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Essay

Summoning compassion to address the challenges of conservation

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Abstract: *Conservation practice is informed by science, but it also reflects ethical beliefs about how humanity ought to value and interact with Earth's biota. As human activities continue to drive extinctions and diminish critical life-sustaining ecosystem processes, achieving conservation goals becomes increasingly urgent. However, the determination to react decisively can drive conservationists to handle complex challenges without due deliberation, particularly when wildlife individuals are sacrificed for the so-called greater good of wildlife collectives (populations, species, ecosystems). With growing recognition of the widespread sentience and sapience of many nonhuman animals, standard conservation practices that categorically prioritize collectives without due consideration for the well-being of individuals are ethically untenable. Here we highlight 3 overarching ethical orientations characterizing current and historical practices in conservation that suppress compassion: instrumentalism, collectivism, and nativism. We examine how establishing a commitment to compassion could reorient conservation in more ethically expansive directions that incorporate recognition of the intrinsic value of wildlife, the sentience of nonhuman animals, and the values of novel ecosystems, introduced species, and their members. A compassionate conservation approach allays practices that intentionally and unnecessarily harm wildlife individuals, while aligning with critical conservation goals. Although the urgency of achieving effective outcomes for solving major conservation problems may enhance the appeal of quick and harsh measures, the costs are too high. Continuing to justify moral indifference when causing the suffering of wildlife individuals, particularly those who possess sophisticated capacities for emotion, consciousness, and sociality, risks estranging conservation practice from prevailing, and appropriate, social values. As conservationists and compassionate beings, we must demonstrate concern for both the long-term persistence of collectives and the well-being of individuals by prioritizing strategies that do both.*

Keywords: animal ethics, conservation ethics, intrinsic value, novel ecosystem, sentience, virtue ethics

Llamado a la Compasión para Tratar los Retos de la Conservación

Resumen: *La práctica de la conservación recibe información por parte de la ciencia, pero también refleja las creencias éticas sobre cómo la humanidad debe de valorar e interactuar con la biota de la Tierra. Conforme las actividades humanas continúan causando las extinciones y disminuyendo los procesos ambientales de suma importancia para el soporte de la vida, alcanzar los objetivos de conservación se vuelve cada vez más urgente. Sin embargo, la determinación para reaccionar de manera decisiva puede llevar a los conservacionistas a tratar con retos complejos sin la deliberación apropiada, particularmente cuando se sacrifican ejemplares faunísticos por el llamado bien mayor de los colectivos faunísticos (poblaciones, especies, ecosistemas). Con el creciente reconocimiento de la gran sensibilidad y sapiencia de muchos animales no humanos, las prácticas estandarizadas de conservación que priorizan categóricamente los colectivos sin la consideración debida para el bienestar de los individuos son insostenibles éticamente. En este artículo resaltamos tres orientaciones*

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dominantes que caracterizan las prácticas actuales e históricas dentro de la conservación que suprimen la compasión: el instrumentalismo, el colectivismo y el nativismo. Examinamos cómo el establecimiento de un compromiso con la compasión puede reorientar a la conservación hacia direcciones más expansivas éticamente que incorporen el reconocimiento del valor intrínseco de la fauna, la sensibilidad de los animales no humanos y los valores de los ecosistemas novedosos, las especies introducidas y sus integrantes. Una estrategia compasiva de conservación apacigua las prácticas que dañan intencionalmente e innecesariamente a los ejemplares faunísticos, mientras se alinea con los objetivos críticos de conservación. Aunque la urgencia por alcanzar los resultados efectivos para la resolución de los problemas de conservación más importantes puede aumentar el atractivo de las medidas rápidas y rigurosas, los costos son muy elevados. Si se continúa justificando la indiferencia moral cuando se causa sufrimiento a los ejemplares faunísticos, particularmente a aquellos que poseen capacidades sofisticadas para las emociones, la conciencia, y la sociabilidad, se corre el riesgo de distanciar la práctica de la conservación de los valores sociales persistentes y apropiados. Como conservacionistas y seres compasivos, debemos mostrar preocupación tanto por la persistencia a largo plazo de los colectivos como por el bienestar de los individuos al priorizar estrategias que permitan cumplir ambos objetivos.

Palabras clave: ecosistema novedoso, ética animal, ética de la conservación, ética de la virtud, sensibilidad, valor intrínseco

