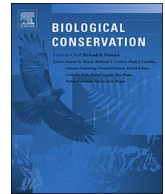




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## Review

## Just conservation: What is it and should we pursue it?

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## ABSTRACT

Efforts to realize conservation are often met with stakeholders contending that particular conservation actions are unfair for conflicting with their basic interests. A useful lens through which to view such conflict is social justice, which may be considered the fair treatment of *others* judged according three principles: equality, need, and desert (noun form of deserve). We formally demonstrate that (i) the subject of social justice (*others*) includes many non-human elements of nature and (ii) realizing conservation that is also socially just requires being guided by a non-anthropocentrism principle, whereby *no human should infringe on the well-being of others any more than is necessary for a healthy, meaningful life*. The concept, “healthy, meaningful life” is less vague and subjective than might be presupposed. That concept is for example subject to considerable objective reasoning through social and behavioral sciences. We indicate how realizing socially-just conservation requires another guiding, safeguard principle: *If a significant and genuine conservation interest calls for restricting a human interest, that restriction should occur except when doing so would result in injustice. When the restriction would be unjust every effort should be made by all involved parties to mitigate the restriction to the point of no longer being unjust*. This principle covers concerns often raised when conservation is opposed – e.g., financial costs, loss of cultural tradition. We explain how these two principles are neglected or excluded by many methods for resolving conservation conflicts and collaborative governance of natural resources.

## 1. Introduction

Consider a big cat in a person's backyard and the risk of it doing something problematic. Perhaps it's a lion and perhaps, being hungry, it kills the person's cow. Although the lion might be equally valuable to conservation irrespective of whose cow it kills, one's disposition toward this loss are surely affected if that cow was the only one owned by an impoverished person whose livelihood depended on its survival, or whether it was one of many owned by a wealthy rancher or pastoralist. We imply neither that poverty is a virtue nor wealth an offence, but simply that the circumstances of the cow's owner are an element of the human dimension to the problem and that this element affects the analysis of the arguments to be considered in seeking a fair outcome. This is one of myriad examples where social justice meets conservation.

A propitious path into this meeting of disciplines requires a common, if not provisional, conceptualization of those disciplines. Thus a necessary, first step is to define some key terms. We begin with

considering a particular understanding of *sustainability*, which can usefully be defined as meeting human interests in a socially-just manner without depriving species, native ecosystems or native populations of their health (Vucetich and Nelson, 2010). This particular verbiage is closely related to other widely-appreciated definitions of sustainability (e.g., WCED, 1987; Callicott and Mumford, 1997; NRC, 1999). Nor does setting this definition exclude the value of other conceptualizations of sustainability. Rather, we will be building ideas and relationships that depend on readers knowing the precise meaning of certain key phrases as we use them.

Insomuch as *conservation* may be usefully understood as maintaining and restoring the health of ecological collectives – namely, species and native populations and ecosystems (Vucetich and Nelson, 2013; Sandbrook, 2015); then, conservation is a constituent element of sustainability. Further suppose *human interests* – as used in the definition of sustainability – is any endeavor that any individual or group desires to pursue and may be characterized by its position on a spectrum ranging

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from vital to trivial interests.

Consider *social justice* to be the fair treatment of others, where fairness is judged according to well-reasoned application of three principles: equality, need, and desert (noun form of deserve) (Miller, 1999; Sandel, 2009; see also Appendix A). *Equality* may refer to concern for public procedures and processes (e.g., equality of opportunity), and it may refer to concern for the outcome of public processes (e.g., a concern to avoid extreme inequality of wealth). *Need* does not refer to any conceivable claim. Rather needs would be judged by an impartial observer as being necessary for realizing a healthy, meaningful life. A well-established sense of these needs include, for example, health care, education and political freedom. (This understanding of *need* is common among justice theorists. Behavioral scientists also have important insights about one's perception of one's own needs, see Discussion). Matters of *desert* should be judged with care; for example, with respect to considerable variation in agents' native abilities, which are not necessarily deserved. In other words, many fortunes in life are importantly attributable to one's inherited circumstances – ranging from inherited wealth to genetically inherited cognitive or physical abilities. In spite of the need to handle desert with care, the concept is considered useful to theories of social justice.

The study of social justice is sufficiently well-developed that well-reasoned application of these sometimes competing principles often yields broadly appreciated solutions. Yet, it is not so thoroughly developed as to preclude two well-reasoned applications that lead to disparate judgments.

The subject of social justice is “others,” which is often implicitly taken to mean other humans. More precisely, “others” refers to any agent entitled to fair treatment and treatment with at least some concern for their wellbeing, i.e., any agent who is entitled to direct moral consideration or possesses intrinsic value. That at least some non-human elements of nature are entitled to direct moral consideration is the foundation of various forms of non-anthropocentrism, such as biocentrism (Taylor, 1983) and ecocentrism (Callicott, 1989). Those non-anthropocentric perspectives have broad cultural support as indicated by sociological research (e.g., Bruskotter et al., 2017) and a growing number of laws, policies, and formal declarations by local and federal governments (Vucetich et al., 2015). Support for non-anthropocentric views is further supported by robust scholarship (reviewed in Vucetich et al., 2015). The appropriateness of including animals as subjects of social justice has also been explained by those within the community of social justice scholars (e.g., Nussbaum, 2006, 2012; Armstrong, 2012; Schlosberg, 2007; Coeckelbergh, 2009; Cripps, 2010; Horta, 2013; Pellow, 2014; Jones, 2015). Yet, the development of justice frameworks that account for both humans and non-humans lag behind human-focused frameworks of justice (Shoreman-Ouimet and Kopnina, 2015).

These generalized conceptualizations of social justice, conservation and sustainability indicate that the values of social justice can, at least on some occasions, conflict with the values of conservation (Fig. 1). Generic cases that raise at least a prima facie concern about conflict between conservation and social justice include:

- 1) Should livestock owners be restricted from killing predators that threaten to kill livestock? If the restriction is observed, is it sensible to compensate the loss of livestock? If so, who should bear the cost of compensation?
- 2) Should land owners be restricted from managing their lands (e.g., via particular practices of logging or agriculture) in ways that harm the habitat of conserved species (e.g., spotted owl, red-cockaded woodpecker)? If the restriction is observed, is it sensible to compensate the landowner? If so, who should bear the cost of compensation?
- 3) Should indigenous people be restricted from activities – such as hunting of endangered species for food, rites of passage or traditional regalia – on protected lands?
- 4) Should business owners be restricted with respect to externalities

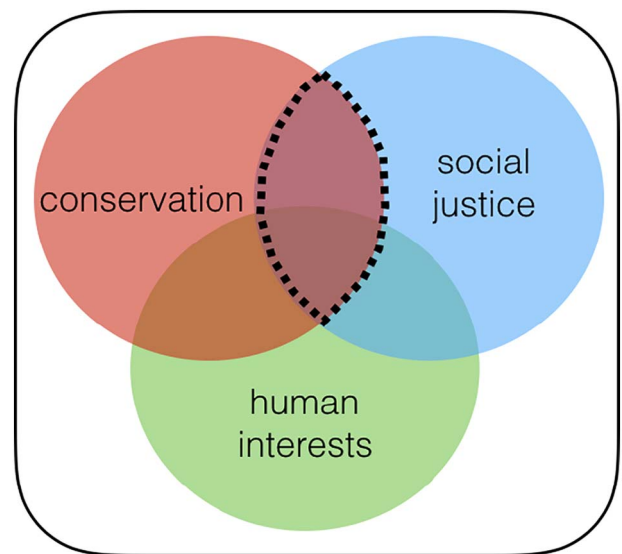


Fig. 1. A simple model that highlights sustainability as the union of value sets. Each value set is defined in the Introduction and Appendix A. Because any particular human interest may or may not be judged vital or worthy, sustainability may or may not include the union of all three value sets. Hence, sustainability may lie in either of the two areas circumscribed by the dotted line. The model accounts for economics implicitly. That is, in this model, economics are no more than a *means* by which any of the values might be advanced or compromised. We define social justice broadly enough to encompass animal welfare. However, when it is important to acknowledge that social justice (as it concerns only humans) sometimes conflicts with the wellbeing of non-human animals, then this Venn diagram model can be modified to represent social justice and animal welfare as separate circles. The model can also, if useful, be shifted from its focus on sustainability and conservation to a focus on human-wildlife conflicts that do not entail a significant conservation focus (e.g., common wildlife species that damage property).

created by their business as a by-product of producing some public good? A general example would include pollution or habitat degradation resulting from the production of food or energy.

The generalized structure of these examples (i.e., questions about compensating an agent whose behavior was restricted) highlights a common structure beneath what would otherwise be taken as a disparate set of cases and will help us see how these cases can be usefully treated with the aid of just a few principles.

One approach to these cases is to deny that they represent genuine conflict at all and simply *assert* that a restriction should be imposed without compensation because doing so does not violate the principles of social justice. While we acknowledge such a disposition, the meritorious concern is that some stakeholder will perceive the case as representing conflict and that stakeholder is owed an explanation for the resolution imposed by decision-makers.

