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What Belize Can Teach Us about Grassroots Conservation

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In Brief:

Billions of dollars and decades of work have been expended on conservation projects that have yielded few tangible results. It is now time for the conservation community to adopt an approach that works. Small community-led conservation projects have emerged as a powerful mechanism to protect wildlife and natural areas. These projects operate at a local scale, on relatively small budgets, give responsibility to the community as resource managers, are flexible and socially sustainable, and have a high rate of success. This article features examples from projects that the organization Community Conservation has participated in in Belize and India, where communities banded together to protect local endangered species. Community conservation offers an unprecedented opportunity for conservation organizations to save species and lands.

Key Concepts:

- To help empower communities to protect local and regional resources and biodiversity, conservation practitioners should do the following:
- Educate communities about the uniqueness and importance of their region and request their help in protecting it, noting that NGOs and government agencies cannot do it without their help;
- Strengthen community groups and build their capacity for protecting the area. For large regions, encourage the formation of community federations;
- Empower community members in conservation-oriented actions, making conservation the central focus; later introduce and integrate ecologically appropriate microindustries. Help foster in the community a feeling of ownership and responsibility for the natural area;
- Once a community group is formed, encourage members to take responsibility for the project and facilitate community comanagement with NGOs and government agencies. Although use of the word “project” implies a finite time frame, community conservation projects need to be thought of in perpetuity.

In the mideighties, seven villages in the Belizean rainforest pledged to conserve their lands for the region's endangered black howler monkey (*Alouatta pigra*). The agreement was unprecedented and sparked the creation of the first community-led conservation project in Belize. There are hundreds, perhaps thousands, of similar projects around the world that are largely undocumented.¹⁻⁴ These projects are typically small, low budget, and decentralized, involving a large degree of community involvement—in fact, we've found that projects are most successful when the community can take partial or full ownership. Community conservation projects either can form spontaneously from within a community when an important resource is threatened or can be catalyzed by outside individuals, NGOs, or governments.⁵ Where many traditional, large-scale conservation efforts fail—held back by rigid management and funding structures and a lack of meaningful community participation—community conservation projects can succeed.⁶⁻⁹

Only a few years before the Belizean villagers made their pledge to protect the black howler, scientists discovered that the population of howler monkeys living along the Belize River was perhaps the most critical in the species' entire range, which includes southern Mexico, northern Guatemala, and Belize.¹⁰ But because this population resided on the private lands of Belizean farmers, the involvement of the seven river villages would be essential to its survival.^{11,12} So in 1984, with the help of a resident, Fallett Young, Robert Horwich approached the village council of Bermudian Landing, the central village in the area. After a long discussion about how to bring potable water and electricity to the village, Horwich made the case for the black howler monkey, called "baboons" in the local Creole language. He explained the importance of the population along the Belize River and requested the community's help in protecting it. The local area representative was hostile to the idea of conservation, perhaps feeling it wasn't in the community's best interest. The villagers, however, said that they liked the monkeys, which were harmless to their subsistence crops and cattle ranches, and that they could easily do what had been asked. The Community Baboon Sanctuary was created the following year, in 1985; it was our organization's, Community Conservation's, first community conservation project.

The conventional top-down approach to conservation is failing. Since 1990, the World Bank has supported 226 integrated conservation and development projects (ICDPs) around the world with a total budget of US\$2.65 billion (from a variety of funding sources) for 14 years, averaging US\$837,547.41 per year per project.¹³ This is a high price to pay for limited results. Agnes Kiss, who works for the World Bank and has followed these projects, has commented,

Despite this high level of investment and effort, we (the conservation community collectively) can only point to some individual, localized successes. Taken as a whole, we have had little impact on stemming or even slowing the rising tide of biodiversity loss. ... This raises the urgent question of whether our prevailing models are faulty, or whether the problem lies in the way they are being implemented. ... Both are true, particularly when it comes to conserving biodiversity outside protected areas. Conventional conservation projects, including integrated conservation and development projects (ICDPs) ... have failed to address the true causes of biodiversity loss at the scale on which they operate.¹³

Today, it is nearly impossible to protect natural resources without community participation. Many governments in the developing world simply do not have the staff and resources to conserve species and lands—especially when growing human populations view exploitation of these resources as a matter of economic necessity.¹⁴ But when governments share ownership with the communities living on or near the lands needing protection, the odds of effective conservation become more favorable. Communities play an extremely important role in community conservation projects: They take part in reforestation and education initiatives. They agree, in some cases, to not develop or farm their lands, or they might promise to only develop their lands sustainably. But, most importantly, communities can actively monitor and patrol an area, protecting lands from those who would exploit them. They do this in their own right and as extra protection for government protected areas.

