

The Ethics of Reintroducing Large Carnivores: The Case of the California Grizzly

Lee A.^{a,#} A.M. Laird^b, L. Brann^c, C. Coxon^d, A.J. Hamilton^e, L.A. Lawhon^f, J.A. Martin^g,
N. Rehnberg^h, B.P. Tyrrellⁱ, Z. Welch^j, B. Hale^k, P.S. Alagona^l

^aInstitute of Culture and Environment, Alaska Pacific University, Anchorage, Alaska, USA

^{b,k}Department of Philosophy, University of Colorado, Boulder, Colorado, USA

^{c,e,k}Environmental Studies Program, University of Colorado, Boulder, Colorado, USA

^dBren School of Environmental Science & Management, University of California, Santa Barbara, California, USA

^eLaw School, University of Colorado Boulder, Boulder, Colorado, USA

^fMasters of the Environment, University of Colorado Boulder, 397 UCB, Boulder, Colorado, USA

^{g,l}Environmental Studies Program, University of California, Santa Barbara, California, USA

^hDepartment of History, University of California, Santa Barbara, California, USA

ⁱDepartment of History and Committee on Environmental Studies, Reed College, Portland, Oregon, USA

^jDepartment of Ecology, Evolution, and Marine Biology, University of California, Santa Barbara, California, USA

[#]Corresponding author. E-mail: aplee@alaskapacific.edu.

Abstract

Efforts to reintroduce species to portions of their historic ranges are growing in number and kind. These include proposals and projects to reintroduce large carnivores in areas where these species have been absent for decades. Reintroductions, like all conservation efforts, involve not only empirical and logistical problems, but also complex normative questions. So, what are the obligations, values, permissions, restrictions, and demands that citizens, conservationists, wildlife managers, and other impacted parties must address? This paper attempts to organise, summarise and briefly analyse the diverse suite of common normative arguments concerning large carnivore reintroduction. Clarifying arguments as a methodological approach grounded in environmental ethics sheds light on many implicit ethical presuppositions that underwrite reintroduction efforts. As an example, we use the grizzly bear (*Ursus arctos*), whose populations have grown in recent years in both Europe and North America. Whereas past efforts to recover grizzlies in the lower 48 U.S. states focused on the Northern Rockies and North Cascades, research, legal proceedings, and other proposals have emerged to return the species to other portions of its historic range, including California. Clarifying ethical arguments that may arise from large carnivore reintroduction can contribute to a more civil public discourse and effective decision-making processes.

Keywords: Environmental Ethics; California; Grizzly Bears; Large Carnivore Reintroduction; Restoration Ethics

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INTRODUCTION

Efforts to reintroduce species to portions of their historic ranges are growing in number and kind (Jachowski et al. 2016). These include proposals and projects to reintroduce large carnivores in areas where these species have been extinct for decades. Reintroducing large carnivores could provide diverse social

and ecological benefits, but doing so may impose economic costs and spark political conflicts (e.g., Dax 2015; Alagona 2013), raising difficult questions about the meaning, purpose, and limits of conservation.

Large carnivore reintroduction proposals typically focus on empirical and logistical questions related to what, where, when, and how to reintroduce large carnivores. Yet reintroductions, like all conservation efforts, also involve complex normative questions (Fox and Bekoff 2011). We cannot fully understand, or hope to resolve, the normative questions that surround large carnivore reintroductions solely with tools from the natural and social sciences. Large carnivore reintroduction efforts—which rank among the most ambitious, interventionist, and high-stakes of conservation measures—require first understanding ethical and normative questions that might motivate the various sides of the debate. For reintroduction projects to succeed, they must meaningfully grapple with difficult questions of value and responsibility.

Why, given the potential costs and unintended consequences of reintroducing large carnivores, may such projects be justified, and under which conditions may we consider such efforts good, right, worthwhile, or required? The field of philosophy, in particular environmental ethics, offers a methodological toolkit, based on reasoning, thought experiments, and normative analysis which can help clarify the value assumptions and commitments that underlie reintroduction proposals, policies, and practices.

This paper offers one attempt to organise, summarise and briefly analyse the suite of normative arguments commonly made on behalf of or against large carnivore reintroductions. These arguments appear in various forms and in diverse contexts, from scientific articles and books, to legal proceedings, to print, mass, and social media. Every reintroduction project presents unique challenges, risks, hazards, and responsibilities. We aim to shed light on large carnivore reintroduction by examining the ethical dimensions of a particularised case of grizzly reintroduction efforts in California. Though the case is hypothetical, our aim is to highlight key ethical issues in an emerging real-world context. In many ways, California grizzly reintroduction is an imperfect case: bears present greater risks to people than many carnivores (say, grey wolves), but less risk than others (say, Bengal tigers). Not every argument concerning grizzly reintroduction translates tidily to other carnivore reintroduction efforts, but many of the principal contours of the California Grizzly reintroduction conversation reveal common ways of thinking about our responsibilities regarding wildlife and restoration.

