Xilogravura do livro *Les songes drolatiques de Pantagruel* (1565), de autoria presumida de François Desprez. Obra em domínio público. Composição visual remixada.

DOSSIÊ ESPECIAL

RIGHTS AND LIBERATION FOR THE NON-EXISTENT: THE *IMPLICATIONS* OF DE-EXTINCTION

DERECHOS Y LIBERACIÓN PARA LO INEXISTENTE: LAS IMPLICACIONES DE LA DE-EXTINCIÓN

DIREITOS E LIBERTAÇÃO PARA O INEXISTENTE: AS IMPLICAÇÕES DA DE-EXTINÇÃO

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Abstract
De-extinction is an emerging biotechnological innovation that has seen a sudden uptick of media and investment attention, holding considerable implications for animal populations of all sorts. This paper, after providing an overview of de-extinction discourse, rhetoric, and ideas, contextualizes this innovation within the works of Catia Faria and Sue Donaldson & Will Kymlicka. Said contextualization provides impetus for animal theory to engage with de-extinction in more detail, going beyond an immediate rejection of the practice. De-extinction holds grave implications for animal populations that must be considered in theory, both to critique the practice, and to better understand the importance of theoretical frameworks in the context of the ongoing "animal turn" in political theory.

Keywords
De-extinction; zoopolis; utilitarianism; biotechnology; wild animals.

Resumen
La de-extinción es una innovación biotecnológica emergente que ha experimentado un repentino aumento de la atención mediática y de la inversión, con implicaciones considerables para las poblaciones animales de todo tipo. Este artículo, tras ofrecer una visión general del discurso, la retórica y las ideas sobre la de-extinción, contextualiza esta innovación en las obras de Catia Faria, Sue Donaldson y Will Kymlicka. Dicha contextualización impulsa a la teoría animal a abordar la de-extinción con mayor profundidad, más allá del rechazo inmediato de la práctica. La de-extinción tiene graves implicaciones para las poblaciones animales que deben considerarse teóricamente, tanto para criticar la práctica como para comprender mejor la importancia del marco teórico en el contexto del actual "giro animal" en la teoría política.

Palavras clave
De-extinción; zoopolis; utilitarismo; biotecnología; animales salvajes.

Resumo
A de-extinção é uma inovação biotecnológica emergente que tem recebido um aumento repentino da atenção da mídia e de investimentos, com implicações consideráveis para populações animais de todos os tipos. Este artigo, após fornecer uma visão geral do discurso, da retórica e das ideias sobre de-extinção, contextualiza essa inovação nas obras de Catia Faria e Sue Donaldson & Will Kymlicka. Essa contextualização impulsiona a teoria animal a se envolver com a de-extinção de forma mais aprofundada, indo além da rejeição imediata da prática. A de-extinção tem implicações graves para as populações animais que devem ser consideradas em teoria, tanto para criticar a prática quanto para melhor compreender a importância do arcabouço teórico no contexto da atual "virada animal" na teoria política.

Palavras-chave
De-extinção; zoópolis; utilitarismo; biotecnologia; animais selvagens.

Richard Giles' (post)doctoral work considers the implications of cultured meat, and other biotechnologies, for animals within various systems. He is currently working on larger publications while also doing sessional lecturing.

Introduction

Early in 2025, a bubbling biotechnological innovation enjoyed a sudden rush of media coverage when Colossal Bioworks emerged, with $10.2 billion in investment capital, to announce the successful use of CRISPR technology in the "de-extinction" of the ancient dire-wolf.[1] With the company now seeing support from the second Trump administration, and having $7 billion more investment capital than the cultured meat sector had accumulated across almost ten years of investment, this paper argues that de-extinction efforts – however theoretical – hold considerable implications for animal rights and liberation theory, which must engage with them sooner rather than later, especially in consideration of the discourse that presents de-extinction as an important part of climate change mitigation efforts and biodiversity restoration. This paper, after reviewing de-extinction projects and discourse, engages with the concept in two contexts, the first being Catia Faria's *Animal Ethics in the Wild,* and the second being the theory of Zoopolis. While one can fairly anticipate that both approaches would argue for the protection of de-extinct animals, it is how one understands the matter of obligation that must be considered, and with which I argue animal theory is currently ill prepared to contend. Importantly, this paper engages with the theoretical implications – rather than the practical possibility – of de-extinction projects, which allows for a stronger understanding of de-extinction with both frameworks. Ultimately, the paper concludes that de-extinction holds considerable implications for both approaches, which are not being covered by current ethical discourse surrounding the project.

1. De-Extinction: a mostly simulacrumatic term

Any engagement with the notion of de-extinction must recognize that the term, itself, is contested, with many examples of de-extinction also being interpretable as "species creation." The ambiguity can best be understood in the context of de-extinction's methodologies, of which there are three to note. Back-breeding involves the breeding of existing species, close enough as relatives that the resulting birth will demonstrate the desired traits of an extinct species. Back-breeding is a long-standing technique in animal-breeding, but does not result in a one-to-one replication of the genetics of an extinct animal, which marks a notable point of confusion when it comes to understanding de-extinction. That said, there is debate about the extent to which definitions of species can be re-articulated to include back-bred species as examples of "de-extinction," a point compounded by the role of "approximation" in de-extinction, which this paper will touch on momentarily.[2] Genetic engineering involves the use of currently existing species as surrogates, whose embryos are edited and implanted into proximate animals, resulting in hybrid species that have stronger similarities to the desired extinct species; however, the genetic coding will still not be a one-to-one genotypic match. The genetic code for various extinct species ranges in quality, which will require

[1] Max, *The Dire Wolf Is Back*, pp. 30-41.
[2] Finkelman, *De-Extinction and the Conception of Species*, pp. 3-5; Shapiro, *Pathways to De-Extinction*, pp. 997-998.

genetic modification that may depend on a degree of "guesswork." Shapiro argues that the woolly mammoth genetic code is too incomplete to ever see a true one-to-one replication of the extinct species, and the Christmas Island Rat – much more recently extinct – still lacks 5% of its genetic code to allow for exact genetic replication.[3]

Both back-breeding and genetic engineering are more akin to the act of "species creation" – human-driven manipulation of genetics and breeding to result in the creation of new genetically significant species. These species may be approximations of previously existing beings, but without a one-to-one genetic replication, the idea of "de-extinction" seems more like a marketing technique than a genuine description. However, some species are much more recently extinct, and should DNA for these species be available, there is the theoretical possibility of using cloning to reverse the course of extinction. With this point in mind, de-extinction is not theoretical; in 2003, a cloned bucardo was born, following the species' extinction in 2000, and lived for seven minutes before passing away, meaning that de-extinction – in its more instantly understandable form – has already occurred.[4] Surrogate mothers are still involved in the process of bringing these species "back from the dead," meaning that currently existing animals continue to be relevant to the biological project of de-extinction, even with cloning being involved.

