Animal conservation, carbon and sustainability

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International conventions to reduce carbon dioxide levels focus on ecosystems and do not specifically recognize the need to conserve species. However, species are the building blocks of ecosystems, they are more widely understood among the public, and they provide means of capturing market values from ecosystems. Achieving successful conservation globally will require ensuring that the systems under which species and ecosystems are conserved are more inclusive than statutory protected areas. Equal emphasis needs to be placed on including effective regimes that also encompass private and communal ownership through incentive-based approaches. Nevertheless, if globalized industries such as nature-based tourism or consumptive use are to provide meaningful incentives locally, a key requirement is to reduce leakage of revenue that is earned as a result of conserving species, such that local development concerns are addressed. However, current biodiversity conventions that address these needs are largely aspirational, while globalized industries such as tourism mainly promote their green credentials only through voluntary codes of conduct. Greatly improved linkages are needed between international conservation concerns and ensuring effective solutions to sustainability, which inevitably rest at national and sub-national levels, through systems of rights, tenure, benefits and incentives.

Keywords: market values; ecotourism; leakage; local benefits

1. Introduction

This paper seeks to examine how approaches to conserving species of animals can help enhance the conservation of ecosystems upon which the United Nations Framework Convention on Climate Change (UNFCCC) focuses. Article 4(d) of the UNFCCC sets out commitments to

promote and co-operate in the conservation and enhancement of sinks and reservoirs of all greenhouse gases including biomass, forests and oceans, as well as other terrestrial, coastal and marine ecosystems.

Bettelheim & d’Origny (2002)

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Thus, the UNFCCC and the ensuing Kyoto Protocol place no direct emphasis on animal conservation. Nevertheless, the UN Conference on Environment and Development (UNCED) focused on a wide range of global issues related to sustainable growth and development, including conserving species and their habitats. Indeed, several other globally focused ‘multilateral environmental agreements’ (MEAs) fully or partly embrace this objective. For example, the Convention on Wetlands of International Importance Especially as Waterfowl Habitat (known as RAMSAR) was an important forerunner in this regard. RAMSAR sought to balance sustainable development with incentives to protect and wisely use species of concern to particular interest groups, and therefore to continued habitat and ecosystem conservation (Lyster 1985). In contrast, tourism is one of the main free-market approaches to promoting conservation, yet was not included in the global dialogue on sustainable development at the UNCED.

This paper will consider, in turn, the following.

(1) How and why species conservation has relevance to the objectives of ecosystem conservation.

(2) The different routes by which conservation is achieved, and some of the limitations of different systems.

(3) Two key MEAs that fully or partly bear on species conservation and how these relate to wider issues of globalization.

(4) How the use of species is an important focus for market-based approaches to conservation.

Equally, market approaches are not fully achieving their objectives, and throughout the paper, the stress is on problems and solutions.

2. What is the relevance of species conservation?

Our planet now faces an unprecedented human-induced extinction spasm (Ehrlich & Ehrlich 1981; Diamond 1989; Lawton & May 1995), and species are becoming increasingly threatened (Hilton-Taylor 2000). However, academic conservation biologists and practising conservationists debate whether conservation goals are best achieved by promoting management of single species as opposed to management of whole ecosystems. Critics suggest that managing populations of particular species will not allow the challenges of conserving whole ecosystems to be met. More and more species are falling below a threshold of imperilment, and funding for conservation, which is already short (James et al. 2000), cannot keep pace with their individual needs. Hence, some argue that ecosystem management, usually at a landscape scale, remains the best possible solution to the problems of single-species management (Simberloff 1998). Equally, how clear cut can and should this distinction be? Any practical measures that prevent or reduce forest, or other key, ecosystem loss will make a contribution to reducing carbon dioxide increases in the atmosphere. This in turn seems to provide a very important reason to conserve animals, for at least six key points, some ecological, some strategic.
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(1) The goals of ecosystem and biosphere management are unattainable without the continued survival of many species, which are the fundamental building blocks of nature and ecology (Ehrlich & Ehrlich 1981). While there may be some redundancy in ecosystems (Lawton & Brown 1993), this remains a subject of debate (Naeem et al. 1994). However, so-called ‘keystone species’ may occur at many trophic levels, and their loss has a disproportionate effect on their ecosystems (Bond 1993). Therefore, a key question for ecology, and indeed for humanity, is the extent to which the increasing loss of species may compromise the resilience of ecosystems and the consequent delivery of ecosystem services (Ehrlich & Ehrlich 1992; Heywood 1995; Daily 1997), including the maintenance of atmospheric carbon dioxide levels.

(2) Isolated populations of species are also the fundamental units of the evolutionary process and the units upon which natural selection operates (Darwin 1859). Populations comprise individuals, which contain genetic information, and it is this genetic diversity that determines their survival and evolutionary fate, which therefore underlies species diversity. The increasing loss of species due to anthropogenic causes represents an irreversible depletion of genetic material upon which evolutionary potential can work in the future (Wilson 1988).

