Chapter 21

Should We Provide the Bear Necessities? Climate Change, Polar Bears and the Ethics of Supplemental Feeding

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Abstract This paper considers whether we have any moral responsibility to offer supplemental feeding to wild animals who have lost food access due to climate change. It takes as a particular case the situation of some individual polar bears who, over the next decade, are likely to be threatened with abrupt loss of food access due to changes in sea ice, potentially causing starvation. The paper argues that, as is implied by most positions in animal ethics, there are ethical reasons to assist individual polar bears by supplemental feeding. However, there are also good reasons to hesitate, and to consider potential harms both to bears and to other animals, as well the loss of wildness value that may be involved. From some ethical positions, the likely harms involved make euthanasia ethically preferable to supplemental feeding. But on other plausible ethical arguments, these likely harms are not decisive. We need to know more about the possible effects of supplemental feeding of polar bears. So, the paper concludes that when the first bears are threatened by abrupt loss of food access, a trial of supplementary feeding should be considered in consultation with relevant native peoples.

21.1 Introduction

Pied flycatchers arriving in the Netherlands from migration go hungry because their migration is not shifting early enough to match even more rapid shifts in spring insect peaks (Both et al. 2006). Rain falls on snow in the Arctic tundra in winter, freezing into an ice sheet and making it impossible for reindeer to break through the ice to

¹See this news story in *The Guardian*, February 24, 2019: <https://www.theguardian.com/environment/2019/feb/25/decline-in-bogong-moth-numbers-leaves-pygmy-mountain-possums-starving>. Accessed 23 March 2020.

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the browse below (Forbes et al. 2016). Massive declines in bogong moth numbers in Australia, a vital food for breeding mountain pygmy possums, seem to be leading possum litters to die from starvation in their mothers' pouches.¹ All these instances of wild animals losing food access seem to be related to climate change. They are ways in which human emissions of greenhouse gases are making life harder and causing suffering to members of at least some wild animal species.

Do we have any moral responsibility to respond to such suffering? If so, what form do these responsibilities take? Should we euthanize animals if a painful, drawn-out death seems inevitable? Or should we try to help at least some of these animals, where we can, by attempting to restore food access patterns, or by offering supplemental feeding?

Proposals to assist wild animals made hungry due to climate change, however, raise a host of ethical (not to mention practical) challenges. One inevitable effect of assistance would be to bring wild animals into new relationships with humans. This may in itself be regarded as a problem, since it could be perceived as making wildlife less "wild". And even ethical positions that, in principle, accept that there's reason to assist wild animals undergoing food access difficulties due to climate change are likely to diverge in terms of whether and how to assist—or whether to euthanize—in particular cases (see Palmer 2019).

In this paper, I will focus on one case of climate-induced food access problems: the situation of *some individual polar bears* over the next decade or two, who are likely to be threatened with abrupt loss of food access, potentially causing starvation. Should we help these bears? In particular, should we offer them supplemental feeding?

Some of the ethical issues raised by starving polar bears are unique. But this case also raises a number of more general ethical questions about supplemental feeding in the context of climate change, relating to multiple possible *harms* (to the animals receiving supplementary feeding, to other animals, and to humans) as well as *benefits*, to concerns about the loss of animals' agency, and about the loss of the wildness or naturalness of animals or places. I'll argue here, as is implied by most positions in animal ethics, that there is at least ethical *reason* to help individual polar bears by supplemental feeding, with the goal of avoiding their suffering and death from starvation and the possible extirpation of entire wild bear populations. But it's also clear that there are good reasons to hesitate, and to consider alternative actions—including euthanasia—in the case of polar bears. And alongside ethical concerns about individual animals, there are also worries about the creation of what Arctic scientists Derocher et al. (2013) call "semi-managed bear parks", which are likely to reduce the amount of wildness value placed both on bears and their Arctic environment.

Unfortunately, this situation presents a choice between only bad options. As I'll suggest, on some ethical views, euthanasia will normally look like a better choice than supplemental feeding; but on other ethical views, we need to know more than we currently do about what would actually happen if bears are fed, both in terms of short and long term harms, and wildness impacts. So, I'll end by tentatively suggesting a feeding trial, where the first bears facing this desperate situation are fed, and the results carefully assessed and monitored. But this suggestion also raises problems,

since in many cases, polar bear habitat is shared with native peoples; feeding the bears without engaging the humans that live nearby presents potential justice issues. So, as I'll conclude, any attempt to put some form of this suggestion into practice also requires the meaningful participation of local native communities at an early stage in the consideration of such a proposal.

21.2 Some Basic Premises of This Paper

This paper rests on several assumptions. First, I'll assume that climate change is anthropogenic. Second, I'll also accept that humans are not just *causally* responsible, but also *morally* responsible for climate change. I'll base this conclusion (for simplicity) on Nolt's (2011) argument: We are morally responsible for a harm when (1) We can cause or prevent the harm, (2) We can recognize it as morally significant, (3) We can anticipate it with some reliability, and (4) We can act in less harmful or more beneficial ways. Nolt maintains that while not all of these four conditions held in the past with respect to climate change, this is no longer the case, at least in industrialized countries. We know we are causing climate change; we can see that its effects, not only on humans but also on non-humans, are morally significant; we have a reasonable idea of what is likely to happen, and we can do something about it. Of course, the details of how this moral responsibility is distributed over human nations, populations and individuals over time and space, are contested, as is determining who has responsibilities to do what as a result. I do not have space to try to untangle these important but complex matters here. For now, while recognizing this as an over-simplification, I will merely claim that "we" are morally responsible for climate change and for the harms it causes.

The particular harms I'll be discussing here are those caused by climate change to *individual* polar bears. The focus here is not on the possible extinction of the polar bear *species*; indeed, it seems likely that some populations will, in fact, persist into the foreseeable future.² I'll assume what's fairly uncontentious—that polar bears are sentient—and that the wellbeing of sentient animals matters morally. More controversially, I'll interpret the wellbeing or welfare of sentient animals in terms of their *subjective experience*—what happens to them matters to them in terms of how it feels; in particular, they have an interest in not suffering. I include as an aspect of subjective wellbeing the expression of *agency*, in the sense of animals being able to direct their own bodies and activities, pursuing goals and making choices about what they do, and having motivational states (such as wanting things) (see Steward 2009).

