Justice, Equity, and Biodiversity

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THE STRUGGLE TO SUSTAIN BIODIVERSITY is a struggle for the just and equitable treatment of others, including not only existing people but also future generations and nonhuman organisms. But in the urgency to protect biodiversity, the interests of local people have often been transgressed. To guard against these human injustices while advancing the

goals of conservation, we need a coherent and shared understanding of these competing demands of justice. We work toward such an understanding by discussing the benefits of conservation—especially to future people; the fair treatment of nonhuman organisms; and the human consequences of conservation.

I. Introduction

The struggle to sustain biodiversity is a struggle for justice and equity, a struggle to treat others fairly where those others include not only existing people but also future generations and nonhuman organisms. But in the urgency to protect biodiversity, the interests of existing people—especially those who are physically proximate to protected areas—have often been transgressed. To guard against human injustices while also advancing the fair treatment of nonhuman organisms and future people, we need a coherent and shared understanding of the competing demands of justice.

We work toward a common understanding by discussing first the progress made in addressing the interests and justice-demands of existing and future people and nonhuman organisms, and then the current state of knowledge and debates regarding those demands. We then discuss how conservation actions have at times involved insufficient attention to the rights and interests of existing people, especially those surrounding or previously within the protected areas. In doing so, we draw upon case studies to bring life to the human impacts of conservation actions.

II. What is Justice?

Aristotle clearly established that just and equitable treatment is not necessarily equal treatment, as differing circumstances call for differing treatments. Accordingly, justice and equity are considerably more difficult to agree upon and to achieve, in part because a common understanding of merit—what a person deserves—has been elusive. To determine “justice as fairness” in the treatment of people, [Rawls \(1999\)](#) has advanced the notion of the veil of ignorance, by which people are called upon to consider what distribution of circumstances they would prefer given that they imagine the experience of every person who might be affected by the decision. According to Rawls, this approach would better attend to concerns associated with the identities and number of people impacted by an action, which some argue are ignored by utilitarianism. Like much of economics, utilitarianism seeks the greatest total good regardless of the specifics of distribution. Utilitarianism may therefore imply preference for alternatives in which the disadvantaged are further disadvantaged, as

long as the total gain is more. Utilitarians argue that the amount that people benefit from a given impact depends on their circumstances—for example, the poor benefit more from a dollar than do the rich—such that utilitarianism’s aggregation of benefits sufficiently accounts for equity. Other ethicists counter that justice must go beyond an aggregation of what people want for themselves (personal preference) and also attend to what people believe constitutes a just society (principle) ([Sagoff, 1998](#)).

Like many other ethicists, Rawls only intended to consider treatment of people—“rational beings with their own ends and capable ... of a sense of justice” but efforts to protect biodiversity have been fueled largely by a notion of justice that extends to and beyond the boundaries of the community of existing people. Conservationists argue that the community of beings to whom we have responsibilities (‘moral patients’ in philosophy)—should include future generations, nonhuman organisms, and even perhaps ecosystems.

We do not defend a particular theory of justice. For our purposes it is sufficient to note that justice must involve a fair distribution of rights, responsibilities, costs, and benefits. And when actions have impacts with unfair distribution, justice requires appropriate restitution. The implications of justice for moral acceptability is subject to debate within ethics: utilitarianism assumes that an action is morally acceptable if injustices are outweighed by other gains, while other theories do not allow gains to offset injustices. Regardless, the just treatment of individuals has importance for all ethical theories.

III. Inclusion of Future People: Benefits of Conservation

The conservation of biodiversity is fueled in part by the recognition that actions taken by existing people for their own direct benefit have diffuse—but cumulative and consequential—impacts on existing and future people through the degradation of ecosystem services (the flow of benefits from nature to humanity). Often the loss of biodiversity and its associated benefits is a vehicle for injustice, as powerful capitalist or authoritarian forces sequester environmental benefits for themselves at the expense of those less empowered. Future people deserve special consideration in the context of biodiversity and its benefits because many losses of biodiversity are irreversible. Accordingly, conservation can and should ameliorate injustice and promote the equitable sharing of biodiversity’s benefits across populations and generations. Efforts like the ([Millennium Ecosystem Assessment, 2005](#)), which recognized the needs of people right from its conception, offer considerable progress for conservation in promoting socioeconomic justice.

