



Conservation Focus: Debating Compassion in Conservation Science

All conservation scientists agree that the animals they study, manage, and seek to conserve warrant compassion. But, how should compassion apply to individuals versus populations, to non-native species, and to species that may harm humans or other species? How should

compassion be apportioned when there are unavoidable trade-offs between species? These important topics are explored in the essays and comments in this “Conservation Focus.”

Conservation Focus Essay

Compassionate versus consequentialist conservation

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Abstract: *Ethical treatment of wildlife and consideration of animal welfare have become important themes in conservation, but ethical perspectives on how best to protect wild animals and promote their welfare are diverse. There are advantages to the consequentialist harms ethical framework applied in managing wild herbivores for conservation purposes. To minimize harms while achieving conservation goals, we argue that overabundant wild herbivores should in many cases be managed through consumptive in situ killing. Advantages of this policy are that the negative welfare states imposed on animals last only a short time; remaining animals are not deprived of positive welfare states (e.g., linked to rearing offspring); poor welfare states of animals in overabundant populations are avoided (e.g., starvation); negative welfare impacts on heterospecifics through resource depletion (i.e., competition) are prevented; harvesting meat reduces the number of (agricultural) animals raised to supply meat; and minimal costs maximize funding for other wildlife management and conservation priorities. Alternative ethical approaches to our consequentialist framework include deontology (containing animal rights) and virtue ethics, some of which underpin compassionate conservation. These alternative ethical approaches emphasize the importance of avoiding intentional killing of animals but, if no population reduction occurs, are likely to impose considerable unintentional harms on overabundant wildlife and indirectly harm heterospecifics through ineffective population reduction. If nonlethal control is used, it is likely that overabundant animals would be deprived of positive welfare states and economic costs would be prohibitive. We encourage conservation stakeholders to consider animal-welfare consequentialism as an ethical approach to minimize harms to the animals under their care as well as other animals that policies may affect while at the same time pursuing conservation goals.*

Keywords: animal ethics, culling, harvesting, human-wildlife conflict, overabundance, wildlife management
Conservación Compasiva versus Conservación Consecuencialista

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Resumen: El trato ético de la fauna y la consideración por el bienestar animal se han convertido en temas importantes para la conservación, pero las perspectivas éticas sobre cuáles son las mejores maneras para proteger a los animales silvestres y promover su bienestar son diversas. Existen ventajas en el marco de trabajo ético de los daños consecuencialistas aplicados en el manejo de herbívoros silvestres por motivos de conservación. Para minimizar los daños a la vez que se alcanzan los objetivos de conservación argumentamos que los herbívoros silvestres sobreabundantes deberían, en muchos casos, ser manejados por medio de muertes *in situ* consuntivas. Las ventajas de esta política son que los estados negativos de bienestar impuestos sobre los animales duran muy poco tiempo; a los animales que permanecen no se les priva de un estado positivo de bienestar (p. ej.: conectados a la crianza de descendencia); se evitan los estados pobres de bienestar en las poblaciones sobreabundantes (p. ej.: hambruna); se previenen los impactos negativos de bienestar por medio de la disminución sobre los heteroespecíficos (es decir, competencia); la crianza para carne reduce el número de animales (agrícolas) criados para abastecer de carne; y los costos mínimos maximizan el financiamiento para otras prioridades de manejo y conservación de fauna. Las estrategias éticas alternativas a nuestro marco de trabajo consecuencialista incluyen la deontología (que contiene los derechos de los animales) y la ética de virtudes, algunas de las cuales apoyan la conservación compasiva. Estas estrategias éticas alternativas enfatizan la importancia de evitar la muerte intencional de los animales pero, si no ocurre una reducción de la población, es probable que impongan daños considerables accidentales sobre la fauna sobreabundante y dañen indirectamente a los heteroespecíficos por medio de la reducción infructuosa de la población. Si se utiliza un control no letal, es probable que los animales sobreabundantes quedarían privados de estados positivos de bienestar y los costos económicos serían prohibitivos. Alentamos a los accionistas de la conservación a considerar el consecuencialismo del bienestar animal como una estrategia ética para minimizar los daños que sufren los animales bajo su cuidado así como otros animales que podrían ser afectados por las políticas mientras se busca alcanzar objetivos de conservación.