摘要: *保护实践建立在科学知识上, 但也反映着人类如何看待地球上的生物并与之相处的伦理观念。随着人类活动不断导致物种灭绝以及维持生命的重要生态系统过程减少, 实现保护目标越来越迫在眉睫。然而, 果断行动的决心可能使保护主义者在考虑不周的情况下处理复杂的挑战, 特别是当面临野生生物个体要为所谓的集合体(种群、物种、生态系统) 的利益而牺牲个体利益的情况时。现在已有越来越多的人意识到许多非人动物也普遍具有感知能力和智慧, 因此对个体福祉不加考虑而优先保护集合体的传统标准的保护实践在伦理上是站不住脚的。本文重点讨论了当下和历史上漠视个体福祉的保护实践中三种主要的伦理取向: 工具主义、集体主义和本土主义。我们研究了同情心的投入如何将保护重新导向到更具有伦理价值的方向, 它包含了对野生生物内在价值、非人动物的感知能力以及新生生态系统、引入种及其成员的价值的认识。富有同情心的保护方法可以减少有意或不必要地伤害野生生物个体的行为, 同时也与关键保护目标一致。尽管取得解决重大保护问题的有效成果的紧迫性加强了人们对采取快速、严厉的措施的诉求, 但这样做的代价过高。继续为伤害野生动物个体(特别是那些富有情感、意识、社会性的个体) 的道德冷漠开脱, 就要承担使保护实践背离主流的、恰当的社会价值观的风险。作为保护主义者和具有同情心的人类, 我们必须同时关心集合体的长期续存和个体的福祉, 采取兼顾二者的保护策略。* ***【翻译: 胡怡思; 审校: 聂永刚】***

关键词: 动物伦理, 保护伦理, 内在价值, 新生生态系统, 感知能力, 美德伦理学

Introduction

Conservation is a practice with ethics at its core. It is a noble pursuit, espousing a commitment to ensure that immediate human needs and wants are met in a manner that allows the diversity of Earth's life-forms to flourish (Moore & Nelson 2011). The work of conservation becomes increasingly critical as modern anthropogenic activities alter and diminish life-sustaining ecosystem processes. Perhaps the most sobering realization is that humans have triggered a sixth global mass extinction. Halting and reversing these damages is arguably among the greatest and most challenging tasks confronting the global community.

Major environmental problems cause major ethical challenges. In the drive to react with urgency and decisiveness, these challenges are often handled without due deliberation, thereby neglecting important moral concerns. Conservation has thus far largely excluded animal ethics from its moral universe, a position that requires that we attend to the interests of individual sentient wild animals (henceforth, wildlife individuals). Particularly problematic are cases in which wildlife individuals are harmed for the so-called greater good of biological and ecological collectives (henceforth, wildlife collectives) (Table 1). Conservation objectives focus on ensuring the persistence of species and ecological processes, both of which are broadly encompassed under the umbrella of biological diversity (Trombulak et al. 2004). To meet these objectives, many conservation programs entail so-called wildlife management, usually aimed at regulating population sizes and distributions. Management techniques include killing individuals of common species to promote the recovery of rare species, harming wild animals in captive breeding and reintroduction programs, exposing individual megafauna to sport hunting to promote the species' economic value, and killing individuals of introduced species to recreate historic ecological assemblages. Although killing for conservation may aim to serve important objectives, it also entails injury, distress, diminished quality of life, and death for wildlife individuals (Dubois et al. 2017). These programs also usually fail to define, defend, and meet clear objectives (Ramp & Bekoff 2015). For example, across Australia, 68% of

Table 1. Conservation programs that exclude individuals from the scope of moral concern and suppress compassion, exemplifying instrumentalist, collectivist, or nativist orientations.

