt to rein in, order, legitimise, and make

compliant the political and ecological messiness produced by this 'unauthorised' reintroduction. Yet despite its rationalisation, or perhaps shielded by it, the ROBT allows the newly reconstituted community of the River Otter catchment space to breathe, and time to negotiate. We therefore propose that, although it does not necessarily serve as a good model for future species reintroductions, the ROBT could nevertheless present an opportunity to attempt a looser, more experimental approach to co-inhabiting with wildlife.

Background: retrieving beavers

The exact timeframe of the beaver's disappearance from Britain is unclear,[2] but the species was extirpated at some point in the past several hundred years, primarily by hunting. Beaver populations across continental Europe had also significantly declined, but conservation efforts have since enabled their widespread recovery (Halley et al., 2012). Now classified as of 'Least Concern' by the International Union for the Conservation of Nature (IUCN), beavers nonetheless retain status as European Protected Species under the 1992 Habitats Directive (92/43/EEC). The same Directive instructs EU member states to consider reintroducing extirpated native species, and over the past twenty years there have been multiple attempts to reintroduce beavers to Britain.

The beaver's promotion as a reintroduction candidate stems from increased scientific understanding of their role in producing and maintaining diverse wetland ecosystems (Macdonald et al., 1995). This has led to the beaver's characterisation as the "quintessential" (Caro, 2010: p144) 'ecosystem engineer' (organisms that demonstrably modify the structure of their habitats: Wright et al., 2002). Beaver engineering (e.g. dam construction, tree felling) can increase landscape heterogeneity and species richness, and beavers are considered, by some, a useful ally in riparian ecosystem restoration. More recently, beaver reintroduction has emerged as an important component of the European 'rewilding' movement (Arts et al., 2015). Rewilding is a multi-faceted conservation approach that attempts to restore historical ecosystems and species (Corlett, 2016), especially those believed to be lost 'keystone' species, the restoration of which is expected/hoped to affect change at multiple trophic and systemic levels (Seddon et al., 2014). Though the meaning and value of the keystone species concept remains unsettled in ecological and conservation sciences (Caro, 2010), in rewilding discourses it is normally employed to refer to top predators (e.g. wolves, lynx) or herbivorous engineers, like beavers, acclaimed for their ability to re-establish past ecological processes since altered or halted by human activities. Furthermore, a recent paradigm shift in water management has seen increasing interest and investment in catchment-scale

139 approaches (Mathieu et al., 2016), in which beavers could play an important
140 role (Törnblom et al., 2011). A second line of argument for reintroduction
141 contends that humans have a moral obligation to re-establish formerly native
142 species, and particularly those – like beavers – whose extirpation from Britain
143 was due to human activity (Arts et al., 2012).
144
145 Following extensive negotiation and planning, the Scottish Beaver Trial (a
146 closely monitored, Government-authorised reintroduction project) proceeded in
147 the remote region of Knapdale from 2009-2014.[3] Meanwhile, in England and
148 Wales, despite the backing of the European Directive and positive feasibility
149 studies (Gurnell et al., 2008; Jones et al., 2012), by 2014 no reintroduction trial
150 had progressed beyond initial planning. Beavers are considered 'not ordinarily
151 resident' in the UK (Section 14 of the Wildlife and Countryside Act 1981), so
152 their release from captivity requires a licence from the relevant statutory nature
153 conservation organisation.[4] Applications are assessed with regard to IUCN
154 guidelines which until recently recommended that reintroduction projects should
155 be "fully understood, accepted and supported by local communities"
156 (IUCN/SSC, 1998, page 9).[5] However, full support had not been forthcoming in
157 relation to English and Welsh reintroductions,[6] indicating that the desire to
158 reintroduce beavers was not shared by all.

Whilst in twenty-first century British society beavers are no longer considered hunting and trade resources, an attitude persists that their reintroduction should primarily be based on their potential instrumental value:

> "The fact that [beavers] existed here x-hundred years ago, does that create…some kind of species imperative that they must exist here now? …Are they…needed, useful, efficient, effective within our landscape?" (interview with representative, agricultural organisation)

There are also concerns about the potential for beaver dams to cause flooding, and disrupt the movement of migratory salmonid fish; although beaver engineering is generally considered positive for 'ecosystem restoration', it will inevitably produce hydrological and ecological disturbances, not all of which will be welcomed.[7] Farmers and landowners, in particular, have questioned the place of beavers in modern, productive landscapes:

> "What do we want them for? I can't see any benefit for farming…but I can see an awful lot of hassle" (farmer, consultation meeting).

179 ‘Hassle’, here, refers to the potential difficulties of managing beavers and their
180 activities, and particularly socio-political challenges. Several chronic struggles
181 surrounding wildlife management persist in Britain, particularly concerning
182 badger culling (discussed later), but also hunting with dogs (May, 2016) and
183 raptor persecution (Thirgood et al., 2000). Given the strong potential for conflict
184 about beaver management, and the persistence of current (often bitter)
185 disputes and sensitivities, it is unsurprising that successive governments have
186 avoided committing to a stance on reintroducing beavers. Meanwhile, however,
187 at least one unsanctioned beaver population has established itself in Britain:
188
189 > “You have a population of several hundred animals on the [River] Tay
190 > now...but…it wasn’t something that was an official project, it wasn’t
191 > something that went through a process...It just happened.” (interview with
192 > conservation professional)
193
194 Stories about Britain’s ‘surprise’ beaver populations are colourfully illustrated
195 with tales of “beaver bombers” (Werth, 2014), vigilante conservationists
196 surreptitiously rewilding the country to bypass the bureaucracy of formal
197 introduction processes:
198

> "You can't stop people doing this. I've heard…people say, 'For every one beaver they take, we're going to put ten back'" (proponent of Welsh Beaver Project, quoted by Werth, 2014).

Although such people were never identified to us, we nevertheless encountered frustration and impatience among proponents of beaver reintroduction. While formal projects require substantial investment, are subject to drawn-out negotiations, and are potentially thwarted, unauthorised reintroductions have proved difficult for government authorities to detect and reverse. An initial attempt at rehoming a beaver from the illegally introduced River Tay population ended abruptly when the rehomed animal died of septicaemia (BBC, 2011). The Scottish Government subsequently and at least temporarily abandoned attempts to remove the population. Even without covert releases, growing enthusiasm for beaver reintroduction has inspired interested parties to import and breed animals in captivity, both for research and as a tourist attraction. However, beavers can dig and utilise water-courses very effectively, and escapes are not uncommon.

Beavers, then, have once again been 'made present' (Hinchliffe, 2008) in Britain through a collection of exercises in retrieval, both conceptual and

physical. Advances in ecological sciences have enabled contemporary researchers to understand the roles beavers play in ecosystems, and archival/archaeological research has confirmed their historical presence in Britain. Concurrently, paradigm shifts in environmentalist thinking and environmental management implicate beavers as potentially desirable components of future British landscapes. These scientific and ideological reconfigurations of the beaver and its place in Britain have been accompanied by physical movements of live beavers 'back' into the country. Beavers have therefore been conceptually resurrected and physically re-placed in the British landscape. Whether Devon's beavers were intentional releases or escapees remains uncertain. Regardless, one or more individuals arrived and survived on the River Otter, living there for months and possibly years before their presence was widely publicised in 2014.