Further compounding the conceptual problems associated with de-extinction are two components of how it is defined: the importance of environment relative to genetics, and the purpose of de-extinction projects themselves. The International Union for the Conservation of Nature (IUCN) understands de-extinction as an act of proxy creation, which emphasizes "that the legitimate objective of the creation of such an organism is the 'production of a functional equivalent able to restore ecological functions or processes that might represent in some sense another entity – the extinct species.'"[5] The IUCN's definition does seem to support the idea that de-extinction is better understood as species creation, but critics of the institution's understanding point to the inclusion of cloning practices under the definition:

> if a cloned bucardo is a proxy of a bucardo, then every species epigenetically altered by human activities is now extinct and has been replaced with anthropogenic proxies. This means every recovery facilitated by translocation, captive breeding, habitat restoration and so forth, are not recoveries at all but have rendered species extinct and substituted them with new forms.[6]

Novak's definition – "de-extinction is the ecological replacement of an extinct species by means of purposefully adapting a living organism to serve the ecological function of the extinct species by altering phenotypes through various breeding techniques, including artificial selection, back-breeding, and precise hybridization facilitated by genome editing" – may clarify some matters, but I argue that it instead points towards the importance of ecological function in de-extinction rhetoric, such that, regardless of methodology and genetic exactness, the animal's alleged

[3] Shapiro, *How to Clone a Mammoth*, pp. x-xi.
[4] Searle, *Spectral Ecologies*, pp. 167-168
[5] Wagner, *De-Extinction, Nomenclature, and the Law*, p. 1016.
[6] Novak, *De-Extinction*, p. 3.

environmental function is what is considered most important in the normalization of de-extinction as a concept.[7] As a result, the animals in question will have difficulty receiving consideration *in and of themselves,* within de-extinction rhetoric, because they are to be understood as de-extinct *relative to their ecological niche and purpose*.

According to Ben Lamm – one of the key entrepreneurs involved in the sudden rise of Colossal Bioworks – an early investor in the company, Tom Chi, has a dual understanding of the company's purpose, symbolic of the benefits of de-extinction writ large: "he invested in us because he thinks this company could be dual purpose – where it has a positive ecological benefit, *but* it makes a fuck ton of money."[8] In the academic space, advocates of de-extinction argue that it can enhance/ biodiversity; rectify past wrongs by reversing human-induced extinction; provide recreational, educational, and cultural value; advance scientific and biotechnological knowledge; restore ecological function; generate increased public support for conservation by creating a de-extinct spectacle through which wonderment can be created for ecosystem preservation; combat invasive species; and open new revenue streams by way of tourism, akin to eco-tourist practices.[9] Many of the benefits are notably anthropocentric, a point to keep in especially close mind when considering criticisms of the practice. Arguments against de-extinction focus on the potential diversion of resources (and attention) away from ongoing conservation efforts; the alteration of ecosystems in substantial ways that may not be predictable, nor manageable after the fact; the changing of ecosystem services with potential ramifications for local/national/global economies; the theoretical degradation of the importance of extinction prevention, so long as extinction is thought to be reversible; the potential violation of animal welfare/rights/liberation through the control of animal life, as well as the subjugation of currently existing animals for biotechnological research; the facilitation of health risks for both de-extinct and currently existing species; and the introduction of unintended eco-evolutionary changes.[10]

The disparity between the degree of theoretical benefits and downsides seems especially difficult to rectify when considering de-extinction's essentially theoretical character. As an example, various parasites play an important role in species functionality, especially within ecosystems; the parasites associated with many extinct species are an unknown factor, meaning that efforts to create "proxies," without reference to the parasitic dynamic, may be missing key elements that either contribute to or hinder the preservation of a newly "de-extinct" species.[11] Furthermore, regulations for species preservation and environmental considerations may not be able to keep up with de-extinction practices and innovations, creating regulatory difficulties. However, for the purposes of this paper,

[7] Novak, *De-Extinction*, p. 5.
[8] Max, *The Dire Wolf Is Back*, p. 33.
[9] Genovesi; Simberloff, *'De-extinction' in Conservation*, p. 3; Cohen, *The Ethics of De-Extinction*, pp. 165-178; Greely, *Is De-Extinction Special?*, pp. 32-36.
[10] Jørgensen, *Reintroduction and De-Extinction*, pp. 719-720; Genovesi; Simberloff, *'De-extinction' in Conservation*, pp. 3-4; Cohen, *The Ethics of De-Extinction*, pp. 165-178; Iacona *et al.*, *Prioritizing Revived Species*, pp. 1041-1048; Moreau; Ware, *Fund Natural History Museums*, p. 32; Greely, *Is De-Extinction Special?*, p. 33; Sandler, *De-Extinction and Conservation in the Anthropocene*, pp. 45-46.
[11] Selbach; Seddon; Poulin, *Parasites Lost*, pp. 9-11.

I stress that the socio-political implications of de-extinction *for animals* have been fundamentally neglected. Consider the three dire wolves that Colossal Bioworks has brought into the world. The "wolves" – who Elinor Karlsson describes as gray wolves "with seventeen or eighteen changes in their DNA… the phenotype of a dire wolf" – will be raised in a private sanctuary that is monitored by drones and guarded by 10-foot high fences, and who Max notes will likely die in the same place they were raised. These beings are not being raised as part of a wolf clan, and without their surrogate mother, will only be socialized with one another. In essence, their existence is a proof-of-concept that is contested and disputed, raising numerous ethical questions about why they have been created, what they symbolize, and whether that symbol overcomes further moral consideration. These latter points of order, however, are not a particular factor across the de-extinction discourse.