Program	*Underlying program values*
Killing Marius. Copenhagen Zoo, Denmark, 2014 Marius, a healthy young giraffe (*Giraffa camelopardalis*), was deemed surplus to the zoo's captive breeding program. Despite international appeals he was killed, publicly dissected, and fed to captive lions (*Panthera leo*) in front of an audience, including children. A month later, the zoo killed 4 healthy lions to provide space for a new lion considered more suitable for breeding (Cohen & Fennell 2016).	**Instrumentalism and collectivism** The captivity and killing of Marius and other animals at the zoo is based on the idea that their value should be defined primarily for their instrumentality as a source of entertainment, profit, and education for the zoo, and their potential as breeding stocks for their (collective) kinds.
Wolf culled for caribou. Canada, 2014 Over 1,000 wolves (*Canis lupus*) were killed between 2005 and 2014 in an ongoing effort to reduce predation on threatened boreal woodland caribou (*Rangifer tarandus caribou*). The wolves were subjected to strychnine poison baiting, aerial gunning, and the 'Judas method' - a conservation practice where radio-collared individuals are used to lead shooters to their social groups (Proulx et al. 2016).	**Collectivism** The suffering of the wolves, through painful deaths and loss of kin, is viewed as a matter of relative insignificance compared to the risk of losing the caribou population. The culling program is continued despite evidence that it will not save the caribou herds, which are threatened primarily by extractive industries (Proulx et al. 2016).
Regulation against introduced wildlife. Europe, 2015 The European Commission passed into law a regulation on "Invasive Alien Species," which obligates member states to control introduced wildlife. For this purpose, raccoon dogs (*Nyctereutes procyonoides*) are killed using the Judas method in Sweden. In this program, captured individuals are first fed and medically treated in the hope it will increase their attractiveness to potential mates, to make it easier to find and kill them (Silva et al. 2014).	**Collectivism and Nativism** Labeling wildlife, such as raccoon dogs, as "invasive" precludes moral concern for their lives as individuals, and also for their introduced populations. Their control and eradication is meant to promote valued native species. Ironically, raccoon dogs are listed as Least Concern by the IUCN in part because the European populations provide a safety net (Kauhala & Saeki 2016).
War on cats. Australia, 2015 Cats were introduced to Australia in the 19th century and have established wild populations. They are implicated in the decline of several endemic small mammal species, and Australia has declared a "war on cats" with the aim of killing 2 million cats by 2020. The program includes sodium fluoroacetate (1080) poison baiting, shooting, trapping, and 'grooming traps' – devices that spray poison onto their fur (Hillier 2016).	**Collectivism and Nativism** Setting a conservation goal by the numbers of animals killed, rather than by a recovery target of any particular endemic species, defines the good by the act of killing. It ensures nonlethal options are excluded from consideration, even if they would provide better outcomes for threatened endemic prey, cats, and other wild predators.
Trophy hunting of Cecil. Zimbabwe, 2015 Cecil, a well-known lion from Hwange, was shot by a bow and arrow, and killed 40 hours later, by an American trophy hunter. Although this particular hunt was probably not legal, trophy hunting is an established conservation practice that aims to promote populations of wild animals by increasing their economic value. Trophy hunting is legally conducted in a variety of situations, from hunts in wilderness areas to canned hunts – in which lions (and other predators) are bred in captivity and shot in enclosures (Nelson et al. 2016).	**Instrumentalism and Collectivism** Trophy hunting is based on the premise that lions (and other megafauna) should be protected by promoting their economic values, and that it is appropriate to commodify and kill individual animals to promote their populations. While trophy hunting advocates do not necessarily support canned hunting for moral reasons, both practices rely on similar premises. For example, supporters of canned hunting similarly argue that it benefits conservation by reducing hunting pressure on wild lions (Barkham 2013).
Predator Free. New Zealand, 2016 Predator Free New Zealand is a government plan to eradicate introduced predator populations (e.g. rats *Rattus spp.*, stoats *Mustela erminea*, and brushtail possums) by 2050 in order to promote endemic birds. Children, as young as kindergarten age, have been enlisted to help kill introduced animals. New Zealand is also the primary global user of 1080, a poison that is banned in most other countries. It is regularly spread in large quantities across national parks and other landscapes, often by aircraft (Holm 2015; Roy 2017).	**Collectivism and Nativism** Programs to eradicate introduced predators are based on the premise that there is no limit to the number of individual animals that should be killed; the method of killing should be chosen based on efficacy rather than welfare; and children should be taught to suppress empathy for individual introduced animals, if it increases the possibility that endemic prey populations will grow.

Continued

Table 1. Continued.

Program	*Underlying program values*
Setting dingoes on goats. Pelorus Island, Australia, 2016 A conservation plan to control a population of introduced wild goats (*Capra hircus*), because they eat native vegetation, involved translocating captured mainland dingoes (*Canis dingo*) onto the island. The program aimed for the dingoes to eradicate the goats and then for shooters to eradicate the dingoes. Male dingoes were trapped in the wild, surgically sterilized, and implanted with poison capsules timed to kill them within 2 years in case they could not be shot. After 2 dingoes were put on the island the program was terminated following international public protest (van Eeden et al. 2017). Government concern for potential dingo predation on a threatened bird was cited as the primary reason for halting the program (Schwartz 2016).	**Instrumentalism, Collectivism, and Nativism** The program was based on the nativist idea that a state of pristine nature is tarnished by the presence of an introduced population, and that this could be corrected by the eradication program. It did not require a clear definition and evidence of harm caused by the goats, nor did it include a recovery target of any island species or ecological community. The lives of the dingoes mattered only insofar as they acted as goat killers. Possible negative impacts of the program on a near threatened bird population, rather than the suffering of the dingoes or the goats, was considered by policy makers the only appropriate justification for terminating the program.

conservation-culling programs targeting medium to large wild mammals do not monitor the targeted control or recovery species, and <3% follow basic experimental design standards (Reddiex & Forsyth 2007). Because wildlife individuals are proper subjects of moral attention (Regan 1987) and are a major and growing focus of society-wide concern (Bruskotter et al. 2017), the conservation community can no longer ignore the impacts of its actions on the lives of wildlife individuals.

Human capacity to inflict harm on both wildlife collectives and individuals is only increasing. Propelled by growing demand, increasingly sophisticated technologies enable humans to access and exploit new resources, driving ever-more dramatic changes that can further endanger wildlife collectives, including ecological processes and functions. These same proficiencies are also enabling conservation practitioners to harm wildlife individuals with alarming efficiency. Robotic grooming traps identify wild cats (*Felis catus*) and spray poison on their fur (Hillier 2016). Viral diseases have been developed and released into Australia's rabbit (*Oryctolagus cuniculus*) population (Adams 2017). Poison baits targeting mammalian predators are distributed by aircraft across inaccessible forests (Holm 2015).