(3) Species are also the basic unit of whole-organism classification, and the most practical and commonly used currency when referring to biodiversity. Species diversity provides some of the most commonly used, best-understood and most readily repeatable measures of biological diversity, e.g. species richness or endemism, which in turn indicate where conservation efforts need to be focused (Gaston 1996).

(4) Data on species provide some of the most readily available, repeatable and explicit monitoring and analytic systems with which to assess the success or otherwise of conservation efforts. This may be through direct counts of indicator species (Heywood 1995) or through assessments of threat (Hilton-Taylor 2000).

(5) ‘Fuzzy’ ideas like ecosystem management and genetic diversity hold little appeal for, and are little understood by, the general public, who prefer to grasp simpler messages conveyed by so-called ‘flagship species’. For the concerned public in the developed world, flagships usually comprise charismatic species such as tigers, elephants and primates (Leader-Williams & Dublin 2000).

(6) The enormous financial values of ecosystems are rarely fully captured, because many ecosystem services appear ‘free’ at the point of use (Costanza et al. 1997). Thus, relatively few of the indirect-use values of ecosystems—such as their ecological, protection, waste-assimilation, microclimate-stabilization and carbon-storage functions—can be captured in traditional markets (Munasinghe 1992). However, the direct use of animals within ecosystems for consumption or to stimulate production provides a way of capturing at least some values of ecosystems within traditional markets, providing the systems under which resources are managed allow this to happen effectively.

This last point forms the main focus of this paper, which next considers the different routes by which conservation can be achieved.

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3. What tenurial systems are available for conservation?

(a) Protected areas

Many conservationists promote state-run national parks and protected areas as their core activity, with varying levels of human exclusion to protect species, habitat and wilderness values (Brandon & Wells 1992; Brandon et al. 1998). Such approaches exemplify a state-property regime based on considerations of collective societal interest in common pool resources. Somewhat arbitrary international targets seek to achieve a 10% coverage of each country’s land surface within such protected areas. At the last reckoning, some 8.3% of the world was covered with protected areas (IUCN 1998). Others argue that this is not sufficient and that we should seek to achieve close to 50% if all species are to be conserved (Soulé & Sanjayan 1998). On the other hand, others believe that the separation of humans and nature is a false objective, as nature is rarely pristine, and the so-called ‘wilderness myth’ is a fallacy (Adams & McShane 1992). Furthermore, island parks become surrounded by degraded land and rural poverty, where exclusion equates to alienation and hardship. In a world with less and less room for conservation, the continuing challenge is not to seek single solutions, but rather to seek partnerships that promote conservation as a competitive form of land use (McNeely 1995).

(b) Different property regimes

In reality, natural resources can be held under a variety of property regimes (Berkes 1989; Bromley 1991), although in practice such resources are rarely managed solely within any one regime. Thus enclosed public land in protected areas may be surrounded by private land and/or communal land. However, the different regimes are important in determining who is the manager, although what is formal may differ from what is actual.

A private-property regime rests on long-term security of tenure by a private individual and market dynamics. The establishment of full private-property rights requires each herder to now play a game against nature in a smaller terrain. Such a regime requires private investment, and must include self-imposed limits on equipment, season, time, place and, particularly, allocation. Private ownership has been a strong impetus for management of species, but it has produced inequities because prices for participation have forced some segments of society from the market. For example, the private sector may favour a higher-paying tourist hunter or game viewer over a local resident. In addition, it is difficult to manage fugitive, non-stationary resources such as migratory species in private-property regimes.

The open-access condition is one where the resources are the property of no one and are available to everyone. Hence, this is not strictly a property regime at all. Nor is it a management regime, since people use the resources opportunistically but do not manage them, as occurs in the ‘Tragedy of the Commons’ (Hardin 1968). In such situations, people free-ride on resources (Ostrom 1990).

A common-property regime is quite different, and occurs where use rights for the resource are controlled by an identifiable group and are not privately owned or managed by governments. There exist rules concerning who may use the resource, who is excluded from the resource, and how the resource should be used (Berkes 1989). A common-property regime assumes that individuals can act collectively, through
offtakes, to distribute harvests, to sustain food supplies, and to protect cultural symbols, totemic animals and religious sites (Berkes & Folke 1998).

(c) Options for conservation

Of these different regimes, both private and state natural-resource-management regimes have their strengths and may be appropriate for given resources in given contexts. Equally, both have their weaknesses, particularly if they are underfunded, large scale and managerially distanced from the resources in question, as is the case with many protected-area networks. In such circumstances the state, or the private owner, purports to be the manager. However, de facto use and management are in the hands of others: the people living with the resources. Hence, most state-property regimes are examples of the state’s reach exceeding its grasp (Bromley & Cernea 1989). Many states, in seeking to meet percentage targets for the coverage of protected areas within their jurisdictions (IUCN 1998), have taken on far more resource-management authority than they can be expected to carry out effectively. More critically, this approach sets the government against the rural poor, and results in marginalization of local resource management and antagonism, when successful resource management requires the opposite (Ghimire & Pimbert 1997).