It is here that I must discuss the origins of this paper. The past couple of years have given rise to occasional connections between de-extinction and cultured meat, the latter of which has been the focus of my (post)doctoral work. This section of the paper is salvaged from a 2023 paper that I attempted to publish on the topic to no avail, with one factor working against it, I believe, being the "science fiction" nature of de-extinction relative to cultured meat. However, I still posit that the overlap can lead to a larger recognition of how de-extinct animals might be understood, and engaged with, in various theoretical scenarios. Across my review of 31 papers, two book reviews, two books, and one popular article on the subject of de-extinction, discussion of human violence towards de-extinct animals is minimal. Meine notes that, between 2011-2016, one in five reintroduced whooping cranes – "whose cause of death could be determined" – were illegally shot.[12] Searle posits that bucardo de-extinction may not be particularly effective due to the reintroduction of the Iberian ibex in Spain. Bucardo used to be highly desired by hunters, prior to extinction, for their rarer, more spectral horns. Phenotypic morphology, however, is potentially giving the ibex more bucardo-like horns; while hunters support the idea of cloning the bucardo so that it could be hunted, there is the question of whether a hunter could even distinguish the bucardo from the ibex while hunting them through the Pyrenees, or whether the hunter would have to know the genetic code to differentiate the two.[13] Even Max's 2025 *New Yorker* article – which is notably sympathetic to the plight of the dire wolves – fails to consider how these wolves may theoretically be valued as subjects of the hunt, and the potential impact on these beings therein.

The lack of consideration of the animal, in and of itself, is especially concerning in light of the theoretical relationship between cultured meat and de-extinction. In March 2023, VOW Foods made numerous headlines for its "woolly mammoth meatball," an entity made using "publicly available genetic information from the mammoth… .[G]enetic data from its closest living relative, the African elephant… inserted into a sheep cell… [and] given the right conditions in a lab, the cells multiplied until there was enough to roll up into the meatball."[14] While ultimately a promotional stunt – given that the meatball functioned as a museum display, rather than a new product for the global food marketplace – it signaled a potential bridge

[12] Meine, *De-extinction and the Community of Being*, p. 13.
[13] Searle, *Spectral Ecologies*, pp. 176-178.
[14] Corder, *Elephant in the Dining Room*.

between the theoretical prospects of two burgeoning biotechnologies, in which animals who do not yet exist (or are approximations of once existing animals) could become consumable meat products: VOW's CEO posited that

> the folks who were there, they said the aroma was something similar to another prototype that we produced before, which was crocodile.... [F]ascinating to think that adding the protein from an animal that went extinct 4,000 years ago gave it a totally unique and new aroma, something we haven't smelled as a population for a very long time.[15]

While cultured meat has enjoyed a general belief that it is the inherently ethical option compared to conventional meat production, Melzener et al. have argued that it makes environmental and economic sense to slaughter animals once they can no longer be cultured,[16] a point I have raised in tandem with sociocultural concerns throughout my own work.[17] De-extinct animals are not exempt from the potential violence they would face as animals in general. Tom Ough, in a late-2022 article, argues that woolly mammoth de-extinction "sparks a number of ethical questions... namely, which supermarket will line up to stock chunks of them first?"[18] He quickly moves from posing this point as a question, instead arguing that "we will have to decide at some point whether we, too, want to eat woolly mammoth – and indeed any other species we choose to resurrect," and the experts he quotes reflect various perspectives that accept this idea in general. Holly Whitelaw argues that the mammoths would not only lead to expanded carbon-sequestering grasslands, but would also "have a good ratio of omega:3 to omega:6 fats;" Brian Tomisk argues that a "woolly mammoth would weigh roughly 10 times as much as a beef cow, so eating mammoths rather than smaller animals would reduce the number of animal deaths even more," albeit with some hesitation regarding the mammoth's ecological role in facilitating grassland expansion that leads to an increase in invertebrates and small vertebrates who live inherently miserable lives; and Victoria Herridge imagines that there will come a point when 20,000 woolly elephants have "wandered across to Banff and they're causing havoc.... [T]o maintain that population they had to have an annual cull," which she argues she would not turn down, even with "caveats."[19] The ethical caveats lead Elisa Allen and Jacy Reese Anthis to argue in favor of cultured de-extinct meat – "it would be extremely wasteful to breed and farm live mammoths when we could sustainably grow meat tissue in bioreactors."[20] While Colossal Bioworks has pledged to not sell de-extinct animals as pets, the question of what is to stop another company from doing so, and/or selling them for meat and hunting purposes, is unanswered.

This paper does not seek to validate or dismiss de-extinction based on material reality and possibility; it is the theoretical prospects which attract investor interest and media excitement, and, as a result, it is the theoretical prospects that should also prompt further academic consideration. Consequently, the next sections will imagine various degrees of "de-extinct futures," rather than accepting one

[15] Corder, *Elephant in the Dining Room*.
[16] Melzener *et al.*, *Cultured Beef*, pp. 9-10.
[17] Giles, *Under the Skin*.
[18] Ough, *The Mammoth In The Room*.
[19] Ough, *The Mammoth In The Room*.
[20] Ough, *The Mammoth In The Room*.

plausible scenario. However, it is worth noting that animal theory does urgently needs to pay attention to de-extinction in general, especially by asking questions at this juncture about the ethics of de-extinction at this current time. Of the billions of animals who are brought into this world, by human interests, to suffer and be killed, is it ethical to bring even more animals onto this planet? Is the act of species creation ethical, in and of itself, especially when we consider the likely fate of the "dire wolves" that Colossal Biosciences has created? There are numerous ethical considerations at ground level. However, my background in cultured meat research has led me to believe that such assessments will lag behind developments in the realm, and, furthermore, that these ethical debates will not necessarily penetrate the sphere of investment and private interest. Cultured meat was accepted as "ethical," by many, because of company rhetoric, despite minimal engagement from philosophers, ethicists, and others with the project from the beginning. The same goes for cultured meat's environmental promises, which have been consistently challenged, but are still accepted as "truth," by many, because of long-standing private-sector rhetoric. De-extinction will likely benefit from the same disconnect, with its alleged environmental benefits and economic possibilities being seen as "inevitable," difficult to overcome and not worth the critical energy to respond. As a result, it is important to – as Žižek argues – "perceive the catastrophe as our fate, as unavoidable, and then, projecting ourselves into it, adopting its standpoint, should retroactively insert into its past (the past of the future) counterfactual possibilities."[21] If we are to face a future of de-extinct animals, then what will it mean for them? What of other animals? What of animal advocacy itself? As such, I leave the arguments against the current development of de-extinction for others, instead advancing an argument against de-extinction from an imagined future – one that may never exist, but because it is unknowable, must still be respected as a theoretical possibility. It is essential, then, to address de-extinction from perspectives that adequately acknowledge wild and semi-wild animals, a point that requires moving beyond the usual actors of Peter Singer and Tom Regan.

