

Is community-based ecotourism a good use of biodiversity conservation funds?

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Community-based ecotourism (CBET) has become a popular tool for biodiversity conservation, based on the principle that biodiversity must pay for itself by generating economic benefits, particularly for local people. There are many examples of projects that produce revenues for local communities and improve local attitudes towards conservation, but the contribution of CBET to conservation and local economic development is limited by factors such as the small areas and few people involved, limited earnings, weak linkages between biodiversity gains and commercial success, and the competitive and specialized nature of the tourism industry. Many CBET projects cited as success stories actually involve little change in existing local land and resource-use practices, provide only a modest supplement to local livelihoods, and remain dependent on external support for long periods, if not indefinitely. Investment in CBET might be justified in cases where such small changes and benefits can yield significant conservation and social benefits, although it must still be recognized as requiring a long term funding commitment. Here, I aim to identify conditions under which CBET is, and is not, likely to be effective, efficient and sustainable compared with alternative approaches for conserving biodiversity. I also highlight the need for better data and more rigorous analysis of both conservation and economic impacts.

Community-based eco-tourism (CBET) (Box 1) is popular as a means of supporting biodiversity conservation, particularly in developing countries. For example, by the mid 1990 s, USAID had 105 projects, totaling >US\$2 billion, with ecotourism components [1], and 32 of the 55 World Bank-financed projects that supported Protected Areas (PAs) in Africa between 1988 and 2003 included a CBET component [2]. Most international conservation organizations also support CBET (<http://www.conservation.org/xp/CIWEB/programs/ecotourism/ecotourism.xml>; <http://www.uneoptie.org/pc/tourism/ectourism/home.htm>; <http://www.conservationafrica.org/international-year-ecotourism.htm> http://www.planeta.com/ecotravel/tour/tourism_conservation.html)

The attraction of CBET is the prospect of linking conservation and local livelihoods, preserving biodiversity whilst simultaneously reducing rural poverty, and of achieving both objectives on a sustainable (self-financing) basis. Many articles promote the achievements and potential of CBET, although some interject notes of caution [3–19]. The reality is hard to evaluate because much of the information available about CBET is anecdotal and subjective, lacks quantitative data and analysis, and appears in non-peer-reviewed sources, such as project

Box 1. What is community-based ecotourism?

Community-based ecotourism (CBET) means different things to different people. The International Ecotourism Society defines ecotourism as 'Travel to natural areas that conserves the environment and sustains the well-being of local people'. (<http://www.ecotourism.org/index2.php?what-is-ecotourism>). This distinguishes it from nature tourism, which involves visiting natural attractions but without any explicit objective of achieving environmental or social protection. Boo (1992) rephrased it as 'nature tourism that promotes conservation and sustainable development', introducing the element of pro-active conservation and economic development [4]. Honey (1999) expanded the definition to include not only financial benefits for conservation and for local people, but also support for human rights and democratic movements [33]. In the context of conservation theory and practice, CBET is a form of community-based natural resource management (CBNRM), a popular choice of activities in an enterprise-based strategy for biodiversity conservation [19], and a common element in integrated conservation and development projects (ICDP).

From an environmental perspective, self-described ecotourism operators cover a wide range, from those that simply practice some cost-saving or environmental measures (e.g. water recycling or renewable energy), to those that actively invest in protecting natural areas or threatened species [1,33]. Most ecotourism operations also claim to benefit local communities, either through employment or by contributing to community projects, but the term community-based in CBET implies going beyond this to involving communities actively. This has been interpreted as anything from regular consultations, to ensuring that at least some community members participate in tourism-related economic activities, to partial or full community ownership of whole ecotourism enterprises [15,48]. The wide range of interpretation of the conservation and community development objectives of CBET is reflected in the reporting of results. A project that creates a bit of local employment or helps reduce poaching of a few species can be regarded as a success story or a disappointment, depending on what it set out to achieve. A lack of consensus on fundamental objectives and realistic expectations underlies much of the debate around CBET, and ICDPs in general [39–41].