Unlike existing people, who can be harmed physically or psychologically in the name of conservation, future people are affected primarily through benefits accrued and denied. Insofar as future people will inherit the harms experienced by their parents and grandparents, we consider these other dimensions of justice through [Section IV](#).

Ecosystem services, as the benefits that people derive from ecosystems, provide a framework for the justice concerns of future people regarding biodiversity. Although the dependence on biodiversity of the supply and stability of individual ecosystem services varies considerably and is generally poorly characterized, ecosystem services nevertheless represent the best expression of the benefits of biodiversity. Ecosystem services can be grouped into five categories: provisioning, regulating, supporting, cultural, and option.

Provisioning. Degradation of ecosystems threatens the ability of existing and future people to provide for their material well-being through “renewable” natural resources. The collapse and lack of recovery of fish stocks such as the northern cod demonstrate that ecological impacts can prevent some of these resources from being truly renewable. Recent research has revealed that we have removed the majority of the top predators from ocean ecosystems and are now harvesting less-desirable species lower in the food chain (“fishing down marine food webs”) ([Pauly et al., 1998](#)). Conservation activities attempt to address such impacts through reform of fisheries management, new technologies (e.g., turtle excluder devices, low-by-catch longline practices), and marine protected areas (MPAs). Other natural resources are impacted similarly, such as forests, whose wholesale logging may trigger shifts to other forms of dominant vegetation, undermining the productivity of timber resources.

Regulating. Habitat destruction and climate change also diminish the ecological regulation of key biogeochemical processes and thereby the mitigation of damages to existing and future people. Loss of forests and wetlands impedes protection from river flooding; cutting and burning forests exacerbates climate change and its possible negative impacts; clearing of mangroves and loss of coral reefs and other coastal ecosystems undermine protection of coasts from flooding associated with tsunamis and hurricanes. Conservation activities aim to lessen these ecological insults through protected areas, best-management practices on private lands, ecological restoration or afforestation, and alternative land uses and livelihoods. Note that activities intended to mitigate one ecosystem service may have negative impacts on others: for example, afforestation in inappropriate (especially arid) locations may undermine water provision and harm biodiversity. Strategies such as biodiversity accreditation of carbon credits and management for multiple ecosystem services seek to redress these unintended consequences.

Supporting. Ecological degradation also undermines the services that are crucial for realizing value of other services, such as pollination, pest control, and prevention of soil erosion for agriculture. Because the implications of such service losses to future generations are not reflected in the functioning of current economic markets it is especially important that we plan specifically for such indirect, temporally distant effects. Some existing programs do attempt to limit or lessen soil erosion, such as the Conservation Reserve Program in the United States and the Grain-for-Green program in China. We need similar large-scale projects to protect populations of native pollinators and pest enemies.

Cultural. The loss of natural habitat and biodiversity gravely threatens the future contribution by ecosystems to the non-material benefits people derive from human-environment interactions (including place value, cultural identity, and aesthetic, artistic, scientific, and spiritual inspiration). Mostly to guard against this, numerous conservation nongovernmental organizations (NGOs) have targeted the protection of beautiful spaces and charismatic megafauna. Similarly, governments across the world have established protected areas that are more effective at protecting iconic but infertile landscapes than biodiversity, and the World Conservation Union (IUCN) has established a network of World Heritage sites for which cultural values are important contributors. To complement these various efforts, many governments have passed legislation protecting threatened and endangered species.