Clarifying the underlying ethical positions in reintroduction efforts, we believe, can help conservationists gain a deeper understanding of their own values while contributing to more civil public discourse and effective decision-making processes. We therefore do not present an argument here about how best to resolve the ethical issues presented, but rather provide succinct summaries that illuminate the salient ethical features of common arguments. We acknowledge that such an approach may appear methodologically unusual

to both philosophers and an audience of policy makers, conservationists, and environmental managers. We approach carnivore reintroduction using environmental ethics as a tool of investigation, but also reach beyond the direct conceptual argumentation of most academic philosophy. This list has utility as a collection of arguments: arranging the ethical standards and considerations central to reintroduction efforts can help clarify assumptions and orientations that are otherwise often left implicit.¹

Practical Ethics and the California Grizzly

On the eve of the Gold Rush in 1849, California contained an estimated 10,000 grizzly (brown) bears (*Ursus arctos*), more than any current U.S. state other than Alaska (Grinnell et al. 1937). Over the next several decades, hunting, trapping, and poisoning decimated this population. The last credible sighting of a California grizzly occurred in 1924, near the western boundary of Sequoia National Park. In 2014, the Center for Biological Diversity (CBD) petitioned the U.S. Fish and Wildlife Service, asking it to designate new grizzly recovery zones in California and the Southwest, and launch a reintroduction and recovery program in these areas (Center for Biological Diversity 2014). The FWS rejected this petition on procedural legal grounds, but in 2019 the CBD filed a lawsuit challenging this decision. This paper forms part of a larger effort to better understand the past and potential future of grizzlies in California.²

Grizzlies are commonly grouped among the world's large carnivores, but they are best understood as apex consumers that eat a variety of plant and animal foods (Mowat and Heard 2006; McLellan and Hovey 1995; Mattson 1997; Mattson et al. 1991). Their intelligence, long lives, slow reproductive rates, large home ranges, and intimidating physical presence makes them challenging targets for conservation. Hypothetical grizzly reintroduction both tracks common contours of wide-ranging carnivore reintroduction efforts, and presents a uniquely messy and challenging conservation debate.

We zoom out on large carnivores because these species are among the most controversial reintroduction targets, and because they invoke a wide range of ethical arguments. Our list of arguments is long, as befits this complex and multifaceted issue, but our goal is neither to provide an exhaustive taxonomy, nor to support a particular position. The California grizzly illustrates many of the ethical questions—and even some of the specific issues, such as protecting livestock—that animate debates over many large carnivore reintroduction efforts. This effort is theoretical, not particular, drawing on practical, and not applied, ethics.

While much of the work in applied environmental ethics approaches environmental problems from the top down, from a third-person, “God’s-eye” view, practical ethics, by contrast, offers a means by which facts about history, ecology, and biology can offer lessons for conservation decision-making more broadly. Although the finer details of grizzly reintroduction may not necessarily translate to

other conservation cases, the normative orientations within the conversation does. As the number and diversity of large carnivore reintroduction projects has increased, the debates that surround these projects also have proliferated (Jachowski et al. 2016). Considering the potential reintroduction of the California grizzly bear offers a way to sink our teeth into normative challenges in this realm of conservation and to engage with real-world arguments surrounding large carnivore reintroduction.

ARGUMENTS CONCERNING THE REINTRODUCTION OF LARGE CARNIVORES

The 17 arguments below highlight consequentialist, deontological, virtue, and contractualist reasoning within the California grizzly debate. While we utilise this particular but unrealised case, we do so by focusing not on the specifics of reintroduction policy, but rather on the axiological, teleological, obligation-based, and developmental dimensions that may manifest amongst a suite of possible arguments for or against reintroduction. Some arguments cut across normative orientations, whereas some stem from the commitments of a particular ethical theory. For this reason, we do not organise arguments according to any traditional moral positions. Instead, we organise them thematically. We start with three arguments that hinge on issues of moral considerability—harms, rights, and animals. We then present three arguments that hinge on concepts of responsibility—repair, future culpability, and justice. We next present axiological arguments that turn on views of value. Arguments 11 to 14 then highlight dimensions of reintroduction that interfere with human flourishing, culture, and community. We then discuss the overlap between living well and carnivore reintroduction through care and moral education. Finally, we discuss the link between grizzly reintroduction and broader ideals, focusing on the wilderness in argument 17. These arguments are common in large carnivore reintroduction debates. We hope to enable a more informed conservation conversation by highlighting the perils, assumptions, implications, and opportunities that come with invoking these different kinds of arguments.

Harm Arguments

Harm arguments address how reintroducing grizzly bears may result in damage, pain, or loss.

Attacks are rare, and fatalities from attacks are even rarer, but grizzly bears do occasionally injure or kill people. In recent decades, grizzlies in North America have been responsible for an average of 11 attacks and one to two fatalities per year (Bombieri 2019; Herrero and Fleck 1990; Herrero 1970). We can thus describe the risk of living with grizzlies as small but real: harms to people (as well as to bears and other beings) will result from reintroduction efforts.

