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Policy Reviews

Reinventing a Square Wheel: Critique of a Resurgent “Protection Paradigm” in International Biodiversity Conservation¹

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This article presents a critical review of recent writings that argue that people-oriented approaches to conservation have largely failed to achieve their main goal—the protection of biological diversity. Based on an analysis of this problem, authors of these works conclude that biodiversity conservation initiatives should place renewed emphasis on authoritarian protection of national parks and other protected areas to safeguard critically threatened habitats worldwide. We examine five core themes in these writings. We conclude that, while many of their findings regarding shortcomings of current people-oriented approaches are well grounded, the overall arguments are incomplete because they largely ignore key aspects of social and political processes that shape how conservation interventions happen in specific contexts. As a result, recommendations linked to the renewed protectionist argument most likely will not provide long-term protection of biodiversity.

Keywords biodiversity conservation, community-based conservation, conservation debate, indigenous peoples, integrated conservation and development projects (ICPPs), protectionist argument, sustainable use

According to the conventional wisdom that emerges in recent literature on international biodiversity conservation, current people-oriented approaches to protecting

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the world's biologically richest areas are failing miserably. This conclusion is set against the backdrop of a global biodiversity crisis. By even the most conservative estimates, progressive degeneration of ecosystem structure and function with its associated loss of species continues to occur at an alarming pace as a result of human activities ranging from slash-and-burn agriculture to large-scale timber harvesting to oil extraction. Given this situation, many conservation biologists view national parks and other protected areas as the last safe havens for large tracts of tropical ecosystems. Unfortunately, according to several expert observers, protected areas in the "developing" countries that house these highly valued, species-rich zones are ineffectively managed, if at all, and thus provide little or no protection for biodiversity. Based on this analysis, some members of the conservation community advocate a renewed emphasis on strict protection through authoritarian enforcement practices. In essence, they argue that dire circumstances require extreme measures.

In this policy review article we explore this line of thinking by examining four recent works, each of which offers sharp critiques of current conservation approaches. Two books, in particular, stand out for their attempts to distill experiences from around the tropical world as a means to call for a new wave of strictly enforced nature protection. They are *Requiem for Nature* by John Terborgh (1999) and *Myth and Reality in the Rain Forest* by John F. Oates (1999). Two other books, *The Last Stand: Protected Areas and the Defense of Tropical Biodiversity*, edited by Randall Kramer, Carel van Schaik, and Julie Johnson (1997), and *Parks in Peril: People, Politics and Protected Areas*, edited by Katrina Brandon, Kent Redford, and Steven Sanderson (1998b), offer arguments similar to those of the first two about nature protection but present more nuanced discussions regarding action strategies.

The purpose of this article is to analyze the key elements of a resurgent protectionist argument, which form a common thread tying together these four books. We find that this argument's underlying reasoning appears rational on the surface but presents problems upon closer examination. In this regard, we identify five main elements of the protectionist argument that leave significant gaps when considered from a social science perspective. We argue that, in the absence of greater attention to these gaps, the authors' core conclusions calling for strictly enforced protection are operationally unrealistic and morally questionable as policy proposals. In effect, the authors provide important observations about the lack of protection in current conservation practices but largely fail to account for the logical implications of their conclusions. Thus, their reasoning is incomplete, not necessarily because of factual oversights but as a result of significant blind spots that overlook the deeply politicized nature of nature protection.

Our intent is to encourage debate on how biodiversity conservation strategies are conceived and carried out in order to increase their chances for achieving the goal of protection. This article is not a statement against nature protection. Nor is it an uncritical defense of sustainable use and integrated conservation and development projects (ICDPs). Rather, the paper argues for clarification on *how* nature protection can and should occur in ways that are not just ecologically sound but also pragmatically feasible and socially just. In sum, we believe that the success of international biodiversity conservation rests on our collective ability to negotiate legitimate, enforceable agreements. This would require significantly strengthening existing institutional and organizational arrangements. In cases where immediate emergency intervention is required to protect biodiversity, national and international conservation organizations should be held accountable for the political and social

impacts of their actions. We present a discussion of how this process might occur in another article in this issue of this journal.

In general, we find that the linear structure and content of the arguments presented conceal much of the social and political complexity of working in the “developing” world and thus lead to inadequate recommendations. By not responding comprehensively to the human organizational complexity of conservation challenges, we conclude that exclusive reliance on authoritarian protectionism most likely will not achieve the desired end of nature protection. Indeed it may have the opposite effect. If this most recent version of the “conservation through strict protection” strategy translates simply as government-led, authoritarian enforcement, as the books we reviewed seem to indicate, it would suggest that we have learned little from past failures. For this reason we argue that if the conservation community were to adopt the logic of this approach as policy, it would be tantamount to reinventing a square wheel. If, on the other hand, we can incorporate the important findings of conservation scientists into a broadly inclusive, critical debate on improving nature protection efforts locally, regionally, nationally, and internationally, we stand a much better chance of advancing in ways that respond to ecological, political, and social justice parameters for success.

We wish to state at the outset that by looking closely at the more outspoken opinions that appear in the literature, we do not mean to condemn conservation as an activity or the conservation community at large. Rather, our intent is to uncover key points for debate, and these emerge most clearly in the works cited. We share the goal of protecting biodiversity worldwide and are keenly aware of the strong evidence of species loss. By encouraging critical debate we hope to confront head-on certain contentious issues that often impede concerted collective action in favor of nature protection.

Five Core Elements of the Protectionist Argument

Perhaps the best overall summary of the protectionist argument appears in Alan Rabinowitz’s (1999, 70–72) review of *Requiem for Nature*. Rabinowitz, a well-known conservation scientist with the Wildlife Conservation Society, states:

I marveled at his [Terborgh’s] insights, empathized with his frustrations, and applauded his courage in speaking out about the mistakes of the conservation movement. . . . He also dismisses key aspects of the popular concept of sustainable development. . . . Terborgh warns, sustainable development is unattainable, and the further degradation of parkland is inevitable. . . . Biodiversity conservation is doomed to failure when it is based on bottom-up processes that depend on voluntary compliance. Like him, I would also advocate a top-down approach to nature conservation—contrary to much contemporary political and conservation rhetoric—because in most countries it is the government, not the people around the protected areas, that ultimately decides the fate of forests and wildlife.