Option. Perhaps more worrisome than the threats to known services are the threats to ecosystems' provision of future values that we do not yet understand: the option values (recognized as a separate category of services by Daily et al. (2000) but not the Millennium Ecosystem Assessment (2005)). Plants like the rosy periwinkle and the Pacific yew were considered relatively unimportant until it was discovered that they are especially effective in treating childhood leukemia and other cancers for which medicines are lacking. Only by protecting a large component of biodiversity—including rare and inconspicuous organisms—can we sustain the options of future generations ([Mangel et al., 1996](#)). Such reasoning was part of the motivation for the 1992 UN Convention on Biological Diversity, which commits nations to protect biodiversity within their borders and rich nations to assist less-developed countries in this task. Unfortunately, while much has been done, much has not—both within nations and between them.

Major unresolved philosophical issues impede the just treatment of future generations:

1. To what extent do we have responsibilities to people whose identities depend upon our decisions (the future individuals paradox): do we only need to ensure that their lives are worth living, or do we have responsibilities beyond that ([Parfit, 1984](#))?

2. How should we deal with shifting baselines ([Pauly, 1995](#))? That is, if future generations grow up with less natural habitats or less-intact ecosystems, they may be satisfied with less than what we might be, so how should we calculate our impacts on future generations?
3. To what extent are we responsible for the way that our actions might change the actions of future generations (impacting yet subsequent generations)? When changes are irreversible, most would agree we are responsible for the impacts on all future generations. But if we degrade ecosystems and compromise the ecosystem services of future generations in a manner that is theoretically reversible, human psychology might nevertheless render it unlikely to regain the services, as restoration “seems” much more onerous, uncertain, and supererogatory than protection. Should we apply a utilitarian approach to calculate the various expected direct implications of our actions or should we apply the logic of Immanuel Kant, according to which we should act only in a way that we would have all generations act? While utilitarianism might seem to allow some generations to unsustainably harvest natural ecosystems and biodiversity, Kantian logic would seem to prohibit this.
4. What is an appropriate discount rate? To obtain mathematically bounded solutions and to reflect the expected improvement of material well-being, economists discount future costs and benefits, assuming that foregone benefits will be more easily substituted and that committed costs will be more easily borne ([Portney and Weyant, 1999](#)). (Note that this discounting to account for the interest on investments does not entail discounting the well-being of future generations through “time preference,” which most ethicists rebuke.) How is well-being likely to change and how can we appropriately account for our expectations and our uncertainties?
5. What will future people value? What is the relative value of general wealth (converted natural capital) versus (unconverted) natural capital—is it permissible to replace naturally provided ecosystem services with human-engineered services? If so, when and to what extent? The crux of this question seems to be how much future people will appreciate the cultural values associated with biodiversity, some of which seem much more difficult, if not impossible, to replace.
6. What does sustainability entail, and is it necessary in a moral sense, sufficient, or neither? Related to the above, there is a debate regarding the demands of sustainability. Weak sustainability would require us to ensure that future generations enjoy at least the same quality of life (allowing for substitution between natural resources and various other forms of capital), while strong sustainability would mean that future generations would enjoy the same level of natural resources. By Rawls’ just savings principle, each generation would maintain its just institutions and preserve its material base and also commit savings beyond that, apparently requiring strong sustainability as necessary but not sufficient. Utilitarianism, on the other hand, seems not to require even weak sustainability: if we could benefit many future generations by slightly impoverishing the very next generation, utilitarianism seems to require this.
7. How might we think of justice not only as equity in distribution, but equity in the processes through which such decisions are made?

IV. Inclusion of Nonhuman Organisms

Without necessarily subscribing to a particular theory of justice, many people feel that humanity’s collective treatment of nonhuman organisms is deeply unjust and inequitable. Indeed, it is hard to imagine a theory of justice that recognizes the moral standing of any nonhuman organisms but that finds no fault in the pervasive loss of habitat and populations

and the impending global extinction of some significant proportion of Earth's species. Widespread agreement on this injustice has contributed greatly to the major progress the conservation movement has made. In recent decades, the protected areas network has grown considerably to 12% of the global land-base, thanks to the efforts of conservation NGOs and nation states. Many nations have signed the Convention on Biological Diversity and the Convention on International Trade in Endangered Species and numerous other conservation-related international agreements. On the downside, however, the existing protected areas are disproportionately situated on steep slopes with unproductive soils, in low-diversity high-latitude regions. And those that exist on paper are often not adequately enforced or managed, such that species are routinely extirpated within their boundaries. Furthermore, protection of the marine environment has just begun, and freshwater organisms have been decimated. The imperiled state of biodiversity suggests that more remains to be done to ensure just treatment of nonhuman organisms.