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reports, workshop proceedings, and in-house publications and websites. Reports are often vague about criteria for success, lack baseline and monitoring data, focus on just a few species, do not distinguish between revenues and profits, and overlook issues such as income distribution and displacement effects.

CBET as a tool for biodiversity conservation

Conservation organizations fund CBET as a means of reducing local threats to biodiversity, such as expanding agriculture, unsustainable harvesting of wild plants and animals, and killing wildlife that threatens peoples' crops, their livestock or themselves. The premise is that ecotourism depends on maintaining attractive natural landscapes and a rich flora and fauna; therefore, helping communities earn money from ecotourism provides both an incentive for conservation and an economic alternative to destructive activities. Salafsky *et al.* [19], in their review of 37 community enterprise projects in Asia funded through the Biodiversity Conservation Network (BCN), are among the few who have offered a systematic test of this hypothesis.

Case studies of CBET projects typically claim success in motivating communities to reduce their exploitation of wild plant and animal species, to help control poaching by outsiders, or to set aside part of their farm or grazing land as conservation areas [16–20]. Often, the case studies either provide no supporting data, or give figures without essential contextual information. In one example, Greenquist described villagers in Honduras protecting 48 turtle nests and releasing 1152 hatchlings, without giving information about survival rates or the overall size of the turtle population [21]. Waithaka *et al.* provide a more useful assessment of the Il Ngwesi ecotourism project in Kenya, a wildlife sanctuary established by a Maasai Group Ranch in 1996 [22]. Based on vegetation sampling and animal sightings along transects, Waithaka *et al.* reported higher numbers and densities of tree and herbaceous species, and 93% more sightings of wildlife, inside the sanctuary than on similar ranch land outside. Even these results are open to interpretation, however. The high density of trees and bushes inside the sanctuary could signal undesirable bush encroachment, local wildlife could be concentrating inside the sanctuary without actually increasing in numbers, and the reserved area might have been selected to begin with partly because it was less degraded and richer in wildlife than the rest of the ranch.

Even if we accept the weakly documented claims, the real contribution of such localized interventions to biodiversity conservation is debatable. Modern conservation practice emphasizes more ambitious objectives, such as preserving representative samples of all ecosystem types, habitat gradients across large areas, intact ecological communities, and processes such as gene flow and succession [23–31]. On the whole, the match between these objectives and what CBET can offer is not particularly good (Box 2). Furthermore, tourism might not always be a great improvement over existing land uses, such as extensive pastoralism [32].

At any site, conservation supporters must determine what specific changes in land or resource use are needed to

Box 2. Community-based ecotourism versus conservation priorities

Protecting a wide range of ecosystems

Unlike coral reefs and the African savannahs, many of the biologically richest ecosystems (e.g. closed tropical forests, deserts and high mountains) are poorly suited to ecotourism development because of factors such as difficult access, elusive wildlife, uncomfortable climates and vulnerability to damage. Enthusiasts who seek out mountain gorillas or forest canopy walks might be willing to pay more than the average safari van tourist, but they will rarely generate revenue on a scale to provide an effective incentive for conservation in areas where there is strong pressure on land and biological resources.

Maintaining natural habitats and communities

Natural habitats in tourism areas are typically manipulated to enhance the tourism experience, in ways that disrupt the integrity of ecological communities and favor some species over others. For example, Kreg *et al.* [49] discussed how controlled burning, clearing of vegetation, artificial water points, artificial feeding and other management tools have led to ecological changes and decreased resiliency in tourism-oriented protected areas and game ranches in Kwazulu Natal.

Maintaining viable (large) conservation areas

Community-based ecotourism (CBET) case studies often do not specify the amount of land provided for conservation, but where they do the areas are typically small compared to what is probably needed for a viable conservation unit. For example, in the 1960s, Maasai in the Amboseli area of Kenya agreed to set aside 78 km² as a stock-free wildlife sanctuary, but strongly resisted a government proposal to increase this to 500 km² (the area was later gazetted as Amboseli National Park) [50]. The size issue applies not just to CBET, but also to ecotourism in general. In South Africa the total area in private game ranches now exceeds that in state-owned Protected Areas (PAs), but, on average, the individual private reserves are much smaller. A study in Kawzulu-Natal Province concluded that none of the private game ranches, which averaged 4000 km², were not large enough to maintain viable populations of buffalos, lions, elephants, hippopotamus or African wild dogs [37]. However, small conservation areas can be significant if they are adjacent to larger PAs or provide connectivity between them. Individual holdings can also be combined: in the Kunene region of Namibia, more than 30 community conservancies now cover a largely contiguous area of over 70 000 km² (http://www.wwf.org.uk/News/n_0000000192.asp). Project sites should be selected based on specific conservation needs, and not only on community interest.