There are, I should note, other interpretations of animal welfare. On a *perfectionist* view, things can matter for animals' welfare even if they are not experienced by the animal itself—in particular, the performance of natural behaviors, such as hunting. On this view, if bears could not perform natural behaviors, this would matter for their welfare, even if the bears themselves experienced no negative feelings as a

²See Palmer (2009) for a discussion about whether the polar bear *species* can be harmed.

consequence. It might be argued, for instance, that they have lost something central to their identity (Hettinger, *pers. comm.*) However, this is not the interpretation of welfare I am adopting here. While it may be reasonable to argue that there's a loss of wildness value *to us*, in some sense, if bears can no longer perform natural behaviors owing to human-derived constraints, if this loss is not experienced negatively by the bears themselves, it does not (on my account) mean that their welfare has been impacted.

Climate change also raises what's known as the *non-identity problem* in the context of wild animals. The non-identity problem draws attention to the possibility that climate impacts could play such a significant role in wild animals' lives that any particular genetic individual would not have existed, but for the influence of a changing climate. For instance, suppose a male polar bear only tracked and mated with a particular female bear because melting ice forced him into an area he would not otherwise have visited. The particular bear cub that resulted would, in part at least, owe his or her existence to the melting ice brought about by a changing climate. The *problem* then would be in saying later on, if that cub was starving due to climate change, that he or she had been "harmed" or "unjustly treated". After all, had climate change not existed, this particular cub would not have existed either; the mother would have had some other cub with a different father, or no cub at all.

While this is an interesting and important problem, and it will pose challenges for thinking about climate justice both for future people and animals, I won't consider it in any detail here. Polar bears are relatively long lived (they can live for up to 20 years in the wild); their solitary nature and dispersed populations mean that who mates with who is much less chancy than among some other wild animal populations; and the changes I'm considering are abrupt. Purves and Hale (2016), in contrast, maintain that a polar bear doesn't live long enough "to perceive the effects of climatic change that are the consequence of actions performed during its lifetime". In terms of this paper, though, (a) most individual bears currently in existence and coming into existence would exist or have existed as particular genetic individuals without climate change, i.e. climate change has not yet been identity-affecting; and (b) the relevant changes in Arctic ice are likely to happen very swiftly, so that the individual bears will be made *abruptly* worse off by climate change—the likelihood is one of sudden emergency, rather than gradually unfavorable changes (though those are happening too). So, for now, I'll set the non-identity problem to one side.³

Finally: one likely objection to the premise of this paper is that responsive strategies such as supplemental feeding fail to target what's really important: that we reduce greenhouse gas emissions, thereby reducing the amount that the planet will warm, and so (among other things!) lessening impacts on wild animals. Of course, this *is* the ideal strategy. However, while a slowing of emissions increases may be within reach, significant overall global drops in emissions are not likely any time soon. And, even if such drops occurred, there would still be a time lag before any benefit was felt in terms of the preservation of sea ice. As Gardiner (2013) notes, the

³It's also the case that much of what's said here, relating to reducing animal suffering from climate change, would work cast in impersonal terms, not just individual-affecting terms.

effects of climate change are backloaded. It is possible that some form of geoengineering might change the situation, but this is not near at hand either. We are locked into a warming climate for the near future. And that's enough to make it very likely that the polar bear suffering I'll be considering here will be triggered. Decisions about assisting individual polar bears are likely to face us within the next decade or so, whatever happens to global greenhouse gas emissions in the near term.

21.3 The Situation of Polar Bears

There are around 26,000 polar bears in total across the Arctic, with sub-populations (scientists have designated 19 of these) across Norway, Alaska, Greenland, Russia and Canada. The bears live and hunt mostly on sea ice. It's because of this dependence on Arctic sea ice that they are threatened by climate change across their circumpolar range, but especially in the Canadian Arctic Archipelago (IUCN Red List [2015](#)). One of the most striking effects of climate change so far has been the unprecedented melting of sea ice, and this has already had effects on some (although not all) polar bear populations.

Polar bears use sea ice as their base from which to hunt ringed and to a lesser extent bearded seals, their main prey and food source (Stirling et al. [1993](#)). If there's no ice, bears find it very difficult to hunt. In the summer months, when sea ice has always melted out to some degree, some bears come onto land, while others move out onto the pack ice further from the shore; some bears currently swim between shore and pack ice (Pongracz and Derocher [2017](#)). While bears are on land, if there's no sea ice, there's no access to seals. So bears mostly fast, living on their own stored fat, and what they can scavenge in terms of birds' eggs, whale carcasses left from native human communities' hunting, and other food from human communities (potentially leading to bear-human conflicts).

The looming problem for bears, however, is that sea ice is melting out earlier and re-forming later. Those bears that are on the land are already forced to live off body fat for longer periods. As the pack ice is further from the shore, it will become increasingly difficult, dangerous and exhausting to swim to and from it, and bears will effectively have to stay on land and fast until the sea ice forms again. Difficulty in finding sufficient nutrition over the lengthening summer has already resulted in a significant worsening in the body condition of bears in some populations (Stirling and Derocher [2012](#)). But as the Arctic warms disproportionately to the rest of the Earth, in a year that is likely approaching, sea ice is likely to melt out too soon and re-form too late for some bears to survive the fasting period involved. Polar bear scientists Derocher et al. ([2013](#)), in a controversial paper I'll draw on in several places, conclude: "Malnutrition at previously unobserved scales may result in catastrophic population declines and numerous management challenges" (Derocher et al. [2013](#), 370). So, what—if anything—can and should be done to meet such "management challenges"?