The underlying urgency and skepticism in Rabinowitz’s statement pervades all four books. Overall, these authors conclude that current people-oriented approaches to biodiversity conservation have taken on too broad an agenda that features conflicting objectives—species protection and sustainable development. They find that conservation programs have become diluted by strategies that

TABLE 1 Five Incomplete Aspects of the Protectionist Argument

Argument	Counterpoints
<p>1. Protected areas require strict protection.</p> <ul style="list-style-type: none"> • “The final bulwark erected to shield tropical nature from extinction is collapsing” (van Schaik et al. 1997, 64). • Nature continually loses out in the face of human population increase and economic growth. 	<p>Greater protection is required but we need to clarify <i>how</i> it can and should occur. Exclusive focus on the ecological maintenance role of protected areas:</p> <ul style="list-style-type: none"> • Masks their political role including territorial control, domination by rival social/ethnic groups, and advancement of elite interests. • Hides historical trajectories often associated with colonial domination and/or state-led coercion. • Overlooks how they alter social and political “landscapes.”
<p>2. Biodiversity protection is a moral imperative.</p> <ul style="list-style-type: none"> • Utilitarian rationale for preservation emphasizes real and potential use values. • However, in most cases tropical forests are “worth more dead than alive” (Terborgh 1999, 18) thus, protection mandate rests primarily on moral rationale. 	<p>Fine as far as it goes but moral argument:</p> <ul style="list-style-type: none"> • Ignores how different cultural groups’ perceptions of the natural world might affect dialogue on conservation. • Assumes that local and nonlocal interests are of the same order and carry the same weight. • Hides the widely held perception that the “common good” refers to elite special interests. • Presents a series of choices structured around excluding or trading human rights in favor or at the expense of intrinsic rights of nature.
<p>3. Conservation linked to development does not protect biodiversity.</p> <ul style="list-style-type: none"> • Sustainable use depletes biodiversity. Not all places should be open to use. • ICDPs have not effectively safeguarded protected area core zones. 	<p>Points are well taken but argument:</p> <ul style="list-style-type: none"> • Ignores social and political realities (i.e., preexisting use rights) to which interventions must adapt. • Misses possibility that ICDPs’ lack of protection “success” could stem from implementation shortfalls rather than fundamental incompatibility of conservation with development. • Overlooks impact of intervening variables like conflict, organization, and governance.

TABLE 1 (Continued)

Argument	Counterpoints
<p>4. Harmonious, ecologically friendly local communities are myths.</p> <ul style="list-style-type: none"> • Because of rapid social change, resource management by indigenous and other traditional peoples cannot guarantee species protection. • The “ecologically noble savage” (Redford 1990) does not exist. 	<ul style="list-style-type: none"> • Ignores numerous cases where state intervention disrupts traditional institutions that govern self-enforcement of resource use. <p>Attempts to counteract stereotypes of local people over generalize in the opposite direction. In general, they:</p> <ul style="list-style-type: none"> • Imply that no “traditional” peoples are able to conserve their resources. • Oversimplify rural communities’ motivations and cultural practices. • Overlook how decision-making, organization, and governance institutions shape peoples’ motivations and abilities to participate. • Assume that local institutions cannot adapt to social change.
<p>5. Emergency situations require extreme measures.</p> <ul style="list-style-type: none"> • Governments have the duty to limit individual freedoms to protect the common good. • Governments and aid organizations should encourage industrial development to provide economic opportunities for the rural poor. • There may be a role for the national military or international nature protection forces in biodiversity conservation efforts. 	<p>Recommendations are inadequate from both a pragmatic and moral perspective. They:</p> <ul style="list-style-type: none"> • Assume that governments serve the common good of their citizens. • Rely on long-term social “engineering” that sacrifices some areas to conventional development (urbanization and industrialization) to depopulate and protect other ecologically rich areas. • Ignore the possibility that the military might use conservation as an excuse for territorial control, ethnic cleansing.

promote community development and greater local participation in decision making. While Rabinowitz and others recognize that community development and participation may be noble goals, they argue that “politically correct” approaches to conservation channel away a significant portion of available funding yet produce minimal results in terms of biodiversity protection. Consequently, proponents believe that conservation programs should stop trying to be all things to all people and simply focus on the central goal of nature protection. The heightened emphasis on protection evident in these writings suggests strict enforcement and defense of protected areas.

In general, the assertions that emerge in the literature can be organized into five interrelated themes, highlighting (1) the central importance of protected areas, (2) the moral imperative of nature protection, (3) the ineffectiveness of conservation linked to development, (4) the mythical status of harmonious, ecologically friendly local people, and (5) the immediate need for strictly enforced protection measures. In the sections that follow, we critically analyze each of these themes, drawing direct quotes from the books we reviewed. In many cases we agree with the general findings while pointing to key issues that are left out of the protectionist argument. In other words the incomplete nature of the protectionist argument is apparent at times in what the authors say but also in what they do not say.

Protected Areas Require Strict Protection

In the book *Last Stand*, van Schaik et al. (1997, 64) open a chapter called “The Silent Crisis” with the following grim conclusion:

In the tropical forest realm . . . protected nature preserves are in a state of crisis. A number of tropical parks have already been degraded almost beyond redemption; others face severe threats of many kinds with little capacity to resist. The final bulwark erected to shield tropical nature from extinction is collapsing.

The problem, according to scientists like John Terborgh (1999, 17–20), is that nature continually loses out in the face of human population increase and economic growth. In *Requiem for Nature* he asserts that

Ultimately, the issue boils down to habitat—how much for humans and how much for nature. In the late 1990s, the global balance stands at roughly 5 percent for nature (counting only parks and other strict nature preserves) and 95 percent for humans. . . . Economic forces, driven by population growth and the fervent desire of people everywhere to advance their material well-being, are inexorably eliminating the world’s remaining wildlands. Short of radical changes in governmental policy in country after country, all unprotected tropical forests appear doomed to destruction within thirty to fifty years. When that time arrives, the only remaining examples of tropical nature and, consequently, most of what remains of tropical biodiversity will reside in parks. Parks therefore stand as the final bulwark of nature in the Tropics and elsewhere.

The central tenet of the protectionist argument is straightforward. It holds that all existing protected areas restricting human occupation and use (International Union for the Conservation of Nature [IUCN] categories I–IV, which account for 64.8% of all protected areas, Cox, 2001) must be enforced.² We support this conclusion. Protected areas have been and will continue to be essential elements of global biodiversity conservation strategies. Proponents of strict protection present convincing scientific arguments for dedicating significant time and energy to protected areas management (Terborgh and van Schaik 1997). In particular, many species—especially large mammals—need extensive, undisturbed tracts of habitat to ensure their survival. Most observers agree that protected areas are fundamental to maintaining ecological structure and function.