Yet crucial issues remain to be resolved regarding the requirements of justice to nonhuman organisms, despite the considerable attention to environmental ethics ([Primack and Cafaro, 2001](#)):

1. There are numerous perspectives on which organisms and entities should have moral standing within a theory of justice. And what is the source of any responsibilities we might have toward the nonhuman world? Nonhuman organisms, species, and ecosystems differ from people in enough ways that it is unclear that the responsibilities we have toward other people ought to be extended to these others. But if responsibilities to others (moral standing) do derive from some notion of sentience or consciousness (a capacity to feel or think), the uncertainty associated with whether non-human organisms possess the key characteristic may itself incur moral responsibilities (Chan, in press).
2. What would constitute just treatment of those entities that merit moral standing (1)? What should we aim to protect, to what extent, and at what scale? Much conservation funding gets funneled through large international NGOs, whose actions seem largely aimed to conserve species richness at the global scale. Although both The Nature Conservancy and World Wildlife Fund have organized their conservation efforts by ecoregions, attention is focused on globally threatened species and ecoregions with many such species. On the other hand, many governments at various scales have passed laws requiring conservation of species (and in some cases, subspecies) that are threatened nationally or regionally, even if not globally. Many of these laws are intended to prevent extinction entirely, but many only require measures that have sufficiently small costs. Does the taxonomic level of species merit such a dominance of attention, or do populations and other levels deserve more concern than they currently receive?
3. What is the relevance of naturalness for the demands of justice? How important is it to protect species in their native surroundings and with their historic biological communities? And what should we do in the face of climate change, which is already shifting species distributions? How should we balance the needs of individual organisms with those of species and populations, and are the justice requirements different for domesticated or

invasive species? These are crucial issues for ecological restoration, conservation, invasive species management, and environmental impact mitigation.

These various questions come to the fore in many conservation actions, such as The Nature Conservancy's much-publicized efforts to protect the Santa Cruz Island fox (and numerous endemic plants). This charismatic mammal is globally endangered, threatened most immediately by predation from golden eagles that were attracted by the presence of introduced feral pigs. To the outrage of some animal welfare activists, The Nature Conservancy has been shooting the feral pigs to help dissuade the golden eagles from nesting on the island. This conservation action seems to reflect a valuation of species and naturalness over the welfare of individual animals such that conservation gains outweigh the injustices to the pigs. It is clear that there are still components of society willing to debate the appropriateness of this ethical stance.

V. Just Attention to Existing People: The Consequences of Conservation

If we accept that justice includes fairness in action, rules, and outcomes, then we must ask the following: are the same parties who benefit from conservation efforts those who bear the costs? And if not, what particular inequities must be attended to in the quest for greater justice in the protection of biodiversity? Currently, as areas are committed to biodiversity protection or are managed ever more strictly, extant communities' rights and access to land are often identified as primary threats to the integrity of the reserves. This threat-identification often occurs without consideration of issues crucial for just outcomes including livelihood needs in the face of a shrinking land-base, the availability of economic alternatives, and prior events such as the evacuation of peoples from the territories in question in the colonial period. Tension between human and biological priorities is especially strong when affected populations are primarily land- or sea-based (those with pastoralist, subsistence-agricultural, or fishery-based economies) and economic alternatives are nascent or elusive ([West and Brechin, 1991](#); [Leitmann, 1998](#); [Salafsky and Wollenberg, 2000](#)). We must also remember that indicators of biodiversity and species health are not solely status reports on physical conditions. They are imbued by values that are the products of a modern industrial world that seeks new markets in the form of wilderness experiences at same moment that it has come to recognize the loss of the "frontier" and "nature" and now aspires to curtail that loss by restricting the activities of others (Igoe et al., 2010).

