De-extinction as a haunted project: images of the extinct and spectres of colonial, Anthropocene, and post-human worlds

On 7 September 2021, the National Film and Sound Archive of Australia published a colourised version of the 1933 footage of 'Benjamin', the last living thylacine in captivity (Drake, 2021). The video, published on YouTube to bring attention to National Threatened Species Day, has collected nearly 1.3 million views as of 7 October 2021. The viewership of the footage reflects the continued affective capacity of the thylacine to elicit curiosity, shame, guilt, and grief in the Australian psyche and beyond (Stark, 2018). These emotions arise out of the re-representation of a particular moment, depicting the experience of a *last-of-its-kind* (De Vos, 2008), being suggestive from both the perspective of Benjamin and the perspective of David Fleay, the naturalist who shot the original footage in 1933. We see Benjamin pacing in an enclosure, yawning and lying on a compacted-dirt floor, alone and estranged to his environment. Yet, we also see the animal from the perspective of Fleay – the last gaze on a last-of-its-kind – as a gaze that cannot be wholly reproduced in the present. In this paper, I seek to read the narrative of de-extinction – a series of projects involving recreation of extinct species – and its controversies involving practicality, morality, species essentialism, and spectacle, as a practice that is deeply informed by a sense of being *haunted* by cultural images and narratives of extinct species, the separation of human culture and nature through European colonisation to present-day, and by imaginaries of 'ghosts of ourselves' from a post-Anthropocene future.

The image of Benjamin (*Fig 1*), alienated in captivity, dovetails with the accounts of human failures that led to his death. Management at Beaumaris Zoo in the 1930s was characterised by a decision-making structure that did not involve keepers or animal carers and was ultimately concerned with economic motives over animal welfare or species conservation (Stark, 2018). Left outside of his sleeping enclosure by ill-trained staff and exposed to below-zero temperatures overnight, the death of Benjamin can be understood as the consequence of actions within an epistemological framework whose singular focus was the development of catalogues of classifications, with individuals seen only as a token of a limitless taxonomic class (De Vos, 2008; Stark, 2018). Indeed, the pacing and yawning seen in the footage of Benjamin would not be understood in terms of a general response of animals to the effects of captivity – namely, persistent trauma and stress related to the process of capture, confinement, estrangement from habitat, and ongoing human observation – until decades later, in-part thanks to the work of zoologists such as Hediger and Meyer-Holzapfel (Chrulew, 2020). The indignity and indifference extended to Benjamin, made visible through the colourised images of his captivity nearly 90 years later, sits intimately within our moral imagination as culpable agents of culture acting upon nature. Thus, the de-extinction of the thylacine can be seen to emerge

through a relationship of haunting, through the *spectral/revenant* images of Benjamin and an appeal to a human self-image that sees us as able to exercise the same powers of agency to atone for past injustices (Jennings, 2017; Meine, 2017; Neyrat, 2019).

Fig 1. Still from footage of the last thylacine ('Benjamin') at Beaumaris Zoo, Hobart, 1933.
Footage: David Fleay. Footage colourised by Composite Films, 2021.
Source: National Film & Sound Archive of Australia (NFSA), 2021.

Viewing the colourised footage of Benjamin is to engage with a spectral being, a being that inhabits "a borderland between visibility and invisibility" (McCorristine & Adams, 2020). However, a revenant can be further differentiated from a spectre through its action of 'coming back', prompting us, with each engagement, to reflect on our own position within space/time and our notions of progress and human integrity (Neyrat, 2019). When the Australian Museum in Sydney launched a (failed) project to use genetic material from preserved thylacine tissue to resurrect an individual animal in 1999, the public discourse invoked both pragmatic notions of the greater importance of habitat conservation over resurrection of an individual species, along with more abstract notions of nature as a grand process that should not be subject to transgression through science (Fletcher, 2008). These notions continued to position human culture as a grand agent, acting on a passive or ordered nature in either destructive or ameliorative ways, prompting ongoing discussions concerning the need for retributive justice and our moral obligations towards extinct species (see, for example, Lean, 2020; Jebari, 2016). The revenant of the thylacine therefore not only haunts our moral imagination via the death borne of past actions, but haunts the present from the future, demanding retribution for the

death borne of current human ecologies. In an era of biodiversity crises, the revenant of the thylacine seems to be one amongst many ghosts that reach from both the past and future into the present. Yet, the threat of total ecological collapse implies a potential future in which "justice will be impossible, for a lack of living beings able to protest" (Neyrat, 2019).