Palabras Clave: conflicto humano-fauna, crianza, ética animal, manejo de fauna, sacrificio, sobreabundancia

摘要: 善待野生动物及动物福利问题已成为保护中的一个重要话题,但人们对于如何最好地保护野生动物并提升其福利有不同的伦理观点。其中,应用于野生食草动物保护管理中的结果论伤害伦理框架有很多优势。为了在实现保护目标的同时尽量减少伤害,我们认为许多情况下可以通过消费性的就地捕杀过剩的野生食草动物,以进行管理。这项政策的好处在于:动物只在很短的时间内处于不良福利状态、剩下的动物仍享有较好的福利(如养育后代方面)、避免了过剩种群中较差的动物福利情况(如饥饿)、防止了其它物种的福利因资源耗竭而遭受负面影响(如竞争)、肉类的获得可以减少饲养的农业食用动物的数量,且能以最低成本最大程度地为其它野生动物管理和保护优先问题供给资金。这个结果论框架伦理学的替代方法有道义论(包括动物权利)和美德伦理学,其中有一部分是怜悯性保护(*compassionate conservation*)的基础。这些伦理替代方法强调了避免故意杀害动物的重要性,但是,如果不减少种群数量,很可能在无意间对数量过剩的野生动物造成很大伤害,并间接地伤害其它物种。如果用非杀伤性的控制方法,过剩的动物可能会被剥夺良好的福利状态,所需的经济成本也过于昂贵。我们鼓励保护利益相关者以动物福利结果论为伦理方法,在追求保护目标的同时,尽量减少对他们管理的动物和政策可能影响到的其它动物产生的伤害。【翻译:胡怡思;审校:聂永刚】

关键词: 动物伦理, 淘汰, 收获, 人兽冲突, 过剩, 野生动物管理

Introduction

Concern for animal ethics plays an increasingly prominent role in discussions of conservation. The term *compassionate conservation* is used to describe ethical approaches that purport to prioritize animal welfare by avoiding intentional harm to animals, including deliberate killing of animals in routine conservation activities (Ramp 2013; Wallach et al. 2018). However, these approaches take a narrow view of animal welfare by primarily considering what is intentionally done to animals by humans and putting less focus on what happens broadly to animals as a result of anthropogenic processes.

We used the case study of herbivore management to argue that another ethical approach, consequentialism, can better address animal welfare without obstructing activities required to protect biodiversity and other con-

servation goals. We sought not to make animal welfare the sole or primary goal of conservation activities, but to ensure that the best possible animal-welfare outcomes are achieved and that they align with conservation priorities. There are welfare-based arguments for more interventionist approaches to animal welfare for wild animals (including intervening with natural processes such as predation [Horta 2017]), but these more radical welfarist views are beyond the scope of this article. Our more conventional approach focused on welfare consequences for animals resulting from anthropogenic activities.

Using the example of wild herbivores that become overabundant (exceeding the carrying capacity of the environment) due to anthropogenic changes, we compared the implications for affected animals of welfare consequentialism and alternative ethical approaches that purport to prioritize the welfare of wildlife. We argue

that when lethal control is performed professionally, animals are killed in situ, and animals are consumed, animal-welfare outcomes are in most cases superior to alternative management options.

Background on Animal Welfare, Ethics, and Conservation

There are different and potentially conflicting ethical approaches to the management and conservation of wildlife (Warburton & Norton 2009; Gamborg et al. 2012). But recognition of this pluralism is not evident in many publications in conservation that promote one ethical position and denounce others as unethical (Ramp 2013) or immoral (Bekoff & Ramp 2014).

Wildlife management and animal welfare share similar ethical origins in that both are underpinned traditionally by consequentialist ethics, which emphasize the importance of an action's consequences over other ethical considerations such as moral rules, character traits, or rights (Nelson et al. 2016; Palmer et al. 2018). Under consequentialist approaches, contentious actions, such as killing, are considered ethically permissible if, when compared with alternative actions, they deliver a better balance of positive versus negative effects (Gamborg et al. 2012; Dubois et al. 2017). These positive effects may be reduced suffering at an individual animal level (euthanasia [Wilson et al. 2015]), reduced negative impacts on ecosystems (Howland et al. 2014), a desirable outcome for humans through harvesting (Lewis et al. 1997), improved quality of drinking water (Bennett et al. 2015), reduced vehicle collisions (DeNicola & Williams 2008), and desirable outcomes for other animals, either agricultural or wild heterospecifics (e.g., reduced transmission of disease [Warburton & Livingstone 2015]). So far, consequentialist arguments, with a focus on animal welfare, have been made to defend the use of lethal culling of carnivores in some situations (e.g., island conservation [Russell et al. 2016]), but there has been less focus on management of herbivores, with notable exceptions, such as the advancement of the concept of "therapeutic hunting" (Varner 2011).

