

# CONSERVATION STRATEGIES IN A CHANGING CLIMATE—MOVING BEYOND AN “ANIMAL LIBERATION/ENVIRONMENTAL ETHICS” DIVIDE

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## Résumé de l'article

Cet article soutient qu'il n'existe pas un clivage simple entre le mouvement de la libération animale et l'éthique environnementale quant aux stratégies de conservation environnementale. La situation est bien plus complexe, de nombreuses lignes de faille pouvant d'une part diviser autant les spécialistes d'éthique environnementale que les spécialistes d'éthique animale et, d'autre part, créer des convergences inattendues entre ces deux groupes. L'article fait d'abord état du prétendu clivage entre le mouvement de la libération animale et l'éthique environnementale, pour ensuite démontrer l'exagération de ce clivage. Par exemple, les spécialistes d'éthique animale qui priorisent le bien-être global des animaux se sont toujours accordés avec les spécialistes d'éthique environnementale pour approuver certains cas de chasse et d'abattage, divergeant par là-même des théoriciens des droits des animaux, qui s'opposent généralement à ces pratiques. De plus, des menaces omniprésentes telles que le changement climatique auront vraisemblablement pour effet de diviser les éthiciens environnementaux selon les stratégies de conservation qu'ils préconisent en fonction de leurs valeurs prioritaires. Ainsi, les stratégies de conservation qui protègent certaines espèces ne protégeront pas nécessairement d'autres valeurs environnementales telles que l'épanouissement des écosystèmes ou la préservation de leur état sauvage. L'article tire la conclusion que, dans le contexte des changements climatiques, la question de la conservation est susceptible de soulever à la fois de nouvelles divergences et de nouvelles convergences, lesquelles ne prendront probablement pas toutefois la forme d'un clivage entre le mouvement de la libération animale et l'éthique environnementale.



# CONSERVATION STRATEGIES IN A CHANGING CLIMATE—MOVING BEYOND AN “ANIMAL LIBERATION/ENVIRONMENTAL ETHICS” DIVIDE

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## ABSTRACT:

This paper argues that there is no simple rift between animal liberation and environmental ethics in terms of strategies for environmental conservation. The situation is much more complicated, with multiple fault lines that can divide both environmental ethicists from one another and animal ethicists from one another—but that can also create unexpected convergences between these two groups. First, the paper gives an account of the alleged rift between animal liberation and environmental ethics. Then it's argued that this rift was always exaggerated. For instance, animal ethicists who prioritize aggregate animal welfare have always converged with environmental ethicists in supporting certain cases of hunting and culling, and, in doing so, they have diverged from animal rights theorists, who generally oppose these practices. Pervasive threats such as climate change make it likely that environmental ethicists will also diverge from one another in terms of the conservation strategies they support, depending on what values they prioritize. For instance, conservation strategies that protect species may not necessarily protect other environmental values such as ecosystem flourishing or wildness. The paper concludes that conservation under climate change is likely to bring both new divergences and new convergences, and that these are unlikely to take the form of a rift between animal liberation and environmental ethics.

## RÉSUMÉ :

Cet article soutient qu'il n'existe pas un clivage simple entre le mouvement de la libération animale et l'éthique environnementale quant aux stratégies de conservation environnementale. La situation est bien plus complexe, de nombreuses lignes de faille pouvant d'une part diviser autant les spécialistes d'éthique environnementale que les spécialistes d'éthique animale et, d'autre part, créer des convergences inattendues entre ces deux groupes. L'article fait d'abord état du prétendu clivage entre le mouvement de la libération animale et l'éthique environnementale, pour ensuite démontrer l'exagération de ce clivage. Par exemple, les spécialistes d'éthique animale qui priorisent le bien-être global des animaux se sont toujours accordés avec les spécialistes d'éthique environnementale pour approuver certains cas de chasse et d'abattage, divergeant par là-même des théoriciens des droits des animaux, qui s'opposent généralement à ces pratiques. De plus, des menaces omniprésentes telles que le changement climatique auront vraisemblablement pour effet de diviser les éthiciens environnementaux selon les stratégies de conservation qu'ils préconisent en fonction de leurs valeurs prioritaires. Ainsi, les stratégies de conservation qui protègent certaines espèces ne protégeront pas nécessairement d'autres valeurs environnementales telles que l'épanouissement des écosystèmes ou la préservation de leur état sauvage. L'article tire la conclusion que, dans le contexte des changements climatiques, la question de la conservation est susceptible de soulever à la fois de nouvelles divergences et de nouvelles convergences, lesquelles ne prendront probablement pas toutefois la forme d'un clivage entre le mouvement de la libération animale et l'éthique environnementale.

## 1. INTRODUCTION

This special edition of *Les ateliers de l'éthique/The Ethics Forum* focuses on whether animal ethics and environmental ethics do—or should—converge or diverge, and on how far there is, or should be, overlap between policies that would be morally required for the sake of animals alone (including humans) and those required for the sake of organisms (including animals), entire species, and ecosystems.

These concerns refer to debates in the 1980s about an alleged divergence—or even a rift—between environmental ethics on the one side, and animal ethics on the other. I will begin this paper with a brief overview of the basic structure of this alleged rift, drawing on Sagoff's classic 1984 paper "Animal Liberation and Environmental Ethics: Bad Marriage, Quick Divorce." Then I'll build on Varner's argument (1995, 2012) that this rift never really held in the way Sagoff claimed, because, philosophically, animal liberation encompasses contrasting ethical positions, most prominently sentientist consequentialism and animal rights theory. In some specific cases, such as therapeutic hunting, Varner claims, sentientist consequentialists would in fact line up with ecocentric environmental ethics positions in terms of policy or strategy, and diverge from animal-rights theorists. I'll argue that Varner's analysis holds not just for therapeutic hunting, but in many cases where we might expect to find an animal ethics/environmental ethics divergence—for instance, where invasive sentient animals threaten native animal species. Indeed, in terms of strategy or policy, although not in terms of value, the rift between sentientist consequentialists and animal rights theorists may be deeper than that between sentientist consequentialists and some ecocentric environmental ethicists.

I'll then move on to look at more recent ethical controversies relating to conservation strategies (I'll focus here on broader strategies, rather than on more specific policies) under climate change, using the case of the American pika as an example. Here, I'll argue, rather than a rift between environmental and animal ethics, we find something much more like multiple fractures or fault lines—and these not only divide animal ethicists from one another, but also divide environmental ethicists from one another. In terms of conservation strategies, climate change is likely to bring convergence between those with different underlying values, and divergence between some value positions that have, traditionally, been closely allied. This raises a new set of challenges and opportunities for both environmental and animal ethics. It also shows that the pervasive nature of anthropogenic climate change requires us to move beyond any simple idea of an animal liberation/environmental ethics divide.