For people who consider any harm, particularly a loss of human life, morally unacceptable, reintroducing grizzlies to California would pose an intolerable threat regardless of

the risk posed to any individual. To better understand the implications of the “no harm allowed” position, consider an example: someone fires a gun into a crowd of an uncertain size. If the bullet hits one person, the total harm remains the same, whether the size of the crowd is 10 or 10,000, even though the risk posed to any individual (1 in 10 versus 1 in 10,000) decreases with the size of the crowd. Even if reintroducing grizzlies poses a minuscule risk to the average California resident or tourist, some harm to life and limb may result, and if no harm is allowable then the risk is irrelevant.

Considering these harms and risks in isolation, however, leaves much out of the equation. To better assess the uncertain risks of reintroducing grizzlies, one thought might be that we should place them in context and weigh them against the potential benefits. Would reintroducing grizzlies to California manifest some key principles, such as an obligation to restore native species and ecosystems? If so, then some harm may be acceptable. Would reintroducing grizzlies change people’s exposure to some other potential harms, thus altering the risk calculus? Notably, this risk may also be disproportionately borne by different communities (see Environmental Justice Arguments below). Reintroducing grizzlies could, for example, lead other species, such as pumas, which on rare occasions attack people, and deer, which are involved in more than 1,000 automobile accidents each year in California, to behave differently in relation to people, thus altering the total risk people assume from living with wildlife.

Human Rights Arguments

Human rights arguments address how reintroducing large carnivores may overlap and interfere with basic moral claims, restrictions, and commitments.

Where harms can be understood as damages or costs, rights are more aptly understood as entitlements or constraints. They are, in other words, “claims to” or “claims against” other parties. If a person is said to have a right to something, for instance, and that right is violated by another party, that person might then be said to have a “claim *against*” the person who has violated their rights. Equally so, if someone has a property right, they might be said to have a “claim *to*” a parcel of land. Rights can be understood to generate permissions and restrictions by constraining action, rather than identifying goods to be maximised or optimised.

Many perspectives on rights associated with life, liberty, and happiness include not only freedom from harm, but also the freedom to access public lands and public trust natural resources. Many people live in reintroduction zones and reintroduction may infringe upon rights to freely access land. Personal property, a right central in American law, could also be destroyed or damaged by grizzlies. Further, common sentiments likely include belief in the right to a healthy and safe environment (*i.e.* rights to clean water), the right of self-defense (in case of bear attack or predation), and the right to have a say in local management (reintroduction efforts). These sorts of arguments don’t only reduce to concerns about harms,

damages, or risks so much as they rely on the claims of a rights holder to make adjustments to reintroduction.

If reintroducing grizzlies violates or undermines any of these or other rights, then we may consider reintroduction impermissible. If, on the other hand, reintroducing grizzlies promotes these rights by helping restore a healthy ecosystem, then we may consider it a rights requirement.

Animal Arguments

Animal arguments address the effects of reintroduction on the welfare or the rights of individual animals.

Philosophers such as Peter Singer (Singer 1975) and Tom Regan (Regan 1983) have argued that non-human animals deserve moral consideration *as individuals*. On this line of thought, moral consideration is extended to individual animals rather than to species populations or to a species as a whole. Reintroducing grizzlies to California may indeed bolster or diminish the welfare of certain individual animals (including grizzly bears themselves), domestic animals, or individual members of other wild species.

While animal welfare ethics considers a spectrum of interests applicable to individual animals, including survival, special attention is given to the capacity to suffer and the pursuant right to be spared from undue suffering. Similarly, advocates of animal rights might suggest that all moral subjects, animals included, hold rights to life or autonomy. Conservationists generally undertake reintroduction programmes because they believe doing so promotes the survival or persistence of the target species or ecosystem. Yet under these programmes, individual animals might suffer—or have their rights infringed upon—more than they would without them (including diverse species and domestic animals).

With regard to grizzly bears themselves, translocating animals poses inherent risks and stresses upon the individuals that must adjust to their new surroundings. Some may argue that the suffering and the possibility of death of individual bears outweighs any ultimate benefits of reintroduction.

Reparation Arguments

Reparation arguments address human responsibility for past harms done or damages caused to nature (including landscapes, ecological systems, and wildlife).

Commonly held views about responsibility and liability suggest that if we harm someone in some way, we have a *ceteris paribus* obligation to repair the damage we have done. Some may think of this as the “you break it, you buy it” principle.

Many theorists argue that species and ecosystems fall in this category (Hermans et al. 2014; Scherer 1994). Such obligations become more difficult to assess and assign when they involve multiple actors, stem from collective actions without a single identifiable culprit, or have occurred so long ago that the liable actors cannot reasonably be held accountable or are no longer alive.