achieve conservation targets. If substantial changes over a large area are required to achieve conservation benefits, ecotourism is not likely to be an effective tool, because it rarely displaces existing land uses or economic activities on a significant scale [19]. However, where modest changes can have a substantial impact, such as preserving a small area of habitat that serves as an important migration corridor or buffer zone, ecotourism could provide the needed incentive. If little or no change is required or expected, the potential ecotourism project is not a conservation project.

Highly successful ecotourism can support biodiversity conservation by influencing national policy. For example, Wunder reported that a tourism lobby has successfully resisted efforts to open a biodiversity-rich site in Ecuador to oil exploration [15], and the Government of Mozambique is establishing large conservation areas as a key element of its tourism development strategy. However, tourism on a

scale that can generate this degree of political support also carries serious risks of negative environmental and social impacts [5,33–36].

CBET, poverty reduction and economic development

Development organizations see CBET as a potential source of economic development and poverty alleviation, particularly in marginal rural areas with limited agricultural potential. Whether and when communities benefit economically from CBET is clearly a relevant issue, but a detailed discussion of this aspect is beyond the scope of this article. As with conservation benefits, the literature is full of claims but short on data and quantitative analysis (Box 3). Overall, the experience to date is that most CBET projects produce (at best) modest cash benefits, and these are often captured by a relatively small proportion of the community. (Non-income benefits, although potentially very important, are even harder to quantify and evaluate). However, even a small amount of additional income or resources for community projects can be welcome in cash-

poor rural areas. Ecotourism can generate support for conservation among communities as long as they see some benefit (or maintain a hope of doing so), and if it does not threaten or interfere with their main sources of livelihood [16,17,19]. Unfortunately, effective conservation often involves some sacrifice. For example, communities sometimes insist on allowing livestock into community wildlife reserves during times of drought, just when the wildlife also most need the water and forage [20].

Tourism is also far from an ideal entry-level business for rural communities with little previous experience. It is competitive and demanding and can take years to get off the ground, and even people with considerable experience can fail to make a profit [19,37]. Salafsky *et al.* found that simple enterprises that use skills and technologies that community members already possess are the most likely to be viable [19]. This can apply to tourism support services, such as guiding or handicrafts, but not to the community-ownership model that CBET advocates tend to favor (Box 1).

Box 3. Economic benefits From CBET

There is no doubt that many community-based ecotourism (CBET) projects create some local employment or generate some revenues (not necessarily profits) that enhance some local incomes or help support community projects. The economic impact is hard to judge, however, in the absence of specific data, baseline and contextual information and quantitative analysis. Many reports fail to distinguish between revenues and profits, ignore issues such as distributional effects and market saturation, and lack any cost-benefit or cost-effectiveness analysis. Wunder provides a good discussion of this problem, and a notable exception [15].

Even with data, the results can be hard to interpret. For example, the Rainforest Expeditions website reports that communities participating in their Infierno Community Ecotourism Project in Peru have received ~US\$57 000 from their share in the ownership of the Posada Amazona ecolodge, and ~US\$60 000 in wages, and that this represents a 138% increase in income for lodge employee households. (<http://www.perunature.com/info06.asp>). A more detailed analysis, however (A. Stronza, PhD Thesis, University of Florida, 2002) showed that, within this community, the mean average annual income from tourism at that time was US\$735, compared with US\$1995 from non-tourism activities (with standard deviations of US\$898 and US\$1919, respectively). Only one family, whose adult members were all lodge employees, had abandoned other activities. She concluded that tourism was helping to diversify the local economy but it would not replace farming and harvesting of forest products. Wunder came to a similar conclusion regarding the economic and conservation impacts of ecotourism in Cuyabeno, Ecuador [15].

