

**ORIGINAL ARTICLE**

# Reparations after species extinctions: An account of reparative interspecies justice

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## 1 | INTRODUCTION: EXTINCTIONS AS A MATTER OF REPARATIVE INTERSPECIES JUSTICE

The “standard” story of reparative justice goes something like this: an individual or a group of individuals (an agent, a community, etc.) has been the subject of injustices. These can be understood as human rights abuses, persecution, misrecognition, discrimination, distributive injustices embodied in the theft of cultural goods or natural resources, and so on. These injustices can then in turn be addressed by mechanisms that may include reparatory, restitutive, or restorative justice. Particularly historic injustices targeting communities are commonly described as appropriate objects of state reparations, such as widely discussed in the context of colonialism and slavery. Against the background of currently high levels of human-induced biodiversity loss, the question that now poses itself is whether a similar (albeit in many respects quite different) story can be told about anthropogenic species extinctions. In light of human-caused extinctions, can (some) humans or human institutions like the state be approached with reparative claims to respond to those losses?

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One place to start this inquiry would be to take inspiration from the environmental ethics literature, which already offers different accounts of moral repair (Almassi, 2017) or restitution (Basl, 2010) and links these to practices of ecological restoration as moral restitution and/or reparation.<sup>1</sup> Such arguments could plausibly be extended to the subject matter of species extinctions. Yet, in this paper, we aim to show that species extinctions can also be integrated within a non-anthropocentric account of reparative justice that is significantly similar to how reparation is understood within the political theory literature and, thus, linking concerns of environmental ethics to political philosophy. That is, in how far are species extinctions a matter of *reparative interspecies justice* that is owed to individual nonhuman beings? And consequently, which entities are owed reparation and what would this reparative duty entail?

That is a novel area of inquiry. Yet, we do not have to fully start from scratch, because several political, environmental, and animal philosophers have already articulated different non-anthropocentric theories of (distributive, capabilities, recognition, etc.) interspecies justice on which such an account of reparative justice can be built (e.g., for book-length renditions, see Baxter, 2005; Cochrane, 2018; Donaldson & Kymlicka, 2011; Garner, 2013; Low & Gleeson, 1998; Nussbaum, 2023; Schlosberg, 2007; Wienhues, 2020. More on this literature and our understanding of interspecies justice in Section 2.1). Against this background, reparative justice within the context of interspecies justice has not received much philosophical attention to date (apart from Welchman, 2021),<sup>2</sup> and a full account of reparative interspecies justice has yet been proposed. In what follows, we propose an initial (and, thus, incomplete) account of reparative interspecies justice specifically for the case of human-caused species extinctions. For that purpose, we narrow our scope in two ways.

First, we investigate *species extinctions* as a concern of reparative interspecies justice. Since the early 1990s, anthropogenic climate change has permeated the practice of much of environmental, legal, social, and political philosophy. This dedication, however, contrasts with the attention given in the discipline to another equally serious and morally problematic consequence of human actions, namely, anthropogenic species extinctions; a predicament that, like climate change, is closely connected to social, economic, and political struggles, and an existential threat to continued life on the planet.<sup>3</sup>

Second, reparative duties can be plausibly built on a range of different theories of justice. In this paper, we only outline, *as an example*, how a responsibility to repair results from collective *distributive* interspecies injustices implicated in species extinctions, such as the loss of habitat, and related *transitive wrongs*. It is nonhuman individual beings which are subjected to these injustices. Thus, by taking a non-anthropocentric perspective on distributive justice as a starting point, which conceptualizes extinctions as the outcome of injustices as opposed to constituting injustices themselves, we address the question of whether we can make sense of a duty to repair following species extinctions. That is distinct from (but potentially compatible with) two further justice-based lines of argumentation with respect to extinctions. That is, first, additional non-anthropocentric arguments that claim that extinctions themselves are injustices (e.g., by attribution justice claims to collectives like species or ecosystems). A second additional line of argumentation is more apparent anthropocentric justice-based arguments on this issue that consider species extinctions as a problem of our duties toward future human generations (e.g., Feinberg, 1974).

Defending an extinction-specific reparative duty owed to nonhuman beings entails, first, elaborating on the relationship between extinctions and interspecies injustice that provides, in turn, the groundwork for enquiring whether, second, demands of *reparative* interspecies justice follow, *once* a species has gone extinct. Because theories defending the first step have already

been elaborated (e.g., Wienhues, 2020), the second step is the focus of this paper. This topic is theoretically interesting insofar as anthropogenic species extinctions can lead to counterintuitive consequences—a form of moral hazard. After all, if we do not owe anything to nonhuman beings in terms of justice once they do not exist anymore, then failing to prevent extinctions would be “rewarded” by reduced duties of interspecies justice in the long run—if no reparative duties would follow. Moreover, this topic is also of practical relevance because our suggested account provides some general guidelines about how a state and its institutions should act in response to past injustices that led to species extinctions.

This paper is organized as follows. The second section offers a brief introduction to anthropogenic species extinctions, underlining specific characteristics of this phenomenon that are especially relevant to our argument. Moreover, we also explain our starting premises with respect to interspecies justice. Thereafter, in the third section, we develop our argument about the reparatory demands that result from extinction-related injustices. Based on the premise that the state and international institutions more broadly should be the vehicle of enacting that responsibility to repair (as opposed to restoration or restitution), we will argue in the fourth section that responsibilities to repair to the nonhuman dead can be met with symbolic forms of reparation. These reparations both honor the life of the victims of past injustices that contributed to their species' extinction and benefit other still-living nonhuman beings through a commitment to interspecies justice. That makes our view on reparations both retrospective and prospective and, thus, reparations can take different forms. That includes, for example, the preservation or restoration of habitat to materially repair the interspecies justice relationship in itself. As we will argue, this form of repair is the core of reparative action, which is supplemented with symbolic acts and educational programs, such as monuments and natural history museums to honor the nonhuman dead.

## 2 | ANTHROPOGENIC SPECIES EXTINCTIONS

As part of ongoing evolutionary processes, species extinctions are an inherent part of life on Earth. However, not all extinctions are morally equal and some clarifications are in order to explain more precisely what phenomenon our argument addresses. To underline our interest in the link between species extinctions and interspecies injustices, we advance four qualifications concerning the type of extinctions that are relevant to our present purposes.

First, we are not interested in “background extinctions”—an ordinary form of extinction event—but in *anthropogenic* species extinctions. This anthropogenic origin conceptually differentiates the current mass extinction event from previous mass extinctions (Aitken, 1998). Relevant activities driving extinctions include practices of deforestation, indiscriminate use of pesticides, and widespread pollution, amongst other drivers. These human activities, taken collectively, have transformed nearly all of the Earth's surface and thereby have reduced and are in the process of reducing “natural” biodiversity even further (see IPBES, 2019). Thus, our focus is on the current mass extinction process, driven by human impacts on the environment, that some scientists have argued marks the end of the Holocene and that is predicted to be the sixth extinction event on such a large scale (Ceballos et al., 2015; Wake & Vredenburg, 2008).<sup>4</sup> Applying this *massness* requirement to human-caused extinctions (in combination with the structural requirement mentioned below), in turn, lowers the epistemic burden for proving the anthropogenic causation of each individual species extinction.<sup>5</sup>

Second, we are interested in *final* extinctions of *wild* species. Final extinctions can be differentiated from other extinction processes that do not lead to the end of the respective phyletic branch.<sup>6</sup> For example, our concern here lies with species like the *Dryopteris ascensionis* and not the *Coregonus fera*. This is the case because no individual member of the *D. ascensionis*—a plant from Ascension Island in the Atlantic—exists anymore (its extinction is final), while the *Coregonus palaea*—a fish once common in Lake Geneva—exists in a hybridized form as the *Coregonus palaea*. Having said that, while the creation of a new daughter species is not covered by our argument, *localized* and *near* (final) extinctions are included. Yet, in terms of possible reparatory actions, such cases go beyond the different forms of reparation discussed in Section 4.