Grizzly bears disappeared from California due to activities undertaken largely by a small group of white men during the

late 19th and early 20th centuries. State and local governments in California offered bear bounties at various points, but unlike with coyotes, wolves, or pumas, the grizzly hunt in this state was not a highly planned, coordinated, militarised or professionalised campaign (Storer and Tevis 1955; Legislature of the State of California 1870). Nevertheless, as the beneficiaries of California’s violent colonial history, its current residents may bear some responsibility for repairing this past damage.

If we accept that present actors bear some responsibility for past damages, then what exactly do they owe in reparations, and how can these reparations be paid in a manner that does not create new problems, conflicts, or injustices? We may want to assume that responsibility diminishes at some rate as time elapses after the extinction event, whereas responsibility increases for parties that have enjoyed greater and more tangible benefits from this event, such as farmers and ranchers, during the intervening period. Whether this means that such parties must contribute to a reintroduction effort depends on how we measure these benefits and assign this responsibility.

Future Culpability Arguments

Future culpability arguments address the responsibilities that people alive today have to future generations.

Many in the conservation world argue that we have a responsibility to pass down healthy, biodiverse ecosystems to future generations (Nolt 2017). What this means in the Anthropocene—an era of human-induced global environmental change—remains the subject of vigorous debate (Doak et al. 2014). Yet it is clear that the needs, interests, and concerns of future generations may be relevant to reintroducing large carnivores.

A few additional considerations complicate this question. Current generations have little information about what the future holds or whether an animal like the grizzly helps or hurts. If grizzly bears can be said to help ensure environmental quality in a general sense, then perhaps we have an obligation for reintroduction, but if the future promises to be resource scarce, then perhaps it is unwise to reintroduce the grizzly.

Questions regarding the likely impacts to future generations of grizzlies also arise. For example, if reintroducing grizzlies to California incurs either future costs (e.g., livestock depredation) or future benefits (e.g., wildlife tourism), who is responsible for addressing those costs, and under what circumstances? Should affected parties be compensated, and for how long into the future? Should those who benefit, such as tour operators, be asked to pay for the opportunity to view grizzlies? Although often framed as legal matters, answers to these questions reflect deeper normative assumptions about costs, benefits, and responsibilities.

The federal government has funds that reimburse farmers and ranchers for livestock losses associated with large carnivore depredations, through programs such as the Farm Bill Livestock Indemnity Program. Some state governments also have reimbursement programmes (e.g.,

Oregon's Wolf Depredation Grant, Wyoming's Gray Wolf Depredation Compensation Programme) (Lee et al 2017). Non-governmental conservation organisations also have contributed to reimbursement programmes, with varying degrees of investment and success (Dickman et al. 2011). Were grizzlies to be reintroduced, institutions in California may also need to establish similar programmes.

Environmental Justice Arguments

Environmental justice arguments related to reintroducing large carnivores address questions of fairness and equity in people's access to lands and natural resources, as well as imbalances in representation in decision-making processes.

The loss of grizzlies in California is a legacy of settler colonialism. While European colonists benefited from killing bears and reshaping bear habitat, indigenous peoples and animals displaced by colonialism paid the price without recognition, power, or a fair share of the benefits. This imposition of the past continues to the present, and a potential affront to the rights of peoples whose deep histories is inextricably tied to these animals. For people whose roots in California go deeper than 1848, the loss of grizzlies could be seen as a kind of environmental and intergenerational injustice (Howarth 1992). If a small population of California grizzlies had endured to the present day, laws would compel our institutions to protect them, and few people would accept the ecological loss and injustice that would accompany their extinction.

Historical evidence from California's Mission and Rancho eras (1769-1848) suggests that grizzlies may actually have increased in population during this period—due to decreased indigenous hunting and gathering, as well as increases in livestock subsidies in the form of European cattle and sheep—becoming almost superabundant by the early nineteenth century (Preston 2002). It was not until white settlers arrived in significant numbers, beginning in the 1830s, then exploding during the Gold Rush of 1849, that California's grizzly population began to decline.

Prior to colonisation, indigenous peoples killed and were killed by grizzlies, but they also coexisted with them. Several California First Nations groups still consider bears their literal kin, engaging in biannual bear dances and other ceremonies and gatherings that celebrate the deep connections between people and bears in this place. The extirpation of bears can be seen as part of the colonisation of California and an attempted erasure of related indigenous relationships.

While reintroduction efforts are unlikely to fulfill broader goals of environmental justice, however construed, any reintroduction program must consider the link to injustice in large carnivore extirpation.

Viability and Resilience Arguments

Viability and resilience arguments address how the reintroduction of large carnivores may facilitate survival and

critical interdependencies that are essential for humans and animals to flourish.

Globally, brown bears are an IUCN species of least concern (IUCN 2017). In some areas, such as central Asia and western Europe, their populations are small and threatened, whereas in other areas, such as Eastern Europe and Alaska, their populations are large and healthy. In the lower 48 U.S. states, grizzlies have been listed as federally threatened since 1975 (USFWS 2018).