We had no prior experience working with communities and made the mistake in Belize of working only with the staff we hired, working through them to approach landowners and other village councils. We have since learned that it is best to work with a larger segment of the community, helping them to create a local group to make decisions and eventually manage the project. We used a high school textbook to tutor the newly appointed sanctuary manager in basic ecology, since he had only a ninth-grade education. He knew the villagers well and helped us a great deal in encouraging landowners to sign a voluntary pledge to support the project. (When he knew a landowner was illiterate, he read him the pledge.) Today, over 200 landowners have pledged to participate in a simple management plan requiring them to leave strips of forest along the river, along property boundaries, and across large cleared areas undeveloped for the black howler.^{12,15,16} In the midst of the private lands of subsistence farmers, this management plan has created a connected skeletal forest capable of maintaining a viable howler monkey population.^{17,18} A recent study showed that while there has been considerable forest loss in the area over the past couple decades, the connectivity of the forest fragments is still intact.¹⁹ All seven of the communities (approximately 1,500 resident stakeholders) signed on to participate in the program.²⁰ In 1990, an elected male representative from each village formed a management committee.

In 1998, due to funding problems and internal conflict among the representatives, the management committee was failing.^{21,22} (The conflict was mainly rooted in jealousy over how the benefits from the sanctuary were being distributed. Some felt Bermudian Landing—the central village in the area and home to the museum—and the sanctuary manager's family were receiving disproportionate benefits.) To save the sanctuary, Jesse Young, the wife of the sanctuary manager, gathered the wives of male landowners and some women landowners to discuss the sanctuary and the needs of the community, and they circulated a petition to the landowners requesting that the women become the managers of the sanctuary.^{21,22} The landowners agreed; community members all saw the past system as problematic, and the men in the

communities were supportive since they would not be excluded from the future management of the sanctuary.^{21,22} Young organized the Women's Conservation Group, composed of elected female representatives from each village, and registered the Community Baboon Sanctuary (CBS) as a legal nonprofit organization in Belize, with the Women's Conservation Group serving as the new management committee.²² Young renewed communication with other NGOs in Belize and got funding for the CBS from outside grants. The money was used to maintain trails, provide the CBS staff and the 25 women representatives from the seven villages with business management training, develop a comprehensive management plan, renew landowners' pledges and membership, and provide a biological inventory of the flora and fauna of the sanctuary.²² The group also created an education center that runs summer programs for local children. The annual average budget for the project during the first seven years was US\$12,000.

Black howler monkey populations have increased from an estimated 1,130 in 1985 to approximately 5,000 in 2004.^{19,23} The rehabilitated populations of over 2,000 monkeys in the baboon sanctuary enabled a translocation and creation of a new howler population in the Cockscomb Basin Wildlife Sanctuary, a jaguar preserve in southern Belize.²⁴

The CBS engenders local benefits and incentives for the participating communities, including substantial financial benefits from ecotourism.²⁵⁻²⁷ By 1990 there were 6,000 tourists coming to the CBS each year, about half of whom were Belizean.²⁷ There was a major increase in tourism due to cruise ship arrivals in Belize, with 10,000, 17,000, and 13,000 tourists visiting the CBS in 2003, 2004, and 2005, respectively.²⁸ The sanctuary's income in 2005, with about 10,000 foreign tourists, was roughly US\$50,000 and was used for sanctuary upkeep, two staff salaries, and about four guide salaries. Additional income from overnight tourists to the seven villages in 2005 amounted to US\$14,005, paid to 35 households.²⁸

The Way Forward for Conservation

Conservationists and biologists have published extensively on the threats to our biodiversity and natural resources: setting priorities, discussing theoretical solutions, and devising plans and strategies to save our natural areas.²⁹⁻³² These studies stress threats rather than solutions. To find real conservation solutions, the scientific community must actively coordinate with practitioners on the ground.⁶

For most of the past century, in both the developed and developing world, there have been few partnerships between governments and in-country or external NGOs that involved local people in managing resources, from species protection to establishing protected areas. The identification, designation, and management of conservation areas were typically directed by institutions that extolled top-down management, preservationist sentiments, and advocacy for nature over advocacy for the people. The efforts were exclusive rather than inclusive of local peoples, who were not considered part of the conservation formula. Conservation projects were often a sort of intervention and intrusion into the rural, social landscape. Most protected-area planners and managers were, at best, socially and culturally naïve about the importance of local community involvement in conservation planning and management and, at worst, viewed local communities as problems, hindrances to conservation goals.

