When global environmentalism meets local livelihoods: policy and management lessons

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Abstract

Creation of national parks often imposes immediate livelihood costs on local people, and tensions between park managers and local people are common. Park managers have tried different approaches to managing relationships with local people, but nearly all include efforts to promote environmental values and behaviors. These efforts have had uneven results, and there is a need to improve our understanding of how environmental values develop, change, and influence behavior. We investigated this question in a study of communities in and adjacent to national parks in Costa Rica and Honduras, using a mental and cultural model approach. We found local people to be fluent in global environmental values, but some common values had limited impact on behavior due to conflicts with livelihood needs. However, new environmental values that integrated conservation and livelihood needs had developed that had a more direct relationship to behavior. We propose a general model of how local environmental values develop in the context of global environmentalism that can be used to guide outreach programs with park neighbors.

Introduction

National parks and related forest conservation programs generally originate in national and international centers, are established where people live and use resources, and often impose livelihood costs on rural people (Neumann 1998; Terborgh *et al.* 2002; Brechin *et al.* 2003). As a result, conflicts between parks and local people have been common (Garratt 1984; Machlis & Tichnell 1985). Many approaches have been tried to manage relationships between parks and local people (Zube & Busch 1990), all of which have limitations and critics. National park management has historically involved strict protection, but policing parks presents an administrative challenge and often generates opposition among resource-dependent neighbors (Boardman 1981; Brockington 2002). Value and attitude change through environmental education is frequently tried to reduce conflict by instilling local appreciation for biodiversity and park ecosystems, but some have argued these are luxuries poor park neighbors cannot afford (Boardman 1981; Machlis & Tichnell 1985).

Since the 1980s, integrated conservation and development projects (ICDP) linking conservation objectives with the enhancement of local livelihoods have been used to address the needs of the poor directly in conservation efforts (Garratt 1984; Wells & Brandon 1992), although some contend that integrated conservation and development projects have wasted conservation resources while producing few conservation benefits (e.g., Kramer *et al.* 1997). A closely related governance approach, collaborative management between resource managers and local residents, developed along with integrated conservation and development projects, although this, too, has been criticized as ignoring fundamental conflicts between local people's livelihood interests and global conservation concerns (Western & Wright 1994; Kramer *et al.* 1997; Brechin *et al.* 2003).

No clear "magic bullet" has emerged from these different approaches, and in practice most parks actually pursue some combination of them in an effort to achieve conservation goals while reducing tension and earning the support of neighboring landowners and communities

(Zube & Busch 1990). Although economic and livelihood issues play an important role in park-people relationships, long term successes will almost certainly also depend on the environmental values of park neighbors (de Groot & Steg 2009). We do not yet know enough about how rural people living near national parks think about and value forests and conservation. Terborgh and van Schaik (2002) note that strictly protected parks in developed countries often began with conflict but are now widely popular, and suggest that a similar trajectory will ensue in less developed countries over time. Others argue that more diverse national parks strategies that include collaboration and sustainable development are needed to win support for parks at both local and national levels in less developed countries (Western & Wright 1994; Brechin *et al.* 2003).

There is evidence of general increasing concern for the environment in both developed and less developed countries, suggesting that conservation may be important to people regardless of economic status (Brechin & Kempton 1994). However, the specific case of national park conservation is complex because benefits are often long term, diffuse, and accrue at national and global levels while costs are often immediate and borne locally. Indeed, national parks have had mixed success in less developed countries (Terborgh *et al.* 2002). The relationship between rural people and national parks involves social, cultural, and political processes operating both at and across local and global levels. Correspondingly, social science research finds complex, context specific local responses to externally imposed parks and conservation initiatives ranging from opposition to common ground (see, for example, Fisher 1994; Neumann 1995; Haenn 1999; Little 1999; Carrier 2004).