Alternative ethical approaches to welfare consequentialism have become increasingly popular in recent decades. Deontological approaches determine the moral value of an action based on its conformity to a moral rule. Applications of deontology to conservation and other human activities are used prominently in arguments opposing animal killing. Among these applications of deontology is the animal rights approach (Regan 1983) that gives priority to respect for rights, one of which is the right not to be killed.

A separate, and older, field of classical ethics, virtue ethics, has been invoked to support the tenets of compassionate conservation (Wallach et al. 2018). Virtue

ethics focus on character traits (virtues) deemed to motivate proper conduct, rather than on moral rules or guidelines (Sandler & Cafaro 2005). Hence, virtue ethics determine the moral value of an action based on its manifestation of a quality of character. Virtue ethics hence has a contextual nature whereby practical wisdom (rather than moral rules or consideration of consequences) is used to determine an appropriate course of action (Wallach et al. 2018). The argument that virtue ethics supports compassionate conservation applies the premise that compassion is a virtue and, as a motivation for conservation, generally precludes intentional harm to wildlife.

Overabundant Wild Herbivores

Populations of wild (free-ranging) herbivores are increasingly deemed unwanted or overabundant and many species are the subject of population-reduction programs in postindustrial countries (Gordon 2009). Animals may be deemed foreign, nonnative, invasive, or feral (wild species that were previously domesticated) and therefore harmful to biodiversity. A well-known example is the culling of introduced feral camels (*Camelus dromedarius*) in Australia (Hampton et al. 2016), despite that group of animals representing the only wild population of the species in the world (Lundgren et al. 2017). A native animal species may also be overabundant (Nugent et al. 2011). Well-known examples include overabundant white-tailed deer (*Odocoileus virginianus*) in the U.S. northeast (VerCauteren et al. 2011) and overabundant kangaroos (*Macropus* spp.) in southeastern Australia (Descovich et al. 2015).

Options for reducing the abundance of unwanted animals can be divided into lethal and nonlethal methods. Lethal methods reduce abundance by increasing animal mortality (shooting, etc.), and nonlethal methods reduce animal recruitment (fertility control) or immigration (translocation, domestication, or fencing). Some lethal methods involve several management stages (e.g., capture and transport to slaughter facilities) (Hampton et al. 2016) and do not kill wildlife in their natural environment. These methods are referred to as ex situ killing as distinct from single-stage in situ killing, whereby animals are killed without prior manipulation (Pollard et al. 2002).

Assessment of Animal Welfare

Animal welfare in conservation has primarily focused on anthropogenic activities that intentionally and directly impose negative effects on animals (e.g., kill trapping). There has been less awareness of activities that indirectly or unintentionally cause impacts (Fraser 2012). However, the animal-welfare outcomes of any management program extend beyond the individual animal intentionally

manipulated to those animals that are indirectly (e.g., cohort animals) or unintentionally (e.g., heterospecifics) affected. The range of these effects can be conceptualized by means of the consequentialist harms framework of Fraser and MacRae (2011) that includes consideration of processes that harm animals but may not be perpetrated deliberately or widely recognized.

Fraser and MacRae (2011) propose that people affect animals through 4 broad types of activity or harm: keeping domestic or captive wild animals (type 1); causing deliberate harm to wild animals through activities such as hunting (type 2); causing direct but unintended harm to wild animals through infrastructure such as fencing (type 3); and harming wild animals indirectly by disturbing ecological systems (type 4). Animal welfare assessments have focused primarily on type 1 and 2 activities (Fraser & MacRae 2011). Some proposed approaches for assessing animal welfare for managed wildlife consider only the intended and direct effects of management actions on targeted animals (type 2 activities) and not how those actions may affect other animals, either unintentionally or indirectly (Beausoleil & Mellor 2015). There is growing awareness of the importance of indirect impacts, sometimes referred to as invisible harms (Finn & Stephens 2017).

All management options for unwanted wild herbivores impose some harm on animals. Animals may be harmed through imposition of negative welfare states (e.g., capture stress) or through deprivation of positive welfare states (e.g., wild animals brought into captivity) (Mellor & Beausoleil 2015). Killing itself may be considered an animal welfare impact in the way in which it deprives animals of a future life where positive states may outweigh negative states. However, the extent to which loss of life can be considered a welfare problem is debated (Kasperbauer & Sandøe 2016). We do not take a side in this debate. For the sake of not making the argument too elaborate, we assumed the killing of an animal incurs no future welfare cost to that animal, but our overall argument applies even if the killing of an animal counts as a future welfare cost offset by the increased welfare of surviving animals. We considered the harms and benefits associated with different management approaches (lethal, nonlethal, no management) for overabundant herbivores.