Over the past two decades, the field of community conservation has developed into an important alternative to traditional, top-down integrated conservation and development projects, or ICDPs—big-budget projects that strive to integrate conservation and local economic development.⁶⁻⁹ Critics who are skeptical of the effectiveness of community conservation have often lumped community conservation projects and ICDPs together under the assumption that both have similar goals and levels of community involvement.^{13,33-36} However, there are major differences between the two, and assessments that overlook these inherent differences have often also overlooked and misinterpreted the success of community conservation.⁶

Despite the high levels of investment and effort spent on ICDPs, there have been few successes in stemming biodiversity loss.¹³ The failure of many ICDPs has primarily resulted from a lack of meaningful community participation in project design, implementation, and management.^{6,33,37} Large conservation organizations now have the opportunity to embrace the successful community conservation model. They could be instrumental in kick-starting many new community conservation projects, and, by helping to initiate these small projects and using them as building blocks to create larger federations, conservationists could effect the kind of regional change envisioned by the creators of ICDPs.

What We Do and Why It Works

Since 1984, Community Conservation has worked on 22 community conservation projects in 12 countries. Our approach differs from that of other organizations because we catalyze rather than own projects. This enables us to initiate projects and move on, allowing regional NGOs or communities to take over. We work to build the capacity of each community, so community groups are in place to manage or assist the project once we leave it. Ninety-five percent of our projects are ongoing today, some of which have been operational for as long as 19–25 years. At least 71 percent of the community projects created protected areas where there were none before. At least 82 percent of the projects have formed one community conservation group, and 9 percent are managed by government agencies. A total of 34 ongoing community conservation groups, some of which are 20 years old, were formed as a result of these projects. These conservation groups are on-site community organizations that engage in a variety of conservation activities, including education, research, and environmental monitoring and protection, as well as income-generating activities such as farming, livestock rearing, crafts, and tourism.

Community conservation projects have been successful for a number of reasons, especially in rural areas:⁶

- As seen in the Belize example, communities, when they are treated as part of the solution rather than the problem, are willing to take responsibility for conservation. Community conservation has proved effective in motivating communities and gaining their trust and in stimulating locally based conservation actions.
- Overexploitation of resources is often the result of an open access situation caused by the collapse of government systems, a lack of community ownership of resources, and/or the erosion of traditional systems of resource management. Giving rural people ownership and responsibility encourages communities to protect “their” natural resources.
- The small scale and low budgets of these projects, which are the basis of their success, are the very reasons they are often ignored by the international conservation community.⁶ There are hundreds, or even thousands, of these community conservation projects around the world, yet they have received only limited acknowledgment and cursory support from macro-scale conservation agencies.

Because of their small scale, complexity, isolation, and lack of publicity, numerous community conservation projects have started independently of one another and thus do not have the opportunity to build on lessons learned elsewhere. Yet, small community conservation projects have enormous capacity to evolve into regional entities with a large geographic scope.³⁸ Ironically, the regional conservation goals of many ICDPs could have been achieved by using consortia of community conservation projects as building blocks to trigger and promote regional change.³⁸

Assam, India

Rural Assamese and tribal villagers who live on US\$1–2 per day are responsible for another major community conservation success. The Golden Langur Conservation Project (GLCP) was initiated by Community Conservation, Nature’s Foster, and Green Forest Conservation in 1998 to conserve the endangered golden langur (*Trachypithecus geei*), a primate found only in three protected areas in Bhutan and two in Assam. The project involves over 138 villages. It employs social incentives through 32 self-help groups (groups of 10–20 villagers who save money collectively to establish microindustries) and 40 microindustries and forest committees, and it is reversing a destructive 20-year period of antigovernment militancy, ethnic violence, and illegal log smuggling that resulted in the loss of 50 percent of the forests of the Manas Biosphere Reserve and other reserve forest habitats of the golden langur.^{6,38} The GLCP won the trust and support of villagers, community-based organizations, regional NGOs, civil government, the Assam Forest Department, and the newly created Bodoland Territorial Council (a tribal council that administers the majority of western Assam under the Assam state government). Trust has been essential and is encouraged by transparency and inclusivity wherever possible. Community organizations are included as equal partners in all project activities.