Capturing beavers

The River Otter is tightly enclosed by productive agricultural land, towns and villages, and miles of riverside public footpath, so it was perhaps inevitable that its new inhabitants would eventually be discovered. In late 2013, a dairy farmer whose land abuts the river noticed unusual damage to his riparian trees. He consulted a local retired environmental scientist who set up a trail camera and,

239 shortly thereafter, captured the distinctive image of a beaver. The discovery was
240 excitedly shared with journalists and the compelling photographic proof
241 attracted national media attention. Later images showed three beavers; they
242 appeared to be breeding. This produced a second wave of press interest and
243 drew the attention of the UK Government's Department for the Environment,
244 Food and Rural Affairs (Defra), who began internal investigations within days of
245 reports being released.[8]
246
247 Defra had two major concerns. First, it was suspected that the beavers'
248 presence could be due to an intentional, illegal release. Ministers feared that
249 ignoring the situation would set a precedent of inaction and demonstrate tacit
250 acceptance of unsanctioned wildlife releases: "turning a blind eye could
251 suggest…that Defra would also turn a blind eye to further breaches of the law."
252 (Defra, 2014, page 1). Second, as the beavers' origin was unknown, there was
253 a risk they could harbour the intestinal parasite *Echinococcus multilocularis*
254 (EM). This zoonotic pathogen is not established in the UK, but is endemic in
255 mainland Europe and notably in Bavaria, from where many captive beavers in
256 Britain originate. Indeed, the only recent case of EM infection in Britain was
257 identified *post-mortem* in an imported beaver that died in captivity in Devon in
258 2010 (Barlow et al., 2011). Should this parasite be established 'in the wild' in

Britain it would both constitute a significant public health risk (EM causes the frequently fatal disease alveolar echinoccocus in humans) and lead the country to lose its 'Officially EM free' status, with associated travel and trade implications. To investigate, staff from the Government's Animal Health and Veterinary Laboratories Agency (AHVLA) visited the site where the beavers had been seen, but reported that the landowners, a dairy farming family, were reluctant to see them recaptured (Defra, 2014).

Unable to ignore the developing situation, Defra was nevertheless restricted by limited powers of access under existing wildlife legislation. The only statutory instrument that would allow Government agents compulsory access to capture the beavers was the Zoonoses (Monitoring) (England) Regulations 2007.[9] As EM is a zoonotic parasite, this legislation could be exercised to grant the AHVLA access to private land, trap the beavers and assess them for signs of EM infection. However, the Government would then have custody of an unknown number of live, captive beavers. If they were healthy, there would be little justification for euthanizing them, but equally, they could not be re-released without a licence. The AHVLA could have applied for such a licence, but this would have done little to address the Government's concerns about precedent. Defra therefore concluded that the beavers should be captured and assessed

279 on the grounds that they posed a public health risk and then (if healthy) 're-
280 homed' in captivity.
281
282 However, Defra's chosen path became increasingly muddied. In May a national
283 newspaper published a provocative article entitled, "After the badger cull, is
284 Defra planning to kill Devon's beavers?" (Merrill, 2014a). Defra responded with
285 a denial (and lethal control was not an option under serious consideration), but
286 cautiously suggested that, "beavers have not been an established part of our
287 wildlife for the last 500 years. Our landscape and habitats have changed since
288 then and we need to assess the impact they could have" (Merrill, 2014a). This
289 less than explicit response, which raised neither of the Government's primary
290 concerns (disease and precedent), may have only confused the issue: later
291 reports interpreted the statement to mean that Defra considered beavers an
292 "invasive, non-native species" (e.g. Morris, 2014; Merrill, 2014b). Although
293 Defra did not use the terminology of invasive species, their response mirrored
294 their precautionary approach to non-native species introductions,[10] and their
295 reticence to accept beavers as 'native' wildlife was apparent. Public and press
296 interest in the beavers' future was gaining momentum, and finding an institution
297 with both the facilities and fortitude to take Devon's 'wild' beavers into captivity
298 was unlikely to be easy. Nevertheless, capture remained the only option that

299 ticked all political and legal boxes: condemning illegal activity, mitigating the
300 public health risk, and avoiding a problematic precedent. In June, a Defra
301 minister confirmed in parliament that “we intend to recapture and rehome the
302 wild beavers in Devon” (HC Deb 24 June 2014 c330w).
303
304 Defra’s response, we suggest, comprised practical and classificatory efforts to
305 (re)capture and contain Devon’s transgressive beavers. Foucault (2007) argues
306 that a key function of the state is to reduce environmental irregularities and
307 insecurities through intervention. In Britain, wildlife is regularly subject to
308 scrutiny and management ‘by interference’ (Adams, 2003), including from the
309 state: government-led or sanctioned wildlife management is practised for
310 economic protection (e.g. deer control on the public forest estate), conservation
311 (e.g. eradicating introduced species) and disease control (e.g. badger culls). In
312 British law and landscapes, beavers are assumed absent, and the discovery of
313 their physical presence consequently provoked reactive efforts by Government
314 to re-order and normalise the situation. First, and despite uncertainties
315 surrounding their origins, the Devon beavers were cast as products of
316 unauthorised human intervention, and their presence therefore both unnatural
317 and illegitimate. Second, the beavers’ ambiguous legal status – protected in
318 continental Europe, but perhaps not in Britain – was evaded in favour of a

stated, resolute focus on the 'bio-threat' (Barker, 2010; Buller, 2008) that these imported individuals might pose, which required elimination. In a concerted effort to police and re-secure the geographic/political borders of Britain as an EM-free zone, Defra mobilised AHVLA staff as 'boundary agents' (Collard, 2012) and prepared to enforce zoonotic disease regulations. Finally, Defra determined to physically capture and remove the beavers, in a clear demonstration of authority, reassertion of order, and means of 'biosecuring' (Hinchliffe and Bingham, 2008) the human population against zoonotic disease. Yet, as Adrian Peace neatly summarises:

> "there is little that is inevitable or inexorable about the way in which institutions of the modern state extend their power over environments and populations that are considered 'out of order' or 'out of alignment' with legislation or regulations... It is more likely…that the processes of governing environments from a distance will prove uneven, uncertain and unpredictable because of the countervailing forces that can intervene and disrupt in a multiplicity of ways." (Peace, 2009, page 70).

Protecting beavers

Peace found that, by presenting "a persuasive, plausible and rival discourse" (2009, page 70), 'grassroots' activists can stall government plans to manage unruly wildlife. Indeed, in this case we find that power did not flow smoothly from central Government to the River Otter, dictating the acceptable terms of beaver presence and punishing transgressive behaviour. However, whereas Peace identified a single countervailing force of (organised) activists, we found that opposition to the beavers' removal gained power through multiple practices of resistance, including alliances between diverse publics, and between species. Furthermore, there was no single rival discourse, but a number of alternate narratives, not all in complete concordance but, importantly, all contesting the claims and proposals Defra put forward. Rather than responding to beaver presence as a threat or risk to be controlled, it was argued that beavers belonged on the River Otter, and in Britain, and that their residence should therefore be protected.

In this section, we consider three vignettes of activity that capture some (though certainly not all) of the ways Defra's decision was challenged. First, we follow an individual campaigner whose personal encounters with beavers inspired his efforts to recruit east Devon residents to support and protect 'their' beavers from

357 harm. We then turn to the implementation of ‘beaver patrols’ on the River Otter,
358 and explore how opposing the beavers’ recapture became a new focal point for
359 existing struggles surrounding wildlife management in the UK. Finally, we look
360 at the political work of environmental charity Friends of the Earth, who enrolled
361 the news media and judicial system to openly challenge the orderings and
362 actions of central Government and promote the Devon beavers as
363 ambassadors of both their species and a nascent rewilding movement.
364 Throughout, we consider how arguments surrounding beaver protection
365 resonate with Lavau’s (2011) typology of ‘natural belonging’. Lavau identifies
366 three ways in which fish might be conceptualised as ‘belonging’ in Australian
367 rivers: indigeneity, wildness, and ecological functionality. She maps these
368 features across three (ideal) types of human citizenship: that which is inherited
369 by ancestry (*cf*. species indigeneity), given by birth-right (*cf.* wildness, whereby
370 wild-born fish can claim naturalness, as a person born in a nation-state can
371 claim citizenship), or gained through induction (based on integration or
372 ‘naturalisation’ through residency). In drawing links between this typology of
373 ‘natural belonging’ and human responses to beaver presence, we recognise
374 that the familiar socio-legal configurations of human citizenship outlined by
375 Lavau can themselves be problematic. ‘Citizen’ is not a neutral term, and is
376 imbued with troubling history (MacGregor, 2006). Our reference to these

