

Parks



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Parks, 36 Kingfisher Court, Hambridge Road, Newbury, RG14 5SJ, UK

Fax: [+ 44] (0)1635 550230

E-mail: parks@naturebureau.co.uk

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- maintaining and improving an effective network of protected area managers throughout the world, building on the established network of WCPA;
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- ensuring that protected areas are placed at the forefront of contemporary environmental issues such as biodiversity conservation and ecologically sustainable development.

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Cover: *Background: The Bush Heritage Ethabuka Reserve in far-western Queensland protects the most diverse reptile population of any desert area in the world with 65 species known so far. Photo: Wayne Lawler/courtesy Bush Heritage. Top: High-quality wildlife viewing can be exciting for tourists and profitable for reserve owners. Photo: Shamwari Private Game Reserve, S. Africa. A male Gouldian finch at Mornington Wildlife Sanctuary, Western Australia. Photo: Steve Murphy AWC. Bottom right: Visitors in a privately owned reserve, Catalonia, Spain.*

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Editorial

BRENT MITCHELL



“PRIVATE RESERVE” These words, separately and together, suggest something withheld from common use, kept for personal pleasure, perhaps even hoarded. One imagines a bottle of fine wine, untouched and locked away in a keep, preserved for the pleasure of a select few.

But this image is misleading. In the conservation world, private reserves are set aside for public benefit, either as the primary motivation or as a significant secondary objective. (“Reserve” here is used in its broadest sense. The scope of this issue includes protected areas of all kinds on private lands.) Origins of the private approach to protected areas can be traced to private initiatives to create conventional, public protected areas, and in most cases are inextricably linked to government conservation regimes. As we note in Bernstein and Mitchell, examples of private individuals creating protected areas and gifting them to the public for governments to manage are many and familiar. Some are centre pieces of park systems. What sets private protected areas (PPAs) apart is that land ownership is not relinquished to the state, or at least not fully.

The origin of the word private is the Latin *privatus*, “withdrawn from public life,” in turn derived from *privus*, “single, individual.” But oddly neither of these necessarily apply to private protected areas. Though private ownership is retained, when truly managed as protected areas PPA have public benefits – either direct (e.g. immediate public access) or indirect (biodiversity conservation or ecological services). And *privus* need not apply: in fact a majority of PPAs are not owned by a single individual.

The definition of private protected area crafted at the 2003 IUCN World Parks Congress was “a land parcel of any size that is 1) predominantly managed for biodiversity conservation; 2) protected with or without formal government recognition; and 3) is owned or otherwise secured by individuals, communities, corporations or non-governmental organisations.”

Thus, ownership (or functional equivalent) of PPAs can be held by a variety of actors. However, this definition, developed during one of the workshops, overlaps with two of the four governance types articulated in the relevant resolution formally adopted at the 2003 IUCN World Parks Congress. Recommendation V.17 (para. 3) reads:

“Recommend that this Governance dimension recognises at least four broad governance types applicable to all IUCN protected area categories:

- a) government managed;
- b) co-managed (i.e. multi-stakeholder management);
- c) privately managed; and
- d) community managed (Community Conserved Areas).”

Thus our articles in this issue of PARKS do not focus on community conserved areas, as they are regarded as separate in the resolution as formally adopted. (Furthermore, they have already been the subject of recent issues of PARKS).

Often the four kinds of governance included in the first definition (individuals, communities, corporations or non-governmental organisations) are not as distinct as a simple listing implies. This issue’s case study from South Africa describes an overlap of community ownership on private game reserves. NGO private reserve owners, or land trusts, are forming with membership drawn completely from the local indigenous community. So elements of several ownership types are evident. Likewise, many of our articles include PPAs owned by individuals, especially

Rambaldi *et al.* on federally recognised private reserves in Brazil, Chacon on Central America, and Bernstein and Mitchell on conservation easements in the US. NGO-managed PPAs are a particular focus of the article by Figgis *et al.* on Australia, and Rafa on Catalonia.

These pages provide a range of descriptions of PPAs, from very specific case studies (e.g. seven individual reserves in one province of South Africa) to global overviews (Seven Myths of Private Protected Areas). The PPA descriptions in these pages are not comprehensive. We include articles on Brazil, Central America, and the US, but almost all countries of the Western Hemisphere now have private reserves; land trusts (private organisations that protect land through acquisition, donation, and/or direct management) are growing in Central and Eastern Europe; and there are now many examples of international corporations creating private protected areas. One example, announced last October – El Carmen in north-eastern Mexico – is billed as the “first private wilderness in Latin America.”

Returning to the Durban workshop definition, the criterion “...managed primarily for conservation...” may be problematic. Do PPAs managed for eco-tourism fit this criterion, or are they managed primarily for tourism? Who is to say? And if conservation is a significant by-product, but not the primary motivation, can they still be considered a protected area? What if, as has happened, the private reserves have a better record of endangered species protection than their public counterparts?

Like all protected areas, PPAs need not be recognised officially by government. Chacon outlines three tiers of PPAs today in all seven countries of Central America: those recognised by government, accepted by networks of Private Nature Reserves in each country, and acknowledged by an NGO member of the networks. While considering unofficial protected areas as PPAs broadens the scope and provides flexibility, it also makes the task of assessing conservation impacts of PPAs more difficult, especially at a global level.

An assumption underlying the recent growth in private protected areas is that management will be most effective when the managers have an interest in the land: a legal interest; an economic interest; interest as an individual, a group, or a corporation. But we must not be naïve. Though non-confrontational and (in most cases) apolitical, working willingly on a voluntary basis, not all landowners are motivated by altruistic intentions. As has been the experience with other conservation frameworks of great promise – see, for example, integrated conservation and development projects in PARKS 14(1) – realities have not always met expectations. Along with great success there have been some disappointing outcomes and some abuses, and the international protected areas community should be prepared to respond appropriately.

Motivations and incentives

If creating protected areas is a voluntary act, what factors motivate landowners? These are generally more complex than they might appear, and probably few private reserves owe their origin to a single motive. Profit – especially tourism – is often cited, but may be the primary motivation in fewer cases than might be imagined. (Unfortunately, there is not enough reliable quantitative data on PPAs to venture even an informed opinion on this point.)

Voluntary acts to create private reserves can be divided into intrinsic motivations (impelled by the essential nature of the actor, in this case, the landowner) and extrinsic incentives (elicited by something outside of the actor). Of the four groups identified in the PPA definition, non-governmental organisations are assumed to be motivated by their mission to preserve biodiversity, nature, or heritage, as the case may be, intrinsic by definition. But some NGOs derive profit from compatible activities in some reserves and apply the funds to conservation in less-visited reserves. Corporations are assumed to be profit-motivated of course, but this incentive may not always be the most immediate. For example, the public relations value of acting as a good corporate citizen may be motivation enough in the case of multinationals, or local corporations for whom product image is important. It is of course valuable for communities to protect their

immediate surroundings, but they also may respond to government subsidies or preferential revenue sharing (see Rambaldi *et al.*).

The motivations of individual landowners may be the most complex of all. Certainly many are personally concerned about nature (intrinsic motivation) but may need help to act on that concern (extrinsic incentive). Incentives take many forms, such as tax relief, compensation, and payment for ecological services (see Chacon). But incentives need not be financial. Creating a PPA may entitle the landowner to preferential technical or other assistance. Again, Rambaldi *et al.* cite reserve creation to enable landowners to prohibit hunting on their property.

In areas of high development pressure, landowners often face negative incentives for conservation. Creating a private reserve, or granting an easement, gives a landowner an option out of perverse economic or regulatory conditions that might compel him or her to act in ways contrary to personal convictions. This is clear in the United States, where high property taxes have forced landowners to develop land against their preference, just to meet their tax obligations.

Private reserves take many forms, and they reflect the social and economic conditions in which they are found. Generally they are most developed in countries with secure land tenure systems that allow private ownership. Though historical precedents are ancient, especially among the wealthy and powerful, systems of private protected areas are a relatively recent phenomenon, and it is logical to assume that private reserves will increase in number and geographic reach if land tenure systems continue to formalise and liberalise around the world. As Peruvian economist Hernando de Soto writes, “Contrary to popular belief, property systems open to all citizens are a relatively recent phenomenon – no more than 200 years old – and the full implications of the transition have yet to emerge.”

Privatus et publicus

Though antecedents and precedents for private protected areas have existed for a long time, their number, size and geographic reach have expanded exponentially in recent years (the amount of land protected by US land trusts has doubled in just the last decade; the Foundation for Territory and Landscape has become the largest private landowner in Catalonia, Spain, in its first eight years of existence). Protected area managers are adjusting to this reality. But it is no longer a question of whether PPAs should exist, but rather to recognise that they will become increasingly important, consider how best to integrate them into national protected area systems and global conservation strategies, and act to harness more private initiatives.

Managers of conventional protected area systems should see PPAs as strategic counterparts, not competitors. After all, monopolies are no more beneficial to conservation than they are to economies. It is an important role of government to capture private initiative and channel it into a systems approach to conservation. As stated in Figgis *et al.*, “there are powerful imperatives to pursue this integrated model...”

Figgis *et al.* also allude to a concern that the rise of PPAs might lead to privatising control of existing public protected areas. A valid concern, perhaps, but this is not necessarily the outcome to expect. Indeed, it could be that if private protected areas excel at conservation, they may “raise the bar” for government to match in their protected areas. This could be advantageous to managers needing greater support from central government.

Similarly, it is often argued that PPAs may be less stable because land ownership can change. But many PPA designations – especially conservation easements – go with the land, not the landowner, by law or in practice. Public protected areas, on the other hand, are vulnerable to changes in governments, public policies and central budgets. It is also argued that PPAs may be ephemeral, as the decision to set them up is voluntary. But many designations are at least theoretically forever, and bound by law. As we point out in Bernstein and Mitchell, voluntary conservation leads to permanent protection. Indeed, in the case of the National Trust in the UK, land may be declared “inalienable”, which means it cannot be developed except by explicit

decision of Parliament, arguably a higher level of protection than any public agency can provide. Finally, PPAs can and often are converted to public PAs, sometimes years after their creation. The Catalan foundation described by Rafa has dissolution provisions in its charter; should it cease to exist, its reserves are to be assumed by either another NGO or the government.

Labels of “private” or “public” protected area may suggest more of a management division than exists in practice. Rambaldi *et al.* describe close landowner-government working relationships in Brazil, and Jones *et al.* describe systems in which government reserves form core wildlife areas, while privately conserved areas provide seasonal dispersal ranges. Integration emerges as a key theme when considering the role of private reserves in protected area systems planning.

The important point, of course, is not how many protected areas there are nor even who owns them, but how well they are managed for ecological and other public benefits. Private PAs are as susceptible as government areas to being “paper parks”, designated or otherwise recognised as protected area without any significant positive conservation impact. Or worse, negative impact. Indeed, both Jones *et al.* and Sims-Castly *et al.* mention cases of non-native species introductions motivated by economic gain. There is a strong case, therefore, for some kind of conservation entity to set and enforce standards of practice.

In my opinion, this question of standards is a great omission in the definition developed at Durban. In organising this issue, I asked authors to consider also the following working definition of private protected area: “A protected area managed by non-state entities – including private corporations, associations, individuals and indigenous governments – with legal interest in the land, in whole or in part. The protected area may be managed for private as well as public benefit, and the managing entities must be accountable to formal standards.”

Whose standards? And who ensures accountability? In Bernstein and Mitchell we describe a national effort now underway in the US to accredit land trusts that adhere to agreed standards. The ultimate consequence of a failure of self-regulation would be increased governmental regulation.

In the IUCN protected area typologies, both of management categories and of governance (that is, government-, privately, community- and co-managed protected areas), management effectiveness is considered separately. But the IUCN PA management categories were developed originally with one primary governance model in mind, that of government-managed protected areas. As the formal recognition of other governance types grows, it seems to me that quality should somehow be addressed in the typologies, lest “protected area” be applied as an empty label.

The alternative PPA definition also addresses the question of whether conservation-restricted lands should be considered private protected areas. In Australia, the phrase ‘private protected area’ is “used mainly to refer to large land purchases by the private sector, usually land trusts that manage the entire property for the protection of biodiversity” (Figgis *et al.*). But in the US and elsewhere, conservation easements, in which some but not all land use is restricted, have become a significant component of conservation strategies. Whatever they may be called, monitoring and enforcement of conservation agreements, on freehold or restricted lands, is a growing burden on the NGOs and government authorities responsible for it. (That said, these oversight costs are usually far less than the cost of bringing the land under their own control for direct management.)

Similarly, all protected areas should be managed and understood according to their relationship to the IUCN protected area management categories. These universal guidelines apply without prejudice to size, geography or ownership/governance status. Indeed, PPAs may fall into any one of them, and you will recognise different management categories in the examples in this issue.

In much of the world, private reserve systems are growing, and growing fast. The core of voluntary approaches to land conservation – of which PPAs are a prime example – is to

encourage and enable a stewardship ethic on the part of landowners, be they individuals, associations, local communities or corporations. Though near-impossible to document, many if not most landowners who have created private reserves had a sense of stewardship as an important motivation. Economic and other incentives may be essential to help people act on this motivation, but such incentives may never be enough without an ethical inclination – or irrefutable imperative – to conserve. Indeed there have been many instances in which landowners have refused very attractive cash incentives simply because they chose not to commit their land to conservation. The will to conserve will be thwarted without the means to act on it, and the means are useless without the will to exercise them.

Brent A. Mitchell

IN MEMORIUM Laurence Spelman Rockefeller (1910–2004), whose private philanthropy enlarged or created many US protected areas, including the only national park in Vermont; and Kingsbury Browne (1922–2005), who led the formation of a national association of US land trusts.

Socio-economic significance of ecotourism-based private game reserves in South Africa's Eastern Cape Province

REBECCA SIMS-CASTLEY, GRAHAM I.H. KERLEY, BEVERLEY GEACH
AND JEFF LANGHOLZ

Ecotourism serves as the principal revenue source for many private protected areas worldwide. We surveyed seven ecotourism-based private protected areas in South Africa to identify key attributes and challenges. The findings include: 1) the top three attractions to private reserves were the wildlife, the scenery, and the high quality accommodation / service; 2) establishing a reserve was a costly undertaking, requiring an average initial outlay of USD \$4.6 million; 3) in changing from farming to wildlife-based ecotourism, employment numbers increased by a factor of 3.5, the average value of wages paid per reserve increased by a factor of 20, and the average annual salary more than quintupled from \$715 to \$4,064 per employee; 4) the reserves were contributing in excess of \$11.3 million to the regional economy per year; 5) reserves were making a substantial contribution to biodiversity conservation; and 6) lack of support by government entities was the most pressing challenge facing reserve owners. The analysis points to ecotourism as an economically and ecologically desirable alternative to other land uses, while also highlighting the need for governments to provide assistance and support for both the establishment and management of private reserves.

DURING THE PAST 30 YEARS, South Africa's wildlife industry has developed into a multi-million dollar industry (Van der Waal and Dekker 1998) and has become a major earner of foreign currency with positive benefits for employment creation, ecotourism and biodiversity (Eloff 1996). With 154,000 hectares, the Eastern Cape Province's private conservation areas represent 20% of the total provincial conservation estate. While the majority of game-based operations within the province focus on hunting and game sales (Smith and Wilson 2002), the ones that emphasise ecotourism rather than hunting appear to be the greater income earners.

Among the diverse types of private protected areas in existence worldwide, ecotourism-based private game reserves (PGRs) rank among the most common and lucrative (Langholz and Krug 2004; Langholz and Brandon 2001). For the purposes of this study, ecotourism-based private game reserves are privately owned natural areas where tourism serves as the primary business activity, rather than hunting or some other land use. Although not quantified, this may reflect the perception that hunting would be in conflict with ecotourism marketing opportunities. Based on the findings of a recent report, PGRs aimed at the upper income groups can generate almost USD \$260/ha (Sims-Castley 2002), suggesting that despite the relatively small number of ecotourism-based game farms in the Eastern Cape Province, their combined earning power, coupled with multiplier effects and other documented benefits of ecotourism (such as job creation, equitable wealth distribution, community upliftment, sustainable land use, and biodiversity conservation (Geach 1995), probably have a significant economic impact on the region. In spite of this, ecotourism is generally ignored in economic analyses, with few attempts to quantify the value of the industry in either financial or economic terms (Antrobus *et al.* 1994). Consequently, the economic contribution made by the private game reserves whose core business is ecotourism may not be fully appreciated, with the result that opportunities offered by this expanding industry, particularly in the Eastern Cape Province, are overlooked in regional development planning.

This article provides insight into the socio-economic significance of private game reserves in the Eastern Cape Province with particular emphasis on ecotourism. The article also attempts to

identify important issues relating to the growth of this industry – issues that apply not just to South Africa, but to all regions where private protected areas engage in ecotourism. We have grouped the findings into seven main sections, accompanied in most cases by recommendations.

Background

We circulated a standard questionnaire to the seven PGRs that were full members of a private protected area association known as “Indalo”. For the purposes of this study, all respondents are referred to as “private game reserves” even though ownership types and legal status may differ. They all derive their earnings primarily from wildlife-based ecotourism ventures.

The questionnaire included five sections dealing with: (i) establishment of the reserve; (ii) tourism-related activities; (iii) employment; (iv) conservation issues; and (v) policy issues. A series of open-questions were designed to capture economic benefits in terms of revenue generation, creation of (local) employment, social upliftment, empowerment of local communities and increased entrepreneurial opportunities. The survey was undertaken in mid-2003, and hence the findings refer to that time. Because we collected sensitive financial information under a promise of anonymity, we do not specify the names of the reserves here or on our accompanying map.

Since that time, circumstances have changed rapidly. The seven PGRs that participated in our study have further developed. Also, the total number of ecotourism-based PGRs in the province has grown from seven original Indalo members to 18 (see Figure 2). At the time of writing, we are in the process of conducting a follow-up survey to capture the dramatic expansion of PGRs. This article is a highly condensed version of our original report. To obtain a copy of the original report, as well as the follow-up study, please contact the corresponding author.

Figure 1. Stars indicate locations of participating private game reserves in Eastern Cape Province, South Africa. Map: Andrew Skowno.

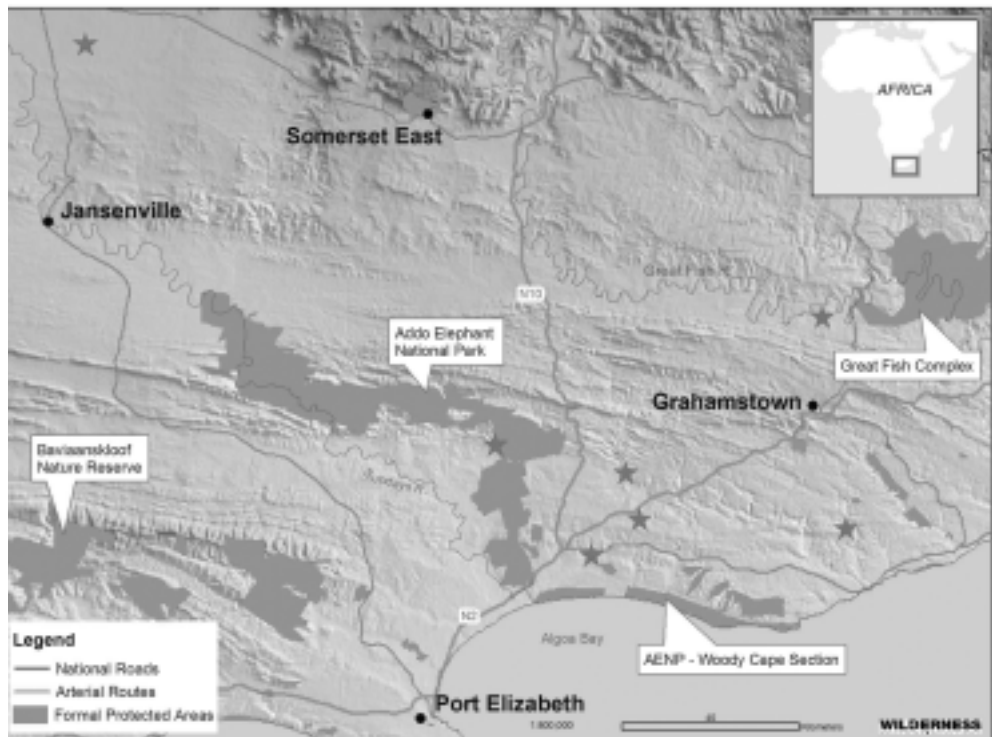
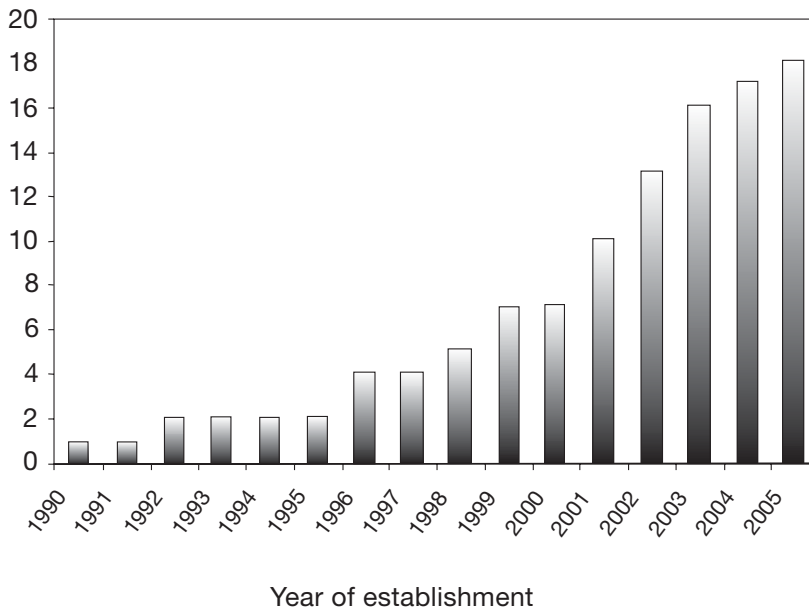


Figure 2. Cumulative number of private game reserves in Eastern Cape Province, South Africa. Source: Terrestrial Ecology Research Unit, Nelson Mandela Metropolitan University.



Private game reserve attributes

All seven PGRs used wildlife-based ecotourism as their primary means of business (no mixed farming *sensu* Smith and Wilson 2002). Some PGRs generated supplemental income by selling surplus wildlife to other reserves. PGRs ranged in size from 1,600 ha to 26,932 ha (average size of 12,338 ha). Four out of seven of the PGRs were over 15,000 ha in size. The remaining three PGRs were either 5,000 ha or less.

Apart from the above-mentioned size distinction, two other factors make it difficult to compare PGRs in terms of their costs and revenues. First, the various PGRs had been operating for different periods ranging from two to 13 years and were all at different stages of development. Two were still in a developmental phase, one of which had been under development for two years and the other for seven years. Neither were earning revenue at the time of the study. This is an important feature of the survey in that it highlights the different cost and revenue profiles associated with these different phases and how these profiles change with time.

Ownership of the PGRs was mainly in the form of registered companies with multiple shareholders. In some instances, individual landowners had formed co-operative partnerships with their neighbours. In one example, the registered management company leased the land from the landowners who received a shareholding in proportion to their land contribution.

Previous land-uses on the PGRs included livestock farming (beef, dairy), small stock farming (sheep, Angora goats) or a combination, with some intensive ostrich farming. Cultivation was low-key with only a minimal amount on a few properties.