De-extinction projects are marred by the tension between the persistence of essentialist concepts of species, wherein animal identities are reduced to genomic information/code, and a relational view, which locates animal identities as a tapestry of environmental settings, history, evolution, social behaviour, and form (Meine, 2017). As such, de-extinction projects can run counter to many of the understandings of ecology that have come to inform current practices in conservation biology, resorting to "reductionist, mechanistic, and technocratic" approaches whilst marginalising the ecological and ontological problems involved in re-introduction of individuals to habitat (Meine, 2017). A response to this critique is to see de-extinction as chiefly concerned with using extinct populations as a genetic resource, fitting into a wider project of restoration ecology as returning *function*s and *value* to ecosystems rather than species with unique and authentic identities (Lean, 2020). However, these kinds of retorts continue to construe animal lives in instrumental terms, depicting extinction as a state of 'functional impairment', with the absence of a species understood simply as a missing and replaceable aspect within a mechanistic system that services the human. In response to the spectres of the thylacine, passenger pigeon, and bucardo, de-extinction attempts to banish haunting through the lenses of human exceptionalism and dispassionate, deterministic techno-logic. Yet, even if de-extinction was 'achieved' through use of CRISPR or other genomic engineering techniques, our knowledge of the original loss would still be marked by the absence of a particular mode of "phenomenological experiences of a sensed world", of interacting beings who "themselves experienced and sensed the world in certain, albeit very different, ways" (Smith, 2013).

McCorristine and Adams note that haunting is not necessarily a sign of the dead continuing to exist/persist (McCorristine & Adams, 2020). Rather, haunting illuminates the lingering feeling of the dead's absence (2020). Haunting is an ongoing process from which the affectivity of absence arises through the lived experience of the living (McCorristine & Adams, 2020). The failure of the Australian Museum project can be read, almost 20 years later, as another haunted dream in which the lived experience of (potential) de-extinction only reaffirmed the species' absence in the light of our own scientific and colonialist conceit. Extracting DNA from 150-year-old preserved thylacine pups, removing organs, dissecting tissues, photographing (*Fig 2*), and ultimately reducing their bodies to the essence of genetic code, represented an apparent end-point of the zoological and taxonomic project, with all its historical and cultural baggage. The project was underscored by the "human instrumentalization

of animal lives, deaths and biological materials" (Stark, 2018) and a logic that positions "species over individual, code over life, genes over bodies" (Chrulew, 2011). Thus, the bodies of thylacine pups preserved in museums can be cast as both instrumental and liminal objects that, through the prospect of de-extinction, collapse the binary between "extinct/extant" and "distort the spaces and temporalities of extinction" (Searle, 2020). Rather than lay the spectre of the thylacine to rest, the Australian Museum de-extinction project suggested a literal re-animation of its corpse. De-extinction would symbolise both a clean reckoning with our past indiscretions and achievement of the tallest goals of biology. Instead, we were left with reproduced images, through which we sense that the consequences of extinction somehow transcend the physical world, echoing outwards in fuzzy networks beyond specific histories, specific species, and into (post) human futures.

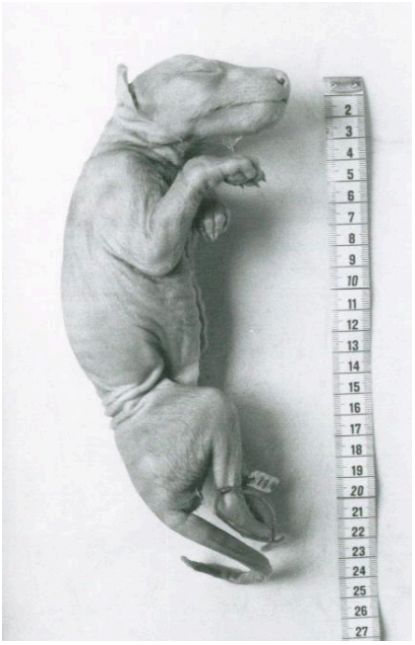

Fig 2. Thylacine pouch young (Australian Museum Specimen P762). Australian Museum. Photo: Prof. Dr Heinz Moeller. Source: International Thylacine Specimen Database, 5th Revision (2013). Source: Stark, 2018.

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If de-extinction unsettles the distinctions between life/death, extinct/extant, and places animals' existence within a liminal state, then it also holds a mirror to the location of humans within the wider context of the Anthropocene. The understanding that we are living within future geological markers of Earth's history - global climate change, habitat destruction, and the sixth mass extinction - prompts us to consider both the origins and the mortality of animal and human species in relation to deep geological time and the Earth as a single continuous entity

(DeLoughrey, 2019). The Anthropocene thus binds us to the present moment, its finitude, and the myriad relations between all living things that unite us as a single milieu floating in space - including the ghosts of colonialism and modernity that guide us into the future (Colebrook, 2014; Fredrikson, 2021). Yet, the Anthropocene is also both "forward looking and future-retrospective", characterised by the anticipation of future-death and a sense of pre-emptive mourning (DeLoughrey, 2019; Neyrat, 2019). Neyrat notes that the term *Sixth Extinction* itself is problematic, as it may be too anthropocentric to assume there will be a seventh (2019). The haunting implication of the Anthropocene is that it will eventually end, possibly with our own extinction, and that it signifies the beginning of the end of a particular phenomenological human presence in the world. The post-Anthropocene is imagined as an image of a world in the absence of the human gaze – "the world *as image*… but not referential *for* any body" (Colebrook, 2014). Perhaps it is this haunting image, and the cognitive dissonance it induces, that characterises de-extinction as a gesture preoccupied with corporeality.