377 different citizenships is not, therefore, intended to endorse certain political
378 configurations of human citizenship, nor to suggest that these can be directly or
379 neatly applied to nonhuman belonging. Nevertheless, the terminology and
380 typology is useful for our analysis. The existing, multifaceted concept of human
381 citizenship provides a useful, if imperfect, framework through which we can
382 examine the multiplicity of ways people respond to new nonhuman arrivals. It
383 enables movement beyond simple ideas about species presence and absence
384 to consider other ways nonhumans might be politically conceptualised (Barker,
385 2010; Lavau, 2011). Furthermore, the categorical and terminological overlap
386 reflects real, persistent entanglements and parallels between discourses
387 surrounding introduced species and those applying to human citizenship,
388 nationalism, and immigration (Crowley, 2014; Franklin, 2006; Martin and
389 Trigger, 2015).[11]
390
391 The retired environmental scientist who first photographed the beavers had, in
392 the intervening months, spent much time observing them. He had attuned
393 himself to their habits and signs, and could differentiate between individuals
394 ('learning to be affected': Latour, 2004; see also Hinchliffe et al., 2005; Lorimer,
395 2008). He became an impromptu guide to beaver-spotters walking along the
396 river, but emphasised that his interest and expertise was focused on the River

Otter population, and one family group in particular: “my knowledge and experience is really these beavers here” (retired environmental scientist, during interview). It was also ‘these beavers here’ he was most interested in protecting. He was instrumental in drumming up community support for the beavers by distributing leaflets and posters, writing for the local newspaper, and encouraging people to sign petitions and/or write to MPs. He encouraged people to think of beavers as valuable components of the local environment and community:

> “I was taking responsibility and I wanted people to take responsibility… [if] you approach people here and say… have you seen our beavers yet? What do you think about them coming and taking away our beavers? …I think sometimes people [will] pick up on that” (retired environmental scientist, during interview)

He cared deeply about the beavers’ future, and wanted others to feel the same way. Whilst this sense of personal, affective attachment perhaps did not develop in the wider community to the same extent, many catchment residents *did* embrace the beavers as belonging within, or at least belonging *to*, their community. Comments such as “we are extremely privileged to have them

here", "it's a treat to have them", and "[we] DO want beavers in our waters"[12] indicate a sense of pride that the beavers had settled in the Otter catchment. Campaigners were also confident that the beavers provided "many benefits" (Ottery St Mary Town Council, 2014) to the community, both as welcome new residents and as economic assets providing ecotourism and business opportunities.

Through their inconspicuous, undisruptive activities the beavers appeared to have integrated smoothly, thus far, into their new suburban/agricultural landscape. This was important for their acceptance as benign additions to the socio-ecological community, particularly in terms of the dairy farmers on whose land they established territory. That beavers had been present for some time with insignificant impacts led the landowners to conclude that they posed little threat to their agricultural operation. Here, then, we find evidence of belonging through induction whereby the beavers – though newcomers – were not received as out of place on the River Otter. Rather, through their inoffensive and (for some) exciting, propitious presence, they became accepted and protected by many catchment residents as 'our own'. Shortly after Defra announced its intention to recapture the beavers, a concerned group (including, but not restricted to catchment residents) set up so-called 'beaver patrols':

437 rostered walks to look for AHVLA agents or the traps they intended to set.
438 Initially aimed at preventing Defra from attempting a covert recapture operation,
439 the group later planned to continue patrols indefinitely, to guard against “anyone
440 trying to kill them.”[13] Compared with the retiree and town councillors who rallied
441 community support around ‘their’ beavers, this mode of protection was less
442 vocal but more direct, and prepared to intervene in any material efforts to
443 remove the beavers. There were links between these patrols and existing
444 groups of animal protection activists involved in hunt sabotage and equivalent
445 ‘badger patrols’ deployed to disrupt Government badger culls. These
446 connections indicate a second driver for contesting the beavers’ capture.
447
448 Wildlife management conflicts never take place in a social (or environmental)
449 vacuum, and political ecologists have elsewhere identified how particular wildlife
450 management issues become flashpoints for chronic or recurrent sociopolitical
451 tensions (e.g. Bhattacharyya and Larson, 2014; Peterson et al., 2002; Rikoon,
452 2006). This dispute, though ostensibly about the Devon beavers’ future, was
453 also inextricably entangled with existing societal frictions surrounding wildlife
454 management in Britain. A key influence has been chronic socio-political
455 tensions surrounding the governance and control of bovine tuberculosis (bTB)
456 in the UK, and specifically how this endemic infection might be managed in both

457 cattle and Eurasian badgers (*Meles meles*), a wildlife host of bTB and a
458 protected species. Defra's 2013 implementation of trial badger culls made the
459 Department extremely unpopular with concerned publics who claimed that 'the
460 science' surrounding the efficacy of culling had been ignored in favour of
461 political appeasement of the farming community (Maye et al., 2014).
462 Accordingly, when the beavers were threatened with capture, this was received
463 by some as further evidence of an unsympathetic, partisan Government:
464
465 "Defra cannot be trusted with [the beavers'] welfare, in view of their total
466 deception over the badgers…"
467
468 "To me this is just another example of…Defra surrendering to a small but
469 powerful group of lobbyists who take the view that beavers, just like the
470 badgers…are somehow bad for the environment and therefore should be
471 removed."
472
473 Meanwhile, cattle farmers and their representatives have been supportive of
474 badger control (though not necessarily Defra's approach), leading to
475 accusations that agricultural communities are 'anti-badger' and indeed, anti-
476 wildlife. As beavers received no explicit protection under English law,

consultees questioned whether people could legally “go out and cull them”, and whether wildlife organisations would be putting in “security measures” to protect them.[14] It is worth reiterating that, legally protected or not, beavers had apparently been living on the River Otter for some time. As one farmer commented: “Yes, they’re not protected [but] I’m sure if they’d been a problem to a few of the landowners we wouldn’t be discussing them here today anyway!” (consultation meeting). Nevertheless, there was palpable concern that wild beavers would quickly become targets for persecution.

Reciprocal distrust was evident from members of the agricultural community, some of whom asserted that ‘the public’ would be unable to countenance any management intervention for beavers, now or in future. Farmers and agricultural landowners expressed equal dissatisfaction with Defra’s ability to respond fairly and effectively to the issue: “I think…if we run into a problem it will be exactly the same problem as badgers – the public will run it” (agricultural landowner, consultation meeting). Residual discontent about existing wildlife management problems (and their proposed solutions) therefore had some bearing on reactive movements to protect beavers, which became the temporary focus of a lengthy, multidimensional struggle to protect ‘wildlife’, generally, from malevolent forces deemed to threaten it. In this case, these were a government believed to be

uncompassionate and incompetent, and a farming community cast as homogenously trigger-happy.

Unlike badgers, beavers are not an iconic British species, steeped in cultural associations (see Cassidy, 2012). Nevertheless, they are considered ‘natural’, partly due to their British/European heritage (below), and partly because they have no definitive origin in captivity and can therefore be protected as wild life: “our precious wild creatures deserve our protection”. Indeed, that the beavers’ presence must originate in human activity was often overlooked: “there is no current proof they have been 'released' so why not treat them as a natural species?” As a ‘natural species’, beavers were enrolled into larger constructions of British wildlife as something that should be shielded from persecution and/or management.

Freedom from captivity was also deemed worth protecting. In some cases, this extended to sheltering beavers from any interaction with humans, which was deemed “interference” or intrusion into wild lives. This stark form of protectionism also inspired concerns that publicity surrounding the case would increase visitor numbers to the area and disturb the beavers. A repeated refrain was that they should simply be “left alone”. Regardless of integration or origin,

beavers were argued to belong ‘in the wild’, a privilege gained by being present (if not necessarily born) outside captivity. Should the beavers be re-captured, then, their freedom, naturalness, and wildness would be diminished. This idea resonates with Lavau’s (2011) conception of wildness, equated with naturalness, as a ‘birth-right’ to be protected. These forms of protectionism are therefore bound up with rights-based belonging: the idea that an organism born (or reborn) into a certain community – wild, in this example – can claim certain rights. Consequently, we find activists discursively and actively protecting the beavers’ right to ‘remain’ wild.

