

FOR WHOM THE BELL TOLLS: THE UNCOUNTED EXTINCTIONS AND THE
(MISSED?) OPPORTUNITIES TO PREVENT THEM

No man is an island, entire of itself; every man is a piece of the continent, a part of the main;
if a clod be washed away by the sea, Europe is the less, as well as if a promontory were, as
well as if a manor of thy friend's or of thine own were; any man's death diminishes me,
because I am involved in mankind, and therefore never send to know for whom the bell tolls;
it tolls for thee.

John Donne, 1624.¹

John Donne did not pen his immortal lines in the face of climate change and biodiversity loss and yet his meditation on ‘For whom the bell tolls’ can all too easily be applied to the situation facing humanity in the Anthropocene. ‘No man is an island’ – indeed we are not, acutely aware as we now are of the life support systems that ‘spaceship Earth’ provides us and the impact that our actions have on them.² As for ‘never send to know for whom the bell tolls; it tolls for thee’ – with each passing extinction (some noted, most not) we diminish ourselves and increase the likelihood of the bell tolling for us as we undermine the ecosystem services which support us and risk triggering extinction cascades.³ A much more recent piece of art and one created in response to this situation is Luke Jerram’s *Extinction Bell*,⁴ currently on display in the National Museum of Scotland, Edinburgh (see Figures 1 and 2). The bell tolls at random intervals between 150 and 200 times a day with each toll sounding the death knell for a species. Jerram designed *Extinction Bell* in response to a message released by the United Nations Environment

¹ John Donne, ‘For Whom the Bell Tolls’, in *Devotions Upon Emergent Occasions* (1624).

² R.S. Deese, ‘The artifact of Nature: “Spaceship Earth” and the dawn of global environmentalism’, *Endeavour* **33** (2) (2009): 70–75.

³ Dirk Sanders et al., ‘Trophic redundancy reduces vulnerability to extinction cascades’, *Proceedings of the National Academy of Sciences* **115** (1) (2018): 2419–24.

⁴ Luke Jerram, *Extinction Bell*, 2021.

Programme on International Day for Biological Diversity 2007 which stated that up to 150 species are lost every day due to human activities, a rate up to 1,000 times higher than ‘natural’ (i.e. non anthropogenic) levels.⁵ In Jerram’s words the bell ‘aims to make audible events which are invisible to us’, and he chose a bell since in many cultures and contexts they are a ‘call to action and communicate a sense of emergency’.⁶ Jerram’s work aims to raise awareness and communicate a sense of emergency around biodiversity loss which the European Commission has called ‘the most critical global environmental threat alongside climate change’.⁷ To borrow from popular culture, Jerram is going to need a bigger bell. The severity of biodiversity loss is such that the Earth is experiencing its ‘sixth mass extinction event’, sometimes referred to as the ‘Anthropocene extinction’ to highlight the way in which the extinctions are anthropogenically mediated.⁸ A ‘mass extinction event’ is one in which extinction rates are significantly above background levels and in which biodiversity, and consequently ecosystem services, are diminished,⁹ with the loss of individual species leading to the loss of interactions between species and, ultimately, a breakdown in ecosystem function.¹⁰

In the face of these extinctions and predicted biodiversity collapse, ‘rewilding’ is being heralded as a possible solution. Rewilding entails a reassessment of our approach to conservation and of our attitude to other species, given that past approaches have failed to halt

⁵ Ahmed Djoghlaif, ‘Message from Mr Ahmed Djoghlaif, Executive Secretary, on the occasion of the International Day for Biological Diversity’, 2007.

⁶ Luke Jerram, ‘Extinction Bell’, *Luke Jerram* (2019) <https://www.lukejerram.com/extinction-bell/>

⁷ A. Pillai and D. Heptinstall, ‘Twenty years of the Habitats Directive: A case study on species reintroduction, protection and management’, *Environmental Law Review* **15** (1) (2013): 27–46.

⁸ Richard Leakey and Roger Lewin, *The Sixth Extinction: Biodiversity and Its Survival* (London: Phoenix, 1996); T. Pievani, ‘The sixth mass extinction: Anthropocene and the human impact on biodiversity’, *Rendiconti Lincei* **25** (2014): 85–93; H. Trischler, ‘The Anthropocene: A challenge for the history of science, technology, and the environment’, *NTM International Journal of History and Ethics of Natural Sciences, Technology and Medicine*, **24** (3) (2016): 309–35.

⁹ Gerardo Ceballos et al., ‘Accelerated modern human-induced species losses: Entering the sixth mass extinction’, *Science Advances* **1** (5) (2015).