From our perspective the issue is not *whether* protected areas should be enforced but *how*. In this regard, advocates quite understandably tend to emphasize the ecological maintenance role of protected areas. This, however, has the effect of downplaying or ignoring their political side [exceptions include Sanderson and Bird (1998) and Sanderson and Redford (1997)]. Looking at the politicized nature of protected areas helps explain why conflict and resistance so often develop in response to parks and their management.³ In other words, the political trajectories of protected areas to a large extent shape how they are perceived by local people and other players, including, most importantly, the degree of legitimacy that management restrictions carry. Protected area managers deal with these political realities on a daily basis and yet the broader policy implications have been explored only superficially.

Conventional deliberations surrounding protected areas focus on zones (core, buffer, multiple-use), categories (I–VI), corridors, and boundaries. Discussion of protected areas in these terms does two things. First, it legitimates land use and enforcement on ecological grounds. On one level this is a necessary process from both a scientific and management perspective. The flip side of this, however, is that scientific and managerial explanations mask other political understandings of the roles that protected areas play in the context of wider social and cultural spheres. For outsiders looking in, such as resource-dependent agrarian communities, protected areas are not necessarily understood as a means of providing ecological and economic services but rather as territorial control strategies. In many cases, members of rural communities have not been told that they live near a protected area and even if they do know, they may not be familiar with strategies employed by the protected area. In other instances, local reactions are more violent. In Mexico, for example, rural residents in southeastern Campeche only found out about the creation of Calakmul Biosphere Reserve a year after it was gazetted when scientists showed up to start ecological studies. In the context of hotly contested land claims within the new reserve, some farmers threatened to kill anyone in the region claiming to be an ecologist (Haenn 1997).⁴ In still other cases, parks are viewed as playgrounds for the wealthy (an example would be Thailand's Khao Yai National Park with its two golf courses). Recognizing the politicized nature of protected areas is important because it suggests that awareness raising and attempts at consultation or "participation" most likely will not change many rural peoples' suspicions and resistance unless dialogue attends to broader social and political factors.

Beyond political considerations, local and regional resistance to protected areas takes on clearer meaning when viewed in historical perspective. Whether fully accurate or not, many outside observers, including communities, activists, government officials, and others, view conservation as yet another manifestation of external control that, in some contexts, mirrors earlier eras of imperial domination. For example, the notion that protected areas serve elite interests in places like East Africa and India can be traced to the creation of royal game reserves for trophy hunters (Grove 1990; MacKenzie 1988; Neumann 1997; Neumann 1998). In another sense, sources claiming that conservation practices are often excessively coercive point to the use of protected areas over time as a means of elite control of territory or rival ethnic groups (Peluso 1993; Hitchcock 1995). An historical perspective of protected areas and conservation practices is important for two reasons. First, it helps explain why some local communities view management restrictions as illegitimate, since compliance develops over years of political interaction rather than as a result of outright acceptance of abstract management regulations. Second, a historical

understanding of people and park dynamics offers insight on how current scientific management approaches inevitably inherit past legacies (see Zerner 2000).

As many of the authors associated with the protectionist argument suggest, protected areas managers should not be expected to take on all of these highly complex and often volatile social problems alone (Redford et al. 1998, 462–463). At the same time, however, the conservation community automatically becomes a key player among a host of others since it contributes heavily to shifts in power dynamics in rural areas that are already highly politicized. This is a result of its relative wealth and influence compared to most local actors. In short, conservation practices are not benign. They alter the local playing field, sometimes drastically.

By touching on these points we do not mean to imply that fair enforcement is impossible in protected areas management. Rather, we wish to point out that the enforcement process requires a great deal more of concerted negotiation with affected parties than is often assumed in order to be viewed as legitimate.

Biodiversity Protection is a Moral Imperative

The most commonly cited rationales for protecting biological diversity constitute a combination of pragmatic and moral arguments. Kramer and van Schaik (1997, 8) summarize the pragmatic argument in *Last Stand* by explaining the utilitarian importance of preserving biodiversity in terms of economic use and nonuse values. This type of thinking emphasizes real and potential use values of plant and animal species as sources of new pharmaceuticals, genetic banks for key agricultural crops, and environmental services such as flood control, as well as nonuse values, which imply maintaining natural areas for recreation or other reasons.

While economic and life-supporting rationales for preserving biodiversity are compelling, many analysts recognize that, when considered in terms of net present value (the deciding factor for most resource users), tropical forests are, in John Terborgh's (1999, 18) words, "worth more dead than alive." If we accept Terborgh's conclusion, then the rationale of protectionist thinking rests primarily on a moral foundation that is succinctly summarized in his *Requiem for Nature* (p. 19):

Ultimately, nature and biodiversity must be conserved for their own sakes, not because they have present utilitarian value. Essentially all the utilitarian arguments for conserving biodiversity are built on fragile assumptions that crumble under close scrutiny. Instead, the fundamental arguments for conserving nature must be spiritual and aesthetic, motivated by feelings that well up from our deepest beings. What is absolute, enduring, and irreplaceable is the primordial nourishment of our psyches afforded by a quiet walk in an ancient forest or the spectacle of a thousand geese against a blue sky on a crisp winter day. There are no substitutes for these things, and if they cease to exist, all the money in the world will not bring them back.⁵

Terborgh's moral argument is based on two basic rights: (1) the intrinsic right of nature to exist (i.e., humans do not have the right to eradicate other species), and (2) the right of global, regional, and local communities to enjoy the aesthetic qualities of nature now and in the future. These rights underlie the belief held by many conservationists that the international community can and should act on behalf of nature in different parts of the planet as "global citizens." This typically

translates into a justification for foreign involvement in the management of a country's biodiversity (van Schaik and Kramer 1997, 216).⁶ A closely related point focuses on the common tension between local and nonlocal interests and values. Sanderson and Redford (1997, 129) argue, "local institutions should be respected wherever possible; but...local initiatives cannot automatically supplant national or regional system values; and...global biodiversity concerns should be built around landscape-scale system management." Similarly, van Schaik and Kramer (1997, 217) note,

devolution of protected area management is likely to be effective, but... the interests of other stakeholders, be it the nation or the international community, should always be represented. Thus the strong point of devolution (reduced bureaucracy) should be married to the strong point of state involvement (promotion of the common good).⁷

