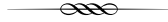


Chapter 9

## The Species Revivalist Sublime

Encountering the Kaua‘i ‘Ō‘ō Bird in  
Jakob Kudsk Steensen’s *Re-Animated*

Sarah Bezan



In his reflections on the use of virtual reality (VR) technologies in his artistic practice, Danish artist Jakob Kudsk Steensen describes the present ecological age as one infected with a ‘collective anxiety that everything will vanish’.<sup>1</sup> As species, habitats and ecosystems have undergone radical changes that press at the limits of human perception and experience, the rise of VR and other eco-technological artworks have created the possibility of virtual spaces where, Kudsk Steensen says, ‘[extinct] species can live on as data’.<sup>2</sup> These technological developments have in turn ushered in a new set of parameters for ecological aesthetics and values. Heather Davis and Etienne Turpin suggest in their critical introduction to *Art in the Anthropocene* that the Anthropocene epoch is itself ‘primarily a sensorial phenomenon’,<sup>3</sup> as evidenced by the use of increasingly sophisticated visual and technological tools, including data visualization, satellite imagery, climate models, and the like.<sup>4</sup> The Anthropocene, they insist, has rapidly re-fashioned our sensorial and perceptive systems so that ‘we daily experience what used to be a sublime moment’.<sup>5</sup>

While the sublime is for some eco-critics a seemingly outmoded concept freighted with the baggage of human exceptionalism and colonialism,<sup>6</sup> Davis and Turpin’s observations suggest that the concept may nevertheless have ongoing relevance for interpreting the elevated affective and aesthetic experiences with nature that have been afforded by recent technological innovations. Philosophical anthropologist Jos de Mul, for instance, utilizes the sublime to articulate what he views as the “second” or “next nature[s]”

of the '(bio)technological sublime'.<sup>7</sup> For de Mul, the (bio)technological sublime marks the shift from nature to technology that characterizes the nineteenth and twentieth centuries but also illuminates the emergence of 'converging technologies – information technology, biotechnology, nanotechnology, and the neurosciences'.<sup>8</sup> Yet as we spiral further into the sixth mass extinction, these converging technologies place further demands upon the aesthetic and moral relationship between humans and natural environments. On a planet progressively emptied of its biodiversity, what does it mean to revive an extinct species through digital technologies?

As a response to this question, this chapter examines how Kudsk Steensen's VR installation *Re-Animated* (2018–19) stages a sublime virtual encounter with the Hawaiian 'ō'ō bird (a member of the Australo-Pacific honeyeaters family declared extinct in the late 1980s) from the island of Kaua'i. Extending de Mul's insights on the (bio)technological sublime, I analyse how extinction storytelling is made meaningful through VR artworks that engage with issues of species loss and revival. As I define it, the 'species revivalist sublime' is an affective experience that takes VR users beyond elegy and into a space of reflection upon the sublimity of (bio)technological potentials, in a virtual narrative in which users engage with the second natures of extinction. Through the user's encounter with virtual landscapes and digital objects, the species revivalist sublime engenders novel emotions, sensations and technologically (re)mediated memories with extinct species. It therefore finds its basis in an encounter with what is to come rather than merely a representation of what is past. The VR stage is not primarily a space of elegiac introspection: in *Re-Animated*, it is the (bio)technological site of the birth of 'a newly created species – one defined by its original vocal evocation, remixed by humans and partially composed of new bits of digital data'.<sup>9</sup> As I argue in this chapter, Kudsk Steensen's creative simulation of a sublime storyworld (or fictional space) of species revival exceeds normative elegiac responses to anthropogenic extinction. Taking users beyond these standard elegiac expressions, the species revivalist sublime explores how the second natures of extinction are not only seen and heard but also experienced through immersive digital technologies in the twenty-first century.

## VR Encounters with Second Natures

A self-styled 'digital gardener' of virtual bio-architectural environments, Kudsk Steensen is an artist who strategically populates VR spaces with a wide range of real and imagined flora and fauna. Kudsk Steensen's virtual environments include Kensington Gardens and Hyde Park, French Poly-

nesia's Bora Bora Island, the mountains of New Mexico, and the Peruvian rainforest (to name but a few). A number of these creative productions have their basis in photographic images taken by the artist, along with digital recordings and other historical or material archives sourced from museums. But what Kudsk Steensen creates is often beyond the realm of present-day experience. The global art project 'Catharsis' (2020), for example, 'collaps[es] various ecological timelines' to explore forest landscapes over a period of centuries, pristinely preserved and safely protected from the impact of human activities.<sup>10</sup> The act of experiencing the absence or presence of the human species in fragile environments is at the core of Kudsk Steensen's artistic philosophy, whether it be sensing and experiencing shifting ecosystems or responding to resounding species losses.