21.4 Possible Responses to Abrupt Polar Bear Starvation

Derocher et al. (2013, 368) propose several possible “proactive conservation and management options” for polar bears in the event of “sudden negative population-level effects”. It’s worth noting that these scientists’ concern is not primarily for the welfare of *individual* polar bears (though occasionally this worry is suggested in their paper), but for the persistence of polar bear populations and the avoidance of human/bear conflicts that may threaten either human safety or species conservation goals. However, while the scientists’ emphasis may be on species conservation, in this case, the strategies to protect species also appear to be the only plausible ones available to assist individual bears as well. Since I have no special expertise in polar bear management, I’ll confine this discussion to the suggestions outlined in the Derocher et al.’s (2013) paper:

- (a) **Cessation of existing bear harvests** to help promote population persistence.
- (b) **Diversiory feeding:** feeding bears to move them away from human communities. Risks to bears include disease and parasites from foodstuffs, and these risks are particularly problematic if wild food from other ecosystems is used.
- (c) **Supplemental feeding:** providing bears with “sufficient short-term energy to help individuals survive periods of food deprivation” (Derocher et al. 2013, 372). This also poses risks of disease, and may just postpone bear extirpation, as well as being costly and logistically difficult. But the authors consider there will be cases where this is one of the most plausible strategies available: “we believe supplemental feeding will be a conservation option for some populations” (Derocher et al. 2013, 372).
- (d) **Translocating animals** either into temporary or long-term captivity in local facilities or distant zoos, or into alternative wild habitats. Any kind of captivity would probably need to become permanent, the authors note, given the nature of the threat, while translocation into new habitat, according to the authors, is very risky to the bears, not least because bears show “strong geographical fidelity”. The authors “do not advocate this as a viable conservation alternative” (Derocher et al. 2013, 373).
- (e) **Intentionally euthanizing starving bears:** This “may be the most humane option for individual bears that are in very poor condition and unlikely to survive” – and, they argue, guidelines need to be developed to clearly identify such bears (Derocher et al. 2013, 373).
- (f) **Do nothing:** The authors reject this as a *conservation* option, but it’s clearly what they fear as the most likely scenario, unless the alternative options are widely discussed in advance of an abrupt starvation event occurring.

Looking at these five options: (a), reducing or ending bear harvest is not a way of responding to individual starving bears, so is not directly relevant here. Derocher et al. (2013) are largely negative about (d), captivity/relocation, as being risky, short term, difficult to scale up and unlikely to be successful, so I will not discuss relocation options here (although this does not mean that translocation/captivity could not be an

effective strategy in *other* species where food access has been negatively impacted). This leaves (b), (c), (e) and (f). I'll focus on these here. There's no obvious reason not to merge (b) and (c) and consider supplemental feeding that's *also* diversionary; I will consider option (e) euthanizing bears (probably by shooting them) as a potentially "humane" alternative; and assume that (f) is the default situation. So, in a situation of abrupt starvation, should we offer supplemental, diversionary food to the bears?

21.5 Ethical Reasons for Supplemental Feeding of Starving Bears

From a number of different ethical positions, we have reason to feed bears starving due to climate change. Some of these positions are rights- or justice-based; others are based on beneficence; and yet others are based on environmental values.

Justice-based arguments, of the kind I have previously defended (Palmer 2010, 145) take something like this form: Polar bears are sentient animals, and their lives and wellbeing matter morally. Climate change—for which humans are morally responsible, following Nolt's argument above—threatens polar bears with severe suffering and death. What's more, polar bears have gained no benefits from the production of the fossil fuels that have led to climate change (indeed some individuals may have been additionally harmed by oil and gas extraction or transportation). So, the severe impacts of climate change on bears look like a distributive injustice, in terms of the infliction of morally significant harms on sentient beings that have nothing to gain from the process that produced the harms.

One particular version of this argument is based on animals' *rights*. So, it's frequently argued that climate change violates *human* rights. Caney (2010), for instance, maintains that climate change violates basic (negative) human rights not to be deprived of life, of food and water, or of health. If sentient animals have similar basic negative rights, then climate change can violate animals' rights too (an argument specifically made by Pepper [2018]). The polar bear case, after all, is exactly a case about deprivation of access to something very basic—food: a deprivation that leads to a decline in bear health and ultimately to death; exactly the concerns of negative rights theories.

One need not defend a rights argument, however, to see this as an injustice or, at least, a wrongful harm, as I have argued elsewhere (Palmer 2010). Either way, this injustice or rights violation cannot be halted any time soon, given the nature of climate change. So, the next best option is to try to mitigate the effects of the injustice or rights violation by offering rectificatory assistance to the animals worst affected. Although rectificatory justice has not, as yet, been widely discussed by animal ethicists, especially in the context of climate change, such discussions as there are have indeed argued that negative impacts of climate change may warrant rectificatory responses. I have argued, for instance, (Palmer 2010) that where sentient animals suffer from climate change, special obligations of assistance are created.

Milburn (2016) maintains that on Nozick's entitlement theory of justice, since climate change arises as a result of human appropriation, it violates animals' rights, creating a state of injustice that can only be remedied if every individual animal negatively affected by climate change were compensated in ways that leave them no worse off. Pepper (2018) argues that, in the context of climate change, moral agents have a "general duty to facilitate adaptation" where climate change threatens wild animals' basic rights. On all these arguments, we have reasons or duties to assist polar bears in this situation.

In a slightly different justice argument, Donaldson and Kymlicka (2011, 2017) propose that sentient wild animals should be recognized as members of self-organizing, sovereign wild animal communities. The purpose of designating these communities "sovereign" is to protect them from human incursion—for instance, by human colonization, displacement, and "spillover harms" such as environmental pollution. (Donaldson and Kymlicka 2011, 157) Climate change is, on this view, also an injustice; it's a human incursion into sovereign communities that undermines "the ecological fabric they [wild animals] depend on" (Kymlicka 2014). Applying this to the bears' case would suggest that in causing bears to starve, anthropogenic climate change both violates the rights of individual bears, and the boundaries of the sovereign wild community.