2. Catia Faria's *Animal Ethics in the Wild*

Singer's seminal *Animal Liberation,* even in its most recent update, refrains from recommending the application of his utilitarian framework to wild animals. His critics from the realm of animal rights – from Regan onwards – have found themselves split on whether the rights that should be afforded to animals should be negative or positive, the latter of which focuses on the matter of obligation. Faria's recent work serves as a sort of rectification, in which she uses the utilitarian framework to argue that we have an obligation towards wild animals. Based on a view that many animal advocates, who neglect consideration of wild animals, do so under a falsified idyllic view of nature, Faria argues that

> if it is feasible to prevent or alleviate wild animal suffering by intervening in nature, without thereby bringing about an expected worse state of affairs for the individuals affected, we

[21] Žižek, *What Lies Ahead?*

> ought to do it. Moreover, for those interventions currently infeasible, we should put ourselves in a position to achieve them, both individually and collectively.[22]

The argument is a radical departure from traditional logic on human-animal relations, which is often "based on the idea that we only have reasons to help others in need when their situation is caused by human action."[23] In refuting this notion, Faria positions herself in opposition to the popular argument that humans should remain as disconnected from the animal and natural world as possible, grounded in the notion that "most wild animals likely experience more suffering than positive well-being in their lives. Hence, on aggregate, suffering is likely to predominate in the wild."[24]

Animal Ethics in the Wild, like much utilitarian work, can be deeply frustrating. The notions of "suffering" and "non-suffering" are baseline definitions without nuance – effective for some attempt at measurement, but not particularly reflective of a more continental understanding of the great range of emotionality that may be accessible to the animal world. Does a wild animal suffer in every waking moment of its existence, or do the good days outweigh the bad days? Can an animal have times that are perfectly in the middle, neither good nor bad, and do those days count for anything in such an assessment? Does presuming otherwise inherently negate the idea that we should still have an obligation to helping animals, or do we still believe in helping populations even if they do not live in a state of perpetual misery? There is also the political element, in which Faria notes that more normative research must be conducted about "specific forms of feasible, effective, and net-positive interventions in nature to help animals at a small or medium scale," which "is not, of course, a task for a philosopher," leaving readers without much of an idea of how to go forward with these ideas, and further making it difficult to understand the relationship between the small-to-middle-scale interventions and their large implications.[25] Nevertheless, the book has proposed a radical interpretation of the utilitarian possibilities of animal theory.

Where does the de-extinct animal fit in Faria's theorization? Say that numerous companies eventually reach a point at which they can release herds of de-extinct animals into the wild, for alleged ecological purposes. It is fair to argue that one must consider both the animals who already exist in the wild, and the newly introduced animals. For the introduction of de-extinct populations to be seen as beneficial to already-existing animal populations, their introduction should theoretically alleviate suffering without introducing new difficulties for them. It is difficult to foresee how de-extinction would meet this criterion during times of tremendous ecological stress, when competition over decreased resources is a defining trait of the modern ecological epoch, whether it be understood as the Anthropocene, Capitalocene, Necrocene, etc. Drastically decreasing animal populations are disrupting the typical hunter/hunted (or predator/prey) dynamic, and are driving more animals to venture into urban spaces to seek food, water, shelter, etc. Ecosystem disruption and degradation are leading to diminished conditions for

[22] Faria, *Animal Ethics in the Wild*, p. 8.
[23] Faria, *Animal Ethics in the Wild*, p. 176.
[24] Faria, *Animal Ethics in the Wild*, p. 177.
[25] Faria, *Animal Ethics in the Wild*, p. 188.

flourishing amongst modern animal populations; recognizing such a trend does not require accepting the view that all life "in nature" is defined mostly by suffering, but, instead, recognizes that current modern conditions are *especially difficult, and are more likely to generate suffering*. The introduction of new species, who also require resources to survive, may mean an even further-diminished ecosystem/life cycle for already-stressed animal populations. At this current juncture, it is unclear what "well-managed" de-extinct population releases would look like, and given the general failures of conservation, animal, and ecosystem management at this time, it is fair to feel concern that de-extinction is not necessarily above such difficulties. Hopes that newly released de-extinct populations would serve as good prey for predator populations, which face diminished prey-populations, are counter-balanced by the possibility that companies may also release predators who compete with current predator populations, which could further unbalance the predator-prey cycle. For those who accept the view of nature as an inherently delicate system, which could fall out of equilibrium quickly, de-extinction is likely an especially concerning prospect.

However, it is likely that the adoption of Faria's perspective will lead more to a wholesale rejection of de-extinction, because of the assertion that the majority of wild animals lead lives of suffering. If our goal is to alleviate suffering, then the act of bringing de-extinct animals into existence, to lead wild lives in nature, would be to guarantee an existence of suffering; ergo, they should not be created in the first place. While already existing animals are to be given support to alleviate suffering, the utilitarian perspective would likely advocate against the creation of beings whose suffering would have to be alleviated by the same human hands that created it in the first place. However, de-extinction advocates may throw some variables into consideration. If the introduction of the de-extinct woolly mammoth were to lead to the restoration of ecologically healthy grasslands, would the suffering of the mammoths not be outweighed by the alleviated suffering of other wild animals? Would the introduction of de-extinct prey not potentially satisfy the hunger of an already suffering predator? De-extinction, in its presentation of benefits, intertwines the well-being and suffering of de-extinct and non-extinct animals, creating a new variable for utilitarian thought to consider. When Faria argues that "if well-being imposes restrictions on what we may do to animals so as not to frustrate their interests, then well-being is also relevant to deciding what we should do in order to actively promote the satisfaction of their interests,"[26] the matter of *interests* becomes especially concerning, and unfortunately – as is common in utilitarian thought – poorly understood. Who defines these interests, and why? What presumptions are at play, and what is the subtext? Without particularly nuanced understandings of "interests," de-extinction advocates may seize upon the opening to argue that, even if de-extinct animals suffer more than other animals, their contributions to ecosystems, and natural cycles, would uplift the entirety of the wild animal population in such as a way as to be a net benefit overall.