Additionally, we focus on the extinction of species such as the thylacine (*Thylacinus cynocephalus*) and not on the extinctions of domesticated varieties such as the tautersheep. While the former is an extinct “wild” marsupial from Australia, New Guinea, and the islands of Tasmania, the latter is an extinct breed of domesticated sheep from Norway (part of *Ovis aries*). One aspect that differentiates these two cases is the conceptual difference between the loss of species and the loss of specific breeds. However, our main reasoning behind this distinction is that the relevant community of interspecies justice in our following argumentation is limited to “wild” nonhuman beings. That does not mean that domesticated nonhuman beings are not within the scope of justice (they might be), but their relationship with humans will ground different principles of justice than what justice might demand towards more or less “wild” nonhuman beings.<sup>7</sup> While there is certainly concern not only about “wild” species but also old grain and vegetable varieties being lost, the debate about the current mass extinction event primarily concentrates on “wild” species or the loss of “natural” biodiversity. That is what people worried about the current mass extinction event as a moral problem usually imply and that is what we will focus on as well, setting all moral matters related to domestication aside.

Third, the term “human activities” is meant to refer to the general anthropogenic source of those planetary transformations and should not obscure the fact that, first, not all humans are implicated to the same degree (or at all) in the activities that contribute to species extinctions and, second, that these activities should not be primarily understood as individual choices but rather as practices that are part of broader collective economic and social processes and developments, such as industrialization. In other words, anthropogenic species extinctions, which are part of the current mass extinction event, are caused by larger economic *processes and structures* in which individuals are collectively implicated and which contribute to the drivers of extinction such as land-use change leading to the destruction of habitat (e.g., by the conversion to agricultural fields and a changing climate). In combination with the magnitude of the phenomenon (involving domino effects), this structural origin of anthropogenic species extinctions indicates that those practices may not only impact upon members of one species but rather on members of multiple species simultaneously.<sup>8</sup>

As a final and fourth clarification, we should note that this focus on extinctions driven by collective human endeavors does not exhaust all relevant aspects of the wrong implicated in anthropocentric species extinctions. Accordingly, this paper rather provides a further explanatory story of why extinctions are morally problematic in addition to other individualist or species-based arguments that explain the moral wrongness or badness involved in anthropogenic species extinction.<sup>9</sup> For one, even within the individualist interspecies justice framework in which our argument is operating, there is space to consider whether other kinds of wrongs and injustices are implicated in species extinctions that go beyond drivers of extinction perpetuated by human collective practices and complementary reparative claims. Second, while our aim is to provide an individualist argument for the injustices implicated in extinctions, this is

compatible with (yet does not necessitate) a range of claims that see other moral wrongs or losses situated on the species level. For example, nothing in our argument precludes maintaining that the loss of a species involves the loss of intrinsic, instrumental and/or relational value.<sup>10</sup> However, because the non-instrumental value of species is contested (see Sandler, 2012), an additional individualistic argument for the wrong implicated in species extinctions is particularly valuable for the environmental literature.

## 2.1 | Species extinctions and interspecies justice

In addition to outlining our understanding of extinctions, we need to add three additional clarifications about interspecies justice and its relationship to extinctions that function as premises for our argument about reparations in the following sections.

First, the term “interspecies justice” (or alternatively “ecological justice”; on “multispecies justice” see endnote 12) is not employed consistently in the environmental political theory literature, or the environmental studies literature at large. By interspecies justice we denominate a non-anthropocentric body of work about justice which is complementary, but not identical, to intra-human accounts of environmental justice (salient examples being Baxter, 2005; Cochrane, 2018; Low & Gleeson, 1998; Wienhues, 2020). This also includes works that use other terminology, such as “animal justice” (see Donaldson & Kymlicka, 2011; Garner, 2013; Nussbaum, 2023).

What all these works share is that they attribute rights or entitlements of justice to (some) nonhuman beings as individuals, analogous to intra-human accounts of justice in political thought. Thus, in line with the tradition of liberal theorizing and as our first premise, we endorse a loosely individualistic account of interspecies justice as a form of normative evaluation of *relationships* between individuals that occur between humans *qua* moral agents and other morally considerable individuals, that is, individuals who have a good of their own or well-being.<sup>11</sup> Of course, these different accounts differ in many respects, such as concerning their position on moral considerability; with some theories being sentientist while others taking a biocentric perspective.<sup>12</sup> Our argumentation in the following sections remains agnostic about this question about moral standing, being compatible with both types of individualistic positions on moral considerability. As authors of this article, we take diverging views on this matter. In previous publications, we have respectively argued for sentientist (Donoso, 2019, 2021, 2023) and biocentric (Wienhues, 2020) approaches to justice. Yet, our argument about reparations is compatible with both our positions. In other words, the proposed account should be understood as a “reparative add-on” that can plausibly build onto different starting theories of interspecies justice.

Based on this set up, there are at least two ways in which species extinctions are implicated in interspecies injustices. First, and as our second premise, species extinctions can be an *outcome* of distributive injustice (see Wienhues, 2020). For example, if nonhuman beings (on either sentientist or biocentric accounts) are entitled to use an adequate amount of environmental goods and spaces (e.g., access to adequate habitat) to satisfy their morally relevant needs and interests under an account of distributive interspecies justice, then serious infringements on these needs and interests *can* (and often do) cumulatively lead to the extinction of their respective species. So, species extinctions without constituting injustices in themselves function as indicators for past distributive injustices, such as when driven by loss of access to habitat. Land-use change, in turn, is credited as the main driver of species extinctions. There are many

examples for this phenomenon. For instance, it has been hypothesized that the extinction of the *Taudactylus diurnus*—the Australian Mount Glorious Torrent Frog—was driven by deforestation in its habitat (Ruiz, 2020).

Second, those past injustices can also impact on other classes of individuals whose existence is entangled with the lives of those who were subjected to injustice in the first place. That is our third premise. These are *transitive wrongs* that may have a domino effect (see Strona & Bradshaw, 2018), so that actions leading to the disappearance of a species X may wrong not only members of X but also members of another coexistent species Y. Furthermore, distributive injustices that lead to species extinctions may extend over time, so we can identify interconnected injustices and their outcomes at different times. For example, the wrongful impact of actions leading to the extinction of X at t1 may be long-lasting, so that at t2 members of Y continue to be affected by the previous extinction of X. Then, over time, the consequences of the past injustices that originally wronged members of X are also felt by members for Y and may also have a negative impact on species Z and so on.

In brief, anthropogenic species extinctions can indicate the existence of past distributive injustices—some of which may have lasting effects on other species—against individual members of different species. It should be clear that this conceptualization of extinctions has considerable normative consequences. Since injustices are the kinds of wrongs that come with a stringent obligation to respond to them, and while individual moral agents can rarely satisfy these obligations on their own due to the structural and collective nature of the original injustice, the following two central questions follow: *who* (if anyone) should act in response to species extinctions and what *form* should the response to the injustices entailed in species extinctions take?

Concerning the former question, we take it as given that extinctions can be made relevant for state reparations, analogous to reparatory claims in the intra-human context. As the state is generally better positioned than other institutions or individuals to respond to structural and collective-action problems, this gives support to the idea that the state should be the main addressee of these reparatory claims. Indeed, as elaborated above, the types of species extinctions that we are interested in here are the result of such structural practices and collective-action problems. This state-focused premise requires, of course, more elaboration and defense.<sup>13</sup> Setting this area of inquiry aside, we rather address the second of these two questions in the next section.

### 3 | REPARATIONS AFTER SPECIES EXTINCTIONS

If anthropogenic extinctions occur and these are outcomes of injustices, then it is important to reflect on what would constitute an appropriate moral response to these past injustices. As said, injustices are the kind of moral wrongs that are usually understood as resulting in an obligation to be addressed. So, what would be an appropriate response if not only the wronged individuals are gone but also their entire species has gone extinct? In the following we are aiming to illustrate the plausibility of framing this response in terms of a *responsibility to repair*. That is, we take *reparations* to be the right (but not necessarily sole) response to past injustices that resulted in species extinctions.