Conservation action must be carried out where people live and work, and is an activity that occupies social space (Ghimire & Pimbert 1997). Unless local communities have the incentives, the capacity and the latitude to manage species and ecosystems sustainably, national and international actions are unlikely to produce results. Local conservation efforts cannot succeed unless communities receive a fair share of the benefits and assume a greater role in managing their biotic resources, be they species, protected areas, coastal fisheries or forests. Equally, many purported common-property regimes are not now operating under conditions defined for their success (Berkes & Folke 1998). Traditional structures and leadership have often been broken down by government and colonial regimes, such that they can no longer play an effective role in land and resource management. Furthermore, their tenurial status has often changed such that they are now on state land with usufruct rights only, without the powers of exclusion and access to certain natural resources now denied. Thus the conditions for a genuine common-property regime (Berkes 1989; Berkes & Folke 1998) have been removed. With the state also unable to manage the resource, resource use has tended to acquire the characteristics of de facto open access. Therefore, many areas of communal land have been seriously degraded and many attempts at community management have failed, unfortunately for conservation, giving this type of property regime an undeservedly bad reputation.

(d) Future approaches

Are conserving species and habitats on different property regimes in fact separate solutions? Policy myopia usually only results in consideration of state- and private-property regimes as vehicles for effective resource management, ignoring the further option of a common-property regime. The challenge is that the ‘traditional-protectionist’ or ‘fortress-conservation’ approach often has not been working fully effectively (IIED 1994; Roe et al. 2000) and is now becoming less feasible as space becomes limiting. This challenge has been increasingly met over the last 20 years by
community-based conservation in all its varying forms (Barrow & Murphree 1998). Enforcement of protected-area legislation is becoming less acceptable because of increased pressures from growing rural populations, increased attention to peoples’ rights and similar equity considerations, and inadequate resources because governments have other priorities in addition to conservation. In any case, most protected areas are too small and do not encompass self-contained, sustainable ecosystems. Therefore, the future requires a combined approach to resource management that ensures that state-, private- and common-property regimes work collectively to prevent the de facto open-access situation. In contrast, discussion about which system is and is not the most effective (Barrett & Arcese 1995; Bruner et al. 2001) seems futile, when in many instances neither system is operating under ideal conditions.

Serious consideration of the communal option requires far more than decentralization, involving people in planning, promoting participation in project implementation, and increasing the economic benefits to the people from the resource. Requirements for successful common-property regimes comprise defined groups in defined areas with powers of inclusion and exclusion, and proprietorship of the natural resources concerned. In turn, proprietorship means a sustained sanctioned use right, including the right to decide whether to use the resources at all; the right to determine the mode and extent of use; and the right to benefit fully from their exploitation in the way they choose (Berkes et al. 1989). The delegation of proprietorship over natural resources to communities involves relinquishing considerable authority and responsibility on the part of the state, although never more than to privatization, but this runs contrary to bureaucratic tendency to centralize authority and monopolize power (Gibson 1999).

The paper now moves on to consider how these varying considerations are provided for under two of the key MEAs that form the focus of global support for conservation.

4. MEAs relevant to animal conservation

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (known as the CITES), and the Convention on Biological Diversity (known as the CBD) are two key, globally focused MEAs that fully or partly bear on species conservation. To date, there have been relatively few environmental disputes under the World Trade Organization (WTO) regime. Furthermore, these disputes have not yet involved the jurisdiction of any MEA, where indeed the WTO recognizes it does not have the competence to deal with issues arising out of MEAs. Equally, it is important to recognize where the intentions of these treaties may be at odds with the WTO regime.

5. The CITES

The CITES was adopted in 1973 and came into force in 1975, some 20 years before the UNCED. The CITES was designed to reduce threats to wild species posed by international trade, by restricting that trade (Lyster 1985; Wijnstekers 2001). Appendix I of the CITES includes the most seriously threatened species in which no commercial international trade is allowed, while Appendix II includes the less seriously threatened species in which limited commercial trade is allowed. The CITES
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has enjoyed some success in achieving its conservation objectives through a trade-restriction regime. In situations where issues related to demand have been successfully addressed, the CITES has been successful, with spotted cats and the wearing of fur coats as perhaps the best example (Nowell & Jackson 1996). The CITES also has an active secretariat and generally open voting at its regular Conferences of the Parties. The CITES must also be applauded for its flexibility in moving away from the fairly simple trade-restriction regime outlined in its articles to a more inclusive national proactive management-and-benefit process, particularly through positive measures such as Resolution Conf. 8.9, and the significant trade process (Wijnstekers 2001).