Of course, Faria's assessment was not meant to consider the possibility of de-extinction, so it would be unfair to dismiss the work on such a basis; but the difficulties point to the urgent need for animal theory to update itself, to a greater degree so as to better account for the variable that is the de-extinct animal. That is

[26] Faria, *Animal Ethics in the Wild*, p. 178.

best seen in the difficulties of understanding whether de-extinction could meet the criterion of being a "feasible, effective, and net positive intervention in nature to help animals at a small or medium scale." Faria, in rejecting Donaldson and Kymlicka's promotion of environmental preservation, introduces the concept of "environmental enhancement," in which

> even if we have a duty to ensure that the environment provides for the satisfaction of wild animals' needs... facts suggest... how the satisfaction of wild animals' interests does not depend... on the preservation of their natural environments. Contrariwise, on this view, there would be a requirement to modify natural environmental conditions in a way that produces a net positive effect on nonhuman well-being.[27]

The perspective, certainly, is more realistic from a stance that rejects the idyllic view of a static nature, or natural state of being, which is deeply ineffective when considering animal populations and their ambiguities. However, one can see how quickly this option opens up the possibility of interventions whose rigor is not particularized. Faria's mention of expanded vaccination and feeding programs is significantly different from a program that introduces proximate animals to restore, or readjust, ecological conditions and animal-relational dynamics, raising the distinct possibilities that the theory may need to be updated to better capture the possibilities of large-scale interventions. Regan infamously referred to environmentalism, in the context of animal rights, as "environmental fascism;" an environmentalism that advocates for de-extinction, alongside other biotechnological interventions, may clash with the "future-focused" animal advocacy that Faria recommends.[28]

However, there is one more scenario to consider. In a future in which de-extinct animals become a reality and experience some form of release, then Faria's perspective would advocate that we have decisive reason to intervene in said nature, so as to reduce the suffering. Of course, the irony is that it would be a suffering created by human demands and beliefs about environmental practice, but, nonetheless, Faria's framework would clearly recommend that actions be taken to minimize the suffering of de-extinct animals. Such a notion makes even clearer the political difficulties that would be faced in trying to adhere to this ideal. Do governments have the capital to invest in the necessary scale of nature-intervention so as to alleviate such suffering? What of the suffering of cross-country and cross-continental animals – under whose jurisdiction would they fall? Would entirely new global governance bodies need to be created to address said suffering? To be clear, these questions are not meant to dismiss the Farian perspective; they arise from the conclusions regardless, as reaching these goals (or an overall idealized state) will require political power and economic investment. It is especially difficult to imagine the promotion of such well-being in a capitalist economic system, which reflects anthropocentric values, yet does not alleviate the suffering of many of its own, let alone anyone nonhuman. One can imagine the anxiety, of certain clusters of animal advocates, stemming from the prospect of de-extinct animals, likely leading to the development of arguments that de-extinct animals should not be given

[27] Faria, *Animal Ethics in the Wild*, pp. 183-184.
[28] Faria, *Animal Ethics in the Wild*, p.185.

as much protection – possibly discouraging companies from creating such animals in the first place, so as to see less of a "return on investment," so to speak – compared to already existing wild animals. Realist political-economy perspectives are likely to prevent the acceptance of Farian ethics even within the context of animal advocacy, let alone outside of it, and especially when de-extinct animals are concerned. Regardless of how realistic de-extinction scenarios are, they point to significant difficulties for animal advocacy, in terms of balancing the interests of various groups of existing animals with those who are poised to suddenly exist at some point in the future. Consequently, it would be ideal to engage with a political theory of animals alongside an ethical theory.

3. Zoopolis

As part of the "political turn" of animal theory,[29] the theory of Zoopolis has enjoyed both considerable support and critical response. By virtue of the animal's condition, *Zoopolis* is both radical and status quo at the same time. The book's call to integrate animals into the status quo is radical by virtue of the status quo's foundational unwillingness to grant such integration in the first place, something critics have seized upon to call into question the absolute value of the theory. Founded on the idea of positive rights – obligations therein – Donaldson and Kymlicka make clear that democratic rights are already extended to those who are not democratic participants, such as children, "the institutionalized," etc. We have obligations, in a democratic society, to all groups; some on the basis of their future possibilities for contributing to democracy, such as children, and others even without this possibility. To the authors, then, animals can be integrated into the liberal democratic framework. Domesticated animals are to be granted rights of citizenship, given the mutually co-constitutive relationship that we have created (and the dependencies that will continue, ad infinitum); wild animals are to be granted either rights of sovereignty, or rights of transit, which would require the adoption of international rights of sovereignty and non-violation to determine when interventions are, or are not, justified; and animals who are wild, but live in urban areas, would be considered denizens, acting as co-residents without the full expectations or rights of citizenship (comparable to migrant groups, Mennonite societies, etc.), meaning consideration must be given, but not always to the same degree as citizenship.

As I have already stressed, the animal condition is so comprehensively oppressive that a "mere" call to integrate animals into the system – rather than build an entirely new system to live with animals – is inherently radical, a threat to those who value the system for its ability to reject consideration of animals entirely, best seen in Timon Cline's call-to-arms against Critical Animal Studies.[30] However, within the paradox of Zoopolis is the inherent difficulty of foreseeing how the animal fully benefits from a transition to such a new – yet not new – system. While there is a wealth of critical literature to reference, I will, for the sake of length, instead point to the core issue of the *Zoopolis* book, in which exploitation receives some

[29] Milligan, *The Political Turn in Animal Rights*, p. 6.
[30] Cline, *To Boldly Go*.