*Re-Animated* serves as a particularly poignant example of how technological environments can function as a site of encounter with extinct species. The VR installation comprises one cinematic film ('Re-Animated') and three 4K videos ('Arrival', 'Mating Call', and 'Bug Zapper'), which are screened in a studio space lined with wood chips to capture the sensation of the forest floor. Kudsk Steensen recreates the foliage and natural features of the island of Kaua'i through algorithms, but also supplements the VR environment with archival materials including photographs of preserved 'ō'ō birds held at the American Museum of Natural History and sound recordings of the last 'ō'ō from 1987 archived at the Macaulay Library in the Cornell Lab of Ornithology. Illustrating how extinct species live on in sound and image, as well as through VR experience, *Re-Animated* is an artwork that reflects upon the posthumous existence made possible by recent advancements in de-extinction science (a practice that promises to revive extinct species through the means of back-breeding, cloning, and synthetic biology). Although the 'ō'ō is not officially a candidate for de-extinction, curator Toke Lykkeberg writes that *Re-Animated* is a 'biotechnological laboratory' that 'meditates on our paradoxical techno-scientific trajectory'.<sup>11</sup> Kudsk Steensen can be described as a kind of de-extinction artist who revives key features of the 'ō'ō's anatomy, habitat, and even its final mating call.

Along with the distinctive sounds and images of the 'ō'ō, the installation features audio excerpts from Kudsk Steensen's interview with American ornithologist H. Douglas Pratt, a well-regarded bird illustrator and wildlife photographer with a record of research across the Hawaiian islands and the Pacific region. Pratt's own vivid memories of the extinct 'ō'ō bird, combined with the rare audio recordings he produced of its mating call, are interwoven into the VR user's experience. While Kudsk Steensen himself has no living memories of the 'ō'ō, Pratt's experience with the last dwindling populations of birds from the island of Kaua'i is instilled within his

artistic renderings. It is mainly according to memory, rather than scientific data, that Pratt reanimates the 'ō'ō in his oil paintings. In his interview with Pratt, Kudsk Steensen asks how these paintings relate to Pratt's ornithological work. In response, Pratt explains:

I work from memory, rather than from observation, in the sense that I know the form and feeling of experiencing the bird. But I also use photographs and specimens from the natural history museums I have connections to, when painting the birds. It is almost like a mummy lying there – there is no life. The memory and the photographs are what help you put life back into those feathers.<sup>12</sup>

Pratt's realistic reproduction of a 'lively' 'ō'ō is based on the form and feeling imparted through memory. Kudsk Steensen, on the other hand, recreates the form and feeling of the bird by listening to its song, remixing it, and 'convert[ing] it into something else that is mediated and transformed into something that does not follow the same biological rules of DNA and evolution', in a space where 'organic and virtual realities have started to rapidly interbreed'.<sup>13</sup>

As a clear departure from the naturalistic style of Pratt's 'ō'ō oil paintings, *Re-Animated* builds upon Kudsk Steensen's encounter with the recorded MP3 of the mating call and his photographs of dead 'ō'ō specimens. These sonic, visual and material remainders are the rudimentary elements of the species revivalist sublime. At no point in the user's experience of the virtual world of *Re-Animated* does the extinct bird ever appear to be realistically alive (i.e. in its 'first nature'); it is presented either as photographs of dead bird skins or as a monstrosity oversized and unambiguously zombified bird. The effect of this is that users – who are also unlikely to have living memories of the 'ō'ō – are guided to reflect less on what has been lost and more on what has been remade. What this indicates is that while classic interpretations of elegy would begin from the point at which the dead speak in the form of a melancholic lyric or lament,<sup>14</sup> the species revivalist sublime transforms these expressions into a rumination of the voice itself, and the technologies of its transmission.

Although Kudsk Steensen moves his users away from a purely elegiac reflection on the extinct 'ō'ō, the user's novel encounters with the technologically mediated bird do not occur in a vacuum. To draw from Jody Berland's treatment of virtual menageries, the 'ō'ō bird appears as an 'animal emissary': a figure in dynamic relation to, and in historical context that encompasses the audience or human user of digital technologies.<sup>15</sup> As an animal emissary, the simulated 'ō'ō reveals how 'technological innovations (re)mediate our encounters with animals, just as animals (re)mediate our encounters with technology'.<sup>16</sup> Rather than produce an indulgent fantasy

of species revival, Kudsk Steensen's voiceover narration furnishes the VR world with historical context that allows users to retrace the movements of European colonizers to the Pacific as they descend 12,000 feet to the forest floor of Kaua'i below. Combined with encounters with the simulated 'ō'ō bird, this historically grounded VR narrative demonstrates how anthropogenic changes have led to a range of technological mediations over the past several decades.