Despite these successes, it is also important to recognize where the CITES has not been able to fully address problems that it may also face in future. Already contentious issues can be the subject of a secret ballot, compromising the usual openness of conferences. The CITES has also attracted the attention of non-governmental organizations (NGOs) in the developed world that are focused on minimizing the sustainable use of animals, particularly of charismatic megavertebrates. To date, the CITES has hardly tackled economically important issues such as tropical-forest loss or depletion of marine fish stocks. Coming at this last point from another direction, nor has the CITES really tackled open-access marine issues, although it has been bloodied by issues of de facto open access on land, for example in the battles over elephants and rhinos (Hutton & Dickson 2002). Furthermore, implementation, particularly of Article IV, the so-called non-detriment finding, by many producer states has proved problematic. Thus, certain range countries or groupings of countries in the developed world, notably the US and the EC, have justified unilateral positions to impose stricter domestic measures, which are equally unjustified in the view of many more responsible producing states (Hutton & Dickson 2002), and certainly at odds with the WTO regime.

(a) The CBD

The Convention on Biological Diversity (CBD) was, like the UNFCCC, opened for signature in 1992 as part of the UNCED. The CBD focuses more widely on biological diversity (commonly contracted to biodiversity) without reference to any particular threat, yet to explicitly recognize the link between biodiversity conservation and sustainable development (Glowka et al. 1994). Article 2 of the CBD acknowledges that biological diversity is more than just species, and encompasses the variety, variability and uniqueness of genes and species and the environments in which they occur, and so is relevant to this and to later papers in this issue (see Koziell & Swingland 2002). The CBD’s overall objectives include the conservation of biological diversity, the sustainable use of all its components, and the fair and equitable sharing of the benefits arising from its use (Article 1). Two features of the CBD are particularly important to sustainable development. First, the CBD recognizes that conservation and management are not just an ecological concern. For many countries, sustainable use and conservation are an inherent component of economic development. Especially for the rural poor, biological resources often provide the single most important contribution to their livelihoods and welfare in the form of food supplies, medicines, shelter, income, employment and cultural integrity. Second, successful biodiversity conservation depends on sound policies—such as pricing, taxation and land tenure—and effective institutional and social arrangements including
laws, regulations and the respective roles of the state, the private sector, NGOs, local communities and indigenous people. Such concerns normally lie outside the domain of the traditional conservation endeavours of resource-management agencies, and of protected-area administrations and systems.

(b) Links between the CITES and the CBD

Despite the fact that both the CITES and the CBD are concerned with the protection of species from potentially all habitats and ecosystems, there are significant differences between the treaties, and cooperation has so far been very limited (Dickson 2002; Cooney 2002). The two treaties have very different origins. The CITES was negotiated at a time when the nature of threats to species was not well understood, when the idea of sustainable development had not been formulated, and when the voices of developing countries were rarely heard in the international arena. In contrast, the CBD explicitly differentiates developing from developed countries, and envisages both resource transfers and the equitable sharing of benefits from the use of resources. On the other hand, the CITES makes its decisions by a two-thirds majority vote of parties, and has a sophisticated compliance procedure, while the CBD exhorts actions through consensus and does not have procedures for voting or compliance. However, there is tremendous potential for the two conventions to cooperate. For example, successful outcomes for many issues in animal conservation will require joint work on elements both of international regulation of trade, and of effective action at the national and local levels. The latter will recognize livelihood, tenurial and incentive issues, and the importance of management by the resource’s users themselves. A current example that would benefit from such an approach is the unsustainable hunting for bushmeat in tropical forests (Robinson & Bennett 2000).

(c) Links between species conservation and the WTO

On a related point, it is important to note the possible conflicts in the aims and intent of the CITES and the CBD with the trade liberalization regime of the WTO, which could cause future difficulties for conservationists. Ironically, and despite their apparently opposite intent, there may well be situations in which the trade-restriction regime of the CITES plays right into the hands of the WTO regime, although perhaps unintentionally and against long-term conservation interests! Take the case of a depleted tortoise population in which commercial exports from the range states are banned, either through an Appendix I listing or through a recommendation of the significant trade process. If there still remains demand among pet owners for the species, this provides the opportunity for a developed country to establish a captive-breeding operation. Besides liberalizing opportunities for trade among nations other than the original resource owner, this situation also fulfils the protectionist agenda of reducing offtake from the wild, and the animal-welfare agenda of seeing fewer dead animals during capture and transit. However, this situation will keep all benefits with the captive-breeding operation and pet-owning states, and provide no incentive in the range states for habitat or species conservation. This result is totally out of step with modern conservation thinking and the intent of the CBD. In other words, a hollow victory may result in the long term.

Equally, in a conservation context, the WTO aims to allow cancer sufferers access to as yet undiscovered cures in the rainforest, without trade-protection measures.
being applied. However, allowing local indigenous knowledge to provide the potential chemicals that, with slight modification by a pharmaceutical company based in a developed country, can become the subject of a patent is not equitable either. Of course, trade is liberalized in line with WTO objectives, but largely to the benefit of the pharmaceutical company’s shareholders. However, such an approach provides no equity to those possessing the original indigenous knowledge, given that a modification protected under patent stipulates no obligations to repatriate royalties. Thus, in this case, the WTO regime flies completely in the face of CBD intentions on sustainability, not to mention other poverty-elimination targets agreed under other regimes. This potential mismatch between MEA and WTO regimes seems to arise largely from issues of scale and differences in value systems. Reconciliation between the different objectives of the various regimes, and of the value systems underlying these objectives, will need to occur at very different levels, if indeed they can be reconciled at all.