A third version of natural belonging, Lavau (2011) proposes, is ‘indigeneity’, a concept as messy in relation to wildlife as it is in the human politics of colonialism and immigration (Head and Muir, 2004; Mulcock and Trigger, 2008; Barker, 2010). Nevertheless, persons might claim citizenship to a nation-state “on the basis of country of descent, the right to belong being inherited through familial connections to place” (Lavau, 2011, page 53). This form of belonging was applied to beavers by, amongst others, environmental charity Friends of the Earth (FoE) who mounted a vocal campaign against Defra’s proposals in autumn 2014: “…the Government should be taking steps to protect and expand the range of key native species like the beaver – not removing them from our

rivers." (Friends of the Earth, 2014a). FoE enrolled an enthusiastic mainstream media in a series of publicity exercises that channelled both existing, "broad but shallow" (Gurnell et al., 2008) public support for beaver reintroduction, and burgeoning dissatisfaction with Defra's politically fractious wildlife management activities. They drew attention to weaknesses in Defra's case[15] and amplified uncertainty surrounding the beavers' legal status, questioning the legality of Defra's strategy and initiating formal legal proceedings against Natural England (on the grounds that their decision to grant the AHVLA a capture licence was unlawful). FoE also channelled the surge of public concern about the case towards individual political action at a national scale. For example, they encouraged people to sign online petitions and around 10,000 'e-signatures' protesting the recapture were sent to Government ministers (Friends of the Earth, 2015).

A frequent claim from consultees and commentators was that the Devon beavers should be protected because they are "not an alien species but a native species reintroduced", or – less carefully worded – "not immigrant beavers from overseas". The individuals in question are, of course, not 'British' by genetic heritage nor probably, in the original adults' case, by birth. But in nonhuman terms, nativeness is less related to nationality or familial ancestry

than to evolutionary history and 'natural' range. A key point for FoE's campaign was that "Britain form[s] part of the natural range of beavers…[and]…they should be covered by EU laws governing protected species" (Friends of the Earth, 2014b). FoE argued that the beaver's place in Britain was no less pertinent than their place in Eurasia, and specifically the political-economic unit of the EU. Presenting the beavers as *European* citizens enabled FoE to endorse, in their campaign, the legal protection that extends (sometimes awkwardly) from European directives to member state regulations.[16] Indeed, this story might have unfolded very differently had the beavers been suspected or identified as the (clearly not native, but ecologically broadly similar) North American species (*Castor canadensis*).

Responding to FoE's public challenge, Defra maintained that regardless of legal status, the beavers still presented a disease risk (drawing on their continental connections in a different way). Unlike FoE's argument, however, concentrating on the beavers' potential to harbour disease frames them not as a species (native or otherwise), but as heterogeneous and therefore risky individuals: because the beavers could have been imported, they could not be deemed wholly safe. Defra similarly countered FoE's claim that Britain forms part of the beaver's natural range by reiterating that "beavers have not been an

established part of our wildlife for the last 500 years" ('Defra spokesperson', quoted by BBC, 2014). Here, again, Defra did not frame beavers as a native species, with inherited belonging, but as an unknown, diverse collective who might not be uniformly predictable in their behaviours, movements, and interactions.

Defra's approach, whilst risk-averse, allows that beavers might not behave as expected. Elsewhere, however, Devon's beavers became fully abstracted from their corporeal selves, emerging in discourses of protection as 'The Beaver', a unitary body of predictable, archetypal specimens that can be understood, translocated, and promoted. Devon's beavers are assumed to encompass and embody The Beaver's characteristics, but the key driver of the campaign here is to ensure that 'The Beaver' persists in Britain, not to protect individual beavers. Indeed, for some, Devon's beavers were expendable, provided the species remained: "I would have no complaint about the beavers being trapped or killed – with the proviso that they were then replaced with a disease-free population" (Monbiot, 2014).[17] This distinction is relevant because the practices of protecting archetypes can materially differ from those of protecting embodied beavers. Rather than patrolling rivers, or encouraging compassion for

individuals, protecting The Beaver involves contesting legal classifications and 'educating' people about the species and its value.[18]

Devon's beavers, then, became both emissaries for their species and ambassadors for rewilding more generally: "please ensure that the beavers are left in peace and allowed to continue to prove the enormous benefits of rewilding" (written consultation response). The use of 'continue to prove', here, is interesting. We have shown above how beaver activities on the River Otter affected how humans responded to their presence: their interactions with catchment residents made them unobjectionable (the dairy farmer), "delightful" (beaver-spotters) and companionable (the retired scientist). Here, we find the converse: the construction and protection of a positive Beaver archetype affected how the Devon beavers' presence, behaviour and 'work' were interpreted. For instance, consultees noted that the beavers had been seen eating Himalayan balsam (a notorious riparian invasive plant). This was inferred to be 'another' environmental benefit they would have. Similarly, some claimed to have seen more fish since the beavers' arrival, implying their presence was the cause. An existing – in this example positive – beaver archetype therefore mediates human expectations of, and responses to, the physical presence of beavers.

Protecting beavers involved a multiplicity of practices including riverside patrols, signing petitions, writing to ministers, engaging the press, mobilising the judicial system, and indeed, developing a reintroduction trial (below). It was not just environmentalists, welfare campaigners, rights activists, east Devon residents, conservation organisations, or any other discernible group who moved to protect beavers, but a collective with a (loosely) common goal. This movement, perhaps strengthened more by 'weak ties' connecting groups than by any internal unity (Granovetter, 1973; Diani and Mische, 2015), nevertheless became large and powerful enough to both drown out opposing voices and sustain a high level of pressure on the Government.

Regulating beavers

When the beavers were first discovered, the Devon Wildlife Trust (DWT) were soon approached for press statements, and took what they considered to be a "pragmatic" stance on the issue. Quick to condemn unlicensed releases, they nevertheless suggested that the River Otter population could provide an "opportunity" to study the behaviour, ecology and impacts of beavers in an English landscape. The DWT developed an alternative to Defra's capture plan: a formalised, licenced 'English beaver trial' on the River Otter. This would

involve the beavers being recaptured, tested for EM, and – if healthy – re-released as part of a monitoring project. The DWT made concerted efforts to maintain positive relationships and follow relevant reintroduction guidelines as far as possible, given the unusual circumstances. They held a consultation, acknowledged the disease risk and (unlike FoE and many other campaigners) supported the Government's decision to recapture the beavers. Indeed, their project depended on this, in order for the beavers to be genetically profiled and ear-tagged.

When the DWT submitted a licence application, responsibility for the final decision about the beavers' future was transferred from Defra ministers to Natural England. They set up a second consultation, inviting responses online and holding two further 'stakeholder' meetings,[19] before granting a licence for the River Otter Beaver Trial (ROBT) to proceed in January 2015. The DWT leads the project at the head of a consortium including Natural England and the Environment Agency, an ecological consultancy, a Devonian landholding estate, and the University of Exeter (in a research capacity[20]). By April 2015, five beavers had been trapped, tested, declared free of EM and certain other contagious diseases, ear-tagged, and re-released as part of a five-year trial.[21]

Beaver advocates were quick to claim victory, and to some degree the Government could be said to have capitulated to public and lobbyist pressure. However, though driven by the DWT, the trial was established with the assistance of both Natural England and the AHVLA, by now restructured as the Animal and Plant Health Agency (APHA). Defra's response to the Devon case was, as discussed above, an attempt to manage unauthorised presences and re-establish boundaries. The DWT's proposal, though not Defra's first choice, nevertheless enabled the situation to be 'reined-in' without wholly resorting to unpopular, authoritarian measures. The ROBT's development and approval might therefore be understood as a series of regulating practices that enabled the Government to retain some sense of authority, order and control over unruly events and actors.

First, the repeat consultation by Natural England was an effort to improve the democratic and procedural legitimacy of the ROBT (at least on paper), by affirming that beaver reintroduction was supported by a majority of consulted publics.[22] This meant the trial could be framed as a response to public demand, rather than the service of vested interests. Second, the Government's overarching responsibility for public health meant that once raised, the risk posed by EM could not then be dismissed. Consequently, one stipulation of the

trial's licence was that the beavers must be confirmed as healthy before release. Testing took place despite a lack of concern amongst consultees about the health risk, and active opposition from some quarters (EM screening includes an invasive endoscopic procedure). Third, the ROBT's licence came with the caveat that it would serve as 'the' English beaver trial, and no such lenience should be expected if other populations appeared before its conclusion. This condition constitutes a (shaky) effort to avoid further releases. Finally, although not made captive, Devon's beavers have been counted, tagged and – most importantly – are under surveillance. They are no longer illegal strangers but registered, accounted-for citizens-on-trial. The trial is time-limited, and includes options for the beavers to be removed should they create 'unacceptable' impacts. It acts, then, as a visa for beavers, and their right to reside (wild) may be revoked at any time. Should Devon's beavers prove 'good citizens', and their presence evaluated as net beneficial (for humans) and/or manageable, they could earn the right to remain. Lavau (2011) concluded her discussion of introduced fish species in an Australian river with the question: "what might a citizenship test for fish look like?" (page 60). Whilst we cannot answer her directly, the River Otter Beaver Trial looks very much like a citizenship test for beavers.