The level and distribution of economic benefits depends on many factors including the attractiveness of the tourism asset, the type of tourism operation, the nature and degree of community involvement, and whether earnings become private income or are channeled into community projects or other benefit-spreading mechanisms [15]. Ecotourism projects that simply generate local employment opportunities are sometimes derided as insufficiently empowering, but can be a good first step. Joint ventures between community groups and private tourism operators, which are increasingly popular, might have the greatest potential for generating significant revenues for communities, and might also be more likely to succeed than wholly community-run enterprises, particularly in the early stages. However, communities will often need outside assistance to organize themselves, obtain and assert their legal rights and understand their obligations in such partnerships [10,15,48].

CBET as an incentive for conservation

For conservationists, the real question is whether CBET provides an effective incentive for communities to take conservation action. This incentive can take several forms. The ideal is a direct linkage, in which tourism earnings are so high that people deliberately protect biodiversity to protect that income. Tourism can also draw local labor and capital away from biodiversity unfriendly activities [15]. However, for either of these to occur, tourism benefits must be sufficiently high and widespread to out-compete basic livelihoods. Aside from being uncommon, this kind of success is likely to attract outsiders, who will both dilute the benefits and put greater pressure on local natural resources [15,34,35]. Furthermore, even substantial earnings from ecotourism do not necessarily lead to conservation support or action. In some cases, people invest these earnings in activities such as expanding agriculture, thereby increasing the threat to biodiversity [36–38].

Another type of linkage is when an interested party helps a community group develop ecotourism, in exchange for their formal or informal agreement to support biodiversity conservation [16,19–22]. The expectation is that ecotourism will soon generate enough revenues to create a direct incentive for conservation, but projects often wind up front-loading and enhancing the benefits, funding community needs themselves rather than waiting for the income, to maintain community interest and cooperation. This effectively breaks the essential linkage, because the project itself becomes the conservation incentive, and communities can come to feel entitled to these benefits regardless of whether the tourism enterprise is succeeding or conservation objectives are being met. [39]. Salafsky *et al.* downplayed this linkage, because they found the projects that generated the most community support for conservation were those that provided non-cash benefits or assistance for enterprises not linked to biodiversity. They concluded that trust and a positive relationship between local people and project staff was the most important factor [19]. Unfortunately, much of this

trust and support is likely to disappear if, and when, the gifts stop.

Finally, the effectiveness of CBET must be evaluated in comparison to other types of incentive for conservation action. Salafsky *et al.* note that, if an enterprise that contributes to conservation pays 50% of its costs, it is still paying for conservation [19]. The question remains: how much more conservation might have been achieved with the funds that covered the other 50% of the cost, had they been used to fund direct conservation actions (such as enforcement of PAs or payment to the communities for conservation services) rather than propping up a non-viable business? This reflects a broader debate about the viability of integrated conservation and development projects (ICDPs) and the relative effectiveness and efficiency of direct payments versus indirect support for conservation [40–43].

Sustainability of CBET

Donors want assurances that their projects will produce lasting benefits and activities will continue after their funding ends. The prospect of eventual financial and operational self-sufficiency is proposed as a major advantage of the enterprise-based approach to conservation, whereas direct payment for conservation is often criticized as unsustainable [19,43]

The sustainability of CBET is expected to come from three sources: (i) an ongoing conservation incentive in the form of income dependent on biodiversity; (ii) reinvestment of some of the income to maintain the business and protect the biodiversity asset base, thereby eliminating or at least reducing the need for external funding; and (iii) once a basis has been established (community awareness and organization, basic infrastructure, etc.), the entry of the private sector to provide the capital for further development and expansion. All three depend on a degree of financial success that is hard to achieve. Salafsky *et al.* found that, of 37 BCN projects for which financial data were available (including but not limited to ecotourism enterprises), seven had minimal or no revenues, 13 covered only variable costs, ten covered variable and fixed costs, and seven made a profit. Although these projects had been specifically selected for their commercial potential, the authors concluded that many would probably never cover all of their costs [19].