Advocates of expanding the current Grizzly Bear Recovery Plan for the lower 48 U.S. states argue that restoring populations in California and the Southwest, by increasing the number and range of the species, would bolster its recovery. Expansion of its range would render the species more resilient to future threats such as climate change, and enable it to expand its range even further via dispersal - in other words, more bears in more places could mean greater flourishing of the species. Reintroduction is thus a bet-hedging strategy against future adversity.

These arguments apply well to species with a few small populations, but are less applicable to a widespread species like the brown bear if flourishing is contingent on ecological viability. In a 2017 federal lawsuit, for example, the U.S. District Court for Montana overturned a federal decision to delist grizzlies in the Greater Yellowstone recovery zone in part because the government had failed to consider adequately how delisting would affect other grizzly populations (Kansman 2018). Furthermore, an additional population may not be needed to ensure this species' viability, but it may divert resources from other areas or more urgent conservation projects.

Intrinsic Value Arguments

Intrinsic value arguments suggest that nature, whether in whole or in part, harbours value independent of its value for humans.

Intrinsic value arguments, which hold that values exist in nature regardless of whether humans recognise or ascribe them, are familiar to both conservation biologists and environmental ethicists (Zimmerman 2001; O'Neill 1992; Callicott 1985; Rolston 1983). These arguments can take varied forms, yielding different conclusions. Arguments conferring intrinsic value to nature, or parts of it, may locate such value in ecosystem relations (i.e., Aldo Leopold's *Land Ethic*), individual beings (i.e., Albert Schweitzer's "reverence for life"), biological process (i.e., Holmes Rolston's "naturalised values"), or elsewhere. Any of these frameworks would likely ascribe inherent value to grizzly bears that live in and contribute to the ecosystems of which they are a part (Rolston 1989; Leopold 1966; Schweitzer 1936).

Yet these frameworks yield different messages about reintroduction (Lee et al. 2014). If one assumes that value inheres in individual lives, this may lead to a different approach than if one assumes that value inheres in species, ecosystems, or communities (Varner 2002). Competing approaches at times

conflict with one another, build on one another, offer mutually exclusive, or complementary premises on which to base a large carnivore reintroduction effort. Intrinsic value theories may also offer different conclusions about whether doing so would replace the value lost when a species went extinct, or create something entirely new (Elliot 1982).

Harm arguments (argument #1), ecosystem composition (argument #9), ecosystem function (argument #10), and aspects of other arguments discussed here emerge from perspectives on intrinsic value.

Ecosystem Composition Arguments

Ecosystem composition arguments address the idea that ecosystems, absent some component native species, are incomplete and thereby less valuable.

Writing about conserving ecosystems, the pioneering American environmentalist Aldo Leopold mused that to “keep every cog and wheel is the first precaution in intelligent tinkering” (Leopold 1966: 190). Today, environmentalists often echo Leopold’s sentiment when they argue that conservation efforts should seek to maintain intact ecosystems, with all of the species that have historically comprised the system (Callicott 1985). Without grizzly bears, once California’s most abundant and conspicuous large carnivore, the state’s ecosystems are “incomplete.”

According to this view, some ecosystems may *require* grizzly bears in order to be whole. This implies that the composition of these ecosystems, prior to the grizzly’s disappearance, was superior—fostering more diversity, productivity, or resilience, for example—than it is today.

The ecosystem composition argument is related to the argument from intrinsic value. If diversity, productivity, or resilience have intrinsic value, then conserving or restoring ecosystem composition may be a prerequisite for maintaining this value.

Yet, both the intrinsic value and ecosystem composition arguments are coming under increasing scrutiny as paleoecology research demonstrates the variability and dynamism of what were once thought to be stable and tightly-bound communities, and as climate change pushes many systems into “no-analog” states. In such cases, so claims ‘compositionism’, what an ecosystem is composed of is less important than how it functions. Conservation efforts that focus on ecosystem services or resilience, instead of biodiversity and endangered species, or turn on historic ideals of naturalness, offer examples of this shift (Callicott et al. 1999).

Ecosystem Function Arguments

Ecosystem function arguments address the idea that resilience and productivity of an ecosystem stems from the function of its constituent parts and that when these systems function less well, they are thereby less valuable.

The grizzly bear advocate Lynne Seus has written that “Where the grizzly can walk, the earth is healthy and whole” (Vital

Ground Foundation 2019). Since the 1930s, conservationists have identified many large carnivores as keystone species that help maintain healthy and resilient ecosystems. The disappearance of these species from their historic habitats has been linked to shifts in ecosystem health and integrity, as well as species interactions and the provision of ecosystem services (e.g., Wilmer and Schmitz 2016; Beschta and Ripple 2009). Grizzly bears (along with other bear species) are known to disperse seeds, transport nutrients, till soils, and shape the behaviours of a host of other species (Willson and Gende 2004; Berger et al. 2001; Tardiff and Stanford 1998).