These practices – consulting, licensing, testing, tagging, and monitoring – draw disruptive beavers and their human protectors back towards structured, permitted, institutionally managed and centrally-endorsed order. Or at least, these practices enable the ROBT and its participants to *appear* appropriately regulated. In the following section, we suggest that despite these orderings, the ROBT retains some of its unruly legacy, and discuss the implications of this for the future of beavers in Britain.

The River Otter Beaver Trial: a wild experiment?

Although the ROBT is presented as under and in control, in practice it is closer to a model of conservation Lorimer and Dreissen (2014) term a 'wild experiment'. Unlike traditional scientific experiments – controlled procedures to test a hypothesis – wild experiments are more comparable with field science, where control is limited, knowledge is inductive and tied to specific places and ecologies, and open to surprises.

Wild experiments take place in the 'wild', or the "immanent and indeterminate world of humans and nonhumans" (Lorimer, 2015, page 105), and the ROBT is now committed to playing out in the 'wild' of east Devon. Although in print the project will run for five years, and is reversible, in practice this reintroduction is

716 likely to be permanent. Unless the beavers cause obvious, extensive damage, it
717 will be at least as politically challenging to remove them after five years as it
718 was to remove them after a few months, and likely more so. In 'taking on' this
719 controversial reintroduction, the DWT and partners therefore open themselves
720 to both criticism and institutional risk. The ROBT in this sense constitutes an
721 interesting model of conservation practice, which cannot claim to be a
722 'secluded' ecological experiment (like the Scottish Beaver Trial arguably was),
723 but is required to engage with diverse publics and its specific social-ecological
724 context: it is thoroughly enmeshed in politics and place.
725
726 Drawing on Rheinberger (1997), Lorimer (2015) argues that well-designed
727 experiments are not just about confirming expectations, but are also able to
728 generate or detect difference. Wild experiments are therefore characterised by
729 designs that remain open to uncertainty, contingency and intervention, including
730 by nonhumans (Hinchliffe, 2008; Hinchliffe et al., 2005). Much like the
731 Oostvaardersplassen rewilding project Lorimer and Dreissen (2014) use as an
732 illustrative case, the ROBT submits to traditional conservation practices by
733 having a formal licence and strategy. However, the strategy involves minimal
734 planned, active management,[23] and its primary objectives – to monitor beaver
735 activities – are largely observational. Correspondingly, its success criteria are

736 modest. Provided the beavers survive and don't cause "significant", well-
737 evidenced damage to the local economy, ecosystems, or community support
738 (and preferably demonstrate quantifiable "positive contribution[s]" to the same)
739 the trial will be deemed a success. The consortium is expected to publish
740 reports and evidence from its scientific work, but not to confirm or refute specific
741 predictions. As for the contribution and potential intervention of nonhumans, the
742 Devon beaver population's centrality to the project makes them, to some
743 degree, "colleagues in the process of producing knowledge" (Hinchliffe et al.,
744 2005, page 563), though their tenuous status renders them closer to workers on
745 probation than respected peers (and they are under pressure to 'prove'
746 themselves). However, as a key point of the project is to watch and learn, the
747 beavers are largely permitted to inhabit the River Otter as they choose.
748
749 The debate about beaver reintroduction is affiliated with, but not exemplary of,
750 an environmental 'knowledge controversy' (Whatmore, 2009) in which
751 scientific/expert evidence (often translated into policy) becomes subject to
752 public dispute: the badger/cattle/bTB debate is a clearer example of such a
753 controversy (Maye et al., 2014). Scientific and experiential knowledges about
754 beavers were both deployed and subsequently contested throughout this
755 debate, but equally important were differences in how people conceptualise and

envision the historical, present and future place of beavers in the British countryside (see also Buller, 2008). Nevertheless, the Government's approach to beaver reintroduction parallels that traditionally employed to tackle knowledge controversies: gather information/evidence and assemble 'stakeholders' to receive and act on it (Born and Barry, 2010). However, external evaluation and arbitration (i.e. reviews and feasibility studies), and stalled attempts at trials, produced stagnation rather than decisions. This case therefore indicates limitations with this approach (which reflects international guidance on species reintroductions; IUCN/SSC, 2013), not least in that it assumes that controversy and conflict are fundamentally undesirable. Yet social research examining environmental controversies suggests that these might equally be understood as generative events, which serve to engage interested and affected publics with complex problems (Whatmore, 2009; Marres, 2005).

In contrast, and importantly, the political approach of a wild experiment is not one of science determining the facts, and then handing them over to the domain of politics to be weighed up and decided on (see Latour, 2009). Instead, it builds on Callon et al.'s (2009) proposals for deliberative democracy, and resonates with Stengers' (2005) 'cosmopolitics', in which political collectives emerge in relation to issues (rather than being assembled and enumerated in

776 advance) and engage in high-quality, public dialogue about how to proceed.
777 Though the ROBT does not yet wholly fulfil these criteria, there is potential for it
778 to do so. In addition to its scientific monitoring, the ROBT is designed to test
779 and experiment with human responses to beaver activities in a novel socio-
780 ecology. To paraphrase Defra, Britain's landscapes and living communities
781 have changed since beavers last inhabited them, and will continue to change.
782 The ROBT's objectives therefore include developing an 'effective management
783 process', to mitigate the frictions produced when human and beaver
784 environmental projects misalign. The consortium is also producing a 'beaver
785 management' strategy outlining how valuable landscape features might be
786 protected, and problematic beaver engineering modified/removed. This
787 continues the British tradition of interventionist wildlife management, but
788 enables flexibility and adaptability in the form and scale of interventions. It
789 differs, therefore, from the customary, often reactive approach of simply
790 removing any wildlife that becomes a nuisance. Management flexibility means
791 the future of beavers need not be reduced to either 'present' or 'absent', and
792 provides an opportunity to move away from problematic concepts of citizenship
793 that rely on it being either inherited or 'earned' by meeting given requirements.
794 Instead, wild experiments retain the possibility of ongoing negotiations, and
795 multiple futures (Callon et al., 2009) for beavers where, for example, they might

796 inhabit one river undisturbed; live, subject to management, in another; and
797 remain absent from a third.
798
799 There are, however, risks involved with an experiment like this, the most
800 challenging of which might be the disconcerting openness of the ROBT as it
801 stands. Experiments and trials, one might argue, should produce results at the
802 end, upon which decisions can be made. Wild experiments, however, are more
803 about 'staying with the trouble' (Haraway, 2010) than reaching neat
804 conclusions. The key risks of the ROBT, then, are related to foreclosure:
805 restricting the potential for difference and multiple futures, and the loss of
806 opportunities for on-going negotiations amongst our newly emergent political
807 collective. Using the Devon beavers as a 'test case' could result in decision-
808 makers foreclosing opportunities to recognise and respond to differences
809 between individuals, populations and places (Hinchliffe et al., 2005). The ROBT
810 is ideal for trialling beaver reintroduction to the River Otter, but is unlikely to be
811 replicable in, or generalizable to, the rest of England, or Britain. Nevertheless
812 "future decisions… on the release of beavers will in large part be informed by
813 the results of this trial" (Natural England, 2015). The future of The Beaver in
814 Britain, then, is somewhat contingent on the small Devon population who –
815 despite having previously been acknowledged as a heterogeneous collective –