Mental and cultural models of environmentalism

A promising approach uses cultural models to understand how environmentalism—environmental meanings, beliefs, values, and behaviors—is forged in different social and cultural settings (e.g., Kempton *et al.* 1995; Bauer 2006; Medin *et al.* 2006; Broussard 2009). This approach suggests that environmental values emerge out of people's complex economic, social, cultural, and political lives; that is, environmentalism is locally constructed within particular contexts (Bauer 2006). This broader approach, as opposed to a narrow focus on values and attitudes, is particularly useful in understanding the complex relationships between national parks and their neighbors in lesser developed countries.

Following such an approach, we view environmental values as deeply embedded in mental and social life, and socially constructed and evolving through the dynamic processes involved in social relationships, livelihoods, and cultural transformation. In our research, we used cultural models to identify environmental concerns, values, and beliefs in what people said about forests, national parks, and their livelihoods. A cultural model approach sees values as partly individual and partly shared, with shared values built up through shared experiences (Strauss & Quinn 1997). It thus provides a basis for the empirical study of complex environmental beliefs and values. Environmental values can be identified through discourse analysis of semi-structured interviews, and variations can be assessed through qualitative and quantitative analysis (Kempton *et al.* 1995; Paolisso 2002). Research on cultural models of the environment has provided several key insights about the social and cultural nature of environmentalism. One, Paolisso (1999) shows how resource users from key stakeholder groups can have different models of the environment and environmental issues. Two, Kempton *et al.* (1995) find differences mostly in the ways that people make trade-offs between environmental values and other values (e.g., livelihood and human welfare), while environmental values themselves are widely shared even among groups as different as radical environmentalists and loggers.

We have carried out research that has examined and compared local people's environmental and forest-related values and behaviors after the establishment of national parks in two countries with different social and environmental histories—Costa Rica and Honduras (Pfeffer *et al.* 2001, 2005, 2006; Schelhas & Pfeffer 2005, 2008). Costa Rica has been a Latin American leader in national parks and ecotourism, and has attained higher levels of development than other Central American countries. La Amistad International Park in Costa Rica, represents a strictly protected park of what is often called the "Yellowstone Model" (Neumann 1998). The park has interacted with local communities primarily through law enforcement and environmental education programs. Honduras, on the other hand, was a latecomer to environmental conservation and ecotourism and is one of the poorest countries of Latin America. Cerro Azul Meambar National Park is a zoned park where a core, strictly protected, zone is surrounded by concentric rings consisting of a special use zone permitting limited harvesting and a buffer zone occupied by 42 communities. Management of Cerro Azul Meambar National Park has been contracted out to an NGO, Aldea Global, by the government, and the guards employed by Cerro Azul Meambar National Park have been members of the park communities selected with advice and consent of those communities.

Local people at both sites originated as colonists who migrated from other regions of the respective countries within the past 50 years in search of land and both parks were created with little input from local communities, setting up conflicts between conservation and rural livelihoods. Our research sought to identify common patterns in the two research sites due to the important influence of global environmental concern, as well as ways in which values differed between the two sites due to park management strategies and social and economic contexts.

We used semi-structured interviews and a survey to learn more about the nature of environmental concern among park neighbors, how environmental meanings and values of resource-dependent park neighbors develop and change in response to conservation programs, and the ways in which environmental thought ultimately influences the behaviors of rural people. We conducted a fine-grained analysis of mental and cultural models of forests and national parks in two differing sites to learn more about how park neighbors think about forests, parks, and conservation in the context of their rural lives and resource-dependent livelihoods. The details our research—including methods (see Supporting Information), data, and analysis—have been published elsewhere (Pfeffer *et al.* 2001, 2005, 2006; Schelhas & Pfeffer 2006, 2008). Here we draw on our findings to discuss the implications of our research for conservation management and policy.

Major findings

Spread of global environmental values

Interviews revealed that park neighbors were aware of and could discuss a common set of forest values. While the values and the terminology used differed slightly between the two countries, there were many similarities (Table 1). Many common values, often expressed in identical words, recurred frequently throughout our interviews. The similarities in terminology and the frequency with which these phrases appear suggest that they are what Strauss (1997, 2005) has called "verbal molecules"—widely repeated, verbatim phrases that people believe reflect the way they should think. In this case, these verbal molecules represent widely disseminated global environmental messages, and country differences reflect the unique ways they are experienced locally. Notably, Strauss (1997) believes that verbal molecules provide only "lip-service motivation," and have little influence on behavior. Thus although people are aware of and can recite many global environmental values, they may have little influence on forest-related behaviors.