¹⁰ D.H. Janzen, ‘The deflowering of Central America’, *Natural History* **83** (1974): 49–53.

the now critical biodiversity loss: rewilding attempts a form of ecological restoration which is different from other ecological restoration approaches in that it seeks to reduce human intervention and increase non-human autonomy, recognising that the biodiversity crisis cannot be solved by the same thinking as created it.¹¹ A tension exists within this rhetoric, however, in that many rewilding projects are in fact highly interventionist, particularly in the early stages, with human intercession to re-establish habitats and species.¹² Indeed, unless and until full ecosystem functioning is restored, rewilding practitioners face a dilemma over whether or not to intervene in nascent ecosystems in order to redress ‘imbalances’ within them.¹³ Another significant tension within rewilding exists in relation to the species involved: conventional conservation tends to prioritise rare and/or native species while, in theory at least, rewilding (with its non-goal orientated approach) is inclusive of all species.¹⁴ Two examples demonstrate the fraught relationship between the rhetoric and reality of rewilding and also highlight the challenges facing rewilding as it seeks to employ a novel approach to halt biodiversity loss while also negotiating conservation conventions and sociocultural norms.

The case of the Oostvaardersplassen provides an excellent example of the tensions relating to interventions in rewilding projects. This Dutch rewilding project involved the introduction of cattle, ponies and deer to an area of land which was bounded on one side by the sea and by fences on the others. Following their introduction the animals bred and a series of fair summers and mild winters, which ensured an abundant food supply, saw numbers rise steadily.¹⁵ The

¹¹ Kim J. Ward and Jonathan Prior, ‘The reintroduction of beavers to Scotland: Rewilding, biopolitics, and the affordance of non-human autonomy’, *Conservation & Society* **18** (2) (2020): 103–13.

¹² Virginia Thomas, ‘Domesticating rewilding: Interpreting rewilding in England’s green and pleasant land’, *Environmental Values* (Online first 2021).

¹³ *Ibid.*

¹⁴ Fred Pearce, *The New Wild* (London: Icon Books, 2015).

¹⁵ Jozef Keulartz, ‘Boundary work in ecological restoration’, *Environmental Philosophy* **6** (1) (2009): 35–56; Jamie Lorimer and Clemens Driessen, ‘Bovine biopolitics and the promise of monsters in the rewilding of Heck Cattle’, *Geoforum* **48** (2013): 249–59; Jamie Lorimer and Clemens Driessen, ‘Wild experiments at the

winter of 2004/2005 was markedly harsher than those preceding it and resulted in severe food shortage for the by-now-large populations of animals, leading to mass starvation.¹⁶ Those running the project took a strictly non-interventionist approach and declined to intervene to offer supplementary feeding despite the animals being unable to leave the area to seek food.¹⁷ Opponents and publics were outraged and took direct action to intervene and feed the animals themselves – throwing hay over the fences or cutting wire to get into the area.¹⁸ Ultimately those involved in the project have been compelled to offer supplementary feeding to the animals involved which, as an ‘intervention’, is antithetical to rewilding’s *non-intervention* ideals and which prompts debate over whether and to what extent the intervention compromises the ‘wildness’ of the animals involved, therefore compromising the prime quality which rewilding seeks to restore.¹⁹

Other rewilding projects also seek to reintroduce animals, with particular interest in the UK currently centred on the European wildcat (*Felis silvestris*). While it is extant in continental Europe, the wildcat has been declared functionally extinct in the UK with only a remnant population in the Highlands of Scotland.²⁰ The wildcat is interfertile with the domestic cat (*Felis catus*) and this is both a cause and an outcome of its decline (although it should be noted that the main cause of the wildcat’s decline is persecution and habitat destruction), with the current population comprising a ‘hybrid swam’ of animals which are an admixture of wild and

Oostvaardersplassen: Rethinking environmentalism in the Anthropocene’, *Transactions of the Institute of British Geographers* **39** (2) (2014): 169–81.

¹⁶ Ibid.

¹⁷ Ibid.

¹⁸ Keulartz, ‘Boundary work’; Lorimer and Driessen, ‘Bovine biopolitics’.

¹⁹ Lorimer and Driessen, ‘Wild experiments’

²⁰ Helen V. Senn et al., ‘Distinguishing the victim from the threat: SNP-based methods reveal the extent of introgressive hybridization between wildcats and domestic cats in Scotland and inform future in situ and ex situ management options for species restoration’, *Evolutionary Applications* **12** (3) (2019): 399–414.

domestic genes.²¹ There is considerable debate within wildcat conservation as to how to approach the ‘problem’ of hybrid cats. One school of thought favours the removal of hybrids so as to make room for the reintroduction of genetically pure wildcats and to reduce the risk of future hybridisation.²² Another, more radical, school of thought places value in the hybrid cats and their ability to survive in the anthropogenic environment in which they find themselves and to which their wild predecessors are unsuited.²³ This exemplifies the more fundamental debate that is the crux of rewilding – to what extent should it be aiming to restore an ecological baseline or, on the other hand, to what extent should it embrace novel and emergent ecosystems? A further complicating factor is the fact that reintroduction projects often involve captive breeding programmes, a highly interventionist strategy which sees humans intervening in fundamental aspects of animal lives (especially breeding and feeding) while trying to maintain the ‘wild’ status of the animals involved.