Expanding upon this range of technological mediations, *Re-Animated* exemplifies the manifold meanings of the virtual: as that which is, according to Marie-Laure Ryan, an immersive and interactive computer-generated environment; a narrative medium or art; and an expression of the 'real'.<sup>17</sup> As a computer-generated environment, *Re-Animated* provides the user with an opportunity to reflect on the technological elements of the VR space. These engagements with technology are made apparent in three ways: through (1) the sublime drone-like opening scenes of the cinematic film, leading to a mausoleum site; (2) the transformation of the 'ō'ō mating call into a floating, multidimensional sonic object; and (3) the user's encounter with zombified 'ō'ō birds and oversized bug zappers. In the following sections, I examine how these encounters go beyond traditional elegiac treatments of extinction by instead producing new experiences with the extinct and technologically revived 'ō'ō bird.

As a narrative, Kudsk Steensen's project illustrates how storyworlds of extinction in VR (as with all creative genres) are mediations to some degree; they are filtered through the narrative arcs and technological tools that shape human responses to extinction. Through encounters with the simulated objects, figures and spaces outlined above – some of which may be explored in slightly different ways due to each individual user's breath and voice picked up by the VR headset – the imagination of the user is activated in order to 'co-produce' the VR storyworld.<sup>18</sup> This co-produced storytelling process, which describes the melding of the narrative itself with the imagination of the audience, is one that is arguably shared across all narrative media (from novels to film), including VR.<sup>19</sup> In *Re-Animated*, this co-produced storytelling process revolves around the 'ō'ō animal emissary, which unites the user's reflections on the technological encounters with the narrative elements presented.

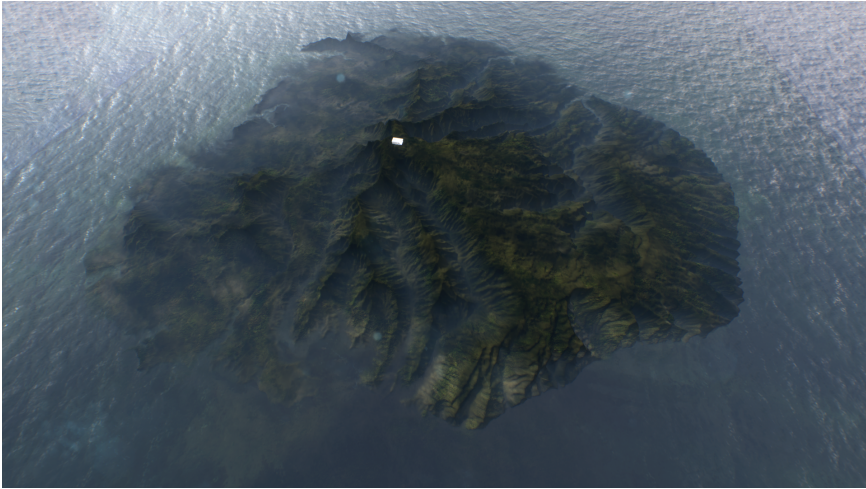
Lastly, the use of remediated digital data creatively simulates a virtual environment and a lost species that is, within the self-enclosed storyworld of the installation, entirely 'real'.<sup>20</sup> In other words, these virtual objects produce real feelings (and possibly even attitudinal changes and behaviours) in VR users. While *Re-Animated* may be perplexing or even unsettling to some who might view such projects as an alarming sign of a declining natural world that is only 'alive' in virtual reality environments, Kudsk

Steensen's VR project arguably provides the necessary space for exploring the emotional contours of species loss and revival. Following cognitive scientist David J. Chalmers's argument that virtual or digital objects are real and foster valuable experiences,<sup>21</sup> *Re-Animated* models encounters with extinct species that may impact upon the user's attitudes towards the second natures that have begun to reshape the cultural context of the sixth mass extinction crisis.

### **The Sublime Aesthetic of 'Arrival': Descending and Ascending Kaua'i**

'Arrival', the first of three 4K videos of *Re-Animated*, firmly situates Kudsk Steensen's work within the aesthetic tradition of the sublime. As a reflection of the elevated or lofty experiences with natural environments that characterize this tradition,<sup>22</sup> the 10 minute 30 second video begins with the user's haunting descent upon the island of Kaua'i from an altitude of 12,000 feet, followed by a transcendental ascent towards a mausoleum structure at the peak of Alaka'i (a present-day wilderness preserve). During the initial descent, the island comes into view through the mist and fog, while the hypnotic and even-keeled narrator addresses the user in the second person: 'you descend, you fall through the air, through the ages'.<sup>23</sup> A white building no bigger than a Monopoly game piece emerges on the island's peak, still thousands of feet below. The narrator informs the user of their likeness to the explorers, the missionaries, the naturalists, and even 'the horses, the mosquitoes, the viruses' that altered the habitat of the island over the course of the eighteenth, nineteenth and twentieth centuries.<sup>24</sup> As the user traverses the empty landscape, the narrator introduces Reverend Dwight Baldwin, a nineteenth-century missionary doctor and patriarch of what would become Hawaii's first pineapple business and one of several sugarcane plantations. Reverend Baldwin is one of a number of nineteenth-century colonizers who witnessed the arrival of a 'tiny translucent bird' in 1826: the mosquito, a carrier of avian malaria that wiped out a large number of Hawaiian bird species, eventually pushing the 'ō'ō to higher and cooler elevations, towards the swampy plateau of Alaka'i. Descending through time and space from the eighteenth century to the present, the user experiences an acute sense of awe and wonder at the vastness of the temporal and spatial scale of the VR environment.