Table 1 Common forest values (ordered by frequency) Cerro Azul Meambar, Honduras, and La Amistad, Costa Rica

Costa Rica	Honduras
Verbal Molecules	
1. Forests as important for rainfall and stream flow, e.g. "without forests this would be a desert."	1. "Forests are life" (a former slogan of a national forestry agency).
2. Forests as important for oxygen production, e.g. "the forest is a big lung" or "without forests there would be no pure air."	2. Forests for water conservation, e.g., "without forests this would be a desert."
3. Importance of conserving wildlife for the future, often expressed as "if we don't conserve forests, future generations won't be able to know wildlife."	3. Forests as important for pure air, coolness, and health, e.g., forests as "purifying the air," "producing oxygen," and creating a healthy environment.
Other Values	
4. Forest utility, e.g., forests for lumber, soil fertility.	4. Forest utility, e.g., firewood, lumber.
5. Forest attracting tourists, for economic gain and cultural exchange.	5. Forests so wildlife can continue to exist, be seen by future generations.
6. Coolness, climate maintenance	6. Ecosystem services; e.g., storm protection, erosion control.
7. Forests as a positive contrast to urban areas, with social problems.	7. Forests as God's creation; religious associations.
8. Nature appreciation, aesthetics, beauty.	8. Forests as needing to be protected, with reasons unspecified.
9. Forests as God's creation; religious associations.	

Consistent with this evidence of widespread awareness of global environmental values, the most important sources of environmental information were television and radio (see Supporting Information). Extension agents and park rangers were also important sources of environmental information in both countries, suggesting that global messages have local carriers. Notably, the second most important reported source of environmental knowledge was people's own experience living in the region and seeing changes in the forest and the environment. Thus, while media and outside organizations are important in getting people to think about forest and wildlife values, people found confirming evidence in their own experiences with forest and environmental change.

Local recognition of environmental problems associated with forest loss

Although many expressions of global environmental values appeared superficial, our in-depth interviews found

evidence of deeper environmental values. These ranged from the utilitarian values of forest products and environmental services to aesthetics and moral forest values. Interviewees said that forest clearing had been excessive during colonization a few decades earlier, and many regretted this. Respondents recognized tradeoffs between forest conservation and livelihoods (see Supporting Information). Most also felt that forest conservation regulations were necessary to prevent excessive clearing and maintain important products and services that they received from forests. Many people indicated they would call authorities when outsiders were harvesting timber from forests, but would not do so in cases of local subsistence use, reflecting local norms regarding tradeoffs between livelihoods and conservation.

When global environmental values meet local livelihood concerns

As Kempton *et al.* (1995) showed, even when environmentalism is widespread in a society, people may differ in the ways they make tradeoffs between environmental values and human welfare. Because of park neighbors' resource-dependent livelihoods, they could not easily accept external, generally protectionist, conservation values beyond the lip-service level. But park rangers and extension agents began to adapt global conservation messages to local conditions, and people reflected on perceived environmental changes and discussed environmental concerns among their families and neighbors.

Through interactive social and cultural processes at the interface between global environmentalism and local livelihoods, people developed mediating cultural models to resolve the tension between these two value spheres. These new models took a number of different forms. At their most integrated, they supported utilitarian forest conservation, in which forests were important for watershed protection, but felling trees was acceptable for home construction, firewood, and to eliminate trees without obvious human uses. People also resolved value conflicts by appropriating conservation terms to describe livelihood activities, for example, considering planting coffee and fruit trees to be reforestation, or by redefinitions, for example, classifying young second-growth forest as fallow agricultural land and therefore making it acceptable to clear it to plant crops. These questions of meaning were important sources of tension between park rangers and local people.