Ultimately, most human societies value and work to preserve some aspects of biodiversity, and such efforts may be sufficient without outside involvement (Schwartzman et al., 2010). Nonetheless, restrictions imposed by conservation efforts often involve imposing a postindustrial notion of value on those who are largely outside modernism's beneficial reach. We also cannot simply leave the recognition and restitution of injustices to those who raise its specter because the capacity to resist unjust practices is a function of power such that those with a greater ability to articulate their grievances are also those most likely to achieve desirable outcomes.

A. Distribution of Risks by Class, Gender, and Ethnicity

Our call for justice for human communities in conservation contexts follows the general principle of environmental justice. Poverty advocates argue that the costs of biodiversity protection are unfairly concentrated in the poorest regions of the world and can exacerbate poverty among women and other disadvantaged parties, and that when conservation benefits do accrue, their local distribution is disproportionately secured by local elites. Thus, distributional injustice expresses itself both within and between communities at a variety of scales. Globally, the overrepresentation of biological hotspots in poor areas (e.g., the tropical Andes, Mesoamerica, Madagascar, and Brazil's Atlantic rainforest) has placed an unprecedented burden of expectation on nation states least equipped to meet conservation goals ([Balmford and Whitten, 2003](#)). This inequitable distribution of biodiversity hotspots has the potential for even greater injustice because the beneficiaries of the extractive industries that threaten biodiversity in such places are often not those who suffer its costs, and are often from comparatively wealthy populations in the developed world. Nationally and regionally, it is difficult for poorer nations to resist the inflow of foreign currency promised by an ecotourism industry enabled by protected areas—just as it is difficult to resist monetary benefits promised by extractive industries. This is the very income necessary to build infrastructures of protection and regulation and to reshape a nation's land-base toward conservation objectives, but the sustainability of such infrastructure and reshaping depends upon a base level of well-being among local people that is often lacking. It has been demonstrated too infrequently that the wealth produced by conservation-based development is redistributed to those human communities that are most affected by such land-use change.

The case of Madagascar's Ranomafana National Park offers a particularly alarming example of these distributional injustices ([Harper, 2002](#)), making it illustrative but not typical. Home

of the golden bamboo and greater bamboo lemurs, the park was established in the mid-1990s with an ambitious plan to reorient the economic structure of 26 adjacent villages. The intent to establish a park that also bettered the lives of local people was certainly active from the earliest stages. The intended benefits included the promise of health care to compensate for the loss of land and its anticipated accompanying local storehouse of medicinal plants; it also involved the substitutions of “swidden” or dry rice cultivation with more intensive wet rice cultivation in the hope that this would produce greater yields and so both staple and market-ready grain. In fact, sustained health care was only offered in the form of birth control to minimize population growth and very limited acute care wherein a traveling physician assigned to 60,000 residents made occasional visits to dispense limited medicines. Health status among the local population deteriorated more generally both because of diminished land-based income and because the vision of a renaissance of traditional plant-based medicines (in the absence of alternatives) was more a conservationist fantasy than a contemporary or a historical reality. For the vast majority, the imagined income from crop intensification did not materialize. Problems were exacerbated by the expansion of Betsilo peoples into remaining Tanala land, where the former possessed the necessary resources to take over the irrigated fields of the impoverished Tanala. Further, those who were able to cultivate irrigated rice were sanctified by conservation agents as progressive and modern, while long-standing hillside (dry) cultivation was deemed a quaint but destructive tradition or a “cultural” (namely “Tanala”) predisposition unworthy of economic and social support. The park itself has also led to an increase in local poverty as a function of preexisting gender and caste-ascribed positions. The constant and often all-consuming labor owed in exchange for the use of rights for wet rice cultivation is often the basis for indebtedness to better-off landowners. This indebtedness most severely affects older single women who do not have male household members to fulfill these economic obligations and whose status is further compromised by reduced access to swidden (dry-cultivation) fields due to the park. Only a very small set of local elites benefited economically from the park. Not coincidentally, these few were instrumental in the park’s genesis and did not have to relinquish land in the formation of the park. Most lost the right to future claims to forested land, but again, the elites recovered more easily and fully by absorbing the land belonging to others—as that land was forced into sale—or by using the land of those who had become desperate and so would accept minimal rental sums (e.g., US\$12.50 for a three-year period). Justice in the above and other parallel cases requires that we remain diligent about the weighting of conservation’s costs and benefits, asking repeatedly, whom does this act benefit and for whom does it cost,