Private–community partnership and joint ventures are very popular among CBET proponents. The private sector partner is meant to bring capital, business and marketing know-how and a client base; the community partner usually brings land, labor and local knowledge. In reality, the government or an external donor is usually a third partner, providing basic infrastructure or other necessities, strengthening community capacity, and sometimes mediating negotiations between private and community partners. Joint ventures can help bridge the knowledge, management and experience gap facing communities trying to enter the ecotourism business [15]. But private sector partners cannot be expected to take on too much risk or wait too long for a modest return on investment. Potential investors can be deterred by factors such as uncertain land tenure and resource rights, dissension

within the community, and difficulty in making or enforcing contracts [44] (http://www.conservationfinance.org/WPC/WPC_documents/Apps_01_Riedmiller_v2.pdf).

There is also a limit to the additional cost that a private business can assume and still remain commercially viable and competitive. Referring to a concession in the community-owned Mkambati nature reserve (Eastern Cape Province, South Africa), the spokesman for one ecotourism operator recently said: ‘...the deal is that the Mkambati Land Trust gets a percentage of every tourism cent spent, regardless of whether the operators make a profit or a loss. [We have] also undertaken to assist the communities in developing small businesses, schools and clinics’ [45]. Few investors are likely to accept such a deal, unless government or donors are prepared to make other aspects of the terms very attractive to compensate for the added costs and risks. In other words, the public sector must be prepared to carry most of the costs associated with supporting social development and conserving biodiversity beyond what is needed to attract socially conscious and nature-minded tourists. Subsidies for these public goods are entirely acceptable but should be as effective and efficient as possible.

Concluding remarks

CBET illustrates the compromises involved in trying to meet multiple objectives. For biodiversity conservation, ecotourism is a fairly good land use, but not as good as (effective) pure protection. It can generate some income and contribute to community development, but only within limits and with considerable investment of support and time. It can also reduce the need for long term external financing for conservation under some circumstances, but will rarely eliminate it entirely. Given its popularity and the amount of conservation funding it is absorbing, we need much more rigorous assessment and analysis of existing CBET projects, and better information on which to base decisions about whether it is the appropriate choice in any given situation. This means identifying concrete conservation and socio-economic goals, and site-specific market analysis and research on the linkages between those goals and community actions and incentives.

Like any strategy, CBET must be compared with the available alternatives for conserving biodiversity outside protected areas, and for ensuring that local communities receive a benefit from this resource. Ecotourism represents one facet of the sustainable use approach, in which biodiversity is regarded as a product to be sold to consumers (using the terms broadly). Direct payment to landholders and resource users for maintaining natural habitats and biodiversity is an example of another, increasingly popular approach: paying for environmental services [46,47]. Proponents of direct payment for conservation argue that it is likely to be more effective and efficient, and in reality no less sustainable, than the indirect approach epitomized by ICDPs [42,43]. From the community’s perspective, income earned through a direct payment scheme should provide roughly the same benefits and risks as income from ecotourism or other commercial enterprises.

Indirect and direct payment approaches can also be combined. For example, the Amboseli Community Wildlife Tourism Project in Kenya pays a 'land holding rental' as soon as a village agrees to dedicate an area of land for wildlife tourism. This rental is expected to stop once the tourism itself begins to generate revenues, but the project found few communities willing to set aside land without this initial direct payment (<http://www.amboseli.org/homewsdtd.htm>). The best conservation strategy for any given site must be developed based on a realistic, hard-headed assessment of the options, including their feasibility, cost-effectiveness, social impacts and sustainability. Financial and technical resources for conservation and for development are too scarce to waste on wishful thinking.