What begins with a *descent* to Kaua'i soon becomes an *ascent* led by Victorian naturalist Walter Rothschild, whose vast collections of preserved avian bird skins (including numbers of 'ō'ō birds) are housed at the American Museum of Natural History.<sup>25</sup> As an embodiment of natural scien-



**Illustration 9.1** Jakob Kudsk Steensen, 'Arrival', 2018–19. Screenshot of 10 min 30 sec video excerpt.

tific practices of preservation and collection, Rothschild is presented as an imaginary guide on a 'trail to immortality'. On this trail, the narrator explains, Rothschild finds an 'ō'ō, snaps its neck, and 'fuses' with the bird, which is then displayed within the mausoleum space. It is here that users are presented with their first sombre glimpse of the 'ō'ō, which appears not in 3D (as one would expect of a VR environment) but in 2D as a set of photographs on the mausoleum wall. As the film draws to a close, the walls of the mausoleum swarm with flies as the user is brought through the entrance of the structure. 'A bird preserved, a bird displayed, a bird forever', the narrator proclaims as the camera swiftly zooms towards one of two images depicting tagged 'ō'ō bird skins, their cotton-stuffed eyes eerily aglow.<sup>26</sup> In the film's final moments, the unceasingness of death and extinction permeates the mausoleum site, transforming the user's sublime response to the transcendental journey into a bitter contemplation of how the imperialistic practice of resource extraction and the pursuit of natural scientific knowledge have ultimately hastened the extinction of the 'ō'ō species.

By orienting users to the perspective of European figures like Baldwin and Rothschild, 'Arrival' demonstrates how the sublime aesthetic remains nostalgically entangled in the destructive fantasy of Western arrival into what were perceived to be boundless and untouched natural landscapes, replete with species as yet unknown to natural science. Kudsk Steensen's use of the sublime therefore allows for a broader examination of how Western aesthetic and natural scientific values have shaped understand-

ings of species biodiversity since European contact. The relationship between these values has been well accounted for in the intellectual history of the sublime. As eco-critics have argued, the sublime is rooted in the hierarchical separation of humans and ‘nature’ (the basis of human exceptionalism); it is also, as environmental philosopher Emily Brady suggests, a tradition that historically represents ‘an othering of nature, where nature is overpowered, conquered, and colonized’.<sup>27</sup> Yet *Re-Animated* exemplifies how the sublime might also be understood as a concept that is evolving according to ever-shifting environments. As Brady contends, the Anthropocene has given rise to more ‘challenging aesthetic qualities in nature’, with technology allowing ‘us to approach places that remain wild to a great extent, in ways that still leave room for the sublime response’.<sup>28</sup> While the descent and ascent of the user through the island of Kaua’i may align with the aesthetic and philosophical traditions of the sublime, it also explicitly outlines a three-hundred-year colonial history that allows the artist to position a critique of the Anthropocene responses Brady describes. The VR environment of ‘Arrival’ thereby captures a new use of the sublime, interrogating how Western values inform the representation of ecological habitats affected by anthropogenic extinctions.

A further component of the user’s transcendental ascension to the mausoleum space in ‘Arrival’ is how the sublime is utilized to facilitate, but also to expand upon, elegiac responses to extinction. The final moments of the film invoke an elegiac response, but do so in a way that meets Jesse Oak Taylor’s standard for the genre of extinction elegy: as an artwork that ‘both mediates the relationship between species and helps us conceptualize human existence in species terms’.<sup>29</sup> The film does not merely feature the loss of a charismatic species that already dominates cultural narratives – a pitfall Ursula Heise elucidates in her critical treatment of species elegy.<sup>30</sup> Instead, the film’s species-level reflections on the impact of human colonizers and settlers over a three-hundred-year timeline induces users to observe evolutionary shifts over the course of several centuries. As I will discuss in the next section, Kudsk Steensen’s other pieces (‘Mating Call’, ‘Bug Zapper’, and ‘Re-Animated’) utilize the species revivalist sublime to redirect expressions of mourning into novel encounters with the extinct ‘ō’ō bird. But in ‘Arrival’ in particular, the sublime aesthetic initiates what is fundamentally a question of *belonging* across time and space; a sense in which the narrative scale of the sublime aesthetic allows individual users in the VR environment to consider the impact of humans on a timeline that exceeds the average human lifespan. This multiscale narrative frame occurs through what narratologist David Herman describes as ‘allegorical projection’, through which ‘individual animals, or the traces left by their activity, can be used to figure forth species-level phenomena’.<sup>31</sup> Herman contends



that these narratives ‘provide resources for imagining and engaging with species-level processes, including those involving the loss or extinction of whole species’.<sup>32</sup> Kudsk Steensen’s use of archival materials, including photographs of Rothschild’s ‘ō‘ō bird skins, introduces a VR storyworld that extends these individual animal traces into a more robust and extensive narrative about species loss, in turn accounting for the ways in which the scientific and technological innovations of the human species figure into the story of the ‘ō‘ō bird extinction.