At other times people contested conservation with other values; rather than denying its importance, they called attention to their livelihood needs and noted that clearing forest was the only option they had. Another model involved contesting the larger social order by highlighting injustices. This occurred when local people argued that forests were being destroyed by outside loggers, with government complicity, and that local people were actually conserving forests, or when they sought to use the national park and the related sacrifices they were making to leverage development for their communities. Explicit rejection of forest conservation or the park was rare, most likely because people lacked either the material or discursive power to generate a credible counter-argument.

The effects of environmental history and policies

In general, we found surprising similarity in the cultural models between the two sites. But differences in development levels and conservation policies produced some differences. For example, forest values among the poorer, more subsistence-oriented population in Honduras appeared slightly more utilitarian than those in wealthier, more developed Costa Rica. And, in spite of general support for forest conservation regulations, people in both countries were dissatisfied with their implementation, particularly the difficulty and expense in obtaining permits to fell trees for subsistence use. In Costa Rica, where enforcement had been rigid and most park rangers were outsiders, people responded by regularly engaging in various forms of everyday resistance and, in extreme cases, resorting to protests and threats to set forest fires. In Honduras, village committees played a role in the granting of permits, and informal agreements often allowed people to fell trees for house construction and other subsistence needs without engaging in the full permit process. This appeared to have reduced much of the tension between local people and conservation there.

There were also differences in benefits people expected to receive from the parks. Local people expected to receive benefits, but notably, when asked who benefited the most, saw all others (their community, other communities, and the nation) as benefiting more than themselves as individuals (see Supporting Information). Expected benefits were higher in Honduras than Costa Rica. We attribute this to their hope to use the presence of the park and the sacrifices forced on them to leverage development in their communities. The park, which had local park rangers and specific sustainable development programs, was the only large scale outside presence in the region. People sought to use the park to leverage development, by suggesting that a "proper park" would have better roads and communications, and that they should be provided assistance in new livelihood options.
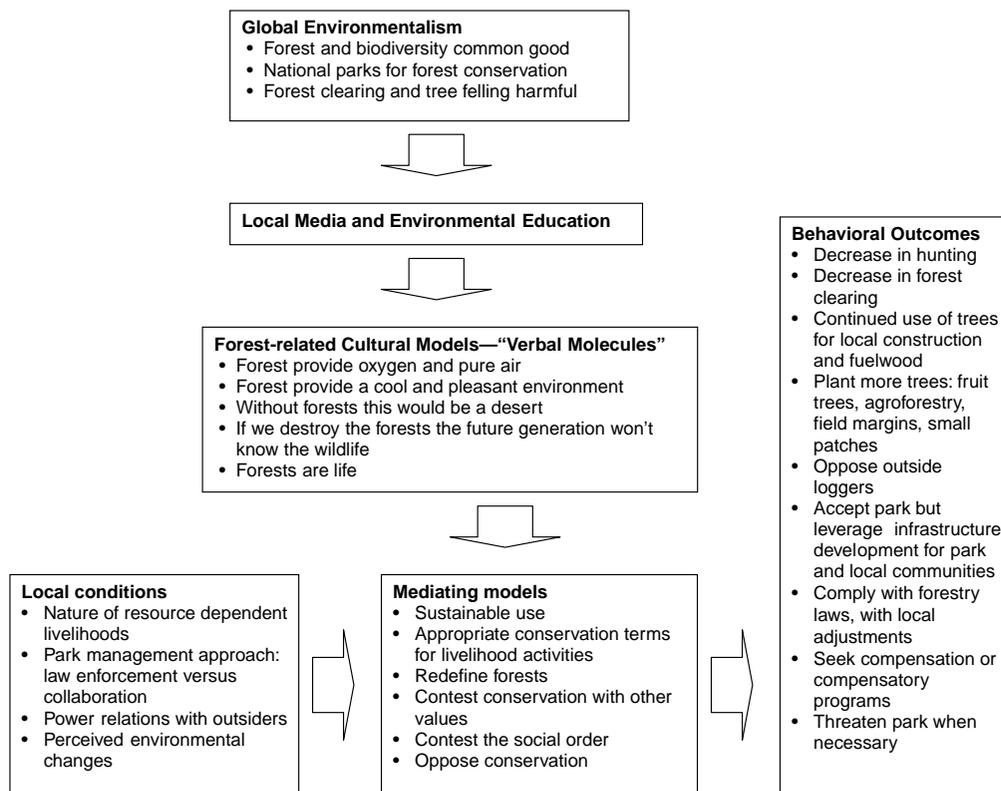
Figure 1 A schematic model of the formation of unique local environmental values and resulting behaviors.