For Donaldson and Kymlicka, though, this does not *necessarily* mean that if we can't realistically stop an unjust incursion (as in this case) we should assist the wild animals concerned as a matter of rectificatory justice. These wild communities are, after all, supposed to be sovereign. Attempts to assist should not undermine the sovereignty of the wild community. So, for Donaldson and Kymlicka, in the bears' case, while we clearly have reason to assist, whether we should actually do so depends on the kind of intervention, and how sustained and continuous it would be.

A second group of views in animal ethics focus on duties of beneficence rather than justice. They maintain that what matters is just relieving and reducing wild animal suffering, whether the origin of the suffering is human or not. As Horta (2015) puts it, the moral relevance of animal suffering "gives us reason to conclude that we should intervene in those cases where it is feasible, in order to reduce the disvalue suffered by nonhuman animals", although only in "cases in which we can reduce it [suffering] as a whole, not in some isolated way that reduces disvalue for some in ways that trigger processes that result in more suffering elsewhere". This seems to have a fairly simple application to the bears case: Since bears are clearly suffering, and since feeding them would, at first glance anyway, seem likely to alleviate their suffering, we clearly have reason to feed them. The question, though, is whether doing so would "trigger processes that result in more suffering elsewhere." I'll return to this question below.

Lastly, there are ethical views that emphasize the value of wildness or naturalness. One particularly sophisticated version of this view has been proposed by Hettinger (2018), who develops a principle of 'Respect for an Independent Nature' (RIN). However, even if the primary principle here is RIN, animal suffering still matters. Indeed, Hettinger says: "wild-animal suffering too is intrinsically bad. And its badness does give us a moral reason to consider alleviating or preventing it." So,

this also sounds like a beneficence-based reason for alleviating or preventing wild animal suffering. Certainly, relieving wild animal suffering could be in tension with the principle of respect for an independent Nature; in the case of the polar bears, we might expect supplemental feeding to be ethically problematic on the grounds that it compromises naturalness. Hettinger's position, however, is more nuanced. While "preserving naturalness value typically outweighs the importance of alleviating animal suffering," he notes that some interventions can relieve suffering while causing little loss in naturalness value, and also that "some intentional human influence on nature can lessen human impact overall, as when we remove the first few members of a human-introduced invasive species before it has time to spread" (2018, 69). So, on this view, we do at least have reason, based both on beneficent responses to the intrinsic badness of animal suffering, and the potential loss of wild populations in natural places, to offer supplemental feeding to starving bears. The ethical concern here is the degree to which doing so would cause loss of naturalness value overall.

From almost all positions in both animal and environmental ethics, then, there's at least *reason* to assist the bears by offering supplemental feeding, whether on the basis that their starvation would be an injustice (as I have argued elsewhere) or a rights violation, or because we generally have duties of beneficence to relieve suffering where we find it. Almost anyone who thinks that sentient animals are morally considerable, and that their suffering matters, will agree. However, this isn't to say that *all things considered* feeding polar bears is the right thing to do. Assistance may cause further suffering to bears or to other animals. It may undermine the autonomy of wild animal sovereign communities. Or it may reduce overall naturalness or wildness, and thereby fail to respect independent nature. So, what do we need to know to reach an all things considered view?

21.6 Ethical Reservations About Feeding Bears

First, we should consider what supplemental feeding would require in a sudden starvation event where, for at least one bear population, sea ice forms so late that bears won't make it through the summer. It's likely that, initially, this event will be short, it won't happen every year, and only some populations of bears will need feeding for a week or two. In this case, food could be air-dropped to the bears on a one-off basis. However, given continuing sea ice loss, after a few years, supplemental feeding is likely to involve more populations, every year, for longer periods, possibly amounting eventually to many or all bears in some populations requiring feeding for several months each year.

Clearly, feeding polar bears in this way would reduce or remove their suffering from hunger. And we've already seen that there are ethical reasons to prevent serious bear suffering from hunger due to sea ice loss. However, significant ethical reservations about assistance also exist. Here I'll look at two major ethical worries: Would feeding bears cause more suffering, or additional harm/injustices to bears or to other sentient animals? And: Does loss of the sovereignty of wild animal communities,

or the loss of wildness/naturalness, involved in creating what Derocher et al. (2013) call “semi-managed bear parks” outweigh ethical reasons for assistance?

21.6.1 Would Feeding Bears Harm the Bears Themselves?

Studies of human intentional supplemental feeding across a range of wild species show mixed benefits to wild animals’ welfare; the balance of benefits and risks depends on the nature and purpose of the supplemental feeding, and how consistent and well controlled it is. Dubois and Fraser (2013), in a wide-ranging review of publications on supplemental feeding, argue that supplemental feeding can be hazardous to the animals being fed, as well as leading to potential harms to other animals and to people. They argue that some managed conservation projects such as, for instance, a project that restored the Mauritius Kestrel, use supplemental feeding to good effect, in terms of both conservation and animal welfare. But many other instances of supplemental feeding, in particular where opportunistic and uncontrolled, and especially where associated with tourism, can have wide-ranging negative effects on the welfare of members of the assisted populations. Dubois and Fraser ultimately recommend that supplementary feeding should only be undertaken in cases where the feeding could be carefully controlled, is intended to benefit populations, and may improve animal welfare (Dubois and Fraser 2013, 984).