Many efforts to resolve conservation conflict are ad hoc and led by decision-makers with sundry experiences in managing public conflicts. Conflict resolution is, however, a formal framework for managing these situations with a well-developed history independent of conservation (Ramsbotham et al., 2011; Wallensteen, 2015). Formal elements of conflict resolution have recently been introduced to conservation (e.g., Daniels and Walker, 2001; Young et al., 2010; Redpath et al., 2013; Madden and McQuinn, 2014; see also Mishra et al., 2017). Here, we outline some essential features of conservation conflict resolution (CCR). A primary objective of this paper is to explain how that framework can be modified to provide more robust adjudication between conservation and social justice.

## 2. Relationships

Our assessment supposes that conservation and social justice are sufficiently independent sets of values (in the parlance of ethical

discourse, or “societal goals” in parlance more fitting to social scientists) that they sometimes conflict. The veracity of such a relationship deserves scrutiny and we do so by considering four possible relationships between conservation and social justice. Each is liable to resonate with at least some conservation professionals.

- 1) Conservation is a (pre)requisite for social justice. The three concerns of justice – need, equality, and desert – are inextricably linked with the availability of adequate natural resources, which in turn is influenced by conservation. For example, unjust distributions of resources among humans may be more likely when resources are scarce.
- 2) Social justice is a (pre)requisite for conservation. The gist of this relationship is indicated, for example, by the proposition that humans whose basic needs are unmet have less obligation to make sacrifices for conservation than other well-off humans.
- 3) Conservation and social justice are *ultimately* and *entirely* complementary and conflicts only appear as such. This is a more general and sweeping variant of relationships (1) and (2).
- 4) Conservation and social justice *sometimes* genuinely conflict with one another. Social justice is concerned with how limited resources ought to be allocated among individuals while attending to concern for need, equality, and desert. Conservation is maintaining and restoring the health of ecological collectives. Conservation and social justice can conflict because the interests of individual organisms (human or non-human) and the “health” of ecological collectives are not always perfectly aligned (Appendix B). Some sense of this conflict is indicated by examples offered in the *Introduction*. Most generally, the conflict between individual interests and collectives is indicated by the basic divide between collectivist and individualist thinking (Triandis, 2001).

Relationships (1) and (2) are true in a (limited) sense that allows relationship (4) to also be true. The explanation offered for relationship (4) is also evidence against the sweeping generalization of relationship (3). Upon acknowledging the potential for conflict between conservation and social justice, one can consider various responses to any such conflict:

- a. Social justice should generally trump conservation. If conservation is taken to be an essentially anthropocentric endeavor – as asserted by proponents of New Conservation (Kareiva and Marvier, 2007; see Batavia and Nelson, 2016 for a critique), then, conservation and social justice would share a common, central interest in the well-being of humans. In particular, conservation's interest would be in maximizing long-term availability of natural resources and social justice's interest would be in fair allocation of limited natural resources. One could argue – and the argument would be debatable – that fair allocation now among living people (with less regard for the social justice concerns of future generations) is more important than maximizing long-term availability of natural resources. This line of thinking would not deny the moral status of future generations; rather, it would only claim that today's justice is generally more important than tomorrow's justice. This line of thought can arise from applying – as an economic or psychological principle – certain rates of future discounting (Arrow et al., 2013; but see Treves et al., 2018). We are not defending or criticizing this line of thought, we are merely acknowledging the line of thinking that would likely be required to conclude that social justice should generally trump conservation.
- b. Conservation should generally trump social justice. This view has at least some adherents in the conservation community (e.g., Curry, 2011 (p. 229)).
- c. Conflicts between conservation and social justice should be resolved through traditional CCR, even when doing so risks resolutions unduly influenced by manipulation of power dynamics and extorted

concessions (that favor of conservation over social justice or vice versa).

- d. Conflicts between conservation and social justice should be *adjudicated through principles that would represent a framework for socially-just conservation* and could be implemented in CCR processes.

We reject (a) for being anthropocentric, and we reject (b) for being misanthropic. Response (c) represents a view of justice known as political realism and (d) represents political moralism. Each of those views has played a valuable role in the long history of justice (Williams, 2005). Efforts to manifest each view in the real world have led to both positive and detrimental outcomes.

The dichotomy represented by (c) and (d) is also a fresh perspective on a different, widely-recognized dichotomization. In particular, (c) can readily be associated with “bottom-up” (as opposed to top-down) approaches in decision-making which emphasize various strategies for involving local communities (e.g., Fraser et al., 2006). This dichotomy emphasizes procedures by which different actors (stakeholders and decision makers) participate in decision-making. That emphasis is sometimes reduced to – at the risk of oversimplification – *who* is engaged in what way to decide what is just. While that emphasis is valuable, there is also value in emphasizing *what* counts as just. The value of this consideration is unquestionably provided by the distinguished history of political moralism.

Below, we develop ideas that might form a basis for thinking more deeply about a framework for socially-just conservation.

### 3. Conservation conflict resolution

Political processes for handling conservation conflict are sometimes dichotomized as either being imposed by government agencies or being comprised of some form of collaborative governance – in other words, as either top-down or bottom-up (Redpath et al., 2017). A particular kind of collaborative governance is conservation conflict resolution, CCR (Redpath et al., 2013; Gutiérrez et al., 2016; Young et al., 2016), whose essential features were summarized with elegant succinctness in a recent review, beginning with a formal definition of conservation conflict (Redpath et al., 2013):

*situations that occur when two or more parties with strongly held opinions clash over conservation objectives and when one party is perceived to assert its interests at the expense of another. This definition recognises that conservation conflicts occur fundamentally between humans.*

While conservation conflict is sometime referred to as “human-wildlife conflict,” it is essential to distinguish between “human-wildlife impacts” and “human-human conflicts.” The distinction is motivated, in part, because it acknowledges that wildlife species do not consciously antagonize human interests (p. 100). Moreover:

*The distinction between these two components is essential because each will be understood and managed differently: whereas impacts can be resolved, for example, through legislation, mitigation, or technical solutions, conflicts are more challenging to resolve.*

The aim of conflict management is:

*to move parties away from zero-sum games to seek alternative non-zero-sum outcomes where both sides can claim victory [emphasis added]. One way to achieve this is by distinguishing the underlying values held by parties, which might be incompatible and nonnegotiable, from the interests and needs, which might be negotiable... success occurs when the outcome is acceptable to both sides and when neither party is asserting its interests to the detriment of others.*

In summary, CCR: (i) is focused on the interests of humans, (ii) seeks mutual satisfaction (win-win situations) among the humans involved to the greatest extent possible, and (iii) tends away from reconciling or transcending underlying conflicts in values by focusing on technical

solutions.

While other models of collaborative governance emphasize different elements, the elements of CCR emphasized here are emblematic of broader – though not universal – perspectives in collaborative governance. For example, collaborative governance is formally defined as being “consensus-oriented” in an overview of the topic that has been cited more than two thousand times (Ansell and Gash, 2008). Also, in reviewing the literature, Madden and McQuinn (2014) demonstrate a tendency to emphasize technical fixes and avoid deeper treatments of values. That tendency is sometimes considered a weakness (e.g., Pooley et al., 2016) and some models of collaborative governance – including that espoused by Madden and McQuinn (2014) – explicitly attend to value conflicts (e.g., Davies et al., 2013).

This succinct portrayal is not intended to be a broad summary of collaborative governance in conservation – an impressively diverse collection of processes. Rather its purpose is to provide background for observing genuine contrast between common conceptions of collaborative governance and principles for treating conservation conflict that we begin developing in the next section.

In closing this section, re-focus on the conventional view that “*conflict in conservation [is] ultimately about humans with different interests, views, and values*”, implying that the conflicting values have indistinguishable merit. Insight is had by re-conceptualizing the nature of conservation conflict, by abstracting some essential elements of a better understood form of conflict, i.e., mediated collective bargaining, where employers and employees negotiate the conditions of employment within the constraints of labour laws. If labour laws are adequate to prevent unjust labour practices, then any negotiated outcome would be just; and, a reasonable basis for judging the negotiated outcome would be concession or mutual satisfaction of both parties. If labour laws are inadequate and allow for unjust labour practices, then mediated collective bargaining can result in outcomes that are legal though unjust. In that case, a party may agree to an unjust outcome if other outcomes would have been worse. These outcomes can be recognized only if evaluated against a set of principles taken to represent social justice. The historical and ongoing development of fair labour practice depends vitally on the ability to recognize all three outcomes – just, unjust though legal, and illegal. These abstracted circumstances indicate the shortcoming of judging the success of CCR on grounds of mutual satisfaction.

#### 4. An analogy

To illuminate aspects of CCR that could be modified to provide more robust adjudication between conservation and social justice, consider a set of comparisons and contrasts between CCR and some basic elements of a judicial court case. Such a case would include a defendant, a plaintiff, a counselor for each, and a judge.

##### 4.1. Process-oriented principles

The court is conducted with strict adherence to process. The defendant and plaintiff interact with the judge primarily through their counselors. The judge and counselors interact in an elaborately formal manner. Imagine: “Objection, your honor...” Followed by, “Objection sustained, counselor...” CCR and the court are alike for valuing strict adherence to process. In CCR, the mediator’s responsibility is ensuring that stakeholders adhere to processes that favor civil discourse. The mediator also employs process-oriented principles designed to build trust and respect among disputing stakeholders (Daniels and Walker, 2001).