## 2. THE HISTORIC RIFT BETWEEN ANIMAL AND ENVIRONMENTAL ETHICS

In 1984, Mark Sagoff published a now-notorious paper, "Animal Liberation and Environmental Ethics: Bad Marriage, Quick Divorce." The title of his paper

summarized, and the content of his paper reinforced, the idea of a rift between those (broadly) working in a philosophical animal liberation tradition, such as Peter Singer, and many of those working in environmental ethics. Those on the animal liberation side of this divide were taken to be arguing that possessing capabilities such as sentience conveyed not only moral considerability, but also a high level of moral significance (Singer, for instance, argued that nonhuman animals and people should receive equal consideration for similar interests). For animal liberationists, then, animals mattered for their own sake—and they mattered a lot. On the other side of the divide, according to Sagoff, are environmental ethicists—and by this he means broadly ecocentric environmental ethicists, such as Aldo Leopold, who focus on ecological systems, species, and wilderness (biocentrism, focused on the value of all individual living things, never really got a foothold in this discussion). On the environmental ethics side of the divide, then, species and ecosystems matter for their own sake. Sagoff's (1984, p. 304) classic statement of this view is as follows:

Animal liberationists cannot be environmentalists. The environmentalist would sacrifice the lives of individual creatures to preserve the authenticity, integrity and complexity of ecological systems. The liberationist—if the reduction of animal misery is taken seriously as a goal—must be willing in practice to sacrifice the authenticity, integrity and complexity of ecosystems to protect the rights or guard the lives of animals.

So, animal liberationists must diverge from environmentalists (that is, ecocentric environmental ethicists) in practice, because animal liberationists must prioritize the lives and well-being of individual animals over the “authenticity, integrity and complexity of ecological systems.” While ecocentrists would be willing to kill individual sentient animals that threaten the value of ecosystems, species, or wildness, animal liberationists would be required not only to reject such killings, but also (according to Sagoff) to intervene in ecosystems to reduce wild-animal suffering and save animal lives. Put like this, the rift seems absolute and the parties, irreconcilable: decisions made for the sake of animals just are in conflict with those made for the sake of ecosystems and species.

However, this claim was, I'll now argue, always exaggerated. In order to tackle the claim in its original form, I'll interpret “for the sake” of animals, species, and ecosystems in the most straightforward way—to mean that animals, species, and ecosystems are to be ascribed *moral considerability*. In the case of all three, there are competing accounts of why this might be so, but these differences, though generally important, don't need elaboration in this paper. And, although I'm skeptical about claims for the moral considerability of species, and even more so about those for ecosystems, I'll bracket this skepticism here. I'll discuss strategies to protect species and ecosystems *as if* they had moral considerability. I'll also consider strategies that focus on protecting *wildness*, which Sagoff includes in his idea of “environmentalism,” since wildness—going back to Thoreau—has long been an important value in environmental ethics.

### 3. COMPLICATING THE RIFT: DIVERGING ETHICAL THEORIES

As a number of ethicists subsequently pointed out, Sagoff's (1984) portrayal of the rift was problematic. Most significantly, rather different theories, in particular rights theories and utilitarian theories, appear to have been collapsed into what Sagoff calls "animal liberation." Sagoff did, in fact, distinguish between utilitarian and animal rights positions. However, he argued that rights theorists were essentially committed to the same policies as utilitarians, commenting: "The appeal to rights simply is a variant on utilitarianism" (Sagoff 1984, p. 305). But this missed key differences between these two philosophical traditions.

To make this clearer, I should explain the terms I will be using here (terms that, inevitably, will still oversimplify). I will call one tradition *sentientist consequentialism*. Here I'm trying to capture a range of consequentialist, mostly utilitarian views, largely focused on aggregate animal welfare, that base moral considerability on the possession of capabilities such as consciousness, subjective experience, and the ability to suffer, and that attribute to many nonhuman animals high or very high moral significance. This includes the utilitarian positions adopted by Peter Singer and others, such as Frey (2012) and Varner (2012). The second tradition I'll call *animal rights theory*. Animal rights theorists and sentientist consequentialists have similar criteria—primarily sentience—for moral considerability, but for rights theorists, the rights of individual animals serve as constraints on attempts to maximize aggregate animal happiness or, more broadly, welfare. I take Regan (1984) as the leading exponent of this animal-rights view, but I also include other, more recent accounts of animal rights including Cochrane (2012) and Donaldson & Kymlicka (2011). Of course, sentientist consequentialism and animal rights are not the only approaches to animal ethics; but they have, to date, dominated discussion about an environmental ethics/animal ethics rift, and I'll focus on them here.

Animal rights theorists and sentientist consequentialists often do converge in practice. For instance, both normally reject intensive animal agriculture, since it violates animals' fundamental rights and causes significant unnecessary suffering, and both adopt policies to eliminate such practices. However, animal rights theorists and sentientist consequentialists frequently diverge when it comes to wild animals. And some of these divergences occur in the case of practices more widely thought to be standard flashpoints between animal liberation and environmental ethics, rather than between different kinds of animal ethics. Sagoff, for instance, comments on wild hunting as something "enthusiastically" practiced by Aldo Leopold, but as a practice that animal liberationists (in his view) would regard as morally unacceptable. However, as Varner (1995, 2012) argued in response, sentientist consequentialists could certainly accept hunting in some circumstances; in fact, we should *expect* policy convergence between sentientist consequentialists and holistic environmental ethicists in cases of what Varner calls "therapeutic hunting."

Varner (2012, p. 861) describes “therapeutic hunting” as “hunting that is designed to secure the aggregate welfare of target species across generations, the health and/or integrity of its ecosystem, or both.” Certain species, often ungulates such as white-tailed deer, tend to overshoot the carrying capacity of their range. Without control by predators, or management by human hunters, their numbers will expand so much that not only will their ecosystem undergo significant negative impacts, but the deer themselves will suffer from malnutrition and vulnerability to disease during the overpopulation event. So, Varner argues, if predators are too few or absent, hunting deer in the right season both reduces deer suffering and protects ecosystem flourishing by reducing significant habitat damage (and so negative effects on other animals). Therapeutic hunting can thus improve aggregate animal welfare—a goal for sentientist consequentialists—as well as protecting ecosystems; so, sentientist consequentialism does not necessarily conflict with holistic environmental ethics.