Effect of environmental values on landscape preferences and forest-related behaviors

When we showed people photographs of landscapes with varying amounts of forest, pasture, and croplands, they generally commented on the great beauty of continuous forest, but pointed out that there was no place for them in those landscapes. Instead, they favored mixed mosaics of forest patches, agroforestry, pasture, and agriculture. Accordingly, although local people had largely ceased large scale forest clearing and many were planting trees, most tree planting involved fruit trees and most planting was among crops and on field margins (see Supporting Information). Anti-hunting norms existed in both countries, but were more frequently mentioned in Costa Rica where most food was purchased rather than produced on local farms (see Supporting Information). Environmental values did promote tree retention and planting, but in human occupied landscapes, mosaics of crops, pasture, and forest patches were the desired and most likely long-term outcome. Local people accepted continuous forest in protected areas for watershed protection, tourism, and other benefits only when provisions were made for their

resource-dependent lifestyles outside parks or in park buffer zones.

Lessons for conservation policy and management

Value change is an important strategy for working with park neighbors, and our findings provide some insights on how to approach it (modeled in Figure 1). First, context is an important determinant of both the nature of values and their influence on behaviors. Our research suggests that environmental values from developed countries and national centers spread easily due to power imbalances, but that environmental values that influence behaviors develop more slowly and must be broadly integrated into people's lives. People hold environmental and livelihood values in separate spheres, with no clear common denominator to weigh them against each other, and with varying integration. The activation or primacy of a certain value sphere at any time is highly context dependent (framing, see Bauer 2006). If a message or situation activates one value sphere, that

can be given primacy for a set of decisions. But, in other contexts, people can also be motivated by other value spheres.

For park management, this means that if people are denied key livelihood options, they may be forced to choose livelihood values over environmental values and oppose conservation. But people, in thought and action, generally try to integrate across value spheres that are meaningful to them (and global environmental values often are), and managers can develop messages and livelihood alternatives that are attractive to people specifically because they enable them to draw on both globally hegemonic environmental values and human welfare values that are critical to their livelihoods and futures, rather than forcing them to choose between them.

Second, although global environmental values have considerable power in rural communities and we found them to be widely incorporated into the ways people talk about the environment, in many cases they may lead only to lip-service motivation. To become more motivating, they must become more integrated with livelihood issues and other common daily concerns. In our research, we see this in the development of mediating cultural models that represent unique local environmentalisms formed though social interactions over time. In this process, environmental values arrived in remote rural communities in specific ways, sometimes through national and local media and sometimes brought in by extension agents and park authorities. These agents nearly always began adapting global environmental values to the local situation as they tailored their messages and actions in such a way as to maximize opportunities for success. This was followed by discussion and debate by local people. Over time, this process created a local context and authority for environmental values. This process begins the adaptation of global environmental messages into unique local forms, and both the adapted content and the social relationships through which this process takes place ultimately lead to unique local environmental values with motivating force. These values may differ from the values promoted or considered optimal by global conservationists or park authorities, but adaptation is necessary for them to have widespread motivating force and social support.