The return of spectral images, whether of extinct species or of human-extinction, constitutes "our capacity to think to others not only as alive or dead, but as going-to-die – as *Beings-towards-death*" (Neyrat, 2019). The liminality of images and bodies of de/extinct species exists only in relation to our own bodily experiences of the world, as bodied beings that navigate an ecological atmosphere of limited futures. The fear of our own spectrality and the imaginaries of de-extinction are indicative of "an epoch that has begun to sense, if not have a sense of, a world without bodies" (Colebrook, 2014). If de-extinction is an exercise in futility, both in a practical sense due to the irreparable loss of past ecological relations and in a fatalist sense due to an oncoming post-human future, it can be understood as a ritual wherein the gesture is the only goal (Jennings, 2017). De-extinction can be read as the desire for encounter – "moments of strangeness where more-than-human presents and … futures might be glimpsed, and where the more-than-human ghosts of the past might be raised" (Fredriksen, 2021). However, de-extinction's preoccupation with corporeality – the reanimation of corpses – further points to an implicit understanding of the importance of contact/touch over seeing. Senses of the world arise from "the touching of bodies each against the other, a touching sensed ecologically in different ways by different beings" (Smith, 2013). Extinction represents a loss of bodily relations, which we are vaguely reminded of, and mourn, through reproduction of images and narratives. The prospect of de-extinction allows us to indulge, for a naïve moment, in the desire to run our fingers through the warmth of extinct furs and over extinct horns.

In January 2000, 'Celia', the last bucardo, (a subspecies of Pyrenean/Iberian Ibex) died under the branches of a fallen fir tree (Searle, 2020). In 2003, the birth of a clone, borne of tissue salvaged from Celia before she died, was heralded by the synthetic biologist George Church as

the first 'successful' de-extinction (Searle, 2020). Due to lung deformities, the cloned kid died of respiratory failure only a few minutes after birth (Ibbotson, 2017). The narrative of a 'successful' de-extinction, in the case of Celia's clone, was seemingly defined by the production of a body – the final realisation of a process that sought to turn ghosts into flesh. There are uncanny parallels between the presentation of the kid's body in 2013 (*Fig 3*), standing for the power of Western science to overcome the boundaries of natural life/death, and the mounted bucardo on the walls of hunters/collectors in the 1800s, which stood as testaments to the power of man over the beasts of nature (Searle, 2021). In contrast to the story of the thylacine, Celia's clone represents a different and more unsettling type of spectacle/spectre – a being twice dead, or re-extinct (Searle, 2020). When divorced from the narrative of 'science triumphant', the images that document the death of Celia's clone reveal yet another loss marked by a phenomenological experience of suffering. In one image, we see the deformity on one of her lungs. We can imagine the struggle to breath amidst the violence of birth. In her account of the images, Ibbotson states – "… removed from the clone's body, these organs assume an unsettling trans-species relatability, to which can be applied Gilles Deleuze's brutal notion that *[m]eat is the common zone of man and the beast, their zone of indiscernibility*" (2017).

Fig 3. Still from video - *The First De-extinction: Alberto Fernandez-Arias at TEDxDeExtinction*. (2013, April 2). TEDx Talks. Source: YouTube. 2021.

Spectrality and the ghosts of the post-human Earth therefore push us towards an awareness of the common, bodied, and temporal experience of both human and non-human animals. Through the narrative and images of de/extinction, we are linked by the precariousness of life/death and the relations of fragile corporealities in the Anthropocene, whether through

colonial hunting policies, genomic mapping and engineering, cloned bodies, apocalyptic weather events, or through zoonotic viral pandemics. Yet, de-extinction projects have, so far, been blind to this shared corporeality and their failures have only yielded more unsettling spectres. In this regard, we see that de-extinction is equally motivated by spectacle as much as it is by haunting. As a project sitting within conservation biology, de-extinction is emblematic of a long-standing scientific hypocrisy, emphasising both the personality of last-of-its-kind or de-extinct/cloned individuals (singularity) and a broad, disembodied, objective notion of species (plurality) (Smith, 2013). In one of these emphases, bodies are glorified but reduced to novelty. In the other, bodies are marginalised to a class. The spectres of lost bodies and their associated phenomenologies of sensing, relationships, and interactions, is both the great fear and the final unifier. The irony of the Anthropocene is that the spectres of extinct species and the ghosts of the post-Anthropocene can only be appeased through allowing their haunting. Rather than reanimation through de-extinction, we should sense deeply and embrace the mourning and pre-emptive mourning of absent bodies and revenants/ghosts as "the only possible loyal gesture of justice towards those – the unborn of the future – who will not even have the possibility to be betrayed" (Neyrat, 2019).

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