816 are expected to either embody the positive archetype championed by their
817 proponents, or aid beaver-sceptics in disrupting and discrediting this
818 archetype.[24] Neither is likely to be a fair prediction of exactly how beaver-human
819 relationships will unfold in diverse rivers, regions, and socio-ecologies.
820
821 Second, the controversy surrounding the ROBT has left residual tensions
822 between its proponents and opponents, which may limit opportunities for
823 inclusive dialogue. Opponents believe the ROBT's approval has been too hasty,
824 that it is an irreversible catalyst, and that management structures and legal
825 arrangements should have been agreed before it began. Indeed, concerns
826 expressed by the agricultural community have centred on the beavers'
827 unsettled legal status, and fears they might soon receive blanket, high-level
828 protection that would limit management options. Frustrated by legal restrictions
829 on badger management, some worry that, should beavers receive similar
830 protections there would be "no legal means of controlling problem populations"
831 (written consultation response).[25] This fear is not unfounded. The Scottish
832 Government's 2016 decision to recognise beavers as 'ordinarily resident' in
833 Scotland has obvious significance to their status in contiguous England and
834 Wales. Beavers could feasibly gain legal protection during the ROBT, rendering
835 its 'exit strategy', and potentially even its management measures, subject to

836 legal contestation. Given these uncertainties, it is unsurprising that some,
837 though not necessarily against beaver reintroduction in principle, distrust the
838 ROBT as there are “too many ifs and buts” (agricultural landowner, consultation
839 meeting).
840
841 The Devon Wildlife Trust, whilst acknowledging the issues associated with their
842 post-hoc project design, have retained their pragmatic/opportunistic approach:
843 “we are where we are…things seldom happen to plan, but you often make the
844 most progress when suddenly a situation is forced upon you” (DWT
845 spokesperson, consultation meeting). They stress that the beavers were
846 present irrespective of whether their trial proceeded, and that at least the ROBT
847 provides a five-year grace period to plan longer-term legal and structural
848 arrangements regarding beaver management. Optimistically speaking, then,
849 and provided it can develop constructive, inclusive deliberation processes, the
850 ROBT could provide both beaver and human inhabitants – of Devon, and
851 Britain more broadly – with some breathing room, to decide where we go from
852 here.
853
854 This is not to suggest that the way beavers have been reintroduced to Devon is
855 desirable. There is a great deal to be said for careful, inclusive deliberation and

856 planning before any significant environmental project, and illegal releases are
857 dismissive of both due process and the interests of communities (human and
858 nonhuman) whose welfare and futures might be at stake. What this case does
859 highlight, however, is that ignoring or continually deferring decision-making to
860 avoid political tension or controversy is itself a decision, and a risky one.
861 Despite its best efforts, the Government has not been able to reverse or fully
862 contain the flow of events that have effectively resulted in the beaver's
863 reintroduction to England. The presence and temporary residency of Devon's
864 beavers has, at least, forced both the state and its human citizens to face the
865 tricky question of beaver reintroduction in all its difficulty and complexity.
866
867 There is an opportunity here, in that the ROBT's most important role might *not*
868 be the recording and forecasting of beaver activity for governments to make
869 definitive decisions about how The Beaver should be received (i.e. desirable or
870 not? protected or not?). If we conceive of the ROBT as a wild experiment, it
871 provides a different sort of opportunity, i.e. to trial ways of negotiating, in
872 practice, amongst humans and nonhumans with diverse interests, vulnerabilities
873 and capabilities. The Trial also provides opportunities for contextualised
874 knowledge about Devon's beavers to be co-produced with the engaged public
875 that has formed around the issue (Marres, 2005). The most valuable products of

this explicitly political reintroduction may therefore be the methods developed and experience gained in (i) assessing and managing problems, and (ii) finding ways to include affected and interested publics. Rather than being a citizenship test for beavers, which they can only pass or fail, the ROBT might be better approached as a trial of wild experiments: the building of political collectives around a common concern, and careful, inclusive negotiation about the composition and future(s) of our shared environments.

883 **Notes**

[1] The distinction between geographical Great Britain (England, Wales and Scotland) and the United Kingdom (UK: the political unit of Great Britain and Northern Ireland) is significant because beaver reintroductions to the devolved administrations of England, Scotland or Wales have implications for the contiguous nations in terms of possible cross-border expansion.

[2] Beavers in Scotland may have persisted until the sixteenth century, but the last beaver record in Wales was in 1188. In England, recent archaeological evidence indicates beaver presence in the fourteenth century, but one bounty record refers to a beaver as late as the eighteenth.

[3] The trial has now produced its final report (Jones and Campbell-Palmer, 2014), however, at the time of writing the Scottish Government had yet to make a formal decision regarding the beavers' longer-term future.

[4] Environmental governance is devolved in the UK: Natural Resources Wales, Scottish Natural Heritage, and Natural England are responsible for wildlife licences in Wales, Scotland and England respectively.

[5] The revised guidelines (2013) are notably less strict in their requirements for political support.

[6] At least one attempt at a formal pilot project in England had failed, reportedly due to opposition from concerned landowners.

[7] Notably, north American beavers (*Castor canadensis)* introduced to Tierra del Fuego have had dramatic but diverse effects at multiple scales (Anderson and Rosemond, 2007; Henn et al., 2016). Even within the native range, however, the strength and form of beaver impacts varies between sites (Rosell et al., 2005).

[8] Records of individual beavers, including on the River Otter, have been reported with no Government reaction. Indeed, Defra did not respond to the first sighting in January 2014; their investigations began only when breeding was suspected.

[9] The introduction of the Infrastructure Act (2015) has since changed the situation, granting Government agencies powers of access to private land in order to remove 'non-native, invasive species' and those not considered ordinarily resident, including Eurasian beavers.

[10] In line with the Convention on Biological Diversity (1992), the Non-native Species Strategy for Great Britain follows a hierarchical, three-step response to species introductions: prevent them; rapidly remove new arrivals; or, where eradication is no longer possible, control established populations.

[11] As the citations here indicate, this is particularly apparent in post-colonial nations. Franklin (2006), for example, argues that native species in Australia are governed as a 'natural citizenry', and introduced species as 'illegal immigrants'. Barker (2010) discusses how native nature is central to the formation of political space and 'biosecure' citizenship in New Zealand. These overlaps also appear in Britain, however: Coates (2013) demonstrates how discourses surrounding species introduced from North America are entangled with sentiments about American citizens, visitors and immigrants.

[12] Unless otherwise stated, all quotes in this section are from written consultation responses.

[13] This quote from the 'Save the Free Beavers of England' Facebook page (https://www.facebook.com/groups/savethebeaver), posted by page administrator (pseudonym '*Castor Anglicus'*) on 24 March 2015.

[14] Both quotes from participants of Natural England's public consultation meeting (January 2015).

[15] Particularly, the health risk argument Defra had come to rely on. FoE discovered, and publicised, that a Defra representative had attended a meeting with Public Health England, who were "not convinced that the 3 Devon beavers

necessarily represent a significant increase in overall risk" (Defra, 2014, [email 4 June])

[16] The legal question of whether beavers in England should receive protection under European law remains unresolved: the case was withdrawn. Although beavers are a protected species under Annexes II and IV of the European Habitats Directive, directives are translated, rather than directly transposed, into the laws of EU member states. European protected species 'ordinarily resident' in Britain (e.g. the dormouse *Muscardinus avellanarius*) are listed, in England and Wales, on Schedule 2 of The Conservation of Habitats and Species Regulations 2010. Eurasian beavers are *not* listed in these Regulations, but as they are supposed to apply to "species of animals listed in Annex IV(a) to the Habitats Directive which have a natural range which includes any area in Great Britain" (Part 3, Regulation 40), the species' exclusion could be subject to challenge. In any case, however, the UK's more recent decision to leave the European Union means all laws based on European Directives could be subject to revision.

[17] George Monbiot is an influential environmental commentator and activist who regularly writes for national newspaper *The Guardian*, and in 2013 published a book, *Feral*, about rewilding.

[18] Whereas FoE chose the former, the Devon Wildlife Trust, in their campaign, focused on the latter, bringing informational posters and beaver experts to consultations and publicity events to share their understanding of what 'The Beaver' is and does.

[19] One meeting involved an invited group of River Otter catchment landowners. The second was public and followed a format similar to that previously held by the DWT, including presentations about the proposed trial. At the landowner meeting, representatives from landowning and agricultural organisations also spoke, on behalf of their memberships.

[20] The authors are not part of the research team leading the scientific monitoring of the ROBT. The findings of this work have, however, been shared with the associated ROBT Science and Evidence Forum.

[21] An APHA survey identified nine beavers on the River Otter in early 2015, but disease testing was only required for four adults; kits born in England were assumed free from EM.