In many respects the pragmatic and moral arguments underlying the protectionist perspective are fine as far as they go. At the same time, however, they fail to account for two crucial points. First, in general, the arguments do not acknowledge that there are different ways of understanding and appreciating nature that directly affect dialogue on and proposals for biodiversity protection. It makes sense that the conservation community, which is made up largely of scientists and professionals raised and trained in the West, would grant priority to scientific explanations and strategies for protecting biodiversity (see Taylor 2000). In practical terms, we fully recognize that the discourse of science will continue to be the predominant lens for viewing conservation problems and solutions. However, by failing to recognize intellectual and philosophical traditions besides hypothetico-deductive science, conservationists tend to limit dialogue with other groups including a wide variety of local communities. At the very least, it behooves us to take the time to explore the complex social and cultural histories that shape different peoples' understandings of and relationships to the natural world. On one level, this approach could allow for more mutually understandable dialogue (even if fundamental conceptual or philosophical contradictions emerge). On a second level, attempts at finding a common language increase the likelihood of uncovering creative solutions that carry greater legitimacy for all parties.⁸

A second oversight stems from the protectionist claim that local interests should not automatically supercede regional, national, and (presumably) global interests. The authors correctly point out that nature protection serves the common good, which both justifies local restrictions and impacts as well as the stakeholder status of the state and the international community. At the same time, however, the argument assumes that both types of interests (local and nonlocal) are of the same order and carry the same weight. This is important because it affects the legitimacy of claims. How should we respond to the common "local" argument that imposed conservation restrictions produce not only economic hardship but also irreversible cultural impacts? For example, representatives of black and indigenous communities in Colombia's Pacific Coastal region posed this question: "If the forest continues to exist because of our way of life and our way of life is directly tied to the land, why would we sacrifice our livelihoods in the name of the "common good?" (Wilshusen, in press). Many people living in and near protected areas perceive their interests as tangible and immediate and the "common" interest as unclear and intangible. Underlying this view is the issue of distributive justice, including the widely held

belief that the “common good” refers to elite special interests imposed on the rural poor. This argument suggests that dialogue on conservation would need to clarify this balance of interests in specific contexts and attend to the perception that local people carry a disproportionate burden in terms of negative social, cultural, and economic impacts.⁹

The pragmatic and moral arguments forwarded by proponents of strict protectionism—even those that contemplate local rights and participation—present a series of choices structured around excluding or trading human rights in favor or at the expense of the intrinsic rights of nature. In other words, this conventional approach tends to create a false moral dilemma in which the rights of humans are pitted against the rights of nature. This type of binary thinking creates a zero-sum decision-making scenario where nature “loses out” by default when humans “win.” Win–lose scenarios imply that there is no room for dialogue or negotiation. For example, in reading Terborgh (1999) and Oates (1999), one comes away with the impression that trading in rights is necessary, given the urgency of the situation. The arguments seem to suggest a willingness to trade the rights of what is perceived to be a small percentage of human populations in and around protected areas in favor of the intrinsic rights of nature. Since the issue of nature protection is framed as a moral, win–lose proposition, debate along these lines produces opposing camps that might be described as “pro-nature” versus “pro-people.” This confrontational dichotomy forces a separation between humans and nature as a means of protecting “wildlands” that precludes dialogue on how both human rights and the intrinsic rights of nature can be promoted simultaneously. Since people do not necessarily separate a “human” or “culture” realm (Reichel-Dolmatoff 1976; MacCormack and Strathern 1980; Croll and Parkin 1992; Seeland 1997; Johnson 2000), dialogue structured by these rigid oppositions will most likely produce, at best, very superficial commitment or, more likely, strong resistance to programs structured with such a separation in mind.

Regardless of whether one agrees or disagrees with the moral argument concerning nature’s intrinsic rights (and humans having no right to destroy it), biodiversity conservation programs do not necessarily have to hinder the attainment of human rights for all people living in or near protected areas. The moral argument in favor of nature protection is perfectly defensible as far as it goes. But if nature protection occurs at the expense of humans without accountability, based on a separation between humans and nature, then it becomes less defensible. Nor should the debate over international biodiversity conservation end as a simple moral standoff: pro-nature versus pro-people.

Conservation Linked to Development Does Not Protect Biodiversity

The main critique of much of the work we reviewed centers on the perceived failure of conservation with development in protecting species in parks and reserves. In this light, Kramer and van Schaik (1997, 7) expose what they see as a fundamental conflict between conservation and development at the local level. This incompatibility takes the form of two main conclusions. One is that sustainable use depletes biodiversity (Redford and Richter 1999; Robinson 1993). The second is that integrated conservation and development projects have not effectively safeguarded protected area core zones. Regarding sustainable use, the editors of *Parks in Peril* (Brandon et al. 1998a, 2) state,

There are limits on sustainable use as a primary tool for biodiversity conservation. Serious questions as to whether sustainable use is axiomatically compatible with biodiversity conservation have been raised. The trend to promote sustainable use of resources as a means to protect these resources, while politically expedient and intellectually appealing, is not well grounded in biological and ecological knowledge. Not all things can be preserved through use. Not all places should be open to use. Without an understanding of broader ecosystem dynamics at specific sites, strategies promoting sustainable use will lead to substantial losses of biodiversity.

This statement is perfectly reasonable as far as it goes. It is important to note that the authors associated with this statement critique sustainable use as a means of achieving species protection in and around parks and reserves. In particular, the books *Last Stand* and *Parks in Peril* are careful to point out that use strategies may be worthwhile community development pursuits *away from* protected areas (Kramer and van Schaik 1997, 7–8). However, while it seems reasonable to propose that not all places should be open to use, it is important to clarify whether all protected areas (IUCN categories I–IV) should be closed to use and to justify these findings to policymakers. A recent debate in the journal *Conservation Biology* regarding sustainable use in Amazonia suggests that the evidence against controlled resource use is not as conclusive as proponents of the protectionist argument suggest (Redford and Sanderson 2000; Schwartzman et al. 2000a; Schwartzman et al. 2000b; Terborgh 2000).

Even if we accept the view that sustainable use will not maintain species diversity, most critics ignore the important role that it plays as one component of a broader landscape conservation strategy. Many of the arguments on the futility of sustainable use take their cue from the article “The Limits to Caring,” in which John Robinson (1993) of the Wildlife Conservation Society asserts that exclusive reliance on this approach—as proposed in the policy statement *Caring for the Earth* (IUCN et al. 1991)—will almost always lower biological diversity. Unlike Terborgh (1999) and Oates (1999), however, he concluded that it may be an important conservation tool in certain circumstances. By grounding the sustainable use debate entirely in ecological terms, critics hide the fact that controlled may be the only viable political and economic alternative for large tracts of tropical forest and other ecosystems. In a recent critique of the sustainable use argument already described, Schwartzman et al. (2000a, 1352) drew on their experiences in Amazonia to suggest that “the real choice in large parts of the tropics . . . is between forests inhabited and defended by people and cattle pastures or industrial agriculture.” As in Amazonia, sustainable use strategies have played a central role in reversing large-scale land-use conversion of tropical dry forests in Quintana Roo, Mexico. Without the long-term intervention of a Government of Mexico/German aid agency (GTZ)-led program in community forest management, it is highly likely that most of the newly created agrarian reform settlements in the southern part of the state would have chosen industrial agriculture and cattle ranching for economic production. Currently, the community-managed forests in central and southern Quintana Roo form a densely forested corridor linking the Sian Ka’an and Calakmul biosphere reserves.