Varner (2012, p. 866-868) also suggests that, if fewer animals die overall, Regan’s rights position could be extended to allow him to accept therapeutic hunting too. This is based on what Regan (1984, p. 305) calls his “miniride principle”—that when “we must choose between overriding the rights of many who are innocent or the rights of the few who are innocent, and when each affected individual will be harmed in a *prima facie* comparable way,” we should choose to override the rights of the innocent few. Varner suggests that this principle could be extended to include overriding the rights of an innocent few if doing so would prevent the *deaths* of many who are innocent (since preventable deaths are comparable harms to killings). However, this doesn’t seem a plausible extension of Regan’s view (or other standard rights positions). Regan himself maintains that wildlife managers should “defend wild animals in the possession of their rights” and that “minimiz[ing] the total amount of suffering wild animals will suffer over time” is “not the overarching goal of wildlife management, once we take the rights of animals seriously.” Among the rights animals hold with respect to moral agents, according to almost all animal rights theorists, is the right not to be killed—and this includes the right not to be killed by hunting. For rights theorists like Regan, if wild animals suffer and die from malnutrition, or are killed by predators, there’s no human obligation to act, since neither hunger nor predation can violate animals’ rights. Rights only hold against moral agents; and only moral agents can violate them.

So, in the case of therapeutic hunting, strategies supported by sentientist consequentialists and animal rights theorists diverge. Rather than an animal liberation/environmental ethics rift, we instead find sentientist consequentialists converging with ecocentric environmental ethicists, while animal rights theorists adopt opposing strategies. And this isn’t an isolated case. This divergence between animal ethicists, I’ll now go on to suggest, extends beyond the issue of therapeutic hunting, and applies to many common, current, and highly controversial cases of wild intervention.



#### 4. BAITING FERAL CATS IN AUSTRALIA

Invasive species, primarily brought by settlers from Europe, are a key environmental concern in Australia. One species regarded as particularly problematic is the feral cat. Descended from household pets, feral cats, according to a recent estimate, can now be found in 99.8 percent of Australia's land area, and their population (depending on droughts and other factors) fluctuates between 2.1 and 6.3 million (Legge et al., 2017). While cats are opportunistic carnivores, their diets include a variety of small native marsupials, birds, lizards, and amphibians. For this reason, they are widely argued to cause a significant threat to biodiversity in Australia (McGregor et al., 2015). According to the Australian Wildlife Conservancy (n.d.) feral cats each kill 5-30 native animals per day, and "have been implicated in most recent mammal extinctions." Feral cats are argued to contribute to the threat to species such as the bilby, the bandicoot, the bettong, and the numbat, and, as these species populations decline, the contributions that they can make to the flourishing of native ecosystems likewise diminish. Such concerns about the hunting activities of feral cats underpinned the announcement by the Australian government in 2015 of its *Threatened Species Strategy*, which included a plan to kill 2 million feral cats by 2020.

Killing feral cats, which are widely scattered across Australia, by techniques such as shooting and trapping is expensive and difficult to put into practice. The favoured alternative is poison bait, largely composed of 1080 (sodium monofluoroacetate). 1080 is a toxic chemical present in some native Australian plants, and therefore much (although not all) native wildlife has evolved to be immune to its effects, especially in Western Australia; but nonnative animals, including red foxes and cats, are killed by ingesting it. Since, however, feral cats are frequently slow to take up poison bait, ever more inventive ways of getting cats to ingest 1080 are being developed. These include a new bait called Eradicat, poisonous pellets injected into the cats' potential prey, and the Felixer grooming trap, which fires toxic gel onto feral cats' fur, which they then instinctively groom and, in doing so, ingest a fatal dose of 1080 (<http://www.ecologicalhorizons.com/initiatives>). While there's some debate about the effects of 1080, recent studies (e.g., Sherley, 2007) argue that it is not a particularly humane poison, especially not when used against predator species. In cats, 1080 appears to cause some hours of significant suffering before death.

At first sight, the poisoning of feral cats (assuming the bait is taken almost entirely by target species) looks like a classic animal liberation/environmental ethics case. We would expect ecocentric environmental ethicists to want to protect endangered species such as bilbies and bettongs; to want to protect and restore something like the "authenticity, integrity and complexity" of native ecological systems; and to perceive removing human-introduced cats as potentially a form of rewilding, which takes at least some human influence out of ecosystems, and thereby makes them wilder. But, to do this, humans are causing cats to suffer and die; this seems like something any animal liberationist should oppose.

However, on further thought, this conclusion is not so obvious. The Australian Invasive Species Council (2013), in supporting the use of 1080 to eradicate feral cats, makes a rather different—but not implausible—argument that again potentially pulls sentientist consequentialists apart from animal rights theorists:

But even if we consider just animal welfare, the use of less-than-humane techniques may result in an overall reduction of animal suffering, benefiting more native animals than it harms introduced animals...protecting populations or species from invasive species also means that individual animals are protected from predation, starvation or habitat damage by invasive species—benefits for both conservation and animal welfare.

Here, again, there's the argument that killing sentient wild animals, even in a less-than-humane way, could result in less overall suffering and better aggregate animal welfare *if* the welfare of all the animals, including those on whom cats prey, is included in the calculation. For sentientist consequentialists, there's no reason to count only the suffering of poisoned cats and not the suffering of the cats' prey; suffering is suffering wherever it's found, and should be included in calculations of aggregate animal suffering. And since feral cats present a case of *invasive* species predation, the concerns about ecosystemic disruption often thought to attend arguments for *generally* intervening in predation don't seem to apply. Cats aren't native, so there's little likelihood that removing their predation will have ecosystem effects that cause more wild-animal suffering down the line.

Obviously, to make a judgment with any confidence about aggregate animal welfare here would require more empirical evidence (about whether, for instance, poisoning cats really does reduce overall predation or whether instead it creates niches to be filled by other cats; and whether, given other threats to wild animals, wild animal welfare over time actually is made worse by cats preying on wild animals). But it's at least plausible that, from the point of view of sentientist consequentialists, the delivery of 1080 poison bait to feral cats would be permissible, or, if sufficiently supported by empirical evidence, required. Animal rights defenders, on the other hand, would oppose the cat-culling policy. Culling feral cats violates their rights to life and causes them significant suffering. It treats the lives of cats merely as a means to the protection of species, ecosystems, wildness, and other animals. And, since cats are not moral agents, the suffering and deaths of other animals at their claws are not a matter of direct moral concern; the rights of prey animals are not being violated. So, even in what's apparently a rather typical case of potential conflict between environmental and animal ethics, we again actually find a divergence between two groups of animal ethicists, as well as a convergence of ecocentric environmental ethicists with sentientist consequentialists.

A further thing to note here is that while animal ethicists diverge, the culling policy can protect several different ecocentric values. So, it supports species



preservation (the goal, after all, is to protect native species); ecosystem flourishing (since protected species can continue to perform ecosystemic functions); and wildness (in the sense that removing human-introduced predators reduces human influence on an ecosystem). Culling feral cats, like therapeutic hunting, appears to have widespread theoretical support among environmental ethicists, as well as the support of sentientist consequentialists. Only animal rights theorists have strong ethical disagreements.