Harms Arising from In Situ Lethal Control

With in situ lethal control, there are no type 1 harms because animals are not confined to captivity or domesticated. All lethal control imposes type 2 harms on targeted animals. The magnitude of these harms may be minimized if animals are not disturbed before being killed and if the frequency of adverse animal welfare events (e.g., a protracted death or nonfatal wounding) can be minimized (Hampton & Forsyth 2016). Animal welfare

impacts are fewer for animals killed in situ than for those transported or mustered prior to killing (Hampton et al. 2016) due to the absence of transport stress (Pollard et al. 2002; Grigor et al. 2004). Type 3 harms may arise through unintentional shooting of nontarget species, through stress caused to cohort animals in gregarious species (Nuñez et al. 2014), or through orphaning of dependent juvenile animals (Sharp & McLeod 2016). Another type 3 harm associated with shooting is poisoning of scavenging birds through use of toxic lead-based bullets (Pauli & Buskirk 2007; Kelly et al. 2014). Type 4 harms may be imposed if population reduction is poorly regulated and reduces the abundance of the target species below a desired level (i.e., overharvesting). Type 4 harms may also occur through changed abundance and behavior of scavengers if large numbers of culled animal carcasses are available to scavengers (Newsome & van Eeden 2017). Type 4 harms arising from ineffective population reduction are discussed below.

Harms Arising from Nonlethal Control

Nonlethal management approaches have gained increasing popularity in the past decade (Ramp 2013; Wallach et al. 2018). Type 1 harms are imposed when animals are brought into captivity (Nuñez et al. 2014) or subjected to domestication and removal from their cohort, sometimes referred to as *rehomeing* (Koncel 2016). Type 2 harms are imposed by any capture or manipulation of animals in the process of administering fertility control or performing translocation. For typical fertility control programs (e.g., Tribe et al. 2014), capture stress is imposed. Such operations often require animals to be darted, mustered, trapped, or anaesthetized, or to undergo surgical procedures (Hampton et al. 2015; Palmer et al. 2018). Type 2 harms are also imposed by methods such as fertility control and fencing that deprive animals of positive welfare states such as mating and dispersal (Mellor & Beausoleil 2015). Type 3 harms caused by several nonlethal strategies include injury from exclusion fencing (VerCauteren et al. 2006) and disease transmission to resident animals at translocation release sites (McCann et al. 2016).

Harms Associated with No Control or Ineffective Control

Type 4 harms are imposed by management strategies (lethal and nonlethal) that are ineffective at reducing the abundance of an overabundant species due to ecological resource depletion. Type 4 harms resulting if population reduction is ineffective will affect overabundant animals through loss of body condition, increased susceptibility to infectious diseases and parasites (Wilson et al. 2015),



Figure 1. Examples of unintentional animal welfare impacts arising from failure to reduce population density in overabundant wild herbivores (from left to right and top to bottom): an emaciated wild horse (photo by A. Harvey), an emaciated western grey kangaroo (photo by G. Coulson), a sambar deer killed by a vehicle collision (photo by J. Hampton), and an entangled urban white-tailed deer (photo by T. Dryja).

increased likelihood of unintended anthropogenic injuries (e.g., vehicle collisions [DeNicola & Williams 2008]), and starvation (Fig. 1). Situations involving starvation and mortality of introduced wild horses are currently developing in the U.S. southwest (Masters 2017) and southeastern Australia (Cox 2018) and provide a vivid example of type 4 harms that may be imposed on overabundant herbivores through ineffective (or absent) population control. Another pertinent example is populations of koalas (*Phascolarctos cinereus*) of anthropogenic origin becoming emaciated in the absence of management actions (Wilson et al. 2015).

Type 4 harms imposed on heterospecifics will also result if population reduction is ineffective. These harms are effects of competition for food or water (Hall et al. 2018), loss of critical shelter and the increased risk of predation associated with that loss, and the longer-term degradation of critical habitat. For example, the abundance of grass-dwelling reptiles was reduced in grassland areas of Australia in which kangaroo densities were high and unmanaged (Howland et al. 2014).