##### 4.2. Substantive principles and impartiality

While the judge and mediator are similar in their responsibility for upholding the process-oriented principles, their other roles differ

greatly. The judge is impartial to the particulars of the case, such as the identity of the plaintiff and defendant, and does not prejudge the evidence. However, the judge is deeply partial to the laws that will be applied in determining the outcome of the case. Think of laws as substantive principles that favor values we hold and disfavor other values.

By contrast, the mediator does not uphold substantive principles representing underlying values that would lead to adjudication. The CCR process is taken to depend critically on the mediator being entirely impartial – to the particulars of the conflict, to the values held variously by the stakeholders, and to the values that would adjudicate the conflict. Those familiar with mediation have noted the extreme practical difficulty of realizing or even embracing complete impartiality in a mediator (Kydd, 2003; Exon, 2006; Gerami, 2009; Stulberg, 2011). Furthermore, acceptance of an outcome in CCR is said to depend on stakeholders perceiving and acknowledging the mediator’s impartiality.

There are important exceptions where CCR explicitly upholds a substantive principle. For example, during the early 2000s the U.S. Fish and Wildlife Service (USFWS) led a mediated process to assist in developing a recovery plan for Mexican wolves (JAV, pers. observ.). The process included a wide array of stakeholders, including those who had been working against wolf recovery. The USFWS laid a ground rule that participation in the process required participants to accept that recovery would occur. All that was at stake in the process were details of what recovery would look like. That ground rule represents a substantive principle reflecting a basic conservation value (and caused some stakeholders to exclude themselves from the process).

##### 4.3. Win-win

Mediators in CCR are partial to win-win outcomes, whereby both parties concede to an acceptable outcome. In sharp relief, the responsibility of a judge excludes such partiality. The judge’s partiality is supposed to lie with fair application of the law. In this sense, justice is not threatened by a plaintiff or defendant perceiving a win-lose situation.

##### 4.4. Power and authority

After the judge acknowledges the plaintiff’s complaint, the defendant is obliged to participate. The judge also has legal authority to enforce the outcome of the case. By contrast, mediators in CCR generally do not have those authorities. (An important class of exceptions is represented by the example cited above where CCR is led by a government agency with the authority to enforce the outcome of CCR.) Those familiar with CCR have noted that CCR is sometimes stymied by stakeholders who see it as in their interest to not participate in the resolution process (Leach, 2006).

#### 5. Anthropocentrism

Before considering principles that might guide just conservation, insight will be had by considering an important outlook of CCR, represented by the notion that (Redpath et al., 2013): “*conflict in conservation [is] ultimately about humans with different interests, views, and values*.” That outlook tends to make CCR – and related processes, such as collaborative learning and structured decision making – implicitly anthropocentric, which is the belief that only humans possess intrinsic value and that every other thing possesses value *only* inasmuch as it may benefit humans. Anthropocentrism has long had an important influence on conservation, as indicated by the oft-repeated aphorism, “there are just two things on this material earth—people and natural resources” – first articulated by Gifford Pinchot (1947), a conservation leader from the United States during the early 20th century. Anthropocentrism remains influential (e.g., Kareiva and Marvier, 2007; Holmes et al., 2017).

One might argue that CCR and related processes provide

appropriate representation of non-anthropocentrism when those processes include human stakeholders with non-anthropocentric views. However, representing the interests of humans who believe non-humans possess intrinsic value (along with the interests of humans who think otherwise) contrasts greatly with representing the interests of non-humans. The former merely allows for negotiating the acknowledgement of non-anthropocentric viewpoints. The latter takes non-anthropocentrism for granted and subsequently allows for negotiating and adjudicating of competing interests among human and non-human agents with intrinsic value. The profound distinction is highlighted by an absurd (and thankfully imaginary) solution to civil rights: allow minority interests to be represented *only* by members of the majority who happen to believe minority interests have merit.

Non-humans cannot represent themselves in these kinds of processes, because they cannot speak. Nevertheless, non-humans can be represented directly – through principles that represent their interests. This circumstance is not unfamiliar – it also applies to humans who cannot represent their interests themselves, e.g., infants and coma patients.

The concern with CCR tending toward anthropocentrism is that it neglects the strong case for non-anthropocentrism. Non-anthropocentrism is the belief that at least some portions of the non-human world possess intrinsic value. An object is instrumentally valuable if it is valuable as a means to some end, and intrinsically valuable if it is valuable beyond its instrumental value or valuable for its own sake (Sandler, 2010). While succinct definitions of intrinsic value tend to be abstract and easily misconstrued, the implication of something possessing intrinsic value is straightforward: If something possesses intrinsic value it means essentially that you have an obligation to treat it fairly or with respect and with at least some concern for its wellbeing or interests (Vucetich et al., 2015; see also Batavia and Nelson, 2017). As such, it is wrong to infringe on the wellbeing of an intrinsically valuable agent without an adequate reason for doing so. Understanding what counts as an adequate reason would be greatly aided through the development of robust and substantive principles of just conservation.

### 5.1. Biocentrism and ecocentrism

Two important kinds of non-anthropocentrism are biocentrism and ecocentrism. The rationale and implications of each merit distinct treatment. Biocentrism acknowledges the intrinsic value of individual living organisms. One of the more important lines of reasoning for biocentrism begins with the supposition that humans possess intrinsic value because we have interests (e.g., to avoid pain and to flourish). It follows that any entity with such interests would also possess intrinsic value. Because all vertebrate organisms possess those interests, they also possess intrinsic value. The force and universality of that reasoning is indicated by the principle of ethical consistency, i.e., treat others as you would consent to be treated in the same position (Gensler, 2013). Most human cultures are undergirded by some variant of this principle (e.g., Golden Rule). Acknowledgment of intrinsic value in at least some non-human portions of nature is also widespread – reflected by sociological evidence (Bruskotter et al., 2017; Lute et al., 2018) and many governments (Vucetich et al., 2015). The tangible implications of acknowledging the importance of non-humans' intrinsic value is suggested, for example, by experiments indicating that humans express less care for non-human life when the economic value of that non-human life is emphasized (Goff et al., 2017).

A case has been made that because all living things have an interest to flourish, all living things possess intrinsic value (Taylor, 1986; Næss, 1990). While the case for complete biocentrism may not be so widely appreciated, the case for intrinsic value of mammals and birds is essentially undisputed.

The rationale and implications of ecocentrism are different. One line of reasoning for ecocentrism is that ecological collectives (populations and ecosystems) are normally homeostatic, resilient, and

interconnected and that those properties imbue them with intrinsic value (Leopold, 1949). Some, but not all, ecologists believe that ecological collectives are *not* characterized by those properties (e.g., Davis and Slobodkin, 2004; cf., Winterhalder et al., 2004). Nevertheless, whether an ecological collective possesses those traits depends on both scientific and metaphysical considerations. As such, it is at least partially relevant that many (if not most) people believe that “nature possesses a delicate balance that is easily upset by humans.” (Pierce et al., 1987).

A second line of thinking (also developed by [Leopold, 1949]) also supports the intrinsic value of ecological collectives by supposing that humans and ecological collectives are members of the same biotic community. In sharing community membership, and by extending the moral principles that apply to human communities, we ought to treat ecological collectives with respect.

Differences between biocentric and ecocentric are associated with conflicts between animal welfare and conservation (although some believe the polarity between the two interests is often wrongly emphasized). An important perspective is that conservation concerns for ecological collectives are appropriately met by attending to biocentric concerns (e.g., the wellbeing of an individual organism is inescapably dependent on ecosystem health). Some ecocentrists do not embrace that perspective – thinking it makes ecocentric concerns too subservient to biocentric concerns. Ultimately, too little philosophical research has been conducted to have resulted in a broadly accepted understanding of how to handle these conflicts.

The underlying rationales for ecocentrism and biocentrism are also important for understanding how those value-beliefs should be handled in CCR. Recall, CCR aspires to be impartial toward values. As such, one might think it appropriate to account for non-anthropocentrism by giving stakeholders who hold those value-beliefs an opportunity to lobby for those beliefs during CCR. The concern is that anthropocentrism is also a value-belief. What if the burden of justification were reversed and the status of anthropocentrism was no more than to allow anthropocentric stakeholders the opportunity to lobby for those beliefs during CCR? To adopt either burden of justification would violate CCR's aspiration to be neutral and impartial with respect to value-beliefs. There is no neutral position on non-anthropocentrism or anthropocentrism, in part, because it determines whether any non-humans are stakeholders in the resolution.

An important orientation for handling these value-beliefs is to ask, which are subjectively held and to what extent any of these value-beliefs are an objective circumstance? The answer to that question is informed by two additional contrasts between ecocentrism and biocentrism:

- 1) While ecocentrism is a reasonable belief, logic may not compel one to accept it. In particular, one would be free to opt out of ecocentrism so long as one can reasonably reject premises that support ecocentrism – especially the notions that ecosystems possess the kind of homeostasis that imbue intrinsic value or are capable of community membership. (A reason to reject that latter notion is that an ecosystem cannot be a community member because it *is* the community. By analogy, one of us [JAV] lives in a community called the city of Hancock. JAV and his neighbors are members of that community; but Hancock is not a member of the community, Hancock.)