Ecotourism at private game reserves

Main attractions

The top three attractions to PGRs are: (1) the wildlife, (2) the scenery and landscapes, and (3) the accommodation and high quality service. The "Big Five" are considered to be drawcard species,

namely: lion *Panthera leo*, leopard *Panthera pardus*, black rhino *Diceros bicornis*, elephant *Loxodonta africana*, and buffalo *Syncerus caffer*. The message to ecotourism-based reserve owners is clear, even in areas without the “Big Five”: visible wildlife, natural settings and superb accommodation contribute to financial success. For PGRs to improve their marketing effectiveness and to design a more cost-effective product, **we recommend that surveys be carried out to understand private game reserve visitor preferences and to determine what they spend their money on.**

The wildlife

It is well documented that tourists only appreciate a small proportion of vertebrate biodiversity, favouring the so-called charismatic megafauna exemplified by the “Big Five” listed above (Kerley *et al.* 2003). As a result, these species are used as a major drawcard by the tourism market (Goodwin and Leader-Williams 2000). Not surprisingly, of the four PGRs that could respond to this section of the questionnaire, the two larger reserves stocked the entire suite of “Big Five” species (it was assumed that leopard was present on all of the properties, although this remains to be tested). The other two PGRs, being less than 5,000 ha, did not stock the land-hungry species such as elephant and lion, but did stock buffalo and rhinoceros (both white and black).

Tourist accommodation

Types of accommodation offered by the PGRs included lodges, guesthouses, chalets, suites and, in one case, a wagon camp. Reflecting the luxury nature of the tourist package, tariffs per person per night (p.p.p.n.) ranged from USD \$156 to \$488 p.p.p.n. for the lodges and USD \$62 to \$260 p.p.p.n. for the guesthouses. Hence, the PGRs’ marketing tends to focus on the foreign market and at upper income groups. The majority of visitors to the PGRs (60–90%) come from Europe. Between 2% and 15% originate from other foreign countries, including the USA. Less than 20% come from South Africa.

In spite of the apparently lofty prices, overnight tourist numbers to these exclusive reserves appear to be on the increase. The data series are of too short a duration to reliably model these trends, but the growth in visitor numbers is obvious. This trend accords with increases in visitor numbers seen previously at the nearby Addo Elephant National Park (Kerley and Boshoff 1997). All PGRs forecast an increase in tourist numbers.

PGR start-up costs and constraints

Survey results indicated that setting up a PGR is a costly undertaking, requiring an initial outlay (all figures in US dollars) of anywhere from \$1.3 million to as much as \$7.8 million (on average \$4.6 million). Capital expenditures associated with establishing a PGR include:

- land acquisition – ranged from 37.4% to 81.6% of PGRs’ start-up costs;
- buildings – cost \$0.4 million to \$2.6 million (average \$1.2 million);
- wildlife – re-introduction of species cost between \$97,500 and \$1.8 million;
- infrastructure – roads, waterholes and fencing, ranged from \$104,000 to \$1.4 million (average \$364,000);
- equipment – vehicles, radios, etc. ranged from \$71,500 to \$416,000 (average \$234,000); and
- landscaping – ranged from \$6,500 to \$130,000 per reserve (average \$50,700) to remove fences, bury power lines, remove alien vegetation, and rehabilitate heavily eroded areas.

Additional constraints on PGR establishment included the lack of government and legislative support, a lack of information, the costs of the transition and marketing costs. This is an area ripe for intervention by public and private sector financial institutions. **We recommend that lending institutions provide government-backed loans for conservation ventures.** Given the strong financial returns and environmentally-friendly land-use, such financial inputs should be extremely worthwhile investments.

Employment and wages

The seven PGRs have increased on-site employment opportunities, significantly improving local economic empowerment. In changing from farming to wildlife-based ecotourism, employment numbers increased by a factor of 3.5. Previously 175 people were employed on the farms before they were converted to PGRs. This number increased to a total of 623 when ecotourism was adopted as the form of land-use.

The average wage bill for a PGR increased by a factor of 20 from \$20,848 to \$416,000 per annum. This equates to an average annual salary of \$4,064 per employee, a 5.7 fold increase from \$715 per year. No farm workers were laid off as a consequence of the switch from farming to wildlife-based ecotourism.

Employees received additional benefits not typically available to farm labourers, such as accommodation, food and training. Previously accommodation was recorded as being spartan with very limited amenities, i.e. no hot water, no modern toilets, no ceilings, no lighting or electricity. On the PGRs workers are provided with modern amenities including electricity, hot and cold running water, water-borne sewage, ceilings, tiled floors and, in some instances, gardens. In more than half the reserves, staff are provided with cooked meals. Further benefits include unemployment insurance, pension, group life insurance, medical aid, uniforms, children's transport to school and grazing locations for employees' livestock.

Based on these numbers, we recommend that policymakers actively promote PGRs as engines for local economic growth. They are particularly valuable in that they exist in rural areas – places where government services rarely reach, where economic opportunities are the fewest, and where the need is greatest.

PGR revenues

Survey results clearly illustrated the high earning potential of the PGRs. Their capacity to generate revenue differed according to facilities, number of beds, tariffs charged per bed, stage of development and other factors. But to give some indication of earnings in the 2002/2003 financial year, total gross incomes (TGI) generated by three of the surveyed PGRs amounted to \$2.8 million. Per PGR this ranged between \$195,000 and \$1.6 million (average \$949,000 per PGR). This equates to an average of \$259 per hectare (\$39 to \$634 per hectare). Because income earned is dependent on number of beds and tariffs charged per bed, and is not dependent on property size, larger PGRs will tend to reflect a lower income per hectare than smaller ones

All PGRs showed an increase in gross annual income over time. This could be due to PGRs providing more beds, but the rate of revenue growth was greater than the rate of increase in overnight tourist numbers (i.e. occupied beds), suggesting there are additional reasons for the growth, such as increased tariffs or marketing. The data are not available to give a decisive explanation of these trends.

The rate of increase of TGI varied from 10% to 150% per annum. Our follow-up study currently underway will reveal whether or not a ceiling exists where this rate of increase flattens. All PGRs anticipated an increase of 28% to 73% in expected earnings in the year following this report, resulting in gross revenues ranging from \$260,000 to \$1.8 million.

Overall, our calculations suggest that PGRs may contribute in excess of \$11.3 million to the economy of the region per annum. This survey has shown that PGRs provide a highly desirable land-use option in relation to other land uses in this area. It is likely that the multiplier effects of this economic activity are also much higher, but data to assess this situation are lacking. **We recommend that a more detailed analysis be carried out that assesses the full economic impact of the PGR industry on the regional and national economy.** This should include: quantification of the industry's contribution to the national GDP; a more complete analysis of multiplier effects resulting from the industry; an estimation of the allocation of generated incomes amongst different earners within the industry, especially the poorer segments of

society; as well as a more detailed examination of the characteristics of demand for wildlife experiences. Further research should be carried out to establish how the industry will adjust as the market moves to a point of saturation, thereby increasing competition amongst the PGRs.

Conservation issues

Contribution to biodiversity conservation

Altogether the PGRs surveyed encompass areas of six of South Africa's eight biomes, namely grassland, nama karoo, thicket, savanna, forest and fynbos. Altogether, 44 species of mammals, 210 birds, 29 reptiles and 153 plants been recorded on the PGRs, although it is not clear whether these data have been collected in a systematic fashion. The potential of PGRs for biodiversity conservation is therefore substantial, but needs to be more rigorously quantified.

Given that natural features are the single most important resource for the PGRs (see *Main attractions* above), it is not surprising that conservation is a concern for all the respondents. An intact landscape provides both the resource base to support wildlife, as well as the scenic backdrop to provide a wilderness experience, both of which attract tourists.

The establishment of these PGRs has brought about a considerably expanded conservation estate in the Eastern Cape, with clear benefits in terms of biodiversity conservation. One step towards PGRs establishing official recognition for their role in biodiversity conservation would be to quantify the contribution these PGRs are making towards meeting both national and bioregional biodiversity targets. **PGRs should therefore be encouraged to undertake**

High-quality wildlife viewing can be exciting for tourists and profitable for reserve owners. Photo: Shamwari Private Game Reserve.



comprehensive biodiversity audits of their properties. Furthermore, the inclusion of additional biodiversity elements should be a priority in a land acquisition policy should these PGRs be considering expanding.

Management challenges

Assessing appropriate carrying capacities and stocking rates for grazers and browsers, as well as predator-prey ratios, are considered essential for the effective management of the PGRs. The management of future predator and elephant populations are a concern and ethical solutions are being explored by the PGRs to control the population sizes of these and other species.

While poaching is largely restricted to small snares using wire nooses, the majority of PGRs have taken the potential threat of poaching seriously and have anti-poaching units monitoring both the boundaries and the gates. On the whole, 'problem' animals such as jackal *Canis mesomelas* and leopard have been largely contained by good wildlife-proof fencing and have caused minimum disturbance to neighbouring livestock owners, according to the respondents.

All PGRs have active programmes to remove and eliminate alien invasive vegetation such as prickly pear, jointed cactus, blue gums, lantana, agaves and exotic acacias. Soil erosion is an issue on previously transformed and degraded land. Long-term rehabilitation of these eroded areas is in progress. In cases where vegetation has prevented erosion, roads still present an erosion hazard and therefore the prevention of soil erosion is a high conservation priority for most PGRs.

Extra-limital species

One way to boost the ecotourism potential of the property is to introduce certain species for the sole purpose of increasing visibility and diversity of the wildlife. This normally involves the introduction of non-native species which are either exotic or extra-limital in their distribution (Castley *et al.* 2001). PGR owners face immense pressure to stock wildlife that tourists expect to see during a trip to Africa, namely charismatic megafauna which in Africa are exemplified by the "Big Five" (lion, leopard, elephant, rhinoceros and buffalo) (Kerley *et al.* 2003, Goodwin and Leader-Williams 2000).

Giraffe *Giraffa camelopardalis* and white rhinoceros *Ceratotherium simum* are prime examples of extra-limital species which are native to southern Africa but outside of their natural range within the Eastern Cape Province. However, inappropriate introductions can result in changes of the abundance of native species, as well as modification of vegetation structure (E. Jacobs pers. comm.).

Private reserve owners in Eastern Cape Province and beyond also face powerful pressures to cut conservation corners. Examples include:

- a) stocking unnaturally high numbers of charismatic species;
- b) introduce extra-limital species; and
- c) creating false savanna landscapes (altered thicket), all of which have adverse effects on ecosystem function and biodiversity.

We recommend that PGR owners maintain their conservation credibility by adopting voluntary codes of conduct that limit stocking of extra-limital species and other questionable conservation activities. We also suggest increased monitoring and independent certification of private protected area management practices.

Key challenges

The most difficult aspects of reserve establishment were stated to be government regulations and bureaucracy that slowed the process down, especially with regards to obtaining building permission and proclamation as a private reserve (as defined by legislation).

Volatility of tourism market

Because tourism sustains these reserves, their well-being is easily affected by global and local events, disasters and politics that might affect tourist numbers visiting South Africa. South Africa's political climate and stability is of particular concern to the PGRs.

Relations with neighbours

Another obstacle identified by respondents as threatening long-term development and success of PGRs was the maintenance of good relations amongst owners in a relatively complex conservancy structure. In addition, difficulties were experienced with third parties, such as national electrical and telephone companies, who did not identify with the PGRs' vision. This was especially the case with industrial development and associated pollution that may impact on the PGRs' sustainability and marketability.

Lack of institutional support

In terms of support from external agencies for establishment and management of the PGRs, little support was provided at national level. Legislation that specifically acknowledges private game reserves and establishes criteria and incentives for them was enacted in 2003, but implementation has been slow. While some national assistance was provided in the form of tourism promotion in the UK and elsewhere in Europe, PGRs felt that national government needed to acknowledge them as *bone fide* role players in the regional economy in terms of wealth generation, job creation, social upliftment, poverty alleviation, foreign exchange earnings and biodiversity conservation. They repeatedly highlighted the need for government to streamline bureaucratic procedures with regards to reserve establishment and to make them more facilitative and less obstructive. Most PGRs felt that current legislation was more a burden than a support. Therefore, one of the most important government actions identified by the PGRs to assist in the establishment of private reserves, was to make investment in the creation of private reserves more financially attractive for foreign and local investors. This could be done through providing tax breaks, simplifying the Small Medium Enterprise Development Programme (SMEDP) process for obtaining grants, providing low-cost loans, as well as providing easier access to soft financing.

PGRs also felt that government should provide financial incentives and rewards for their participation in, and contribution towards, biodiversity conservation and protection (such as tax breaks). Furthermore, technical services, such as environmental analysis and extension of poverty relief programmes should be provided to private reserves. Some PGRs also felt that government should take custodianship of the black rhinoceros populations supported on the PGRs. Given that these PGRs are performing a service to society by conserving an endangered species, they believe that government should cover the costs associated with managing and maintaining them.

While approval of PGRs was expressed at a provincial government level, no support or assistance was forthcoming. At a local government level, assistance with land negotiations was provided. Tourism agencies have generated much business for some of the PGRs. In particular, the Eastern Cape Tourism Board has shown interest in the development of the PGRs in the region. PGRs felt it was also the role of national government to promote and market both South Africa and the Eastern Cape, internationally. Furthermore, the feeling was that government should also improve and facilitate access to the Eastern Cape by freeing up inbound flight access to South Africa and by establishing an international airport at Port Elizabeth. They believed access to the rural areas would be facilitated by improving the road infrastructure.

Conclusion

As a land use, ecotourism-based wildlife farming is an economically and ecologically desirable alternative to other land uses. Not only does it generate more income per unit area, but it also

creates more jobs that are better paid and ecologically sustainable. Through preferential recruitment and training of local people, social upliftment and poverty alleviation is achieved by raising literacy and numeracy levels and providing skills to previously unskilled individuals. Private game reserves also benefit the regional tourism sector by diversifying the tourism product in the Eastern Cape Province, thereby encouraging tourists to stay in the area longer. Furthermore, the local economy is also stabilised by the creation of more economic sectors. Finally, there is an urgent need for national and provincial governments to acknowledge the important contribution this industry is making towards the country's economy, and to provide assistance and support in both the establishment and management of private reserves.

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Box 1. Seven myths about private protected areas

Jeff Langholz

MYTH NO.1. PPAS ARE "NEW"

Privately owned protected areas have existed in various forms for centuries, dating back to hunting reserves used by large landowners in Mongolia, Europe, and elsewhere (Alderman 1994). The first private "land trust" in the USA has operated continuously since 1891. One of the earliest scholarly references to PPAs occurred more than 40 years ago at the 1st IUCN World Congress on National Parks. Recommendation No.10 from the Congress acknowledged that many nature reserves throughout the world are "owned by private individuals, but are nevertheless dedicated in perpetuity to the conservation of wildlife and of natural resources..." The recommendation noted that it is "...desirable to increase the number and diversity of such areas," and commented that "...such individuals and institutions who have already taken such action are to be commended for their activities and that others are urged to do likewise" (Adams 1962, p.379).

Granted, PPAs have undergone dramatic expansion over recent years. Three closely related factors probably drive the recent PPA boom: 1) society's increased emphasis on biodiversity conservation, driven to a certain extent by scientists and by documented habitat destruction; 2) ongoing government failure to protect nature to the extent that society appears to desire; and 3) the phenomenal expansion of the global nature tourism industry. The trend reached a new peak in 2003 with the creation of the Private Protected Area Action Plan at the Vth IUCN World Parks Congress in Durban, South Africa (IUCN 2005, Langholz and Krug 2004). A second high level mandate quickly ensued, when parties to the UN Convention on Biological Diversity adopted a Programme of Work on Protected Areas that included specific measures to improve and expand PPAs (United Nations 2004).

MYTH NO.2. PPAS ARE TOO SMALL AND ISOLATED

This myth suggests that spatial factors severely limit PPAs' ability to protect biodiversity over the long-term. It is true that PPAs tend to be smaller than national parks and other publicly protected natural areas. One study showed 30% of PPAs in Latin America to be less than 200 ha (Alderman 1994). Another showed that 75% of PPAs in Latin America protect less than 2,500 ha each (Langholz 1996). Both studies concluded that African reserves were much larger than their Latin American counterparts, with Alderman (1994) estimating the average size of African reserves to be 11,436 ha. A subsequent study of 68 Costa Rican PPAs found the median size to be only 101 ha (Langholz and Lassoie 2002).

Several exceptions exist. Many PPAs are larger than nearby national parks. Examples of large PPAs include: Tswalu Kalahari Reserve in South Africa (100,000 ha); Save Valley Conservancy in Zimbabwe (850,000 ha); Pumalin Park in Chile (298,000 ha); NamibRand Nature Reserve in Namibia (180,000 ha); the Gray Ranch in the USA (130,000 ha). Size appears to be relative. For example, The Children's Rainforest in Costa Rica protects only 20,000 ha, yet is larger than 80% of Costa Rica's national parks (Langholz and Lassoie 2002).

Small PPAs can overcome their size limitations through connectivity to larger protected areas. Indeed, the majority of PPAs occur directly adjacent to or within a larger protected natural area (e.g. a national park), or in vital corridor areas connecting two government-run parks.

A final point is that even small and isolated protected areas can effectively maintain biodiversity that has limited spatial and temporal needs. This is especially the case for centres of plant diversity where seed dispersal is limited, such as South Africa's Cape Floristic Province. Also, some reserves' main ecological function is to provide habitat for migratory birds, whose requirements are temporary and small, and must be dispersed along a lengthy migration route. An example is the 390-ha La Ensenada Wildlife Refuge in Costa Rica, which is a temporary home to the endangered migrant Jabiru stork *Jabiru mycteria*.

MYTH NO.3. PPAS DEPEND ON TOURISM REVENUES

This myth persists for the simple reason that the world's most visible PPAs happen to be the ones that host nature tourists. Their very existence depends on making sure that people like you have heard of them. The fact remains, however, that the overwhelming majority of PPAs are not engaged in tourism. You will never see their brochures or slick websites because they have none.

According to one PPA classification system, so-called "Ecotourism Reserves" represent but one of 10 PPA types believed to exist (Langholz and Lassoie 2001). Many of the nine other categories do not host tourists. For example, privately owned "Biological Stations" focus primarily on long-term research rather than tourism. "Personal Retreat Reserves" serve as rural getaway destinations for the urban-based families who own them. "Hunting Reserves" protect habitat in the context of sustainable wildlife utilisation schemes. Many "Hybrid Reserves" protect habitat that provides important ecological services to parts of the land devoted to production (e.g. protecting pollinators and water sources).

MYTH NO.4. PPAS ARE TEMPORARY

It is true that most PPAs consist of voluntary efforts by landowners. A great risk is that when the landowner changes, so will the land use. This concern is alleviated somewhat by the growing tendency of PPA owners to make formal long-term commitments to conservation. Such commitments often take the form of entering the PPA into an official government incentive programme that lasts 15 or 20 years.

Even better, the fastest growing PPA type has been the "NGO Reserve". As the name implies, these reserves are owned by non-profit organisations that are dedicated to nature conservation. One example is The Nature Conservancy in the USA, which owns the more than 1,200 PPAs worldwide. The UK-based Royal Society for the Protection of Birds owns 150 reserves totaling over 240,000 ha. The Australian Bush Heritage Fund protects some 350,000 ha. Given their missions, charters, and internal guidelines, these NGOs are clearly dedicated to long-term protection of their holdings. Many smaller NGOs have legal arrangements whereby ownership of their conservation properties automatically transfers to government park agencies should the NGO cease to exist. In many cases, such as with certain conservation easements used by more than 1,200 "land trusts" in the USA, the NGO locks up development rights of the property in perpetuity. Thus, anyone who purchases the land at any point in the future must abide by the conservation restrictions placed on the deed.

MYTH NO.5. PPAS DO BAD CONSERVATION

You can't trust the private sector. The key here is to examine the PPA type, objectives, and ownership. Resist the urge to lump all PPAs into a single group. In general, NGO-owned reserves seem to do better

Continued over...

conservation than for-profit PPAs. After all, their mission places conservation over cash. Most problems arise with the “Ecotourism Reserve” category mentioned earlier. A lengthy list of questionable conservation practices has emerged over time with activities designed to enhance short-term financial profits at a cost to conservation (see Langholz in press for list). Keep in mind, however, that even profit-driven PPAs must maintain sufficient habitat and species required to attract tourists. They cannot kill the “goose that lays the golden egg.”

On the other hand, private sector entities have proven effective at capturing the full economic value of biodiversity, then using those revenues to support conservation (Krug 2001). In many cases, PPA staff have better training, equipment, and salaries than their national park counterparts. They are in a position to conduct superior community outreach and development, and other activities such as habitat restoration. Speaking about a PPA category called the “Corporate Reserve”, Barborak (1995, p.32) notes, “large corporations in some countries control hundreds of thousands of hectares of forested land, which many times is better managed than similar areas in government hands.” Similarly, IUCN (1994) notes that PPAs are “...important because of the quality of the management and the protection afforded to them.” The bottom line is that the overwhelming majority of PPA owners are motivated more by conservation than cash, and this motivation manifests itself in the form of sound conservation practices.

MYTH NO.6. PPAS ARE OWNED ONLY BY RICH PEOPLE

PPAs tend to be owned by large landholders, who are typically more affluent than people who own little or no land. The principal advantage of largeholders is that they can augment a country’s conservation estate considerably, with much lower transaction costs than working with a large number of smallholders. The most exciting trend in PPAs, however, is the rapid rise of community owned PPAs. Community run PPAs consist of coalitions of small landowners who join forces for conservation and development purposes. The earliest and best-known example is the Community Baboon Sanctuary in Belize, where more than 120 contiguous smallholders have joined sections of their land to create a reserve. Established in 1985 to protect the black howler monkey *Alouatta caraya*, the PPA has been quite successful and has spawned more than 30 similar community-based efforts (Langholz and Brandon 2001).

A more recent example is Torra Wildlife Conservancy in Namibia. This 80,000-hectare reserve is owned and operated by local community members. As of 2003, it had become financially self-sufficient using tourism and other revenue sources, and had produced a 50% increase in average annual household income in the community. In addition to cash payments to community members, proceeds from the PPA are used to protect wildlife, build schools, provide water, and other local projects. The conservancy won the prestigious United Nations Equator Award in 2004 for being one of the world’s six best examples of sustainable development. It is one of 30 community-based conservancies registered with the national government in Namibia.

MYTH NO.7. PPAS WON'T WORK IN MY PARTICULAR COUNTRY OR PROVINCE

Whatever your circumstances, PPAs can work for you. The key is to start viewing PPAs as a set of options instead of “one size fits all.” Get the right type into the right place.

For example, is land in your area too expensive for park agencies to purchase? Then try long-term “conservation contracts” with private landowners instead of outright purchases. Does your area have large visible megafauna, or rare bird species? If so, then promote establishment of traditional “ecotourism reserves” as engines for rural conservation and economic development. Does your area lack highly visible charismatic species to attract tourists? If so, then try PPAs based on sustainable harvesting of flora and/or fauna, or perhaps PPAs based on payments for environmental services such as watershed protection and carbon sequestration. Does your area have a history of social injustice and a widening gap between rich and poor? If yes, then you will definitely want to try the community-based PPAs that empower the rural poor and enhance social justice. Do strong social networks exist among landowners in your area? If yes, then promote the establishment of collaborative PPAs (sometimes called

“conservancies”) where contiguous landowners remove internal fences and manage their entire holdings as a single PPA. Are large multi-national corporations active in your area? If yes, then encourage them to establish “corporate reserves.” In fact, set a goal of having every extractive company protecting a natural area.

The list could go on, but whatever your circumstances, PPAs of some type can help accomplish your local conservation goals. Today’s PPAs successfully operate in developing countries as well as industrialised ones; in places with strong governments as well as areas with weak ones, in regions with superb national parks systems and in regions with little or no public conservation effort.