particularly at local scales? And, how can sustainable systems of restitution be brought into place quickly?

B. Distribution of Action, Responsibility, and Power

Anthropologists have also pointed to the problematic nature of the neoliberalisation of conservation. Broadly stated this refers to the conversion of most decisions to those legitimized by market success and measures, thus tending toward a commodification of all of nature's flows or services. But more critically, it also refers to the fact that some of the largest funders of major conservation NGOs, which are responsible for a great and growing proportion of conservation worldwide, are companies implicit in the transformation of ecosystems to intensive use (Chapin, 2004). While we recognize that good citizenship and hazardous corporate or industrial practices might well co-exist, the danger is that corporate-NGO alliances can also mask or lead to a downplaying of heinous practices on behalf of corporate entities. An illustrative example (Igoe et al., 2010). is McDonalds' Endangered Species Happy Meals campaign. "While awareness among children of biodiversity loss may well prevail as a result, the environmental contradictions of the fast food industry are far more pervasive and integrated than a Hotspots and Happy Meals partnership can even begin to capture. The rise of the fast food industry in North America is inextricably linked to automobile culture, expanding networks of superhighways, and the industrialization of global food production systems" (ibid., p. 505).

Such collaborations between those NGOs who act to protect biodiversity and those companies responsible for losses of biodiversity deserve scrutiny. On one hand, who better to fund biodiversity conservation than those who bear responsibility for the motivating problem? This is the logic of the 'polluter pays' principle. On the other hand, there are dangers (i) that the attention to the voluntary positive actions will distract public attention from behaviour and actions that degrade biodiversity (Igoe et al., 2010); (ii) that conservation organizations will have an incentive to turn a blind eye on any such behaviour and actions, lest they bite the hand that feeds them (Chapin, 2004); (iii) that the governance principles and mindsets that fuel a preoccupation with economic growth—which have largely been adopted by major conservation NGOs—will remain unchallenged despite their possible roles in creating the problems at hand (Corson, 2010); (iv) that both the extractive industries and now their conservation—through the restriction of access to wild living resources—may represent

competing major threats to the autonomy and sovereignty of peoples who depend on ecosystems for their livelihoods and well-being.

C. Reflections on the Distribution of Values: Cultural Sovereignty versus Cultural Naiveté

A justice lens on human communities also requires us to recognize that all conservation projects are also projects of social engineering: we need people to abide by new rules, change what they do, alter their livelihoods, and so on. While social and biological change is impossible without these engineered consequences, there is a sustained failure among many conservation efforts to comprehend the injustice of the under-recognized clash of values. Biodiversity is not a value-neutral construct despite the widespread desire to avoid wanton destruction and maintain the health of needed ecosystems. By now biodiversity discourse is too deeply embedded in concomitant notions of “ideal natures,” “good” and “bad” cultural practices, and utopian visions (e.g., the hoped for discovery of plant pharmacopias or the protection of primordial nonhuman landscapes). Comprehending the clash of values requires consideration of the implicit prescriptions of ideal behavior that accompany conservation projects and thus become the basis for the apportionment of benefits among the local population. Most extreme is the complete exclusion of local people in the pursuit of idealized “prehistoric” landscapes as realized not through joint intent but “fortress conservation” ([Brockington, 2002](#)). Subtler examples of culturally naïve expectations are that hunting with spears is acceptable—even culturally authentic—while hunting with guns is not, and that harvesting medicinal plants is viable while foraging for sustenance is not. Justice can only be served by recognizing our assumptions, their historical roots, and the judgments of desirable behavior that follow. Only then does it become possible to appropriately negotiate values in the prescription of acceptable practice. Goals regarding biodiversity outcomes—which fuel the conservation-derived prescriptions of behavior—are clearly a key component of conservation action; but these too require collaborative negotiation, adaptive management, and some hybridization of local and nonlocal practices, knowledge, and values (Chan et al., 2007).