By joining self-help groups and forest management committees, the GLCP has integrated conservation and development through building capacity within community groups. The result in some communities has been startling, with community groups banding together to protect the forest.^{6,38} Today, the union of regional NGOs and 14 community-based organizations composed of forest villagers from across the Manas Biosphere Reserve (285,000 hectares), with the support of the Bodoland Territorial Council, has created forest protection forces consisting of over 300 village-based young men who are actively protecting the biosphere forests from illegal logging. These forest

protection forces, forming the United Forest Conservation Network, together with Assam forestry staff, patrol their designated forests in large groups; they confront illegal loggers and poachers, arrest them, and confiscate the illegal materials and vehicles. The villagers' pride has been contagious and additional community-based organizations have formed to participate in conserving the forests.³⁸

The 17-square-kilometer Kakoijana Reserve Forest, the first project in the GLCP, is surrounded by 28 villages that created two federations (Green Conservation Federation and Nature Guard) that work together to achieve almost complete protection of the forest. These federations began with small village forest committees and self-help groups, each focused on a small area of the forest. The communities banned woodcutting in their forests and developed individual methods to patrol their forests and to confront and deter encroachers, typically outsiders coming to gather fuelwood. At the same time they have reforested their community lands to supply their own firewood. Eventually, as more communities have participated, the entire forest has been protected. Through their efforts, there has been steady reforestation in the Kakoijana Reserve over the past decade.

Assamese villagers have been responsible for a major increase (four- to fivefold) in the Indian golden langur population.³⁸ The most recent censuses in 2007–2009 of the entire Indian golden langur population have shown a major increase from 1,500 langurs in 1997 to over 5,586 langurs in 2009,^{47–55} thanks to the communities who have helped protect the forests in western Assam. The annual average budget for this project during the first six years was US\$22,000.

For achieving conservation objectives and promoting improved environmental practices at the community level, three types of incentives have traditionally been proposed: legal, economic, and social/cultural.³⁹ Most ICDPs and many development projects have focused on providing poor rural people with economic incentives to conserve natural resources. In worst-case scenarios, the rewards for conservation in large-scale ICDPs "amounted to tacit bribes" for getting villagers to adopt new practices and were dependent on external funding.³⁹ In these projects, the cooperation of the community can become dependent on a continued infusion of resources. And strong economic incentives can backfire: in some cases, improved living standards for local communities stimulated demand for bush meat or other wildlife products and attracted in-migration, thereby increasing pressure on biodiversity.⁴⁰ An emphasis on financial rewards for conservation can also undermine community values that affirm social and ethical responsibility for protecting the environment.³⁹ A strong case has been made for the importance of social values that lead to stewardship of natural resources.^{14,38,39} For example, surveys of villager attitudes in three protected areas in Nepal found that noneconomic incentives such as conservation, recreation, and aesthetics were as important or more important to villagers than economic incentives. When asked to explain their support for conservation efforts, Nepali villagers said that they appreciated the area's beauty and greenness and were proud of the status it gave their homeland. They said that the green forest is Nepal's wealth and that it is important to conserve wildlife and the forest for their children and grandchildren.¹⁴

Due to the complexity of community projects with their many heterogeneous actors, they must be flexible and equipped with appropriate budgets. The large budgets of ICDPs can create an environment of inflexibility, with the money being distributed in a hierarchal fashion that doesn't always reach people in the local community.^{33,41} In contrast, smaller community conservation projects, with modest funding, often have greater relevance to rural participants because they are carried out on a more local level. And while large ICDPs have maintained the questionable assumption that helping communities develop economically will lead to the conservation of natural resources,⁴⁰ community conservation projects focus first on conservation, asking the participants to help protect forests and wildlife, only later integrating economic incentives into a holistic program. Asking for their help is the first step in empowering local people, and making conservation a priority allows them to learn and develop capacity by doing.