References

- Antrobus, G.G., Fraser, G.C.G., Levin, M. and Lloyd, H.R. 1994. An overview of the agricultural economy of Region D. *Report No. 14*. Unit for Statistical Analysis, Port Elizabeth.
- Castley, J.G., Boshoff, A.F. and Kerley, G.I.H. 2001. Compromising South Africa’s natural biodiversity – inappropriate herbivore introductions. *South African Journal of Science* 97: 344–348.
- Eloff, T. 1996. Farming with a future. *SA Game and Hunt* 2: 21–24.
- Geach, B. 1995. Socio-economic and environmental aspects of land-use in the Sundays River Valley: pastoralism versus conservation/ecotourism. *Terrestrial Ecology Research Unit Report 1*: 57 pp. Port Elizabeth, South Africa.
- Geach, B. 2002. The economic value of elephants – with particular reference to the Eastern Cape. In: G. Kerley, S. Wilson and A. Massey (eds). Elephant conservation and management in the Eastern Cape: Workshop proceedings (pp. 32–40). *Terrestrial Ecology Research Unit Report 35*. Port Elizabeth, South Africa.
- Goodwin, H.J. and Leader-Williams, N. 2002. Tourism and protected areas – distorting conservation priorities towards charismatic megafauna. In: A. Entwistle and N. Dunstone (eds). Priorities for the conservation of mammalian diversity: has the panda had its day? (pp. 257–275). *Conservation Biology Series*, Cambridge University Press, Cambridge.
- Humavindu, M.N. and Barnes, J.I. 2003. Trophy hunting in the Namibian economy: an assessment. *South African Journal of Wildlife Research* 33: 65–70.
- Kerley, G.I.H. and Boshoff, A.F. 1997. A proposal for a Greater Addo National Park – a regional and national conservation and development opportunity. *Terrestrial Ecology Research Unit Report 17*: 61 pp.
- Kerley, G.I.H., Geach, B.G.S. and Vial, C. 2003. Jumbos or bust: do tourists’ perceptions lead to an under-appreciation of biodiversity? *South African Journal of Wildlife Research* 33: 13–21.
- Knight, M., Castley, G., Moolman, L. and Adendorff, J. 2002. Elephant management in Addo Elephant National Park. In: G. Kerley, S. Wilson and A. Massey (eds). Elephant conservation and management in the Eastern Cape: Workshop proceedings (pp. 32–40). *Terrestrial Ecology Research Unit Report 35*. Port Elizabeth, South Africa.
- Koch, E. 1995. Solutions – conservation and rural development in South Africa. *Optima* 41: 35.
- Langholz, J. and Brandon, K. 2001. Ecotourism and privately owned protected areas. Pp. 303–314. In: D. Weaver (ed.), *The Encyclopedia of Ecotourism*. Oxon, United Kingdom: CAB International.
- Langholz, J. and Krug, W. 2004. New forms of biodiversity governance: Non-state actors and the Private Protected Area Action Plan. *Journal of International Wildlife Law and Policy* 7: 9–29.
- Mansfield, E. 1988. *Micro-economics: theory and application*. W.W. Norton and Company, New York. 599 pp.
- Sims-Castley, R. 2002. A preliminary review of gross financial incomes generated by industries dependent on thicket vegetation. *Terrestrial Ecology Research Unit Report 37*, 19 pp. Port Elizabeth, South Africa.
- Smith, N. and Wilson, S.L. 2002. Changing land use trends in the thicket biome: pastoralism to game farming. *Terrestrial Ecology Research Unit Report 38*, 23 pp. Port Elizabeth, South Africa.
- Van der Waal, C. and Dekker, B. Game ranching in the Northern Province of South Africa. *South African Journal of Wildlife Research* 30: 151–156.
- Van Wyk, M.L. 1995. Die invloed van ekotoerisme op lewenskwaliteit in ontwikkelende gemeenskappe: ‘n ontwikkelingskommunikasieperspektief. M.Com. verhandeling. Potchefstroomse Universiteit vir CHO.

References (Box 1)

- Alderman, C. 1994. The economics and the role of privately-owned lands used for nature tourism, education, and conservation. In: M. Munasinghe and J. McNeely (eds) *Protected area economics and policy: Linking conservation and sustainable development*. IUCN and The World Bank, Washington D.C. 273–305.
- Adams, A. (ed.), 1962. First world conference on parks. National Park Service, Washington D.C.
- Barborak, J. 1996. Institutional options for managing protected areas. In: J. McNeely (ed.) *Expanding partnerships in conservation*. Island Press, Washington D.C. 30–38.
- IUCN. 2005. Annex 1: Private protected area action plan. In: Proceedings of the Vth World Parks Congress, Durban, South Africa, September. IUCN – the World Conservation Union, Gland, Switzerland. 275–278.
- IUCN. 1994. 1993 United Nations list of national parks and protected areas. IUCN – the World Conservation Union, Gland, Switzerland.
- Krug, W. 2001. *Private supply of protected land in Southern Africa: A review of markets, approaches, barriers, and issues*. The World Bank and OECD, Paris.
- Langholz, J. (forthcoming in 2007). Conservation cowboys: Perils and promise of private protected areas.
- Langholz, J. 1996. Economics, objectives, and success of private nature reserves in Sub-Saharan Africa and Latin America. *Conservation Biology* 10(1):271–280.
- Langholz, J. and Krug, W. 2004. New forms of biodiversity governance: Non-State actors and the private protected area action plan. *Journal of International Wildlife Law and Policy* 7:1–21.
- Langholz, J. and K. Brandon. 2001. Ecotourism and privately owned protected areas. In: D. Weaver (ed.), *The encyclopedia of ecotourism*. CAB International, Oxon, United Kingdom. 303–314.

Langholz, J. and Lassoie, J. 2002. Combining conservation and development on private lands: Lessons from Costa Rica. *Environment, Development, and Sustainability*.

Langholz, J. and Lassoie, J. 2001. Perils and promise of privately owned protected areas. *BioScience* 51(12):1079–1085.

United Nations 2004. Programme of work on protected areas. Secretariat of the United Nations Convention on Biological Diversity. UN Convention on Biological Diversity, Montreal.

Rebecca Sims-Castley combines interests in remote sensing, GIS and resource economics. C/O TERU/Department of Zoology, PO Box 77000, Nelson Mandela Metropolitan University, Port Elizabeth 6031, South Africa. E-mail: g.castley@griffith.edu.au

Graham Kerley is founder and director of the Terrestrial Ecology Research Unit at Nelson Mandela Metropolitan University. TERU/Department of Zoology, PO Box 77000, Nelson Mandela Metropolitan University, Port Elizabeth 6031, South Africa. E-mail: graham.kerley@nmmu.ac.za

Beverley Geach is a resource economist by training, currently employed as a Programme Manager by the Eastern Cape Parks Board. Eastern Cape Parks Board, 6 St Marks Rd, Southernwood, East London 5200. E-mail: bevg@ecparksboard.co.za

Corresponding author Jeff Langholz is currently a Visiting Fulbright Scholar in the Terrestrial Ecology Research Unit at the Nelson Mandela Metropolitan University in Port Elizabeth, South Africa. He is author of the forthcoming book 'Conservation Cowboys: Perils and Promise of Private Protected Areas' (2007). Jeff Langholz, Associate Professor of International Environmental Policy, Monterey Institute of International Studies, Monterey, CA, USA 93940. E-mail: jeff.langholz@miis.edu

Conservation on private land in Australia

PENELOPE FIGGIS, DOUG HUMANN AND MICHAEL LOOKER

In Australia, government and non-government bodies are increasingly aware that traditional protected areas alone will not achieve adequate biodiversity conservation on a continental scale. Several aspects of the 'island continent' reinforce this reality. Firstly, about 70% of Australia is in private hands, either freehold, leasehold or Aboriginal-owned. Secondly, many of the most threatened ecosystems exist only on private lands. Thirdly, threats to biodiversity cannot be addressed by state parks alone. Therefore, a major effort is in hand to find better, more innovative ways to protect biodiversity across all land tenures. Federal and state governments have produced a range of initiatives to encourage conservation on private land. The suite of tools ranges from voluntary programmes for retaining vegetation and wildlife, to contractual agreements to protect ecologically important sectors of a property, to binding covenants on land title. Incentive methods and market based instruments are also emerging to encourage land holders to conserve particular areas of native vegetation on their lands.

FOR MANY YEARS the great battles for the Australian iconic landscapes were fairly simple. The Australian environment movement cried 'Save the...' and added the names of the region: Great Barrier Reef, South-West Tasmania or Daintree. Both environmentalists and the general community knew 'Save the' was code for 'declare this area a national park' and, in turn, a 'safe' national park was one formally declared under legislation and managed by a government conservation authority. However, this limited approach has been challenged by the continuing decline of Australia's unique and globally significant biodiversity.

Despite Australia's image abroad, it is not a pristine environment. It is largely an arid continent of poor soils subject to variable climatic events and, due to its long isolation, particularly vulnerable to invasive plant and animal infestations which undermine biodiversity in even the most remote areas (Commonwealth 1996). Since Europeans arrived 200 years ago, broad-scale land clearing and modern development have had very serious impacts. The most recent major assessment, the *Australian Terrestrial Biodiversity Assessment 2002* (Commonwealth 2002) highlighted that since European settlement Australia has been responsible for a third of the mammal extinctions worldwide. In all, 346 vertebrates, eight invertebrates and 1,241 plants are listed as threatened and almost 3,000 different types of ecosystem are now considered at risk.

Given this situation the continued pursuit of a truly 'comprehensive, adequate and representative' (CAR) system of terrestrial and marine protected areas remains essential. An implicit goal is to establish an understanding of the concept and realities of adaptive and effective land management. Both goals do have bipartisan support from Commonwealth (national) and state and territory governments, although the implementation of these goals is constrained by both inadequate funding and resources.

Consequently, like their counterparts in other parts of the world, government and non-government conservation policy makers are now aware that traditional protected areas alone will not achieve the formidable task of biodiversity conservation on a continental scale. Several aspects of the 'island continent' reinforce this reality. Firstly, an estimated 70% of Australia is in private hands, either freehold, leasehold or Aboriginal-owned. Secondly, many of the most threatened ecosystems exist only on private lands and thirdly, the threatening processes which are propelling the biodiversity crisis are not confined to protected areas and cannot be addressed in parks alone. Therefore there is a major effort to find better and more innovative ways to protect biodiversity across all land tenures.

Significantly for IUCN, and WCPA in particular, it is also argued that the impetus for new directions should come from ideas first promoted at the IUCN World Parks Congresses in Caracas in 1992 and in Durban in 2003 (Figgis 2004). These key directions are: integrating protected areas into larger planning frameworks; enhancing partnerships to strengthen the capacity to manage protected areas; and properly acknowledging and integrating the rights and knowledge of indigenous and local people.

Government support

The spread of these ideas, and the growing seriousness of biodiversity loss over the last 15 years, has seen conservation on private lands, including indigenous lands, emerge as a major strategic direction in Australia. All three levels of government in Australia (national, state/territory, local) have embraced the concept of 'ecological networks' or 'landscape conservation' with both private reserves and covenanted properties forming the 'connective tissue' between traditional protected areas.

All government levels have produced a range of initiatives to encourage conservation on private land. The suite of tools ranges from voluntary programmes for retaining vegetation and wildlife, to contractual agreements to protect ecologically important sectors of a property, to binding covenants on land title. Incentive methods and market based instruments are also emerging to encourage land holders to conserve particular areas of native vegetation on their lands (Figgis 2004).

However, it should be noted that in Australia we do not refer to the lands protected under these programmes as 'private protected areas'. The most common terms have been 'off reserve' conservation or 'landscape conservation' (Binning and Feilman 2000). The term 'private protected area' has only recently been used mainly to refer to large land purchases by the private sector, usually land trusts that manage the entire property for the protection of biodiversity.

The development of these larger private protected areas has been substantially assisted by a Commonwealth government programme called the National Reserve System (www.deh.gov.au/parks/nrs/index). The programme has been operating since 1997 and aims to produce a comprehensive, adequate and representative (CAR) reserve system. It has bilateral political support at the federal level and the support of all states and territories. Priorities for reserve selection are being determined within major planning frameworks: the Interim Biogeographic Regionalisation for Australia (IBRA) for terrestrial areas and, in the marine biome, the Interim Marine and Coastal Regionalisation for Australia (IMCRA).

The programme has received some \$60.8 million since 1996 from a substantial Commonwealth government environmental fund called the Natural Heritage Trust (NHT). It has had three principle components: funding to assist states and territories to continue to build their formal reserve systems; funding to approved private trusts, groups of individuals or individuals to develop private protected areas (PPAs) – this can be up to 2:1 funding for private acquisitions; and funding to develop a voluntary 'contractual' system of indigenous protected areas (IPAs). The programme claims to have brought 1.22 million ha into conservation management (Gillian Lee 2006 pers. comm.).

The development of private conservation

The concept of private wildlife reserves has existed in Australia for many years. Most states of Australia have set up some mechanism for private property owners to declare their properties wildlife refuges. In some cases the property would be formally gazetted and the status transferred to new owners. In New South Wales (NSW) alone this scheme, started in 1948, had produced 600 refuges covering over 1.6 million ha by 2004 (Figgis 2004). However, little was required of the owners to manage actively for biodiversity and so results were variable. A model which has proliferated in the last decade is Land for Wildlife, a wholly voluntary scheme which

encourages landowners to conserve their land and foster wildlife protection. Land for Wildlife originated in the state of Victoria where it has been very successful and by 2005 over 5,940 properties were involved, including agricultural lands, bush blocks, defence lands, local government lands, cemeteries and school grounds (www.dse.vic.gov.au). Most states now have an equivalent programme and it is well developed in the states of Western Australia and Queensland.

The major pioneer of private land conservation was the Trust for Nature (originally Victorian Conservation Trust), set up initially by government in 1972. Victoria is in Australia's heavily settled south-east, and with 95% of the land settled and 65% in private hands, such a body was essential. After initially working solely with land purchase it was subsequently modelled on the US-based Nature Conservancy (TNC) by adopting a range of tools to gain its conservation outcomes. Over the years the Trust (www.tfn.org.au) has pursued conservation through enabling people to bequeath land or money for purchases of privately owned bush, encouraging the development of conservation covenants (easements) which were tied to land title and setting up a revolving fund which allows the Trust to acquire noteworthy bushland and sell it again in covenanted form. Most recently, changes in tax laws now support covenantors who can also gain help and advice from the Trust with ongoing management (Davidson 2006).

The Trust established a model which has now been applied in every state and territory in Australia. Unfortunately, and rather typically for Australia, most states have chosen their own names rather than establish a national terminology, for example in New South Wales it is the Nature Conservation Trust and in South Australia, the Nature Foundation SA. A guide on the various incentives can be found at www.deh.gov.au/tax/index.html.

The concept of a substantial private reserve, as opposed to declaring rural properties as 'wildlife refuges', was pioneered in Australia by a colourful character with a passion for Australian wildlife, John Wamsley, who made national headlines by wearing a hat made from a feral cat to an award ceremony. In 1969 he developed a 34-ha privately owned sanctuary, Warrawong, in the Adelaide Hills which later became part of the privately listed company Earth Sanctuaries (ESL) (www.esl.com.au). Wamsley believed that the only hope for conservation was to fence large areas, eradicate all feral animals and reintroduce mammal species from elsewhere. He had considerable success with breeding threatened species. However, the cost of the fenced sanctuary model has limitations as a tool in a country as vast as Australia. His organisation grew fast, at one stage owning 10 properties covering 92,000 ha, but overstretched and had to sell all of its large properties. ESL has recently been acquired by another organisation and various parts of the remaining four reserves are being sold off.

This model, which has had a definite role in building up the numbers and strength of threatened species, has been emulated by other individual landowners who are also establishing fenced sanctuaries. **Calga Springs**, north of Sydney, which opened in early 2000, is a 70-ha wildlife sanctuary owned by a former Commonwealth Minister for the Environment, Barry Cohen. Meanwhile the flamboyant Australian 'Crocodile Hunter' Steve Irwin has set up a major wildlife park in Queensland and also purchased over 36,000 ha of land for wildlife habitat (www.wildlifewarriors.org.au/australian_conservation).

The 1990s was the decade of 'take off' for private land conservation in Australia, largely fuelled by the increasing realisation that biodiversity existed across tenures and the threats to its integrity did not respect boundaries. The simple fact that two-thirds of the continent was managed by private landholders led the National Biodiversity Strategy to conclude that conservation required "integrated and consistent approaches across freehold and leasehold and other Crown lands" (Commonwealth 1996). A flurry of reports and conferences entrenched this direction. As a result the Trust for Nature model has been duplicated in virtually all states and other models, such as those discussed below, have been pursued.

Models of private land conservation

Ecosystem networks

Australia's first attempt at developing an ecological network occurred at **Riverland** (previously Bookmark) **Biosphere Reserve** in South Australia's Riverland Region. Over several decades it has brought together 47 parcels of land covering some one million ha, which includes formal protected areas, private lands and land owned by private conservation organisations. The properties include a former pastoral lease **Calperum**, Danggali Conservation Park, and a 54,600-ha property **Gluepot**, which Birds Australia, Australia's major ornithological organisation, purchased as a sanctuary for threatened bird species such as the Black-eared Miner *Manorina melanotis*.

However, the biosphere is not only composed of *de facto* nature reserves, but also game and forestry reserves as well as working properties, pastoral leases and even towns. Riverland includes substantial areas of the floodplains of the Murray River that are Ramsar-listed wetlands for migratory species and waterfowl. It also helps protect the largest area of mallee (low, 5–8 m high, shrubby eucalyptus) woodland in eastern Australia. The biosphere is managed by an incorporated body which has government, landowner and community interests represented on it. They are actively seeking new land partners (Duncan McKenzie 2006 pers. comm.).

Another major success story emerging is the **Gondwana Link** project in south-west Western Australia's botanical province (www.gondwanalink.org). It is one of the world's biodiversity hotspots where exceptional concentrations of endemic species are threatened by extensive loss of habitat. Gondwana Link is a landscape-scale vision involving individuals and local, regional and national groups. The aim of the project is to reconnect fragmented naturally vegetated land over a distance of almost 1,000 km between the ecosystems of inland Western Australia and the unique tall karri and jarrah forests of the south-west corner. The concept seeks to restore ecological connectivity and maintain ecosystems. Major government, community and nongovernment players are involved with the project, but a crucial element is the purchase of key properties by private land trusts, including the Australian Bush Heritage Fund, one of the leading players in private conservation in Australia, and Greening Australia (WA). This has been the first entry into land purchase for Greening Australia which has been one of Australia's major organisations dedicated to protecting and restoring the health, diversity and productivity of landscapes (www.greeningaustralia.org.au).

Despite more than a decade of consensus on the desirability of such multiple-tenure models based around core conservation lands, very few working examples have emerged to date. The chief impediment remains the complexity of management across different land tenures, gaining the co-operation of the many government departments and agencies in a federal system, as well as co-ordinating private and community input. However, there are powerful imperatives to pursue this integrated model and it is being promoted by the major NGO, The Wilderness Society (TWS), under the name of Wildcountry (www.wilderness.org.au/campaigns/wildcountry).

Conservation Management Networks

The Conservation Management Network (CMN) is a relatively new model created to address one of Australia's critical conservation problems, the fragmentation of ecological communities. In the national work to produce a CAR reserve system, the IBRA analysis soon highlighted that ecosystems on productive soils tended to be poorly represented in the reserve system. Agencies have limited acquisition budgets and lands in more productive areas are more expensive. In many cases very little of a particular ecosystem remains and what remains is highly fragmented.

In the case of the productive grassy ecosystems of south-eastern Australia there are very few substantial areas left suitable for reservation as a traditional protected area. As a way of protecting what remains, the concept of incorporating scattered ecosystems remnants into a network was developed. Through the CMN the owners and managers of the remnants can

“badge” their remnant as something of broader importance, share scientific expertise and management advice, share extension efforts, apply for grants as a network, and undertake a wide variety of actions more effectively than as isolated individuals. The networks have both a biological aim of enhancing biodiversity conservation through improved management (where required) and encouraging greater levels of protection, and a social objective of enhancing community ownership and involvement in conservation (Prober *et al.* 2001).

A related example is the Gippsland Plains CMN which was formed in 1999 when the Trust for Nature (Victoria) purchased a number of high priority Forest Red Gum Grassy Woodlands with assistance from the National Reserve System Programme. The Gippsland model was inspired by the CMN model but is geographically based and not restricted to a vegetation type. The new lands were combined with existing public reserves such as the Providence Ponds Flora and Fauna Reserve and private lands with conservation covenants. Its aim has been to create an ‘entity’ from all the protected remnants of vegetation on the Gippsland Plain. Originally co-ordinated by the Trust for Nature, and then by the Victorian Department of Natural Resources and Environment, it has since become an incorporated body, with paid membership. A ranger has been employed to oversee environmental monitoring and restoration works (Fitzsimons 2004, Fitzsimons and Wescott 2005).

There are seven CMNs operating in south-eastern Australia at present (Fitzsimons and Wescott 2005). They tap into a reservoir of community spirit in which landholders contribute skills, time, and materials and often rely on a great deal of volunteer labour. However, like so many programmes, long-term success often depends upon the willingness of governments to support the initial set-up stage, and for grant programmes to be available for implementation of their extension activities and communication between partners.

Private protected areas

Two major NGOs have emerged as national land trusts that purchase substantial properties and manage them for biodiversity outcomes; the Australian Bush Heritage Fund (Bush Heritage) and the Australian Wildlife Conservancy (AWC). Bush Heritage, AWC and the Trust for Nature have also been assisted in capacity building and purchases by the international private conservation NGO, The Nature Conservancy (TNC). TNC has recently indicated that it will expand its work in Australia with a programme based solely on working with local conservation partners.

These private trusts have been boosted by the availability under the NRS of 2:1 funding for land acquisition and short term management costs to alleviate immediate threats. The private purchaser must enter into a Private Protected Area Establishment Agreement with the Commonwealth government and manage the land as an IUCN protected area category of I to IV. Quite apart from the organisation’s own commitments to long-term conservation management, such management is secured through covenants and other legal means. The NRS programme has partly funded 54 private protected areas with an expenditure of 17.4 million Australian dollars (Gillian Lee 2006 pers. comm.).

Bush Heritage has established and actively manages 23 reserves around Australia, protecting more than 670,000 ha of Australia’s threatened ecosystems. It identifies, acquires and manages private land and water of outstanding natural significance and high biodiversity value. It is Australia’s most widely supported organisation of this type with over 14,000 supporters. Bush Heritage is establishing important partnerships with many local, regional and national bodies as it extends its work ‘beyond the boundaries’ of its reserves. An indigenous partnership programme has recently commenced to share knowledge in this important area (www.bushheritage.org).

Two significant examples, which have been funded through the NRS and, in the case of Ethabuka/Cravens Peak, have also been funded through grants by The Nature Conservancy are:

1. **Carnarvon Station Reserve** in central Queensland covers 59,000 ha. It is a vast and beautiful woodland/grassland landscape representing 28 regional ecosystems, of which six are endangered. The reserve's importance is increased by its location adjacent to the 298,000 ha Carnarvon National Park. Carnarvon Station Reserve is of high conservation value for plants as it is located in a region where many plant species have been threatened by large scale land clearance. Between 76 and 100 plant species from the area are now considered rare or threatened. Carnarvon is also significant for many species of fauna, particularly woodlands birds. Vulnerable or near threatened species at the Reserve include the koala *Phascolarctos cinereus*, greater glider *Petauroides volans*, rufous bettong *Aepyprymnus rufescens*, and the black-striped wallaby *Macropus dorsalis*. Preliminary fauna surveys have found 21 marsupials, including nine species of macropods, in addition to 150 birds, five bats, 11 frogs and 35 reptiles. More species are sure to be added.
2. **Cravens Peak** in far western Queensland is the most recent Bush Heritage reserve (purchased in 2005). Part of the massive Lake Eyre Basin, the reserve is a vast and awe-inspiring landscape covering 233,000 ha with desert dunes, natural grass plains, worn and ancient mountain ranges, wetlands, and braided channels. **Ethabuka Reserve** to the south covers an additional 213,000 ha. These reserves have been selected for their astonishing diversity and their immense scale – totalling 446,000 ha. They add to existing protected areas and to building the resilience of this arid landscape in the face of multiple challenges, including climate change. Together these two reserves protect 21 major plant communities, 30 species of mammal, over 120 birds and more than 65 reptiles, making the region one of the most diverse reptile fauna areas on Earth. At least 16 species are at risk of local extinction (www.bushheritage.org).