## 5. CONSERVATION STRATEGIES UNDER CLIMATE CHANGE: THE AMERICAN PIKA CASE

The cases discussed above indicate that, in relatively common conservation conflicts, some animal ethicists may line up with ecocentric environmental ethicists against other animal ethicists. This indicates that there's no bright line between animal liberation and environmental ethics in terms of conservation strategies. But climate change, I will now argue, creates *multiple* fault lines in conservation policies. In part, these fault lines stem from the peculiarly pervasive nature of climate change. Its pervasiveness means that traditional conservation strategies, such as setting aside ecological reserves, no longer necessarily protect the species that live in reserves, their ecosystems, or (perhaps) the wildness of places. As a result, conservation strategies under climate change may force different ecocentric values apart. Ethical concern for the sake of species does not necessarily lead to the same strategies as ethical concern for the sake of ecosystems; both may come apart from strategies to protect wildness value. As well as convergences between sentientist consequentialists and some environmental ethicists, there may also be convergences between some animal rights theorists and *other* environmental ethicists.

To discuss this at a very abstract level would, I think, be confusing. So, I will focus down on a case that may illustrate some of these fault lines: the case of the American pika. American pikas are specialist lagomorphs (mammals in the rabbit family) that normally live at elevation on talus slopes in the American West. The IUCN Red List describes them as “candidate indicator species for the effects of climate change.” They are believed to be highly thermally sensitive, especially to high temperatures; they suffer from chronic heat stress and risk of hyperthermia at temperatures of 78 degrees Fahrenheit (26 degrees Celsius) and above (McArthur and Wang, 1974; Beever et al., 2016). Climate change, then, looks threatening to many American pika populations and ultimately to the species as a whole. Recent studies show some populations of pikas in the Great Basin have been extirpated, while others seem to have relocated at higher altitudes; it's suspected that these extirpations are climate related. A study by Henry et al. (2012, p. 8) concluded: “Limited thermal tolerance and restricted dispersal capacity may interact synergistically with future climate warming to inhibit recolonization of extirpated patches and reduce survival of resident animals, leading local populations into an extinction vortex.”<sup>1</sup>

So, given these climate threats to the American pika, what conservation strategies are possible? Two obvious strategies are unlikely to be directly helpful in this case:

*Reduce greenhouse-gas (GHG) emissions.* While major reductions to GHG emissions (or the creation of major GHG sinks) are the primary way of significantly reducing climate change, holding out hope for this to occur is unlikely to help vulnerable animals like the American pika. Because the effects of GHG emissions are time lagged, even if there were to be significant emission reductions soon, some further degree of warming would still occur, and would be likely to have further negative impacts on vulnerable species such as American pika. And, although growth in global emissions is slowing (Le Quéré et al., 2016), there's no realistic prospect of significant global *reductions* in GHG emissions any time soon. In thinking about conservation strategies, we have no choice but to take a changing climate into account. While some forms of geoengineering may reduce temperatures, they raise significant problems, and I won't consider them here.

*Traditional "restoration and reserve" strategies.* Traditional ecological conservation focuses on what Sandler (2013) calls "restoration and reserve oriented" strategies that aim to protect the habitat of a species within its historic range, and (where appropriate) to restore members of the species to that range. While these strategies are still effective in some cases (for instance, where threats to species primarily come from direct human development and disturbance), as already noted, they aren't effective in the case of human disturbance to the climate, since here the historic range itself is changing. Much pika territory is already protected—but this protection can't protect pikas from climate change.

Given that these two strategies don't look helpful in cases like these, I'll instead focus on three other possibilities:

*Doing nothing.* This strategy just allows the effects of climate change to play out on individuals, populations, species, and ecosystems. Obviously, doing nothing isn't normally thought of as a conservation strategy—at least, not in the sense of conserving species. But doing nothing can be value preserving in certain ways—for instance, if limiting human intervention and "allowing things to unfold in their own way" (Mathews, 2003) are valued, especially if alternative options are for one reason or another ethically problematic. Doing nothing can be an active, deliberately chosen policy, rather than just being what happens when a choice is not made.

*Facilitated adaptation.* Facilitated adaptation (Thomas et al., 2013) refers to the deliberate anthropogenic genetic adaptation of wild species populations for conservation purposes, such as to counter inbreeding depression and to increase resistance to invasive diseases or to the impacts of climate change. There are different possible methods here. One involves hybridizations between differing populations of the same species. For example, deliberate hybridizations between

related subspecies of Florida panther and Texas puma to relieve inbreeding have already been carried out, apparently successfully (Pimm et al., 2006). Another possible method is to use gene-editing techniques such as CRISPR-Cas9 in wild populations. This technology, though, is still very far from being adopted in the field. We don't currently know enough about the ways in which genotype and phenotype are linked to have confidence in identifying and altering complex traits in wild populations, nor are we sure how such alterations would affect other traits. A trait such as *sensitivity to heat*, for instance, may well involve multiple genes, as well as possibly being underlain by complex epistatic interactions and influenced by local environments.<sup>2</sup> However, for the purposes of this paper, I'll just assume that either hybridization or gene editing could increase the resilience of vulnerable American pika populations to increasing summer temperatures. We do know that a few pika populations, living at lower altitudes, appear to possess a genetic variant correlated with adaptation to warmer environmental conditions (Henry & Russello 2013; NOCA 2012; Robson, Lamb and Russello, 2016). So, let's suppose that hybridizing these populations with less heat-resilient populations, or (less plausibly) drawing alleles from the more heat-tolerant populations and transferring them into the less heat-tolerant populations could help those populations adapt to warming temperatures. Doing this would certainly raise questions about risk, in terms of off-target effects on the adapted pikas themselves—at least in the case of gene editing. However, again, just for the purposes of this paper, I'd like to bracket these concerns about risk, and assume that this technology would be successful in achieving its goals without causing off-target effects. What I'm interested in here is the value/ethical questions and concerns raised by facilitated adaptation of wild populations *even when the adaptation is successful* in terms of achieving its direct goals.

*Assisted migration.* Assisted migration (sometimes called *assisted colonization*) is the practice of deliberately assisting populations threatened by climate change to move to suitable habitats, normally beyond their historic range. This strategy is especially suitable if the species is poor at self-dispersal or if there are barriers to its ability to move, and new suitable habitat exists or is emerging elsewhere (Hällfors et al., 2017). Assisted migration has been tried on a small scale with various species, including marbled white butterflies in the UK (Willis et al., 2009). And it's been explicitly discussed by conservation biologists as an option for the American pika, which is poor at self-dispersal, but for which there might be appropriate habitat elsewhere (Wilkening et al., 2015). Assisted migration of pikas raises many logistical challenges, but biologists investigating the possibilities consider the American pika a "good candidate species" for assisted migration (Wilkening et al., 2015, p. 230).