To further specify, distributive injustices (such as the loss of habitat) and the respective transitive wrongs can be implicated in three different kinds of extinctions—final, local and near extinctions—which in turn allow for different kinds of reparative actions (Figure 1). Because

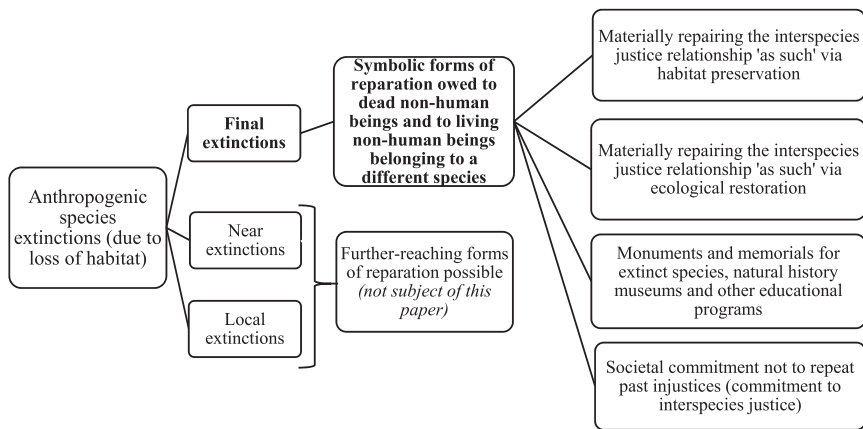


FIGURE 1 Types of extinction and respective forms of reparation drawing on interspecies justice.

local and near extinctions often ultimately amount to final extinctions, and because final extinctions are also the most difficult case for making sense of possible reparative duties, we primarily focus on this latter possibility.<sup>14</sup>

### 3.1 | Reparation versus restoration/restitution

Emphasizing *reparations* (as reparative justice)<sup>15</sup> in the context of final extinctions rather than other classes of responses to injustice—such as *restoration* or *restitution* (as in restorative justice)—has substantive benefits. Significantly, it allows for a wider class of actions to respond to past injustices than, for example, acts of restoration or restitution that more closely rely on the possibility of reinstating past conditions which might not be obtainable any more—particularly in the case of the extinction of one or several species.<sup>16</sup> In contrast, although reparative actions also allow for the retrospective material restitution of the past, they do not necessarily entail, nor can they be reduced to, this class of responses. Rather, they constitute acts with a broader set of purposes including also (i) the reparation of a lost balance, (ii) the recognition of transgressed values, or (iii) the commitment not to repeat past injustices, which all include prospective elements.<sup>17</sup> Each of these purposes is relevant for the specific wrong that concerns us here.

To further specify the benefits of focusing on *reparative justice*, let us underline, as a way of contrast, some important differences between reparations, on the one hand, and *restorative and restitutive justice* for species extinctions, on the other. As a means of illustration, consider the specific case of *de-extinction*. Despite that this might sound like science fiction, serious efforts are underway to “bring back” several species, such as *Mammuthus primigenius* (the Woolly Mammoth) and *Ectopistes migratorius* (the Passenger Pigeon).<sup>18</sup> Notwithstanding their name, the technological interventions grouped as de-extinction such as cloning are “a set of techniques utilizing the remnants of extinct populations” (Lean, 2020, 574 without original italics) and do not necessarily rely on *actually* resurrecting an extinct species (which concerns questions about its “identity”).<sup>19</sup> Thus, while this practice may seem to some a self-evident way to address past anthropogenic extinctions, it is by no means an obvious response to past interspecies injustices. Let us only mention three relevant considerations in this regard as a means of contrasting reparative and restorative justice.

First, if de-extinction is supposed to function as a means of *restorative justice* (in the form of a duty to resurrect species), de-extinction needs to be understood literally as the restoration of species by “reinstating” extinct species (or a similar “copy”) back into an ecosystem. While the possibility and conceptual necessity of this is a matter of debate (see Delord, 2014; Diehm, 2017; Lean, 2020), for our specific theoretical angle it is also relevant that those who were subjected to distributive injustices leading to species extinctions were individuals, not the species to which they belonged. This means that creating new members of an extinct species (or better, creating a similar new species) does not track the wrong committed against individuals in the past. These individuals cannot be brought back, which provides one reason for why de-extinction technologies are not an appropriate response as restoration for the injustices that contributed to species extinctions, because those new individuals are not adequately linked to the original injustices suffered by those in the past. Thus, if de-extinction is not an appropriate means of restorative justice in this context, then it is not obvious what other possibilities would be open to address interspecies injustice after extinctions as a matter of restoration.

Second, in contrast to restorative justice, de-extinction might fare better as a form of *reparative justice* which does not rely as much on the material restitution of the past.<sup>20</sup> Yet, an essentially experimental approach like de-extinction seems ill-fitted for reparation understood as (i) recuperating a lost balance in terms of the relationship between human and nonhuman beings by the means of employing ever more increasing control over nonhuman nature. That concern—in addition to the appropriate attitudes, such as humility towards nonhuman nature, that accompany our view on interspecies justice—provides another reason for being skeptical of de-extinction as a solution to interspecies injustices.

Third, reparation as (ii) the recognition of transgressed values or as (iii) a commitment not to repeat past injustice also seem inappropriately addressed by providing a “techno-fix” solution that could in practice rationalize putting less effort into preventing interspecies injustices in the future. That constitutes a moral hazard, because it opens the potential to employ less care and attention towards our relationship with nonhuman beings, trivializing humans’ commitment to adequate interspecies relationships.<sup>21</sup>

Consequently, de-extinction as an environmental management practice neither lends itself easily as a means of reparation nor restoration.<sup>22</sup> Yet, our main aim for this example was to illustrate the differences between restoration and reparation in the context of species extinctions. The upshot being that the de-extinction case shows how a reparation perspective might be more flexible than a restoration lens with regards to the death of the relevant wronged entitlement holders within a justice framework and, thus, allows us more argumentative space in the context of final extinctions. However, once the concept of reparation is recognized as a salient notion for interspecies justice in the context of anthropogenic extinctions, we still need to, first, circumscribe the *addressee* of the duty to repair and, second, find an answer for how to fill the *content* of this duty.

### 3.2 | The addressees of reparation

Beginning with the first issue, how can the state—or anyone for that matter—make right a past injustice when not only the direct victims of that injustice are dead, but their entire species has been wiped out? In other words, toward whom or what is the duty to repair directed? In contrast to typical cases of reparations in the human context where it has been argued that current generations can be owed reparations for injustices suffered by their ancestors under certain



conditions (e.g., Butt, 2013; Herstein, 2008; Sher, 2005), a central issue is that arguments based on group claims (e.g., by the species) are not available in the case of final extinctions. Due to the extinction of the species in question, the extinct species cannot be the source of any group claims, even if one would want to extend the individualist perspective in this regard by arguing for species-based group claims.<sup>23</sup>

So, if duties directed to species do not argumentatively lead anywhere, maybe it is possible to owe something to the nonhuman dead. For the human case, some theorists have taken this argumentative angle seriously and concluded—not without some controversy<sup>24</sup>—that we do have obligations to the deceased as a result of obligations towards them that existed when the now deceased were alive.<sup>25</sup> Michael Ridge, for example, has argued that even though the “very idea of duties to the dead may seem bizarre to some, [...] common sense recognizes such duties” (Ridge, 2003, 42). He illustrates this by pointing to cases such as deathbed promises or tort law, where wrongful death statutes allow compensations for damages resulting from death itself (post-mortem damages) which, in turn, are measured by the loss to the dead’s estate rather than to the dead’s beneficiaries. More recently, Zofia Stemplowska has claimed that we do have duties to the dead and that these duties can impose the obligation to mitigate past injustices. She argued that “justice should be concerned with the distribution of opportunities people have for the fulfilment of their preferences, including their preferences over outcomes that stretch beyond their well-being and biological lives” (Stemplowska, 2020, 33). Because “advancing or curtailing opportunities of preference fulfilment when a person is alive can mitigate (or exacerbate) injustice, it can also [...] do so posthumously” (Stemplowska, 2020, 36).

If a case can be advanced in support of obligations to the human dead (we think that this is at least a plausible intuition), it is then conceivable to entertain the idea that a similar—while not identical—case might be offered in the nonhuman case. That is, in favor of an obligation to mitigate past injustices that the nonhuman dead were subjected to when alive. Since the central reasons for granting obligations owed to the dead do not depend on whether the deceased is a member of *Homo Sapiens*, there seems to be an initial basis for this claim. If genuine obligations are owed to nonhuman beings (as interspecies justice maintains), then it is feasible to argue that nonhumans can also be a source of obligations even after their life ends.