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References

- Honey, M. (2002) *Ecotourism and Certification: Setting Standards in Practice*, Island Press
- World Bank, (2003) *Cornerstones for Conservation: World Bank Assistance for Protected Areas*, The World Bank
- Whelan, T. (1991) Ecotourism and its role in sustainable development. In *Nature Tourism: Managing for the Environment* (Whelan, T., ed.), pp. 23–33, Island Press
- Boo, E. (1992) The ecotourism boom: planning for development and management. *WHN Technical Paper Series Paper 2*, World Wildlife Fund
- Lindberg, K. and Enriquez, J. (1994) *An Analysis of Ecotourism's Economic Contribution to Conservation in Belize. Vol. 2, Comprehensive Report*, World Wildlife Fund and Ministry of Tourism and the Environment (Belize)
- Durbin, J.C. and Ratrimoarisana, S.N. (1996) Can tourism make a major contribution to the conservation of protected areas in Madagascar? *Biodiv. Conserv.* 5, 345–354
- Goodwin, H. and Swingland, I.R. (1996) Ecotourism, biodiversity, and local development. *Biodiv. Conserv.* 5, 275–276
- Goodwin, H. (1996) In pursuit of ecotourism. *Biodiv. Conserv.* 5, 277–292
- Kinnaird, M.F. and O'Brien, G. (1996) Ecotourism in the Tangkoko DuaSudara Nature Reserve: opening Pandora's box? *Oryx* 30, 65–73
- Wells, M. (1997) *Economic Perspectives on Nature Tourism, Conservation and Development*. Environment Department Paper No. 55 (Environmental Economics Series), The World Bank
- Yu, D.W. *et al.* (1997) Ecotourism and conservation in Amazonian Peru: short-term and long-term challenges. *Environ. Conserv.* 24, 130–138
- Bookbinder, M.P. *et al.* (1998) Ecotourism's support of biodiversity conservation. *Conserv. Biol.* 12, 1399–1404
- Gosling, S. (1999) Ecotourism: a means to safeguard biodiversity and ecosystem functions. *Ecol. Econ.* 29, 303–320
- Young, E.H. (1999) Balancing conservation with development in small-scale fisheries: is ecotourism an empty promise? *Hum. Ecol.* 27, 581–620
- Wunder, S. (2000) Ecotourism and economic incentives: an empirical approach. *Ecol. Econ.* 32, 465–479
- Alexander, S.E. (2000) Resident attitudes towards conservation and black howler monkeys in Belize: the Community Baboon Sanctuary. *Environ. Conserv.* 27, 341–350
- Walpole, M.J. and Goodwin, H.J. (2001) Local attitudes towards conservation and tourism around Komodo National Park, Indonesia. *Environ. Conserv.* 28, 160–166
- Adams, W. and Hulme, D. (2001) Conservation and community: changing narratives, policies and practices. In *African Wildlife and Livelihoods: The Promise and Performance of Community Conservation* (Hulme, D. and Murphree, M., eds), pp. 9–23, Heinemann
- Salafsky, N. *et al.* (2001) A systematic test of an enterprise strategy for community-based biodiversity conservation. *Conserv. Biol.* 15, 1585–1595
- Watkins, J.R. (2002) The evolution of ecotourism in East Africa: from an idea to an industry. Summary of Proceedings of the East African Regional Conference on Ecotourism, Nairobi, Kenya. *Wildlife and Development Series*, International Institute for Environment and Development
- Greenquist, E. (1997) Tourism and biodiversity preservation in Honduras. <http://www.planeta.com/planeta/98/0298mosquitia.html>
- Waithaka, J. (2002) *The Role of Community Wildlife-based Enterprises in Reducing Human Vulnerability and Environmental Degradation: The Case Of Il Ngwesi Ecotourism Project, Kenya*. African Conservation Center
- Diamond, J.M. (1976) Biogeography and conservation: strategy and limitations. *Science* 193, 1027–1029
- Newmark, W. (1987) A land-bridge island perspective on mammalian extinctions in western North American parks. *Nature* 325, 430–432
- Saunders, A. *et al.* (1991) Biological consequences of ecosystem fragmentation: a review. *Conserv. Biol.* 5, 18–32