Doing nothing, genetically adapting species, and moving populations are by no means the only conservation strategies that could be used to help species threatened by climate change. Other strategies include bringing populations into captivity or into more-or-less managed climate refugia (e.g., Morelli et al., 2016); offering supplementary feeding (e.g., Derocher et al., 2013); managing environments to reduce climate impacts by, for instance, constructing shelters,

creating water supplies, etc.; or, for species for which it's possible, reducing *other* threats, such as hunting. But, for the purposes of this paper, I'll just focus on these three strategies: do-nothing, facilitated adaptation, and assisted migration, since, for the American pika and some other climate-threatened species, these are the most plausible ways of pursuing conservation under climate change.

## 6. CONVERGENCE AND DIVERGENCE IN CONSERVATION STRATEGY: THE PIKA CASE

To facilitate this discussion, I will use a table, pairing different strategic options with different ethical/value concerns (see table 1, below). This table is inevitably oversimplified, but I'm hoping that even a somewhat crude visual structure may nonetheless help to clarify my argument. In the far left-hand column are the different values/ethical positions I've discussed: the value of species, the value of ecosystems, the value of wildness, sentientist consequentialism, and animal rights theory. Across the top, I have placed different conservation strategies, beginning with two I have already considered—killing invasive animals and creating nature reserves—and then including the three that I'll go on to discuss in the pika case: do-nothing, facilitated adaptation, and assisted migration.

For context, I have filled in the first two columns to reflect the preceding discussion. Killing invasive sentient animals is a strategy likely to be either permissible or required from ecocentric positions that value species, ecosystems, and/or wildness (so, these squares in column 1 of the table are filled Y for Yes). Animal rights theorists will normally oppose killing invasive sentient animals (so, this square in column 1 is filled N for No). Sentientist consequentialists, however, will support culls if the evidence suggests, in any particular case, that overall aggregate animal welfare would improve as a result, and more so than it would with the adoption of an alternative strategy. Since this would have to be calculated on a case-by-case basis, I've put the Y here in parentheses. The second column outlines positions on the traditional "restoration and reserve strategy" mentioned earlier. Traditionally, creating nature reserves would be welcome from both environmental ethics and animal ethics perspectives. Creating reserves is likely to protect species and ecosystems; to preserve wildness (at least, more so than not creating nature reserves); to constrain human violations of wild animal rights, for instance, by preventing the killing or eviction of wild animals by habitat development; and to protect wild animals from human-originating welfare infringements. However, while in some cases nature reserves are still highly effective, in cases such as that of the American pika, as noted, the creation of nature reserves is not effective for conservation goals (that's why three further columns have been added to the table). In addition, there's a recent philosophical shift—a rise in the view, among some sentientist consequentialists at least, that creating protected nature reserves is really creating protected reservoirs of wild animal suffering. If reducing animal suffering is a goal, then, from this perspective, a "hands-off" reserve is not what's called for; instead, a more active, interventionist strategy is needed, where this can be done without producing

more suffering (e.g., Horta, 2010). While this is not a dominant view among sentientist consequentialists, I have put the Y in parentheses here to make clear that this is a potential worry from this position.

**TABLE 1: POLICY CONVERGENCE AND DIVERGENCE, SUMMARY 1**

Policies→ Values/ethical theories ↓	1. Killing sentient invasive animals to protect native animals	2. Creating nature reserves	3. Doing nothing: Pika case	4. Facilitated adaptation: Pika case	5. Assisted Migration: Pika case
Protection of species	Y	Y			
Protection of ecosystem	Y	Y			
Protection of wildness	Y	Y			
Animal rights theory	N	Y			
Sentientist conse- quentialism	(Y)	(Y)			

So, now let's use the American pika case to think through issues of strategic and policy-based convergence and divergence in environmental and animal ethics under conditions of climate change.

### 6.1 Pika strategy 1: Doing nothing

If traditional “reserve and restoration” strategies to protect the American pika won't work, because temperatures are rising even in nature reserves, the options available are either to do nothing or to turn to more interventionist strategies. If we do nothing, pika populations are likely gradually to become extirpated, as climate becomes less hospitable in the pika's historic range. Some populations will cling on in increasingly unfavourable conditions for a long time, but it's likely that the species will enter an *extinction vortex* (defined in footnote 2). Without more interventionist strategies, the species may not survive. Pikas also appear to play a significant role in their local alpine ecosystems: their practice of creating hay piles for the winter provides food and shelter for other species; their faeces fertilizes land that receives little other fertilizer (Aho et al., 1998). The impact on ecosystems of local or regional extirpation is less clear cut than the impact of extirpations on the species (since extirpations lead to extinction, but alpine ecosystems will go on without pikas in them). But, for a time, at least, the loss of pikas would mean that these alpine ecosystems are likely to be less flourishing or less complex (Sagoff, 1984) or less healthy (Dixon, 2016).



This, then, suggests that for someone who values species or ecosystems, doing nothing is a poor conservation strategy. If species are morally considerable—the view with which I am working here—then, other things being equal, we should do something rather than nothing, since anthropogenic species extinction is morally wrong. Something similar, although less strong, might be said for ecosystems. If ecosystems are morally considerable, then the loss of the pika is likely to be an ecosystemic wrong, given that pika functions are unlikely to be replaced in high-altitude ecosystems. From both these ecocentric value perspectives, we should adopt a strategy to save the American pika if we can—that is, we should do something, rather than nothing. However, doing something shouldn't come at the expense of causing greater value losses elsewhere—so it shouldn't make another species extinct, nor should protecting the pika's current ecosystem come at the cost of significantly undermining the complexity, integrity, or health of a different ecosystem. This is, therefore, a provisional rejection of a do-nothing strategy; it depends on what doing something would entail.

What about wildness? First, of course, wildness is not a morally considerable being or thing. But it can be valued intrinsically. And, for many ecocentric environmental ethicists and others, wildness is extremely important. Wildness has a significant role in conservation policy (for instance, in the 1964 US Wilderness Act) and in environmental ethics more broadly. Hettinger and Throop (1999), for instance, argue that we should value wildness (rather than ecosystem integrity and stability) intrinsically, and that this “is the most promising general strategy for defending ecocentric ethics,” while Preston (2011, p. 464) maintains that “the presumption central to environmental ethics is that...the human independent processes are left largely intact.”

However, since wildness has many interpretations, it can be at stake in different ways here. First, climate change itself may be thought of as a pervasive extension of human influence on a vast scale. There's no need to take a view as strong as McKibben (1989) does in claiming that climate change brings the “end of nature” to think that there are senses in which climate change reduces wildness. Climate change is an anthropogenic force that has affected both species and ecosystems. Those impacts may be of moral concern not just because they have, as it were, harmed alpine ecosystems and species such as the American pika. These impacts may *also* be of concern because humans are significantly influencing what happens to species and ecosystems—how, for instance, systems evolve (and this would be true of species and systems that *flourish* under climate change, not just of those that do less well). Human influence on how things turn out may alone be enough to constitute a loss of wildness in some senses of the term. On the other hand, climate change is not intended by humans, and, unlike the interventionist strategies considered here, it's not controlled or directed with a view to particular planned goals or outcomes. So, in this sense, some degree of human-independent nature—which, Hettinger (2018, this volume) argues, lies at the root of wildness value—persists through climate change. As Hettinger comments, that climate change may have increased the frequency of polar bears



mating with grizzly bears doesn't mean that if humans translocated polar bears to the Antarctic, there wouldn't be a significant additional loss of wildness.