discussion, but the word "capitalism" is not mentioned once. Liberal democracy and capitalism are inherently intertwined, at this stage of existence, and while I reject the idea that other economic/sociopolitical systems are inherently guaranteed to liberate the animal from exploitation, it is difficult to understand how capitalist demand for animal exploitation will not hinder the animal's ability to live a life under the protection of rights. However, even more difficult to understand is how an already exploitative system does not run the risk of more accentuated inequality and struggles once animals are integrated into said system. The pulsing problem of the authors' work is that they accept a highly idealized state of affairs within liberal democracy, and even within animal advocacy, that is not reflective of the general "state of being" that currently defines both. For example, they argue that most animal rights activists view the European Union's exemption of bullfighting, in its animal welfare laws – for the sake of "respecting cultural traditions" – as "scandalous," a fair argument.[31] But the same cannot currently be said of all cultural violence towards animals; Indigenous subsistence hunting is exempted from numerous animal activist efforts, on the basis of its functionality as subsistence, despite the often ambiguous relationship between subsistence and culture, and the general decrease in subsistence-based hunting.[32] The same goes for the inviolability of rights; they note that humans "have had to harm and/or kill animals in order to survive" at various times, on the basis of "self-defence or necessity," the former likely much easier to identify and define than the latter when one considers general cultural construction and discourse.[33] *Zoopolis* ends with only a few small-scale political actions that serve as ways to begin constructing Zoopolis, with many of the big questions left in an ambiguous state of address, under the guise that "any theory that asks people to become moral saints is doomed to be politically ineffective," which raises the question of when "non-sainthood" is still justifiable.[34]

De-extinction threatens to push Zoopolis into a further state of discomfort. How are we to understand the de-extinct animal within this framework? It is, seemingly, obvious that Zoopolis will advocate for the extension of liberal democratic rights, afforded to other animals, to the de-extinct animal, for, like children, the de-extinct animal cannot help that it is brought into this world by another, and must be afforded the protections that are available so as not to enter into the realm of discrimination. But just how fluid are these categorizations of animal under Zoopolis? For the wolves that Colossal Bioworks houses, they are presumably to be understood as domesticated; they will forever remain under human care, and it will be up to their creators to prevent their exploitation in tandem with laws that are established to protect domesticated animals. What, however, might the situation be if de-extinct animals were to be released into the wild, at some point? They could, theoretically, fit into either the wild or liminal categories, depending on their population, living situation, proximity to human beings, etc. It seems, then, that Zoopolis is poised to integrate animals into its theory with minimal issue; even if de-extinct animals are a wholly new, human creation, they can be slotted into their relevant categorization, and can be offered protections as such.

[31] Kymlicka; Donaldson, *Zoopolis*, p. 45.
[32] Kumar *et al.*, *Harvesting Activities Among First Nations People Living Off Reserve, Métis and Inuit*.
[33] Kymlicka; Donaldson, *Zoopolis*, p. 41.
[34] Kymlicka; Donaldson, *Zoopolis*, p. 245.

Why would we need to create a new categorization for de-extinct animals, in the Zoopolis framework, if they would theoretically behave in ways akin to other animals who would have "rights of transit?" A proximation of the Christmas Island Rat could still function in the wild with rights of sovereignty, and should they begin penetrating urban spaces, then like the other rats of the world, they should be seen as denizens.

De-extinct animals would have certain inviolable rights – ecologists already accept "that a commitment to protecting the ecosystem can and must operate within the constraints of the inviolable rights of individuals," which is why Donaldson and Kymlicka reject the line of thinking that invasive species justify culling, as ecologists do not advocate for the culling (genocide) of human beings in the name of ecosystem preservation.[35] Like Faria, neither author accepts the idea that there is an idealized state of nature that can be achieved, consequently rendering the human as an entity in need of more humility and care in engaging in ecosystem intervention; "we can't hide behind the fallibility argument for non-intervention insofar as our impact is already pervasive and unavoidable."[36] As a result,

> we certainly do not advocate the deliberate introduction of exotics. On the contrary, humans violate the basic rights of these animals when they first capture and transport them to a new environment.... [W]e violate the rights of sovereign animals in the release zone if an introduced species is a predator against whom they have no protection... but here again, we cannot hope to eliminate this problem entirely.[37]

There is an unasked question that lurks – is the creation of a de-extinct animal a violation of its rights? The question leads to further questions: if a proximate species is created, and is produced at such a volume that life in domestication is defined by torturous misery, is it not a violation of the animal's right to lead a life most agreeable to it, however wild or liminal that life might be? What right does a sovereign, already-existing animal nation have to deny the right of existence to a newly emergent animal nation and its sovereignty, especially if, in a system of global consensus, the new nation's sovereignty is recognized? With limited resources of protection, who is more deserving of protection – a robust, already-established animal population, or a new population that is having trouble establishing itself?

My concern is that Zoopolis is not particularly well-equipped for the challenges that emerge from a theoretical rise of previously non-existent populations, especially because the minimal focus on preventing exploitation seems unable to meet the challenges of de-extinction discourse. I often point to a passage in *Zoopolis* that celebrates a park that was "taken back" from "drug-users and prostitutes, abandoned by families and others intimidated by the presence of illegal activity," as an example of the limited understanding of "exploitation" that the authors utilize. The resistance group

> used the presence of large off-leash dogs – illegally – to discourage less desirable uses.... [T]he fact that the dogs cannot reflect about the goals of activism, or their role in it, doesn't change the fact that they are participants in the process. And they are not coerced or captive participants. They are agents, doing what they want to do.[38]

[35] Kymlicka; Donaldson, *Zoopolis*, p. 158.
[36] Kymlicka; Donaldson, *Zoopolis*, p. 164.
[37] Kymlicka; Donaldson, *Zoopolis*, p. 224.
[38] Kymlicka; Donaldson, *Zoopolis*, p. 115.

Indeed, the dogs were able to run around the park, allegedly able to sense who in the park was selling sexual services, and who was not, to help create a better tomorrow – but they were still utilized as a tool of intimidation, regardless of their lack of awareness. Their labor was exploited; while they did regain the park for their own use, we cannot proclaim, with absolute assuredness, that they were not used in ways that exclusively benefitted them. As a theoretical, what if a possible bond between one of the dogs and one of the park's sex workers, was denied by virtue of the purpose to which the dog was obligated to perform – a lost moment of pats, connection, bonding, etc.? Regardless of one's view of the park before and after, the weaponization of the animals for political purposes, and literal physical intimidation, implies exploitation and control.