It is not so easy to opt out of the reasoning that leads to, at least limited forms of, biocentrism, especially the principle of ethical consistency and the notion that birds and mammals have an interest to avoid suffering. Inasmuch as those premises cannot be rejected, then claims that we should treat birds and mammals with at least some concern for their wellbeing cannot be rejected.

- 2) Ecocentrism obligates us to treat populations and ecosystems with at

least some concern for their wellbeing or health. Scholarship indicates that ecosystems and populations are healthy either inasmuch: (i) as they can produce what we want, or (ii) as they have not been impacted by humans (Vucetich and Nelson, 2010). The former perspective is inappropriately anthropocentric; the latter risks misanthropy. The elusive nature of ecosystem health creates significant ambiguity and under-determination with respect to the moral obligations of ecocentrism (see also Fieser, 1993).

By comparison, biocentrism creates a relatively straightforward moral obligation: organisms that possess intrinsic value should be treated with at least some concern for their wellbeing or health. We can equivocate, be ignorant of, or mistaken about what that means for a particular organism – including human organisms. Nevertheless, the concept of an organism's wellbeing or health is far less ambiguous and underdetermined than the health of an ecosystem or population.

In CCR, the status given to ecocentrism and various forms of biocentrism should depend on the degree to which these circumstances can be resolved. More broadly, and to recapitulate, presuming humans to be the only stakeholders is very likely misaligned with reason and the beliefs of most people. This is a shortcoming of CCRs with anthropocentric tendencies.

## 6. The non-anthropocentrism principle

Consider a gedanken-experiment, whereby a group of agents develop the rules and norms of society and do so without knowledge of the role each will have in that society. That is, each agent is ignorant of what will become their personal socioeconomic status, religion, race, gender, etc. What rules and norms would result from such an effort? This thought experiment is essentially what is known as the original position or veil of ignorance, developed by John Rawls (1971) who is widely considered one of the most important political theorists of the 20th century. Close variants of the veil of ignorance have been expressed in the “impartial spectator” of Adam Smith (1759) and the categorical imperative procedure of Immanuel Kant (1785). While the veil of ignorance can be misapplied, the essential idea is widely appreciated as a foundation for just societies (Freeman, 2016).

The veil of ignorance and its variants have tended to be applied to affairs that concern only humans. Nevertheless, one can readily imagine a veil of ignorance whereby an agent is ignorant of whether they will be a human or non-human. That veil of ignorance would likely lead to the non-anthropocentrism (NA) principle: *No human should infringe on the well-being of others any more than is necessary for a healthy, meaningful life.* In that principle, “others” refers to any agent – human or non-human – who possesses intrinsic value. Inasmuch as this principle might follow from the veil of ignorance, the NA principle is not a subjectively-held value, but an objective circumstance. The NA principle's robustness is further suggested by its similarity to other important concepts, including:

- 1) The capability approach to justice, developed by Amartya Sen, Martha Nussbaum and others, whereby a critical aspect of justice is facilitating the political and socioeconomic freedoms necessary for achieving a healthy, meaningful life (Robeyns, 2016).
- 2) The law of equal liberty – an essential element of liberalism first developed by John Locke (1690) and elaborated upon up to modern times (e.g., Rawls, 1971) – whereby we should be free up to the point of undue infringement on the wellbeing of others.
- 3) Ecophilosophy and Deep Ecology, developed by Arne Naess, Bill Devall, and George Sessions, whereby “humans have no right to reduce this richness and diversity except to satisfy vital human needs” (Devall and Sessions, 1985).

While the NA principle is unequivocally non-anthropocentric, it prioritizes human well-being. In this sense, the principle cannot

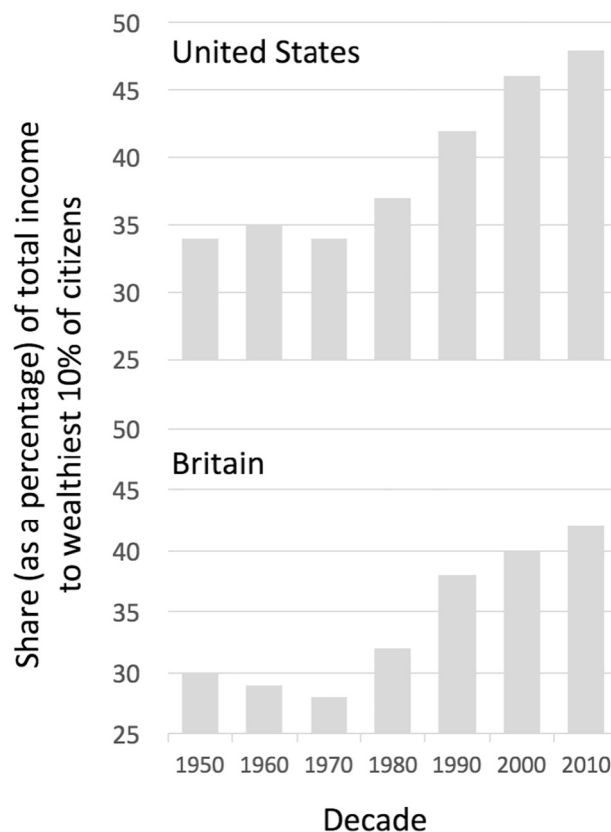


Fig. 2. The increasing share of wealth among the wealthiest citizens of the United States and Britain is an indicator that inequality in the distribution of wealth has increased over the past several decades in developed nations. Similar trends occur, for example, in Germany and Sweden. Source: Piketty (2014).

possibly be construed as misanthropic and is minimally just toward non-humans. While the NA principle has significant imprecision and vagueness, it is not vacuous. Those properties are essential for broad and meaningful application of the NA principle. In this regard, the principle is akin humans possessing a right to the “pursuit of life, liberty, and happiness.” From a general principle, more specific principles can be derived.

Next, we highlight how the NA principle might influence conservation if it were applied. Doing so reveals the need for additional principles.

### 6.1. Impoverished communities

In some communities poverty precludes freedom to pursue a healthy, meaningful life for a large portion of humans. Examples range from poor neighborhoods to impoverished nations. In those circumstances, unmediated application of the NA principle would likely disfavor conservation.

This conservation-inhibiting poverty is importantly a consequence of extreme inequality in the distribution of wealth, both within and among nations. This inequality is widely understood to have been severe and worsening for decades (Fig. 2). The kinds of policies that could lessen inequalities may be sufficiently well understood; nevertheless, the realization of lessened extreme inequality is powerfully resisted by those who benefit from extreme inequality (e.g., Stiglitz, 2012; Piketty, 2014; Deaton, 2015; Reich, 2015). While a penchant for unqualified and unfettered economic growth is widely taken to be a fundamental obstacle to conservation (e.g., Czech, 2008), these observations suggest that extreme inequality in wealth is a fundamental obstacle to just conservation.

Until extreme inequality is remedied, just conservation would seem to call for strategies that: (i) provide impoverished communities the ability to realize healthy, meaningful lives, and (ii) conserve nature in and around these communities. We are not the first to acknowledge connections between conservation and poverty (e.g., Adams et al., 2004; Roe et al., 2013). Such strategies would include, for example, (i) federally-funded and NGO initiatives to advance conservation in impoverished communities within nations, and (ii) support for conservation in developing nations from governments and NGOs of developed nations. Failure to realize this latter condition is indicated by the portion of gross domestic product that various nations devote to conservation (Lindsey et al., 2017).

## 7. Conflict in developed communities

In conservation conflicts involving extreme inequalities among humans, social justice is limited by the unmet needs of the impoverished. However, in conflicts where the needs of all human stakeholders are met (i.e., none of the stakeholders suffer poverty), then social justice may hinge more on attending the principles of equality and desert. We consider cases involving calls to abandon a cultural tradition, change employment or incur a financial cost. In considering the cases that follow, take for granted that the conflicts involve a significant and genuine conservation concern; though assurance of such may require, for example, attending concerns raised in Appendix B.

### 7.1. Tradition

Appealing to the value of tradition has been used to defend horrible traditions, such as slavery. That a community has been partaking in some particular activity for some time is not, by itself, adequate reason to continue the activity. The notoriously fallacious reasoning of appeals to tradition is indicated by the formal recognition of such reasoning in catalogues of logical fallacies, even being assigned a Latin label, *argumentum ad antiquitatem*. The requirement is to judge whether a traditional activity is appropriate – aside from being traditional.

Moreover, few, if any, communal traditions are static. Communities shepherd the evolution of their traditions for various reasons. The value of a communal tradition is generally substitutable with development of a revised or alternative tradition (e.g., France-Presse, 2014; see also Fitzherbert et al., 2014). In these ways, asking a community to restrict or alter its traditions is not, *in principle*, an unjust restriction.