[22] A summary of Natural England's written consultation indicates a high level of support from individual respondents (84% in support, n=119). Certainly many supportive individuals and organisations attended public meetings. However, despite efforts by both Natural England and the DWT to engage key

landowners and farmers in the Otter catchment (those most likely to be directly affected by beaver activity during the trial) many did not engage with consultation exercises. Those who did contribute often expressed concerns about the trial.

[23] Excepting the planned introduction of two further pairs of beavers to improve the population's genetic diversity.

[24] There are actually two beaver projects under the DWT's auspices. Since 2011 the DWT has managed the 'Devon beaver project', a more traditional experiment with a pair of captive beavers, investigating their effects on biodiversity and hydrology. Distinct from the ROBT in location, purpose and scale, the project's existence nevertheless enabled the DWT to demonstrate (in their licence application) experience with beavers. Its findings could also inform decision-making.

[25] There are also claims from the agricultural community that the blanket protection of badgers and their setts has caused a large population expansion, and an associated increase in badger-to-cattle bTB infections (Maye et al., 2014).

884 **References**

885 Adams, W M, 2003, “When nature won’t stay still: Conservation, equilibrium and
886 control”, in *Decolonizing nature: Strategies for conservation in a post-*
887 *colonial era,* Eds W M Adams, M Mulligan (Earthscan, London), pp 220-
888 246

889 Adams W M, Hodge I D, Sandbrook L, 2014, “New spaces for nature: The re-
890 territorialisation of biodiversity conservation under neoliberalism in the UK”
891 *Transactions of the Institute of British Geographers* **39**(4) 574–588

892 Anderson C B, Rosemond A D, 2007, “Ecosystem engineering by invasive
893 exotic beavers reduces in-stream diversity and enhances ecosystem
894 function in Cape Horn, Chile” *Oecologia* **154**(1) 141–153,
895 http://dx.doi.org/10.1007/s00442-007-0757-4

896 Arts K, Fischer A, van der Wal R, 2012, “Common stories of reintroduction: A
897 discourse analysis of documents supporting animal reintroductions to
898 Scotland” *Land Use Policy* **29**(4) 911–920

899 Arts K, Fischer A, van der Wal R, 2015, “Boundaries of the wolf and the wild: a
900 conceptual examination of the relationship between rewilding and animal
901 reintroduction” *Restoration Ecology* **24** 27-34

902 Barker K, 2010, “Biosecure citizenship: politicising symbiotic associations and
903 the construction of biological threat” *Transactions of the Institute of British*

904 *Geographers* **35**(3) 350–363
905 Barlow A M, Gottstein B, Mueller N, 2011, "*Echinococcus multilocularis* in an
906 imported captive European beaver (*Castor fiber*) in Great Britain."
907 *Veterinary Record* **169** 369
908 Barua M, 2014(a), "Bio-geo-graphy: Landscape, dwelling, and the political
909 ecology of human-elephant relations" *Environment and Planning D: Society*
910 *and Space* **32**(5) 915–934
911 Barua M, 2014(b), "Volatile ecologies: Towards a material politics of human-
912 animal relations" *Environment and Planning A* **46**(6) 1462–1478
913 BBC, 2011, "'Tay beaver' died at Edinburgh Zoo due to septic shock" *BBC*
914 *News (Online)*, http://www.bbc.co.uk/news/uk-scotland-tayside-central-
915 13048929
916 BBC, 2014, "Legal fight begins to save family of beavers in Devon" *BBC News*
917 *(Online)* http://www.bbc.co.uk/news/uk-england-devon-29754247
918 Bhattacharyya J, Larson B M H, 2014, "The Need for Indigenous Voices in
919 Discourse about Introduced Species: Insights from Controversy over Wild
920 Horses" *Environmental Values* **23**(663) 1–26
921 Born G, Barry A, 2010, "Art-Science" *Journal of Cultural Economy* **3**(1) 103–119
922 Buller H, 2008, "Safe from the wolf: biosecurity, biodiversity, and competing
923 philosophies of nature" *Environment and Planning A* **40**(7) 1583–1597

924 Callon M, Lascoumes P, Barthe Y, 2009, *Acting in an Uncertain World: an*
925 *Essay on Technical Democracy* (MIT Press, Cambridge, Mass)
926 Caro T, 2010 *Conservation by proxy* (Island Press, Washington DC)
927 Cassidy A, 2012, "Vermin, Victims and Disease: UK Framings of Badgers In
928 and Beyond the Bovine TB Controversy" *Sociologia Ruralis* **52**(2) 192–214
929 Collard R C, 2012, "Cougar-human entanglements and the biopolitical
930 un/making of safe space" *Environment and Planning D: Society and Space*
931 **30**(1) 23–42
932 Corlett R T, 2016, "Restoration, Reintroduction, and Rewilding in a Changing
933 World" *Trends in Ecology and Evolution* **31**(6) 453–462
934 Crowley S L, 2014, "Camels Out of Place and Time: The Dromedary in
935 Australia" *Anthrozoös* **27**(2) 191–203
936 Defra, 2014, "Internal and external communications about beavers in England"
937 [Environmental Information Release], 7 October,
938 https://www.gov.uk/government/publications/internal-and-external-
939 communications-about-beavers-in-england
940 Diani M, Mische A, 2015, "Network approaches and social movements", in *The*
941 *Oxford Handbook of Social Movements,* Eds D Della Porta, M Diani
942 (Oxford University Press, Oxford), pp 306-325
943 Foucault M, 2007, *Security, territory, population* (Springer, Harvard)

944 Franklin A, 2006 *Animal Nation* (University of New South Wales Press, Sydney)
945 Friends of the Earth, 2014a, “Pressure grows to save Devon’s beavers” [News]
946 24 June, https://www.foe.co.uk/news/pressure-grows-save-devons-beavers
947 Friends of the Earth, 2014b, “Govt plans to capture Devon beavers may be
948 unlawful, warns Friends of the Earth” [Press Release] 24 September,
949 https://www.foe.co.uk/resource/press_releases/govt-plans-capture-devon-
950 beavers-may-be-unlawful-warns-friends-earth
951 Friends of the Earth, 2015, “Victory for Devon Beavers” [Press Release] 28
952 January, https://www.foe.co.uk/resource/press_releases/victory-devon-
953 beavers_28012015
954 Gurnell J, Gurnell A M, Demeritt D, Lurz P W W, Shirley M D F, Rushton S P P,
955 Faulkes C G, Nobert S, Hare E J, 2008, “The feasibility and acceptability of
956 reintroducing the European beaver to England”, Natural England,
957 https://phantasmcs.com/files/528_ptes__ne_feasibility_report_2009.pdf
958 Halley D J, Rosell F, Saveljev A, 2012, “Population and distribution of Eurasian
959 beaver (*Castor fiber*)” *Baltic Forestry* **18**(1) 168–175
960 Haraway D, 2010, “When species meet: Staying with the trouble” *Environment
961 and Planning D: Society and Space* **28**(1) 53–55
962 Head L, Muir P, 2004, “Nativeness, Invasiveness and Nation in Australian
963 Plants” *Geographical Review* **94**(April) 199–217

964 Helmreich S, 2005, “How scientists think; about ‘natives’, for example. A
965 problem of taxonomy among biologists of alien species in Hawaii” *Journal*
966 *of the Royal Anthropological Institute* (Pimentel 2002) 107–128
967 Henn J J, Anderson C B, Martínez Pastur G, 2016, “Landscape-level impact
968 and habitat factors associated with invasive beaver distribution in Tierra del
969 Fuego” *Biological Invasions* **18**(6) 1679–1688,
970 http://dx.doi.org/10.1007/s10530-016-1110-9
971 Hinchliffe S, 2008, “Reconstituting nature conservation: Towards a careful
972 political ecology” *Geoforum* **39**(1) 88–97
973 Hinchliffe S, Bingham N, 2008, “Securing life: the emerging practices of
974 biosecurity” *Environment and Planning A* **40**(7) 1534–1551
975 Hinchliffe S, Kearnes M B, Degen M, Whatmore S, 2005, “Urban wild things: a
976 cosmopolitical experiment” *Environment and Planning D: Society and*
977 *Space* **23**(5) 643–658
978 Hinchliffe S, Whatmore S, 2006, “Living cities: Towards a politics of conviviality”
979 *Science as Culture* **15**(2) 123–138
980 Hodgetts T, 2017, “Wildlife conservation, multiple biopolitics and animal
981 subjectification: Three mammals’ tales” *Geoforum* **79** 17–25
982 IUCN/SSC Reintroduction Specialist Group, 1998, “IUCN Guidelines for Re-
983 introductions” IUCN Species Survival Commission, Gland, Switzerland and

Cambridge, UK

IUCN/SSC, 2013, “Guidelines for Reintroductions and Other Conservation Translocations. Version 1.0.”, IUCN Species Survival Commission, Gland, Switzerland

Jones A C, Halley D J, Gow D, Branscombe J, Aykroyd T, 2012, “Welsh Beaver Assessment Initiative Report: An investigation into the feasibility of reintroducing the European Beaver (*Castor fiber*) to Wales.” Wildlife Trusts Wales, UK.