This description, though, matches pretty closely what we would expect supplemental feeding of polar bears to look like. It would need to be controlled; it would support the continuation of bear populations that may otherwise be extirpated; and the primary goal, as discussed here at least, would be to improve the welfare of individual bears. But still, there are risks to the bears from being fed. One obvious risk is of conflict with human beings, if feeding brought bears into humans’ orbit, increasing threats to people. However, I’ve already suggested that feeding would need to be diversionary as well as supplemental—i.e., it would need to be located away from human communities to avoid generating human/bear conflict (DeRocher et al. [2013] suggest it should be placed by helicopter). In some Arctic communities, diversionary feeding of bears is already occasionally used,⁴ and ways of preventing conflict between bears, and between bears and other species, have been devised; so this risk may be manageable. Another risk is that disease could spread between bears at feeding stations; and while this risk can be minimized, it can’t altogether be eliminated (a feline leukemia outbreak in endangered Iberian lynx was connected back to feeding stations: Palomares et al. 2011). Another worry may be that while feeding bears has the effect, in the short term, of reducing their suffering and keeping them alive, in the long term it may change bears’ behavior in ways that reduce their welfare by limiting agency or increasing suffering, if the fed bears were no longer able, or willing, to hunt for themselves. I’ll discuss this worry in more detail later. But it’s

⁴See <https://polarbearsinternational.org/research/research-qa/why-are-managers-not-feeding-polar-bears-in-the-wild/>. Accessed 23 March 2020.

still worth noting that unlike most of the cases of supplementary feeding considered by Dubois and Fraser, without supplemental feeding, *these* bears will starve and die. The bears' suffering is acute, and their need is urgent, even though with feeding their futures are also uncertain.

21.6.2 *Would Feeding Bears Harm Other Sentient Animals?*

Polar bears are predators, "the most carnivorous of all bears" (IUCN 2015). They are adapted to eat extremely high levels of fat—much more so than most other carnivores—and they eat very little plant matter. Their primary food source is ringed and bearded seals; they will scavenge on whale carcasses, and sometimes eat fish, walrus or birds' eggs (in fact in Norway a new problem created by hungry bears unable to catch seals is that they are eating goose eggs, and so depleting goose populations by up to 90% [Hoffman 2017]).

This raises two kinds of concern about harm to members of sentient species *other* than polar bears. One direct concern is: Given their highly carnivorous natures, what should they be fed on? And another, more indirect, concern is: If we save the lives of bears, and they go back to preying on seals, aren't we allowing (or even responsible for causing) harm to seals?

Both these concerns are difficult to address, given that the motivation for the feeding here is to help sentient animals, either because reducing suffering is in itself a goal, or because humans are morally responsible for causing polar bear suffering. But if the worry is just about suffering, it isn't species specific; the suffering of members of other species also must be important, if we are to be consistent.

Let's begin, then, with the food itself. It needs to be nutritionally adequate, especially if used for longer periods. It must include very high quantities of fat; no nutritionally adequate alternative to animal products currently exists, or is likely to exist on the timescale required, i.e. in the next ten years. So, realistically, feeding bears now means feeding them with other animals (as zoo polar bears are currently fed). The two most plausible alternatives are feeding them with seals that are killed and air-dropped, or using polar bear chow developed for zoo polar bears (although chow is currently only recommended as 50% of a bear's diet in a zoo—it is normally supplemented by raw meat and fish [Lintzenich et al. 2006]).

So: first, should bears be fed with seals? This would require the killing of ringed seals, thus harming them or violating their rights, depending on the philosophical perspective taken; although it probably could be done without causing much suffering to the seals actually killed (though there may be stressful effects on the seals that remain). On some moral views, including most rights views, killing wild seals to feed bears would be absolutely unacceptable in principle. In addition, doing so could be interpreted as attempting to compensate for an ongoing injustice to one group of animals by harming a second group of animals to benefit that first group. However, Abbate (2016) tentatively proposes, in the context of a rights view (she draws on Regan [1984], but other rights views might work here too), that where animals are

victims of injustice—as the polar bears are in this case—it may be justified to harm other animals in order to fulfil our duty to the victims of injustice. But even if this argument works in some cases, it seems problematic in the case of feeding polar bears ringed seals.

Recent research suggests that populations of ringed seals are also threatened by climate change. They give birth in lairs protected by snow roofs, so that bears can't easily see them. However, as snow and ice melt out earlier due to climate change, the snow roofs on ringed seal lairs are collapsing, exposing pups to bear attacks. Although bears kill these exposed seal pups, the pups are still too small to have nutritional value to the bears, and sometimes bears don't even eat them (Stirling 2017). Climate change, then, is making ringed seal pups more vulnerable to attack, and preventing many female seals from successfully raising pups. So, it seems reasonable to say that ringed seals are also being harmed by anthropogenic climate change, or that they too, like bears, are in a state of injustice. And it certainly seems problematic to try to compensate one set of victims of injustice by killing another set of victims of injustice (Derocher et al. [2013] may in fact be gesturing at this by commenting—somewhat elliptically—that “There are also ethical questions around killing one marine mammal species to supplement the diet of another”). Abbate (2016) argues that, from Regan's rights view at least, if it's absolutely necessary to feed an obligate carnivore who is a victim of injustice with meat from another animal, it's better to kill wild animals than to use the products of animal agriculture. Although wild animals are harmed by being killed, she claims, they can still be treated with respect; their entire lives are not instrumentalized, as the lives of agricultural animals are. However, she also maintains that animals who are victims of injustice—like the ringed seals in this case—should not be killed to feed other victims of injustice. So, there seem to be serious ethical obstacles to using ringed seals to feed bears. While harp seals would be an alternative, and would meet Abbate's criteria, since they don't yet seem to be negatively affected by climate change, they would need to be brought in from different ecosystems. Derocher et al. (2013) rule out this possibility on the grounds that there's a high risk of importing disease and parasites to the bears by feeding them harp seals from other ecosystems.

The alternative option here is polar bear chow. Current commercial chow, formulated especially for polar bears, includes fish meal and a high proportion of extruded pork fat and bone meal. The fish meal is made from menhaden, wild fish high in fat, normally used for fish oil and fishing bait. On Abbate's terms, as wild fish, the menhaden don't have instrumentalized lives, and they aren't obviously already victims of injustice like ringed seals. So, using menhaden would at least be somewhat ethically preferable to using seals (perhaps, also, on some views, menhaden may be regarded as having fewer complex psychological interests than polar bears, and so being of less moral significance; but then, on the other hand, more of them would need to be used). The pork fat and bone meal in the chow is almost certainly derived from parts of pigs that humans don't eat, rendered into animal by-product, and would otherwise be used for fertilizer or feeding other animals in pet food. So, pigs would not be directly killed to feed bears, although of course the production of bone meal and meat byproduct is part of the meat industry. So, while the production

of bear chow may be somewhat ethically preferable to killing seals, obviously it still involves harm to other animals.