D. The Distribution of Rights, Title, and Access

Common property scholars have long attended to the importance of rights, expressed as control over the products and decision making pertaining to local resources. More recently, access has become the central point as this concept highlights the broader social contexts that

permit or deny a person the ability to benefit from “things,” be they material or symbolic resources ([Ribot and Peluso, 2003](#)). Further, access to resources is fundamental to one’s capacity to achieve and maintain a land- or sea-based livelihood, which is itself embedded in a complex web of cultural and social arrangements. Thus, the distribution of access to resources is central to theorizing justice although the processes underlying this distribution are less visible than is the assignation and “evidence” of legal title. Use rights are often assigned through oral contract or customary practice, and it may also be mediated through lineage ties, village or religious leaders, or normative pressures. Knowledge of these dynamics is not readily available to conservation agents or even expressed by local people, for whom it has long become an inarticulable common sense. Yet use and access is also tied to systems of power, which may themselves be unjust (Asfaw & Satterfield, 2010). Changing access to achieve conservation is hazardously conducive to blind injustice in that something as seemingly simple as the individualization and legal titling of access rights to property (also a feature of aid and development agendas, and neoliberalism generally) may involve a fundamental shock to the social system.

Even where a system of individualized property rights is firmly established, individuals’ rights to take actions that degrade ecosystems and threaten biodiversity are highly contentious. For example, in the United States there is a strong anti-Endangered Species Act property rights movement, which claims that the federal government has no business dictating what a landowner should or should not do with his or her own land. Is it just to force property owners to bear the costs of conservation, just because they were “unlucky” enough to host endangered species? Such perceived injustice has fueled the common practice of “shoot, shovel, and shut up” for endangered species, since landowners can often escape responsibility when endangered species are not shown to inhabit the property in question. In recognition of these equity concerns, the NGO Environmental Defense and the US Fish and Wildlife Service have instigated several programs that alleviate the burden on landowners ([Wilcove and Lee, 2004](#)). In other countries such as Canada, the United States experience has led to a shying away from endangered species legislation pertaining to private lands.

E. Colonial Legacies and Restitution

Throughout the developing and developed world there exists the undeniable legacy of colonialism in the conception of biodiversity and its conservation. For instance, many national parks were established for the benefit of colonial administrations but have since become important cornerstone landscapes for the benefit of biodiversity. Yet, the populations

evacuated from such sites have both living memories and oral records of these injustices. And such injustices are often the basis in the contemporary period for severely degraded relations between the nation state and conservation NGOs, as well as for intertribal or intercommunity conflict. The iconic Serengeti National Park in northern Tanzania offers a case in point ([Neumann, 1998](#)). The colonial period itself saw increased disruption of customary land use and practices in the form of restricted access to hunting and forest resources. By the end of the colonial period, ordinances pertaining to the new network of national parks went so far as to exclude traditional and land-based people entirely. “Under this ordinance, the Tanganyika National Parks become for the first time areas where all human rights must be excluded thus eliminating the biggest problem of the Trustees and the Parks in the past” ([Neumann, 2000, p. 125](#)). Serengeti National Park was less a product of the local colonial administration, which recognized the hardship such parks would generate, than of international conservation organizations operating in the 1920s and 1930s, whose vision of what Africa should be was a mythical unspoiled wilderness, rhetorically explained as an effort to save species from extinction. In fact, the displaced (particularly Maasai pastoralists) watched the beneficiaries parade by with prized game while poverty and intertribal conflict came to characterize those on the periphery. In a 1957 memo, a Maasai observed, “From time to time we see [white] hunters passing ... with the trophies of animals that they have shot ... It is the same people and their friends who wish to evict us from the National Park, yet we think it is they who are the enemies of game rather than us” (quoted in [Neumann, 1998](#)).