In this sense, the majority of arguments against sustainable use in and around protected areas tend to leave out the fact that, in most cases, parks overlap with or adjoin areas with preexisting land-use rights. In other cases, landless migrants arrive from other regions in search of resources or political refuge. One strategy for dealing

with these political realities has been to work proactively with communities in buffer zones to pursue local development in ways that direct resource use away from core protected zones. If this strategy has not been effective, as critics claim, it would appear to be more a problem of implementation rather than concept. While those groups with preexisting land-use rights may have greater legal and moral standing for maintaining resource access and use in buffer zones (or in some cases within core zones), questions of strict protection versus sustainable use cannot be answered in the abstract. For example, in situations where large numbers of landless migrants seek resources and refuge in and around a protected area, strict boundary maintenance combined with basic relief services may be the best option. In other circumstances, protected area managers may be able to work proactively with well-established communities to negotiate legitimate and binding agreements for controlled use. In any case, we would argue that exclusive reliance on authoritarian protection—just as with universal application of sustainable use as critiqued by Robinson (1993)—will not protect species. More likely, it would prove politically suicidal for most government officials and produce violent resistance by resource-dependent populations, which has been the case historically (Fortwangler, in press; West and Brechin 1991).

The second major assertion underlying the protectionist argument that conservation linked to development has failed focuses on integrated conservation and development projects (ICDPs). This finding appears in several different forms and each offers some well-grounded observations. One such theme argues that conservation programs have become diluted with social goals like poverty reduction and social justice. In *Last Stand*, Brandon (1997, 104–105) wrote,

At both the field and policy levels, the links between poverty and environment remain ill defined. To push at the forefront of the poverty and environment nexus would require defining the policies that can protect biodiversity most effectively while also helping the poor. What is known is that alleviating poverty will not necessarily lead to improvements in biodiversity conservation.

This statement makes some important points, including the widely held perception that ICDPs and other participatory strategies have emphasized development much more than nature protection. Katrina Brandon's work in particular has uncovered a number of assumptions or "myths" associated with joining conservation and development, of which the supposition that poverty alleviation will protect biodiversity is but one example (Brandon 1996; Brandon 1997; Brandon 1998b). The core idea of the ICDP approach, that local people will stop exploiting resources within parks if they achieve increased incomes or are otherwise economically compensated for "opportunity costs," relies on a number of tenuous assumptions about human behavior.

In a similar vein, John Terborgh (1999, 165, 169) asserted that ICDPs actually increase rather than reduce human use pressures on protected areas (see also Brandon 1997; Oates 1995).

Despite the gilded rhetoric presenting them as conservation endeavors, ICDPs represent little more than wishful thinking. Project objectives typically have little direct relevance to the protection of biodiversity. To the contrary, project managers who successfully innovate and invigorate the

local economy risk aggravating the very problem they are trying to solve. By stimulating the local economy, an ICDP attracts newcomers to a park's perimeter, thereby increasing the external pressure on the park's resources.

Terborgh argued further that by focusing entirely on local level processes, ICDPs do not effectively attend to larger political economic processes that affect how local people make resource use decisions; these forces, Terborgh contended, are the root causes of some of the main pressures on protected areas.

[A] misconception embodied in the ICDP concept is the conviction that social change can be brought about through bottom-up processes. The ICDP approach assumes that the destiny of parks lies in the hands of local people, an assumption that is only partly correct. What ICDPs do not take into account is that local people are only minor players in a much larger theater. The lives of village people are strongly influenced by decisions of the central government and conditions determined by it: construction of roads; availability of rural credit, subsidies, and tax incentives; inflation versus stability of the national currency; raising or lowering trade barriers; laws governing labor practices; receptivity to foreign capital; and so forth. Against powerful forces such as these, ICDPs pale into utter insignificance. Now we have come full circle. Unable to grasp the stick of enforcement, conservation organizations turned to the carrot of economic assistance, but they must now come to grips with the failure of that approach as well. Bottom-up processes initiated at the village level will not improve the security of parks because they rely 100 percent on voluntary compliance.

Published reviews of ICDPs touch on these and other shortcomings, concluding that projects from around the world present mixed results vis-à-vis their objectives (Larson et al. 1997; Wells and Brandon 1992). Indeed, ICDPs appear not to offer biodiversity protection at a sufficient scale or degree to guarantee species survival. A recent evaluation of ICDPs in Indonesia presents this finding as one of its main conclusions (Wells et al. 1999). Another comparative study of community-based natural resource management projects with cases from Nepal and Kenya presents similar findings (Kellert et al. 2000). It is vitally important to continue to assess ways of instituting better protection measures for protected areas. At the same time it would be a mistake to assume out of hand that if ICDPs do not sufficiently address biodiversity protection then we have nothing to learn from the approach and thus it should be tossed out as a policy tool.¹⁰ Both Brandon (1997; 1998b) and Terborgh (1999) stop short of such a statement, but it is a point worth clarifying. If we briefly revisit the linear argument in both commentaries we will find that the reasoning is fine as far as it goes. Yet, there are also misconceptions and hidden aspects that have a role to play in debates over how conservation should be carried out.

In general, the authors from all four books find that the pursuit of human development goals at or near protected areas is axiomatically opposed to nature protection. This type of logic is appealing when framed as a direct, one-to-one relationship but ignores a whole series of "intervening variables" related to social process including conflict, organization, and governance. This is critical when it comes time to evaluate programs. We may be able to establish that ICDPs in most cases have not led to species protection. If, however, we ask why this is so, the task becomes more complicated. Brandon's observations on the overly "diluted"

condition of ICDPs are well taken, and yet what can we learn as a result? Certainly local protected area managers are overwhelmed by the array of tasks that come with multiple objectives. At the same time, an integrated approach may respond more comprehensively to the highly complex array of social, economic, political, and ecological factors that shape the challenges of nature protection. Both *Parks in Peril* and *Last Stand* note this possibility but argue that other parties besides conservation organizations should be responsible for social development. While conservation programs cannot be expected to “do it all” (poverty reduction, social justice, sustainable development), they also cannot simply disengage from the social and political context by leaving the “social work” to others as these arguments imply. Does the presumed ineffectiveness of ICDPs to protect biodiversity mean that the approach is a complete failure, or could it indicate that we have yet to develop adequate political and organizational arrangements to pursue all goals equally well?