The role of tourism in conservation provides a clear example of the mismatch between free-market globalization and conservation objectives. Non-consumptive tourism is not an issue that falls under the CITES. Indeed, it may be considered as the option of choice to provide incentives for conservation by those who oppose consumptive use. Nevertheless, non-consumptive tourism is bedevilled by many of the same structural problems as consumptive use. Indeed, it shows equally well that, unless some action is taken, the world will become increasingly dominated by multinational interests that do not meet the local costs of their activities. However, most solutions to conservation and sustainability issues, on land at least, rest with ownership at the national, sub-national and local levels.

6. How can nature-based tourism and ecotourism provide incentives for conservation?

(a) The scale of nature-based tourism

Tourism is a complex industry driven by the private sector and often by large international companies, and is an important part of the global economy. According to the other WTO, the World Tourism Organization, the industry directly and indirectly generates ca. 11% of global gross domestic product (GDP), and accounts for some 8% of the world’s employment. Nature-based tourism encompasses all forms and scales of tourism that result from the enjoyment of natural areas and wildlife. This sector comprises some 40–60% of international tourist expenditures, and is increasing at 10–30% annually. If domestic nature-based tourism is taken into account, the scale of nature-based tourism is even more important (Anonymous 2001). In the wider development framework, tourism can stimulate private-sector support for species and habitat conservation. It can also provide an essential economic justification for improved management of conservation, both within and outside protected areas, in the context of both private-property and of community-based programmes. Conservationists can point to numerous examples where world-class attractions have been saved because of tourism, from national parks in Africa, to the Galapagos Islands, to the cloud forests and turtle beaches of Costa Rica, to Khao Yai National Park in Thailand (Honey 1999).

Some natural areas, however, are generally better suited for generating significant tourism revenue than others, especially because major attractions for nature-based
tourists usually include large and charismatic species (Goodwin & Leader-Williams 2000). Thus open savannahs and woodlands in East and Southern Africa, with abundant game in landscapes with high visibility, are well suited to attracting large volumes of non-consumptive game-viewing tourists. Wetlands can be attractive areas for birdwatching, anglers and waterfowlers: witness the early and inspired thinking behind RAMSAR. Coastal ecosystems also have high potential for recreational nature-based tourism. Indeed, the combination of coast and charisma now makes whale watching one of the fastest growing types of nature-based tourism. In contrast, despite their high biodiversity, forests and closed woodland generally have low recreational value because charismatic species are not easily seen. Equally, such areas can be attractive, either for specialist tourism, such as sport hunting or birdwatching, and for shorter visits as part of a package incorporating more popular destinations (Roe et al. 1997).

(b) Is nature-based tourism sustainable?

By its very size and earning power, nature-based tourism benefits could be used to encourage and support conservation and sustainable management through a market-driven approach. Nevertheless, conservationists remain concerned that nature-based tourism is often used to promote an international industry and national development objectives without due consideration of long-term conservation objectives for the animal species and habitats that attract the tourists. Large and increasing numbers of tourists often create heavy impacts, both direct and indirect, on natural environments (as well as on the culture of local people). One example is commercial tourism to the Galapagos Islands (made famous by Charles Darwin’s studies of evolution) which started in 1969. A typical visit comprises spending a week on a boat to visit various sites on different islands and view the endemic species of animals and birds. Islands within the national park that can be visited are laid out with well-marked trails. A park master plan in 1974 called for a cap on visitor numbers to 12,000 per year. This cap was based on numbers of visitors that guides could manage, distance between groups on the trails, tourist space needed along trails, management capabilities and available resources. However, this cap was revised to 25,000 in 1981 (Wallace 1993), while actual visitor numbers increased from 7,000 in 1975 to 41,000 in 1988 and to 66,000 today (Parra-Bozzano 2001). Thus, increased pressures from the private sector, reduced park budgets and lack of political backing for park officials, and at times inadequate leadership, have combined with increased visitation to cause concerns about the sustainability of tourism. Many potential impacts remain well managed, and some islands are still off limits to prevent introduction of exotic species (Wallace 1993). Equally, impacts are evident, of which three are illustrative. Heavy use of trails has altered the nesting locations and disrupted displays of nesting blue- and red-footed boobies (Burger & Gochfield 1993). Artificial feeding by tourists caused the territorial breeding system of land iguanas to break down. Territories on the island of South Plaza were abandoned in favour of sites where food could be begged from tourists, and this had a negative effect on the breeding success of iguanas (Edington & Edington 1986). Finally, impacts from boats mooring in bays have increased with increased tourist traffic. Additional problems arise because of the increase in permitted private-sector tour operators. Immigration and urban development therefore continue at a rapid rate next to the park and bring new challenges.
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Towns have difficulty supplying potable water, treatment for human waste, adequate medical facilities, and port facilities. Fishery resources, once just used for local consumption, have now come under heavy pressure to satisfy wider national, as well as international, markets (Wallace 1993). Thus, in Galapagos, as indeed elsewhere, market forces driven by the private sector and providing for industry growth can override the needs for conserving the resources upon which the long-term survival of the industry depends.