Nevertheless, a comparison between obligations to the human and nonhuman dead faces several difficulties. In the human case, as we saw before, arguments could be based on making a promise to a person before their death or the person having preferences that legitimately extend beyond their death such as concerning their legacy or reputation. Yet, because these cases are (at best) rarely applicable in the case of nonhuman beings—either because promises to members of other species do not hold or because the projection of present preferences to the future is difficult to defend for the large majority of nonhuman beings—it seems unlikely that our duties to the nonhuman dead may be based on promises or the satisfaction of preferences that extend beyond their death, even if this may hold true in the human case.

Rather than proposing a parallel between obligations owed to the human and nonhuman dead, we submit that anthropogenic extinctions entail—and are made visible in their absence in ecosystems and landscapes—the persistence of the injustices that brought about the disappearance of species in the first place. Thus, if past structural human practices led to injustices disadvantaging nonhuman beings that resulted in the extinction of their species, we claim that the disappearance of these species does not necessarily erase the injustice committed and, therefore, that an actual obligation to respond to the historic injustice might be in place.<sup>26</sup>

At this juncture, someone may ask why one is supposed to accept that past injustices, particularly injustices that may have been committed decades ago, are still active and demand to be

addressed. This skepticism may be grounded in a parallel with Jeremy Waldron's supersession thesis, according to which "certain things which were unjust when they occurred may be overtaken by events in a way that their injustice has been superseded" (Waldron, 2004, 240). If this holds for the human case, the skeptic may ask, why should it not hold in the case of interspecies relationships?

To respond, it is important to begin by recognizing that, apart from different kinds and degrees of supersession (see Waldron, 2022), the supersession thesis is not one that applies to every instance of historic injustice. It is not, in other words, a thesis that denies all backward-looking justice claims. Rather, some historic injustices are superseded and others are not, and whether supersession applies will depend on specific features of the cases under consideration. That makes room to defend the thesis that interspecies injustices that resulted in species extinction are generally not superseded.<sup>27</sup>

The key to this last claim is that the supersession thesis is based on certain contemporary normatively relevant features that transform the original justice claim into a case where reparations are not appropriate anymore. When those relevant features hold, it is contended that it would be inadequate, or even straightforwardly unjust, to pursue reparative actions. An example engaged by Waldron concerns the unjust seizure of indigenous land in colonial imperialist contexts. This is perhaps the most paradigmatic case of historic injustices with very detrimental consequences for those people who directly suffered these injustices as well as for their descendants. Without denying the occurrence of these past injustices and the dreadful consequences of these dispossessions, authors like Waldron, who would defend the supersession thesis in a case like this one point out that—given the profound change in the background circumstances, including changes in population and in the availability of natural resources, among other transformations—these historic injustices have nowadays been superseded (for a critique of this argument see Reibold, 2022).

We will not comment on the controversies involved in the supersession thesis in relation to the human case. It is surely the case that a change of the morally relevant circumstances needs to be considered. Nonetheless, independently from whether the supersession thesis applies or does not apply to the dispossession of indigenous lands, we argue that supersession does *not* apply to the case of past injustices that resulted in species extinctions. Supersession does not apply because in this case one cannot point to a change in the morally relevant circumstances that someone may raise in defense of this thesis. To explain why we think this is the case, it is helpful to briefly revisit the difference between reparation and restoration.

*Restorative* interspecies justice—even if hypothetically applicable in the form of de-extinction, which we dismissed earlier—would plausibly be superseded in the case of species extinctions after some time has passed, because ecosystems change and adapt to extinctions. Thus, the (re)introduction of a species would be disruptive (with some nonhuman beings gaining while others being disadvantaged). In this case, it seems that the morally relevant circumstances for restorative justice have changed.

However, the same does not seem to be true for *reparative* interspecies justice. As will become clear in the next section, our pursuits to repair historic injustices entail forms of reparations that aim to change how human societies relate to nonhuman beings. These measures do not generally entail the type of burdens that may call for supersession of historic injustices, even when circumstances have radically changed (e.g., changes in environmental conditions and human population size, among other things). Those who defend supersession build on the premise that backward-looking justice should not be pursued through actions that impose unjust burdens on present generations. The forms of reparation we propose in the next section are not

affected by this problem. Even if our proposed measures may be more or less burdensome for some than for others (which generates a separate set of questions about just burden-sharing particularly when such reparation takes the form of habitat conservation), these reparative actions are meant to recuperate a lost balance generated by the original injustice against members of extinct species, rather than to return to conditions previous to the injustices at stake. Therefore, reparations for past injustices must also be sensitive to—and are subordinated to—the current justice claims of other human and nonhuman beings.

But even if one does not find the idea that an injustice from the past may persist throughout time convincing, there is also the earlier-mentioned aspect of transitive wrongs that ought to be considered. So, it is plausible that, besides the originally wronged individuals belonging to the extinct species, other still-living individuals of other species were also harmed by the extinction of that first species and are still being harmed by resulting changes to their ecosystem, such as in terms of a reduced availability of relevant habitat or food.<sup>28</sup> For example, imagine a river is rerouted to allow for better water transportation and this leads to the extinction of a range of native plant species. These extinctions, in turn, will impact a local snail species that used to feed mainly on those plants. Their population decreases and eventually goes extinct. This affects a bird species for which the snail is its main source of food. After some time has passed, the lack of snail protein in combination with other anthropogenic and non-anthropogenic pressures causes this bird species to also go extinct. This chain of events affects various members of the community of interspecies justice at different points in time and in different places and represents ramifications of the initial wrong that caused the extinction of those plants. To reiterate, the original victims are dead (that is, starting with the plants on a biocentric reading or the snails and/or birds on a sentientist reading) and the extinction itself is not an injustice but only the outcome of an injustice. So, if one would exclude the possibility of owing something to the nonhuman dead, then the argumentative weight for connecting species extinctions and reparative justice would lie on identifying related transitive wrongs such as in this example.<sup>29</sup>

The upshot is that these concerns about, first, potential duties to the dead and, second, related transitive wrongs, matter insofar as the duty to repair for past wrongs—as a matter of justice—is usually understood as being *owed to* someone or something—the addressee of reparation. These would be in this case either dead individuals belonging to extinct species and/or living individuals belonging to other species. Moreover, the additional worry about supersession is relevant insofar as it needs to be shown that these duties *still* demand to be addressed. While more needs to be said on these issues concerning the addressees of reparative interspecies justice than we can elaborate on here, we will now turn to some preliminary thoughts on the content of the duty to repair.

#### 4 | OUTLOOK: SYMBOLIC REPARATIONS

Illustrating the *content* of the duty to repair should aid to soften the counter-intuitiveness of owing duties of reparative justice to the nonhuman dead. We cannot benefit the nonhuman dead directly, particularly when one is concerned with nonhuman beings which do not have interests concerning the time after their demise (in comparison to some human interests that can reasonably extend beyond one's passing, as we mentioned above). However, even if directly benefitting the dead is not possible, we can do justice to the nonhuman dead (i) by repairing a lost balance within the human–nature relationship resulting from past interspecies injustices, (ii) by recognizing the transgression of the demands of justice, and (iii) by committing not to

repeat past injustices.<sup>30</sup> All these aspects are expressed by the idea of reparations for past injustices as a form of *honoring*; not only the dead whose species disappeared because of those past injustices but also the justice relationship to them “as such.”<sup>31</sup> Honoring that justice relationship means to make the values that constitute that relationship an integral part of one’s present life.

As an example, honoring truthfulness means to make efforts to be truthful or, in other words, to make this value an integral part of one’s life, a value that marks one’s life. Analogously, to honor the dead—which here means honoring the justice relationship we had (or should have had) with those who are now extinct—is to strive to make present the values that constitute a just relationship with those individuals. We cannot bring the dead back to life, but we can inform our life with the values that would have constituted a just relationship with those now extinct. Thus, the idea that reparations are a form of honoring the dead, specifically those long-gone individuals who suffered injustices that brought about the extinction of their species, is grounded in the fact that reparations aim to underline and bring to the present the values that comprise a just relationship with those now deceased individuals.