When conservation and tradition conflict, one route to resolution is to judge whether the honorable elements of the tradition can be substituted with some other communal activity. Consider an example. The Makah people have been hunting gray whales for centuries off the northwest coast of North America. Some conservation advocates argued that doing so is antithetical to conservation. Some opposed to the hunting have argued that the honorable elements of traditional whale hunting – i.e., knowing and sharing the life history of the whale and experiencing time on the ocean for a relatively close encounter with a whale – can be satisfied by the Makah providing whale-watching opportunities to those less familiar with gray whales. By that account, the only element of the traditional activity to be restricted would be the killing itself (Kirby, 2015). Possibly implicit in the preceding is the existence of normative principles that transcend the norms of individual cultures (Lukes, 2008; Dickman et al., 2015).

Consider a second, representative example (Schlosberg and Carruthers, 2010):

The San Francisco Peaks... in northern Arizona, are not part of any federally recognized reservation, but have long been held sacred by 13 Native American tribes in the region. The San Francisco Peaks are also a recreational area. Part of the Coconino National Forest, the Peaks are home to a small, privately owned ski area, the Arizona Snowbowl, on land leased from the Forest Service. In 2002, the

Snowbowl requested permission from the Forest Service to make artificial snow with reclaimed sewage water, in order to provide a more predictable, and profitable, ski season. Since then a conflict has raged regarding the impact of such a practice on traditional religious and cultural customs, on the recognition of the value of these traditions, and on the environmental impacts of using reclaimed sewage for snowmaking. Much of the discourse has centered on religious freedom, environmental justice, and the value of a particular type of economic development over the traditional practices of the tribes.

Schlosberg and Carruthers (2010) conclude that their analysis “help [s] explain the sense of injustice that currently fuels numerous high-profile indigenous environmental conflicts around the globe.” The analysis implies, in part, that restricting a cultural tradition is *generally* unjust because the value of cultural tradition is too easily underestimated. Yes, the value of living within a healthy culture is paramount, but the value of *particular elements* of a culture varies considerably. In this case, there is a risk of conflating the importance of particular elements of culture with the broader disenfranchising of a group of people – which may be more to the point in cases like that of the Snowbowl.

When some element of tradition or culture seems to conflict with some environmental concern, the relative value of the tradition can be evaluated, in part, by this set of questions: (i) Does a proposed restriction genuinely impair the ability to realize a healthy, meaningful life? (ii) If so, is it *possible* to adequately compensate the restriction? (iii) If not, is the restriction proposed for adequate reason?

For example, in proposing that the Makah restrict their tradition to sharing whale watching experiences with the public, one could argue that adapting their tradition to focus on whale watching does not compensate for the lost tradition which included the ceremonial harvesting of meat and oil. Likewise, one can argue that refraining from that harvest does not impair one's ability to realize a healthy, meaningful life and the restrictions are justified given the harm to the whales – as individual organisms and as a conserved species. Our point is not to pass judgment on how those arguments would play out. Rather our point is that these are necessary elements of any such evaluation.

### 7.2. Employment

Suppose that accommodating a particular conservation concern results in undeserved, involuntary unemployment. Such unemployment is, in the best cases, followed by re-employment that is dignified, gainful, and timely. In these best cases, re-employment would also have been assisted to the degree necessary by adequate re-employment services provided by government and a positive disposition on behalf of the unemployed. (Disposition of the unemployed is verifiably important [Zikic and Klehe, 2006; Abebe and Welbourne, 2015]). Even these best cases are misfortunate – especially during the period of unemployment. But are they also unjust?

Take for granted that some particular case of undeserved, involuntary unemployment is unjust. Is conservation culpable for the injustice? Some rate of involuntary unemployment is a basic feature – not of conservation – but of modern market economies, even the most socialized forms of capitalism. In other words, if the best cases are a kind of injustice, then the culpable cause and just solution is likely an adjustment to the details of that market economy, not conservation.

Furthermore, we implied a distinction between a misfortunate circumstance and injustice. The distinction likely rises with two considerations: (i) Was the undeserved circumstance caused by conditions beyond the reasonable control or responsibility of any moral agent (Appendix A)? (ii) Did the circumstance ultimately result in unmet needs or unacceptable inequality? For example, when severe weather damages one's property, but not to the point of creating an unmet need – then, we tend to consider such events as misfortunate, but not unjust.

Furthermore, we should ask does misfortune tend to befall a group of people more often than others. If so, it may be the result of underlying social structure that is unjust for being tantamount to *unequal treatment*.

Recognizing the importance of these conditions suggests that involuntary re-employment to accommodate a genuine conservation concern is not unjust as a matter of principle. Even in cases where involuntary reemployment does involve injustice, conservation is not necessarily the source of that injustice.

Stepping away from the particulars of this case, a conservation conflict is usefully characterized as involving a *critical party* who expects another party to restrict their actions to accommodate a conservation concern and an *impacted party* who believes they are being asked to abide by an unjust restriction. The critical party believes the impacted party should sacrifice one of their human interests for the sake of conservation, but the impacted party believes that human interest is of sufficient importance to represent an injustice (sensu Fig. 1). In any case, all actors in CCR (the mediator, impacted party, and especially the critical party) should focus their efforts on the point of injustice where-ever it may lie.

### 7.3. Financial loss

Our evaluation of financial loss is aided by exemplifying the kind of impacts we have in mind: a livestock owner who incurs the financial cost of depredation due to carnivore conservation, a logger who incurs additional business costs due to environmental regulations, and a landowner who incurs an opportunity cost by being prohibited from using their land in a certain way due to environmental regulations.

Being compelled to bear an involuntary financial loss is not necessarily an injustice. For example, such losses might arise from a car wreck that resulted through no fault of any human or crop losses due to poor weather. The specter of injustice may arise when the loss: substantially impairs that person's ability to realize a healthy, meaningful life (need); contributes to extreme inequality (equality); or is caused by malice or gross negligence (desert). Otherwise financial losses may be misfortunate, but not unjust.

Misfortunate financial losses can be mitigated by lobbying a government for subsidies or voluntary assistance from community members (e.g., compensation for lost livestock). In the context of business, an attempt can be made to mitigate financial losses by passing costs onto customers (e.g., predator-friendly beef, and eco-friendly lumber).

When unjust losses occur, all the actors in CCR (mediator, impacted party, and especially the critical party) should focus effort on mitigating the loss to the point of no longer being unjust. When misfortunate losses occur, efforts to mitigate may be motivated by generosity or political good will, but they are not obligated by justice excepting for cases with violations of the principles of need, equality, or desert.

### 7.4. The safeguard principle

These treatments of cultural tradition, reemployment, and financial loss all point to a general, *safeguard principle*:

*If a significant and genuine conservation interest calls for restricting a human interest, that restriction should occur except when doing so would result in injustice. When the restriction would be unjust every effort should be made by all involved parties to mitigate the restriction to the point of no longer being unjust.*

The meaning of injustice is apprehended by the application of the three basic principles of justice: need – Do all parties have access to resources that would allow for realizing a healthy, meaningful life; equality – Does the restriction foster extreme inequality?; desert – Is the restriction born from some moral agent treating some moral patient (Appendix A) in an undeserved manner?

## 8. Additional considerations

### 8.1. Bottom-up and top-down governance

Various models of collaborative (bottom-up) governance are sometimes dichotomized against top-down approaches, characterized by government agencies responding to conflict by promulgating values, either explicitly or implicitly. There has been a recent rise in appreciation of bottom-up approaches in conservation (Bodin, 2017). Some advocates have emphasized that its merits do not depend on refuting the merits of top-down approaches (Redpath et al., 2017). Notwithstanding the pluralist attitudes of some scholars, our advocating adoption of principles of just conservation might be misconstrued as being uncomfortably top-down.

That misconstrual is remedied by first recognizing that the top-down/bottom-up dichotomy is a weak dichotomy inasmuch as policy decisions often result from processes involving both top-down and bottom-up elements. For example, most bottom-up processes are characterized by a government agency that imposed some kind of constraint on the decision space (i.e., the range of options that can be considered, sometime informally referred to as “side-boards”). Those constraints are often tantamount to an agency imposing values on the decisions.

To refrain from imposing a value is often as value-laden as imposing a value. Consequently, it is fruitless to ask – Should values that might constrain a decision be imposed on a decision-making process? Rather, the appropriate questions are, What values should be imposed? When and how should they be imposed? The primary (perhaps only) basis for imposing a value or refraining from doing so is to qualitatively judge the robustness of the reasons for either allowing or precluding the value in question (Sen, 2009).

### 8.2. Procedure

Justice is widely appreciated to depend on both principles against which outcomes are judged as well as procedures employed in arriving to some outcome. These procedures aim to, for example, build trust among stakeholders and treat stakeholders with dignity and respect. Our focus on principles of just conservation in no way implies that procedural matters are unimportant.

Moreover, the principles described here provide ample opportunity for efficacious deployment of procedural justice. Examples include guiding the conflicting parties through judgments about what qualifies as a healthy, meaningful life and whether a particular case represents extreme inequality. We do not doubt the difficulty of such discourse. Indeed, that difficulty is an unrelenting demand of justice. Nor do we take for granted that mutual agreement would routinely be conceded. We have already explained why just resolutions do not necessarily result in mutual satisfaction. Finally, these principles are also consistent with a particular element of procedural justice, i.e., “recognition” of relevant stakeholders in the context of environmental justice (Martin et al., 2016).