The Australian Wildlife Conservancy (AWC) acquires land to protect threatened wildlife and threatened ecosystems. AWC now owns 14 sanctuaries covering 917,000 ha across Australia.

Carnarvon Station Reserve, central Queensland. Photo: Wayne Lawler.



AWC properties protect more than 250 threatened plant and animal species and well over 200 ecosystems, of which more than 90 are threatened. Around 80% of AWC's staff are based in the field, where they implement feral animal control, weed control, fire management and endangered species translocations (www.australianwildlife.org).

1. **AWC's Brooklyn Wildlife Sanctuary**, in north Queensland, is home to the greatest diversity of wildlife of any private property in Australia. In total, over 500 species of native mammals, birds, reptiles and amphibians have been recorded on Brooklyn, or are expected to occur on the property. Remarkably, this single property of 60,000 ha is home to 40% of all Australian bird species, and 30% of all Australian mammal species.

Brooklyn is, in particular, a 'hotspot' for threatened species, with at least 45 threatened animals and approximately 50 threatened plant species found on the property. The extraordinary level of biodiversity on Brooklyn reflects its strategic position straddling two bioregions, its topographic variation and the steep rainfall gradient across the property. The property extends from some of the highest and most rugged mountains in the Wet Tropics World Heritage Area to the expansive plains of the Mitchell River. Annual rainfall across the property varies from more than 4,000 mm to less than 900 mm. Over 70 vegetation types have been mapped on the property, providing habitat for a host of rare and enigmatic species including the cassowary *Casuarius casuarius*, Lumholtz's tree kangaroo *Dendrolagus lumholtzi*, the northern quoll *Dasyurus hallucatus*, the red goshawk *Erythrotriorchis radiatus* and the blue-faced parrot finch *Erythrura trichroa*.

2. AWC's largest property is **Mornington Wildlife Sanctuary**, covering more than 312,000 ha in the remote central Kimberley. Cradled by the ancient sandstones of the King Leopold ranges, the property hosts a landscape of spectacular scenery. Flat-topped mesas cut by steep-sided valleys and gorges overlook vast savanna woodlands and a network of tropical rivers and streams. The property protects a diversity of threatened ecosystems associated with Australia's tropical savanna, including open eucalypt woodlands, grasslands and fire-sensitive riparian

Rainforest in the mountains at Brooklyn Wildlife Sanctuary, Australian Wildlife Conservancy. Photo: Richard Waldendorp, Australian Wildlife Conservancy.



A male Gouldian finch Erythrura gouldiae at Mornington Wildlife Sanctuary, Western Australia. Photo: Steve Murphy. AWC.



habitat. Many of these ecosystems are not protected in any government nature reserves. The wildlife of Mornington is impressive – 189 bird species, over 80 reptiles and amphibians and an expected mammal list of more than 30 species. More than 25 threatened animals and plants have been recorded to date. Highlights include the endangered Gouldian finch *Erythrura gouldiae*, one of Australia's rarest and most beautiful birds. The key management challenge is implementing an appropriate fire regime. AWC has also established a field research centre at Mornington which now attracts scientists from around Australia and the world.

Birds Australia, the national ornithological society, has also acquired two properties in arid Australia. Both properties have high conservation value and are managed as private protected areas without feral exclusion fences.

1. **Gluepot**, 50,000 ha of virgin mallee woodland in South Australia is home to 17 species of threatened birds. Purchased in 1997, it is part of the Riverland Biosphere Reserve. When added to woodland on surrounding reserves it creates a large intact region of high viability for threatened flora and fauna. The reserve is rich in old-growth species, which have not been ravaged by frequent fire, and waterless regions that have not suffered from grazing pressure. The reserve helps protect six nationally threatened species of bird and 17 species of regionally threatened birds, including the magnificent Major Mitchell cockatoo *Cacatua leadbeateri*.
2. **Newhaven Station**, in remote central Australia, covers 262,600 ha of Australia's vast arid zone. The area contains 23 vegetation communities and a wide variety of landforms, poorly represented elsewhere. Newhaven provides habitat to at least 65 nationally threatened species of animals and plants. After acquiring the property in 2001, Birds Australia is now working in partnership with AWC to provide for the ongoing conservation and management of Newhaven.

Indigenous Protected Areas

Indigenous-owned lands are a highly significant area of private lands in Australia, especially in Australia's vast tropical savannah region north of the Tropic of Capricorn. In the Northern Territory alone some 43% of land is Aboriginal title. Ownership is held by a community trust or organisation as inalienable freehold title. The Indigenous Protected Areas (IPA) Programme is also supported by the NRS. It aims to promote voluntary inclusion of indigenous lands in the protected area network and support the development of co-operative management arrangements. Nineteen IPAs have been declared over Aboriginal land, covering more than 13.8 million ha and adding significantly to the NRS (www.deh.gov.au/indigenous/ipa). Large additions, possibly amounting to five million ha, are anticipated in 2006 (Bruce Rose pers. comm.). The IPA programme funds management plans and practical work to protect natural and cultural features and to contribute to conserving biological diversity.

IPAs operate in accordance with the internationally recognised IUCN Protected Areas Guidelines, and are managed in accordance with a plan of management which is developed prior to declaration to protect natural and cultural features and to contribute to conserving biological diversity. The Plan includes mapping the flora and fauna of the area and other significant values, identifying threats to biodiversity, e.g. feral animals and weed infestation, and determining management zones and prescriptions for each zone.

The concept involves combining a strong respect for traditional ecological knowledge together with the use of modern science and land management skills. Aboriginal land management, such as patch burning and maintenance of water holes, is increasingly understood as integral to maintaining biodiversity. The social sustainability issues are to enhance the ability of indigenous Australians to live on their land and to pass on their ancient knowledge of the land and concepts of responsibilities to the next generation.

Some examples are:

1. The vast **Ngaanyatjarra IPA** is part of the Western Desert region, which contains all of the Western Australian Central Ranges bioregion, bordered by the Gibson Desert to the north and west, and the Great Victoria Desert to the south. At 9,812,900 ha, it covers an area larger than Tasmania and is of great ecological significance. Prior to IPA declaration, this region was one of only two of Australia's 80 biogeographic regions with no conservation reserves or areas. The western Ngaanyatjarra IPA boundary is contiguous with the existing Gibson Desert Nature Reserve adding to the overall conservation significance of the declaration. At least five endangered or vulnerable animal species are known to occur in the Ngaanyatjarra IPA: mulgara *Dasyercus cristicauda*, marsupial mole *Notoryctes typhlops* and *N. caurinus*, greater bilby *Macrotis lagotis*, black-footed rock-wallaby *Petrogale lateralis* and ghost bat *Macroderma gigas*. Management activities such as controlling foxes have already shown positive results with an increase in rock wallaby numbers.
2. **Nantawarrina**, an Aboriginal-owned property in the Northern Flinders Ranges. It was declared Australia's first IPA at a formal launch ceremony in August 1998. The property covers 58,000 ha which was previously used for pastoral and mining activities. The area had a history of over-grazing and was further degraded by the impact of feral goats, rabbits and donkeys. Nantawarrina is located immediately adjacent to the Gammon Ranges National Park. The Nepabunna community, with the support of the South Australian Aboriginal Lands Trust and Park staff, are investing considerable time and resources into addressing the significant environmental problems affecting the natural and cultural values of the area. The community is committed to managing the area for both biodiversity conservation and cultural values. Due to its location this will considerably enhance the size and effectiveness of the existing protected areas in the region.
3. **Yalata IPA** was declared in October 1999. The 456,300-ha property at the head of the Great Australian Bight in South Australia is managed by Yalata Community, Inc. Yalata is adjacent to other large reserves, which together form one of the world's largest contiguous areas of land and sea managed for biodiversity conservation. Yalata's cliffs are best known as outstanding vantage points for watching whales migrate to mate and calve in the waters of the Bight. The semi-arid ecological zone on the edge of the Nullarbor Plain is rich in native birds, mammals and reptiles. The region is also of great cultural importance, with dreaming tracks (tracing the creative journey of the Spirit Ancestors across the land), which cross continental Australia, converging in this region.

The ecological importance of IPAs is enhanced by their large scale and relative lack of disturbance. However, in Australia, remoteness alone will not protect biodiversity from the threats of inappropriate fire regimes and invasive animals and plants. Therefore the long-term management effectiveness of their protected area status will depend on continuing government commitment, and in particular funding, to enable indigenous people to use their traditional skills, develop modern land management skills and have the capacity for management with all its challenges. Nevertheless, recent budgets have been very modest.

Conclusion

At this stage the policy implications of private protected areas are not clear. Long term security is an issue. De-gazettement of a legislated national park is a complex process; the long term security of private lands is less certain. Management costs are high and with oil shortages predicted, are likely to get higher, especially in remote areas. The recent changes of ownership of Newhaven Station and properties previously owned by Earth Sanctuaries highlight the financial challenges faced by private organisations managing large and remote properties for nature conservation. Each new purchase requires a trust taking on major costs in perpetuity. The

Australian Bush Heritage Fund has responded to this challenge by raising a substantial investment fund to meet the operational expenditures it has estimated for each of its reserves.

Another consequence is that private land conservation organisations are considering a range of alternative income streams beyond grants and donations. If this led to a dependence on certain revenues (tourism for example), new management issues would arise.

There is also a possibility that the development of private models may strengthen the push for privatisation of public protected areas. The inclusion of private areas and contractual indigenous areas in the protected area estate is certainly blurring the old certitudes and public expectations of what a protected area is. The possibility of privatisation remains opposed by most environmental organisations who believe private management of national parks would bring management for profit, not conservation priorities.

A key challenge is the reliance of the sector on government funding. The dramatic rise of the sector was definitely fuelled by the existence of government programmes, in particular the NRS. The funding for this programme has dropped from 20.6 million Australian dollars in 2001–2002 to six million in 2005–2006. The programme is currently under review although the powerful leverage it provides for philanthropic support and the gains demonstrated for nature conservation should see it expanded.

Overall, there is a fundamental recognition across all conservation sectors that the record of private conservation to date is very promising. The sector is providing valuable additional funds and capacity in an era of over-stretched governments. It has certainly brought millions of hectares under active conservation management. It is allowing the vision of great sustainable landscapes of integrated and connected lands to become closer to a reality. These are the lands which will be essential for the goals of turning ‘islands to networks’, creating ‘benefits beyond boundaries’, to realise the vision articulated by IUCN and WCPA.

References

- Binning, C. and Feilman, P. 2000. Landscape Conservation and the Non Government Sector, Environment Australia. Commonwealth of Australia 1996. The National Strategy for the Conservation of Australia's Biological Diversity, 11. Commonwealth of Australia 1996. State of the Environment, Australia. ES-10. Commonwealth of Australia 2002. Australian Terrestrial Biodiversity Assessment. Davidson, S. 2006. Private Conservations. In: *Ecos, Issue 128*, Dec–Jan 2006 18–23. De Blas, A. 2006. The Science of private conservation. In: *Ecos, Issue 128*, Dec–Jan 2006, 26–27. Figgis, P. 2004. *Conservation on Private Land: the Australian Experience*. IUCN, Gland Switzerland and Cambridge, UK. Available www.acfonline.org.au/uploads/res_private_lands.pdf Fitzsimons, J.A. 2004. The Contribution of Multi-tenure Reserve Networks to Biodiversity Conservation. PhD thesis, School of Ecology and Environment, Deakin University, Melbourne. Available: <http://tux.lib.deakin.edu.au/adt-VDU/public/adt-VDU20050817.103606/> Fitzsimons, J.A. and Wescott, G. 2005. History and attributes of selected Australian multi-tenure reserve networks. *Australian Geographer* 36, 75–93. Lee, G. 2006. pers. comm. National Reserve System, Department of Environment and Heritage. McKenzie, D. 2006. pers. comm. Chair, The Nature Foundation, South Australia. Prober, S.M., Thiele, K.R. and Higginson, E. (2001) The Grassy Box Woodlands Conservation Management Network: picking up the pieces in fragmented woodlands. *Ecological Management and Restoration* 2, 179–188. Rose, B. 2006. pers. comm. Indigenous Protected Areas, Department of Environment and Heritage.

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Dr James Fitzsimons, Senior Project Officer, Victorian Environmental Assessment Council and Atticus Fleming, CEO Australian Wildlife Conservancy.

Penelope Figgis is WCPA Vice-Chair for Australia and New Zealand. She has been a senior member of the Australian environment movement for over 25 years. Her roles include nine years as a Director of the Australian Bush Heritage Fund, a leading private conservation trust. She participated in the private conservation stream at the Vth IUCN World Parks Congress in Durban and IUCN published her paper Conservation on Private Lands: the Australian Experience in 2004. E-mail: figdon@ozemail.com.au.

Doug Humann has been Chief Executive Officer of the Australian Bush Heritage Fund, one of Australia's leading private land trusts, since 1997. Previously he was Director of the Victorian National Parks Association, a state-based advocacy group for protected areas.

Dr Michael Looker is currently the Associate Director, Australia Programme of The Nature Conservancy, a global conservation organisation. Michael previously had five and a half years as Director of the Trust for Nature Victoria, Australia's earliest land trust, where he introduced a landscape scale approach to their work.

Private protected areas and their key role in the conservation of the Atlantic Forest biodiversity hotspot, Brazil

DENISE MARÇAL RAMBALDI, ROSAN VALTER FERNANDES AND
MARCIO AUGUSTO REOLON SCHMIDT

This is a brief review of the private protected lands in Brazil; the concept of Private Natural Heritage Reserve (*Reserva Particular do Patrimônio Natural* – RPPN); legal and institutional aspects related to the RPPNs; the relevance of private protected areas in the conservation of the Atlantic Forest biodiversity hotspot, and the valuable environmental services provided to Brazilians; private contributions for public benefit; the recovery effort for the endangered golden lion tamarin *Leontopithecus rosalia*; and the potential of private protected lands to contribute to landscape restoration and sustainable development generally.

RESERVES, and other types of protected areas in which development activities are regulated, are a common tool for biodiversity conservation. The Brazilian Forestry Code, promulgated in 1934, mentioned the establishment of private protected areas, or “protection forests.” Here, land use was restricted and property rights could not be transferred to others, which made this instrument unattractive to landowners. In 1965, the Forestry Code was reviewed, and the protection forest arrangement was dropped.

In 1977, private landowners from southern Brazil proposed a designation for private lands protected from hunting, a common problem in the entire country (Wiedmann 1997). The federal government created the Private Wildlife Refuge, a private property where hunting is prohibited by the landowner through a specific act of the government (Ferreira and Galante 1987). However, the process and rules to establish a Private Wildlife Refuge were not clear to the landowners nor even to government officials, and no incentives or formal recognition were provided to these voluntary assignments. There is no accurate information on the number and area of reserves covered under the Private Wildlife Refuge system (Mesquita and Vieira 2004), but it can be considered the precursor of the current private reserves existing in Brazil.

Later, in 1990, the Brazilian Environment Agency (*Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis* – IBAMA) developed the designation of Private Natural Heritage Reserve (*Reserva Particular do Patrimônio Natural* – RPPN), establishing regulations as well as restrictions on land use and benefits to landowners. Decree 98.914/1990 established the RPPN, giving IBAMA the authority to recognise such reserves through the landowner’s initiative, in areas with identified natural conditions; natural, semi-natural, or restored habitats; or areas with landscape restoration potential or the preservation of the biological cycles of native species of fauna and flora. The legal act defining the RPPN was reviewed in 1996, improving the RPPN concept, establishing the rights and duties of the landowners and IBAMA, and attempting to define the allowed uses such as scientific, educational, cultural, and recreation.

Along with this new decree, the main innovation on private reserves was a land tax exemption status over the protected area; priority on bank loans and agricultural credits (Wiedmann 1997); and, in contrast to its precursor, the Wildlife Refuge, the property rights of the RPPN can be transferred to others, through succession rights, purchase or donation. Unlike private reserves in other countries, for example easements in North America, the government does not pay anything to the landowners to protect their land as RPPN, and this status cannot be revoked. After 1996, the concept and principles of private reserves in Brazil became more formalised, accessible and clear to the landowners, the federal and state governments and to conservationists at large.

Private reserves within the Brazilian National System of Protected Areas

The Brazilian National System of Protected Areas (*Sistema Nacional de Unidades de Conservação - SNUC*), was officially established in 2000 by federal law. Since then, the RPPN have become an important component of the system, by protecting private areas that shelter significant examples of ecosystem and natural resources, unique landscapes and cultural values. The SNUC classified protected areas into two groups: strict protection and sustainable use. Areas of strict protection have preservation as the main purpose, and few uses are allowed. Areas under the sustainable use category are designed to balance nature conservation and sustainable use of part of the natural resources.

Under the National System of Protected Areas, RPPNs belong to the sustainable use category. The designation is defined as “a private area, protected in perpetuity, with the objective of conservation of biological diversity.” The activities allowed within the RPPNs are scientific research and public access for tourism, recreation and education. Designation does not mandate such activities, that is the prerogative of the landowner, who may keep the area private or provide public access.

An area may be recognised by the government as an RPPN in whole or in part, at the discretion of the landowner. It means the RPPN actually represents an agreement between the private landowner (individuals, corporation, private institution, association, etc.) and the government to share the responsibility to protect an area’s natural resources and cultural values. The property rights over the area recognised as RPPN are unchanged, and the RPPN may be freely traded, since full ownership is maintained by the owner. There are no limits on the size of the area to be recognised as RPPN. In practice, they vary from less than one hectare to thousands of hectares depending on the representativeness of the area, the legal situation concerning property rights, and ultimately, the owner’s wishes. The area can also be in different states of conservation: a well-preserved environment is of course eligible, but so too are degraded areas that the owner wants to restore and protect. Land use – within the legal restrictions established by the SNUC and other regulatory instruments – is also defined by the owner. RPPNs can support and develop biological research, environmental education, public recreation, ecotourism or even no use, keeping the area closed to any kind of activity or public access. The landowners of RPPNs may qualify for property tax exemptions.

The contribution of RPPNs to biodiversity protection

Brazil is among the richest countries for biodiversity, sheltering two global hotspots: Atlantic Forest and Savanna, and a wilderness area, the Amazon Forest (Mittermeier *et al.* 2002). In 2005, according to the Brazilian Environment Ministry (www.mma.gov.br, consulted on 15 January 2006), there were 256 protected areas created by the federal government, comprising two groups: 117 in strict protection (57 national parks, 27 biological reserves, 31 ecological stations, two wildlife refuges), totalling 28.5 thousand million hectares, representing 3.3% of the total area of Brazil; and 589 in the sustainable use category (70 national forests, 29 environmental protection areas, 43 extractive reserves, 17 areas of ecological relevance, one sustainable development reserve, and 429 RPPNs), covering 34.6 thousand million hectares, representing 3.9% of the land area. Combined, the total area under protection is approximately 7.2% of the entire country.

The wildlife refuges, environmental protection areas, areas of ecological relevance, and RPPNs remain in private ownership. But in contrast to other sites, RPPNs depend on the voluntary and official agreement of the landowner in order to be created, while the others can be unilaterally established by the government. Regardless of the type of designation, all protected areas are subject to land use restrictions. In some cases, when the rules established by the SNUC are violated by the landowners and conservation of natural resources are at risk, the protected area can be expropriated by the government and the landowner may be subject to penalties or even criminal prosecution.

As shown in Figure 1, RPPNs are quite well represented in the Brazilian biomes. The highest number of these reserves (222) are located in the Atlantic Forest, although in terms of area, the Pantanal has more land protected by RPPNs because individual reserves there tend to be much larger. For example, just six RPPNs in the Pantanal cover an area equal to 58% of the entire area protected by the 222 RPPNs in the Atlantic Forest.

Figure 1. The number of Private Natural Heritage Reserves (RPPNs) per biome. Source: IBAMA.



The Atlantic Forest is a rich ecosystem with high levels of biodiversity and endemism, and is the most threatened of Brazilian ecosystems. The Atlantic Forest hotspot today represents only 7.3% of its natural extent (Fundação SOS Mata Atlântica 2002), and is now a highly fragmented forest landscape largely converted to pasture, cropland and urban areas. This region stretches from the Atlantic Ocean to the mountains, and was the gateway to the European settlements in the 16th century. In the last 500 years it has suffered persistent and unsustainable development patterns. Today, it is the most developed and densely populated area in Brazil. Approximately 70% of the Brazilian population live in the Atlantic Forest region, in metropolises such as São Paulo, Rio de Janeiro and Curitiba, where at least 50% of Brazil's Gross National Product is generated. Due to these factors, the real estate market is tight, land prices are high and the parcel size of rural properties tend to be smaller than in other regions. That explains the striking difference in RPPN area and number in the Atlantic Forest compared with Pantanal biomes.

Success with RPPNs at the federal level inspired state governments to establish their own RPPN systems. These provide similar benefits to landowners, including property tax exemption for the protected area. Demand to create RPPNs exceeds capacity at IBAMA: it takes around one to two years to create a Federal RPPN, but at the state level the process takes less than a year. Some states have also passed legislation to increase revenue-sharing with municipalities proportional to their extent of protected areas, that is, municipalities with more protected areas receive more funds from the state government. These funds have to be invested in environmental conservation, restoration and protection. It is a kind of ecological tax, referred to in Brazil as ICMS Ecológico. So, in addition to tax exemption, some states and municipalities also provided direct support to RPPN management through this preferential revenue sharing.

An important initiative by landowners was the creation of state associations of RPPNs, later joined in a national confederation. The first RPPN association was established by owners of RPPNs within Rio de Janeiro State, in 1998, and served as a model to others. This development represents an advance in the institutional strengthening of this protected area category, providing it with visibility before the government and the public at large. It also supports the development and implementation of public policies for private protected areas, and reinforces the importance of RPPNs in biodiversity conservation in a country like Brazil, where the majority of land is in private ownership. The state associations and confederation have promoted themes such as environmental licensing and environmental law enforcement systems (both controversial and, in certain ways, inefficient); have hosted state and national congresses of RPPNs; supported the creation of new RPPNs, providing technical assistance on management and sustainable use; and supported fundraising initiatives. The efforts of this confederation also made possible the preparation of guidelines for RPPN management planning, published in 2004 (Ferreira *et al.* 2004).

As a result of this institutional development, the federal government has launched a national programme to promote RPPN formation, planning and management. Conservation International and Fundação SOS Mata Atlântica have also created a fund to support similar activities related to the RPPNs in the Atlantic Forest biome.

RPPNs: a better future for the Atlantic Forest

As stated above, the Atlantic Forest hotspot has more RPPNs than any other biome in Brazil (Figure 1). For reasons already discussed, the level of technical, scientific and political activities of the environmental institutions in this region – both governmental and non-governmental – is vigorous and systematic. High environmental awareness allows these institutions to pursue themes such as provision of environmental services and goods, property rights, and shared responsibilities between public agencies and private landowners. Many NGOs in the Atlantic Forest have programmes to support private protected areas. Among them, Conservation International and Fundação SOS Mata Atlântica work through the Atlantic Forest Alliance;

WWF-Brazil has also supported some initiatives; and The Nature Conservancy has supported local NGOs to purchase land to create RPPNs.