The magnitude of type 4 harms resulting from any strategy depends on the efficacy of population reduction. Lethal control methods are often, but not always, efficacious in reducing population abundance

rapidly (e.g., DeNicola & Williams 2008) because they rely on increasing mortality rather than slowing reproduction or preventing immigration. Approaches such as fertility control generally have low efficacy or are appropriate only for small or habituated populations (Hobbs & Hinds 2018). Even if fertility control effectively reduces population abundance, the interval between when management is initiated and when population reduction occurs may be several years for long-lived species, such as wild horses (Hobbs & Hinds 2018). In the case of koala fertility control, the magnitude of this lag phase (during which type 4 harms would continue) is estimated to be 5–10 years because of high adult female survival rates (Todd et al. 2008).

Economic and Opportunity Costs

Economic costs influence animal-welfare outcomes because they determine what can feasibly be achieved and which animals or operations should be prioritized. An advantage of consumptive killing is that it improves the cost-effectiveness of management programs by minimizing operational costs per animal and providing a source of income to offset operational costs (Nugent & Choquet

Table 1. Frequency of key animal-welfare outcomes achieved by shooting in kangaroo (*Macropus* spp.) culling programs.

<i>Frequency of immediate insensibility (%)</i>	<i>Frequency of nonfatal wounding (%)</i>	<i>Sample size</i>	<i>Source</i>
98	0	141	Hampton & Forsyth 2016
99	0	367	Hampton 2016
97	0.6	338	Hampton & Cowled 2017
98	0	98	Hampton & Ward 2017
95	0	90	Hampton 2018

2004). For example, for control of peri-urban kangaroos in Australia, Mawson et al. (2016) report a mean cost per animal removed of AU\$36 for in situ harvesting. In contrast, Tribe et al. (2014) report a mean cost per animal of AU\$104–\$184 for fertility control and translocation. Cost savings may be used by management agencies to fund other conservation or animal welfare priorities (e.g., biodiversity offsetting [Norton & Warburton 2015]).

Benefits Arising from Consumption of Culled Animals

If lethal methods are used to manage unwanted wildlife, killed animals may be used (consumed) or not. Nonconsumptive killing is common with animals with little commercial or cultural value. If consumed, meat, fur, or organs can be harvested commercially (Nugent & Choquenot 2004), collected for traditional or recreational use (DeNicola et al. 1997; McCann et al. 2016), or provided for scientific research (Mawson et al. 2016). Meat may be used for human consumption (Mawson et al. 2016), fed to domestic animals (e.g., pet dogs [Hercock & Tonts 2004]) or zoo animals (Harrison et al. 2006). The relevance of consumption to cumulative animal welfare impacts is that meat may be harvested from killed wildlife to substitute for meat that would otherwise be derived from slaughtered livestock (Hoffman & Cawthorn 2012). As a consequence, there may be an animal welfare benefit to consuming unwanted wildlife because the slaughter of less domestic livestock is required to supply the same quantity of meat. In view of the requirement of consequentialist ethics to maximize benefits and thereby attempt to reach the optimal harm versus benefit ratio, using products that would otherwise be wasted from the regulated lethal control of herbivores is a benefit that should be considered (Littin et al. 2004; Littin & Mellor 2005). The quantity of this effect is restrained by the fact that very few people, and usually only in affluent countries, have access to abundant wild herbivores (Gordon 2009).

An additional benefit of consuming wildlife is that it may prevent harmful interference with food webs. Thus, provision of large numbers of carcasses of unharvested culled animals (e.g., Forsyth et al. 2014) may constitute an indirect and unintentional type 4 harm imposed

on wildlife through the support of large populations of scavengers and predators. Possible indirect welfare consequences may include changed foraging patterns, inflated scavenger populations, and starvation of these animals in the long-term if culling ceases or declines (Newsome & van Eeden 2017; Robin 2017). These arguments have been made for readily harvestable herbivores such as peri-urban kangaroos (Fedorowytch 2017; Gibbs 2017) and white-tailed deer (DeNicola et al. 1997; VerCauteren et al. 2011).

Consequentialist Case for Consumptive In Situ Killing

We argue that, from a consequentialist perspective, consumptive in situ killing that effectively reduces abundance will often yield the best animal welfare outcomes for overabundant wild herbivore management. Our conclusion is based on 6 advantages this policy offers: negative welfare states imposed on animals being killed last only a short time; remaining animals are not deprived of positive welfare states (e.g., linked to rearing offspring); poor welfare states of animals in overabundant populations (e.g., starvation) are avoided; negative welfare impacts on other wild animals by overabundant animals through resource depletion (i.e., competition) are prevented; harvesting meat reduces the number of (agricultural) animals raised to supply meat; and minimal costs or income generation maximizes funding available for other animal welfare or conservation priorities.