If protecting wildness is of primary value, at least at first sight, non-interventionist strategies—of which “doing nothing” is an obvious example—are likely to be preferred. However, this isn't always true. In the case of culling feral cats, I suggested that removing invasive cats could *increase* wildness by removing a human impact—that of the invasive species—from the landscape. The pika case, however, is not obviously like this. It is just possible, though, that some kinds of intervention to save the pika could be justified on grounds of wildness—but only on some interpretations of the term. Suppose a “wild” landscape were understood *compositionally*—that is, as a landscape containing the set of species that would have been present without human activity or interference. This is not so implausible; some kinds of ecological restoration projects are justified by the argument that a landscape of native species is wilder than one lacking those species, even if extensive human interventions are needed to restore these native species. On this view, human intervention to retain pikas in a landscape would make the landscape wilder than if pikas were extirpated by climate change. So, it is *possible* that someone who prioritizes protecting wildness would support an interventionist species-protection strategy. But it seems much *more* likely that a protector of wildness would argue against active interventions, such as those being discussed here, since they exacerbate human influence on the environment and impose human plans and intentions on it, as I'll suggest below. On this view of wildness, interventions would make the loss of wildness through climate change worse; doing nothing would best protect wildness value.

Lastly, then, let us turn to the two ethical concerns that focus on individual animals: animal rights theory and sentientist consequentialism. What happens if we do nothing, and there is no intervention? As temperatures rise, pikas are likely to have more negative subjective experiences than under normal conditions; they will undergo chronic discomfort from heat and suffer more from hunger and thirst, as they will have to take shelter under rocks rather than go out foraging. In addition (though on some views this is not a *welfare* effect), climate change will shorten the lives of individual pikas, thus depriving them of the experiential goods of future life they would have had, and meaning that they will live shorter lives with fewer opportunities to carry out natural behaviour than is normal for members of the species (see Kasperbauer and Sandøe, 2016 for further discussion of whether killing is a welfare issue).

For sentientist consequentialists, this increase in suffering and worsening of welfare is clearly an ethical concern. And, for the majority of animal rights theorists, it's plausible that such negative effects constitute a rights violation. At least, if the negative impacts of climate change, such as hunger and homelessness, are a violation of *human* rights, if one accepts *animal* rights it seems reasonable to think that climate change should be similarly regarded in their case. On some nonconsequentialist views, in addition, anthropogenic harms or rights violations may create special obligations to assist (e.g., Palmer, 2010). So, doing nothing looks ethically problematic from both theoretical positions.

For sentientist consequentialists, an interventionist strategy would clearly be better than doing nothing if it improved overall animal welfare. For rights theorists, the situation is more complicated. The rights violations caused to individual animals by climate change can't be avoided, given the nature of climate change. Strategies that assist or compensate *those particular animals* whose rights have been violated would be supported by rights theorists. But strategies that violate further rights or that violate the rights of *other* animals, would be much more problematic, and, on standard rights views, unacceptable. For rights theorists, improving the situation should not normally come at the expense of further rights violations. For this reason, unlike for sentientist consequentialists, doing nothing is (on most rights accounts, anyway) better than doing something *if* doing something entails (further) violating animals' rights.

## 6.2. Pika strategy 2: Facilitated adaptation

The goal of facilitated adaptation would be to help American pika populations persist within their historic range by making them more resilient to heat. As noted above, I'll assume, for the purposes of this paper, that this could be successfully achieved by hybridization or gene editing without off-target effects on the pika themselves.

Facilitated adaptation has the goal of assisting pika populations and thereby protecting the pika species. This immediately suggests that this strategy should, in principle at least, be supported and pursued by those who prioritize species values, unless more effective species protection strategies are available. Since pikas seem to have a useful ecosystem function, adapting pikas is also likely to help to protect ecosystem values. While there may be cases where an ecosystem is changing so fast that adapting a single species would be pointless, the extreme heat sensitivity of the American pika in comparison with other alpine organisms means that, once adapted, pikas may well be able to go about doing what they were doing in the system before, albeit at warmer temperatures. Facilitated adaptation, then, is likely to be at least *permissible* from a perspective on which ecosystem values are prioritized. It may even be *desirable* if the changes climate change brings are viewed as "anthropogenic ecosystem harms" and the loss of the pika's contribution would be one such harm.

What about wildness value? This raises complex questions about the impacts of facilitated adaptation of organisms, such as pikas, on wildness, given that "wildness" can be interpreted in different ways. (See Palmer, 2016 for a much more extended discussion.) I'll consider only one kind of worry about wildness here: that facilitated adaptation can be understood as a way of trying to shape the world to reflect particular humanly conceived, desired, and directed goals, so extending and deepening the humanization of ecosystems already somewhat humanized by the influence of climate change itself. An alternative response to climate change would be to allow ecosystems independently to respond spontaneously and creatively—as Mathews (2003) suggests, to allow things to "unfold in their own way, or run their own course" rather than to bring about "what

happens when, under the direction of abstract thought, agents intentionally intervene to change that course of events for the sake of abstractly conceived ends of their own.” Facilitated adaptation, in contrast to this “unfolding of things,” is, after all, an intervention that intentionally directs “what happens” and brings about human ends, by enabling the persistence of a species in places from which it would otherwise have been extirpated. If this independent unfolding of things is how wildness is interpreted, facilitated adaptation certainly does reduce it. We may be able to save the American pika species and to protect ecosystem flourishing, but, from this perspective, we can do it only by wildness-compromising interventions to change the course of events.

A possible softening of this view would be to see facilitated adaptation as a short-term reset. Human intervention does change the course of events, and wildness is reduced or lost. But after the intervention, humans can withdraw and pikas can resume their independent lives. So, perhaps human influence could be seen as washing out of ecosystems over time, and wildness as flowing back in. Seen like this, facilitated adaptation is still wildness-reducing, but in a somewhat less troubling way. In addition, as noted above, this isn’t the only way of understanding wildness. Wildness may be interpreted as compositional—as about what things exist where, rather than as about only where things come from. From a compositional perspective, facilitated adaptation might be understood as permitting the persistence of an existing landscape on which pikas live; a landscape containing pikas—even if only because humans enabled them to persist there—could be seen as wilder than a landscape lacking in pikas because human activities extirpated them. These possibilities aside, it seems reasonable to conclude that facilitated adaptation is troubling on most interpretations of wildness; it is a purposive intervention extending human intention and influence deeply into both the history and composition of ecosystems, as well as into the genetics, existence, and location of a species. So, from most wildness-preserving perspectives, facilitated adaptation is not likely to be permissible.