As the examples below show, reparations are burdensome; they require time, reflection, and contrition on the part of those who repair. They may also demand collective action and, on occasion, they require postponing or adjusting collective projects so that the acts of reparation may be adequately conveyed. All this is done (or should be done) under the recognition of the worth of those that would deserve these reparations and the importance of paying attention to cultivating just relations with them. Were they not worthy of these burdensome acts of reparations, there would be no duty to repair. Thus, honoring the nonhuman dead should be taken to mean and express an acknowledgment and respect for the moral standing of these individuals with whom we had or could have had a just relationship. In this respect, our position is not too dissimilar to the earlier-mentioned positions on reparative duties that do not rely on justice arguments, but we maintain that this honoring is owed to the nonhuman individuals instead of constituting a more general acknowledgment of the wrongness implicated in extinctions as an appropriate moral response.

In the case of reparations for interspecies injustices that resulted in extinctions, it is neither necessary nor possible to benefit or favor the originally harmed individuals, as is normally the case when victims of injustice are still alive. For our specific case, we contend that *symbolic forms of reparations* are an alternative that should be considered and should not be easily dismissed as a relevant form of political action (compare Palmer, 2010, 2012; but see also Donaldson & Kymlicka, 2011). Based on the three kinds of responses to injustice mentioned above, we consider four possible symbolic forms of reparation.

First, while it might not be possible to support any interests of the nonhuman dead directly, in the case of distributive injustices, it is possible to favor (or at least to infringe on their interests to a lesser degree) currently living nonhuman beings in the same currency (i.e., land) in which the original injustices have occurred. More specifically, that involves enacting reparations through habitat conservation. So, while this constitutes a symbolic form of reparation, it is aimed at actually *materially repairing* the interspecies justice relationship in itself, by reducing and ultimately fully avoiding the human overuse of land (e.g., by refraining from converting more habitat than necessary into land used for human purposes such as agriculture) while also taking actions to reduce and ultimately stop the degradation of habitat (e.g., by reducing anthropogenic pressures on environmental sinks). Accordingly, these two distinct but connected dimensions of reparative action can address the first point about repairing a lost balance by addressing injustices within the human–nature relationship. Due to its material dimension

that has the potential of “repairing” the interspecies justice relationship *as such*, the conservation of habitat should be seen as the central form of reparation.

In practice, this form of reparation would require taking the current demands of distributive interspecies justice seriously and implement ambitious policies in its support. Despite its backward-looking dimension, meeting reparative responsibilities will certainly favor conditions for future interspecies justice and further strengthen arguments in favor of pursuing interspecies justice in the present. Accordingly, reparative duties that concern the preservation of habitat provide an additional backward-looking justification for conservation policies that are already justified on forward-looking grounds based on the demands of interspecies and intra-human environmental justice.

Second, in addition to conservation, ecological restoration can also be engaged as a means of symbolic reparation in the form of *habitat restoration*. Engaging ecological restoration as an environmental management practice for the purpose of recuperating a lost balance by addressing the interspecies injustices within the human–nature relationship avoids the strong requirement of historic fidelity typically involved in ecological restoration. That is, while ecological restoration of an ecosystem as an environmental management practice is usually understood as the restitution of a past state of affairs or a return to a “historic trajectory” (Society for Ecological Restoration, 2002), the symbolic aspect of reparative justice is less demanding in that regard (in contrast to ecological restoration as *restorative* justice). In this context, habitat restoration as a *reparative* action does not necessitate the restoration of habitat of already extinct species to resemble past conditions, but it allows for the adaptation of restoration practices according to the needs of currently living nonhuman beings within the context of large-scale environmental changes such as climate change.<sup>32</sup> Thus, complementary to the preservation of habitat, ecological restoration of habitat also has the potential of materially repairing the interspecies justice relationship in itself by *reversing* (to a degree) the degradation of the overall amount of available habitat.<sup>33</sup>

Third, these kinds of reparation can also be combined with other forms of symbolic reparation such as in the form of monuments for extinct species (see Jørgensen, 2018). Such monuments, for example, would be a way to enact the second point about recognizing the transgression of the demands of justice, and would be a material way of signaling that “each anthropogenic extinction is [figuratively] a *memorial for past injustices*” (Wienhues, 2020, 157 italics in original) and could be the basis of public debates on extinctions. These symbolic reparations are an act of remembrance that, when genuinely conveyed, allows for a rebalancing of the justice relationship that past injustices flouted. These acts honor the moral significance of just interspecies relationships, making explicit in the present a collective commitment not to repeat the injustices that made those species disappear. So, here again symbolic reparations combine backward- and forward-looking elements.

The public building of monuments and memorials, apart from representing a collective response to past injustices, constitute “honorific representations” of those who were victims of historic injustices. Benjamin Cohen Rossi has argued that these monuments designate “any representation of an individual in a public space that depicts that individual as an exemplar of a value or values, such as courage, integrity, or justice” (Cohen Rossi, 2020, 50 without original italics). Adapting Cohen Rossi’s view for our non-anthropocentric purposes, these public representations—monuments, memorials, frescoes, and so on—can honor in the public sphere the value of those now extinct individuals and the justice relationship to them; and express the present societal commitment to interspecies justice.

Yet, honoring the nonhuman dead and the justice relationship with them is not necessarily limited to the medium of art. A relevant part of this form of reparation is its educational aspect

about species extinctions which can also be well implemented in other ways such as by natural history museums and other educational programs. These could not only embody the societal commitment to interspecies justice but also foster such a commitment as a means of reparation in the first place.<sup>34</sup> All these different forms of symbolic reparations that enact remembrance and honor the representation of the deceased can work as a starting point for intra-human exchanges at all levels, facilitating reflections about the wrongs involved in species extinctions, and pushing for changes. Thus, these symbolic reparations are not a form of communication aimed at the wronged individuals themselves.

And fourthly, such a societal commitment—implemented by and inscribed in appropriate policies that genuinely aim to mitigate currently ongoing species extinctions as far as possible—would also address the third point about not repeating past injustices. While the individuals that belong to the species that are now extinct cannot be benefitted anymore in any way that matters to them, it is still possible to favor other still-living nonhuman beings who are also owed interspecies justice by avoiding and mitigating injustices as embodied by our proposal to materially repair the interspecies justice relationship *in itself*. This last aspect of interspecies reparations is reminiscent of—while not being identical to—the “guarantees of non-repetition” as a part of reparations in international law concerning human rights violations (United Nations, 2006). These guarantees not only make explicit a commitment to the prevention of future injustices, particularly human rights violations, but also represent a form of loyalty to and promotion of human rights principles (United Nations, 2006, IX 23 (e, f, d)). This is analogous to our proposal in the sense that our suggested reparative practices should also entail a commitment extended over time to adhere to and promote just relationships with other species.

Accordingly, we argue that these four forms of reparation for past injustices are ways of honoring just interspecies relationships that were flouted by past injustices against individuals of now extinct species. These are significant ways of rescuing and underlining the value of those individuals whose species have now disappeared. Additionally, the first two forms of symbolic reparation are also directly relevant for addressing the transitive wrongs to which living individuals belonging to different species might be subjected. While some of the ecological changes that were induced by other species' extinctions are irreversible, still-living individuals can also potentially benefit from habitat conservation and restoration programs.<sup>35</sup>

These four forms of reparation are not only compatible with each other but also, on many occasions, reinforce each other. For example, public policies in favor of habitat conservation and restoration can convey a commitment to the rest of society that permits and potentially positively influences the education of children and the fostering of respectful attitudes towards nonhuman beings. Of course, other morally relevant concerns also need to be considered. These include matters of practical implementation and of other relevant moral demands (such as other duties of intra-human and interspecies justice) to assess what all-things-considered forms of reparation should be pursued to what extent in different contexts. Yet, the first point about reparation as a recuperation of a lost balance should be considered the central aspect of reparative interspecies justice, because it not only acknowledges the past injustices but also aims to fundamentally (materially) repair the human–nature relationship, which is not only backward-looking as a means of reparation but also provides a way forward.