Let's move on to the second worry: Suppose we feed the bears for a period of time, achieve the goal of keeping them alive, and then they go back out hunting again—and killing ringed seals. Should we be worried about the predation of bears that have been kept alive by us? The answer here depends on the ethical approach taken. For those theorists primarily concerned with wild animal suffering in general, the bears' continued predation hooks into a more general deep unease with predation (see for instance, McMahan 2014). Cowen (2003), one such theorist, even maintains that “we should count negative impacts on carnivores as positive features of ... human policy” and rejects subsidizing “the propagation of carnivorous wild animals”. From positions like Cowen's, then, helping predators is in principle unacceptable, since predators will inevitably go on and cause suffering. The best option here, then, of the options above is (e). We should euthanize the bears and end their suffering, and at the same time, prevent them from causing suffering to seals by future predation.

However, we should not be too hasty here, since we can't be sure that euthanizing polar bears would actually reduce seal suffering; the effects of removing members of one predatory species are unpredictable. Seals may suffer from other causes, or become too abundant for available resources; and in any case, seals are *themselves* predators causing suffering. Trying to estimate the broad-range effects of euthanizing polar bears rather than feeding them to reduce overall suffering thus runs into huge epistemological difficulties, as Delon and Purves (2018) point out. So, it may be that in this case, from the suffering-reduction view, it's just best to look at the immediate suffering with which one is faced—the starving bears—and deal with that particular problem, rather than trying to work out what the down-the-line impacts on wild animal suffering overall would be.

For justice theorists, a somewhat different conundrum is presented. Rectificatory justice to polar bears may, after all, look like an injustice, or a responsibility for harm, to the ringed seals that later become the surviving bears' prey. After all, if humans had not helped these bears, these seals would not *be* bear prey. This raises difficult questions for justice-based approaches (questions that are also, of course, found in human justice cases, for instance where reparations to one group that has suffered an injustice leaves others, who have not themselves caused harms, much worse off). How far one should be concerned about this is contested in the human case—for instance, there are significant disputes about how far indirect effects of rectificatory interventions should be counted as part of the intervention itself. In addition, in this case, it might be argued that the bears' continued predation, in effect, just restores the status quo for the seals. After all, supplemental feeding means that the same number of bears are out on the ice preying on seals as would have been there had the anthropogenic climate threat of sudden starvation not arisen. It's not as though we have been breeding *additional* polar bears with a view to having them attack ringed seals for some purposes of our own! Nonetheless, from some justice perspectives, feeding bears is unjust to the particular seals that are preyed upon by human-saved bears, and this may be a decisive ethical factor in decision-making.

So, some of those deeply concerned about justice or suffering reduction for sentient animals, may consider that there are very strong reasons not to offer supplemental feeding. The cost to other sentient animals of feeding bears is too high, either in terms of increasing overall animal suffering (despite reducing it for polar bears) or causing new injustices to other animals, even while rectifying injustice to polar bears. The consequence is, though, that some polar bears, in a reasonably near year, will very likely starve to death. All those who take this kind of ethical view would recommend shooting bears (or euthanizing them in some other way, if that's more painless) as preferable to letting them starve. Shooting them ends their suffering, and would then be the best we can do for them in terms of rectificatory justice.

From some ethical positions, this conclusion seems definitive. However, I want to continue to explore the possibilities here a bit further. There do *also* seem to be reasonable ethical positions focused on individual sentient animals that could still defend feeding bears as the best of a set of bad options. For instance, someone taking a rectificatory justice view could argue that feeding bears polar bear chow *can* be justified, despite harms to other animals, because we are dealing here with a non-ideal situation where there are only “imperfect solutions to horrific problems” (Emmerman 2014). With respect to what is actually fed to polar bears, intensive animal agriculture and fishing for wild menhaden is also not going away any time soon, and the vast majority of people will not be vegetarian or vegan. Nor will their dogs and cats. In this context, why pick out polar bears—obligate carnivores, unlike people and dogs, at least—whom we have already unjustly deprived of the ability to feed themselves, and insist that they should starve or be shot since they can't at present eat vegan? This potentially adds a further layer of injustice to the ones from which the bears are already suffering by, as it were, picking them out for conditions that aren't generally insisted upon for our companion animals. Add this to the view that feeding bears chow to enable their survival just returns to the status quo in terms of subsequent seal predation, and such a justice position is not firmly decided against supplemental feeding. Similarly, on a beneficence view, if bears were fed on fatty animal by-products, so not causing additional suffering to intensively farmed animals, *and* it was accepted that the outcomes for overall suffering that would result from feeding bears were incalculable, then there would at least be a possible ethical case for supporting feeding bears on polar bear chow for the times in the near future when sea ice has not yet formed.

21.7 The Problem of “Semi-Managed Bear Parks”

So far, I've only considered supplemental feeding of bears with respect to justice, harms and suffering to individual animals. I've suggested that from some ethical positions, concerns about these factors would support euthanasia over supplemental feeding, but that from other perspectives, the door is not entirely closed to supplemental feeding. But these were only some of the values with which I began the paper: I also mentioned naturalness/wildness values, bear agency, and what Donaldson and

Kymlicka (2011) call “sovereign wild animal communities”. And with respect to these values, we’re not yet out of the woods. One of the issues Derocher et al. (2013) raise is that a supplementary feeding program might result in commitment to a “semi-managed bear park model if habitat conditions continue to decline.” Wouldn’t the existence of such “bear parks” challenge naturalness values, the agency of bears, and the “sovereignty” of wild animal communities?