With a more restricted geographical focus, but very representative of the importance of RPPNs to conservation, is the Associação Mico-Leão-Dourado (Golden Lion Tamarin Association). The AMLD is a Brazilian NGO with more than 20 years experience working to restore and protect the threatened golden lion tamarin *Leontopithecus rosalia*, a small primate endemic to the coastal lowland Atlantic Forest of Rio de Janeiro State, whose range is now restricted to the forest remnants of seven municipalities (Kierulff and Rylands 2003) within the São João watershed. The forest remnants in the current distribution area of the species represent only 4.2% of the original range and are too small to maintain the integrity of a formerly complex ecosystem. Between 1986 and 2002 habitat was lost at an annual rate of 1.2%, primarily due to deforestation and fire. Were this rate to continue, in the next 40 years half of the remaining forests would be lost (Rambaldi and Godoy 2003).

Very little was known about the effects of fragmentation in large areas of forest habitats and communities, nor the implications specific to each species, especially over time. In the early 1980s, AMLD launched a programme of conservation and management of the tamarin and its habitat. Research, interventions and monitoring have produced consistent information and data suitable for analysis using Population and Habitat Viability Assessment (PHVA) tools. Consequently, a better understanding was gained of the persistence of these small and isolated populations and the factors that can influence their survival in the wild over the next 100 years. The results suggested the Tamarin is a good indicator of the sustainability of the forest landscape of the São João watershed. It is also a remarkable flagship species for conservation action.

The first three PHVAs – carried out with support from IUCN (Seal, *et al.* 1990) – showed that to eliminate the risk of extinction of the golden lion tamarin over the next 100 years, a viable population of 2,000 individuals must be established by the year 2025, requiring at least 25,000 ha of protected and connected habitat in the landscape. To achieve this goal, the current population of tamarins would have to be managed as a metapopulation, with significant rates of dispersion and genetic flow among the small and isolated populations in the fragments. Considering the deadline to reach this goal, it would also be necessary to evaluate the effectiveness of this species as an indicator of the long-term sustainability of the landscape.

The habitat protected by Poço das Antas Biological Reserve (created in 1974) and União Biological Reserve (created in 1998) under the administration of IBAMA, represents only 35% of the total area required, so these reserves are not sufficient to ensure a viable population of the species. Thus, metapopulation management had to go beyond the limits of these public protected areas, encompassing the entire São João watershed.

Since the early 1990s, the strategy of the AMLD has focused on the protection and restoration of forest on private lands, to increase the available habitat not only for tamarins but for all fauna and flora of the region. The selection and planning of the priority areas to be protected and restored is based on conservation of biodiversity, flagship species and environmental services in the watershed. The planning is dynamic and carried out with support of a powerful Geographic Information System, with the involvement of governmental agencies such as IBAMA and municipal departments of environment, NGOs, universities, watershed committees, landowners and the local communities. A programme to stimulate and support RPPN creation and management was created in 1994, providing landowners with scientific information and technical assistance to identify the areas within their properties to be protected as RPPN, preparing all necessary maps, organising the land titles required by IBAMA, and facilitating the administrative process to create a RPPN.

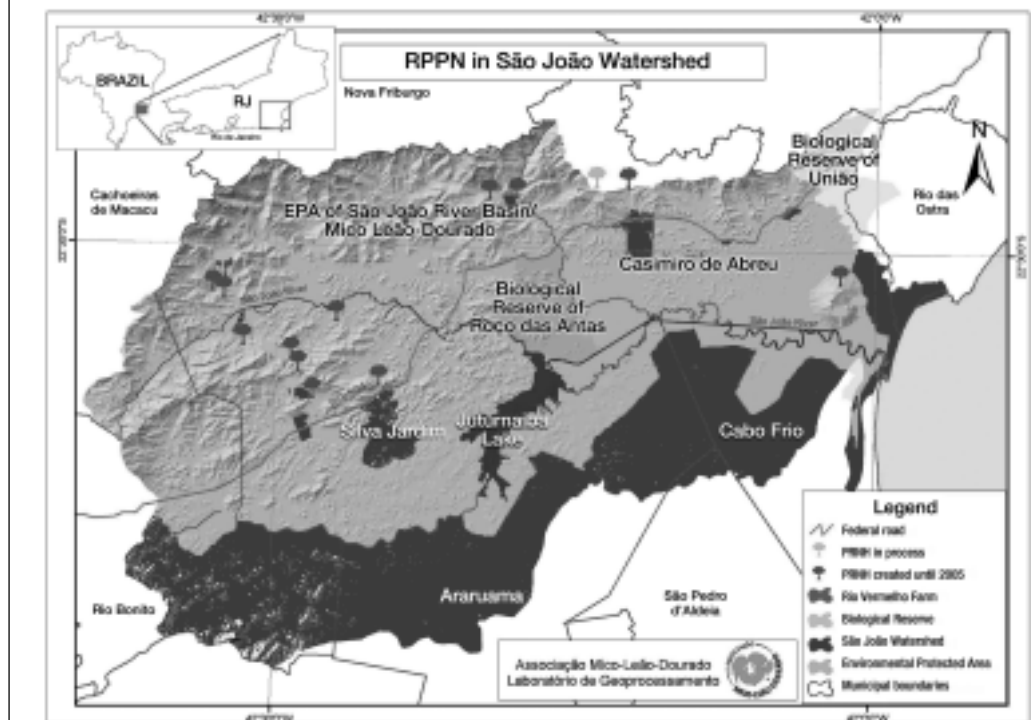
Based on AMLD's experience, this administrative process typically takes one-and-a-half years to be concluded. This amount of time is due to many reasons: problems in the area location, mapping, and documents; lack of technicians or resources in IBAMA to visit the area and survey

the borders; conditions of the land; or just to move actions through the bureaucracy. Sometimes, along the way, the landowners may reconsider and decide to enlarge or reduce the area of the RPPN, requiring a new mapping stage. As high precision mapping is an expensive process in Brazil, the assistance provided by AMLD is considered an important incentive by the landowners. Though most landowners have good intentions, a few have sought the AMLD's support to map and create an RPPN only to legitimate illegal or invaded areas. Such situations require experience and awareness on the part of cartographers and biologists dealing with the landowners to identify this abuse and deny the support.

At the very beginning of this programme, technicians had to make many visits to landowners to explain the concept, benefits, restrictions and process involved in RPPN creation. But, after the first ones were designated, their owners became proponents of this instrument, and the interest among landowners began to grow with remarkable results. Since 1994, AMLD has supported the creation and management of 17 RPPNs in the São João Watershed; together with Poço das Antas and União Biological Reserves they comprise a mosaic of protected areas in the Atlantic Forest biodiversity corridor, adding about 2,500 ha of protected and available habitat (Fernandes *et al.* 2005). In Silva Jardim municipality alone there are 11 RPPNs, one of the highest concentrations of this kind of protected area in Brazil (Figure 2). Currently, five new areas in the watershed are in the process of being recognised as RPPN by IBAMA, and an additional seven are being mapped.

In the late 1960s, the wild population of golden lion tamarins was estimated at no more than 600 individuals, and falling (Coimbra-Filho 1969). After more than 20 years of continuous conservation efforts co-ordinated by AMLD, and involving several partners in the development and improvement of techniques such as the reintroduction of captive-born tamarins, rescue and translocation of wild and isolated groups of tamarins, habitat protection and restoration,

Figure 2. RPPN in São João Watershed.



community education, public policy, communication and public relations, the habitat under official protection reached approximately 12,000 ha, plus another 150,000 ha under special zoning. The wild population growth is also impressive, reaching an estimated 1,200 individuals at the end of 2003 (AMLD 2004). Considering that at least 50% of the wild population of tamarins occurs in private land and results from the successful reintroduction of captive-born animals in RPPNs since 1985, it is clear that without the private landowner support and involvement this species – as well as many other endemic species of fauna and flora – would become extinct in the near future.

In 2003, the golden lion tamarin was reclassified by IUCN from *Critically Endangered* to *Endangered*. At a global level, this is the first case of a threatened species of primate whose status has improved in the wild.

Conclusion

Private Natural Heritage Reserves (*Reserva Particular do Patrimônio Natural – RPPN*) serve as an important instrument that complements governmental efforts in biodiversity conservation, providing a benefit that is public in essence but does not belong to the government. In the Atlantic Forest, RPPNs act as core areas of the landscape, are sources of diversified genetic material, and are the pillars that sustain forest landscape restoration efforts. At the local level, RPPNs are key areas to induce sustainable development, creating a cluster of activities such as ecotourism, scientific research and environmental education, as well as providing non-timber forest materials such as seeds, seedlings, honey and handicrafts that can be profitable to their owners and local communities.

RPPNs are also contributing to a rapid and substantial increase in the amount of protected area in the country. They represent a positive cost/benefit equation to the government, which does not have to buy or expropriate important parcels of land for conservation. At the same time, landowners gain recognition as conservationists and receive support from environmental law

*The threatened golden lion tamarin *Leontopithecus rosalia*, a small primate endemic to the coastal lowland Atlantic Forest of Rio de Janeiro State. Photo: Rudolf Haussmann.*





At the local level RPPNs create opportunities for ecotourism, scientific research and environmental education. They also provide non-timber forest materials such as seeds, seedlings, honey and handicrafts, profiting both their owners and the local communities.

enforcement, and benefit from co-operation with universities and NGOs to develop research and sustainable activities on their lands. RPPNs have facilitated the pro-active participation of private proprietors in the national effort to restore and protect biodiversity.

RPPNs constitute one of the most conspicuous types of protected areas in the country, be it by their fast growth in number and area or by the attention they are receiving from landowners, government, NGOs and the media.

Certainly, there are many other challenges in the conservation of the Atlantic Forest hotspot that must be addressed by AMLD and its partners. However, creative management solutions combined with committed long-term public involvement, especially on the part of decision-makers who influence the land-use policy, has had positive and long-lasting results.

References

- AMLD - Associação Mico-Leão-Dourado. 2004. Relatório Anual 2003. Associação Mico-Leão-Dourado, Casimiro de Abreu, Rio de Janeiro, Brasil.
- Coimbra-Filho, A.F. 1969. Mico-Leão, *Leontideus rosalia* (Linnaeus 1766), situação atual da espécie no Brasil (Callitrichidae – Primates). *Anais da Academia Brasileira de Ciência* 41 (suplemento): 29–52.
- Fernandes, R.V., Schmidt, M.A.R. and Rambaldi, D.M. 2005. *Protection of the Habitat of the Golden Lion Tamarin (Leontopithecus rosalia) in Private Lands*. Book of Abstracts, Society for Conservation Biology. p. 76. Brasília, Brasil.
- Ferreira, L.M., Castro, R.G. de Sô and Carvalho, S.H.C. 2004. Roteiro Metodológico para Elaboração de Plano de Manejo para Reservas Particulares do Patrimônio Natural. Ministério do Meio Ambiente/Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis. Brasília, Brasil. 96p.
- Ferreira, L.M. and Galante, M.L.V. 1987. Plano de Manejo. Fazenda Praia do Forte. Bahia. FUNATURA/Fundação Garcia d'Ávila. Brasília, Brasil.
- Fundação SOS Mata Atlântica and INPE (Instituto Nacional de Pesquisas Espaciais). 2002. Atlas dos remanescentes florestais da Mata Atlântica: período 1995–2000. Relatório final, SOS Mata Atlântica, São Paulo, INPE, São José dos Campos, Brasil.
- Kierulff, M.C.M. and Rylands, A.B. 2003. Census and Distribution of the Golden Lion Tamarin (*Leontopithecus rosalia*). *American Journal of Primatology* 59:29–44.
- Mesquita, Carlos A.B. and Vieira, M.C. 2004. RPPN – Reservas particulares do patrimônio natural da mata Atlântica – São Paulo: Conselho Nacional da Reserva da Biosfera da Mata Atlântica: série conservação áreas protegidas, 28. 56p.
- Mittermeier, R.A., Mittermeier, C.G., Gil, P.R., Fonseca, G.; Brooks, T., Brooks, K. and William, R. 2002. Wilderness – Earth's last wild places. Mexico City: Conservation International. Cemex. 573 p.
- Mittermeier, R.A., Myers, N., Gil, P.R. and Mittermeier, C.G. 1999. Hotspot Wilderness – Earth's biologically and most endangered terrestrial ecoregions. Mexico City: Conservation International. Cemex. 430 p.
- Rambaldi, D.M. and Godoy, F. 2003. Sequestro de Carbono: Novas Oportunidades para a Mata Atlântica e os Micos-Leões. In: Livro de Resumos III Simpósio Internacional sobre Micos-Leões (*Leontopithecus*). IBAMA e Associação Mico-Leão-Dourado, Teresópolis, Rio de Janeiro.
- Seal, U.S., Ballou, J.D. and Pádua, C.V. 1990. *Leontopithecus*: Population Viability Analysis Workshop. IUCN/SSC Captive Breeding Specialist Group, Apple Valley, Minnesota.
- Wiedmann, S. and Pereira, M. 1997. As Reservas Particulares do Patrimônio Natural. In: *Anais do Congresso Brasileiro de Unidades de Conservação*. Volume II. pp. 3–14. Curitiba.

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Denise Marçal Rambaldi, Forestry Engineer and Lawyer, at present a Master's student on Environmental Science, has dedicated her career to the conservation of the Brazilian Atlantic Forest. She worked at the Minas Gerais Forestry Institute as the Director of Ibitipoca Park. Her experience with the Golden Lion Tamarin Association (Associação Mico-Leão-Dourado – AMLD) began in 1989 as Co-ordinator for the Environmental Education Programme, and since 1994, her contribution as Secretary General has been remarkable to AMLD development. She is a member of the IUCN/SSC Primate Specialist Group, and co-ordinates the South-east Committee of the Atlantic Forest Biosphere Reserve/UNESCO. Associação Mico-Leão-Dourado, Caixa Postal 109.968, Casimiro de Abreu, RJ - CEP 28860-970, Brazil. E-mail: rambaldi@micoleao.org.br.

Rosan Valter Fernandes, ecologist, worked for almost two decades in environmental education, forestry restoration and protection of the Atlantic Forest in São Paulo and Rio de Janeiro States. Since 1999, he has co-ordinated the Private Lands Conservation Programme of the AMLD, conducting three important projects: support for the creation and implementation of RPPNs – Reserva Particular do Patrimônio Natural; Forestry Landscape Restoration, establishing forestry corridors among public and private isolated fragments; and Ecotourism Development on private lands. Associação Mico-Leão-Dourado, Caixa Postal 109.968, Casimiro de Abreu, RJ - CEP 28860-970, Brazil. E-mail: rosan@micoleao.org.br.

Marcio Augusto Reolon Schmidt, Cartographer/Engineer, has co-ordinated the Geoprocessing Laboratory of the Associação Mico-Leão-Dourado since 2003, training students and professionals, using and developing geotechnologies to improve the AMLD's contribution to the landscape analysis, planning and influencing public policies on land use. Associação Mico-Leão-Dourado, Caixa Postal 109.968, Casimiro de Abreu, RJ - CEP 28860-970, Brazil. E-mail: rambaldi@micoleao.org.br.

Fostering conservation of key priority sites and rural development in Central America: the role of private protected areas

CARLOS M. CHACON

With just over half a million square kilometres, the seven countries of Central America host over 8% of the world's biodiversity. Efforts to conserve this natural heritage have been implemented for several years and, indeed, approximately 26% of the region has been designated as a protected area. However, with historically high deforestation rates and a growing fragmentation of landscapes, Central America also faces significant threats for its sustainable development. Accordingly, an emergent approach to foster conservation and sustainable use of the natural resources in the region has been the development of partnerships with private landowners interested in the protection of the resources on their lands through the creation of private protected areas (PPA). Even though there is no exact definition of what a PPA is in Central America and there is no clear data on this matter, at this time, the available information shows that there are about 2,900 landowners that are formally protecting over 509,000 hectares in the region. It is important to point out, as this article does, that there are important differences across the region in regard to the size, legal status, land tenure, official recognition, time frame, land uses, management and type of habitat protected by these areas. Therefore, the article explores the diversity of these efforts, describing briefly their most important characteristics, the available incentives and their impact. The conclusion is that the number of private protected areas is growing in Central America, that they are protecting important natural sites and they are also becoming important new sources of income and development for the rural areas of the region.

WITH AN AREA of just over 533,000 km², Central America comprises seven countries (Guatemala, Belize, Honduras, El Salvador, Nicaragua, Costa Rica and Panama). It is a region with an estimated population of 40 million people, a large percentage (over 35%) of whom live below the internationally recognised poverty line of less than \$2 income per day. Central America is also a land of contrasts, for example some countries have 37%, 44%, 58% and even 80% poverty rates, while others 10% and 18% (Population Reference Bureau 2005). Politically, it is an area of the world where in the late 1980s several countries had just emerged from civil wars. Even though the negotiated peace agreements brought peace and political stability to the region, the transition from peace to security has been very slow, as can be seen in many fields. One that has deep social, environmental and economic impacts in the region is the confusing land tenure situation, especially in rural areas where some of the richest biological sites on Earth are located.

From a biodiversity perspective, Central America is a highly diverse region. Its backbone is a mountain range from the north to the south that reaches altitudes of over 4,000 m. It also contains numerous inland valleys, gentle lowlands and hills that blend with the coastal zones. The topography of the region, the fact that this strip of land is bordered by two large oceans and its location as a natural narrow bridge connecting the large continental masses of North and South America have led to an impressive range of biological diversity within its boundaries (PROARCA *et al.* 2003). Consequently, and because of the threats it faces, Central America has been recognised internationally as one of the global hotspots for biodiversity conservation (Myers *et al.* 2000). For example, in just over half-a-million square kilometres, this region contains approximately 8% of the Earth's biodiversity, 20 life zones, 22 ecoregions, more than 350 landscapes, over 20,000 species of flora and almost 3,000 species of vertebrates. Furthermore, its oceans also host an incredible natural richness with over 21 coral species, five of the world's seven species of sea turtles and nine species of mangroves in five genera (PROARCA *et al.* 2003).

However, Central America faces serious threats to its rich natural heritage. In the 1990s its deforestation rate was 1.6% annually (380,000 ha per year) and, even though in the 2000–2005 period it slowed down to about 1.3% (285,000 ha per year) (Mongabay.com 2005), the fact is that at present only about 20% of the original natural vegetation remains (Myers *et al.* 2000).

The most important threat to maintaining its rich natural heritage has been land conversion from forests to agricultural use by private landowners (individuals and corporations) and peasants (Faris, 1999). Indeed, in some countries pristine old-growth forest can only be found within protected areas (PROARCA *et al.* 2003).

Protected areas and existing conservation efforts

The threat of fragmentation of natural habitat as a consequence of the expansion of agriculture, the existence of key natural habitats in the region and the leadership of some individuals, private environmental organisations and governments has resulted in the creation of over 550 protected areas in Central America. These cover approximately 13 million hectares of natural habitat located on both public and private lands (about 26% of the region) (PROARCA *et al.* 2003). Given the fact that in several cases these protected areas are becoming “islands” of natural habitat surrounded by agriculture – cattle grazing, subsistence farming and large monoculture plantations for export – the countries of the region have also been working on the development of the Mesoamerican Biological Corridor (MBC). The MBC stretches from southern Mexico to Panama, covering approximately 150,000 km² (53% of this area). It consists of a network of protected areas and buffer zones connected by local biological corridors with different uses and degrees of protection (UNDP/GEF 1999).

The Campanario Park lies in the humid tropical Pacific lowlands of the Osa Peninsula in Costa Rica.
Photo: Carlos M. Chacon.



The role of private conservation

The land tenure situation in Central America is very confusing because the land registry systems of all the countries have recorded land titles for only a small percentage of the territories within each country, mostly in urban areas. However, in Central America there are no large publicly owned territories. Most lands are owned by private individuals, corporations, and local and indigenous communities. In addition, the legal status of those lands is complicated because in some cases a person or community could have a clear land title while in others they only have (or claim to have) possession rights after “occupying” those lands for a number of years. Thus, when dealing with conservation and land use issues, the fact is that the creation of protected areas in Central America always involves the participation of people with property rights or claims over the territories where the protected areas have been or are proposed to be created.

On the other hand, the existing legal framework in the region limits the extent to which land use restrictions on private property can be used to restrict land use changes for conservation purposes. Private property rights are protected even at the constitutional level. Therefore, only some minor land use restrictions on private property are permitted and, in many cases, proper compensation is required by the law or courts to be able to enforce them. In addition, land use restrictions are not attractive from a social point of view because landowners and communities oppose them. Therefore, given the governments’ lack of sufficient funding to compensate private landowners, public authorities in the region must find ways to work with willing private landowners in the conservation of natural habitat.

For these reasons, and the fact that the governments of the region have not had sufficient resources to develop and consolidate their national systems of protected areas, the involvement of environmental NGOs and individuals in this field has been very important over the years. On the one hand, many designated and proposed “public” protected areas contain large private parcels within their boundaries. For example, in Costa Rica 11% of National Parks and 45% of Biological Reserves, National Monuments and Absolute Natural Reserves are still in private hands (MINAE/SINAC 2003). On the other hand, their buffer zones and proposed biological corridors are located mostly on lands owned or occupied by private individuals, indigenous peoples and local communities.

Accordingly, in Central America, several individuals and environmental organisations have been working for many years with the governments of the region on the promotion, designation and management of protected areas. Some examples are Defensores de la Naturaleza and Fundaeco in Guatemala, Belize Audubon Society in Belize, Amitigra in Honduras, Salvánatura in El Salvador and Fundación Cocibolca in Nicaragua (Proyecto para la consolidación del Corredor Biológico Mesoamericano 2003). Furthermore, some NGOs have been working on acquisition of private properties for conservation purposes. In some cases, they maintain ownership and manage those lands as private nature reserves while in others they transfer those lands to the governmental agency in charge of protected areas. Some of the previously mentioned NGOs are also doing this type of work and other examples include TIDE in Belize, the National Parks Foundation, Tropical Science Center and Monteverde Conservation League in Costa Rica, and ANCON in Panama.

What is a private protected area (PPA) in Central America?

Historically, the existence of private landowners in natural areas has been seen as a threat to the conservation of pristine areas. Indeed, as described above, clearing and occupying vacant lands by private individuals has been the driving force for the expansion of agriculture. However, a growing number of private landowners have demonstrated that they can also be good stewards of the resources they own or occupy. Some do it independently, creating their own *de facto* private nature reserves, while others create formal private protected areas (PPA) working with the Governments or the NGOs in the region.

So what is a PPA in Central America? For the purposes of this publication private protected areas have been defined as: *“A protected area managed by non-state entities—including private corporations, associations, individuals and indigenous governments—with legal interest in the land, in whole or in part. The protected area may be managed for private as well as public benefit, and the managing entities must be accountable to formal standards.”*

Looking at this definition, depending on what *“the managing entities must be accountable to formal standards”* means, information about PPAs existing in Central America could vary. In view of that definition of PPAs, there are two highly related issues: the definition of what a “formal standard” is and the source of those standards. If we use the definition of standard as “an acknowledged measure of comparison for quantitative or qualitative value” (Dictionary.com 2005), then in Central America there are different types of standards for PPAs. They have been created by a few of the governments of the region, others by NGOs and some even by the landowners themselves.

In the case of Guatemala, Nicaragua, El Salvador and Costa Rica, the government agency in charge of the creation and management of their national systems of protected areas has issued specific regulations that provide the “formal standards” that private landowners have to meet in order to obtain the official PPA status they recognise. These standards oblige private landowners to comply with a number of requirements, such as the presentation of a detailed biophysical report of the property, legal information (i.e. land title) and a description of the proposed land uses and conservation measures for their properties. In some cases the presentation and approval of a detailed management plan is required to obtain the designation of PPA.