## 5 | CONCLUSION

Taking a particular but still general view on interspecies justice as given, we have argued that these demands of justice—if not fulfilled—lead to demands of reparation. In the case of species

extinctions, these demands take the form of obligations owed to the nonhuman dead and to living nonhuman individuals that are subjected to transitive wrongs. Moreover, these demands can be met, in turn, with symbolic forms of reparation. These involve, for example, favoring other still-living nonhuman beings within the same currency (e.g., land in the form of habitat) in which the original injustice occurred via habitat conservation and restoration. Other forms of symbolic reparation, such as monuments and museums, should also be considered as forms of honoring the dead whose species disappeared as a result of historic injustices.

Accordingly, our aim was to elucidate how extinctions—as a typical species-level concern—can be made sense of within an individualistic theory of interspecies justice by employing the notion of reparative justice, which is a common lens for addressing past injustices within the political philosophy literature. For that purpose, we presented the broader theoretical landscape of reparative interspecies justice with respect to extinctions to illustrate its similarities and differences to the standard case of reparative duties in intra-human justice relations. Moreover, our account is meant to be complementary to other arguments found in environmental ethics that illustrate the wrongness of species extinctions in different ways.

Nevertheless, the ideas presented in this paper still require further elaboration, as we have left unanswered many relevant questions that require further consideration to provide a complete theoretical account of reparative interspecies justice. More thought will have to be given to, amongst other things, the respective responsibilities and actors involved in addressing species extinctions, the theoretical possibility of owing duties of justice to the nonhuman dead, the notion of honoring, the different forms of symbolic reparations, and so on.

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## CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

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## ENDNOTES

<sup>1</sup> See Oksanen (2008) for a more skeptical view on the potential of ecological restoration as moral reparation.

- <sup>2</sup> While it is the case that non-anthropocentric accounts of restitutive justice can be found as early as Taylor (1986), the subject of reparative interspecies justice—in the form of systematic reflections in form of a theory of justice—is new to moral philosophy.
- <sup>3</sup> Even though the wrongs of climate change and species extinctions are conceptually different, these are two deeply interconnected phenomena (Thomas, 2012). A typical concrete example of this entanglement is *Ursus maritimus*—the polar bear.
- <sup>4</sup> Available scientific evidence shows that all previous mass extinctions were the result of natural events (such as intense volcanic activity) until now. Of the 18 mass extinction events that have been identified in the approximately 3.7 billion years of life on Earth, five involved the disappearance of at least 75% of the species on the planet at that point in time (Bambach, 2006).
- <sup>5</sup> For an argument concerning why the “massness” of the current mass extinction in itself is problematic, see Sandler (2022).
- <sup>6</sup> For a detailed analysis of the concept of extinction, see Delord (2007) and Tanswell (2022).
- <sup>7</sup> That different relationships of this kind matter for explaining different duties and rights, is a common theme within environmental (including animal) ethics and political philosophy (see, e.g., Donaldson & Kymlicka, 2011; Palmer, 2010).
- <sup>8</sup> Moreover, this structural origin also further limits the historical horizon of extinctions linked to potential reparatory demands, which can only become relevant since the beginning of the Industrial Revolution in the late 18th century. However, by introducing a “knowledge of consequences of one’s actions” criterion (see on this Caney (2005) regarding climate change) responsibility can most likely not be attributed before the publication of *Silent Spring* by Rachel Carson in 1962 when the impacts of agriculture on nonhuman species became known to a broader public and which is credited with triggering the environmental movement in the 1960s. Yet, most climate justice literature sets the date of general public knowledge of humanity’s impact on the environment even later, starting in the 1990s.
- <sup>9</sup> For an overview of the literature on the ethics of extinctions, see Wienhues et al. (2023).
- <sup>10</sup> Relatedly to this it should be noted that the term “species” is being used in a variety of ways, relying on different definitions and different understandings of their value. We rely on the idea that, in the words of Lori Gruen, “[s]pecies categorizations are not, strictly speaking, fixed by nature but rather are constructed by us to understand the natural world” (Gruen, 2011, pp. 50–51).
- <sup>11</sup> This limitation on individualism is in principle compatible with different understandings of what constitutes an individual (thus, it is not reducible to an atomistic account). For the purposes of our argumentation in this paper, a broadly individualistic starting position is needed to show that reparative interspecies justice can be theorized in a way that is significantly similar to how reparation and justice are understood within political theory at large. Against this background, our argumentation in this paper is *neither* committed to a strong (and thus problematic) individualism in non-anthropocentric theorizing, *nor* does it take a stance on the normative standing of holistic entities and systems. Here again different views will be plausibly compatible with our account.
- <sup>12</sup> In some ways differing from our premise in this paper are accounts that tend to take a somewhat different approach to justice theorizing more broadly and that are frequently primarily non-individualistic in their orientation (see Celermajer et al., 2020; Schlosberg, 2007). These later accounts sometimes use the “multispecies justice” label. Moreover, also distinct from our use of the concept in this paper, further literature refers to ecological justice as encompassing both—justice to humans and nonhuman beings (see Kopnina & Washington, 2020). However, also these accounts obviously care about individual nonhuman beings in different ways and the differences between our narrower approach in this particular paper and other perspectives should not be overstated. As Danielle Celermajer puts it nicely in reflections about the Australian bushfires of 2019–2020, “[a]n unfathomable number of wild animals have been killed. Based on what we know about how many animals live in a given area of bushland and the area the fire destroyed, the current estimate is 3 billion. I am sure that number has been useful in provoking a certain intensity shock. But I am cautious of numbers so large we cannot imagine: Besides, numbers are flattening, as if there exists 3 billion units of some item that designates wild animals. A closer way of knowing all this death would be to bring the attention of one’s



mind to *this* being, who had *this* form of life, and *these* relationships until they were killed” (Celermajer, 2021, 131 italics in original).

- <sup>13</sup> Here, we are setting aside important questions concerning causal and moral responsibility and respective matters about just burden-sharing to address and prevent anthropogenic species extinctions. Starting with the state as the primary institution acting on species extinctions seems nonetheless warranted since in contemporary democracies the state is for principled and pragmatic reasons the authorized body to enforce public rules and, thus, to enforce obligations of justice. Thus, focusing on the state and its institutions to meet responsibilities for extinction-related injustices becomes the most obvious option. As a means of simplification, we are relying here on an abstract notion of the democratic state rather than on real-world examples. In practice, different states would have to contribute to varying degrees.
- <sup>14</sup> To keep this section concise, we will omit several nuances—such as the possibility of reparations for species that are in the process of becoming extinct (see Welchman, 2021).
- <sup>15</sup> Returning to the environmental ethics literature mentioned in the introduction, it is possible to propose reparations-based arguments that are not directly grounded in theories of interspecies justice. These are distinct but complementary to our argumentation in this paper. For example, if extinctions are considered morally wrong, that can provide us with a reason to act in a way that acknowledges that wrongness (e.g., atonement) as an appropriate moral response. The benefit of this argumentative route is that one can argue for what constitutes an appropriate response to species extinctions without necessitating that one can identify to whom this is owed (see Basl’s, 2010 distinction between a remediative and reparative requirement of restitution). However, because these accounts address *moral* restitution/reparation—and thus, not grounding their claims in a theory of justice—they are largely not analogous to how reparative justice is understood in the standard story of intra-human justice. In this context, reparation is always owed to someone resulting from previous injustices.
- <sup>16</sup> The narrowness of the language of restitution in this context is analogous to the specificity of restitution in the criminal sphere (see Zedner, 1994).
- <sup>17</sup> See Palmer (2012), who also draws this distinction between reparations and restitution to “nature.”
- <sup>18</sup> Such plans are supported by some conservation organizations such as “Revive and Restore,” see <https://reviverestore.org/projects/woolly-mammoth/> and <https://reviverestore.org/about-the-passenger-pigeon/>. For a more general assessment of the ethics of de-extinction, see Oksanen and Siipi (2014), Kasperbauer (2017), and Sandler (2019). And for a recent overview article, see Odenbaugh (2023).
- <sup>19</sup> There are different views on whether de-extinction is an appropriate means to enact a reparative or restitutive duty that addresses the moral wrong of extinctions. See, for example, Oksanen and Siipi (2014), Diehm (2015), Lean (2020), and Welchman (2021).
- <sup>20</sup> In contrast to our position, Jennifer Welchman has argued that de-extinction might constitute a suitable means of restitution, or “compensatory reparations” (Welchman, 2021, 522) if “direct restoration is impossible” (Welchman, 2021, 518). For that to apply she lists a range of conditions, such as the victim being sentient in her account and being able to identify *still living* human or nonhuman indirectly harmed parties.
- <sup>21</sup> In practice, the sheer expensiveness of such technological interventions functions as a preventative measure in this regard.
- <sup>22</sup> Of course, this does not mean that de-extinction technologies might not be morally justified in certain cases on other grounds.
- <sup>23</sup> Whether the *species-as-communities* idea can be plausibly conceptualized matters more for theorizing local or near extinctions, as those species still exist (but consider also ‘functional extinctions’, Preston, 2022). It seems that Taylor’s (1986) suggestion to compensate the “species-population” in the case of the harmed individuals being dead would fit best for those circumstances. While compensation, restitution and reparation are not identical in our account, we will also set aside whether Taylor’s argumentative move from the individual to the population/species-level succeeds in this context. However, one might think that a plausible alternative to species-based group claims is to owe reparations to the relevant *ecosystems* by conceptualizing these as ecological communities, but that also seems inappropriate for a range of reasons. To mention just one worry; ecosystems are made up of an ever-changing composition of different species, whose members have many