In many cases, the mediator of a discourse-based, decision-making process does not have the authority to enforce principles of just conservation, whatever those principles might be. This concern is met by three responses: First, in many cases a mediator acts on behalf of a government that does have the authority of enforcement. Second, even when just conservation cannot be enforced, there is value in a mediator encouraging its principles, which is only possible if the principles are understood. Third, even if just conservation is obstructed by a powerful stakeholder, there is value in pointing to principles that highlight the obstruction.

When a stakeholder cannot accept being constrained by a particular value, then their expressed interest may be best served by uncooperative behavior, such as not participating in the process. In such cases, it may be prudent for decision makers to focus on “settling the dispute” rather than “reconciling the values” (using the language of



Fig. 1 in Madden and McQuinn, 2014). Aiming for settlement rather than reconciliation is not a value-free approach – it is partially predated on the decision maker holding fast to a value.

Alternatively, a decision-making process may be best served by proceeding without the participation of a stakeholder who abjectly rejects an underlying value of the process. For example (Wilson, 1999), the federal government of the United States initiated a decision-making process in 1995 to determine how to best foster recovery of wolves in the state of Idaho. The state government of Idaho was invited to participate, but it rejected the premise that recovery was desirable – even in principle. The federal government responded by finding a replacement stakeholder – the Nez Perce tribe. With the passage of time, Idaho realized its uncooperative approach was not serving its interests and become considerably more cooperative. The exclusion of an important stakeholder can lead to a negative outcome, but not always.

### 8.3. An unresolved juxtaposition

Many particular concerns about justice focus on relationships among members within a community or nation. Many other justice concerns focus on relationships between communities (e.g., developing nations and developed nations; or indigenous people and descendants of colonists). For example, debate over the fairness of a regressive tax policy within a nation would tend to be conducted without reference to what counts as an economically just relationship with other nations. Justice is often taken to be contextual in another important way, i.e., one's needs (as a basic concern of justice) vary with social context. For example, car ownership may be particularly important for functioning in some American communities, but not elsewhere. A difficult question is: Would it be fair to deny car ownership to such an American, if there is no reasonable prospect for this American to change her cultural context in a way that would obviate the need for a car? We are not claiming that justice should treat scope and context in any particular way. Rather, we merely acknowledge that these are typical – if not entirely satisfying – ways of handling justice, i.e., to constrain the scope of justice according to the particular concern.

The contextual treatment of justice will often be oddly juxtaposed with conservation inasmuch as the scope of conservation is global, in the sense that all humans are stakeholders in conservation everywhere on the planet. For example, citizens of southern Africa are not the only interested party with respect to the just treatment of white rhinos – as a conserved species and as individual organisms – in the same way that all humans have an interest in the treatment of human rights throughout the globe. A fuller treatment of this potentially odd juxtaposition is warranted but beyond the scope of this paper.

### 8.4. Healthy, meaningful life

Our analysis relies importantly on “freedoms necessary for realizing a healthy, meaningful life,” as the phrase is used in the non-anthropocentric principle. From the perspective of some academic disciplines, the concepts associated with this phrase may seem hopelessly vague and pathologically subjective. However, a robust body of scholarship indicates that the concept is supported by considerable objective reasoning.

For example, the concepts are closely related to subjective and objective well-being – topics of considerable research in the social and behavioral sciences (e.g., Diener, 2009). Moreover, the concept is central to a widely appreciated and deeply vetted theory of justice known as the capabilities approach to justice (Robeyns, 2016). The stature of this concept and that approach to justice are indicated, for example, by its use at the United Nations (Fukuda-Parr, 2003). This approach to justice is sufficiently well developed as to include participatory procedures with a track record of implementation that allow for publically developed judgments of the (political and socioeconomic) freedoms required for a healthy, meaningful life (Alkire, 2005).

Finally, this analysis focused on what might be considered theoretical underpinning of just conservation. Of considerable importance – though beyond the scope of this analysis – is the psychology of social justice. Significant insight about just conservation would also emerge from considering how humans tend to perceive justice and its basic elements – need, equality, and desert. See, for example, Miller (1999) and Sabbagh and Schmitt (2016).

## 9. Conclusion

Two important principles of CCR and other models of collaborative governance in conservation seem to be anthropocentrism and resolution by consensus (ideally) or elicitation of mutual satisfaction. Those principles are inadequate for just conservation, which would seem to depend on the *non-anthropocentric principle* and the *safeguard principle*. As with any sense of justice, these principles are aspirational. Being unable to fully realize them is not necessarily a failure. Being substantively guided by these principles would be a significant departure from many efforts to resolve conservation conflicts and manage natural resources.

Our analysis rises from explicit conceptualizations of, for example, conservation, social justice, and intrinsic value (Appendix A). There may be as many expressions of those concepts as authors who have written about those topics. We believe follow-up analyses would demonstrate the results of this analysis are robust to considerable variation in common conceptualizations of these underlying ideas.

The basic orientation of this analysis would also apply to many cases of “human-wildlife conflicts” (sensu Manfredo, 2015) that are not necessarily matters of conservation, such as the management of common species that exhibit nuisance behavior in urban areas.

Our analysis focuses on understanding conditions that would have to be met to satisfy the values of both conservation and social justice. The untended question – beyond the scope of this paper – is: how should decisions be made when both sets of values cannot be met?

It is also likely that one will discover that our analysis conflicts with some other valuable principle or would in some cases lead to a clearly unjust outcome. In that case, we expect the principles presented here to be further revised or replaced with more robust principles.

The potential for conflict between conservation values and social justice values is dynamic – it grows and deepens as the abundance of humans increase. In starker terms: The relevance and appropriateness of justice does not lessen as per capita resources lessen. Rather, we might expect that justice becomes, under those conditions, increasingly harsh and tragic and increasingly difficult to satisfy. At the same time, conflict can also be a creative force, inspiring positive values that transcend those in conflict (Tjosvold, 2008). In that respect, we are never beyond the hope of responding wisely to whatever circumstance we find ourselves confronting.

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## Appendix A. Glossary

The terms below are listed, not alphabetically but, according to their relationships, with first principles listed first. For some of the concepts listed below (e.g., sustainability), we recognize that there may be as many expressions of those concepts as authors who have written about those topics. Nevertheless, the rationale for adopting the definition that we have is given in the main text.

**Sustainability** – meeting human interests in a socially-just manner without depriving species, native ecosystems or native populations of their health.

**Social Justice** – fair treatment of others, where fairness is judged according to well-reasoned application of three principles: equality, need, and desert. Social justice is a constituent element of sustainability.

**Conservation** – maintaining and restoring the health of ecological collectives – namely, species and native populations and ecosystems. Conservation is a constituent element of sustainability.

**Intrinsic value** – contrasts with instrumental value. Objects with instrumental value are useful to some end. Objects with intrinsic value are valuable for their own sake, without regard for their utility. If something possesses intrinsic value it means essentially that you have an obligation to treat it fairly or with respect and with at least some concern for its wellbeing or interests. The objects of social justice include non-humans to the extent that non-humans possess intrinsic value.

**Moral agent** – is distinguished from a moral patient. A moral patient is deserving of moral consideration. A moral agent is responsible for issuing moral consideration. Healthy, adult humans are both moral patients and moral agents. However, there are important examples of moral patients who are not moral agents. These examples include human infants and non-humans that possess intrinsic value.

**Non-anthropocentrism** – belief that at least some portions of the non-human world possess intrinsic value.

**Biocentrism** – belief that individual, living organisms possess intrinsic value.

**Ecocentrism** – belief that ecological collectives (species, populations, ecosystems) possess intrinsic value. Some environmental ethicists believe biocentrism is nested within ecocentrism, others do not take that relationship for granted.

**Ecosystem and population health** – key concept in sustainability. If populations and ecosystems are merely of instrumental value to humans, then ecosystems and populations are healthy to the extent that they can produce (in perpetuity) what humans want from them. To the extent that populations and ecosystems possess intrinsic value, the concept of health is less precisely developed. In this case, important guidance about the meaning of health would come from considering what it means for an ecological collective to possess intrinsic value (see Section 5.1).

**Healthy, meaningful life** – key phrase in the non-anthropocentrism principle. From the perspective of some academic disciplines this phrase may seem hopelessly vague and subjective. However, a robust body of scholarship from social and behavioral sciences and social justice indicates that the concept is subject to considerable objective reasoning. Key words leading to this scholarship include, “subjective well-being” and “objective well-being.”

## Appendix B. Interests and health

In the main text we wrote, “Conservation and social justice can conflict because the interests of individual organisms (human or non-human) and the “health” of ecological collectives are not always perfectly aligned.” There is value in elaborating on two aspect of this statement.

First, we use “interest” in a conventional way that is often applied to sentient creatures, referring for example to interests to avoid pain and otherwise flourish. Ecological collectives do not possess “interests” in the sense that sentient creatures do. Moreover, it is common among those in the conservation community to refer to “health” as a desirable property for populations and ecosystems. An underappreciated and unresolved challenge is to having a sense of health that is both sufficiently precise and adequate.