On the other hand, in all of the countries of the region there are networks of Private Nature Reserves that represent a number of landowners in their countries that are protecting all or part of their “reserves”. These NGOs have their own internal regulations/standards for their members and to maintain their membership of the organisation they usually require the landowner to sign an undertaking to conserve some of their land for an undetermined period of time.

The third course has been the definition of standards agreed contractually by two or more landowners. These standards are normally in the form of a conservation easement or similar contract, in which one of the parties is an environmental NGO implementing private lands conservation programmes (known as “land trusts”) and the other is a landowner interested in long-term conservation of all or part of their land. A good example is CEDARENA in Costa Rica and the standards included in every conservation easement contract they sign with private landowners.

Of course, all these types of “standards” vary across the region, and they also vary within each country. Usually the standards established by the governments and NGOs are more detailed than those adopted by the networks mentioned above.

Similarly, being “accountable” to formal standards can also have different meanings as “accountability” could be related to having a system for monitoring and enforcing the “formal standards”. Even though, as described above, there are several types of standards for PPA, and landowners have to comply with them to have their land recognised as a PPA, the fact is that after they have been officially designated as such, governmental agencies and NGOs have limited capacity to follow up in the field on compliance with some of those standards, such as the implementation of the management plan for these areas. Indeed, the management of the natural resources existing in PPAs, in most cases, is not regularly monitored by any independent third party such as an NGO, other landowners or the Government. The legal right to monitor is usually established in the standards, but given the lack of financial or human resources governments and NGOs have, they experience difficulties in carrying out monitoring in the field. However, it is also important to take into consideration that given the voluntary nature of private conservation efforts, it is expected that the landowner will comply with the proposed management plan. In

most cases if landowners do not want to comply, they can notify the government agency or NGO in advance and have the land de-listed as a PPA. Landowners would then be able to implement any activities they want on their land. An exception is conservation easement contracts which are usually in perpetuity and are also binding on subsequent landowners because they “run with the land”.

Therefore, the number and type of PPAs existing in Central America vary widely and there is no clear data on the actual number of PPAs existing in the region.

Legal framework for official PPAs

As is the case with public protected areas, the legal framework in the countries of Central America that regulates PPAs presents important differences, not least the fact that not all countries have legislation that provides the authority for their governments to designate PPAs. Guatemala, El Salvador, Nicaragua and Costa Rica have this type of legislation and have issued regulations that specify the requirements private landowners have to meet in order to receive the status of PPA. Accordingly, their governments are designating PPAs that are an official category of protected areas within their national systems of protected areas.

Panama also has a provision in its General Law of the Environment that gives its Government this authority; however, the regulations have not been issued. Therefore, there is no specific procedure for the Panamanian government to declare PPAs nor for landowners to follow in order to obtain this type of recognition for their private conservation efforts. Even though no specific legal procedure exists, there are in fact two officially recognised PPAs in Panama: Punta Patiño (1993) and Río Caimito (1998). They were created under a procedure used by the Government for those specific cases given the strong interest shown by the landowners and Government to recognise them as protected areas.

In Belize, some private reserves, such as the Rio Bravo Conservation and Management Area, have official protected area status granted by the government. However, no specific regulations for the creation of PPAs exist yet in the country.

As described above, information about the number of PPAs existing in each country have to be analysed carefully. Some PPAs are officially recognised by their governments, while others are recognised only by local NGOs that have programmes for the promotion and creation of PPAs.

PPAs in Central America

The best available data for all the countries about the existing number of PPAs in the region is provided by the networks of Private Nature Reserves in each country. However, even this data only includes PPAs that are owned by the members of these networks, who are mostly private

Table 1. Official PPAs in Central America.

Management Categories	
Country	Name
Guatemala	Private Natural Reserve
Nicaragua	Private Wild Reserve
Panama	Protected Areas in Private Lands*
El Salvador	Private Natural Areas

* Even though there is a law that provides the legal framework for the creation of PPAs in Panama, the law has not been regulated, yet. In the other countries, at this time there is no specific law that provides a legal basis for the creation of PPAs by their Governments.

individuals, corporations, NGOs and universities. There are some PPAs that are not owned by members of these networks. Therefore, the data we present below includes most of the lands that have been:

- established officially as PPAs by the Governments of the region;
- protected as *de facto* PPAs recognised by PPA networks but without any formal recognition by Government or other third party; and
- protected by a landowner with the recognition of an NGO member of the networks.

Accordingly, as shown in Figures 1 and 2, there are presently over 350,000 ha protected by about 350 private landowners in the region.

It should be noted that the area of natural habitat supported by PPAs in Central America is hard to determine because:

- the governments grant the designation of PPA to all the land the landowner owns, even if it is just a portion of it that has natural habitat;
- the status of PPA is granted only to the land that will be managed as a protected area, though it could include areas with natural vegetation and also areas with sustainable land uses: for example, in Guatemala many reserves include areas with shade-grown coffee;

Figure 1. Hectares protected by PPAs, recognised by Governments or NGOs.

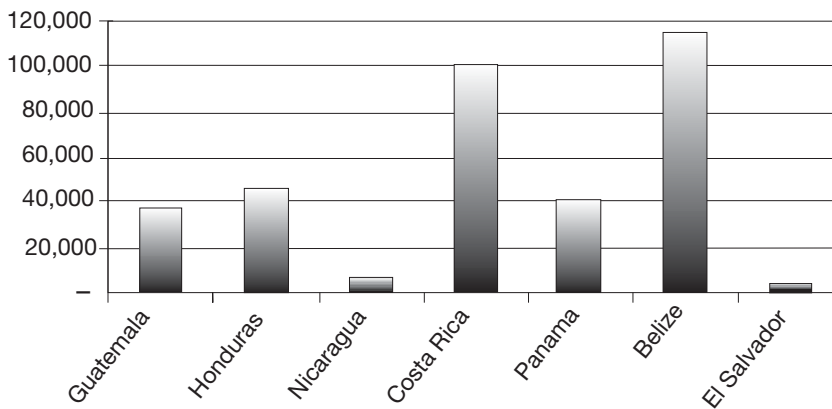
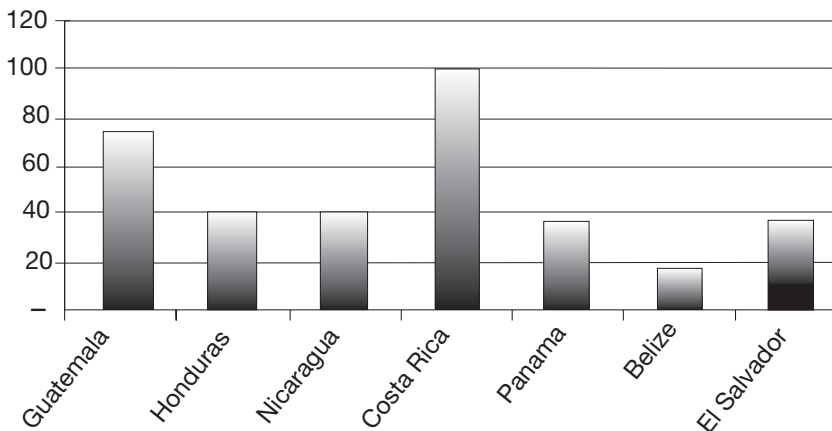


Figure 2. Number of PPAs, recognised by Governments or NGOs.



- the designation is given only to the area of the property that has natural habitat and is going to be protected; and
- the designation is given to the areas of the property that will be protected, regardless of their current land use.

The decision about which one of the previous options applies to each PPA in each country depends in many cases on the preference of the landowner.

PPAs and their land use

Activities that can take place within a PPA vary greatly given the differences in existing land uses and the plans of the landowner concerned. In most cases, PPAs owned by individuals and corporations contain several land uses such as agriculture, residential areas or low-impact ecotourism, combined with the protection of specific parts of the property. However, PPAs owned by NGOs are generally used for conservation, environmental education or scientific research purposes only. Some examples are the reserves owned by TIDE in Belize, the Tropical Science Center in Costa Rica, ANCON in Panama or Defensores de la Naturaleza in Guatemala. In most cases, to generate income and as a way of educating the public, NGOs combine these activities with low-impact ecotourism by allowing visitors to use the system of trails they built in their reserves. In some cases, certified sustainable forestry is practiced in a PPA, e.g. in the Rio Bravo PPA in Belize, owned and managed by the local NGO, Programme for Belize.

Why do landowners create PPAs? The role of incentives

Most landowners create PPAs because they strongly believe that private land conservation is important. They enjoy the fact that they contribute to the generation of many environmental benefits for their own families, communities and society in general. They truly believe in the values associated with nature conservation. Even though there are many landowners that feel this way, there are some big steps from believing that nature conservation is important to making the decision to actually protect land and to sign a written commitment to do so. Landowners take much into consideration when making these types of decisions, including:

- their personal understanding of the importance of protecting nature and their potential role as a private landowner;
- their socio-economic profile. In this area, it is very important to understand the way they generate income for themselves and their families and the role their land plays in it;
- the opportunity/cost of implementing conservation practices in their land instead of continuing with their traditional land use practices;
- scientific knowledge about the conservation value of their land;
- technical support available for sustainable development activities; and
- official support/recognition obtained from governmental agencies and/or NGOs.

All these variables are very important and it is actually very difficult to convince a significant number of landowners to commit their lands to a PPA. For this reason, it is very important to create incentives to make the protection of private lands more attractive.

Historically, incentives have existed in Central America for several activities. Tax breaks, reduction of bureaucratic procedures, low interest bank loans, forgiving outstanding loans, provision of services, low electricity or water prices, donation of lands, etc. are examples of some incentives used by governments to promote economic activities. Some well-known examples are incentives given for coffee and banana plantations, rice paddies, cantaloupe, mangoes or watermelon crops, cattle grazing, clothing factories, electronics and even computer chips. Similarly, some of the same incentives have been used or proposed for promoting sustainable land use practices and conservation activities, even though not at the same level.

To date, most of the incentives used in Central America for promoting sustainable land use have been for planting trees, based on the understanding that the greatest threat for sustainable land use in the region was undertaking farming in places more appropriate for conservation or forestry activities. The goal of those incentives (usually tax breaks) was to encourage private landowners to plant trees on land appropriate for forestry but used for other more intensive and non-sustainable agricultural practices, such as cattle grazing. In addition, it was expected that the availability of timber products from these plantations would lower the demand for timber from old-growth, natural forests thus contributing to the conservation of natural habitat. However, even though these incentives have been successful in making afforestation more attractive for investors and landowners (and there are many good examples in the region), the fact is that there have also been some examples where the incentives actually promoted the cutting down of natural forest to develop plantations, and cases of plantations that were not properly designed or managed.

After a couple of decades of encouraging forestry as a way of promoting more sustainable economic activities, some governments in the region realised that it was also important to grant incentives directly to landowners implementing conservation activities on their lands. For this reason, tax breaks were offered to those protecting natural forests, usually in the form of exempting them from paying land taxes. However, in all the countries of the region, land taxes previously have not been paid by landowners in rural areas, and the values of properties are not correctly appraised. Therefore, exempting landowners from paying land taxes has not been an effective incentive.

More recently, a couple of governments have introduced a new, highly attractive mechanism to promote conservation on private lands and the creation of PPAs: payments for environmental services (PES). This type of mechanism acknowledges that the conservation of natural habitat provides many services to society, such as clean water, natural pest control, natural products for cosmetics, medicinal or industrial use, carbon sequestration, and prevention of natural disasters. Landowners implementing conservation practices in their lands are paid for producing those services. This system has been widely implemented in Costa Rica and it is starting in Guatemala. In both cases, landowners receive an annual payment in cash per hectare they conserve, usually for a period of five years. In Costa Rica, over 400,000 ha are protected by more than 7,000 landowners who receive PES to conserve their land (FONAFIFO 2005). In many cases, these payments are becoming a very important source of income for the sustainable development of rural areas.

In addition to tax breaks and PES, the other incentive used in Central America to foster PPAs is providing landowners access to a fast legal procedure to evict squatters, if their lands are ever “invaded” by others.

At present, all the countries in the region are working on the development of PES. A very interesting example is the programme proposed for the Panama Canal Watershed in which willing private owners of properties with natural habitat in the watershed – the same properties that provide the billions of litres of water needed for the transit of every ship from the Pacific Ocean to the Caribbean Sea, or vice versa – would receive a PES for their conservation. This type of programme would guarantee the long term availability of water for the canal, the conservation of key natural habitat, and of course the continuation of the efficient operation of this important route for marine transportation and the world’s commerce.

Vision and challenges for increasing the number and contribution of PPAs

Successful conservation work on private lands requires several essential elements in three areas: science, external affairs (policy and legal frameworks, finances and incentives) and communications (PR and training). Together, they create an enabling environment for the creation of PPAs that contributes in a significant way towards the conservation of natural

resources. Accordingly, we must continue working in these areas of expertise, collaborating with governments, NGOs and landowners.

Conclusion

Central America is one of the most biologically diverse areas in the world. Its growing population faces many challenges and, given its rich natural resources, it is extremely important to promote the sustainable development of the region. Accordingly, taking into consideration the economic, social, and environmental benefits of private land conservation, the creation of PPAs is becoming an important factor to foster rural development. As described above, many PPAs exist in every country of Central America. These examples serve as models to increase the protection of key natural habitat by private landowners. In the future, it is likely that thousands more hectares will be protected by PPAs throughout the region. However, to get there, we still have a lot of work to do to improve the enabling environment for successful designation of PPAs in Central America.

The experience in Central America shows that many landowners are good stewards of the lands they own, and that they are interested in developing effective partnerships with governments and NGOs. For this reason, we all have to continue working together to strengthen efforts to promote the improvement of the quality of life of all people in the region.

References

- Dictionary.com. 2005. <http://dictionary.reference.com/search?q=standard>.
- Faris, R. 1999. "Deforestation and Land Use on the Evolving Frontier: an empirical assessment". Development discussion paper #678. Harvard Institute for International Development. February. 24 pp.
- FONAFIFO. 2005. Over a decade of action. Fondo Nacional de Financiamiento Forestal.
- Madriz, B. 2002. Base de Datos de Reservas Naturales Privadas. Red de Reservas Naturales Privadas de Costa Rica. PNUD. MINAE / SINAC. 2003. Informe Nacional sobre el Sistema Nacional de Areas Silvestres Protegidas de Costa Rica. p. 44.
- Myers, N., Mittermeier, R., Mittermeier, C., da Fonseca, G.A.B. and Kent, J. 2000. "Biodiversity Hotspots for Conservation Priorities". *Nature*, Vol. 403, 24 February 2000. pp. 853–858.
- Mongabay.com. "Deforestation figures for Central America". http://rainforests.mongabay.com/deforestation/2000/Central_America.htm
- Population Referente Bureau. 2005. 2005 World Population Data Sheet. p. 8.
- proarca/capas/CBM/CI/TNC/WCPA. 2003. El Sistema Centroamericano de Areas Protegidas, Centroamérica. 127 p.
- Proyecto para la consolidación del Corredor Biológico Mesoamericano. 2003. Estado actual del comanejo de areas protegidas en Mesoamérica/Proyecto para la consolidación del Corredor Biológico Mesoamericano. 1a ed Managua: Proyecto Corredor Biológico Mesoamericano.
- UNDP/GEF. Establishment of a Programme for the Consolidation of the Mesoamerican Biological Corridor. Project Document. <http://www.biomeso.net/GrafDocto/PRODOC-CBMINGLES.pdf>

Carlos M. Chacon works throughout Central America for The Nature Conservancy, from his base in Costa Rica. E-mail: cchacon@tnc.org.

Land trusts, private reserves and conservation easements in the United States

JOHN BERNSTEIN AND BRENT A. MITCHELL

An extensive network of private, non-governmental protected lands has evolved in the United States over the past century. This network (which in some eastern states approaches 10% of the total land area) has been created by *land trusts*, private non-profit organisations that fulfil conservation roles complementing those of government. A legal device known as a *conservation easement*, through which private landowners relinquish certain rights in their lands in perpetuity in order to protect natural or cultural resources, has been instrumental in the success of this movement. A system of charitable income-tax deductions, credits, and government subsidies has sprung up to support this system. In recent years, questions have been raised about how well these private lands serve public ends and how closely land conservation through private initiative corresponds to governmental priorities.

ALTHOUGH LAND HAS BEEN CONSERVED through private mechanisms for over one hundred years in the United States, and this activity now represents some of the most dynamic initiatives nationwide, it is not well-known outside of the country, nor is it well understood by the American public. An extensive network of private, non-governmental protected lands has evolved, which in some eastern states approaches 10% of the total land area (Aldrich 2003). Most of these private land conservation arrangements are negotiated and initiated by specialised charitable associations called *land trusts*. The number of these organisations, and the land they protect, has increased exponentially over the past quarter-century with the advent of legal and public policy changes designed to encourage them.

Private land for public good

The US system of national parks is well-recognised around the world. But few people know that private protected areas have been established for nearly as long. Yellowstone National Park, often cited as the world's first national park, was created in 1872, but the second was not designated until 1890. The Trustees of Reservations, the first land trust, dates from 1891. Both the public and private protected area initiatives began as efforts to preserve special areas for the benefit of the public, and their purpose in land protection was likened to museums and libraries, safeguarding great works of art and literature for the public to enjoy. Indeed, the original name of the first land trust was The Trustees of *Public* Reservations, though the legislative act creating it clearly indicates a private corporation:

All personal property held by said corporation, and all lands which it may cause to be opened and kept open to the public, and all lands which it may acquire and hold with this object in view, shall be exempt from taxation, in the same manner and to the same extent as the property of literary, benevolent, charitable, educational, and scientific institutions incorporated within this Commonwealth is now exempt by law; but no lands so acquired and held and not open to the public shall be so exempt from taxation for a longer period than two years. Said corporation shall never make any division or dividend of or from its property or income among its members.

Land trusts and related private conservation initiatives developed in parallel with public efforts, starting in the east, where most land was privately owned, while national parks and reserves

were first formed primarily in the west, where a majority of land was held by government. However, the rate of development of private reserves was much slower than public counterparts for the first 50 to 75 years (Brewer 2003), which partly explains why they are less well recognised. Today there are over 1,500 land trusts in the United States (Aldrich 2003). They operate in all 50 states, with distribution quickly equalising across the country.

Freehold private reserves

Initially and continuously, conservation land trusts have functioned like their public counterparts, owning and managing the land for some public benefit. (Technically of course, government does not own land, but holds it in the public trust. The word public was removed from the name of The Trustees of Reservations in 1954 to avoid confusion.) Private reserves were created – either through purchase or donation of the land – in a manner equivalent to national or state parks. Because land trusts are private and independent, comprehensive statistics are difficult to compile. But there are at least 600,000 hectares of full-fee (freehold) private reserves owned by land trusts in the US today (Aldrich 2003).

Once created, reserves owned by land trusts must be managed, and most maintained for public access. Many land trusts provide educational programmes, conduct ecological research, and undertake habitat enhancement projects on their lands. These activities are funded primarily through private donations.

In order to provide for public benefit but avoid long-term stewardship costs, many land trusts convey property to public agencies to manage in the public trust. Some, such as the Trust for Public Land (TPL), specialise in this area. TPL has conveyed over 800,000 hectares to federal, state and local authorities since 1972 (Trust for Public Land 2005). In fact, the first area protected by the first land trust, the 20-acre Virginia Woods, was conveyed to a state agency 32 years after it was preserved. (It should also be noted that many public protected areas have origins in private philanthropy. For example, the largest park in the State of Maine, Baxter State Park, was donated by a single individual.)

These two basic land protection activities – directly owning freehold private reserves or conveying them to government – are easy to understand and fit neatly into conventional concepts of protected areas. The third major approach to private land conservation is a bit more complicated, but is growing phenomenally nationwide. This is the practice of securing partial legal interest in the land, rather than full ownership, for purposes of nature conservation and heritage preservation. The legal tool used for this purpose is called a *conservation easement*.

Box 1. Public agencies on private land

While this article focuses on private organisations protecting areas for the benefit of the public, it is worth noting a recent trend of public agencies working to manage land owned by others. While public agencies like the National Park Service, US Fish and Wildlife Service and US Forest Service have long influenced management outside their boundaries through regulation, education and assistance, increasingly they are becoming directly involved on lands where they lack direct control. Boston Harbor Islands, established 10 years ago, is the first unit of the National Park Service (NPS) in which none of the land is directly controlled by NPS; the 34 islands have a variety of state, municipal and private owners. Established 15 years ago, the Silvio O. Conte National Fish and Wildlife Refuge seeks to manage resources over nearly three million hectares in four states. This land is home to 2.3 million people, and very little of the land is held by the federal government. These and other partnership areas appear to be a growing trend in public conservation, as opportunities for creation of new, conventional protected areas become limited. (Mitchell and Brown 2003).

Figure 1. Number of US Land Trusts, by year. Source: Land Trust Alliance.

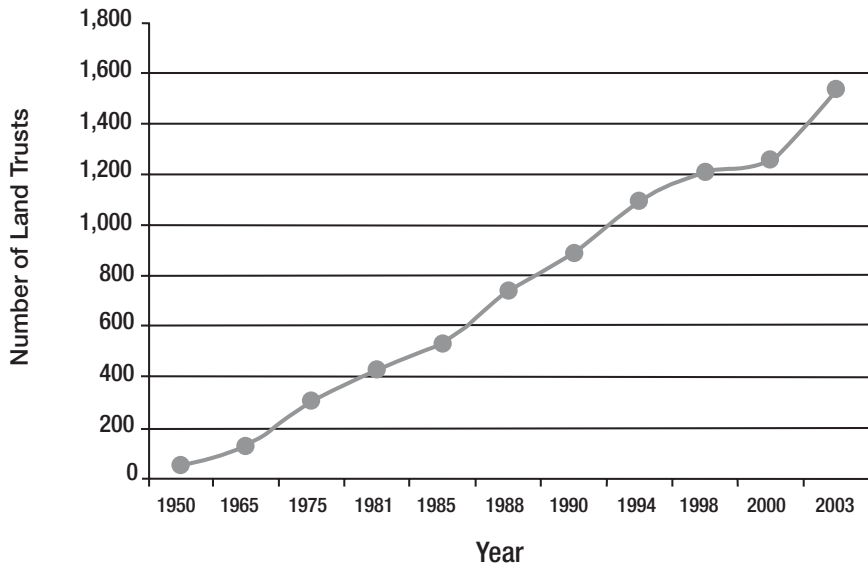
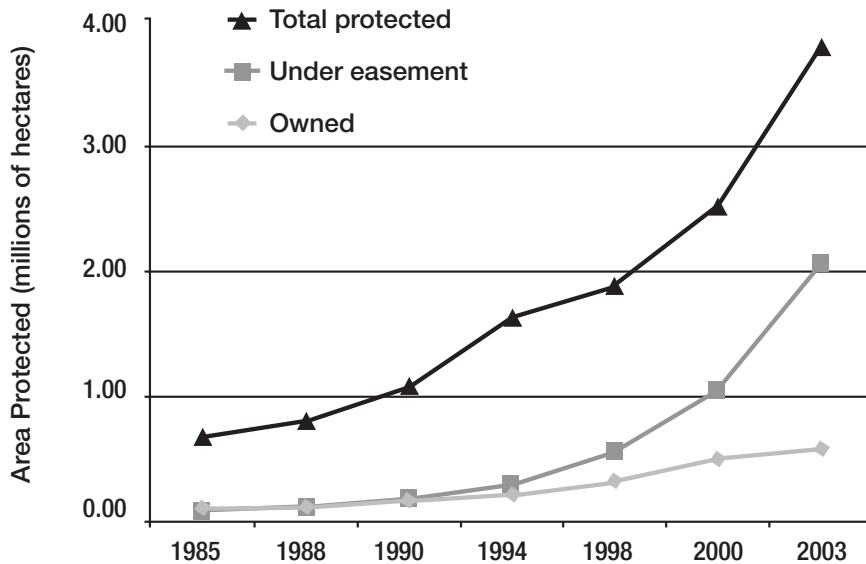


Figure 2. Area protected by US Land Trusts, by year. Source: Land Trust Alliance.