Jones S, Campbell-Palmer R, 2014, “The Scottish Beaver Trial: the story of Britain’s first licensed release into the wild” Scottish Wildlife Trust and Royal Zoological Society of Scotland, UK

Latour B, 2004, “How to Talk About the Body? the Normative Dimension of Science Studies” *Body & Society* **10**(2–3) 205–229

Latour B, 2009, “Politics of Nature”, in (Harvard University Press, Chicago)

Lavau S, 2011, “The nature/s of belonging: performing an authentic Australian river” *Ethnos* **76**(1) 41–64

Lorimer J, 2008, “Counting Corncrakes: The Affective Science of the UK Corncrake Census” *Social Studies of Science* **38**(3) 377–405

Lorimer J, 2015 *Wildlife in the Anthropocene: conservation after nature* (University of Minnesota Press, Minneapolis)

1004 Lorimer J, Driessen C, 2014, “Experiments with the wild at the
1005 Oostvaardersplassen” *ECOS* **35**(3/4) 44–52
1006 Macdonald D W, Tattersall F H, Brown E D, Balharry D, 1995, “Reintroducing
1007 the European beaver to Britain: nostalgic meddling or restoring
1008 biodiversity?” *Mammal Review* **25**(4) 161–200
1009 MacGregor, S, 2006, “No sustainability without justice: a feminist critique of
1010 environmental citizenship”, in *Environmental Citizenship* Eds A Dobson, D
1011 Bell (MIT Press, Cambridge MA), pp 101-126
1012 Marres N, 2005, “Issues spark a public into being”, in *Making Things Public* MIT
1013 Press Eds B Latour and P Weibel (Cambridge, MA), pp 208–217
1014 Martin R J, Trigger D S, 2015, “Negotiating belonging: plants, people, and
1015 indigeneity in northern Australia” *Journal of the Royal Anthropological*
1016 *Institute* **21** 276–295
1017 Mathieu L, Tinch R, Provins, A, 2016, “Catchment management in England and
1018 Wales: the role of arguments for ecosystems and their services”
1019 *Biodiversity Conservation* doi:10.1007/s10531-016-1176-9
1020 May A N, 2016 *The Fox-Hunting Controversy, 1781–2004: Class and Cruelty*
1021 (Routledge, Vancouver)
1022 Maye D, Enticott G, Naylor R, Ilbery B, Kirwan J, 2014, “Animal disease and
1023 narratives of nature: Farmers’ reactions to the neoliberal governance of

1024 bovine Tuberculosis" *Journal of Rural Studies* **36** 401–410
1025 Merrill J, 2014a, "After the badger cull, is Defra planning to kill Devon's
1026 beavers?" *The Independent*, 20 May,
1027 http://www.independent.co.uk/environment/after-the-badger-cull-is-defra-
1028 planning-to-kill-devons-beavers-9405767.html
1029 Merrill J, 2014b, "Government plans to capture 'wild' Devon beavers unlawful,
1030 says Friends of the Earth" *The Independent,* 24 September,
1031 http://www.independent.co.uk/environment/government-plans-to-capture-
1032 wild-devon-beavers-unlawful-says-friends-of-the-earth-9754024.html
1033 Monbiot G, 2014, "Stop the control freaks who want to capture England's wild
1034 beavers" *The Guardian,* 4 July,
1035 https://www.theguardian.com/environment/georgemonbiot/2014/jul/04/stop-
1036 control-freaks-capture-englands-wild-beavers
1037 Morris S, 2014, "Battle to stop capture of England's first wild beavers in 500
1038 years", *The Guardian*, 16 July,
1039 https://www.theguardian.com/environment/2014/jul/16/battle-stop-capture-
1040 englands-first-wild-beavers
1041 Mulcock J, Trigger D S, 2008, "Ecology and identity: a comparative perspective
1042 on the negotiation of 'nativeness'", in *Toxic Belonging? Identity and*
1043 *Ecology in Southern Africa* Ed D Wylie (Cambridge Scholars Publishing,

1044 Cambridge), pp 178–198
1045 Natural England, 2015, “Natural England approves trial release of beavers”
1046 [Gov.uk News Story], 28 January (updated 15 February),
1047 https://www.gov.uk/government/news/natural-england-approves-trial-
1048 release-of-beavers
1049 Ottery St Mary Town Council, 2014, “Minutes of the Meeting of the Ottery St
1050 Mary Town Council”, 1 September, Item 14/09/16
1051 Peace A, 2009, “Ponies Out of Place? Wild Animals, Wilderness and
1052 Environmental Governance” *Anthropological Forum* **19**(1) 53–72
1053 Peterson M N, Peterson T R, Peterson M J, Lopez R R, Silvy J, 2002, “Cultural
1054 conflict and the endangered Florida Key deer” *The Journal of Wildlife*
1055 *Management* **66**(4) 947–968
1056 Rheinberger H J, 1997, *Toward a history of epistemic things: Synthesizing*
1057 *proteins in the test tube* (Stanford University Press, Stanford)
1058 Rikoon J S, 2006, “Wild horses and the political ecology of nature restoration in
1059 the Missouri Ozarks” *Geoforum* **37**(2) 200–211
1060 Robbins P, 2006, “The politics of barstool biology: Environmental knowledge
1061 and power in greater Northern Yellowstone” *Geoforum* **37**(2) 185–199
1062 Rosell F, Bozsér O, Collen P, Parker H, 2005, “Ecological impact of beavers
1063 *Castor fiber* and *Castor canadensis* and their ability to modify ecosystems”

1064 *Mammal Review* **35**(3–4) 248–276, http://dx.doi.org/10.1111/j.1365-
1065 2907.2005.00067.x
1066 Seddon P J, Griffiths C J, Soorae P S, Armstrong D P, 2014, "Reversing
1067 defaunation: restoring species in a changing world" *Science* **345**(6195)
1068 406–412
1069 Stengers I, 2005, "The Cosmopolitical Proposal", in *Making Things Public* Eds B
1070 Latour and P Weibel (MIT Press, Cambridge, MA), pp 994–1003
1071 Thirgood S, Redpath S, Newton I, Hudson P, 2000, "Raptors and red grouse:
1072 Conservation conflicts and management solutions" *Conservation Biology*
1073 **14**(1) 95–104
1074 Törnblom JO, Angelstam P, Hartman GÖ, Henrikson L, Sjöberg GÖ. 2011.
1075 "Toward a research agenda for water policy implementation: Knowledge
1076 about beaver (*Castor fiber*) as a tool for water management with a
1077 catchment perspective" *Baltic Forestry,* **17**(1) 154-61.
1078 Werth C, 2014, "Beavers are mysteriously back in Britain - but not entirely
1079 welcome" *National Geographic (Online)*,
1080 http://news.nationalgeographic.com/news/2014/08/140804-beavers-
1081 science-environment-britain-extinct-animals/
1082 Whatmore S J, 2009, "Mapping knowledge controversies: science, democracy
1083 and the redistribution of expertise" *Progress in Human Geography* **33**(5)

587–598

Wright J P, Jones C G, Flecker A S, 2002, “An ecosystem engineer, the beaver, increases species richness at the landscape scale” *Oecologia* **132**(1) 96–101

Yalden D, 2010, *The history of British mammals* (A&C Black, London)

Yin, R K, 2014, *Case study research* (Sage, London)