Terborgh’s comments on ICDPs illustrate how viewing conservation problems with lenses that filter out politics can lead to important observations that breed inadequate solutions for saving species. He is quite correct to point out that wider political economic forces strongly influence local actions. And although he does not mention it directly, most observers further recognize that timber, oil, mineral, and other large resource exploitation enterprises (the so-called “resource pirates”) with strong political connections often represent much greater threats to protected areas than rural communities (van Schaik and Kramer 1997, 224–226). Regarding local processes, however, his comments present two important misconceptions. First, he suggests that local communities have no influence over national political and economic decisions. While local people are often hampered by national development policy as Terborgh points out, it is incorrect to assume that they are powerless in all cases. In Mexico, for example, community forestry associations played a strong role in shaping national forestry policy in both 1986 and 1997.

Second, Terborgh appears to think that voluntary compliance (associated in this case with bottom-up processes) precludes self-enforcement. Indeed, self-enforcement may not occur in many cases, and it would be naive to assume that outside enforcement is unnecessary. At the same time, many traditional societies, groups of rural communities, etc. operate under complex sets of rules and responsibilities that govern resource use and provide for differing degrees of self-enforcement. In fact, modern legal institutions often directly conflict with customary legal institutions, and a complex challenge is understanding how and why this occurs. By ignoring questions of social and political process associated with “doing conservation,” Terborgh and other authors fail to recognize the important lessons that practitioners have learned about working with a wide range of groups including communities, cooperatives, local government, and state agencies. By not asking how groups are organized and why they may or may not respect protected area management restrictions, Terborgh inevitably falls back on the simplistic conclusion, which suggests that the stick must once again supplant the carrot.

In the absence of greater clarification regarding the specific role that ICDPs might play within a broad conservation strategy, we may find some policymakers promoting the idea that conservation with development is useless and deciding to throw out the good with the bad. If we were to uncritically revert entirely to protectionism based on this reasoning, it could effectively derail existing attempts to build alliances, strengthen organizations, and negotiate programs with people at all geographic scales.

Harmonious, Ecologically Friendly Local Communities are Myths

The core of the critique just presented on sustainable use and development is rooted in two related observations about so-called “traditional” people. As with the discussion on use, the four books we reviewed react to much of the gray literature and promotional materials produced by the large, international conservation organizations such as the World Conservation Union (IUCN) publication *Caring for the Earth*. The first observation concludes that community-based natural resource management by indigenous and other traditional peoples cannot guarantee species protection. This is due to rapid social change, which is causing these groups to lose the very “traditional” qualities that historically allowed them to live in relative harmony with nature compared to modern societies (e.g., Terborgh 1999, 51). Kramer and van Schaik (1997, 6–7) wrote:

It is often claimed that forest resources would be well managed if only the traditional users were allowed to maintain control. It is, indeed, widely believed that traditional communities use their resources in a sustainable manner. This belief is based on the fact that traditional communities lived at low densities, had limited technology, and practiced subsistence rather than commercial utilization. Unfortunately, given growing population pressure, increased access to modern technology, increasing market orientation, and steady erosion of traditional cultures, there no longer are guarantees that biodiversity objectives will be any more likely to be achieved if resource control is placed in the hands of indigenous groups.

Closely related to this argument is the second observation, which debunks the myth of the idyllic native living in perfect harmony with other community members and with nature (Brandon 1997; Redford et al. 1998; Redford and Mansour 1996; Redford and Richter 1999; Robinson 1993). In *Myth and Reality in the Rain Forest*, John Oates (1999, 55) asserted,

there is little robust evidence that traditional African societies (or indeed “traditional” societies anywhere in the world) have been natural conservationists. On the contrary, wherever people have had the tools, techniques, and opportunities to exploit natural systems they have done so. This exploitation has typically been for maximum short-term yield without regard for sustainability; unless the numbers of people have been very low, or their harvesting techniques inefficient, such exploitation has usually led to marked resource depletion or species extinction. There are instances where strict hunting controls have existed, but these have typically been in hierarchical societies where leaders have wished to control the access of others to resources especially the rarest and most prized resources.

It is fair to say that much of the conservation literature *does* tend to glorify indigenous peoples specifically and “traditional” communities more generally. Like Borrini-Feyerabend (1996), Agrawal and Gibson (1999) cautioned community-based conservation advocates against ignoring the complex interests and processes within communities, and between communities and other social actors. They point out that “community-based conservation reveals a widespread preoccupation with what might be called ‘the mythic community’ . . . [this] vision fails to attend to differences within

communities” (see also Belsky 1999; Belsky in press; Brosius et al. 1998). As Redford et al. (1998, 458) perceptively pointed out in *Parks in Peril*, “It is clearly not that communities are ‘bad’ but rather that they must not be stereotyped. Some will actively work to conserve some components of biodiversity; others will not, and have not.”

However, by attempting to counteract this trend of stereotyping local people, several critics overgeneralize in the opposite direction. Their arguments seem to imply that since all “traditional” peoples (whomever they may be) are not the “natural conservationists” they are made out to be, then conservationists should abandon feel-good, bottom-up approaches and get back to the business of nature protection. Just as with the related critiques of sustainable use, the skepticism of traditional peoples’ status as conservationists betrays numerous simplistic assumptions about communities’ motivations and cultural practices. For example, Oates (1999) creates the impression that resource-dependent peoples act only to maximize short-term gains independently of wider political and economic factors that might encourage them to do so. In general, even though *Last Stand* and *Parks in Peril* provide qualifying remarks in several chapters, the authors’ criticism of “myths” associated with traditional peoples, sustainable use, and community-based management function to discredit participatory strategies as management tools for parks and reserves. Without further guidance, some policymakers might conclude that sustainable use, community-based conservation, and comanagement are flawed and thus have no role in protected areas management. This type of reasoning largely ignores decision making, organizational, and governance processes—both customary and modern—that structure resource use within and among rural communities. Scholars of common property resource management document how these complex institutions develop and change over time (Ostrom 1990). By toppling the myth of the “ecologically noble savage,” authors such as Redford (1990) point to the significant changes that traditional societies face in the modern era. At the same time, they tend to ignore the possibility that, even in the face of rapid change, these groups might be able to adapt patterns of use to a more sustainable pathway, especially with outside support.