conflicting interests. Once a species goes extinct, the composition and make-up of the ecosystem adapts and changes, with some species losing out while others might gain from this change. While we take all these different individuals to be part of a community of interspecies justice (and more broadly, a moral community by constituting moral patients), conceptualizing an ecosystem as a community *analogous* to a human community that might share a history, a language, values, cultural and/or economic practices, and so on, seems to stretch the “ecosystem as community” idea too far.

- <sup>24</sup> For the skeptical view see, for example, Partridge (1981) and Callahan (1987).
- <sup>25</sup> See Feinberg (1984), Pitcher (1984), Fisher (2001), Ridge (2003), Meyer (2004), Luper (2018), and Stemplowska (2020).
- <sup>26</sup> Here again it should be noted that de-extinction is not an apparent choice. As we take it, owing something to dead individual nonhuman beings does not entail in any obvious way the de-extinction of their species (i.e., by creating a close copy of the original species), because the interests of individuals are not identical to any “interest” for continuous existence that one might want to attribute to the species that they make up (even if one could plausibly attribute interests to species, which is not compatible with our previously mentioned species definition).
- <sup>27</sup> For a contrasting view that considers many historical injustices towards animals being superseded, see Donaldson and Kymlicka (2011).
- <sup>28</sup> To avoid the non-identity problem (see Parfit, 1987) this requires a particular understanding of the relevant harm (e.g., in terms of a flourishing threshold). See also Herstein (2008).
- <sup>29</sup> Here one might wonder again whether de-extinction might be an appropriate solution after all. However, de-extinction complicates this matter further. While species extinctions have negative knock-on effects for some other species, they can also involve new benefits for other species, which ‘reintroducing’ an extinct species might reverse. Additionally, the “reintroduction” of a species might also create new harms (e.g., because the receiving ecosystems has changed in the meantime). Because of this, we remain skeptical about whether de-extinction techniques can be an appropriate way of addressing transitive wrongs.
- <sup>30</sup> Thus, in contrast to Oksanen (2008), we maintain that reparation does not rely on the idea of (subjectively perceived) “victimhood” to gain plausibility.
- <sup>31</sup> See Palmer (2012) for some difficulties involved in the possibility to do reparations to “nature.”
- <sup>32</sup> Thus, this justification of the restoration of habitat as a form of symbolic reparation is not troubled by Elliot’s (1982) well-known concerns about ecological restoration which he compared to art forgery. In the context of extinct species, evaluative standards like naturalness are not essential for judging habitat restoration as symbolic reparation.
- <sup>33</sup> What specific practices of habitat restoration are ultimately all-things-considered justified is a matter that goes beyond considerations of interspecies justice. Their assessment necessitates a broader theory of environmental ethics.
- <sup>34</sup> We explore some of these educational commitments in Donoso (2022).
- <sup>35</sup> However, in this respect it matters substantially how habitat conservation and restoration are interpreted in different contexts, as different management practices not only benefit some nonhuman beings but will also disadvantage or harm other nonhuman beings—forms of restoration that involve the hunting of “invasive” (i.e., human imported species) being a case in point. Thus, duties resulting from transitive wrongs require more differentiation with respect to the different local contexts (and other morally relevant concerns) involved. Here, we are setting these nuances aside.

## REFERENCES

- Aitken, G. M. 1998. “Extinction.” *Biology and Philosophy* 13: 393–411.
- Almassi, B. 2017. “Ecological Restorations As Practices of Moral Repair.” *Ethics and the Environment* 22(1): 19–40.
- Bambach, R. (2006) “Phanerozoic Biodiversity Mass Extinctions.” *Annual Review of Earth and Planetary Sciences* 34: 127–155.

- Basl, J. 2010. "Restitutive Restoration: New Motivations for Environmental Restoration." *Environmental Ethics* 32(2): 135–147.
- Baxter, B. 2005. *A Theory of Ecological Justice*. Abingdon: Taylor and Francis e-library.
- Butt, D. 2013. "Inheriting Rights to Reparation." *Ethical Perspectives* 20(2): 245–269.
- Callahan, J. 1987. "On Harming the Dead." *Ethics* 97(2): 341–352.
- Caney, S. 2005. "Cosmopolitan Justice, Responsibility, and Global Climate Change." *Leiden Journal of International Law* 18(4): 747–775.
- Ceballos, G., P. R. Ehrlich, A. D. Barnosky, A. García, R. M. Pringle, and T. M. Palmer. 2015. "Accelerated Modern Human-Induced Species Losses: Entering the Sixth Mass Extinction." *Science Advances* 1(5): e1400253.
- Celermajer, D. 2021. *Summertime: Reflections on a Vanishing Future*. Sydney: Hamish Hamilton.
- Celermajer, D., S. Chatterjee, A. Cochrane, S. Fishel, A. Neimanis, A. O'Brien, S. Reid, K. Srinivasan, D. Schlosberg, and A. Waldow. 2020. "Justice through a Multispecies Lens." *Contemporary Political Theory* 19(3): 475–512.
- Cochrane, A. 2018. *Sentientist Politics: A Theory of Global Inter-Species Justice*. Oxford: Oxford University Press.
- Cohen Rossi, B. 2020. "False Exemplars. Admiration and the Ethics of Public Monuments." *Journal of Ethics and Social Philosophy* 18(1): 49–84.
- Delord, J. 2007. "The Nature of Extinction." *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences* 38(3): 656–667.
- Delord, J. 2014. "Can we Really Re-Create an Extinct Species by Cloning? A Metaphysical Analysis." In *The Ethics of Animal Re-Creation and Modification: Reviving, Rewilding, Restoring*, edited by M. Oksanen and H. Siipi, 22–39. Houndmills: Palgrave Macmillan.
- Diehm, C. 2015. "Should Extinction Be Forever? Restitution, Restoration, and Reviving Extinct Species." *Environmental Ethics* 37(2): 131–143.
- Diehm, C. 2017. "De-Extinction and Deep Questions about Species Conservation." *Ethics, Policy & Environment* 20(1): 25–28.
- Donaldson, S., and W. Kymlicka. 2011. *Zoopolis: A Political Theory of Animal Rights*. Oxford: Oxford University Press.
- Donoso, A. 2019. "A Territorial Mediation in a Triangular Affair Towards an Ecological Territorial Sovereignty." In *Controversies in Latin American Bioethics*, edited by E. Rivera-Lopez and M. Hevia. Cham: Springer.
- Donoso, A. 2021. "Toward a New Framework for Rights of the Biotic Community." In *Rights of Nature. A Re-Examination*, edited by D. Corrigan and M. Oksanen. London: Routledge.
- Donoso, A. 2022. "Ecología Integral en *Laudato Si'* Hacia una Educación Ciudadana Ecológica." In *Educación Ciudadana y Enseñanza Católica. La Fraternidad como Desideratum*, edited by R. Mardones. Santiago de Chile: Ediciones UC.
- Donoso, A. 2023. "Climate Injustice in a More-Than-Human World." *Journal of Agricultural and Environmental Ethics* 36(3): 19.
- Elliot, R. 1982. "Faking Nature." *Inquiry* 25(1): 81–93.
- Feinberg, J. 1974. "The Rights of Animals and Unborn Generations." In *Philosophy and Environmental Crisis*, edited by W. T. Blackstone, 43–68. Athens, GA: University of Georgia Press.
- Feinberg, J. 1984. *Harm to Others*. New York: Oxford University Press.
- Fisher, J. 2001. "Harming and Benefiting the Dead." *Death Studies* 25: 557–568.
- Garner, R. 2013. *A Theory of Justice for Animals: Animal Rights in a Nonideal World*. Oxford: Oxford University Press.
- Gruen, L. 2011. *Ethics and Animals*. Cambridge: Cambridge University Press.
- Herstein, O. J. 2008. "Historic Justice and the Non-Identity Problem: The Limitations of the Subsequent-Wrong Solution and Towards New Solution." *Law and Philosophy* 27(5): 505–532.
- IPBES. 2019. *Summary for Policymakers of the Global Assessment Report on Biodiversity and Ecosystem Services*. Germany: IPBES Secretariat Bonn.
- Jørgensen, D. 2018. "After None: Memorialising Animal Species Extinction through Monuments." In *Animals Count: How Population Size Matters in Animal-Human Relations*, edited by N. Cushing and J. Frawley, 183–199. Abingdon: Routledge.
- Kasperbauer, T. J. 2017. "Should we Bring Back the Passenger Pigeon? The Ethics of De-Extinction." *Ethics, Policy & Environment* 20(1): 1–14.