Willowdale Mill Reservation, Hamilton, Mass., owned and protected by the Essex County Greenbelt Association, a private non-profit land trust. This reservation is part of a conservation "greenbelt" along the Ipswich River, connecting a state park (Bradley Palmer State Park), a state forest (Willowdale State Forest) and private protected areas. Photo: ECGA.

Conservation easements

Few landowners or land trusts understand why restrictions on the use of land should be called "conservation easements." Yet conservation easements are merely a recent outgrowth of an ancient legal device, used to convey to an individual rights in real property belonging to others. Thus, a common easement grants a landowner a means of access to his property over the lands of another. Such simple easements benefit an adjacent landowner and affect only a limited portion of the "servient" property.

Easements are often analysed in terms of the "bundle of sticks" analogy of real property ownership. Each aspect of property ownership, e.g. the right to excavate and mine the land, the right to exclude the public, the right to subdivide and build houses, or even the right to transfer the land by deed or inheritance, is seen as a separate stick in the bundle, and theoretically, each may be made use of, transferred, or relinquished. The simple easement noted above transfers a traditional and particularly well-defined stick.

Conservation easements generalised the simple world of real property easements by contemplating that certain sticks in the bundle could be granted to another entity which had rarely, or never, been transferred before. Such rights included the power to prevent or *prohibit* certain activities on the property, and so the easements by which they were granted were called "negative easements". By the grant of such a negative easement to a suitable entity, or *easement holder*, it became possible, among other things, to restrict the building of houses on a parcel, to prevent surface changes such as mining and grading, to specify how a woodland might be timbered, and to restrict changes to a historic structure.

Traditionally the law has been averse to perpetual restrictions on the use of land (that is, that restrictions would be permanent, or effective in perpetuity) and this extension of the concept of easements required certain statutory modifications to the common law, embodied in the

Uniform Conservation Easement Act, which by 2005 had been adopted by most states. This law provided that conservation easements would enjoy perpetual life and that they were binding on all subsequent landowners. It removed the common-law requirement that the entity to whom the easement is granted hold other land adjacent to or nearby the restricted parcel (see generally Byers and Ponte 2005).

In their current form, conservation easements tend to be lengthy legal instruments which are granted by a landowner to a non-profit land trust or a government agency, often known as the “easement holder” (for examples see Byers and Ponte 2005).

Voluntary easements and incentives

This analysis of the origin of conservation easements makes it clear they represent a voluntary act on the part of the landowner. Thus they are, in some sense, antithetical to top-down, universal schemes of land use regulation, for which they have become a substitute in some areas of the United States (see below). To induce a landowner to convey such an easement, and relinquish the associated rights in land, a vast body of tax preferences and easement purchase programs have arisen.

Easement donation and tax incentives

A conservation easement may be donated. In this case, the valuable restrictions on land use which the easement imposes are given with no recompense. Under laws codified in 1976 and thereafter, such a donation gives rise to many tax advantages, some of which are discussed below. These tax advantages are granted only under the following conditions (Government Printing Office 2005a):

1. The donation must be made to a *qualified organisation*, either a government agency or a non-profit organisation which has both “the commitment to enforce” the easement and “the ability to protect” the conservation purpose of the easement in perpetuity.
2. The easement restrictions must be perpetual.
3. The easement must give rise to a public benefit in one of several categories:
 - a) the preservation of land areas for outdoor recreation by, or the education of, the general public;
 - b) the protection of a relatively natural habitat of fish, wildlife, or plants, or similar ecosystem;
 - c) the preservation of open space (including farmland and forest land) where such preservation is:
 - i) for the scenic enjoyment of the general public; or
 - ii) pursuant to a clearly delineated Federal, State or local governmental conservation policy; and
 - iii) will yield a significant public benefit.
 - d) the preservation of an historically important land area or a certified historic structure.

Income tax deductions and credits

Income taxes in the United States are imposed at various governmental levels; the highest collective tax rate is approximately 40%. The donation of a qualified conservation easement creates a corresponding charitable income tax deduction, which may lead to tax savings of hundreds of thousands or even millions of dollars. These income tax deductions are far more attractive to higher-income landowners; in an effort to provide similar tax advantages for those in lower income brackets (especially American farming and ranching families), several states have enacted credits against their state income taxes for easement donation. These are attractive, since they result in a dollar-for-dollar reduction in state income taxes (North Carolina Dept. Env. and Nat. Resources 2005).

Property taxes

Since a conservation easement generally removes the potential for development of a property, it seems reasonable to lower the assessed value of the land for property tax purposes. Over one-third of states have enacted such laws, in some cases quite advantageous. In Maryland, for example, the donation of a perpetual easement to the statewide, quasi-governmental Maryland Environmental Trust leads to a 15-year remission of property taxes on the land, and mandatory assessment at agricultural value only thereafter.

Estate taxes

Many large farms and ranches in the United States have become so valuable that, on the death of the owner, they must be sold to pay the estate (inheritance) taxes. In this context, conservation easements have become an important estate planning tool. In the last five years, the federal Farm and Ranch Act has created an exclusion from estate taxes of up to \$500,000 per owner for land subject to a perpetual conservation easement (Government Printing Office 2005b).

Easement purchase

An alternative to easement donation is easement purchase. With the high cost of land and the consequent high value of easements, such easements are generally funded by government, but in some cases through private donations or through a combination of government and private funding. Over the last 30 years, nearly two thousand million dollars have been spent at the state level alone to acquire purchased easements, conserving over 550,000 hectares of primarily agricultural land (American Farmland Trust 2005). Not surprisingly, these easements are often granted to state agencies. Many Federal agencies have also moved wholeheartedly into the purchase of conservation easements: for example, the National Park Service has purchased easements to protect its parkland from encroachment; the Fish and Wildlife Service has purchased easements to protect endangered species; and the Bureau of Land Management has purchased easements to protect desert habitat. Some governments have appropriated funds for other purposes, such as the preservation of farmland and water quality. The City of New York, facing Federal intervention over the quality of its drinking water, agreed to spend nearly three hundred million dollars purchasing conservation easements to protect water quality in the watershed of its reservoirs in the Catskill Mountains (United States Environmental Protection Agency 2002).

How easements are appraised

Purchase or donation require a determination of easement value, generally done by the “before-and-after method”. A “qualified appraiser” must estimate the value of the land in its unrestricted state (“before-easement value”), and also when it is subject to the restrictions envisioned in the easement (“after-easement value”). The difference of these two estimates is the value of the easement. For a highly restrictive easement, e.g. where no additional residences may be constructed on a large and valuable farm or ranch, no timbering is allowed, and no subdivision is permitted, the appraised diminution in value may be as much as 50–70%. If the farm is worth \$10 million, the potential tax deduction ensuing may be \$5–7 million.

Landowner motivations for conserving land

There is perennial discussion of why landowners decide to restrict their properties in perpetuity, thereby foregoing huge financial benefits. Several studies have been conducted on this issue, and have generally concluded that, while tax benefits are attractive, a personal commitment to and love of the land are prerequisites and provide the necessary primary motivators for personal land conservation. Anecdotal discussions with landowners and land trusts generally confirm this. The authors have observed a surprisingly tenacious connection with the land among



Sawyer's Island Conservation Area, Rowley, Massachusetts, protected by the Essex County Greenbelt Association and adjacent to the Parker River National Wildlife Refuge. Photo: Dorothy Kerper Monnelly.

American citizens of all geographical sectors, income brackets and occupations; all the more paradoxical given the acceptance of onrushing land development across the country (Rilla 2000; Taylor-Rogers 2003).

Landowners are often motivated by intergenerational and interownership concerns. While entering into an easement is a voluntary act on the part of the initial landowner, the easement runs with the land, not the landowner, and is thus binding on heirs, successors or buyers.

Advantages and disadvantages of conservation easements

Conservation easements have several advantages for conservation professionals seeking to protect land. Easements separate the fulfillment of conservation objectives from outright ownership of the land. The easement can, theoretically, be drafted to mandate almost any conservation outcome; and yet, unlike public reserves, little on-the-ground staffing is generally necessary to maintain the property; such maintenance remains the duty of the owner. It is often considerably cheaper to purchase a partial interest in land, such as a conservation easement, than the entire ownership. Finally, easement-protected land is less problematic than freehold reserves in the eyes of local governments, who often oppose the outright purchase of land, arguing that it takes valuable properties off the tax rolls or represents intrusion of other government entities.

However, the limitations of this approach have become clearer in recent years. For land that requires intensive management to attain various conservation objectives (such as the restoration of habitat or the conservation of endangered species), the attainment of these objectives is entirely dependent on the care taken by the easement holder to ensure the landowner adheres to the mandates of the easement. In practice, success in this area is widely variable, and may change as properties inevitably transfer to other owners. Public access is problematic, in that it requires a degree of oversight beyond the capabilities of many land trusts or even government agencies. Finally, the ongoing monitoring and enforcement of easements (in perpetuity) remain a significant cost, which in some cases may equal that of outright ownership.

Land trusts: self-regulation and the Land Trust Alliance

Early leaders in the land trust movement were aware of the scale of the obligations, both legal and civic, that fledgling land trusts were taking on, and in 1982 formed an association, the Land Trust Exchange – renamed the Land Trust Alliance (LTA) in 1990 – to provide education and set standards in the field. While completely voluntary, these standards, recently supplemented by a proposed land trust accreditation programme, have received wide support across the country.

LTA first published its *Land Trust Standards and Practices* in 1989. The “ethical and technical standards for land trust operation”, were arrived at through a co-operative effort of land trust leaders and set forth 12 overarching guidelines for land trust operations, each comprising several specific recommended practices.

In 1994 LTA required “adoption of *Land Trust Standards and Practices*” as a condition of membership. Almost all of the 1,000-odd members of LTA complied. At roughly the same time, LTA began a “Land Trust Quality Assurance Programme” to help ensure the quality of land trust operations. This led to the design of a land trust accreditation programme, under which LTA proposed to verify land trust compliance with 42 of the most significant of the *Standards and Practices*. Accreditation was to be granted by an independent examining body composed of land trust and professional members, and would be renewed every five years. Associated with the accreditation design was a “Standards and Practices Curriculum”, in 15 parts, to teach land trusts the skills necessary to meet the accreditation bar. Marketing studies indicated widespread land trust acceptance of LTA’s plan.

Box 2. Land Trust Standards

Standard 1. Mission: *The land trust has a clear mission that serves a public interest, and all programmes support that mission.*

Standard 2. Compliance with Laws: *The land trust fulfills its legal requirements as a nonprofit tax-exempt organisation and complies with all laws.*

Standard 3. Board Accountability: *The land trust board acts ethically in conducting the affairs of the organisation and carries out the board’s legal and financial responsibilities as required by law.*

Standard 4. Conflicts of Interest: *The land trust has policies and procedures to avoid or manage real or perceived conflicts of interest.*

Standard 5. Fundraising: *The land trust conducts fundraising in an ethical and responsible manner.*

Standard 6. Financial Management: *The land trust manages its finances and assets in a responsible and accountable way.*

Standard 7. Volunteers, Staff and Consultants: *The land trust has volunteers, staff and/or consultants with appropriate skills and in sufficient numbers to carry out its programmes.*

Standard 8. Evaluating and Selecting Conservation Projects: *The land trust carefully evaluates and selects its conservation projects.*

Standard 9. Ensuring Sound Transactions: *The land trust works diligently to see that every land and easement transaction is legally, ethically, and technically sound.*

Standard 10. Tax Benefits: *The land trust works diligently to ensure that every charitable gift of land or easements meets federal and state tax law requirements.*

Standard 11. Conservation Easement Stewardship: *The land trust has a programme of responsible stewardship for its easements.*

Standard 12. Fee Land Stewardship: *The land trust has a programme of responsible stewardship for*

These events were overtaken in 2005, however, by the publication of several widely-read and reprinted articles in *The Washington Post*, containing allegations of insider dealing, conflicts of interest and improper tax transactions at certain large land trusts. Other land trusts were accused of ignoring the public benefit required in conservation transactions and condoning excessive appraisal values. A Congressional committee held extensive hearings into land conservation by land trusts, and came close to eliminating the treatment of easement donation as a charitable gift. Further, the Internal Revenue Service (the US tax authority) intensified its previously lax auditing of tax returns which claimed deductions for gift of easements, and tightened up requirements for land trust compliance with the tax code and for appraisals of conservation easements (Ottaway 2003).

Congressional committees also entertained the idea of mandatory accreditation for land trusts and other easement-holding organisations. However, they took official note of LTA's land trust accreditation programme, then still in the design phase, and (as of this writing) had taken no action to impose accreditation, pending the implementation of LTA's design. LTA formed an accreditation subsidiary in early 2006 and proposed to begin to accredit land trusts in 2007 at a rate of about 120 organisations per year.

The land trust scene at present: issues, potential and limitations

Virtues of the current land trust system

The United States at this point enjoys a decentralised system of over 1,500 independent conservation organisations dedicated to the preservation of land in their communities. Collectively they have protected 14 million hectares of land (Aldrich 2003). Unaffected by the politics of government, these land trusts have moved quickly and decisively to protect the tracts treasured by their constituents, providing ecological protection, restoring habitat and protecting cultural and biological resources. In some areas, land trusts have grown into powerful state-wide entities that have a *de facto* influence on state land-use policy and have preserved a significant percentage of the land area.

Abuses and problems in the land trust system

As one might expect in a decentralised, unregulated system of small non-profit organisations, abuses and incompetence are reported regularly; though, curiously enough, it is widely accepted that these charges also apply to those government agencies that hold easements.

Easement documentation and enforcement

A conservation easement must legally and clearly document the state of the property at the time of granting the easement. Further, land trust holders must have the resources to monitor the property regularly and to defend the easement in court, if necessary. Yet a study conducted in 1999 showed that 28% of land trust easements in the San Francisco Bay area had no "baseline documentation" and that 25% of properties were not monitored once a year, as generally recommended. (But note the far worse situation among public agencies holding easements: 42% had no baseline documentation and 70% of publicly-held easement properties were not monitored regularly.) Many land trusts may lack the financial reserves to defend a single major lawsuit; and, as the original easement donors pass on, it is to be expected that litigation over easements will increase. On the other hand, LTA data shows that the 100 largest land trusts, generally well-financed and highly professional organisations, hold 90% of the conservation easement acreage across the country. Thus, it appears likely that the documentation and enforcement problem lies largely with smaller, less secure organisations (Weaver 2005).

Public benefit of easements

The law mandates that each donated conservation easement must result in a clearly defined benefit to the public in order to generate a tax deduction. However, in recent years, questions have been raised about the adequacy of that benefit when related to the major tax-related outlays involved; some have even suggested that land trust activity should be regulated by government to ensure that only the most “important” or “highest quality” land is protected.

The very idea of “perpetual” easements has been confronted repeatedly by various academic authorities who question whether the preservation decisions of one generation should bind future generations. The answer that some conservationists have made is that the development of a certain parcel determines its future just as irrevocably as a decision to prevent development. Further, even perpetual easements may be modified through court action, if their conservation purpose is determined to be “impossible or impracticable of fulfilment” (Mahoney 2002; McLaughlin 2005).

Some argue that conservation easements are merely a form of “exclusionary zoning”. That is, they preserve large land tracts for the enjoyment of the few who are able to afford them. In some counties on the east and west coasts, where as much as 30% of the rural land mass is under easement, this argument may have some force. However, it has been argued in opposition that, when similar land tracts are developed, they are not taken up by the deserving poor but by wealthy consumers of somewhat smaller tracts. Interestingly, the public strongly supports farmland and scenic preservation by easements, even when they cannot afford the tracts thereby created. They seem to view the idea of being able to visit, drive through, or walk through protected, unchanging landscape as adequate recompense.

Finally, and with some justification, land trusts have been accused of “unplanned preservation”, just as some jurisdictions exhibit “unplanned growth”. To solve this problem, some have proposed that land trusts seek governmental approval for each easement. Land trusts have opposed this requirement as having a chilling effect on donors who wish to remain anonymous. However, where there is good governmental planning, as in some of the mid-Atlantic states and in California, land trusts should indeed take these governmental directives into account, and many do. As land trusts increase in power and have a greater and greater influence on overall land use in jurisdictions, this issue will only increase in importance.

Easements versus regulation

A respected body of opinion holds that the growth of conservation easements – either donated or purchased – is inimical to the exercise of State zoning powers. Conservation easements exemplify the idea that landowners should receive some return, either through tax deductions or through cash payments, for making the decision to conserve. But the zoning power of government is able to impose such decisions for the public good (as is widely practiced in Europe) without any recompense to the landowner. And if such decisions are for the public good, perhaps the landowner should make them without recompense. Thus, easements and regulation appear diametrically opposed (Echeverria 2005). In practice, however, this does not appear to be the case. A recent informal survey shows that many of the same jurisdictions that spend large amounts of money on easement purchase also impose highly restrictive zoning. Many land trusts have found that restrictive zoning to preserve agriculture, stabilising land use patterns, leads to increases in easement donation (Bernstein 2004). Figure 3 shows the extraordinary number of easements, many contiguous, in the 60,000-hectare “agricultural preservation area” of Baltimore County, Maryland, a county whose zoning for this purpose is among the most protective and advanced on the east coast of the United States.

Landscape-scale preservation

A weakness of land preservation by easement is that it necessarily leads to a patchwork pattern of conservation. Only in a few cases where land trusts have been hard at work for decades, and where there is a conservation-minded landowner base, can one find a large contiguous land mass

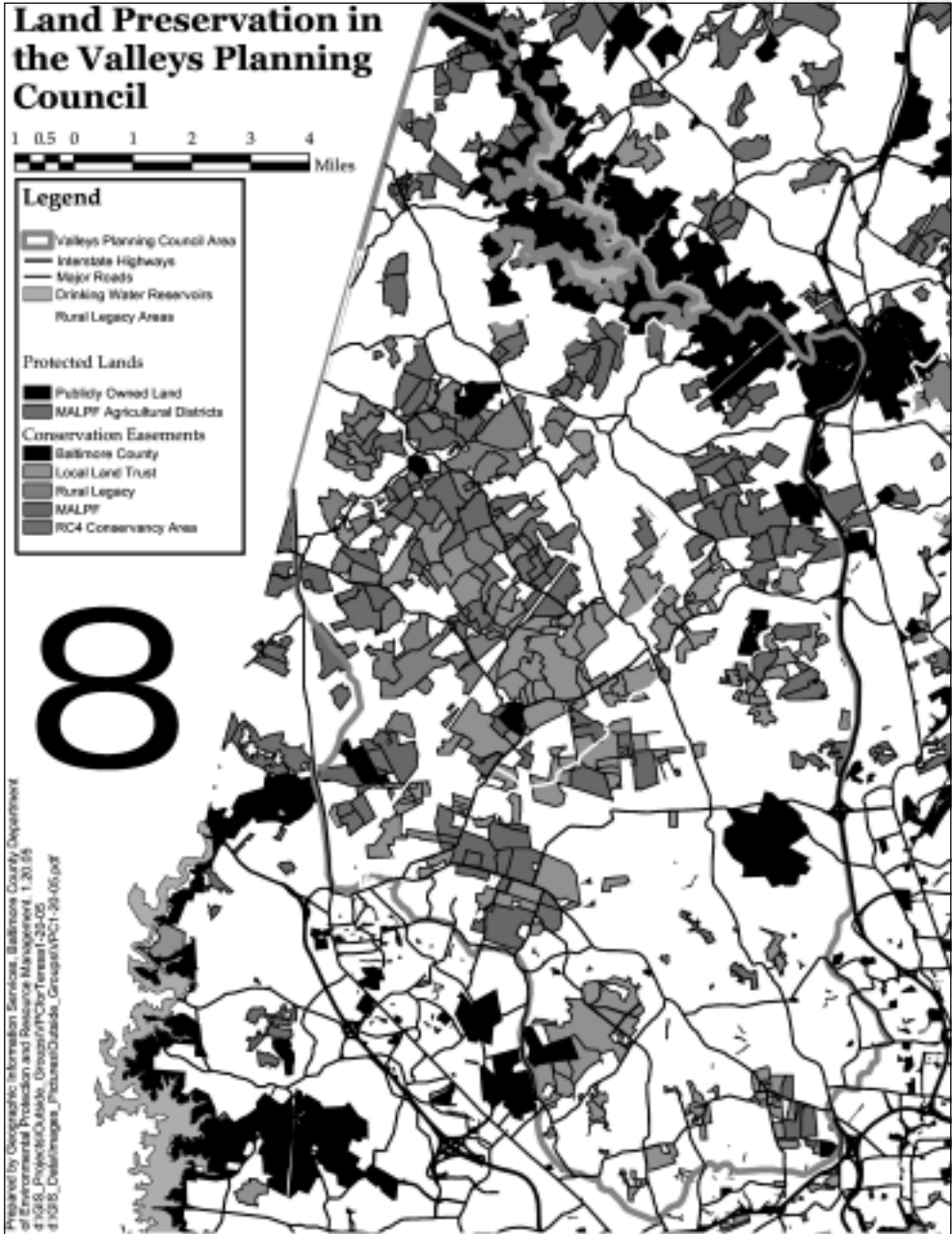


Figure 3. Showing the extraordinary number of easements, many contiguous, in the 60,000-hectare “agricultural preservation area” of Baltimore County, Maryland, a county whose zoning for this purpose is among the most protective and advanced on the east coast of the United States.

which has been protected by easements. In contrast, in most places, easements form a more-or-less complete network of protected areas that continue to be at risk.

The idea of “landscape-scale preservation” has aroused great interest in recent years. Collaborations of land trusts have been formed to preserve land at this scale, with varying success. Except in the case of areas where the individual holdings are huge (e.g. the preservation of a number of parcels between 40,000 and 300,000 hectares in the “Northern Forests” of Maine, New Hampshire, Vermont and New York), landscape-scale preservation has rarely been attained. It seems conservation on this scale remains truly a function of government planning and regulation; land trusts may contribute with additional preservation of keystone tracts. This powerful dual mechanism has been effective along the California coast, around the Chesapeake Bay and in the Adirondack Mountains, among other areas.

Applicability of conservation easements outside the US

There are aspects of land trusts – and the private reserves and conservation easements they create – that may appear specific to US law, society and economy. But it is important to note that many of the US legal mechanisms and policy incentives that encourage the current boom in private conservation were developed only in the 1970s and 1980s, long after the first land trusts at the turn of the century. Functionally equivalent mechanisms are at least theoretically possible in many other places. Indeed, at least eight countries of Latin America have used traditional easements for conservation purposes (Environmental Law Institute 2003). This field is new – the first easement was established in Costa Rica in 1992 – and complicated, but holds promise. Though practical challenges are formidable, opportunities for conservation easements may grow as land tenure systems become more secure in some countries. In fact, easements could potentially contribute to that process.

Summary

As non-governmental associations, land trusts protect land in three ways: acquiring full ownership through purchase or donation and managing that land directly as a private protected area; acquiring land and then conveying it to a public agency for long-term stewardship; and acquiring partial legal interest in land in the form of permanent use restrictions (conservation easements) and then monitoring against violations. All three activities have grown in number and area in recent decades, especially conservation easements. All depend on voluntary action on the part of private landowners, but result in permanent protection. Efforts are underway to develop formal mechanisms to ensure that potential abuses of private land protection are limited without compromising its many public benefits.