Third, park managers have opportunities to use management actions to shift the activation of different value spheres. Placing large land areas formerly used by rural people under strict protection, without providing new livelihood options, can force people to have to choose between conservation and their livelihoods. There is little doubt that they will give priority to their livelihoods, but this may play out in different ways depending on con-

text. Direct local opposition to externally imposed park plans seems most likely to occur when people can tap into other global values and related organizations, such as indigenous rights. Otherwise, people are most likely to use various forms of everyday resistance, such as vandalism and surreptitious behavior ("weapons of the weak," Scott 1985). If park managers are able to find ways to promote development and reduce dependence on resources, for example, through intensive cropping, road improvements, or equitable tourism development, park residents and neighbors may be more likely to accept compromise. To be effective, park managers must accept compromise adjacent to national parks or in buffer zones, and not try to overextend their conservation preferences into these areas. If park residents and neighbors are going to respect park lands and their management objectives, they must see the park act as a good partner, respecting their livelihood needs and land management objectives.

Finally, governance arrangements are also important to the context in which environmental values operate. As we noted previously, in Honduras the involvement of community-level governance was able to reduce much of the tension around the permitting process for tree felling by reducing the burden for local people to gain permission for limited harvest of trees to meet subsistence needs. This reduced the level of conflict between local people and park authorities, and contrasts with Costa Rica, where enforcement of forestry regulations was done only by the national government, and an adversarial relationship was formed where people threatened to damage the park and stage protests in response to strict enforcement of tree felling. In Honduras, using collaborative governance created an important, legitimate venue where the tensions between forest protection and subsistence needs could be worked out.

Global environmental values spread easily to politically weak, rural communities that have media and other connections to national and global centers, but at the local level also become entwined with economic and social concerns. They are most effective in changing behaviors when external environmental messages grow into a unique local environmental concern, nurtured by the promotion of environmental dialogue and creating contexts where resource-dependent people can act on their environmental values. Park managers must draw on various tools, including protection, conservation education, integrated conservation and development, and collaborative management as they work with park neighbors if they are to foster strong, lasting, and influential environmental values and reduce conflict with park neighbors.

Acknowledgments

Supporting Information

Additional Supporting Information may be found in the online version of this article:

Figure S1: Proportion who learned what they know about forests by source of information, Cerro Azul Meambar, Honduras, and La Amistad, Costa Rica.

Figure S2: Proportion who agreed with selected statements about forests, Cerro Azul Meambar, Honduras, and La Amistad, Costa Rica.

Figure S3: Predicted probabilities of expected park benefits, Cerro Azul Meambar, Honduras, and La Amistad, Costa Rica.

Figure S4: Proportion planting trees by location planted, Cerro Azul Meambar, Honduras, and La Amistad, Costa Rica.

Figure S5: Attitudes about the acceptability of hunting, Cerro Azul Meambar, Honduras, and La Amistad, Costa Rica.

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References

Bauer, J. (2006) *Forging environmentalism: justice, livelihood, and contested environments*. M.E. Sharpe, Armonk, NY.

Boardman, R. (1981) *International organization and the conservation of nature*. Indiana University Press, Bloomington, IN.

Brechin, S.R., Kempton W. (1994) Global environmentalism: a challenge to the postmaterialist thesis? *Soc Sci Quart* **75**, 245–269.

Brechin, S.R., Wilshusen P.R., Fortwangler C.L., West P.C. (2003) *Contested nature: promoting international biodiversity with social justice in the twenty-first century*. State University of New York Press, Albany, NY.

Brockington, D. (2002) *Fortress conservation: the preservation of the Mkomazi Game Reserve, Tanzania*. James Curry, Oxford.

Broussard, J.T. (2009) Using cultural discourse analysis to research gender and environmental understandings in China. *Ethos* **37**, 362–389.

Carrier, J.G., editor. (2004) *Confronting environments: local understanding in a globalizing world*. AltaMira Press, Walnut Creek, CA.

de Groot, J.I., Steg L. (2009) Mean or green: which values can promote stable pro-environmental behavior? *Conserv Lett* **2**, 61–66.

Fisher, W.H. (1994) Megadevelopment, environmentalism, and resistance: the institutional context of Kayapó indigenous politics in Central Brazil. *Hum Organ* **53**, 220–232.

Garratt, K. (1984) The relationship between adjacent lands and protected areas: issues of concern for the protected area manager. Pages 65–71 in J.A. McNeely, K.R. Miller, editors. *National parks, conservation, and development: the role of protected areas in sustaining society*. Smithsonian Institution Press, Washington, DC.