The tensions inherent in these two examples are self-evident and, while the desire to do the right thing is predominant, the question as to what the right thing is, is very difficult to answer and much conservation time and energy are spent debating this subject. Spending time debating these questions, however, is time that we do not have: as Jerram’s bell reminds us, 150 species are rendered extinct every day, over six every hour. Perhaps we should worry less about whether we should or shouldn’t be feeding animals, and less about whether we should or shouldn’t be reintroducing animals, and instead radically rethink our attitude to the other-than-human species we share this planet with, including the abundant, the hybrid and the exotic as well as the more often thought about rare, ‘pure’ and native.

²¹ Ibid.

²² Ibid.

²³ Ibid.

Twenty-five years ago, Buell was arguing that the ‘environmental crisis involves a crisis of the imagination the amelioration of which depends on finding better ways of imagining nature and humanity’s relation to it’.²⁴ Rewilding is often presented as being a better way of imagining nature and humanity’s relation to it and as a means of attempting to redress the balance after a long history of anthropogenic environmental damage. But rewilding may need to take a more pragmatic approach than is often ascribed to it – i.e. that undisturbed ecosystems are inherently valuable and that human activity is inherently unnatural and therefore to be avoided.²⁵ Learning lessons from the past while accepting or even embracing the current, highly anthropogenic, situation allows rewilding to be ‘unshackled’ from the historic baselines which can bind other forms of conservation.²⁶ This creates space for novel, emergent ecosystems adapted to our anthropogenic environment and, while this may mean embracing exotic or hybrid species, it may also be that these species are best adapted to and therefore most able to flourish in the Anthropocene. Rewilding, and conservation more broadly, may also need to accept that humans are part of and not apart from nature; and that deliberate, conscious human ‘interventions’ may sometimes be helpful or even necessary within ecosystems which are constantly subject to unintentional, inadvertent interventions, given the far-reaching effects of human activity on the planet.

²⁴ Lawrence Buell, *The Environmental Imagination* (Harvard: Harvard University Press 1996), p. 2.

²⁵ Calum Brown, Robert McMorran and Martin F. Price, ‘Rewilding – a new paradigm for nature conservation in Scotland?’ *Scottish Geographical Journal* **127** (4) (2011): 288–314.

²⁶ Mihnea Tanasescu, ‘Field notes on the meaning of rewilding’, *Ethics, Policy & Environment* **20** (3) (2017): 333–49.



Figure 1. *Extinction Bell* by Luke Jerram on display at the National Museum of Scotland. Photograph courtesy of Dr David Cooper.

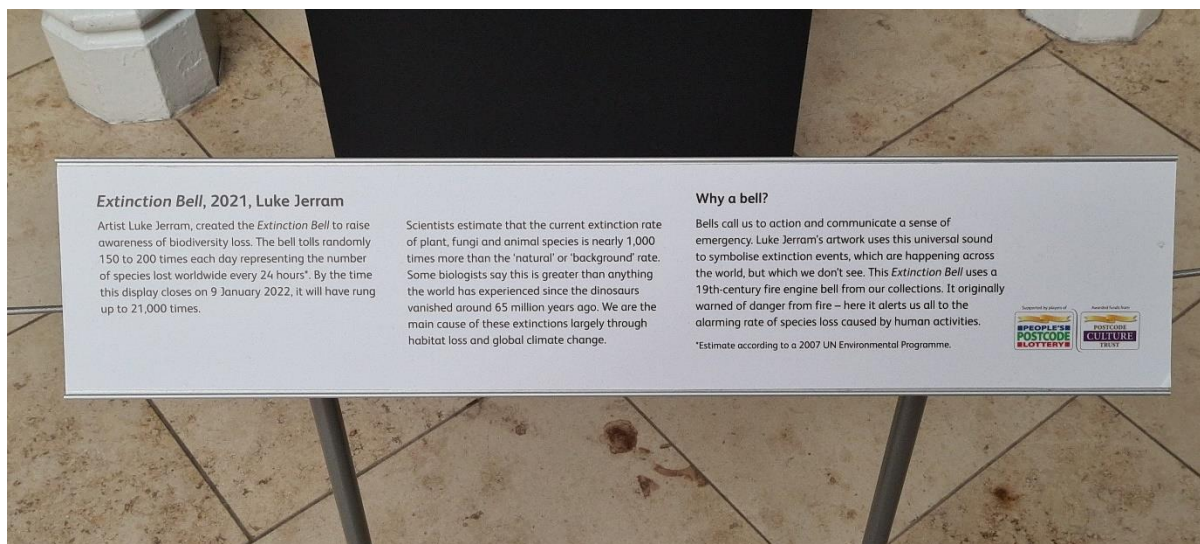


Figure 2. Sign accompanying *Extinction Bell* by Luke Jerram on display at the National Museum of Scotland.

Photography courtesy of Dr David Cooper.