Improved ecosystem function is a goal of many conservation efforts. In some cases, large carnivore reintroductions appear to have had significant direct and indirect effects on ecosystem function (Ripple et al. 2014; Ripple and Beschta 2012). The effects of reintroducing grizzly bears to California would vary as a function of complex social and ecological forces, as well as the total number and density of bears on the landscape. Under the Endangered Species Act, most recovery programmes have sought to establish viable and self-sustaining populations, not populations of great enough number and density to regulate ecological processes or provide ecosystem services. Moreover, if the goal of conservation is functional, then there may be less costly or risky ways to produce the desired functions than by reintroducing grizzly bears.³

Impacts on Human Lifestyle Arguments

Threats to human lifestyle arguments address changes or choices that may be required in the patterns of human activity for those who live in or visit areas with grizzly bears.

Having grizzly bears on a landscape can affect how people live (McCullough 1982). Those who live in grizzly country tend to take precautions against adverse encounters, and some live in a constant or frequent state of increased vigilance. For most of the twentieth century, in the lower 48 U.S. states, this applied mainly to people working and playing in the high-country parks and wilderness areas of the Intermountain West. In the Northern Rockies, however, grizzlies are expanding their ranges and appearing in rural and urban areas where people have not seen them in decades (Cates-Carney 2018; Wilson et al. 2014). There, the expansion of grizzly bears sparked new concern in residents, who express fear and anger at having their lifestyles disrupted: “That’s what makes me mad, is when my daughter’s scared to go outside because there’s too many bears wandering around” (Mott 2018).

Even in places where bears might bolster tourism or add to the wilderness character of a place (this whole argument could indeed cut both ways), they affect where, when, and how people interact, travel, and recreate outdoors. As grizzly bears in the Northern Rockies venture into new rural and urban areas, conservationists must educate residents and visitors, and work with public agencies and private organisations to invest in infrastructure and educational programmes that promote coexistence by preventing bears from becoming habituated to people. All of these efforts come with costs, however, and

local residents and governments often feel as though they lack adequate support for bearing the burden of implementing broader national conservation goals.

Impacts on Human Livelihood Arguments

Human livelihood arguments address the benefits and burdens that may be placed upon people who work in or near grizzly reintroduction and recovery areas.

Although the benefits of having large carnivores on the landscape accrue to society at large, these are often disproportionately borne by a small number of people whose livelihoods may be negatively affected by these animals. The total annual revenues in farming and ranching, exceeded \$50 billion in California in 2018 (CDFA 2019). Although it may be unlikely depredation by grizzly bears would have a significant impact on this industry as a whole, predator impacts may have acute detrimental effects.⁴ In industries with thin profit margins, as is often the case with ranching on western public lands, these losses can threaten the viability of family businesses that have enabled generations to live on and work the land. Furthermore, having grizzly bears on the landscape can affect what businesses must do to ensure safe working conditions for themselves and their employees.

Newborn lambs and calves on California ranges could be at risk from these lumbering omnivores. Farms that grow fruits, nuts, grains, or produce honey in grizzly habitat may experience some losses, depending in part on support from public agencies and private conservation groups, and the proactive measures taken to avoid these losses (Wilson et al. 2006).

In addition to implications for agricultural livelihoods, tourism and recreation play an important role in California's economy, supporting more than 1 million jobs, generating nearly \$12 billion in tax revenue, and amounting to more than 2.5 percent of the state's gross domestic product (Visit California 2019; Outdoor Industry Association 2019; Baird et al 2017). Conservationists often sell their projects as creating recreational opportunities (Penteriani et al. 2017; Honey et al. 2016). In this sense, wildlife provides instrumental value by enabling recreational activities or by otherwise enriching the wilderness experience. Advocates of grizzly reintroduction may point toward the strong appeal that parks and preserves in other States—such as Yellowstone, Denali, or Glacier National Parks—have for outdoor enthusiasts. Tourism and outdoor economies thrive in and around these parks, with millions of visitors each year (Penteriani et al. 2017; Gunther et al. 2015; Gunther et al. 2018).

Backpackers, horse packers, and other wilderness travelers would need to take additional precautions in some areas. Businesses that support some outdoor recreational activities would likely use the grizzly to advertise their services, but they would also need to participate in public safety and educational efforts (Dunn et al. 2008). New information and infrastructure would be necessary in grizzly habitat—such as interpretive signage, food storage facilities, and bear spray—as well as

increased law enforcement for those found in violation of the new rules.

Moral Entanglement Arguments

Moral entanglement arguments address questions related to the prerogative people have to decide what they want in “nature.”

Moral entanglement concerns build on two premises. The first is that, in the Anthropocene, an age of human-induced global environmental change, all ecosystems are profoundly shaped by human actions (Crutzen 2006; McKibben 1989). If humans control the natural world, then for conservation, the garden may be a better metaphor than the wilderness (Marris 2013). Gardening means choosing what belongs. Rather than resort to an a priori idea of intrinsic value or historically-based notion about ecosystem composition, arguments from moral entanglement hold that agential, intentional choice is the key element in humans' relationships with the natural world. These arguments, in other words, may conclude that if the majority of people want grizzlies present, then they should have them.