One view is that populations and ecosystems are healthy to the extent that they produce what humans want of them. The other

prevailing view is that populations and ecosystems are healthy inasmuch as they have not been impacted by humans. While each view has some merit, the former view is overly anthropocentric and the second view is essentially misanthropic. Shortcomings in our collective understanding of ecosystem health and population health is a problem for understanding the values that underlie conservation and consequently a problem for understanding how or whether conservation and social justice conflict. Constructive progress can be made in resolving conflicts, but adequate resolution depends on a more robust sense of health.

The second elaboration: Some conflicts between conservation and social justice arise from mishandling scales of time. For example, some elements of conservation may represent a burdensome restriction to some humans over the short-term; but those same conservation measures make it easier to satisfy the concerns of social justice – need, desert, equality – over the longer term. Without denying our obligations to attend to the moral status of future generations, it is appropriate to acknowledge the challenge of making robust evaluations of the relative costs to present and future generations (e.g., Hellweg et al., 2003; Page, 2007; Parfit, 1982; Arrow et al., 2013).

## References<sup>1</sup>

- [WCED] World Commission on Environment and Development, 1987. Our Common Future. Oxford University Press, Oxford, UK.
- Abebe, M.A., Welbourne, J.L., 2015. Blessing in disguise? Coping strategies and entrepreneurial intentions following involuntary job loss. *J. Dev. Entrep.* 20, 1550021 (22 pages).
- Adams, W.M., Aveling, R., Brockington, D., Dickson, B., Elliott, J., Hutton, J., Roe, D., Vira, B., Wolmer, W., 2004. Biodiversity conservation and the eradication of poverty. *Science* 306, 1146–1149.
- Alkire, S., 2005. *Valuing Freedoms: Sen's Capability Approach and Poverty Reduction*. Oxford University Press, Oxford, UK.
- Ansell, C., Gash, A., 2008. Collaborative governance in theory and practice. *J. Public Adm. Res. Theory* 18, 543–571.
- Armstrong, A., 2012. *Ethics and Justice for the Environment*. Routledge, New York.
- Arrow, K., Cropper, M., Gollier, C., Groom, B., Heal, G., Newell, R., Nordhaus, W., Pindyck, R., Pizer, W., Portney, P. And Sterner, T., 2013. Determining benefits and costs for future generations. *Science* 341, 349–350.
- Batavia, C., Nelson, M.P., 2016. Heroes or thieves? The ethical grounds for lingering concerns about new conservation. *J. Environ. Stud. Sci.* 7, 394–402.
- Batavia, C., Nelson, M.P., 2017. For goodness sake! What is intrinsic value and why should we care? *Biol. Conserv.* 209, 366–376.
- Bodin, O., 2017. Collaborative environmental governance: achieving collective action in social-ecological systems. *Science* 357, eaan1114.
- Bruskotter, J.T., Vucetich, J.A., Nelson, M.P., 2017. Animal rights and wildlife conservation: conflicting or compatible. In: *The Wildlife Professional July/August Issue*, pp. 40–43.
- Callicott, J.B., 1989. In *Defense of the Land Ethic: Essays in Environmental Philosophy*. SUNY Press, Albany, New York.
- Callicott, J.B., Mumford, K., 1997. Ecological sustainability as a conservation concept. *Conserv. Biol.* 11, 32–40.
- Coeckelbergh, M., 2009. Distributive justice and co-operation in a world of humans and non-humans: a contractarian argument for drawing non-humans into the sphere of justice. *Res. Publica.* 15, 67–84.
- Cripps, E., 2010. Saving the polar bear, saving the world: can the capabilities approach do justice to humans, animals and ecosystems? *Res. Publica.* 16, 1–22.
- Curry, P., 2011. *Ecological Ethics*. Polity, Cambridge, UK.
- Czech, B., 2008. Prospects for reconciling the conflict between economic growth and biodiversity conservation with technological progress. *Conserv. Biol.* 22, 1389–1398.
- Daniels, S.E., Walker, G.B., 2001. *Working Through Environmental Conflict*. Praeger, Westport, CT.
- Davies, A.L., Bryce, R., Redpath, S.M., 2013. Use of multicriteria decision analysis to address conservation conflicts. *Conserv. Biol.* 27, 936–944.
- Davis, M.A., Slobodkin, L.B., 2004. The science and values of restoration ecology. *Restor. Ecol.* 12, 1–3.
- Deaton, A., 2015. *The Great Escape: Health, Wealth, and the Origins of Inequality*. Princeton University Press, Princeton.
- Devall, W., Sessions, G., 1985. *Deep Ecology: Living as if Nature Mattered*. Gibbs M. Smith, Inc, Salt Lake City, Utah.
- Dickman, A., Johnson, P.J., Van Kesteren, F., Macdonald, D.W., 2015. The moral basis for conservation: how is it affected by culture? *Front. Ecol. Environ.* 13, 325–331.
- Diener, E. (Ed.), 2009. *The Science of Well-being*. Springer, New York.
- Exon, S.N., 2006. How can a mediator be both impartial and fair: why ethical standards of conduct create chaos for mediators. *J. Disaster Res.* 2006, 387–434.

<sup>1</sup> References marked with asterisk have been cited within the appendices.