This multiscaled, species-level narrative frame does not, of course, provide an all-encompassing deep history of human-driven ecological changes on Kaua‘i. As Daniel Lewis writes in *Belonging on an Island*, the history of human arrivants and subsequent extinctions across the Hawaiian islands is extensive, stretching over a period of more than a thousand years, with extinctions on the islands occurring naturally prior to human contact. According to Lewis, ‘there are a variety of statistical and descriptive ways to slice the extinction pie’, given the impact of pre-industrial Polynesian settlers around 1000 CE, which sparked a catastrophic wave of extinctions that continued on after the arrival of Captain Cook and other Westerners in 1778.<sup>33</sup> Considering the extent to which remote island habitats (where most species have come from somewhere else) can be said to host ‘native’ or endemic species, Lewis’s argument is that there are a myriad of ways in which human and non-human arrivants can be said to ‘belong’ on the Hawaiian islands. The fact that ‘Arrival’ charts a limited temporal course through a three-hundred-year colonial timeline suggests that users must consider how structures of belonging emerge out of the Western aesthetic, natural scientific, and technological developments that have set the stage for the VR storyworld within which users find themselves. As I explain in the next section, it is through the VR environment that users discover alternative ways of belonging with, and relating to, extinct species in their second natures.

### **The Species Revivalist Sublime: Encountering the ‘Ō‘ō Bird in VR Environments**

I have argued thus far that *Re-Animated* expands the affective register of extinction beyond more familiar expressions of grief and into the realm of awe and wonder at the sublimity of (bio)technological revival. Elegiac expression can therefore be understood as that which hinges upon representations of what is lost, while the species revivalist sublime can be defined as the arousal of novel emotions and sensations through virtual encounters with the objects and landscapes of the extinction storyworld. In further

outlining my interpretation of the species revivalist sublime in this section, I discuss how the shifting emotional resonances associated with representations and encounters with extinction are explored in Kudsk Steensen's artwork through the juxtaposition of 2D and 3D forms. As we have seen with 'Arrival', the 2D photographs of dead bird skins on the mausoleum wall portray *pictorial* or *representational space*, while the 3D mausoleum site models an *embodied space* that accommodates immersive and experiential encounters with digital objects and landscapes.<sup>34</sup> Unlike 'Arrival', however, encounters with the 'ō'ō bird in the 4K videos 'Mating Call' and 'Bug Zapper', as well as in the cinematic film 'Re-Animated' enable the user to experience the second natures of extinct species. While the 2D photographic representations of dead 'ō'ō birds are characterized by their realism (thereby eliciting a sense of grief at the fullness of what has been lost), the 3D objects of the film and videos are fantastical and distorted, requiring the emotional responsiveness and imaginative co-production of users as they contemplate the role of technology in mediating these encounters.

In 'Mating Call', for instance, users encounter 'ō'ō birdsong as a floating, multidimensional sonic object. Kudsk Steensen's depiction of the mating call of a 3D form restores the audible remainders of birdsong into the simulated environment of Kaua'i through digital tools. In doing so, the artist constructs a technological space within which to re-orient the user's relationship to the revived 'ō'ō. In 'Bug Zapper' and 'Re-Animated', on the other hand, the user's movements through the VR space are determined by oversized zombified birds and bug zappers, which counter the



**Illustration 9.2** Jakob Kudsk Steensen, 'Kaua'i 'ō'ō Mating Call', 2018–19. Screenshot of 3 min 25 sec video excerpt.

lofty, elevated perspective of 'Arrival' by giving the user an insect-sized ground view of the forest floor. Through these encounters, *Re-Animated* creatively reconfigures the sounds of lost species while also exploring the shifting temporal and spatial scales of extinction's second natures. These emotionally responsive, co-productive, and embodied VR encounters redraw the parameters around which users of digital technologies relate to extinct species.

The 3 minute 25 second video 'Mating Call' transforms the mournful birdsong of the last 'ō'ō into a digital object that can be approached by the user in VR space. This digital object is based on Pratt's recording of the mating call, which has been archived in the Macaulay Library and has also been made widely available on YouTube, where it has to date garnered well over a million views and more than a thousand elegiac tributes in the comments section.<sup>35</sup> The MP3 audio recording of the last 'ō'ō continues to elicit a strong elegiac response because listeners recognize it as a one-sided communication; a message transmitted to a mate that no longer exists. Yet by foregrounding the 'ō'ō mating call as the voice of extinction, Pratt's acoustically engineered sound also dissociates it from the creaturely vocalizations of its ecological habitat. In this way, the recording sets up a binaried relationship between the foreground and background of multispecies soundscapes. The problem with this is that the 'sonic individualization' of birdsong in nature recordings has, according to Jody Berland, 'eliminated the background noises of nature', along with layers of musical phrases and responses that might 'speak to us of the complexity of presence, interaction, noise and loss'.<sup>36</sup> Blending the foreground and background sounds of nature recordings through VR technologies can address these complexities while also accounting for the ways in which the biological and technological realms intersect across species lines.