Conservation professionals' growing ability to inflict harm on wildlife individuals has raised the moral stakes of conservation. With increasing awareness that sentience and sapience are prevalent across the animal kingdom (Low et al. 2012), conservationists can no longer afford to ignore the full ethical implications of decision making as it pertains to wildlife individuals. Conservation scientists often assume a binary choice between compassion (for individuals) or conservation (of collectives) (Soulé 1985). This view is negated by growing evidence that programs that harm individuals also often harm collectives (e.g., Wallach et al. 2010), and that programs that benefit both individuals and collectives are possible (Table 2). A commitment to compassion can allay practices that intentionally and unnecessarily harm wildlife individuals without fundamentally compromising critical conservation goals (Ramp & Bekoff 2015). Here we show how conservation based on a commitment to compassion for wildlife individuals represents a departure from 3 common and ethically problematic orientations: instrumentalism, collectivism, and nativism. We argue that compassion should serve as a moral compass and help chart a more ethically defensible, socially acceptable, and scientifically robust path for conservation.

Compassionate conservation

Achieving enduring conservation success requires a fundamental reorganization of the ways in which human beings view and interact with nonhuman nature (Moore & Nelson 2011). The historic trajectory of conservation practice and policy, designed primarily to protect species from extinction and ecosystems from degradation, has largely overlooked the well-being of wildlife individuals (Bekoff 2013*b*). If the task of conservation is to actualize a human relationship with nonhuman nature that is sustainable and ethically appropriate (Moore & Nelson 2011), it is important that morally relevant individuals not be excluded from the scope of conservation concern. To this end, we contend that compassion is a critical element of ethically appropriate conservation practice.

Compassion is rooted in the Latin *com*, meaning with, and *pati* meaning to suffer. Psychologically, compassion has been defined as an emotional response to suffering (Goetz et al. 2010). Ethically, it is also an appropriate response to suffering. Compassion might be conceptualized as a moral duty that moral agents are obligated to uphold toward deserving entities (Nussbaum 2004). Alternatively, conservation can be justified according to the rational and often intuitive sense that the right act is the one that maximizes overall benefit (Nelson et al. 2016). Conservation strategies that successfully protect wildlife collectives and the well-being of wildlife

Table 2. Conservation programs that safeguard the well-being of wildlife individuals, promote the persistence of wildlife collectives, and are consistent with the guiding principles of compassionate conservation.

Program	*Beneficiaries*
Guardian dogs for penguins. Middle Island, Australia A breeding colony of Little Penguins (*Eudyptula minor*) decreased from 600 to 10 birds in 5 years due to red fox (*Vulpes vulpes*) predation. Killing foxes with poison, den fumigation, traps, and guns did not address the threat because foxes recolonized the island at low tide. In 2006, a trial was initiated to use Maremma sheepdogs (*C. familiaris*) to guard the colony. Since its implementation, fox predation on penguins has been eliminated, the penguin population has increased to over 100 by 2017, and the project has expanded to protect a colony of Australasian gannets (*Morus serrator*). This success prompted Zoos Victoria to invest over half-a-million dollars in the trial use of guardian dogs to facilitate a bandicoot (*Perameles gunnii*) reintroduction (Wallis et al. 2017).	**Individuals and populations, and human society** Enlisting guardian dogs benefited the penguins by increasing their nesting success, while also protecting the lives of individual foxes. The dogs benefitted by having a reportedly well-cared for life that was highly visible to a wide public. The local human community benefitted as the successful program became a source of pride, promoted tourism, and made the little town world renowned when the story was made into the feature film *Oddball*, named after the guardian dog who inspired the idea.
Saving elephants with bees. Kenya The *Elephants and Bees Project* is solving an age-old conflict between farmers and crop-raiding elephants. By studying the behavior of African elephants (*Loxodonta africana*), it became apparent that they strongly avoid African honeybees (*Apis mellifera scutellata*). Based on this finding, the project developed a novel nonlethal elephant deterrent, the *Guardian Beehive Fence*, featuring a series of hives hung on a trip wire around fields. The presence of bees, and the risk of causing them to swarm if elephants brush against the wire, reduces crop raiding and retaliatory human aggression (King et al. 2009).	**Individuals and populations, and human society** The project tends to the well-being of individual elephants by reducing human caused injury, harassment, and mortality. It helps protect the elephant population because persecution associated with human-wildlife conflict is a significant cause of population declines. The program also benefits local communities by reducing crop losses and increasing peaceful coexistence. Finally, the bees are provided with a secure hive and in turn they provide honey and pollination.
Predator friendly farming. South Africa Predators such as leopards (*P. pardus*) are routinely killed by farmers protecting their livestock. The *Landmark Foundation* has been working with farmers to transition to predator friendly practices. Participating farmers are provided with professional consultancy in nonlethal methods (e.g., guardian dogs), branding of their products as *Fair Game*, compensation when domestic animals are killed by wild predators, and economic and ecological monitoring. The program has been successful for the predators and farmers. They found a 70% decline in predation rates and operating costs per sheep during two years of predator friendly farming, regardless of the non-lethal method adopted (McManus et al. 2015).	**Individuals and populations, and human society** Non-lethal predator friendly farming respects the lives of individual leopards, and other predators, by ending harmful practices such as trapping, shooting and poisoning. The protection of apex predators not only benefits their populations, but also promotes their keystone roles within their ecosystems. Nonlethal methods are also more effective at protecting domestic animals, which frees farmers from the ineffective and often counterproductive task of killing predators, to concentrate on improving husbandry practices.
Ending the dancing bear trade. India For centuries sloth bear (*Melursus ursinus*) cubs have been taken from the wild, often by first killing the mothers, and used as "dancing bears" under poor welfare conditions. Although this practice became illegal in the 1970s and carried the threat of years in jail, poaching of bears for this trade continued because some communities depended on them as a primary livelihood. NGOs, including Wildlife SOS, have worked to end the practice by locating dancing bears and providing alternative employment and education support for bear owners who voluntarily surrendered the bears to a sanctuary. Between 1996 and 2010 the number of known dancing bears declined from >1,000 to 28 (D'Cruze et al. 2011), and in 2014 the last known dancing bear of India was reportedly brought to a sanctuary.	**Individuals and populations, and human society** Ending the dancing bear trade through educational and professional development promotes the well-being of both the bears and the human community. Individual dancing bears who were previously abused are rehomed in a sanctuary where they are treated with care and respect. Bears in the wild are better protected from poachers who cause extreme animal welfare harms and threaten bear populations. Communities that previously relied on an illegal trade are offered greater opportunities to move out of poverty.