Some scientists have suggested shifting from a complete top-down approach to one that relies on in-country national or regional NGOs for conservation planning.⁴² Such an approach is not community-based and does not represent a shift in conservation strategy or tactics. To achieve the level of full community participation, there needs to be a paradigm shift. The international and national conservation agencies traditionally involved in funding, overseeing, and managing projects need to move away from macro-planning, macro-funding, and macro-organizational control; to move from being a priori project managers to being project facilitators; to replace diffuse, regional, trickle-down funding with targeted community funding; and to encourage the evolution of community alliances, federations, and associations from the community up.

Conclusion

The Community Baboon Sanctuary has had a ripple effect in Belize, stimulating the emergence of 20 community conservation/ecotourism projects.⁴³ More than 12 of these projects spawned community-based organizations that have subsequently signed agreements with the Belizean government to comanage protected areas, incorporating community comanagement into government policy.^{44,45} It has also sparked a countrywide interest in protecting the black howler monkey and other species.⁴⁶

PROJECT NAME <small>* indicates government-run project</small>	COUNTRY	START DATE	COMMUNITY GROUPS FORMED	PROTECTED AREA EXISTED	PROTECTED AREA CREATED
Ornate Box Turtle Conservation*	USA	1991			
Ferry Bluff Eagles	USA	1988	1		1 Private
Kickapoo Valley Reserve	USA	1991	1		1
Kickapoo Valley Stewardship Network	USA	1994	1		
Blue Mounds Area Project	USA	1995	1	Private Lands	
Badger Army Plant Lands	USA	1997	1		1
Community Baboon Sanctuary	Belize	1985	1		1 Private
Five Blues Lake National Park	Belize	1991	1		1
Gales Point Manatee Project	Belize	1991			1
Temash River	Belize	1994	1		1
CA River Turtle Conservation	Belize	1994	1		
Punta Laguna	Mexico	1989		+	
Chacocente	Nicaragua	1997		+	
El Salvador Spider Monkeys	El Salvador	2001		+	1
Tree Kangaroo Conservation	Papa New Guinea	2001	1		1
Golden Langur Manas Biosphere	India	1998	11	+	
Golden Langur Kakojana	India	1998	2	+	
Ngäbe Tribal Lands	Costa Rica	2007	1	+	
Madagascar Ring Tailed Lemurs	Madagascar	2007	2		2
Peru Cloud Forest	Peru	2009	6		6
Homeland of the Crane*	Russia	1994	1	+	
Nariva Swamp	Trinidad	1997	1	+	

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Community Conservation has initiated or worked on 22 community conservation projects in 12 countries. For each project, this table lists the number of community groups formed, whether a protected area existed at the start of the project, and whether a protected area was formed as a result of the project.

Out of Belize and hundreds of other projects, a new discipline of community conservation has emerged, not by design but through a gradual coalescence of ideas and principles centered on the idea that communities can be part of the solution.¹⁻⁴ While small-scale and low-budget, these projects represent a promising direction for the sustained use and protection of natural resources.

Like any emerging discipline, community conservation has many facets, no precise credo, and its adherents are scattered across many social, political, cultural, economic, and academic spectra. Unlike other conservation approaches, community conservation is inherently decentralized and community-based and has the capacity to expand at a rapid pace despite limited financial resources and support from traditional global conservation organizations. While it offers no panacea and is practiced in unique ways in each community, community conservation has been shown to work. However, it can only work step by step, one community or group at a time. If given a chance, community-based conservation can be a powerful approach in protecting the world's forests, waters, and wildlife.