In its depiction of 'ō'ō birdsong, 'Mating Call' digitally reconnects the 'ō'ō call with a sonorous VR space that amalgamates the foreground and background of multispecies soundscapes. This in turn allows the user to serve as an *interactive responder* to the mating call. Unlike the passive listener of the MP3 recording, the VR user is confronted with a distorted and incomplete 3D sonic object that metonymically stands in for the body of a bird that is distinctly absent. In the absence of the body of the bird, however, the sonic object takes on a larger-than-life quality that showcases its embedded relations with the forest and its inhabitants, including the VR user who encounters it. By activating multiple senses in the user, from sight and hearing to a sense of movement in space (also known as proprioception), the user learns how, in Berland's terms, to 'situatedly listen'.<sup>37</sup>

This act of situated listening is achieved through the VR user's embodied and immersive encounter with the 3D mating call, which can only

be heard, seen and spatially encountered in the forest environment that appears halfway through the video. The video begins in the mausoleum, where the user follows the camera as it lingers over the familiar 2D photographs of 'ō'ō bird skins. The buzz of flies and the symphonious chirps, clicks and tweaks of forest creatures fill the mausoleum space. After sixty seconds, the user encounters an entirely new object: a feathered orb that descends from the sky through a hole in the mausoleum ceiling. A percussive cracking similar to the snapping of twigs can be heard as the orb and the mausoleum walls melt away, revealing silvery sonographic ribbons of sound that undulate and swell in time with the mating call. Juxtaposed with the self-enclosed vacuity of Pratt's audio recording and the funereal realism of the 2D photographs on display in the mausoleum, the 3D sonic object unites 'ō'ō birdsong together with the creaturely operatics of the simulated forest before they slowly fade away from view.

While the user's embodied and immersive response to the mating call does not (and indeed could not) take the place of the mate of the 'ō'ō, this novel encounter with the bird activates multiple senses that reorient the user to the dynamic dimensions of a 3D sonic object that has been situated in a virtually created natural environment. In doing so, it taps into a more expansive range of feelings (from grief to awe) that characterize human responses to the bird's (bio)technological expressions. As the summation of gestures, expressions and songs that have been preserved and revived through digital tools, these surges of sound reveal the way in which birdsong functions as a sophisticated 'form of code' that is distinctly (bio)technological in and of itself.<sup>38</sup> It also elucidates how an interactive, embodied, and experiential encounter with the mating call of the 'ō'ō can offer a new perspective on the mediated relationship between human technologies and extinct species. In a VR space where the user not only grieves but creates new memories with the extinct bird, Kudsk Steensen makes it possible for the user to reflect upon the sublimity of the bird's (bio)technological afterlife.

The multidimensionality of VR has the effect of blending the foreground and background of multispecies landscapes, but it also opens up the static framing of sonic preservations in ways that audio recording alone cannot. David Michael's critique of nature recording as a documentary genre, for instance, reveals how nature recording often belies a 'unique historical obsession with the documentation and transportation of place' that ultimately 'imposes a frame on a boundless, limitless process. This frame freezes a portion of our environment to be appreciated as a work in itself: an object'.<sup>39</sup> As a result, Michael continues, nature recordings seem to suggest that an environment 'can be preserved and communicated as an

objective reality, able to reproduce a subjective experience in the listener of 'being there'.<sup>40</sup> According to Michael, however, the static framing and objectification of nature in audio recording means that it is incapable of representing complex phenomenological reality.<sup>41</sup> While VR cannot solve this problem entirely, I would suggest that as an experiential medium, VR challenges purely aestheticized views of nature that institute a hierarchical relationship between 'nature' and the human observer. As I have shown, 'Mating Call' does not aim to merely objectify birdsong but rather to situate and embed it within a simulated natural environment. In this way, Kudsk Steensen's VR project speculatively explores a broader spectrum of emotions, sensations and experiences in users by considering the role of technology in mediating encounters with extinct species. While audio recording may maintain the veneer of all-encompassing objectivity, the value of Kudsk Steensen's work lies in its potential for generating alternative realities and affective relations with extinct species within the VR storyworld.