Continued

Table 2. Continued.

Program	*Beneficiaries*
Coexisting with urban coyotes. North America Coyotes (*Canis latrans*) have successfully adapted to humanized landscapes and are now thriving across many of North America's suburbs and cities. The increasing coyote activity in urban areas has brought them into conflict with humans, including predation on pets, and in a few rare cases coyotes have also attacked humans. Public officials have typically responded with trapping and poisoning. These lethal methods have been ineffective because coyotes rapidly recolonize vacant territories. Project Coyote has demonstrated that peaceful coexistence with urban coyotes is possible. These Coyote Friendly Communities redirect efforts from killing to public education that informs people how to reduce the risk of harmful encounters with coyotes (Fox 2006).	**Individuals and populations, and human society** Coexistence with urban coyotes provides shared space where coyotes and humans can coflourish. It reduces the threat that individual coyotes will be killed or lose pack members and allows coyote populations to thrive and provide ecological functions that enrich urban ecosystems. It also reduces harms to humans and their domestic animals by focusing on more effective methods for avoiding damage. The model enables human communities to grow their capacities to live peacefully alongside other animals and promotes tolerance and appreciation for urban wildlife.
Ending predator persecution. Australia Foxes and cats introduced to Australia, have contributed to the extinction of several endemic mammals. Conservation practitioners have responded with large-scale lethal control programs. However, the very method used to protect threatened species has paradoxically driven their decline. The most common method used to kill foxes and cats, 1080 poison-baiting, also kills dingoes, Australia's endemic apex predator. Across the continent, the presence of dingoes is a major predictor of low fox and cat densities and high survival of endemic small mammals. Scientists are now calling for a shift from lethal control to protecting dingoes (Wallach et al. 2015).	**Individuals and populations** The many individual dingoes, foxes, and cats currently subjected to poison baiting and other lethal campaigns would no longer be, enabling them to establish more stable social groups and territories and longer lives. Populations of endemic small animals are expected to benefit from reduced predation pressure by cats and foxes, and from higher vegetation cover because dingoes also drive trophic cascades that enhances plant cover.

individuals (and often human well-being as well) represent bona fide mutually beneficial solutions (Table 2). However, we argue it is appropriate for conservationists to demonstrate compassion because it is a moral virtue (Moore & Nelson 2011).

Through a virtue ethics lens, to embody or act with compassion is a proper manifestation of virtue. This position hearkens to virtue ethics, among the oldest of ethical frameworks, and an approach that has resurged in conservation ethics (Sandler & Cafaro 2005). Unlike frameworks prescribing general rules or guidelines for proper conduct, virtue ethics focus on the character traits, or virtues, manifested in proper conduct. Examples from across Western and Eastern traditions include respect, humility, generosity, integrity, patience, and, of course, compassion. Compassion, in particular, is a core virtue of the world's major philosophical and religious traditions (Armstrong 2008), such as Eleos (ἔλεος [Ancient Greek]) in Aristotelian ethics, Ahimsa (अहिंसा [Sanskrit]) in Indian traditions, Ren (仁 [Chinese]) in Confucianism, Khemla (חֶמְלָה [Hebrew]) in Judaism, and Rahmah (الرحمة [Arabic]) in Islam. A virtuous person will carefully attend to the capacity of others to experience both joy and pain and make efforts not to inflict intentional and unwarranted suffering as a manifestation of one's compassionate character.