Given the arguments for the benefits of de-extinction, the line between exploitation and agential democratic freedom seems more difficult to identify than ever. If I can theoretically use my Pitbull – who I have named "Percy the Prostitution-Preventer" – to fight against criminal activity, what is to stop me from establishing a start-up that pushes woolly mammoths into ecosystems to perpetuate a better ecological situation for all? The haziness surrounding what Zoopolis looks like in practice, unfortunately, also masks the haziness of the modern liberal democracy, in which access to rights and freedoms does not, inherently, prevent exploitation – and, furthermore, in which tensions surrounding rights lead to political instability and further tensions. *Zoopolis* was published in 2011, just before the second era of Obama's presidency gave way to the "Trump era," in which the consensus of democracy began to unravel. Rights to free speech have begun to see considerable curtailment, and tensions regarding immigration are intertwined with genuine economic anxiety that threatens an already-strained social fabric. Mark Fisher's idea of "care without community" – as "community implies an in and out"[39] – denotes the anxieties present in any form of hierarchical egalitarianism, in which the specter of the outsider defines the community that is "in." Much of Kymlicka and Donaldson's theory depends on a well-reasoned consensus, one which seems further out of reach at a time when, theoretically, previously non-existent communities could also become a factor in determining who forms a "domesticated" community, a "denizen" community, etc. "It is their status as members of our society, and not just their intrinsic moral status as sentient beings, that calls forth our duties of protection and rescue"[40] – a point that is radical in the context of the animal condition, but also seems primed for potential abuse. De-extinct animals seem under particular threat, and, yet, they also could theoretically become a threat to other wild animal populations. What of the de-extinct animal who is a denizen threat to one community but a beloved denizen symbol to another?

Democratic theory, generally, has not been defined upon the sudden arrival of extraterrestrial populations, and the questions of accommodation therein. Kymlicka and Donaldson base their assessment upon the animals who exist in the here and now, animals who have been historically wronged, continue to be wronged, and will continue to be wronged without significant societal intervention and restructuring. The questions of animal exploitation point to the difficulties of Zoopolis

[39] Christmann, *Turning Nothings into Somethings*.
[40] Kymlicka; Donaldson, *Zoopolis*, p. 133

reaching its full potential, an awkward attempt to extend categorizations to animals without necessarily recognizing aspects of animality that may not respect liberal democratic frameworks. Trying to determine how de-extinct animals will fit into a new Zoopolis framework, which somehow does not disrupt the rights blessed to biotechnology firms, under liberal-democratic capitalism, to create new animals without disruption, is exceedingly difficult. However, with de-extinction now seeing considerable investment and government support, it is an important time to begin seriously rectifying animal theory with the changing biotechnological landscape.

4. Faria and Zoopolis, in Tandem

In a footnote on environmental enhancement, Faria objects to relationality arguments, which call for human non-intervention in the world, by noting that Kymlicka and Donaldson fail to demonstrate that wild animal populations can sufficiently "self-govern," thus further justifying the interventions of positive environmental enhancement.[41] Yet, how can one expect Zoopolis to come into being *without* some degree of sovereignty that respects wild animal populations, and, furthermore, if Zoopolis accepts Faria's "environmental enhancement," who is to be the judge of what modifications have a net-positive effect? Science? Reason? Rationality? Humans? Animals? Time, itself?

Neither theory finds itself ready for the uncomfortable questions that de-extinction raises. Advocates for de-extinction are framing their theoretical creations as environmental enhancement, by virtue of intertwining environmental and ecosystem health with the well-being of animals, meaning that those who wish to challenge this framing will have to call for careful reasoning and planning – something that has generally not been a defining feature of biotechnological development. If a de-extinct population's introduction goes badly, then Faria's theory may have to advocate for even more intervention for de-extinct animals, potentially breeding a situation of political inequality regarding who gets resources, why, etc. Under Zoopolis, we are to presume that no animal population is entirely able to self-govern, regardless of whether one accepts Faria's understanding of "nature as suffering," or Kymlicka and Donaldson's understanding of "natural equilibrium under sovereignty." If we attempt to justify intervening in de-extinct populations *over* previously existing wild animal populations, we unfairly discriminate on the basis of positive intervention; if we develop a Zoopolis that allows for interventions that may be poorly defined and understood – like de-extinction – then the prospect of sovereignty falls flat. However, the current system of global governance still allows theoretical interventions at the expense of sovereignty, in situations in which governments wish to intervene in cases of neglect, oppression, etc. Could a country be justified in invading another country's natural systems in an act-of-war against an out-of-control migratory de-extinct species (or vice versa – an out-of-control migratory species that targets sedentary de-extinct species)? Both theories are haunted by anthropocentricity, which puts animals in a considerable predicament, whether they exist or are yet to appear. The vast scale of the animal predicament is responded to with calls for reason; organized thinking that hits the criteria of logic,

[41] Kymlicka; Donaldson, *Zoopolis*, p. 137.

rationality, and, consequently, will allegedly find an eventual point of acceptance amongst a supposedly reasonable, thinking populace. Anthropocentricity is, consequently, an inevitability, but one that can still be navigated through reflectivity and reflection.