'Bug Zapper' and 'Re-Animated' explore these shifting frames of reality and affective relations by positioning the user into an insect-sized ground view of the forest floor. Further extending the multiscale narrative established in 'Arrival', the highly speculative and imaginative video and film recreates the second natures of extinction through non-human perspectives and timescales. In 'Bug Zapper', for instance, the user is presented with a series of subtitles that narrate the user's movement through the VR space as the forest transitions from day to night. Floating across the forest landscape, the 5 minute 45 second video likens the user to a bug gazing at a screen, 'steering toward its own end, hypnotized by the buzz of a bright bug zapper'.<sup>42</sup> The bug zapper, which is suspended from an entangled mass of floating branches awash with purple light, is stationed inside of the mausoleum adjacent to the 2D photographs of dead 'ō'ō birds. In this VR space, Kudsk Steensen creates a retroactive fantasy in which the user – imagined as one of the malaria-carrying mosquitos that brought an end to the 'ō'ō species – is exterminated. In this way, the user enters into a kind of immortal technological realm where fantastically overscaled digital objects and otherworldly landscapes pulsate with the potential of (bio)technological revival.

The thrumming electric zing of bug zappers that appear in both 'Bug Zapper' and in the longer cinematic film 'Re-Animated' is reminiscent of the kind of gothic galvanism that is prominently featured in Mary Shelley's classic novel *Frankenstein* (1818). Appearing for the first time in the 14 minute and 16 second 'Re-Animated' film (and also, for the first time in the *Re-Animated* project, entirely away from the mausoleum), the



**Illustration 9.3** Jakob Kudsk Steensen, 'Re-Animated', 2018–19. Screenshot of 14 min 16 sec video excerpt.

(bio)technological resurrection of the 'ō'ō bird is presented to the user as a disassembled and oversized zombie. Accompanied by ambient algorithmic sound and intermittent zaps of electricity, users journey through a watery cave (marked in neon green ink with elegiac messages from YouTube) where they encounter an oversized assembly of objects, including a bug zapper, a skeletonized 'ō'ō bird wing, large branches wired with electricity, a large white rock projected with flies, and a floating feathered orb that emits purple light. The camera pans the landscape from above and below, as if from the perspective of an insect. Suddenly, a billboard-sized 2D photograph of an 'ō'ō bird skin erupts from the ground like a tombstone, reminding the user of the organic remains that resist digital revival. Meanwhile, the feathered orb that initially appeared in 'Mating Call' shrinks and expands as it navigates the user through an underground tunnel towards a higher altitude. It is here, thousands of feet above sea level surrounded by a grey mist, that the film culminates in a sublime cloudscape suspended with the disparate components of the 'ō'ō bird: a pair of wings, a head, and humanoid-looking legs and arms. That the bird appears only in an assembly of parts, never entirely animated or lifelike, speaks to the magnificent scale of technological immortality that characterizes extinction's second natures. Yet it also illuminates how the species revivalist sublime resists revelling in pre-extinction fantasies of liveliness: in 'Re-Animated', the species revivalist sublime acknowledges what has been lost but also exposes the VR user to what has been remade, however impartially and incompletely, in the afterlives of digital datasets.

In juxtaposing 2D and 3D forms throughout his *Re-Animated* project, Kudsk Steensen does not allow VR users to become entirely enraptured by the sublimity of (bio)technological potentials. For Kudsk Steensen, the oversized and alluring bug zappers, 'ō'ō bird body parts, and floating feathered orb stand in for the process of extinction that is superlative by its very nature: human-created and yet greater than the human, and happening on a global scale and speed too rapid to comprehend with reason. Kudsk Steensen's positioning of users in multiple perspectives – from the colonizer of 'Arrival' who safely descends upon the island, to the mosquito that is drawn into the deadly structure of the electric bug zapper or confronted with an imposing photographic wall of a dead 'ō'ō bird – challenges and undermines feelings of mastery and control that might arise during their immersive encounters with the virtual environment. When users finally meet the extinct 'ō'ō in its second nature, towering above the forest floor in a cloudscape during the screening of the cinematic film, they are urged to reflect upon the unsettling feelings of awe and discomfort that arise from these shifts in perspective in which they are transformed from mourners to interactive responders and finally, to immortal witnesses.

## Conclusion: The Future Aesthetics of Extinct Species

Tracked through embodied, immersive, and emotionally responsive experiences with the extinct ‘ō‘ō bird in the VR storyworlds of ‘Arrival’, ‘Mating Call’, ‘Bug Zapper’ and ‘Re-Animated’, the shifting range of affects that I have identified in Kudsk Steensen’s eco-technological installation point to the emergence of alternative relations and structures of belonging with non-human animals in digitally reconstructed environments. As eco-artistic practice comes under closer analysis in the field of eco-criticism, these alternative relations bring greater awareness to the future aesthetics of extinct species. Emily Brady and Jonathan Prior suggest in their essay on environmental aesthetics and rewilding, for example, that the ‘future aesthetics’ of extinct and endangered species relies upon ‘the role of imagination in the unfolding aesthetic narrative of rewilded places’.<sup>43</sup> But what about the future aesthetics of extinct species in virtual environments?