A compassionate conservation approach aims to safeguard Earth's biological diversity while retaining a commitment to treating individuals with respect and concern for their well-being (Bekoff 2013*b*; Ramp & Bekoff 2015). Compassionate conservationists strive to embody 4 overarching tenets: first, do no harm; individuals matter; inclusivity; and peaceful coexistence. First, do no harm, adapted from the core precept of medical bioethics, counsels that instincts to intervene should be carefully scrutinized and selectively pursued. Given an existing problem, it may be better not to do something or to do nothing than to risk causing more harm than good. The principle that the lives of individuals matter acknowledges the intrinsic value of wildlife individuals and resists the tendency to reduce them or their value solely to their position as members of collectives. Inclusivity acknowledges the intrinsic value of all wildlife individuals and collectives, whether their populations are large or small, whether their ancestors were introduced or native, whether they are considered sentient or not, and regardless of usefulness to humans. Finally, peaceful coexistence calls for recognition that the first instinct in conflict situations should be to critically examine and in many cases modify one's own practices, rather than pursuing acts of aggression against wildlife individuals (Bekoff 2013*b*; Dubois et al. 2017). These tenets serve

as an aspiration characterizing how conservationists, as compassionate beings, ought to interact with wildlife individuals when they engage in efforts to protect wildlife collectives. In practice, a compassionate conservationist works to develop, apply, and prioritize nonlethal and noninvasive strategies that benefit wildlife collectives without causing intentional suffering to wildlife individuals (Table 2).

Compassion as a path forward for conservation

Growing recognition of the widespread sentience and sapience of many nonhuman animals demands a meaningful response from the conservation community. A commitment to compassionate conservation practice would challenge and redirect common policy and research measures such as killing predators to save endangered prey (Proulx et al. 2016), killing introduced animals to save endemic animals (Wallach et al. 2015), killing individuals for population research (Vucetich & Nelson 2007), subjecting wild animals to invasive monitoring methods (Jewell 2013), basing conservation funding on trophy hunting and sustainable use (Ramp 2013; Nelson et al. 2016), and breeding animals in zoos and aquaria for conservation and education (Chrulew 2011). These, and similar, programs perpetuate a conservation paradigm characterized by instrumentalism, collectivism, and nativism, 3 orientations that evince callousness or indifference to the suffering of wildlife individuals (Table 1). We address each of these orientations and discuss how a commitment to compassion might serve to reorient conservation practice, policy, and research in ethically expansive directions.

Instrumentalism

Instrumental value is the value of an entity or object as a means to some other end. A hammer, for example, has instrumental value as a driver of nails. Instrumentalism, in turn, is an orientation that views and values nonhuman nature and wildlife individuals primarily (or exclusively) for their instrumental value, particularly for human beings. Many facets of modern and historical conservation practice reflect an instrumentalist orientation. In North America, for example, nonhuman nature was historically protected as a repository of natural resources for human beings (Callicott 1990). The scientific discipline of conservation biology emerged in the late 20th century, bringing with it more overt recognition of intrinsic value in nonhuman nature (Soulé 1985), but the past 2 decades have again seen increased emphasis on protecting instrumental values (e.g., ecosystem services) (Batavia & Nelson 2017).

The instrumental values of nonhuman nature are clear and irrefutable, and in many cases these values can be quantified or otherwise leveraged to support conservation action. Often this is done in monetary terms. The Great Barrier Reef Foundation, for example, commissioned a report that rated the value of the reef to Australia's economy at AU$56 billion (O'Mahoney et al. 2017), an estimate subsequently used to promote the reef's protection. However, an instrumental orientation toward nonhuman nature and its protection can have significant shortfalls. For instance, if nonhuman nature is only good for the benefits it provides, there is little motivation to protect those elements for which more efficient and cost-effective alternatives can readily be made available. Heavily promoting instrumental value may also replace, or crowd out, intrinsic motivations for conservation with less stable, self-interested motivations (Neuteleers & Engelen 2015).

An instrumentalist orientation toward wildlife individuals in particular stands to alienate large sectors of the public, who, according to a growing body of research, generally attribute intrinsic value to living organisms (Vucetich et al. 2015). A philosophical counterpart to instrumental value—intrinsic value—is the value of an entity (or its interests) for its own sake, over and above any uses it may serve (Vucetich et al. 2015). A carpenter, for example, certainly has instrumental value as a purveyor of produced goods, but her intrinsic value as a human being is also rightly recognized. With this recognition, it becomes unconscionable to treat the carpenter with reckless disregard for her welfare. To acknowledge intrinsic value in nonhuman entities (individual or collective) de-centers humans from the moral universe, embedding humans within a complex biosphere of others with whom they engage in moral relationships (Batavia & Nelson 2017). And yet, the various conservation practices that treat wildlife individuals as mere expendable means to conservation ends effectively deny them this value (Table 1), casting them as moral equivalents of hammers. Not only do such practices risk estranging conservation practice from prevailing social values, potentially effecting widespread loss of public support (Bruskotter et al. 2017; van Eeden et al. 2017), but they also stifle human capacity for compassion. Just as one generally does not feel compassion for hammers, an individual animal whose value has been reduced solely to its function is not likely to inspire compassion either, even in the face of extreme suffering.

A compassionate foundation to conservation makes intentionally harming wildlife individuals attributed with intrinsic value inconsistent and less likely. For example, India's constitution and animal welfare laws establish the rights of nonhuman animals to a life of "intrinsic worth, dignity, and honor" and imposes a duty to exhibit compassion for all living beings (Kansal 2016). These affirmations underpin specific practices, such as the general prohibition against hunting (Gupta 2013), relatively low meat consumption and production, and established animal welfare laws, that position India as one of the

best performing countries for animal welfare standards in the world (Voiceless 2018). India is also a high global conservation performer, as evidenced by the persistence of nearly its full large carnivore guild, and is a global hotspot of megafauna, a particularly vulnerable group of species (Ripple et al. 2017). These are significant successes, particularly when considering that India has one of the world's largest human population sizes and densities. Compassion has therefore been not only compatible with but perhaps integral to achievement of conservation outcomes in India.