The second premise in this argument is that there must be some decision-making process in place to determine what people actually want from their ecosystems. This process would differ among authoritarian, expert-based, or more democratic political systems, invoking different concepts and influence, and likely different outcomes. The moral entanglement arguments therefore hinge not only on choice, but also on political power.

Community Heritage Arguments

Community heritage arguments address the idea that historical and cultural connections with grizzlies generate symmetrical moral responsibilities regarding grizzlies.

Grizzlies have occupied a central place in California's natural and cultural heritage for centuries. The grizzly occurs on the state flag and seal, it is the official state animal, and it is the mascot for the state's two most prominent public universities (UC Berkeley and UCLA), as well as dozens of colleges and schools. The state flag is a popular symbol worn on apparel, and appropriated in thousands of images that nearly every Californian sees each day. The ubiquity of these images suggests that many Californians place some meaning, or perhaps even pride, in the bear flag image as a symbol of a place that has long seen itself as, in the words of the famous California journalist Carey McWilliams, “exceptional.”

If Californians have some enduring connection with images of grizzlies, then what do they owe the bears themselves? There is no clear answer to this question. Yet, community heritage arguments suggest that there is some value in returning grizzlies to California and preserving them there, in the same sense that there is value in repatriating stolen artwork, or preserving archives, architecture, scenery, or other tangible features of the state's history and heritage for future generations.

Care Arguments

Care arguments address the virtue of developing supportive relationships with other human and non-human entities.

An ethics of care suggests that the more connected the self is to others, the better, and that practicing self-care care makes it easier to care for other things. It could be argued that fostering a reintroduction effort enables us to connect more with our world and cultivate the caring virtues of protection, growth, love, and respect (Whyte and Cuomo 2016; Ferkany and Whyte 2012; Preston 2001; Cafaro 2001; Welchman 1999; Plumwood 1998). Care ethics suggest that larger and healthier populations of grizzlies would be better for the species than what exists in the lower 48 U.S. states today. Yet it may also place a heavy burden on reintroduction efforts that have only a moderate chance of success or cost the lives of individual animals.

“Caretaking,” according to the poet Linda Hogan, “is the utmost spiritual and physical responsibility of our time” (Hogan 1996). Hogan’s insight parallels both secular and religious traditions. In Christianity, the greatest exponent of this view with regard to other animals was St. Francis of Assisi, who is credited with saying that “Not to hurt our humble brethren is our first duty to them, but to stop there is not enough. We have a higher mission—to be of service to them wherever they require it.” Such relation of humans to the rest of the world can also be expressed in terms of stewardship (Palmer 2006). Stewardship has been used in both religious and secular ethics to describe a responsibility of care. Stewardship ethics is a call to steward and care of other animals that requires us to restrain our personal interests for the benefit of others.

Moral Education Arguments

Moral education arguments address how living with large carnivores might help people develop virtues that can be more broadly applied to their lives.

Living, working, or playing in grizzly country may build fortitude, thoughtfulness, discipline, generosity, temperance, courage, humility, and wisdom - possible components to living well and developing strong moral character. These virtues and practices are difficult to cultivate, requiring moral maturity and emotional intelligence (Curren and Metzger 2017; Ferkany and Whyte 2012; Light 2000).

Reintroducing grizzlies may allow us to practice justice and humility by returning them to a place from which they were unjustifiably extirpated, and the reality of grizzlies in the California landscape might provide an opportunity to be courageous. It might also allow us the opportunity to practice generosity in sharing the land with a large predator, and temperance (self-control and restraint) in our unmitigated development of suitable habitat. In addition, having grizzlies in California might cultivate and foster new ways of knowing and understanding ourselves in the world.

Wildness Arguments

Wildness arguments address how animals and places, like grizzlies and grizzly habitat, support ideals of untrammelled and unfettered nature.

The presence of large carnivores—and the risks associated with them—may enhance the perceived wildness of a seascape or landscape (for more on arguments concerning wilderness see Nelson 1998). Indeed, various authors have pointed to sharks, big cats, crocodiles, wolves, bears, and other meat-eating megafauna as “icons of wilderness” (White et al. 2017).

There are at least three main variants of this argument for wildness. First, wildness may be intrinsically valuable if it serves as a *generative force* of other values contained therein, both intrinsic and instrumental (Rolston 1989). If wildness is required, for example, for certain species to thrive or valuable human experiences to occur, then it may have both an *actual* value and hold *possibilities for value* in that system. Second, wildness may be a necessary counterpoint for defining what we mean by terms such as “society,” “civilisation,” and “culture.” The existence of wildness would thus allow us to understand our own humanity as connected to—but distinct from—the wildness in the world. The knowledge that grizzly bears are present in a system can help us understand that system as something other-than-human, which better helps us understand what it means to *be human*. Third, knowing or experiencing wildness can help us cultivate a virtuous attitude toward nature (McShane et al. 2008) and the “radical otherness” of nonhuman beings. By exercising one form of control (reintroducing and managing grizzly bears), we may cede a greater form (repression of wildness), which constitutes a recognition of our place in the natural order (Peacock 2011).