Another major concern of the heavily globalized tourism industry is the extensive leakage of tourism-generated foreign exchange (Lundberg et al. 1995). As a result, nature-based tourism has not realized its full potential to support habitat- and species-conservation objectives, or the rural poor, for two main reasons. First, host countries do not receive the full benefit of the revenues that tourists pay to visit the attraction. Second, relatively little of the revenue generated goes directly or indirectly as an incentive either to protected-area managers or to local communities. Thus the fees and charges for tourism attractions fail to capture the full willingness of the tourist to pay, and may fail to capture much of the value visitors place on natural attractions and protected areas. Furthermore, the full economic potential of tourism spending in national and local economies is not realized. Leakage arises from the use of skilled labour and luxury products, the repatriation of profits by owners, and the considerable role of marketing, transport and other services based in the originating country. Indeed, The World Bank estimates that, on average, 55% of tourist expenditure remains outside destination countries in the developing world. Detailed studies indicate that the figure may be as high as 90% in some cases (Koch 1994). The flow of money spent for a package tour to a natural area in a developing country has been analysed (figure 1). This shows that only ca.0.1–1% of total tourism expenditure is captured by the attractions in entrance fees and charges; less than 10% is kept within the local economy; and only 20–40% is kept within the national economy. The remainder stays with the industrialized countries in the form of booking fees, aeroplane flights, hotels and backflows for imported goods and services (Gossling 1999).

Making nature-based tourism more sustainable

Two main approaches are needed to correct this situation and create a more effective incentive structure for conserving species and habitats through nature-based tourism. The first is to set tourism fees at market prices that tourists are willing to pay. The second is to expand local benefits through reducing leakage and increasing linkages. In Kenya, for example, nature-based tourism is an important industry, and the protected areas that support much of that industry cover some 8% of Kenya’s land surface, also making important contributions both to animal conservation and the maintenance of ecosystems. Equally, benefits accruing to resource managers and communities living with wildlife were limited to a fraction of those that could be captured from tourists (Moran 1994). Demonstrating and appropriating full economic benefits was vital, especially where demographic pressures on land and economic constraints tied up in conservation are associated with increasing opportunity costs. If benefits remain skewed nationally, in favour of hotel owners and tour operators, and globally, in favour of foreign tourists, then local people and resource managers, who bear the costs of conservation, have little stake in maintenance of protected areas.

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Figure 1. Revenue flows arising from a package tour to protected areas in a developing country (based on Gossling (1999)). All percentages are percentages of the total travel costs (100%). Higher sums accrue to the developing country if it has a national airline.

Foreign tourists were willing to pay a mean of $72 per day, and produced a large consumer surplus of $46–$450 million per year that exceeded the $203 million for the opportunity costs of being able to convert land to other uses (Moran 1994). Therefore, it was recommended that the wildlife authority capture more revenue. Entrance fees to national parks have since been raised for non-nationals and are paid in foreign exchange. In turn, this creates more revenue both for protected-area management, and for sharing with local communities through protected-area outreach programmes (Leader-Williams et al. 1996). Equally, the wildlife authority has not opted for full profit maximization, and offers a lesser differential fee in local currency for nationals, in order to retain the support of Kenyans wishing to visit their national parks. Likewise, foreign tourists visiting Komodo National Park in Indonesia, home to the world’s largest lizard, the Komodo dragon, were willing to pay over 10 times more than the previous entrance fee, providing there was evidence this was reinvested in management (Walpole et al. 2001). The wildlife authority has since raised the fee. In turn, local people must see greater benefits from Komodo dragons through tourism, in order that they view the species as a local flagship rather than a nuisance that eats local livestock (Walpole & Leader-Williams 2002).

The very nature of the tourism industry will cause it to remain subject to high leakage because of factors such as high marketing and travel costs (Lundberg et al. 1995). However, there is still considerable scope to ensure that local benefits are expanded, in order to reduce poverty in local communities, which in turn encourages local support for biodiversity conservation and sustainable management. Therefore, from both conservation and human-poverty perspectives it is necessary to place pro-poor tourism at the heart of the tourism agenda (Ashley et al. 2000). Some key mechanisms to achieve this objective include ensuring local ownership and management;

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leasing or partial-ownership arrangements; profit-sharing arrangements between the
tourism industry and local residents; direct payments to local communities from
revenues; or high local employment in the tourism industry. Implementing
these mechanisms is one of the key challenges if nature-based tourism is going to
operate successfully as a form of incentive-based conservation. This will be much
easier in situations where the following conditions hold.

1. Relatively secure access or tenure rights are retained or established, including
the power to exclude, over both land and other biological resources. Indeed,
this is fundamental to the ability of local people to participate in decision
making and gain benefits from tourism, as with any other form of incentive-
based conservation.