In settler nations with significant Aboriginal populations, such as the United States, Canada, New Zealand, Australia, Brazil, Chile, and so on, many heretofore unresolved Aboriginal treaty obligations are closely tied to the establishment of national parks. Some parks were used to justify placing Aboriginal populations on reservations. More recently, some parks have become a means of settling conflicts over traditional territories, but in doing so they also confine Aboriginal populations to limited use of those areas as prescribed by conservation objectives. In South Dakota, the Lakota Sioux have been pushed aside for a series of mining interests and are now faced with the possibility that the land left aside by the extractive industries will be managed for conservation, thus continuing and deepening injustices. The Sioux have not accepted compensation monies, and instead seek the recovery of treaty lands, the recovery of the bison, and the restoration of mountains they deem sacred. The dispute has unfortunately pitted recreational users of the area against the Sioux Nation and has produced such acrimony that the council of the nation “describes the United States as an imperialistic

power that has sought to undermine, diminish and abolish not only the Lakota land-base but Lakota rights to self-sufficiency and self-determination” ([Halder, 2003, pp. 105–107](#)).

The failure to recognize past injustices often impedes successful community-based conservation, as does the failure to establish meaningful local control over the governance of a conservation area (Timko & Satterfield, 2008). And it is difficult at best to sort out the historical contingencies that invariably complicate any new conservation effort (including which populations or lineages have decision authority over particular parcels or goods derived from within these) (West, 2006). At the very least, justice will require a vastly deeper historical understanding of the local trajectories and consequences of both colonial legacies and associated programs of human evacuation. Such an understanding will enable a vastly improved system of recompense, where the primary goal of negotiation is not solely cash for land, but the recognition of the legitimacy of historical claims and the provision of substantive decision-making control over future uses, regulation, and access to benefits. Conservation efforts are further complicated by histories of war and genocide. In such postconflict societies, both the land and the people are often traumatized, and the nation states in which they are embedded tend to be comparatively unstable. Central Africa, home to some of the remaining populations of great apes, offers cases in point. Such settings pose a particularly vexing set of problems as concerns justice. In some cases, poverty and sustained human degradation have fueled desperate measures, including the consumption of great apes and other endangered species as “bushmeat,” and the further degradation of any available resources. And yet, no one (human or otherwise) will be served in the long run by equally desperate measures to secure conservation by continued force.

VI. Conclusions

To close, we agree with [Zerner \(2000\)](#) that biodiversity conservation depends on the development of solutions that are socially just and ecologically informed. As a society, we should strive for sustainable economic development wherein biodiversity conservation is pursued—for its global and future benefits and for its own sake—in harmony with the cultural, social, and economic well-being of local peoples.

Cross References

[Conservation Efforts, Contemporary](#)
[Conservation Movement, Historical](#)
[Ecosystem Services, Concept of](#)
[Environmental Ethics](#)

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Glossary

ecosystem services

The conditions and processes through which natural ecosystems, and the biodiversity they comprise, sustain and fulfill human life. Examples include provision of clean water, maintenance of livable climates (carbon sequestration), pollination of crops and native vegetation, and cultural, spiritual, and intellectual inspiration.

environmental justice

The balanced distribution of costs and benefits among stakeholders in the design

and implementation of environmental policies and projects.

equity

The state, quality, or ideal of being just, impartial, and fair.

justice

The appropriate treatment of others; fairness in actions, rules, and outcomes.

livelihood

Possession of income and/or access to resources sufficient to meet basic life needs.

restitution

The act of restoring to the rightful owner something that has been taken away, lost, or surrendered; the act of compensating for loss, damage, or injury.