What should one conclude from these arguments? True, there should be no room for “noble savage” imagery in today’s conservation. And true again, some communities may be so weak and divisive to participate in much of anything let alone complicated conservation and development interventions. How shall we work with local people in light of these social and political challenges? While some of the authors cited favor continued local involvement under certain circumstances (Brandon 1998b; MacKinnon 1997), more outspoken commentators such as Terborgh (1999), Oates (1999), and Rabinowitz (1999) advocate authoritarian enforcement that amounts to circling the wagons to keep the “natives” out.

Emergency Situations Require Extreme Measures

Given the often strong attacks on biodiversity conservation and protected areas management as it is currently practiced, what alternatives are left? All four books adopt a tone of urgency regarding the rapid extinction of species and frustration stemming from a lack of focus in contemporary conservation efforts. The most detailed proposals for protecting biodiversity emerge in *Last Stand*. In the concluding chapter, van Schaik and Kramer (1997) discussed action strategies that consider two broad sets of causes for protected area degradation—those brought about by “small players” and those precipitated by “big players.” The majority of attention centers on

“small” or local players. In this regard, they focus on (1) the state’s role in limiting personal freedom for the public good, (2) economic development and incentives, and (3) possible military intervention. Referring to the state’s role in protecting the public interest, van Schaik and Kramer (1997, 218–220) observed,

Governments of civilized nations have the duty to ask their citizens to accept restraints on their freedom of action when it serves the common good. And governments have established enforcement mechanisms in implicit or explicit recognition of the underlying conflict of interest. . . . In the case of tropical forest parks, governments can claim forest lands as national property because they serve national and international interests.

On the face of it, the notion that the governments of “civilized nations” have a duty to impose restrictions on individual freedoms in the name of the common good seems perfectly reasonable. Indeed, one of the strongest arguments in favor of nature protection, in general, invokes government’s role as steward of resources in public trust for the benefit of all citizens. While this is certainly an important doctrine in many contexts, one must be careful not to assume that in reality governments actually serve the public interest. In many cases, elite groups working within government agencies use their power to favor special-interest groups such as logging and mineral exploitation industries. This is important because it helps to explain why, when rural communities in developing countries are asked to accept restrictions on their individual freedoms, they often cite past government abuses as reasons for viewing government regulations as illegitimate. Beyond the inevitable conflicts of interest that must be governed in these situations, we cannot assume that government enforcement mechanisms are necessarily legitimate. Although outside enforcement is necessary in many situations, is it appropriate to impose restrictions on those at-risk groups that bear a disproportionate burden of impacts associated with conservation when governments clearly are not acting to serve the public welfare?

In line with the state’s strong protection mandate is the second alternative, which might be called the “social engineering” approach since it favors increased industrial development to encourage even greater rural to urban migration than already exists, mirroring demographic trends of “developed” nations. The editors of *Last Stand* wrote:

The most effective long-term solution is to provide aid aimed at improving urban infrastructure elsewhere that encourages industrial development. This development would act as a source of employment for the supernumerary rural poor, much in the same way that in the northern hemisphere the rural population surplus was absorbed into the developing cities. Industrialization and urbanization in the tropical world are proceeding apace with this historical trend, and should lead to significant reductions of pressure, if the options available to people are considered more attractive than subsistence farming or extraction. (p. 222)

In the absence of further clarification, one could conclude that this proposal promotes “First World” conventional economic growth—and its associated environmental impacts—in one place to protect nature in another. If this is the case, the concept fails to account for the resource consumption needs of the

“supernumerary rural poor” as they move to urban areas. Would not these resources most likely come from the countryside? Beyond the high potential for ecological degradation inherent in this second proposal, a number of questions arise. Is it reasonable to think that depopulating the countryside is a viable alternative for guaranteeing conservation success? Is it appropriate to encourage processes that more than likely would lead to the further enlargement of urban poverty belts surrounding mega-cities? Would not the process of rural to urban migration simply make it easier for large enterprises with little interest in conservation to buy up property for large-scale resource exploitation?

The third alternative presented in *Last Stand* raises the possibility of including the military in nature protection.¹¹ Van Schaik and Kramer (1997, 224) wrote:

Some . . . have suggested that there is a role for the national military in this regard. This is not as farfetched as it sounds, since the role of the military is to protect the nation's interest, usually against outsiders but in case of emergency also against rebellious insiders. Moreover, the military is often the only power with authority and is the best-organized and equipped institution in the country. Use of the military, however, may cause resentment among local residents and reduce local conservation support, so it should be considered only as a means of last resort.

In *Requiem for Nature*, John Terborgh (1999, 199, 201) also mentions increasing the role of armed forces in protecting biodiversity and suggests the possibility of creating “internationally financed elite forces within countries.” He writes,

If peacekeeping has been widely accepted as an international function, why not nature keeping? If local park guards are too weak or too subject to corruption and political influence to carry out their duties effectively, internationally sponsored guards could be called in to help.

Given histories of military abuse of power, it is questionable to promote use of the military or “nature-keeping forces” without clarifications. Although authors such as van Schaik and Kramer (1997) are careful to suggest that the military be used only as a last resort, they overlook the possibility that the military or authoritarian governments may use conservation to further their own political ends in tenuously controlled rural areas (Peluso 1993). Moreover, it is possible that the military would use nature protection as an excuse to wage war against particular ethnic groups.¹² While conservation interests might be advanced in the short term by employing the military in special “emergency” situations, the long-term deployment of armed forces to enforce protected areas boundaries and management regulations could easily turn into or support a repressive regime that encourages violent resistance on the part of rural communities. The statement by van Schaik and Kramer ignores the fact that in most “developing” countries the military serves elite interests, not the public. It leaves unanswered questions with much left to the imagination. For example, who qualifies as a “rebellious insider” and who decides? Moreover, the authors are not clear about which “last resort” situations would necessitate military intervention.