Collectivism

A collectivist orientation prioritizes the group over its individual constituents. Leading conservation organizations and initiatives, such as the Society for Conservation Biology and the United Nations Framework Convention on Biodiversity, identify biodiversity as the primary object of conservation concern. Biodiversity, in turn, is defined broadly to encompass diversity at all biological levels of organization (Trombulak et al. 2004), which does not technically preclude individuals and the variability between them from the scope of conservationists' concern. Operationally, however, conservation efforts have focused on the preservation of collectives, with wildlife individuals viewed and valued as instances of their type, rather than unique and distinct organisms. Conservation practice does not completely exclude concern for individuals, who are protected to the extent enforced by animal welfare standards and ethical codes of conduct. For example, when animals are subjected to poison baiting, a poison may be chosen that acts more quickly and less painfully than other poisons (particularly if the cost differential is minimal); or, when animals are kept in captivity, conditions must be provided to meet basic welfare standards. In practice, however, such standards afford minimal protection and readily permit strategies that enact varying degrees of violence against wildlife individuals as long as they aim to achieve other conservation goals (Table 1).

Compassion is, by definition, a relational response to individuals because individuals (not collectives) are subjects capable of experiencing suffering and joy. As such, a strictly collectivist orientation is not conducive to the compassionate practice of conservation. We do not disavow the value (both intrinsic and instrumental) of ecological collectives, which is an established and essential ethical foundation for the practice of conservation (Callicott 2017), and we do not suggest the conservation community is misguided in its efforts to protect these collective entities. However, a singular focus on the protection of wildlife collectives is ethically indefensible to the extent that it blinds conservationists to the wrongs enacted against wildlife individuals. Regan (1987) referred to this as "environmental fascism," an association with the moral atrocities of political regimes that sacrifice or subvert the interests of individuals to promote their vision for the advancement of society. Although an analogy equating the suffering of humans with the suffering of nonhuman animals may appear overwrought, it is consistent with what we now understand of sentience and sapience in nonhuman animals (Low et al. 2012). Ethology has revealed much about the cognitive and emotional capacities and needs of other animals, indicating, among other things, that physical welfare is only one part of what drives suffering and joy (Bekoff & Pierce 2017). For example, a major cause of suffering that can be experienced by wild animals in conservation culling programs is the loss of social group members and the trauma of witnessing them being injured and killed (Bradshaw et al. 2005). Although much remains to be learned of the inner and social lives of nonhuman animals, current evidence of sentience and sapience is ethically compelling. Attempts to justify moral indifference to the suffering of wildlife individuals that possess sophisticated capacities for emotion, consciousness, and sociality would require a feat of argumentation we do not believe possible.

Compassion for wildlife individuals may have been regarded historically, by some, as a potential hindrance to conservation (Soulé 1985), but a range of conservation programs demonstrate that protecting individuals can also serve to protect collectives (Table 2). Several practical strategies have been developed to explicitly advance a compassionate conservation approach, including protection of kangaroos (*Macropus* spp.) from conservation culling and commercial bushmeat exploitation in Australia (Ramp 2013); protecting apex predators as an alternative to killing introduced mesopredators to help recover endemic small animals (Wallach et al. 2015); development of ethical and sustainable wildlife tourism models (Burns 2017); challenging the practice of breeding wild animals to be "practice prey" for captive prerelease predators (Bekoff 2013*a*); and incorporating indigenous practices and activism in protected areas (Kopnina 2015). Each of these practices embodies a basic stance of compassion because they attempt to minimize or avoid willfully harming wildlife individuals while seeking to protect wildlife collectives.

Nativism

Human globalization, land-use practices, and anthropogenic climate change are shifting the distribution of many species. In response, many conservation practices are designed to control and eradicate introduced populations, which ostensibly change the composition and function of ecosystems and at times contribute to the decline and extinction of endemic species (Davis 2009). These measures evince a nativist orientation, characterized by a belief that species belong in the geographic regions in which they evolved or to which they immigrated without

the aid of modern humans. Many introduced populations are considered harmful, not because of their ecological effects per se, but because they challenge deep-seated ideologies about how nature should be (Chew & Hamilton 2011). Invasion biology, the subdiscipline of conservation based on nativism, endeavors to halt biotic mixing by suppressing and eradicating introduced populations and promoting species compositions similar to historic assemblages (Davis 2009). Invasion biology employs militaristic language to promote negative attitudes toward introduced species (e.g., *invasive*) and encourages a violent response toward their members by describing conservation as a war (Larson 2005). Institutionalized mass killing, which is prima facie disturbing, becomes normalized through social discourse that casts members of these species as noxious entities and deserving targets of harassment and cruelty. In New Zealand, for example, young children are provided with government-produced computer games in which "zombie possums" must be "stomped on" to protect kiwi (*Apteryx* sp.) eggs (Holm 2015); and primary-school events have engaged children in killing competitions in which possum (*Trichosurus vulpecula*) joeys are drowned in buckets (Roy 2017).