Finally, let’s consider sentientist consequentialism and animal rights theorists. Although normally understood to be a species conservation strategy, facilitated adaptation could improve animal welfare. However, while it may do this in ways acceptable to sentientist consequentialists, facilitated adaptation is less likely to be acceptable to animal rights theorists.

Facilitated adaptation, even in the case of hybridization, would require capture and translocation of pikas and their relocation in unfamiliar territory. This process is likely to be extremely stressful, even if all handling were carried out under general anesthetic (Wilkening et al., 2015). Gene editing would involve keeping a breeding colony of so-called founder animals for the adapted lines; these pikas would have highly stressful lives. Once adapted, though, pika populations should be able to continue to live within their historic range, and, due to increased heat resilience, should have a level of subjective welfare similar to the welfare of pikas prior to climate change. They should not suffer from chronic overheating and should be better able to manage extreme-heat episodes. Even-

tually, then, successful facilitated adaptation should mean both that there would be more individual pikas alive *and* that those pikas would generally have better welfare than other pikas would have had, had facilitated adaptation not been carried out. However, to reach the goal of better overall pika welfare, some pikas will be seriously harmed, and some may die.

This is where different ethical theories are likely to diverge. From sentientist consequentialist perspectives, if there's reasonable confidence in improved aggregate animal welfare over time, facilitated adaptation is ethically permissible, and perhaps required, provided no other strategy is clearly better. The benefits to be gained from successful adaptation are very likely to outweigh the costs to pikas now, since there will be many more future pikas, all of whose lives would be better than those of the dwindling numbers of unadapted pikas. Since it's unlikely that any other mammal will move into pika territory any time soon, facilitated adaptation may allow a whole stream of net positive subjective experience that would not be replaced to continue in the world.

For rights theorists, however, it's unlikely that facilitated adaptation would be permissible, since the process of genetic adaptation, even if it involves only hybridization rather than gene editing, is likely to violate animals' rights. The animals selected for relocation or used for gene editing are not even the same ones as those likely to suffer from climate change, since for the process to be successful, the animals selected for relocation, or to found lines, would need to be those more resilient to climate change.

It's possible that a rights view that accepts "minimizing rights violations by transgressing comparable rights" (Kamm, 1996, p. 290) would be able to accept facilitated adaptation if the rights violated by facilitated adaptation are viewed as comparable to those induced by climate change (this seems less likely in the high-intervention case of gene editing than in the lesser intervention of hybridization). For instance, Regan's (1984, p. 305) miniride principle, discussed earlier in the context of therapeutic hunting, allows us to override the rights of the few who are innocent to protect the rights of many who are innocent when each affected individual is *prima facie* comparably harmed. Could facilitated adaptation be seen in this way?

This is possible, but unlikely. First, it's not clear that the harms here are "*prima facie* comparable," but even if they are, there are further difficulties. The adapted pikas are not yet in existence. We can violate the rights of some existing pikas (by facilitated adaptation), in order to bring into existence pikas whose rights won't be violated (by climate change). Or we can refrain from violating the rights of some existing pikas, but this will allow other pikas whose rights will be violated (by climate change) to come into existence. That some of the beings between whom one must choose don't yet exist is not a situation Regan envisages, and the argument needs considerable further work to apply to such cases. It might be possible to create an argument of this kind, but it's certainly not a standard approach in animal rights theory (and were this to be proposed in a

human case, it would certainly fall foul of human rights theory). It's more likely that animal rights theorists would not accept facilitated adaptation, and so sentientist consequentialists and animal rights theorists would again diverge in terms of this strategy.

Of further interest here, though, is that facilitated adaptation suggests new potential convergences as well as familiar divergences. Sentientist consequentialists and species preservationists would here support the same strategy, since facilitated adaptation is potentially a way both of preserving the pika species and of improving aggregate animal welfare over time. Animal rights theorists, on the other hand, converge with those who prioritize wildness value, where doing nothing is likely to be preferred to facilitated adaptation.

### 6.3. Pika strategy 3: Assisted migration

Assisted migration entails deliberately moving pikas into new territory that, because of barriers to dispersal, pikas can't reach by themselves. Let's assume that this could be done successfully, and that new pika populations could be established beyond their historic range. So, as climate warms and other pika populations are extirpated, these new populations could flourish.

As with facilitated adaptation, successful assisted migration protects the translocated species, if what's valued just is the species in itself, for its own sake. It's worth noting, though, that moving pikas does undercut *other* values that the pika species may carry—for instance, place-related historical and cultural values (facilitated adaptation is obviously more successful than assisted migration in preserving place-related values). But assisted migration looks more problematic from a perspective on which ecosystems are morally considerable. After all, assisted migration normally involves taking species members out of an ecosystem where they have been, at least to some degree, part of coevolution and coadaptation, and translocating them into a system that has previously been coevolving and adapting without them. So, there are worries about, as it were, *too much* success from translocation, should such species become invasive; or they may introduce disease, and thus cause significant disturbance to the recipient system. Ricciardi and Simberloff, for instance (2009), argue that we “have not yet developed a sufficient understanding of the impacts of introduced species to make informed decisions regarding species translocations.”

Is this response too negative? Proposals to translocate pikas, for instance, include a variety of checks for disease and a quarantine period at the relocation site (Wilkening et al., 2015). And it's also possible that translocated species such as the pika *could* provide useful ecosystem functions in their new ecosystem, though it seems unreasonable to expect these. From an ecosystem-centred perspective, though, there certainly doesn't seem to be any positive reason for carrying out assisted migration. Assisted migration would not be for the sake of any ecosystem, since nothing is contributed to the ecosystem from which the species is removed, and it's unlikely that migrated populations would add signif-



icant value to the recipient system. From the perspective of someone prioritizing ecosystem value in terms of flourishing or integrity, successful facilitated adaptation, maintaining pika populations in their historic range, looks preferable to successful assisted migration. At best, assisted migration would be permissible from the perspective of ecosystem value, but this is doubtful; it would normally be better to do nothing. So, in the case of assisted migration, a strategy for the sake of species and for the sake of ecosystems may diverge.

In terms of wildness, assisted migration raises many of the same concerns as facilitated adaptation. It is a way of responding to climate change by pursuing particular human-directed goals and humanizing ecosystems. And it's possible that assisted migration might appear even more problematic than facilitated adaptation, since assisted migration involves a loss of wildness not only in terms of *origin* (the pikas would not be there without human intervention), but also in terms of ecosystem *composition*. (While in the case of species restorations or facilitated adaptations pika are placed within their historic species range, translocated American pikas just would never be in their new range if humans hadn't moved them there.) While it might be argued, again, that this human influence could "wash out" with time, this seems likely to take much longer when a species population is in a new location entirely due to human activity. So, if wildness value is prioritized, assisted migration looks particularly problematic.