- Pressey, A. *et al.* (1993) Beyond opportunism: key principles for systematic reserve selection. *Trends Ecol. Evol.* 8, 124–128
- Kerr, J.T. (1997) Species richness, endemism, and the choice of areas for conservation. *Conserv. Biol.* 11, 1094–1100
- Olson, D.M. and Dinerstein, E. (1998) The Global (2000): a representative approach to conserving the Earth's most biologically valuable ecoregions. *Conserv. Biol.* 12, 502–515
- Soule, M.E., Terborgh, J. eds (1999) *Continental Conservation: Scientific Foundations of Regional Reserve Networks*, Island Press
- Margules, C.R. and Pressey, R.L. (2000) Systematic conservation planning. *Nature* 405, 243–253
- Ferraz, G. *et al.* (2003) Rates of species loss from Amazonian forest fragments. *Proc. Natl. Acad. Sci. U. S. A.* 100, 14069–14073
- Homewood, K. and Brockington, D. (1999) Biodiversity, conservation and development in Mkomazi Game Reserve, Tanzania. *Glob. Ecol. Biogeogr.* 8, 301–313
- Honey, M. (1999) *Ecotourism and Sustainable Development: Who Owns Paradise?* Island Press
- Hodgson, G. and Dixon, J.A. (2000) El Nido revisited: ecotourism, logging and fisheries. In *Collected Essays on the Economics of Coral Reefs* (Cesar, H., ed.), pp. 55–58, Swedish International Development Co-operation Agency
- Taylor, E. *et al.* (2002) The economics of 'eco-tourism': a Galapagos island economy-wide perspective. In *Center on Rural Economies of the Americas and Pacific Rim Working Papers*, University of California, Davis
- Christ, C. *et al.* (2003) *Tourism and Biodiversity: Mapping Tourism's Global Footprint*, Conservation International
- Aylward, B. (2003) The actual and potential contribution of nature tourism in Zululand. In *Nature Tourism, Conservation, and Development in KwaZulu-Natal, South Africa* (Aylward, B. and E. Lutz, eds), pp. 1–40, The World Bank
- Murombedzi, J.C. (1999) Devolution and stewardship in Zimbabwe's CAMPFIRE programme. *J. Int. Dev.* 11, 287–293
- McShane, O. and Wells, M.P., eds *Getting Biodiversity Projects to Work*, Columbia University Press (in press)
- Kramer, R., *et al.* eds (1997) *Last Stand: Protected Areas and the Defense of Tropical Biodiversity* Oxford University Press
- Oates, J.F. (1999) *Myth and Reality in the Rain Forest: How Conservation Strategies Are Failing in West Africa*, University of California Press
- Ferraro, P.J. and Simpson, R.D. (2002) The cost-effectiveness of conservation payments. *Land Econ.* 78, 339–353
- Ferraro, P.J. and Kiss, A. (2002) Direct payments to conserve biodiversity. *Science* 298, 1718–1719
- Magome, H. *et al.* (2000) Partnerships in conservation: the State, private sector and community at Madikwe Game Reserve, North-west Province, South Africa. *Evaluating Eden Series, Discussion Paper No. 7*. International Institute for Environment and Development
- Macleod, F. (2003) Eco-Tourism edges out mining in the Eastern Cape. *Mail and Guardian (Johannesburg)* <http://www.minesandcommunities.org/Country/safrica06.htm>
- Daily, G.C. and Ellison, K. (2003) *The New Economy of Nature: The Quest to Make Nature Profitable*, Island Press

- 47 Heal, G. (2000) *Valuing the Future*, Columbia University Press
- 48 Ashley, C. and Garland, E. (1994) Promoting community-based tourism development: what, why and how? *Research Discussion Paper No. 4*. Department of Environmental Affairs, Ministry of Environment and Tourism, Namibia
- 49 Kreg, L. *et al.* (2003) Tourism's contribution to conservation in Zululand. In *Nature Tourism, Conservation, and Development in Kwazulu-Natal, South Africa* (Aylward, B. and Lutz, E., eds), pp. 203–240, The World Bank
- 50 Rutten, M. (2002) Parks beyond parks: genuine community-based wildlife eco-tourism, or just another loss of land for Maasai pastoralists in Kenya? *IIED Drylands Programme Issues Paper No. 111*, Institute for International Environment and Development

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