21.7.1 *The Worry About Naturalness Value*

Let’s start with wildness or naturalness value, taking Hettinger’s (2018) idea of “Respect for Independent Nature” as paradigmatic of this view. To recap, naturalness, Hettinger says, “involves an overall judgment of the degree of independence of an entity from humans, that is, of the extent to which a being is autonomous vis-à-vis humanity.” Clearly, anthropogenic climate change has reduced naturalness in this sense. But it has not entirely eliminated it, so that “anything goes”. We can still treat animals in ways that are problematically more “unnatural” than others. So, Hettinger (2018, 78) comments: “For example, that anthropogenic climate change has dramatically increased the rate of interbreeding between Grizzly Bears and Polar Bears does not mean there is no naturalness left to protect in our treatment of them or their ecosystems. This impact would not undermine the unnaturalness of relocating Polar Bears from the Arctic to Antarctica, even ignoring the negative consequences this would have on penguins and other southern species.”

So, how would feeding the bears relate to this idea of naturalness value? First, it’s important to note that Hettinger’s concern is about what’s likely to protect naturalness best *overall*. So, a temporary intervention that would wash out, with the purpose of protecting long-term naturalness, would overall be a good thing. However, feeding the polar bears is unlikely to be temporary—that’s why there’s a concern about semi-managed bear parks. Some bears may become dependent on people, potentially in the long term, for significant parts of the year. This does look like a major loss of naturalness value, and suggests that if naturalness value is a priority, we should not feed polar bears—independent of any concerns about what they are actually fed on.

However, Hettinger (2018) does mention one case that leaves the door ajar to justifying feeding starving polar bears on the basis of naturalness value. When discussing an (imagined) case of genetically modifying members of an animal species, the American pika, in order to prevent extinction from climate change impacts, Hettinger (2018, 69) notes that if the pika were not modified “it is arguable that it [the extinction] would give us a much greater impact on nature than we would have with our rescue attempt.” So, the impact of anthropogenic species loss on naturalness value *could* be greater than the impact of a human intervention to save the species, even a long-lasting intervention like genetic modification.

Paralleling this case, then, we could see feeding polar bears as one way of keeping bears on the landscape. An Arctic landscape that retains polar bears may be regarded as more natural than an Arctic landscape that lacks them, even if human intervention

is required to keep them there. (This may depend on whether landscape naturalness is understood more in terms of *composition*, that is what kinds of things are present, than *history*, that is how things got to be or to remain on a landscape.)

However, the bear case is potentially more naturalness-undermining than the pika one. First, the pika intervention aimed to avoid extinction; but here we are talking about feeding some individual bears for the *bears'* sake, not because they are the last bears (although certainly particular bear populations in particular places could be lost, and this would be a big human impact on *those* landscapes). And second, the idea of modifying the pika was to allow them to go on living their normal pika lives, not to live in semi-managed pika parks. I'm not sure what semi-managed bear parks would look like, but if they involved human structures (beyond feeding stations), human populations, tourists etc. then they are likely to undermine naturalness values more significantly. In this sense, while a short-term intervention for a couple of weeks, preventing bears from starving and helping them back out onto the ice, is likely to *enhance* naturalness value overall, if feeding becomes long term and institutionalized, and bears can no longer hunt from sea ice much at all, feeding bears is likely to *diminish* overall naturalness value.

21.7.2 The Worry About Bear Agency and Longer Term Vulnerability

Earlier in the paper, I defined agency in the context of sentient animals as about the subjective experiences involved in being able to direct their own bodies and activities, to pursue goals and make choices about what they do, and to have motivational states (such as wanting things). One worry about "semi-managed bear parks" is that feeding bears over time may constrain their agency, creating negative experiences, and in doing so also making them more vulnerable to other threats later on.

First, it's worth noting: Climate change itself creates a major restriction on bears' agency in this sense. Bears can no longer use sea ice to hunt seals for significant portions of the year; and sea ice is the main arena of bears' activity—where they make choices about when and where to hunt and so on. Bears' inability to pursue these characteristic behaviors in their own individual ways presumably causes them stress and distress.

Unlike climate change, supplemental feeding does not *intrinsically* restrict bears' agency. Indeed, in one sense it offers them an opportunity to satisfy their hunger that they won't refuse, so long as the food is palatable; they will choose to eat it. But there is a deeper worry about agency here: that supplementary food will eventually make bears dependent on human beings for provision, and will harm them by depriving them of the ability to make *future* choices. This is unlikely to happen initially, if bears are just fed for a week or two, and then, when ice forms, feeding is withdrawn, forcing the bears back to the shore and to hunting seals. However, if, as warming continues, feeding is extended to a month or several months, dependence is more

likely to follow, possibly becoming year-round (although at the moment we just don't know what effects more extended feeding of wild bears would have on their behavior).

As Donaldson and Kymlicka (2011) rightly argue, being dependent is not intrinsically a bad state. However, in the context of wild polar bears, dependency raises questions both in terms of agency and further future vulnerability. In particular, it makes bears more vulnerable to human policy changes—for instance, if those sponsoring the feeding decide that feeding bears costs too much, or that preserving naturalness value in Arctic landscapes is more important than feeding bears in semi-managed bear parks. And so, feeding now might in principle lead to less expression of bear agency and more bear suffering in future.

I say “in principle” though, because we mustn't forget the context here. If there's no supplementary feeding, these particular hungry bears have no choices at all, either now, or in the future, because they'll starve. As Horta (2015, 118) notes, “remaining alive is a condition to enjoy autonomy”. Seen from that perspective, feeding may be better in that, at least, bears retain their lives, and some ability to express agency (after all, not every choice that a bear makes is about what it's going to eat)! So, even though climate change and supplemental feeding likely do mean reduced bear agency, as their lives are more constrained than they would otherwise be, from the perspective of these particular bears, given the intensifying pervasiveness of climate change, we can reasonably imagine that supplemental feeding is what they would choose, were they able to understand the nature of the choices involved.

21.7.3 *The Worry About Sovereign Communities*

Alongside concerns about individual animals' agency, Donaldson and Kymlicka's political account of our relation to wild animals also includes a concern about wild animal *communities*. Wild animals “should be recognized as having the right to live autonomously on their own territories, and hence as exercising their own sovereignty” (Donaldson and Kymlicka 2017). Human interventions to relieve suffering are permissible if they are small scale or temporary, thus maintaining the ongoing sovereignty of the community. However, this is unlikely to remain the situation here. Feeding the bears might become permanent and ongoing—exactly the kind of intervention Donaldson and Kymlicka reject: “a kind of permanent paternalistic management in which we take over responsibility for feeding and sheltering them” where “we are basically turning wilderness into a zoo” (Kymlicka 2014).