While military intervention might cause significant negative social impacts, there may be situations where the military might appropriately enforce protected areas. For example, might the military help maintain resource use at sustainable levels for

local people in the face of heavily armed poachers from outside the community? Or in more extreme situations such as civil war, perhaps the use of armed personnel such as UN Peacekeepers would be appropriate to protect critically endangered species or resources (i.e., mountain gorillas in Rwanda) until a peaceful outcome can be achieved.¹³

A Call for Greater Clarification

By critiquing the protectionist argument found in recent writings on international biodiversity conservation, we point to key issues in an ongoing and at times contentious debate regarding the future of the world's most biologically rich regions. The fact that most of these zones occur in areas high in poverty and political instability makes the challenge of doing conservation even more complex. Our intent in writing this article is to encourage the conservation community, broadly construed, to constructively debate *how* nature protection can and should occur in specific places. We support the conclusion that greater protection measures need to be adopted in order to safeguard rapidly disappearing tropical landscapes. We also find it reasonable to conclude that ICDPs feature important shortcomings and that conservation with development as a singular strategy most likely will not provide sufficient protection of biodiversity. However, to take these conclusions in isolation from other political, social, and economic factors and then recommend that conservation policy revert to strict protectionism based on government-led, authoritarian practices makes little sense from both a moral and pragmatic perspective.

How can we build upon the findings of conservation scientists without reinventing a square wheel in the process? We suggest that greater recognition of the deep political and social complexity inherent in conservation work in developing countries necessitates significant clarification on the issues we highlight in this article, among others. Scientific reasoning and solutions alone will not be enough to safeguard biodiversity. We must also apply political analyses and responses. Although most of the authors of the works we cite recognize this fact, their recommendations for authoritarian nature protection efforts fail to comprehensively account for the dense web of social and political processes associated with doing conservation.

The concluding chapter of *Parks in Peril* argues that “burdening parks with an overwhelming set of social goals” sets “the achievement bar at an impossible height” and thus represents “a recipe for ecological and social failure” (Redford et al. 1998, 546). This point is well taken and needs to be considered at the next World Parks Congress. At the same time, it raises several questions about the future of international biodiversity conservation. In focusing the majority of our attention on protected areas (as important as they are), are we largely ignoring wider landscapes inhabited and worked by diverse peoples that also contain significant biological diversity? In decrying the unattainability of sustainability in general terms (as Terborgh, Rabinowitz, and Soulé and Lease have stated), should we give up working toward more sustainable rural economies? By pointing to the ineffectiveness of ICDPs in protecting biodiversity, should we conclude that they have failed on all counts and are thus useless in all contexts? By arguing that “traditional peoples” or local communities do not necessarily manage their resources in ways that protect biodiversity, should we discontinue or reduce efforts at capacity building and sustainable development? In general, should we treat rural people as potential allies or as potential enemies? In the end, we have two broad

choices. We can promote a policy shift toward authoritarian protectionism that would most likely alienate key allies at local, regional, and national levels and thus precipitate resistance and conflict. Alternatively, we can build on past experience and constructively negotiate ecologically sound, politically feasible, and socially just programs in specific contexts that can be legitimately enforced based on strong agreements with all affected parties.

Notes

1. The term “protection paradigm” appears most prominently in *Last Stand*, Chapter 10, in which van Schaik and Kramer (1997) called for a “new protection paradigm.” Chapter 10 of John Terborgh’s (1999) book *Requiem for Nature* is entitled, “Why Conservation in the Tropics Is Failing: The Need for a New Paradigm.” In Chapter 9 of *Myth and Reality in the Rain Forest*, entitled “Conservation at the Close of the Twentieth Century,” John Oates called for a renewed emphasis on strict protection of national parks and reserves and less focus on community development. In *Parks in Peril*, the final chapter, called “Holding Ground,” by Redford, Brandon, and Sanderson, made a similar argument for greater protection.

2. The editors of *Last Stand* offered four basic principles for designing solutions to biodiversity conservation problems. The first of these principles holds that “protected areas will always be in need of active defense, no matter how great their benefits are to local communities or to society at large” (van Schaik and Kramer 1997, 228).

3. Van Schaik and Kramer (1997) recognized that local communities show hostility toward protected area restrictions but assumed that it results from lost “opportunity costs” that can simply be economically compensated.

4. The book *Parks in Peril* picks up on some of these points in its discussions regarding park creation and management (Brandon 1998a).

5. Van Schaik and Kramer (1997, 213) offered a different perspective: “[P]rotected areas are needed, not to satisfy some Western romantic ideal about paradisaical nature unspoiled by humankind’s uncouth hands but because a considerable number of species are vulnerable to extinction due to overexploitation or disturbance.”

6. The claim justifying international involvement is part of the third principle (out of four) for designing biodiversity policy solutions found in *Last Stand*: “[E]ffective solutions require the involvement of all stakeholders, including representatives of both the local and the international community” (van Schaik and Kramer 1997, 228).

7. This is the fourth principle for long-term success in protected areas management and biodiversity conservation: “[W]hile delegation of management to local communities is to be encouraged, there is always a role for the national government as the representative of the nation or the international community” (van Schaik and Kramer 1997, 22).

8. Our critique of arguments that assume a universal knowledge of and experience of nature relies on a critical or “postmodern” perspective. By offering this type of critique, we do not mean to imply that scientific understandings of the natural world are invalid, nor do we want to suggest that groups cannot reach agreement about mutually understood “truths” (the so-called “morass of relativism”). Critical perspectives simply posit that our understandings and explanations of natural and human phenomena are contingent historically and may vary culturally. In response, some conservationists claim that critical perspectives on the human–nature relationship represent a politically motivated attack on the project of nature protection (Soulé and Lease, 1995; see specifically pp. 137–138 on the “social siege of nature”).

9. Van Schaik and Kramer (1997) argued that economic compensation for opportunity costs takes care of this problem. While this solution may cover economic impacts, most likely it does not adequately attend to negative social and cultural impacts.

10. Issues related to the political and social challenges of conservation with development have produced a number of insights on participatory approaches (Albers and Grinspoon 1997; Freudenberg et al. 1997; Gibson and Marks 1995; Hough 1988; Hough and Sherpa 1989;

Lehmkuhl et al. 1988; Maikhuri et al. 2000; Mehta and Kellert 1998; Naughton-Treves and Sanderson 1995; Ulfelder et al. 1998).

11. For related discussion on the relationships between the military and nature protection, see D'Souza (1995), Harbottle (1995), and Westing (1992). Bruce Albert (1992) has explored how the military "manipulated environmental legislation and ecological rhetoric in order to perpetuate military hegemony over the development of Amazonia to the benefit of mining interests."

12. Military intervention linked to conservation could serve other political ends, such as the removal of minority ethnic groups that the military decides should not continue to dwell in a particular area. The role of the military in helping to establish the Myinmoletkat Nature Reserve in Burma is especially troubling. See Associated Press (1997), Faulder (1997), and Levy and Scott-Clark (1997).

13. Thanks to Tom Dietsch for raising the possibilities listed here.

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