- Kopnina, H., and H. Washington, eds. 2020. *Conservation: Integrating Social and Ecological Justice*. Cham: Springer International Publishing.
- Lean, C. H. 2020. "Why Wake the Dead? Identity and De-Extinction." *Journal of Agricultural and Environmental Ethics* 33(3–6): 571–589.
- Low, N., and B. Gleeson. 1998. *Justice, Society and Nature*. London: Routledge.
- Luper, S. 2018. "The Moral Standing of the Dead." *Philosophical Transactions of the Royal Society B: Biological Sciences* 373: 20170270.
- Meyer, L. H. 2004. "Surviving Duties and Symbolic Compensation." In *Justice in Time: Responding to Historical Injustice*, edited by L. H. Meyer, 173–184. Baden-Baden: Nomos Verlagsgesellschaft.
- Nussbaum, M. 2023. *Justice for Animals: Our Collective Responsibility*. New York: Simon & Schuster.
- Odenbaugh, J. 2023. "Philosophy and Ethics of De-Extinction." *Cambridge Prisms: Extinction* 1: e7.
- Oksanen, M. 2008. "Ecological Restoration as Moral Reparation." *Proceedings of the XXII World Congress of Philosophy* 23: 99–105.
- Oksanen, M., and H. Siipi. 2014. "Introduction: Towards a Philosophy of Resurrection Science." In *The Ethics of Animal Re-Creation and Modification: Reviving, Rewilding, Restoring*, edited by M. Oksanen and H. Siipi, 1–21. Basingstoke: Palgrave Macmillan.
- Palmer, C. 2010. *Animal Ethics in Context*. New York: Columbia University Press.
- Palmer, C. 2012. "Can We—and Should We—Make Reparations to "Nature"?" In *The Environment: Philosophy, Science, and Ethics*, edited by W. P. Kabasenche, M. O'Rourke, and M. H. Slater, 201–221. Cambridge, MA; London: MIT Press.
- Parfit, D. 1987. *Reasons and Persons*. Oxford: Clarendon Press.
- Partridge, E. 1981. "Posthumous Interests and Posthumous Respect." *Ethics* 91: 243–264.
- Pitcher, G. 1984. "The Misfortunes of the Dead." *American Philosophical Quarterly* 21: 183–88.
- Preston, C. J. 2022. "Extinct and Alive: Towards A Broader Account of Loss." *Philosophia* 50: 2221–34.
- Reibold, K. 2022. "Why Indigenous Land Rights Have Not Been Superseded—A Critical Application of Waldron's Theory of Supersession." *Critical Review of International Social and Political Philosophy* 25: 480–495.
- Ridge, M. 2003. "Giving the Dead Their Due." *Ethics* 114: 38–59.
- Ruiz, S. 2020. "4 Species that Went Extinct this Century because of Forest Loss." *Global Forest Watch*, January 31, 2020 <https://www.globalforestwatch.org/blog/data-and-research/four-species-that-went-extinct-this-century-because-of-forest-loss/>
- Sandler, R. 2012. *The Ethics of Species: An Introduction*. Cambridge and New York: Cambridge University Press.
- Sandler, R. 2019. "Should We Engineer Species in Order to Save Them?" *Environmental Ethics* 41(3): 221–236.
- Sandler, R. 2022. "On the Massness of Mass Extinction." *Philosophia* 50: 2205–20.
- Schlossberg, D. 2007. *Defining Environmental Justice: Theories, Movements, and Nature*. Oxford: Oxford University Press.
- Sher, G. 2005. "Transgenerational Compensation." *Philosophy and Public Affairs* 33: 181–200.
- Society for Ecological Restoration, Science and Policy Working Group. 2002. "The SER Primer on Ecological Restoration." First Edition.
- Stemplowska, Z. 2020. "Duties to the Dead: Is Posthumous Mitigation of Injustice Possible?" In *Oxford Studies in Political Philosophy*, Vol 6, edited by D. Sobel, P. Vallentyne, and S. Wall, 32–60. Oxford: Oxford University Press.
- Strona, G., and C. Bradshaw. 2018. "Co-Extinctions Annihilate Planetary Life during Extreme Environmental Change." *Scientific Reports* 8(1): 16724.
- Tanswell, F. S. 2022. "The Concept of Extinction: Epistemology, Responsibility, and Precaution." *Ethics, Policy & Environment*: 27(2): 205–226.
- Taylor, P. 1986. *Respect for Nature: A Theory of Environmental Ethics*. Princeton: Princeton University Press.
- Thomas, Ch. 2012. "First Estimates of Extinction Risk from Climate Change." In *Saving a Million Species*, edited by L. Hannah, 11–27. Washington: Island Press.
- United Nations. 2006. "Basic Principles and Guidelines on the Right to a Remedy and Reparation for Victims of Gross Violations of International Human Rights Law and Serious Violations of International Humanitarian Law." *General Assembly Resolution 60/147* <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N05/496/42/PDF/N0549642.pdf?OpenElement>

- Wake, D. B., and V. T. Vredenburg. 2008. "Are we in the Midst of the Sixth Mass Extinction? A View from the World of Amphibians." *Proceedings of the National Academy of Sciences of the United States of America* 105: 11466–73.
- Waldron, J. 2004. "Settlement, Return, and the Supersession Thesis." *Theoretical Inquiries in Law* 5(2): 237–268.
- Waldron, J. 2022. "Supersession: A Reply." *Critical Review of International Social and Political Philosophy* 25(3): 443–458.
- Welchman, J. 2021. "Does Justice Require De-Extinction of the Heath Hen?" In *Animals in our Midst: The Challenges of Co-Existing with Animals in the Anthropocene*, edited by B. Bovenkerk and J. Keulartz, 513–532. Cham: Springer International Publishing (The International Library of Environmental, Agricultural and Food Ethics).
- Wienhues, A. 2020. *Ecological Justice and the Extinction Crisis: Giving Living Beings their Due*. Bristol: Bristol University Press.
- Wienhues, A., P. Baard, A. Donoso, and M. Oksanen. 2023. "The Ethics of Species Extinctions." *Cambridge Prisms: Extinction* 1: e23.
- Zedner, L. 1994. "Reparations and Retribution: Are they Reconcilable?" *The Modern Law Review* 57(2): 228–250.

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