Negative animal welfare impacts relating to lethal wildlife management are generally confined to type 2 harms imposed on the individual animals killed and are, provided use of professional shooting methods, mostly of short duration, and few indirect or unintentional harms are imposed (Descovich et al. 2015). Such shooting methods often achieve a high frequency of immediate insensibility while achieving near-zero nonfatal wounding (Lewis et al. 1997; Hampton & Forsyth 2016) (Table 1). Regulated shooting methods observe prescriptive procedural restrictions (i.e., only head shots) (DeNicola et al. 1997; Descovich et al. 2015) and are regularly audited by animal welfare scientists (Hampton & Forsyth 2016) (Table 1). We did not consider the use of more imprecise killing practices, such as shotguns or

archery (Nixon et al. 2001); the animal welfare impacts of such forms of recreational hunting are outside the scope of this paper. We considered only the use of professional harvesting methods with validated animal welfare outcomes, such as kangaroo culling (Hampton & Forsyth 2016), urban white-tail deer sharpshooting (DeNicola et al. 1997; DeNicola & Williams 2008), and impala (*Aepyceros melampus*) culling (Lewis et al. 1997).

With lethal in situ methods, animals can exhibit a full range of natural behaviors (reproduction, dispersal) and the positive experiences these provide until the moment of death (Palmer et al. 2018). For consumptive in situ killing to provide desirable animal welfare outcomes, type 3 harms associated with shooting must be minimized. Orphaning of dependent juvenile animals can be minimized by deliberately killing juvenile animals as a priority (Sharp & McLeod 2016), and poisoning of scavenging birds can be avoided by using lead-free bullets (McCann et al. 2016). Several conservation programs worldwide currently use consumptive in situ killing to manage overabundant wild herbivores, including kangaroos (Mawson et al. 2016) and Asian swamp buffalo (*Bubalus bubalis*) (Albrecht et al. 2009) in Australia, African bush elephants (*Loxodonta africana*) in southern Africa (Le Bel et al. 2013), roe deer (*Capreolus capreolus*) in Europe (Hothorn & Müller 2010), and elk (*Cervus elaphus*) (McCann et al. 2016) and white-tailed deer (DeNicola et al. 1997) in the United States.

Alternative Ethical Positions

Many ethical approaches, including deontology and virtue ethics, diverge from welfare consequentialism regarding the assessment of killing animals (Palmer et al. 2018) as discussed above. Alternatives to lethal control (often no management) or practices such as fertility control or guardian animals are typically favored by these positions (Wallach et al. 2015). Regardless of their ethical origin, these seem primarily to consider animal welfare by discouraging deliberate killing (type 2 harms). We think these approaches take too narrow a view of animal welfare by not giving sufficient weight to indirect and unintentional harms. Such approaches in our view focus on the plight of animals intentionally affected by human intervention at the cost of considering welfare outcomes for animals affected in a more indirect way.

Although often unstated, welfare consequentialist approaches underpin most applications of animal welfare science (Fraser 2012; Fawcett et al. 2018), including decades of integration with conservation (Littin et al. 2004; Littin & Mellor 2005; Dubois et al. 2017). Adoption of one of the outlined alternative ethical views would represent a considerable deviation from this focus. We recognize that consequentialism will be viewed by some as unduly cynical (Nelson et al. 2016) but its focus

on outcomes aligns with the tenets of animal welfare science and recognition of the importance of trade-offs in conservation (Leader-Williams et al. 2011).

Welfare consequentialism does not necessarily lead to the use of lethal methods. In some cases, adoption of welfare consequentialism may result in no management or nonlethal approaches being used. What the view implies is that no management approaches should be ruled out and that the adoption of a particular strategy in a particular case should be guided by what will bring about the best aggregate animal-welfare outcome. From our welfare consequentialist standpoint, we argue that deciding to do nothing (failing to act) counts as an act (Dubois et al. 2017), and, like the decision to implement lethal control, it may also determine which animals will be harmed and how they will be harmed (Russell et al. 2016; Lewis et al. 2017).

Conservation decisions must be taken in light of public consultation, and our intention is to ensure that such consultation is well informed. We respect that policies of wild herbivore management may be chosen based on the premise that killing of animals should be avoided at (nearly) all cost. Our main concern is that such choices are made in a way where our welfare consequentialist view is not ruled out as unethical or immoral prior to consultation.

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