- Fieser, J., 1993. Callicott and the metaphysical foundation of eco-centric morality. *Environ. Ethics* 15, 171–181.
- Fitzherbert, E., Caro, T., Johnson, P.J., Macdonald, D.W., Mulder, M.B., 2014. From avengers to hunters: leveraging collective action for the conservation of endangered lions. *Biol. Conserv.* 174, 84–92.
- France-Presse, A., 2014. Zulu false dawn: Shembe faithful swap leopardskin for faux fur. *The Guardian*. 19 February. [www.theguardian.com/world/2014/feb/19/zulu-shembe-leopardskin-south-africa](http://www.theguardian.com/world/2014/feb/19/zulu-shembe-leopardskin-south-africa), Accessed date: 28 October 2017.
- Fraser, E.D., Dougill, A.J., Mabee, W.E., Reed, M., Mcalpine, P., 2006. Bottom up and top down: analysis of participatory processes for sustainability indicator identification as a pathway to community empowerment and sustainable environmental management. *J. Environ. Manag.* 78, 114–127.
- Freeman, S., 2016. Original position. In: Zalta, E.N. (Ed.), *The Stanford Encyclopedia of Philosophy*. <https://plato.stanford.edu/archives/win2016/entries/original-position/>, Accessed date: 28 October 2017.
- Fukuda-Parr, S., 2003. The human development paradigm: operationalizing Sen's ideas on capabilities. *Fem. Econ.* 9, 301–317.
- Gensler, H.J., 2013. *Ethics and the Golden Rule*. Routledge, New York.
- Gerami, A., 2009. Bridging the theory-and-practice gap: mediator power in practice. *Confl. Resolut. Q.* 26, 433–451.
- Goff, S.H., Waring, T.M., Noblet, C.L., 2017. Does pricing nature reduce monetary support for conservation?: evidence from donation behavior in an online experiment. *Ecol. Econ.* 141, 119–126.
- Gutiérrez, R.J., Wood, K.A., Redpath, S.M., Young, J.C., 2016. Conservation conflicts: future research challenges. In: Mateo, R., Arroyo, B., Garcia, J. (Eds.), *Current Trends in Wildlife Research*. Springer, Cham, Switzerland, pp. 267–282.
- \*Hellweg, S., Hofstetter, T.B., Hungerbühler, K., 2003. Discounting and the environment should current impacts be weighted differently than impacts harming future generations? *Int. J. Life Cycle Assess.* 8, 8–18.
- Holmes, G., Sandbrook, C., Fisher, J.A., 2017. Understanding conservationists' perspectives on the new-conservation debate. *Conserv. Biol.* 31, 353–363.
- Horta, O., 2013. Expanding global justice: the case for the international protection of animals. *Global Policy* 4, 371–380.
- Jones, R.C., 2015. Animal rights is a social justice issue. *Contemp. Justice Rev.* 18, 467–482.
- Kant, I., 1785. In: Gregor, M., Timmerman, J., Korsgaard, C.M. (Eds.), (2012). *Groundwork of the Metaphysics of Morals*. Cambridge University Press, Cambridge, UK.
- Kareiva, P., Marvier, M., 2007. Conservation for the people. *Sci. Am.* 297, 50–57.
- Kirby, D., 2015. Native Americans want to hunt gray whales, again. Do they have the right? *Takepart.com* March 12. <http://www.takepart.com/article/2015/03/12/makah-tribe-hopes-resume-gray-whale-hunt>, Accessed date: 28 October 2017.
- Kydd, A., 2003. Which side are you on? Bias, credibility, and mediation. *Am. J. Polit. Sci.* 47, 597–611.
- Leach, W.D., 2006. Public involvement in USDA Forest Service policymaking: a literature review. *J. For.* 104, 43–49.
- Leopold, A., 1949. *A Sand County Almanac, and Sketches Here and There*. Oxford University Press.
- Lindsey, P.A., Chapron, G., Petracca, L.S., Burnham, D., Hayward, M.W., Henschel, P., Hinks, A.E., Garnett, S.T., Macdonald, D.W., Macdonald, E.A., Ripple, W.J., 2017. Relative efforts of countries to conserve world's megafauna. *Global Ecol. Conserv.* 10, 243–252.
- Locke, J., 1690. (2002). *The Second Treatise of Government*. Dover Publications, New York.
- Lukes, S., 2008. *Moral Relativism*. Profile Books, London.
- Lute, M.L., Carter, N.H., López-Bao, J.V., Linnell, J.D., 2018. Conservation professionals agree on challenges to coexisting with large carnivores but not on solutions. *Biol. Conserv.* 218, 223–232.
- Madden, F., McQuinn, B., 2014. Conservation's blind spot: the case for conflict transformation in wildlife conservation. *Biol. Conserv.* 178, 97–106.
- Manfredo, M.J., 2015. Essays on human-wildlife conflict 10 years after the Durban World Parks Congress: an introduction. *Hum. Dimens. Wildl.* 20, 285–288.
- Martin, A., Coolsaet, B., Corbera, E., Dawson, N.M., Fraser, J.A., Lehmann, I., Rodriguez, I., 2016. Justice and conservation: the need to incorporate recognition. *Biol. Conserv.* 197, 254–261.
- Miller, D., 1999. *Principles of Social Justice*. Harvard University Press, Cambridge.
- Mishra, C., Young, J.C., Fiechter, M., Rutherford, B., Redpath, S.M., 2017. Building partnerships with communities for biodiversity conservation: lessons from Asian mountains. *J. Appl. Ecol.* <http://dx.doi.org/10.1111/1365-2664.12918>.
- Næss, A., 1990. *Ecology, Community and Lifestyle: Outline of an Ecosophy*. Cambridge University Press, Cambridge, UK.
- [NRC] National Research Council, 1999. *Our Common Journey: A Transition Toward Sustainability*. National Academies Press, Washington, D. C.
- Nussbaum, M., 2006. *Frontiers of Justice: Disability, Nationality, Species Membership*. Belknap Press, Cambridge, MA.
- Nussbaum, M., 2012. The capabilities approach and animal entitlements. In: Beauchamp, T.L., Frey, R.G. (Eds.), *Oxford Handbook of Animal Ethics*. Oxford University Press, Oxford, pp. 228–251.
- \*Page, E.A., 2007. Intergenerational justice of what: welfare, resources or capabilities? *Environ. Polit.* 16, 453–469.
- \*Parfit, D., 1982. Future generations: further problems. *Philos Public Aff* 11, 113–172.
- Pellow, D.N., 2014. *Total Liberation*. University of Minnesota Press, Minneapolis, MN.
- Pierce, J.C., Lovrich, N.P., Tsurutani, T., Abe, T., 1987. Culture, politics and mass publics: traditional and modern supporters of the new environmental paradigm in Japan and the United States. *J. Polit.* 49, 54–79.
- Piketay, T., 2014. *Capital in the 21st Century*. Harvard University Press, Cambridge.
- Pinchot, G., 1947. *Breaking New Ground*. Harcourt, New York.
- Pooley, S., Barua, M., Beinart, W., Dickman, A., Holmes, G., Lorimer, J., Loveridge, A.J., Macdonald, D.W., Marvin, G., Redpath, S., Sillero-Zubiri, C., 2016. An interdisciplinary review of current and future approaches to improving human-predator relations. *Conserv. Biol.* 31, 513–523.
- Ramsbotham, O., Miall, H., Woodhouse, T., 2011. *Contemporary Conflict Resolution*. Polity, Cambridge, UK.
- Rawls, J., 1971. *A Theory of Justice*. Belknap Press, Cambridge, MA.
- Redpath, S.M., Young, J., Evelyn, A., Adams, W.M., Sutherland, W.J., Whitehouse, A., Amar, A., Lambert, R.A., Linnell, J.D., Watt, A., Gutierrez, R.J., 2013. Understanding and managing conservation conflicts. *Trends Ecol. Evol.* 28, 100–109.
- Redpath, S.M., Linnell, J.D.C., Festa-Bianchet, M., Boitani, L., Bunnefeld, N., Dickman, A., Gutiérrez, R.J., Irvine, R.J., Johansson, M., Majić, A., McMahon, B.J., Pooley, S., Sandström, C., Sjölander-Lindqvist, A., Skogen, K., et al., 2017. Don't forget to look down – collaborative approaches to predator conservation. *Biol. Rev.* 92, 2157–2163.
- Reich, R.B., 2015. *Saving Capitalism: For the Many, Not the Few*. Vintage, New York.
- Robeyns, I., 2016. The capability approach. In: Zalta, E.N. (Ed.), *The Stanford Encyclopedia of Philosophy*. <https://plato.stanford.edu/archives/win2016/entries/capability-approach/>, Accessed date: 28 October 2017.
- Roe, D., Mohammed, E.Y., Porras, L., Giuliani, A., 2013. Linking biodiversity conservation and poverty reduction: de-polarizing the conservation-poverty debate. *Conserv. Lett.* 6, 162–171.
- Sabbagh, C., Schmitt, M. (Eds.), 2016. *Handbook of Social Justice Theory and Research*. Springer, New York.
- Sandbrook, C., 2015. What is conservation? *Oryx* 49, 565–566.
- Sandel, M.J., 2009. *Justice: What's the Right Thing to Do?* Macmillan, New York.
- Sandler, R., 2010. The value of species and the ethical foundations of assisted colonization. *Conserv. Biol.* 24, 424–431.
- Schlosberg, D., 2007. *Defining Environmental Justice: Theories, Movements, and Nature*. Oxford University Press, Oxford, UK.
- Schlosberg, D., Carruthers, D., 2010. Indigenous struggles, environmental justice, and community capabilities. *Global Environ. Polit.* 10, 12–35.
- Sen, A., 2009. *The Idea of Justice*. Harvard University Press, Cambridge.
- Shoreman-Ouimet, E., Kopnina, H., 2015. Reconciling ecological and social justice to promote biodiversity conservation. *Biol. Conserv.* 184, 320–326.
- Smith, A., 1759. In: Raphael, D.D., Macfie, A.L. (Eds.), (2001). *The theory of moral sentiments*. Oxford University Press, Oxford, UK.
- Stiglitz, J.E., 2012. *The Price of Inequality: How Today's Divided Society Endangers Our Future*. WW Norton & Company, New York.
- Stulberg, J.B., 2011. Must a mediator be neutral-You'd better believe it. *Marquette Law Rev.* 95, 829–858.
- Taylor, P.W., 1983. In defense of biocentrism. In: *Environmental Ethics*. 5, pp. 237–243.
- Taylor, P., 1986. *Respect for Nature: A Theory of Environmental Ethics*. Princeton University Press, Princeton.
- Tjosvold, D., 2008. The conflict-positive organization: it depends upon us. *J. Organ. Behav.* 29 (1), 19–28.
- Treves, A., Artelle, K.A., Darimont, C.T., Lynn, W.S., Paquet, P., Santiago-Ávila, F.J., Shaw, R., Wood, M.C., 2018. Intergenerational equity can help to prevent climate change and extinction. *Nat. Ecol. Evol.* 2, 204–207.
- Triandis, H.C., 2001. Individualism-collectivism and personality. *J. Pers.* 69, 907–924.
- Vucetich, J.A., Nelson, M.P., 2010. Sustainability: virtuous or vulgar? *Bioscience* 60, 539–544.
- Vucetich, J.A., Nelson, M.P., 2013. The infirm ethical foundations of conservation. In: Bekoff, M. (Ed.), *Ignoring Nature No More: The Case for Compassionate Conservation*. University of Chicago Press, Chicago, pp. 9–25.
- Vucetich, J.A., Bruskotter, J.T., Nelson, M.P., 2015. Evaluating whether nature's intrinsic value is an axiom of or anathema to conservation. *Conserv. Biol.* 29, 321–332.
- Wallensteen, P., 2015. *Understanding Conflict Resolution*. Sage, London.
- Williams, B., 2005. *In the Beginning Was the Deed: Realism and Moralism in Political Argument*. Princeton University Press, Princeton.
- Wilson, P.L., 1999. Wolves, politics, and the Nez Perce: wolf recovery in central Idaho and the role of native tribes. *Nat. Resour. J.* 543–564.
- Winterhalder, K., Clewell, A.F., Aronson, J., 2004. Values and science in ecological restoration—a response to Davis and Slobodkin. *Restor. Ecol.* 12, 4–7.
- Young, J.C., Marzano, M., White, R.M., McCracken, D.I., Redpath, S.M., Cars, D.N., Quine, C.P., Watt, A.D., 2010. The emergence of biodiversity conflicts from biodiversity impacts: characteristics and management strategies. *Biodivers. Conserv.* 19, 3973–3990.
- Young, J.C., Thompson, D., Moore, P., Macgugan, A., Watt, A., Redpath, S.M., 2016. A conflict management tool for conservation agencies. *J. Appl. Ecol.* 53, 705–711.
- Zikic, J., Klehe, U.C., 2006. Job loss as a blessing in disguise: the role of career exploration and career planning in predicting reemployment quality. *J. Vocat. Behav.* 69, 391–409.