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References

1. Borrini-Feyerabend, G, Pimbert, M, Taghi Farvar, JC, Kothari, A & Renard, Y. *Sharing Power: Learning by Doing in Co-management of Natural Resources Throughout the World* (International Institute for Environment and Development and IUCN Cenesta, Tehran, 2004).
2. Hulme, D & Murphree, M. Communities, wildlife and the “new conservation” in Africa. *Journal of International Development* 11, 277–285 (1999).
3. Western, D, Wright, RM & Strum, SC, eds. *Natural Connections: Perspectives in Community-Based Conservation* (Island Press, Washington, DC, 1994).
4. *Policy Matters* 12 (2003).
5. Seymour, FJ in *Natural Connections: Perspectives in Community-Based Conservation* (Western, D, Wright, RM & Strum, SC, eds), Are successful community-based conservation projects designed or discovered, 472–496 (Island Press, Washington, DC, 1994).
6. Horwich, RH & Lyon, J. Community conservation: Practitioners' answer to critics. *Oryx* 41, 376–385 (2007).
7. Borrini-Feyerabend, G. *Collaborative Management of Protected Areas: Tailoring the Approach to the Context* (IUCN, Gland, Switzerland 1996).
8. Brosius, P, Tsing, AL & Zerner, C. Representing communities: Histories and politics of community-based natural resource management. *Society and Natural Resources* 11, 157–168 (1998).
9. Davey, AG. *National System Planning for Protected Areas* (IUCN, Gland, Switzerland, 1998).
10. Horwich, RH & Johnson, E. Geographic distribution of the black howler, *Alouatta pigra*, in Central America. *Primates* 27, 53–62 (1986).
11. Horwich, RH & Lyon, J. An experimental technique for the conservation of private lands. *Journal of Medical Primatology* 7, 169–176 (1988).
12. Horwich, RH. How to develop a community sanctuary—an experimental approach to the conservation of private lands. *Oryx* 24, 95–102 (1990).
13. Kiss, A in *Getting Biodiversity Projects to Work* (McShane, TO & Wells, MP, eds), Making biodiversity conservation a land-use priority, 98–123 (Columbia University Press, New York, 2004).
14. Allendorf, T. Residents' attitudes toward three protected areas in southwestern Nepal. *Biodiversity and Conservation* 16, 2087–2102 (2007).
15. Bruner Lash, GY. Sustaining our spirit: Ecotourism on privately owned rural lands and protected areas (PhD thesis, University of Georgia, 2003).
16. *Community Baboon Sanctuary Management Plan 2004–2009* (2004).
17. Horwich, RH & Lyon, J in *Timber, Tourists and Temples: Conservation and Community Development in the Maya Forest of Belize, Guatemala, and Mexico* (Primack, RB et al. eds), Community-based development as a conservation tool: The Community Baboon Sanctuary and the Gales Point Manatee Project, 343–363 (Island Press, Washington, DC, 1998).
18. Lyon, J & Horwich, RH in *Forest Patches in Tropical Landscapes* (Schelhas, J & Greenberg, R eds), Modification of tropical forest patches for wildlife protection and community conservation in Belize, 205–230 (Island Press, Washington, DC, 1996).
19. Wyman, MS, Stein, TV, Southworth, J & Horwich, RH. Does population increase equate to conservation success? Analyzing forest: A study within the Community Baboon Sanctuary, Belize. *Conservation and Society* (in press).
20. Jones, CB & Horwich, RH. Constructive criticism of community-based conservation. *Conservation Biology* 19, 990–991 (2005).
21. Johnson, RI. Eco-justice theology, ethics and six weeks in Belize. Part three, Belize, baboons, and nine river valley communities: The relationship in context. [online] (1999). www.webofcreation.org/education/articles/belize-pt3.htm.
22. Barnett, WEP, Durham, W & Fisher, N. Belize's Community Baboon Sanctuary [online] (2003). csi.gsb.stanford.edu/belizes-community-baboon-sanctuary
23. Horwich, RH, Brockett, RC, James, RA & Jones, CB. Population structure and group productivity of the Belizean black howling monkey (*Alouatta pigra*): Implications for female socioecology. *Primate Report* 61, 47–65 (2001).