2. Local communities are given the management and marketing skills to partici-
pate in tourism.

3. There are direct links to the local economy, through either employment of local
labour or the purchase of local goods and services.

The latter is also especially important as it can help stimulate the local economy
through multipliers, especially if local businesses and services are linked (see Lund-
berg et al. 1995). Wherever possible, there should be improved linkages

1. within the tourism industry, such that local labour is employed and local resi-
dents are trained to fill skilled positions such as guides and managers;

2. to the local transport industry, such that existing modes of transport are used
where possible, including boats, canoes, mules and porters—equally, expensive
modes of transport can be bought and managed by local cooperatives;

3. to local agriculture and fishing, such that imports of food are minimized;

4. to local construction, equipment and maintenance sectors, so that local labour
and materials are used where possible; and, finally,

5. to local handicraft and souvenir selling, which is often a good way for local
residents to benefit from tourist spending. Conversely, however, this linkage can
have important perverse effects for animal conservation, for example through
over harvesting of ostrich eggs or coral.

(d) A role for consumptive tourism?

Consumptive tourism, such as hunting and sport fishing, is assumed by many to
have negative implications for conservation through overuse of the target species,
and secondary impacts on non-target species. However, such tourism, if well man-
aged, properly monitored and based on an understanding of sustainable use, can
generate significant funds, and provide incentives for habitat and species conserva-
tion among local communities. Furthermore, consumptive tourism can also be one of
the few options for realizing the value of remote or low-visibility ecosystems where
other forms of tourism are not viable (see Leader-Williams et al. 1996). Indeed, the
economic contribution of consumptive tourism to such areas can be important. For
example, over 30 District Councils have been granted *Appropriate Authority* status in Zimbabwe’s CAMPFIRE programme. The economic engine house for CAMPFIRE has been sport hunting, which has contributed 90% of CAMPFIRE’s revenue, and particularly hunting of elephants, which has contributed over 60% of those hunting revenues (Bond 1994), without any evidence that this offtake has reduced the ongoing increase in elephant numbers in Zimbabwe. Equally, for those who do not support consumptive use, this approach poses considerable moral difficulty, and this has brought tension to debates about listed species, such as elephants, within CITES conferences. In contrast, proponents believe that well-managed consumptive tourism counts as one of the ultimate forms of ecotourism.

(e) *The development of ecotourism*

The many problems that are associated with tourism generically, and with nature-based tourism specifically, has led to the emergence of ‘ecotourism’ (Ceballos-Lascurain 1996). This is a greener and friendlier sounding term, the definitions for which are continually evolving. The International Ecotourism Society now defines ecotourism as ‘travel to natural areas that conserves the environment and sustains the well-being of local people’. When correctly practised, such a definition requires ecotourism to encompass four key ideals: it must be of low environmental impact; it must contribute to conservation, whether directly through protected areas, or indirectly through providing benefits to local communities; it must be of low social impact; and it must raise awareness through conservation education. While many in the industry strive to achieve these ideals, many efforts fall short. The structure of the industry, and institutional problems and issues in the host country, are important reasons for this failure. Particular difficulties remain in involving local communities in ecotourism, given that most forms of tourism require easy access and infrastructure, and marketing skills that can tap into international markets (Ashley & Roe 1998).

The World Tourism Organization has a similarly large membership to the CITES and the CBD, as well as 350 affiliate members representing local government, tourist associations and private-sector companies. It is an intergovernmental body entrusted by the UN to promote and develop tourism, and through which to stimulate economic growth and job creation, and provide incentives for protection of the environment and heritage of destinations. In contrast to the CITES, the World Tourism Organization has no powers of sanction over its national members. However, since the 1990s, the route by which the industry has sought to regulate itself is through voluntary agreements that incorporate standards for social, economic and environmental concerns (Honey 2001). Some 250 voluntary initiatives have been documented, which include codes of conduct, awards, benchmarking, best practices and eco-labelling and certification programmes. These range from local initiatives that have received some impetus through Agenda 21 for the Travel and Tourism Industry, through to state, national and global programmes such as Green Globe 21. Because tourism is such a multi-faceted industry, certification programmes face complex challenges. Thus most schemes to date have focused on the easiest component, which is accommodation. However, schemes are increasingly covering other sectors, including the Blue Flag scheme for beaches and PAN Parks for protected areas (Honey 2001). Australia’s Nature and Ecotourism Accreditation Program scheme covers attractions, tours and
tour guides (Newson 2001), while the SmartVoyager scheme in the Galapagos Islands focuses on certifying tour boats that tread lightly on the environment (Sanabria 2001). A key distinction in certification is whether the programme uses process-based or performance-based methodologies. The former use management systems, while the latter use benchmarks. Increasingly, certification programmes are moving towards performance-based methodologies, as these focus on what a business does in various environmental, sociocultural and economic arenas.