CONCLUSIONS

While all of the aforementioned arguments are fundamental to the “why” components of large carnivore reintroduction debates, they also warrant attention in several stages of related deliberation, design, and implementation. Thus far, debate surrounding reintroduction (and wildlife policy more broadly) has been confined to a small set of scientific, economic, and political considerations that tend to capture only a portion of the wider discourse likely to inform policy decisions.

While any particular argument for or against California Grizzly reintroduction is beyond the scope of this paper, we hope here to have laid out the prevailing moral questions and challenges that such an effort might inspire. Though we have used the case of the Grizzly as a concrete example, the value-laden arguments we catalog here could apply to any ongoing predator reintroduction debate. For instance, Colorado just passed proposition 114, requiring state wildlife officials to come up with a grey wolf reintroduction plan, Washington just scrapped plans to reintroduce grizzlies to the North Cascades, and attempts to reintroduce cougars from Virginia to Vermont have ignited reintroduction debates in the Eastern U.S. Any one of these debates might go more smoothly after careful

consideration and reflection on the normative presuppositions that guide these efforts.

Reintroduction offers the conservation community a tool to recognise a history of species extirpation and to reconcile human disturbances in the natural world (Lawhon 2016). There are, of course, many strong ecological reasons to consider using this tool, but no reintroduction effort occurs in a vacuum. The political fact of the matter is that debate about reintroduction happens in the public sphere -- on ballots, on the pages of local newspapers, in court cases, and in town halls. It is our contention that one of the best ways for the conservation community to anticipate these considerably more practically-minded debates is to understand the ethical assumptions that guide them.

We have thus laid out the above ethical arguments in hopes that managers, policy makers, and conservationists can better grapple with the normative dimensions of reintroduction, directly and openly engage with these arguments, and move to stronger footing in the public sphere.

Engineering a systematic, fair, and inclusive policy-deliberation process concerning the California Grizzly will be a uniquely challenging task. While navigating the normative dimensions of grizzly reintroduction, policymakers must give ample attention not only to the pertinent arguments presented above, but also to the forums in which these arguments will be debated. Equally important is the matter of who gets to make decisions and how those decision-making processes should be structured. Integrating the normative dimensions of species reintroduction is challenging, and the complexities of arguments presented above both might explain the reluctance of policymakers to venture into ethics territory and also anticipate hurdles that they will face as they move forward. However, the fact that these questions are difficult does not mean they should or can be avoided; to the contrary, it means they are indispensable.

Ultimately, integration of ethics into the decision-making requires grappling with a wide range of issues including the 17 argument groups we present above.

Author Contributions Statement

All authors contributed to the conceptualisation, research, and drafting of the manuscript. Lee, Laird, Brann, Hamilton, Lawhon, and Hale (members of the the Committee on Environmental Thought) led the amalgamation of ethical arguments. Coxon, Martin, Rehnberg, Tyrrell, Welch, and Alagona (California Grizzly Research Network, Ethics Group) led the incorporation of the grizzly case. Alagona conceived of the initial collaboration. Lee led revision and submission efforts.

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NOTES

1. The methods used to arrive at the arguments presented here emerged out of a 2018 interdisciplinary workshop that brought together philosophers, environmental historians, ecologists, and environmental policy scholars to explore underlying ethical assumptions in reintroduction. While ethics often provides guidance in the form conceptual arguments, philosophy can also help organise discourse. We deliberately do not present a framework or argument for moving through each of the arguments listed; rather, our goal is to demonstrate the underlying normative currents in reintroduction. Any positive argument would then play out in the details of a particular policy. Reintroduction efforts typically rely on, but do not openly present, comprehensive ethics arguments. While we do not defend a position, this use of philosophy provides a novel organisation of discourse, clarification of norms, and approach to conservation ethics. assumptionsawards. hasnt career rather,ction lease contact the ISEE President. eld annually through three awards. hasnt career
2. In 2016, an interdisciplinary research network based at the University of California launched the first comprehensive study, since 1955, of grizzlies in this state. A year later, researchers at UCSB contacted a team of ethicists at the University of Colorado, Boulder and Alaska Pacific University to explore some of these issues.
3. Principles of ecological function commonly provide project goals for ecological restoration projects, rewilding efforts, and environmental policy. As such, function is an expected element in conversations surrounding large carnivore reintroduction efforts. The absence of grizzlies in California, for example, has led to changes in other species on the land. A common line of questioning emerges from stories like this and asks how the functional role of species may have changed in California, the extent to which functions previously performed by grizzlies are performed by other species, and how functional roles in the entire ecosystem would be changed following grizzly reintroduction.
4. Predators, including coyotes, mountain lions, and dogs are responsible for roughly 1% of mature cattle death losses and 6% of calf death losses in California (and significantly more for sheep and goats) (USDA-APHIS 2011). The prevalence of these other predators would likely pose the dominant risk to livestock were grizzlies to be reintroduced.

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