24. Horwich, RH et al. Translocation of black howler monkeys in Belize. *Re-introduction News* 21, 10–12 (2002).
25. Community Baboon Sanctuary [online]. www.howlermonkeys.org.
26. Horwich, RH & Lyon, J in *Conserving Wildlife: International Education and Communication Approaches* (Jacobson, SK, ed.), Multi-level conservation and education at the Community Baboon Sanctuary, Belize, 235–253 (Columbia University Press, New York, 1995).
27. Horwich, RH, Murray, D, Saqui, E, Lyon, J & Godfrey, G. in *Ecotourism: A Guide for Planners and Managers* (Lindberg, K & Hawkins, DE, eds), Ecotourism and community development: A view from Belize, 152–168 (The Ecotourism Society, North Bennington, VT, 1993).
28. Wyman, MS. Conservation initiatives, community perceptions, and forest cover change: A study of the Community Baboon Sanctuary, Belize (PhD thesis, University of Florida, 2008).
29. Schipper, J et al. The status of the world's land and marine mammals: Diversity, threat, and knowledge. *Science* 322, 225–230 (2008).
30. Brooks, TM et al. Global biodiversity conservation priorities. *Science* 313, 58–61 (2006).
31. Turner, WR et al. Global conservation of biodiversity and ecosystem services. *Bioscience* 57, 868–873 (2007).
32. Species Conservation Planning Task Force. *Strategic Planning for Species Conservation: A Handbook* (IUCN, Gland, Switzerland, 2008).
33. McShane, TO & Wells, MP, eds. *Getting Biodiversity Projects to Work* (Columbia University Press, New York, 2004).
34. Brandon, K, Redford, KH & Sanderson, SE, eds. *Parks in Peril: People, Politics and Protected Areas* (Island Press, Washington, DC, 1998).
35. Oates, JF. *Myth and Reality in the Rain Forest: How Conservation Strategies Are Failing in West Africa* (University of California Press, Berkeley, 1999).
36. Terborgh, J. *Requiem for Nature* (Island Press, Washington, DC, 1999).
37. Inamdar, A, de Jode, H, Lindsay, K & Cobb, S. Capitalizing on nature: Protected area management. *Science* 283, 1856–1857 (1999).
38. Horwich, RH et al. Community protection of the Manas Biosphere Reserve in Assam, India, and the endangered golden langur *Trachypithecus geei*. *Oryx* 44(2), 252–260 (2010).
39. Uphoff, N & Langholz, J. Incentives for avoiding the Tragedy of the Commons? *Environmental Conservation* 25, 251–261 (1998).
40. McShane, TO & Newby, SA in *Getting Biodiversity Projects to Work* (McShane, TO & Wells, MP, eds), Expecting the unattainable: The assumptions behind ICDPs, 49–74 (Columbia University Press, New York, 2004).
41. Sayer, J & Wells, MP in *Getting Biodiversity Projects to Work* (McShane, TO & Wells, MP, eds), The pathology of projects, 35–48 (Columbia University Press, New York, 2004).
42. Rodriguez, JP et al. Globalization of conservation: A view from the south. *Science* 317, 755–756 (2007).
43. Horwich, RH. Communities saving Wisconsin birds: North and south. *Passenger Pigeon* 67, 85–98 (2005).
44. Young, C & Horwich, RH in *Taking Stock: Belize at 25 Years of Independence* (Balboni, B & Palacio, J, eds), History of protected area designation, co-management and community participation in Belize, 123–145 (Cubola Books, Benque Viejo del Carmen, Belize, 2007).
45. Meerman, JC. *Belize Protected Areas Policy and System Plan: Result 2; Protected Area System Assessment & Analysis PUBLIC DRAFT* (Report to the Protected Areas Systems Plan Office, Belmopan, Belize, 2005).
46. Polisar, J & Horwich, RH. Conservation of the large economically important river turtle *Dermatemys mawii* in Belize. *Conservation Biology* 8(2), 338–342 (1994).
47. Srivastava, A, Biswas, J, Das, J & Bujarbarua, P. Status and distribution of golden langurs (*Trachypithecus geei*) in Assam, India. *American Journal of Primatology* 55, 15–23 (2001).
48. Gee, EP. *The Wildlife of India* (Collins, London, 1964).
49. Choudhury, A. Primates in Assam: Status and conservation. *TigerPaper* 23, 14–17 (1996).
50. Choudhury, A. Golden langur *Trachypithecus geei* threatened by habitat fragmentation. *Zoo's Print Journal* 17, 699–703 (2002).
51. Ghosh, S. *Report on Population Estimation of Golden Langur (Southern Population) in Chakrashila Wildlife Sanctuary and Reserve Forests under Kokrajhar, Dhubri and Bongaigaon Districts of Assam* (Assam Forest Department, Guwahati, Assam, 2008).
52. Ghosh, S. *Report of Wild Elephant (Elephas maximus) Population Estimation in Bodoland Territorial Council (20th–26th Feb 2008)* (Report to the Assam Forest Department, Guwahati, Assam, 2008).
53. Biswas, J. Comprehensive census reveals 4,231 golden langurs. *Assam Tribune* [online] (April 13, 2009). [ne.icindia.org/2009/04/13/comprehensive-census-reveals-4231-golden-langurs](http://www.icindia.org/2009/04/13/comprehensive-census-reveals-4231-golden-langurs).
54. Bose, A. Personal communication on 2008 data, fall 2009.
55. Bose, A. Personal communication on 2007 data, fall 2009.

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