In this year of UNCED + 10, the UN General Assembly also wished to draw the attention of governments and the international community to the potential impacts, both positive and negative, of ecotourism on the natural environment, on biodiversity conservation, and on the social and cultural fabric of host communities. Hence 2002 has also been designated as the International Year of Ecotourism (IYE), in which the UNEP and the World Tourism Organization will carry out various activities, including holding the World Ecotourism Summit. One of the greatest contributions that can emerge from the IYE is the establishment of a single global accreditation programme for sustainable tourism and ecotourism businesses, which in turn will ensure that the free market provides adequate incentives for conservation.

7. Conclusions

An effective link between local communities and their economic development can alter the pattern of incentives to improve conservation. Where local people earn significant income through participation in nature-based tourism or sustainable use, livelihood strategies can shift away from unsustainable use. However, where tourism and other forms of incentive-based use cannot give local communities what they need in the way of livelihoods, they will continue to invest in activities that do not support conservation efforts or even threaten them, for example by investing in livestock in areas of wildlife–livestock conflict. If some local groups benefit more than others, serious disagreements may arise. Tourism can also reduce local access to resources, for example where game viewing leads to tighter access restrictions on the areas where resources are harvested by local people. This could have serious impacts on conservation by concentrating harvesting in smaller areas and undermining local management systems. Thus the scope for improving livelihoods through tourism and other forms of consumptive use is therefore very variable, as are its impacts. Yet, as with all the other challenges of conservation, it is here where the war to conserve species and habitats will be won and lost.

Appendix A. Annexe

With no explicit links to carbon sequestration, concerns about conserving animals might be mistaken for an emotionally irrelevant attempt to protect fluffy and charismatic species. Equally, animal conservation provides clear opportunities to address ways of conserving ecosystems. First, species conservation is really about the long-term maintenance of the Earth’s life-support systems. Species are the building blocks of ecosystems, and while there is some redundancy, the loss of keystone species can have a disproportionate effect. Furthermore, isolated populations of species form the future evolutionary potential of ecosystems. Second, species conservation can make an overly complex conservation agenda relating to carbon and ecosystem conservation
appealing to the general public through simpler mechanisms such as flagship species. Third, species provide routes to capture some of the value of ecosystems through direct and indirect uses, and to create market-based incentives for conserving habitats and ecosystems. Use of species can be achieved through non-consumptive means such as nature-based tourism and ecotourism, or through consumptive means such as hunting and sport fishing. Fourth, the successes and failures in conserving indicator species shows where effort needs to be invested to ensure that market-driven approaches become fully effective as incentives for conservation. The recommendations that follow are inevitably coloured by the view from my own particular anthill, and will be approached by using and modifying a well-known stock phrase.

(a) Think global, act local

Solutions to issues of conservation and sustainability inevitably rest at national and sub-national levels, through systems of rights, tenure, benefits and incentives that promote conservation-friendly over conservation-unfriendly approaches.

1. The CITES is increasingly shifting its thinking from trade-regulation approaches to wider benefit- and incentive-based approaches operationalized through management planning. This approach is welcome and can hopefully be extended.

2. The CBD must increasingly operationalize its good intent with regard to systems of rights, tenure, benefits and incentives for those holding the opportunity cost of living among natural resources. The voices of local communities too often go unheard.

3. Local conservation efforts need to avoid becoming focused on the merits or demerits of particular systems of conservation such as protected areas versus a community-based approach, but instead focus on the common goals of preventing de facto open access and making conservation a competitive form of land use.

4. Globalized free-market industries such as tourism need to focus on direct and indirect means of reducing leakage and capture rent in local economies, such that conservation can achieve its objectives.

(b) Think global, by thinking laterally

Conservationists mostly wish to reach the same endpoint, but the route maps and value systems by which they wish to get there frequently differ. There is not sufficient interdisciplinary thinking on how to achieve a balance between the objectives of conservation through protection versus incentive-based mechanisms.

1. Within the CITES, parties should increasingly seek to reconcile, if possible, the views of protectionists and animal welfarists with those of economists concerned with incentive flows and social scientists concerned with the rights of local people.

2. Between the CBD and the World Trade Organization, there must be concerted thought devoted to overcoming selfish business and multinational interests in
the developed world over the interests of local people in the resource-rich developing world. This is of particular concern when countries like the US behave in such a self-centred way within the WTO, yet do not accede to the CBD, while also being a frequent proponent of stricter domestic measures within the CITES.

(3) The World Tourism Organization, likewise, must ensure the same objective through uptake and enhancement of its certification schemes.

(c) Think global by acting long term

To succeed it is vital that the differential in power between trade and environmental concerns is reconciled and reversed to achieve parity, both nationally and globally.

(1) Governments must promote increasingly joined-up governance at national and sub-national levels, allowing long-term environmental interests to balance shorter-term trade interests of turnover, production and discount rates.

(2) While global interests aim to develop mechanisms that allow trade to be equitable and free, these must recognize that this does not only constitute allowing shareholders in the developed world access to profits from resources held in the resource-rich developing world. Instead, global interests must encompass in their thinking rights and benefits for local-resource owners, and their other legitimate goals such as poverty alleviation, as espoused by the CBD and other international instruments.

References


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Animal conservation


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