What about animal rights theory and sentientist consequentialism? The conclusions here look very like those I came to in the case of facilitated adaptation. Assisted migration, like facilitated adaptation, could over time produce many more pika individuals with better welfare than doing nothing would. In terms of aggregate animal welfare over time, it may well be a good strategy. But from the perspective of rights theory, the capture and relocation process violate animals' rights. In principle, this might be permissible *if* those animals relocated were themselves individually threatened by climate change (i.e., those individuals' rights were *already* threatened) and if the processes of translocation and adaptation to a new environment promised an ultimate improvement in their lives, a kind of compensation or restitution, even if the capture and transition period were stressful. For pikas (though not necessarily for all animal species), this looks somewhat unlikely in practice. Given the sensitivity of pikas to handling and their extremely territorial nature, it's hard to see many individual pikas benefiting from a move, even if currently threatened by climate change in their native range. Again, it might be possible to make a Regan-type mini-ride argument work here. But on a more straightforward reading of animal rights, assisted migration is unlikely to be permissible—at least, in the case of pikas.

So, again, then, as concerns assisted migration, those who prioritize species protection are likely to converge with sentientist consequentialists and support the strategy. Those who prioritize wildness value are likely to converge with animal rights theorists and, in this case, also with those who prioritize ecosystem values, in being extremely skeptical of, or opposed to, assisted migration.



This now allows me to fill in the remaining boxes of my summary table. Obviously, again, this table is crude: I hope the text above captures a little more complexity. (One box is in need of clarification: under the heading “Doing nothing,” in the row “Protection of ecosystems,” I have marked both an N and a Y. The N indicates “Don’t do nothing when the choice is facilitated adaptation,” and the Y, “Do nothing when the choice is assisted migration.”)

**TABLE 2: POLICY DIVERGENCE AND CONVERGENCE, SUMMARY 2**

Policies→ Values/ethical theories ↓	1. Killing sentient invasive animals to protect native animals	2. Creating nature reserves	3. Doing nothing: Pika case	4. Facilitated adaptation: Pika case	5. Assisted Migration: Pika case
Protection of species	Y	Y	N	Y	Y
Protection of ecosystem	Y	Y	N/Y	Y	N
Protection of wildness	Y	Y	Y	N	N
Animal rights theory	N	Y	Y	N	N
Sentientist conse- quentialism	(Y)	(Y)	N	Y	Y

## 7. IN CONCLUSION: WHAT DOES THIS SHOW ABOUT CONVERGENCE AND DIVERGENCE?

This paper in general and the table above in particular have, I hope, drawn some useful conclusions about where different ethical and value positions are likely to converge and diverge about conservation strategies, especially in the context of climate change. First, in the context of environmental ethics, there are divisions on at least some occasions between those whose primary concern is to protect species and those whose concern is to protect ecosystems (this is particularly clear in the context of assisted migration). More systematically, interventionist strategies to protect species *or* ecosystems have the potential to undermine wildness values. Second, there’s often divergence between sentientist consequentialists and animal rights theorists, where interventionist strategies likely to improve aggregate animal welfare over time often come only at the expense of harms to individual sentient animals and/or infringements on their rights. And third, there is potential for convergence on strategies between those with very different *value* priorities. As the table illustrates, in many conservation cases, sentientist consequentialists will line up with environmental ethicists who want to preserve animal species. In contrast, animal rights theorists are likely to line

up on the other side, against most interventions involving wild animals, and alongside environmental ethicists who are concerned about wildness (and on some occasions, about ecosystems, too).

This is an unexpected but interesting set of convergences; at first sight, there's no obvious reason why one might expect to find species preservationists and sentientist consequentialists converging on strategies and diverging from animal rights theorists and wildness protectors. One possible connection, though, is a certain similarity of method. That is, both species preservationists and sentientist consequentialists are primarily outcome oriented. They are interested in achieving species persistence or better aggregate animal welfare, but they are not so interested in how those outcomes are achieved. Strategies that bring about the desired outcomes are what should be chosen. Rights theorists and certain kinds of wildness valuers, however, are not so interested in *outcomes* as in *processes* related to how things come about. Animal rights theorists, for instance, aren't focused on reducing the total number of animal deaths, but they are focused rather on how those deaths come about—that is, whether *humans*, as moral agents, are doing the killing. Many (although not all) wildness protectors are not so interested in the composition of landscapes and ecosystems, but rather they care that those ecosystems came about in the right kind of way, without *human* influence or direction. If there's anything to these similarities, perhaps these strategy convergences are methodologically not quite so surprising. But, in any case, they are far removed from an animal liberation/environmental ethics rift.

In making this argument, I've inevitably oversimplified. All the value positions I've discussed contain more internal divergences and nuances than I've been able to accommodate. And I've discussed only a small subset of kinds of convergence/divergence cases. It's easy to think of cases where values will line up a different way—such as cases where an endangered *plant* species is threatened by invasive sentient animals (though this, I think, reinforces my point about there being multiple fault lines, rather than any single divide). I've also assumed the intrinsic value/moral considerability of species and ecosystems, although I'm not convinced about the moral considerability of either. And I have not attempted to defend a prioritization of these values (so, I have not examined, for instance, whether animal welfare should be prioritized over species protection, or species protection over wildness), nor discussed how choices might be made among policies that are all permissible.

So, where does all this leave us with respect to the theme of this special issue—the convergence and divergence of animal ethics and environmental ethics, and possible overlap between policies “that would be morally required for the sake of animals alone (including humans), vs. those required for the sake of organisms (including animals), entire species, and ecosystems”? I think that the “vs.” in the above quotation refers to a divide that's rarely straightforwardly present in conservation strategies and policies that follow from those strategies—rarely, at least, under climate change. While the animal liberation/environmental ethics

divide was always too simple, now pervasive human impacts, including climate change, have created an even more complex value landscape to navigate. Although this value landscape may divide environmental ethicists as well as animal ethicists, it also has the potential to create fruitful and unexpected convergences in conservation strategies.

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## NOTES

<sup>1</sup> An “extinction vortex” occurs when “a mutual reinforcement occurs among biotic and abiotic processes that drives population size downward to extinction” (Brook, Sodhi & Bradshaw, 2008). I should note, however, that there’s still some uncertainty about the immediate degree of threat climate change poses to the American pika as a species; the species may be more resilient to climate change than has been feared (IUCN, 2016). However, the case still provides a useful scenario for exploring ethical issues and policy choices that will clearly apply to many other wild species even if the American pika does prove relatively hardy to warming temperatures.

<sup>2</sup> I’m grateful to the Montana Conservation Bioethics Working Group for formulating this expression of the difficulties of gene editing in wild animal populations.

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