Haenn, N. (1999) The power of environmental knowledge: ethnoecology and environmental conflicts in Mexican conservation. *Hum Ecol* **27**, 477–491.

Kempton, W., Boster J.S., Hartley J.A. (1995) *Environmental values in American culture*. MIT Press, Cambridge.

Kramer, R., van Schaik C., Johnson J., editors. (1997) *Last stand: protected areas and the defense of tropical biological diversity*. Oxford University Press, New York.

Little, P. (1999) Environments and environmentalisms in anthropological research: facing a new millennium. *Ann Rev Anthropol* **28**, 253–284.

Machlis, G.E., Tichnell D.L. (1985) *The State of the World's Parks: an international assessment for resource management, policy, and research*. Westview Press, Boulder, CO.

Medin, D.L., Ross N.O., Cox D.G. (2006) *Culture and resource conflict: why meanings matter*. Russell Sage Foundation, NY.

Neumann, R.P. (1995) Local challenges to global agendas: conservation, economic liberalization and the pastoralists' rights movement in Tanzania. *Antipode* **27**, 363–382.

Neumann, R.P. (1998) *Imposing wilderness: struggles over livelihood and nature preservation in Africa*. University of California Press, Berkeley, CA.

Paolisso, M. (1999) Toxic algal blooms, nutrient runoff, and farming on Maryland's Eastern Shore. *Cult Agr* **21**, 53–58.

Paolisso, M. (2002) Blue crabs and controversy on the Chesapeake Bay: a cultural model for understanding watermen's reasoning about blue crab management. *Hum Organ* **61**, 226–239.

Pfeffer, M.J., Schelhas J.W., Day L. (2001) Forest conservation, value conflict, and interest formation in a Honduran National Park. *Rural Sociol* **66**, 382–402.

Pfeffer, MJ., Schelhas J.W. DeGloria S.D., Gomez J. (2005) Population, conservation, and land use change in Honduras. *Agric Ecosyst Environ* **110**, 14–28.

Pfeffer, M.J., Schelhas J., Meola C. (2006) Environmental globalization, organizational form, and expected benefits from protected areas in Central America. *Rural Sociol* **71**, 429–450.

Schelhas, J., Pfeffer M.J. (2005) Forest values of national park neighbors in Costa Rica. *Hum Organ* **64**, 385–397.

Schelhas, J., Pfeffer M.J. (2008) *Saving forests, protecting people? Environmental conservation in Central America*. AltaMira Press, Walnut Creek, CA.

Scott, J.C. (1985) *Weapons of the weak: everyday forms of peasant resistance*. Yale University Press, New Haven, CT.

Strauss, C. (1997) Partly fragmented, partly integrated: an anthropological examination of "postmodern fragmented subjects." *Cult Anthropol* **12**, 362–404.

Strauss, C. (2005) Analyzing discourse for cultural complexity. Pages 203–242 in N. Quinn, editor. *Finding culture in talk: a collection of methods*. Palgrave Macmillan, NY.

Strauss, C., Quinn N. (1997) *A cognitive theory of cultural meaning*. Cambridge University Press, Cambridge.

Terborgh, J., van Schaik C. (2002) Why the world needs parks. Pages 3–14 in J. Terborgh, C. van Schaik, L. Davenport, M. Rao, editors. *Making parks work: strategies for preserving tropical nature*. Island Press, Washington, DC.

Terborgh, J., van Schaik C., Davenport L., Rao M. (2002) *Making parks work: strategies for preserving tropical nature*. Island Press, Washington, DC.

Wells, M., Brandon K. (1992) *People and parks: linking protected area management with local communities*. World Bank, Washington, DC.

Western, D., Wright R.M., editors. (1994) *Natural connections: perspectives in community-based conservation*. Island Press, Washington, DC.

Zube, E.H., Busch M.L. (1990) Park-people relationships: an international review. *Landscape Urban Plan* **19**, 117–131.

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