However, Donaldson and Kymlicka's objections to sustained interventions focus on fundamentally “competent” wild animal communities, where members of the community can normally meet their own needs. But climate change in the Arctic is changing all this. Its pervasive effect on particular places is essentially rendering the existing wild animal community in those places “incompetent”. Ideally, of course, on Donaldson and Kymlicka's theory, recognition of this injustice to wild animal sovereign communities should force humans sharply to reduce emissions, and prevent

or at least reduce the unjust incursion at its origin. But in the non-ideal political circumstances that currently prevail, this isn't going to happen, and even if it did, as noted, there's enough warming already built into the earth's systems for some bears to starve in the next few years. So the question of intervention doesn't go away.

The key question here seems to be: Is there any point, when a sovereign wild animal community is so anthropogenically compromised that members of the community are starving, in continuing to protect the community's "sovereignty" by rejecting sustained intervention? If the primary purpose of sovereignty rights is, ultimately, to best protect wild animals, then *not* intervening here on the grounds of sovereignty would seem to undermine exactly what that sovereignty was established to protect. A 'semi-managed bear park' would clearly be far from ideal, and it's obviously far removed from the kind of independent sovereignty Donaldson and Kymlicka imagine would be best for wild animals. But it can be seen as reducing bear suffering, making a move towards reparation for injustice, and keeping bears alive in the face of a very specific, severe anthropogenic threat. It might be the best among bad options, even on their terms.

21.8 A Tentative Proposal: A Trial of Feeding Bears Without Injustice to People

In a nearby year, if we do nothing, some polar bears in some wild populations will starve to death because of anthropogenic climate change. We could just let them starve, but from most of the ethical perspectives discussed here, there is at least ethical reason to consider intervention. One intervention that can clearly be ethically justified is to relieve the suffering of bears that are going to starve by shooting them. The alternative is to feed them. As we've seen, while there are ethical reasons in favor of feeding them, there are also significant ethical concerns that count against doing so (which may be viewed as more or less important from different ethical positions):

- Risking harms to humans if bear feeding is not sufficiently diversionary
- Risking harms to bears through diseases/conflicts at feeding stations
- Keeping bears alive, meaning that they cause suffering to, and kill, seals
- Making bears' food from sentient animals we have killed, whether these are wild or part of industrial production
- Satisfying bears' immediate choices (to eat!), but risking restricting future options available to them, so also reducing bears' agency and increasing future vulnerability
- Loss of naturalness value through the establishment of semi-managed bear parks
- Further significant erosion of the sovereignty of Arctic wild animal communities

Two of these problems are inevitable, if bears are fed. First, bears will be fed on other animals. And second, if feeding is successful, bears will go back out and hunt

seals. On some of the ethical views outlined above, that just rules feeding bears out. We should instead kill them as painlessly as possible.

But as I've also argued, there are views on which those two ethical concerns are not complete blockers. From these other perspectives, we need to know more about what would happen if bears are fed. Will semi-permanent bear parks be created in the long-term? Will there be disease at feeding stations? Will bears become habituated and consequently more vulnerable? There are still many things we don't know about this situation. Perhaps feeding won't have a significant effect on bears' long-term behavior; perhaps we won't need to create semi-managed bear parks. One way forward is to consider a trial of supplementary and diversionary feeding in the first polar bear population that becomes seriously at risk to see how bears respond, how quickly they return to the sea ice, and whether they come back to feeding stations once ice has formed, or go back out to the seal hunt (and also whether other hazards manifest themselves, such as disease outbreaks or conflicts at feeding stations that cannot be managed). At least trying this out with one bear population could assist in finding out more about the implications of feeding bears, and help in making better informed choices between feeding and shooting them, as sea ice shrinkage continues across the Arctic.

However, committing to do this raises an additional concern: justice with respect to *native communities* in the Arctic that are located in areas potentially affected. These communities have deep cultural and subsistence relations with polar bears, and also carry the burden of danger brought by polar bears coming into their communities. To avoid procedural injustice, any decisions about feeding bears should involve meaningful consultation with local Arctic native peoples. The importance of such consultation is already enshrined in the 2013 Declaration of the Responsible Ministers of the Polar Bear Range States,⁵ which notes that polar bear conservation should: "Engage Arctic local people in management decision-making processes and promote the collection and maintenance of Traditional Ecological Knowledge (TEK) by acknowledging the important role polar bears play in the cultural heritage and subsistence of Arctic indigenous people, as well as the role that they play in the long-term conservation and survival of the polar bear." However, as Young (2016) notes, meaningful consultation and engagement with TEK is likely to be very difficult, given the ways in which native perspectives on polar bears have diverged from "techno-managerial solutions", especially in terms of bear hunting quotas. In principle, though, protecting threatened polar bear individuals and local populations by feeding, providing the feeding is diversionary, and follows from a consultative process, may be in the common interest of polar bear scientists, conservationists, and local native communities—as well as the bears themselves.

The hungry bears case is in some ways unique. It's urgent, dramatic, it's likely inescapable, and it's going to afflict individuals that are members of one of the most favored, charismatic species on earth. But it's also just one example of a case where

⁵ Available at: <https://polarbearagreement.org/resources/agreement/declaration>. Accessed 23 March 2020.

climate change will require us to make difficult choices between unpalatable alternatives. Whatever we do, some sentient animals are going to suffer, and interventions, over time, will compromise wildness values. For this reason, it's particularly important that we think about these issues in advance. As Derocher et al. (2013, 370) plausibly argue: "it is critical to contemplate and discuss options ahead of the need to respond...Although some of the topics may seem radical... future conditions may be well outside the range of past circumstances and necessitate very different actions than today. The success of interventions will be partly determined by the degree of advanced planning."

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