Is de-extinction based upon reason and rationality? It is a marvel of modern science, but its reasons for existence are not based upon the marvel of progressively improved thought. De-extinction proposes a model of ecological restoration through animals, but without particular consideration of the animals in and of themselves. Meine argues that de-extinction "has displayed a narrowly reductionist, mechanistic, and technocratic approach to the fate of species," primarily concerned with the value of de-extinct animals at the level of DNA.[42] I argue, however, that there is a dual reductionism at play, in which de-extinct animals are valued for either/both their DNA or as a relational vessel to an ecosystem. Meine's focus on the value of DNA is important, but the notion that the "relational element" overcomes reductionism is, I argue, misguided. The relationship between human, animal, and natural world can still objectify, reducing the full range of complexity in favor of idyllic narratives like those that Faria argues against, and in the process of focusing upon relations, distinctly animal issues – which impact both individual animal and species alike – are at risk of not coming to the fore. Even if the de-extinct animal were to have the full range of ecological benefits that proponents hope it will have, what are we asking of the animal itself, why are we asking the animal to return to benefit the environment, and what are we potentially dooming the animal to? To my mind, the most unethical aspect of de-extinction is its nigh post-ironic advocacy: Max notes that Colossal Bioworks reoriented its messaging from a "for the sake of scientific progress" narrative to a narrative of "restoring ecological balance,"[43] a notion which seems especially difficult to envision in light of the seeming near-future threshold-crossings which will push the planet beyond the great "tipping point." It is especially difficult to take this notion seriously in light of the involvement of Peter Jackson – director of *Lord of the Rings* – as an investor, the constant references to *Game of Thrones,* the admission that the dire wolves were selected because of their relevance in popular culture, and a general sense that de-extinction is being defined by investors that are seeking "larger-than-life" solutions to the climate crisis. The considerable issue with the "larger than life" is that it admits to a disconnect between what can be seen as the theoretical "rationality" of life, and the fantasy of that which goes beyond. Consequently, then, if accounts of life tend to neglect the animal condition, then fantasy is likely to do the same. De-extinction is asking for a normalization of the introduction of animals into ecosystems that are not only unlikely to ever return to an idyllic state from days gone by, but who are essentially guaranteed to face especially difficult circumstances. By virtue of what is being asked of animals by de-extinction advocates, animal theory must take care to respond to this movement, to demarcate that the de-extinct animal is destined to exist in strained ecosystems, culturally driven violence, and a general hardship that we tend only to ask of the animal.

It is on this point, before concluding, that I argue one should consider a final theoretical comparison. Imagine if Colossal Bioworks were set to bring into

[42] Meine, *De-Extinction and the Community of Being*, p. 12.
[43] Max, *The Dire Wolf Is Back*, p. 33.

existence, through artificial insemination, a de-extinct Neanderthal, the idea being that the Neanderthal could help manage de-extinct mammoth populations and return ecosystems to a "natural state." What might the reaction be? Despite the general anthropocentric belief in the absolute, supreme value of human life, there would likely be particular opposition to bringing a human life in such a way. There would be concern about the Neanderthal population eventually competing with non-Neanderthal populations for resources, space, etc., potentially resulting in violence, animosity, and other numerous issues. There would likely be contestation regarding the alleged ecological benefit, as Neanderthal practices may not work as well in the modern context. But for the most part, much of the reaction would likely focus on the absurdity of resurrecting a population for a purpose that may not be in our control once said population is introduced back into the world. GEICO's short-lived 2007 TV show, *Cavemen,* was a vehicle to promote their product, likely not intending to develop existential considerations of how we might integrate Neanderthals into postmodern society. Could we ensure that de-extinct Neanderthals serve their purpose of ecological restoration, rather than abandoning their ways to instead pursue mundane employment and suburban living?

I draw this comparison not to proclaim we must prepare ourselves for such a day, but to instead point to the lack of consideration of the animal in de-extinction. What is to keep a de-extinct mammoth population from rejecting the wilds it is supposed to restore, especially if its condition is strenuous in such a context? What if the Christmas Island Rat, so cute in its restoration, becomes the subject of pet-ownership projects and eventual breeding programs so as to be sold in pet stores and other such sundry locations? De-extinction, by virtue of its proponent's advocacy, presumes a lack of agency amongst its animal subjects, and will likely have to exercise a certain degree of control over its subjects to maintain this alleged "ecological benefit." The problem with developing an animal, with no reference to any theory of animality beyond the scientific, is that eventually, the animal's behavioral anomalies, ways of being, and potentially nuanced sensibilities, run the risk of creating an imperfect de-extinction project, one that does not reflect the idealized imagery being put forward so far. In essence, the lack of realistic expectations in de-extinction no longer stems from its science, but its fundamental purpose. As the climate crisis worsens, a greater lack of reason is likely to prevail in the panicked responses and corporate practices, than ever before, and there is a risk, then, that animals of all sorts will face grim consequences as a result. Animal theory will be put in a difficult predicament; should we extend our advocacy to the nonexistent? What are the implications of such an extension? Is there a risk to the already-existing animals that we advocate for? Such questions will not be answered without a serious engagement, across the entirety of animal theory, soon.

5. Conclusion

This paper demonstrates that de-extinction – regardless of its progress, actual prospects of success, etc. – demands further consideration from animal theory. Multiple theories, from outside of this paper's selections, will also need to engage with the topic. What does the "war against animals" look like once we factor in de-extinct species? Could the de-extinct be used as agents of a war machine, or

are they too going to fall victim of said war, even by virtue of their mere creation? Where might the de-extinct fit in the world of animal art and representation? How might they be used as nationalist symbols, narratives of lost pasts that may be part of the "literary pastoral"? Might de-extinct animals instead contribute to some sort of techno-futurist humanism that becomes a symbol of modernist progress? All of these questions, and many more, require attention. De-extinction has, in technicality, occurred, with some of its results currently living, their health and well-being under the watchful eye of the company that created them. While the image of a resurrected woolly mammoth is not to be realized in the future, variations of genetically modified animals are, theoretically, on the horizon. The implications for them are grave, and the same can be said for the animals that they can expect to coexist with in one form or another.

This paper's purpose is to call attention to the quandaries that may arise in two considerably important theories; in essence, the paper also doubles as a call to consider each theory, and its implications, in greater tandem with one another. Further work, which develops beyond what I have written here – especially that which seeks to answer the open questions I leave behind – would be a most welcome intellectual, and possibly activist, project. The increasing desperation of the climate crisis, and the continuing aspirations of ever-over-eager venture capital firms, lay the groundwork for a future in which the animal is turned into some sort of alleged savior, albeit one doomed for suffering in the wild, and under the systems of exploitation that zoopolis seemingly is unable to adequately address. Such efforts are likely to see considerable resistance, not just because of the ecological narratives, but because de-extinction is in the early stages of its development, often resulting in claims that it is "too early to critique it." I urge more critical engagement with such claims; pulling from my experience with cultured meat, many of the early critiques that were ignored would ultimately become problems for the proponents of the field. Critique does not tend to alter the flow of capital into a nascent industry, and, consequently, must be developed even in the early stages of a project's efforts. Considering that animal theory must concern itself with all animals, we must now consider the possibility that the non-existent, or only recently existent, will be relevant to our efforts; ideally, this paper can set some groundwork in place for rigorous, well-developed inquiry into what is no longer, seemingly, merely a science fiction.

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