Although some introduced populations have contributed to extinctions, these cases represent exceptions rather than the norm (Davis 2009). The nativist approach ignores the capacity for introduced populations to enhance species richness and provide valued ecosystem functions and the importance of host ecosystems as sanctuary for the many species who face significant threats in their historic native ranges (Sax et al. 2002; Lundgren et al. 2017). Further, and contrary to the nativist view, contemporary ecologists generally agree that ecological systems are more dynamic and adaptive than previously thought (Pickett 2013). With this recognition, a staunch commitment to maintaining historic assemblages appears unrealistic and may be rooted more deeply in xenophobic ideology than scientific understanding (Dubois et al. 2017). Still, that nature is dynamic does not in itself indicate humans, as moral agents, ought to support or actively facilitate ecological change. How best to protect wildlife and ecosystems in such a rapidly changing world is a subject of much debate (e.g., Callicott & Nelson 1998). Invasion biology represents but one approach. Alternatively, recognizing that novel ecosystems are evolving in response to modern human activities allows for appreciation of introduced species, hybrids, and urban and farmland ecosystems without abandoning a core focus on endemic species, historic ecosystems, and protected areas (Hobbs et al. 2006). This approach allows for the compassionate practice of conservation that values all forms of life, whether encountered in pristine national parks or in humble alleyways (Marris 2013).

One key objection to conservationists embracing novel ecosystems is a concern it may legitimize further conversion of landscapes that, as yet, have been relatively unaffected by human development (Hobbs 2013). However, intrinsic value (a basic pillar of the compassionate approach we advance) would safeguard against such abuse. If unconverted ecosystems and their individual constituents were viewed not merely as instrumental and ultimately replaceable goods, but as intrinsic goods worthy of protection for their own sake, humanity would be deeply reluctant, rather than liberated, to pursue actions compromising the persistence or integrity of these ecosystems. With thoughtful regulation and ethical attention, expanding conservation policies that value introduced populations and their individual members may be not only a compassionate but also an effective way to conserve those species whose historic native range no longer provides habitat (Lundgren et al. 2017). It may even lead to greater global diversity and resilience overall.

Conclusion

Human population growth, resource acquisition, urbanization, and agricultural expansion have pervasive global impacts, which have reached a magnitude that many consider the onset of a new geological epoch, the Anthropocene. Conservation practices have hitherto emphasized the protection of collectives, prioritizing the persistence of species and ecological processes over the well-being of individuals (Soulé 1985). Although this strategy is in some ways understandable, conservationists should not forfeit their humanity for the sake of their objectives, no matter how worthy those may be. Conservation risks reducing itself to a form of fundamentalism if it fails to take serious steps to limit practices that cause severe harm to individuals. As people who care about wildlife and nature, the conservation community should ask itself not only what kind of nature (ecology) it aims to preserve but also what kind of nature (character) it aspires to manifest. That conservationists have normalized the perpetration of substantial, intentional, and unnecessary harm against wildlife individuals is a tragic failure to exercise compassion.

Against allegations that our argument is too value laden for conservation, a practice rooted fundamentally in science, we point out that, as a practice that bears on the long-term persistence and flourishing of all living entities on the planet, conservation is also an inherently moral pursuit (Soulé 1985; Moore & Nelson 2011). Facts alone do not tell us what we should or should not do. Conservation science can help determine what the cause of a population decline is and what methods might enable recovery, but ethical inquiry is required to determine whether to apply any particular intervention. We suggest compassion is a critical addition to conservationists' ethical lexicon, as a basic virtue that can guide these sorts of ethical deliberations.

Compassionate conservation is still a young field, and important work remains to develop the approach both theoretically and practically. For example, questions remain as to how to formally incorporate nature's nonsentient and nonliving entities, which may not be subjects of compassion per se but are subjects of conservation and moral concern. Another deeply challenging and pressing question is how should compassion for wildlife individuals be demonstrated when doing so could compromise efforts to protect species or ecosystems? On this point we can offer only a brief reflection. We characterized compassionate conservation as an approach that attends to the suffering of wildlife individuals alongside efforts to protect collectives. However, the root *pati* (to suffer) is also part of the word *passive*, which conveys receptivity and endurance. In this light, to conserve compassionately also means to endure suffering, as moral agents do, when faced with impossible moral choices. Where conservationists fail to find approaches that ensure both individual well-being and collective protection, a mark of compassion will be to endure the harrowing sense of immense responsibility and utter powerlessness that inevitably accompanies difficult decisions with no unequivocal answers. Although compassionate solutions to conservation problems are possible, and should be sought, in some cases the reality of loss cannot be reasonably denied (Hobbs 2013). As compassionate conservationists we open ourselves to the full hurts of the world and the moral landscape we navigate.

We hope our essay and the questions it raises will inspire further discourse in the conservation community as it steers a course characterized by deep concern for the persistence of diverse nonhuman life and for the well-being of nonhuman lives.

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