While extinction studies scholars like Ursula Heise, Jussi Parikka, Dolly Jørgensen and Thom van Dooren have focused on the role of grief and longing in extinction imaginaries, my aim in this chapter has been to plot out the emerging aesthetics of species revival in digital artistic practice. For an artist like Kudsk Steensen, the imagination is a key component of how revived species are featured as both ‘physical and virtual forms’ that ‘mimic the ambience and material[ity] of digital worlds’.<sup>44</sup> However, Kudsk Steensen also rightly recognizes that the use of digital tools in the wake of the sixth mass extinction points to a collective anxiety about accelerating biodiversity declines.

Elizabeth Swanstrom assesses the significance of this collective anxiety in *Animal, Vegetable, Digital*. In her discussion of the intersection of digital technologies and ‘natural signs’, Swanstrom outlines the extent to which an ever-increasing number of species are becoming ‘vanishing signs’. However, digital and new media art practices can, according to Swanstrom, have a positive effect by allowing audiences to ‘access a dynamic and participatory version of nature’ in which ‘human and non-human agents [can] inflect and shape their shared environments, as well as each other’.<sup>45</sup> Elaborating on Swanstrom’s observations, I propose that this participatory crossover between species lines and natural and virtual environments is what makes the species revivalist sublime meaningful. If it is the case that one of the defining features of the Anthropocene is that the realms of biology and technology have become altogether inseparable, then the species revivalist sublime can open up spaces for the production of novel emotions, sensations, and technologically (re)mediated memories with extinct species. To reconstruct a digital world with extinct species in this way would not be to neglect natural habitats populated with endangered ones, because



both are entirely real and capable of generating authentic feelings, attitudinal changes, and behaviours. In outlining a new set of values for the future aesthetics of extinct species, Kudsk Steensen's eco-technological artwork shifts users' perspectives and generates a wider range of affective responses to species loss and revival. Kudsk Steensen's species revivalist sublime ultimately plots an emerging trajectory for extinction imaginaries that not only radically questions what is past but also speculatively imagines what is to come as the sixth mass extinction crisis unfolds.

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## Notes

1. Chen, 'You Can Slow Down Time in Virtual Reality'.
2. Vickers, 'Artist Profile'.
3. Davis and Turpin, 'Art and Death', 3.
4. *Ibid.*, 3–4.
5. *Ibid.*, 11.
6. Brady, *The Sublime in Modern Philosophy*, 195.
7. de Mul, 'The (Bio)Technological Sublime', 33.
8. *Ibid.*, 37.
9. Kudsk Steensen, 'How a YouTube Video Brought an Extinct Bird back from the Dead'.
10. Kudsk Steensen, 'Catharsis'.
11. Lykkeberg, 'Re-Animated Press Release'.
12. Kudsk Steensen, 'How a YouTube Video Brought an Extinct Bird back from the Dead'.
13. *Ibid.*
14. Oxford English Dictionary, 'elegy, n.'
15. Berland, *Virtual Menageries*, 9.
16. *Ibid.*, 5.
17. Ryan, *Narrative as Virtual Reality*, 12.

18. Ryan, 'Story/Worlds/Media', 2.
19. Ibid., 1.
20. Chalmers, 'The Virtual and the Real', 309.
21. Ibid.
22. Oxford English Dictionary, 'sublime, n.'
23. Kudsk Steensen, 'Arrival', 1:13–18.
24. Ibid., 2:23–26.
25. 'Walter Rothschild's Unusual Birds'. *Natural History Museum*. Retrieved 28 December 2020 from <https://www.nhm.ac.uk/our-science/collections/zoology-collections/bird-skin-collections/walter-rothschild-birds.html#:~:text=Before%20he%20died%20Rothschild%20sold,display%20in%20his%20public%20museum.>
26. Kudsk Steensen, 'Arrival', 9:45–55.
27. Brady, *The Sublime in Modern Philosophy*, 194.
28. Ibid., 185, 187.
29. Oak Taylor, 'Tennyson's Elegy for the Anthropocene', 225.
30. Heise, *Imagining Extinction*, 50.
31. Herman, *Narratology beyond the Human*, 262.
32. Ibid.
33. Lewis, *Belonging on an Island*, 9–10.
34. Ryan, 'Introduction', 2.
35. Kua'i 'ō'ō.
36. Berland, *Virtual Menageries*, 196.
37. Ibid.
38. De Bruyn, 'Anthropocene Audio', 161.
39. Michael, 'Toward a Dark Nature Recording', 206.
40. Ibid., 208.
41. Ibid.
42. Kudsk Steensen, 'Bug Zapper', 3:43–4:10.
43. Brady and Prior, 'Environmental Aesthetics and Rewilding', 33.
44. Vickers, 'Artist Profile'.
45. Swanstrom, *Animal, Vegetable, Digital*, 18.

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