References

- Aldrich, R. 2004. *Land Trust Census 2003*. The Land Trust Alliance.
- American Farmland Trust. 2005. PACE: Status of State Programs, http://www.farmlandinfo.org/documents/29942/Pace_state_8-05.pdf
- Bernstein, J. 2004. Data on file at the Land Trust Alliance.
- Brewer, R. 2003. *Conservancy: The Land Trust Movement in America*. Dartmouth College.
- Byers, E. and Marchetti-Ponte, K. 2005. *Conservation Easement Handbook*. The Land Trust Alliance.
- Echeverria, J. 2005. *Skeptic's Perspective on Voluntary Conservation Easements*. Georgetown Environmental Law and Policy Institute, www.law.georgetown.edu/gelpi.
- Environmental Law Institute. 2003. *Legal tools and incentives for private lands in Latin America: Building Models for Success*. Washington, D.C.
- Government Printing Office. 2005a. Code of Federal Regulations, 26CFR1.170 et seq., http://www.law.cornell.edu/uscode/html/uscode26/usc_sec_26_00000170----000-.html
- Government Printing Office. 2005b. Internal Revenue Code, Sec. 2031(c).
- Guenzler, D. 1999. *Ensuring the Promise of Conservation Easements*. Bay Area Open Space Council.
- Mahoney, J. 2002. Perpetual Restrictions on Land and the Problem of the Future. *Virginia Law Review* 88, 738.
- Massachusetts General Court, c. 352, Acts of 1891. By virtue of Sec., c. 352, Acts of 1891.
- McLaughlin, N. 2005. Rethinking the Perpetual Nature of Conservation Easements. *Harvard Law Review*, v. 29.
- Mitchell, B. and Brown, J. 2003. Stewardship and Protected Areas in a Global Context: Coping with Change and Fostering Civil Society. In: B. Minter and R. Manning. *Reconstructing Conservation: Finding Common Ground*. Island Press, Washington, D.C.

North Carolina Dept. Env. and Nat. Resources, 2005. Conservation Tax Credit State by State Comparison, http://www.Itanet.org/objects/view.acs?object_id=15352

Ottaway, D. and Stephens, J. 2003. Inside the Nature Conservancy..., *Washington Post*, May 4, 2003.

Rilla, E. and Sokolow, A. 2000, California Farmers and Conservation Easements: Motivations, Experience, and Perceptions in Three Counties. University Of California Agricultural Issues Center, California Farmland and Open Space Policy Series: Research Paper No. 4.

Taylor-Rogers, S. *et al.* 2003. *Impediments to the Donation of Conservation Easements*. University of Maryland Center for Agro-Ecology.

Trust for Public Land, 2005. Annual Report.

United States Environmental Protection Agency, 2002. A Landscape Assessment of the Catskill/Delaware Watersheds, 1975–1998, <http://www.epa.gov/esd/land-sci/ny.htm#factsheet>

Weaver, A. 2005. Personal communication.

John Bernstein is Director of Education at the Land Trust Alliance, 1331 H St., NW, Suite 400, Washington, D.C. 20005, USA. E-mail: jbernstein@lta.org website www.lta.org.

Brent Mitchell is Vice-President, Stewardship, Quebec-Labrador Foundation/Atlantic Center for the Environment, 55 South Main Street, Ipswich, Massachusetts 01938, USA. E-mail: brentmitchell@qlf.org website www.qlf.org.

Protecting nature and landscape in southern Europe: a social approach

MIQUEL RAFA

A recent private land conservation initiative is underway in Catalonia, Spain. The Foundation for Territory and Landscape (FTIP) has become the largest private landowner in the region – and the largest private land conservation organisation in the entire country – in just eight years. This rapid development, which includes 20 freehold reserves and more than 70 management agreements, is financed by the “Social Funds” of a special kind of institution, a not-for-profit savings bank (Caixa de Catalunya) which has no private investors, and whose profits must be reinvested in the bank or contributed to social causes. Thus, a private foundation is establishing private reserves for the use and benefit of the public, what the Foundation calls “social property.”

CATALONIA is one of the 19 autonomous regions of Spain, situated in the north-east of the Iberian Peninsula, bordering France, Andorra and the Mediterranean Sea. In an area of approximately 32,000 km² and about 580 km of coastline it contains a remarkably varied relief, the product of different geological formations, and a great variety of habitats: from the high altitude of the Pyrenees (the most important range), with important forests of black pine *Pinus mugo*, through the steppe environments in the Catalan Central Depression, several calcareous massifs or impressive conglomerates (e.g. Montserrat Mountain), with secondary forests dominated by Aleppo pine *Pinus halepensis*, and finally important wetlands and dune systems in the Ebro Delta. The climate of Catalonia is mainly Mediterranean, though the topography also supports temperate and high mountain climates. It is a stopover site for many birds migrating between Africa and Europe. Catalonia has a rich wildlife and landscape demanding active protection in the face of social and economic development pressures.

Mont Rebei Gorge, Catalonia, Spain.



The *Fundació Territori i Paisatge* (Catalan for Territory and Landscape), was created in December 1997. It has its headquarters in Barcelona, in the historic building of “La Pedrera”, a World Heritage Site built by the famous architect Antonio Gaudi. In its eight years of existence, it has become the largest private land conservation organisation in Spain and has developed a pioneering approach to nature protection, particularly in the area of land acquisition and land stewardship.

The Foundation (hereafter referred as FTiP) was established by a savings bank, Caixa de Catalunya, from which it receives almost all of its core financial support. This has become a crucial – and pivotal – source of funding for all activities and investments, including land acquisition. To date, this has totalled approximately 12 million Euros on land conservation projects alone. There is a network of 20 reserves owned by FTiP (ca. 7,500 ha purchased) plus more than 70 areas under management agreements (ca. 91,000 ha). The focus of this work is done within Spain primarily in the autonomous region of Catalonia, where FTiP has become the largest private landowner.

In addition to direct land conservation, FTiP also provides grants for nature conservation projects developed by environmental NGOs and municipalities all over Spain. More than 400 projects have benefited to date, ranging from species-related conservation projects (e.g., Iberian lynx, *Lynx pardinus*; brown bear, *Ursus arctos*; Mediterranean monk seal, *Monachus monachus*; lammergeier *Gypaetus barbatus*; or Bonelli’s eagle, *Hieraetus fasciatus*); to nature restoration, field research or environmental education campaigns.

Genesis of Fundació Territori i Paisatge

How has all this recent private conservation become possible? This is a logical question, especially considering that Spain has never been a country with a strong tradition of nature conservation with large organisations working in this field. The key was the opportunity to develop a conservation initiative in the framework of the social work of the Caixa de Catalunya bank, the third largest of this special kind of financial institution in Spain. It is important to note that these financial institutions are, in fact, non-profit as there are no private investors and any profits are to be reinvested or given back to the society in the form of so-called “Social Work” or “Social Fund”. These special savings banks are very important in Spain and have a long tradition. Caixa de Catalunya, for instance, was founded 80 years ago, primarily to provide access to banking services for the ordinary people. Since then, the bank has developed a pioneering form of social corporate responsibility. Traditional areas of sponsorship were: culture (museums, exhibits, concerts, etc.) and social assistance for the elderly and disabled. Nature conservation was low on the agenda, and only some one-off and short-term funds were given to conservation projects.

But thanks to the perseverance of a few individuals (particularly Joan Cals, an economist of Barcelona University and one of the Caixa de Catalunya Bank Councillors), concerned with the great need for supporting nature conservation in Catalonia and the insufficient public funds available, the bank decided to create a new Foundation with resources of the Bank’s Social Funds specifically for nature conservation.

In creating the Fundació Territori i Paisatge, the bank drew on the experience developed by long-established organisations in Europe, particularly the National Trust for England and Wales, the Natuurmonumenten in the Netherlands and the Conservatoire du Littoral in France. The first two organisations are well-known and respected by their constituents, clearly demonstrated by the large membership numbers in their respective countries. They also have a large infrastructure and numerous staff to manage their reserves – something not sought in this case as it creates an ongoing expense and the FTiP want to keep as many resources as possible for buying land rather than for maintenance and recurrent costs. In the latter case, the French Government created a public agency, with fewer staff than the National Trust or

Natuurmonumenten, that primarily buys land and then transfers these new public areas to other agencies to manage as conventional public protected areas.

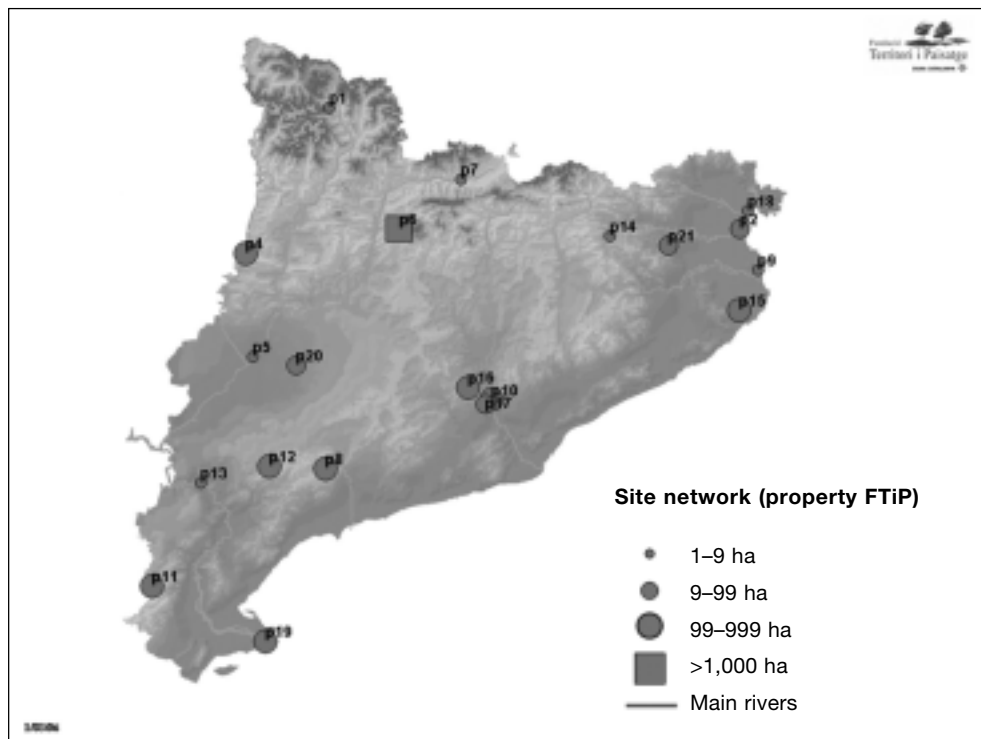
With these principles in hand (funds from the Bank's Social Funds to provide support for initiatives of the civil society on nature conservation; a primary goal of buying land; and the minimum costs of management and operational expenses), the FTiP has developed its own system of protected land, adapted to the social and cultural reality of the country. This is called "Social Property" ("Propietat Social") because it lies somewhere between public and private property; in other words, private land belonging to a private Foundation is managed for the benefit and free use of all members of society, as if it were public land.

New private reserves network

The FTiP's network of reserves comprises a wide range of areas, from one large property in the Pyrenees of more than 5,300 ha (Aliny Mountain reserve) to much smaller areas of less than 10 ha, set up to protect small tracts of riparian forests (a much endangered habitat in Catalonia) or wetlands (see Figure 1). FTiP also bought several medium-sized (150–600 ha) properties in the Mediterranean mountains of Catalonia's interior, all of them in areas without protection. At least two of these pioneered land preservation in the area, and later were declared Natural Parks by the Autonomous Government (Ports de Beseit and Montsant Parks). Another is expected to become an extension of the Montserrat Natural Park.

Once an area has been purchased (or an agreement made), the first step is always to develop a conservation management plan. FTiP adopted the model developed by the Eurosite network in Europe ("Eurosite Management Planning Toolkit"; Eurosite 1999), and it was adapted and translated into Catalan and Spanish (Moreno 2004). More than 60 plans have been developed by

Figure 1. The Foundation for Territory and Landscape (FTiP) site network.



FTiP this way. A long-term monitoring programme is in the initial stage of development, designed to measure biodiversity indices (vegetation, birds and butterflies) plus landscape evolution.

Once a management plan is completed (six months to a year after purchase), FTiP begins to implement its main projects. A typical case will include some public-use facilities such as sign-posting, parking lots and picnic areas at the entrance, plus some restoration of trails and arrangements to increase visitor safety. Ecological restoration projects might also be important in some areas. The period covered by the management plans is five years, and an internal evaluation is done every year.

Institutional capacity

All of this work is done by FTiP's small staff (17 people in total, of which four are employed in land management, five in conservation projects, three in environmental education and the other five in Les Planes de Son, a nature interpretation and sustainable development centre in the Pyrenees), but using external consultants and contractors as required. Local professionals are used when available. If possible, FTiP involves local NGOs in the process of producing the management plan. The Trust also has a team of field staff formed by five experts who work part-time to survey the areas and periodically report to headquarters on the status of the properties. One of their most important duties is to build and sustain good relationships with local stakeholders: municipalities, local groups, experts, etc.

With this work at the local level FTiP creates the basis for further involvement of local stakeholders. The next step is to establish management agreements with those who express most

Public-use facilities (information desk, sign-posting, parking and picnic area) at Mont Rebei Gorge.



interest in co-operating with FTiP within the reserve or around it. The organising principles of the FTiP are to maximise land protection while minimising long-term management costs. The mechanism for the latter is to enlist local, practical support. This is the case of local NGOs who were already active in the area, for example, campaigning to protect the area or undertaking small projects such as trail restoration or habitat improvement. In some cases, their involvement will develop to include visitor information, guiding interpretative walks, organising volunteers' activities, surveying nesting areas, etc. In short, they act as the *de facto* on-the-ground managers of the area. They and FTiP use the management plan as the framework to avoid any misuse or misunderstanding.

The local municipality is always a key and essential actor, so special care is taken to involve them in the reserve's management. Sometimes, the management agreement includes some sort of support for similar projects outside the property (e.g. trail signs, arrangement of forest roads, maintenance of panoramic look-out areas, etc.). Another important target group is local hunters clubs. An agreement is negotiated to establish reserve areas where hunting is prohibited (usually all of the FTiP property) as well as common projects to increase populations of hunting species such as rabbits or partridges through habitat management.

FTiP establishes an advisory council with all stakeholders for each area, and meets at least once a year to inform it of plans and to gather feedback (suggestions, criticisms, etc.). This helps maintain good relationships and communications.

Private land stewardship

Apart from the core work of the privately owned protected areas, FTiP recognises that there is much potential for influencing the management of lands owned by others. These land stewardship techniques were almost unknown in Spain until FTiP began to develop the concept and to adapt experiences from the US, Canada and the UK to the practical aspects of Spain (Pietx i Colom and Mitchell 1998). In 2001 FTiP organised a first workshop in Catalonia (with the assistance of QLF Atlantic Center for the Environment), where an important movement was born – *Custodia del Territori* – the Catalan translation for land stewardship. Today, an umbrella organisation called the Catalan Network for Land Stewardship (XCT) promotes this concept all over the country and has more than 80 active institutional members. The core support for XCT is provided by the FTiP and the Catalan Government.

More directly, the FTiP is also helping to manage areas properly without purchasing them, but through voluntary management agreements. It has three main ways of doing this:

1. Agreements with local municipalities, public consortiums or similar, to help manage communal lands or areas of their property. A first step is always to create a management plan for the area, developed by the FTiP, and the second phase involves funding some of the projects included in the plan.
2. Purchasing timber rights in community-owned forests in the Pyrenees Mountains, for a period of 25–40 years, and establishing forest reserves.
3. Agreements with private owners to help protect their land. The methods are similar to those of municipalities, but special care is taken when selecting. Several restrictions are included within the agreement, including the right of first refusal to the FTiP.

Conclusion

In its first eight years, the Fundació Territori i Paisatge has become the largest private landowner in Catalonia, making new reserves available to the public through funding from a non-for-profit savings bank, Caixa de Catalunya. This network of "social property" is expected to grow in the future.

Other plans include the extension of this model to other areas of Spain, and continuing to exchange experiences internationally. It would be worth exploring existing opportunities to use

this model in other places with similar circumstances – especially other regions of southern Europe and countries of Central and Eastern Europe.

References

- Basora Roca, X. et al. 2005. *Oportunitats per a la custòdia del territorials municipis. Guia practica per a ajuntaments i entitats locals*. Xarxa de Custòdia del Territori and Fundació Territori i Paisatge.
- Eurosite. 1999. *Eurosite Management Planning Toolkit*. Eurosite Secretariat, Wimereux, France. <http://www.eurosite-nature.org/>
- Fundació Territori i Paisatge. 2005. Annual report.
- Moreno, R. 2004. Aplicació del Manual de plans de gestió Eurosite a finques privades amb acords de custòdia del territori. *Documents ocasionals de la Xarxa de Custòdia del Territori*, 4. FTiP-Caixa Catalunya i XCT. 23 pp.
- Pietx i Colom, J. and Mitchell, B. 1998. La custòdia del territori. L'aplicació a Catalunya de les noves tècniques nord-americanes de protecció de la natura i el paisatge en propietats privades. *Bull. Inst. Cat. Hist. Nat.* 66:141–150.
- Pietx i Colom, J. et al. 2002. *Opcions per a la custòdia del territori en finques privades. Guia practica per a la propietat*. 2a edició. Fundació Territori i Paisatge.
- Rafa i Fornieles, M. et al. 2001. *La custòdia del territori. Una guia per a la implantació a Catalunya*. Fundació Territori i Paisatge.

Miquel Rafa is a biologist and Head of Land Management at Fundació Territori i Paisatge – Caixa Catalunya, Provença 261–265, 2n 2TM, 08008 Barcelona, Catalonia, Spain. E-mail: miquel.rafa@fundtip.com.

Private protected areas in East and southern Africa: contributing to biodiversity conservation and rural development

BRIAN T.B. JONES, SUE STOLTON AND NIGEL DUDLEY

East and southern Africa are well known for their extensive systems of national parks and game reserves established by governments to provide protection for many of Africa's most iconic species. However, what is perhaps less well known is the extent of land under private conservation in both these regions of the continent. Large areas of land are being managed for wildlife by non-state entities for a variety of purposes.

This paper provides an overview of privately conserved areas in East and southern Africa, and assesses their conservation and socio-economic impacts. It considers key issues regarding the nature and future of these protected areas. The number and variety of privately conserved areas in East and southern Africa makes it impossible in an article of this nature to describe and analyse all of them in detail. We have tried to give a broad overview of privately conserved areas in these two regions of Africa and then focused on specific examples that best illustrate some of the importance of such areas.

THE DEFINITION OF A PRIVATE PROTECTED AREA, which was developed for the Private Protected Area Action Plan adopted at the Vth IUCN World Parks congress in Durban, South Africa in 2003 (IUCN 2005), states that:

A private protected area refers to a land parcel of any size that is (1) predominantly managed for biodiversity conservation; (2) protected with or without formal government recognition; and (3) owned or otherwise secured by individuals, communities, corporations, or non-governmental organisations.

There is a wide range of types of private area managed for conservation in East and southern Africa. A rough typology for terrestrial areas is provided in Table 1. These privately conserved areas are characterised by different management objectives, sizes, land tenure arrangements and types of land holder. One clear distinction is between private conservation areas managed by individuals, corporations or non-governmental organisations (NGOs) on land held under freehold title or under lease from the state, and such areas managed by communities, known as Community Conserved Areas. The IUCN World Commission on Protected Areas (WCPA) and the Commission on Environmental, Economic and Social Policy (CEESP) define Community Conserved Areas as (TILCEPA 2004):

Natural and/or modified ecosystems containing significant biodiversity values, ecological services and cultural values, voluntarily conserved by indigenous, mobile and local communities through customary laws or other effective means.

In both East and southern Africa there has been considerable growth in all types of privately conserved area over the past 20 years or more. This growth has been driven partly by economic forces as developing markets for wildlife, wildlife products and nature tourism have supported the establishment of private parks, private game ranches and community-based conservation initiatives. At the same time, conservation objectives have also been important, largely driving, for example, the establishment of conservancies on freehold land in Kenya and several countries

Table 1. Typology of terrestrial private areas with conservation objectives in East and southern Africa, adapted from Krug (2001).

Type of reserve	Description
Private game ranches	<p>Suggested definition: Ranches that maintain a viable population of free-ranging, native wild species in extensive natural conditions, and use these as the basis of for-profit activities.</p> <p>Incentives: Mainly economic including consumptive (e.g. safari hunting and meat), and non-consumptive (e.g. wildlife-viewing tourism).</p> <p>Management: Run by individual owners or private companies.</p> <p>Details: Ranching is often based on antelope species (these account for 90% of all hunted animals), but many ranches offer wildlife viewing of other charismatic species such as rhino, giraffe and zebra. The areas are usually fenced to ensure stocked animals remain within the farm.</p>
Private Conservancies	<p>Suggested definition: Groups of commercial farms, livestock farms, mixed wildlife-cattle ranches or game ranches, where neighbouring landowners (either individual or communal landowners) pool natural and financial resources for the purpose of conserving and sustainably utilising wildlife.</p> <p>Incentives: Conservation and economic (consumptive and non-consumptive tourism).</p> <p>Management: Conservancies have their own constitutions containing a set of legally binding wildlife management and conservation objectives.</p> <p>Details: Traditionally, the main difference between private reserves and conservancies in southern Africa is that private reserves have completely abandoned conventional agricultural practices, while conventional farming remains an important source of revenue for members of a conservancy. However, in recent years conservancy members are increasingly abandoning livestock rearing.</p>
Private Nature Reserves	<p>Suggested definition: Areas managed by private individuals, trusts or companies with the primary objective of conserving wildlife and natural habitat.</p> <p>Incentives: Conservation and/or economic (non-consumptive tourism).</p> <p>Management: Management objectives vary from strict protection (non-consumptive use) to the sustainable use of wildlife; the main focus is typically on wildlife-viewing tourism.</p> <p>Details: Usually, these reserves no longer have any livestock on their land and may have removed fences to ensure that wildlife is free ranging.</p>
Community Conserved Area	<p>Suggested definition: Natural and/or modified ecosystems containing significant biodiversity values, ecological services and cultural values, voluntarily conserved by indigenous, mobile and local communities through customary laws or other effective means.</p> <p>Incentives: Conservation, cultural, economic (consumptive and/or non-consumptive tourism).</p> <p>Management: Management objectives vary from non-consumptive use (e.g. in sacred areas) to the sustainable use of wildlife and other natural resources; management decisions are taken by community leaders or specially formed management bodies.</p> <p>Details: Often wildlife is managed alongside livestock and crop farming, and sometimes in areas specifically set aside for wildlife and tourism. Wildlife often moves between state-run protected areas and neighbouring CCAs.</p>

in southern Africa. In some cases, such as community sacred forest groves in East Africa, religious values have driven the setting aside of land for protection.

East Africa

In East Africa most privately conserved areas are in Kenya and Tanzania, partly because large areas of suitable wild habitat, although under threat, still exist outside protected areas. Also in these countries, the implementation of policies and legislation enabling local communities to benefit from wildlife use is the furthest developed. In Kenya, for example, about 60–70% of wildlife is found outside state-run protected areas (Laikipia Wildlife Forum website 2006). Partly in response to declines in wildlife numbers, and partly due to economic opportunities through

wildlife-based tourism, community and individual land holders have allocated land for wildlife and wild habitats.

The most common form of tenure arrangement for privately conserved areas in Kenya is the 'group ranch'. These ranches are regulated by the Land (Group Representatives) Act of 1968 and are defined as: *demarcated area[s] of rangeland to which a group of pastoralists, who graze their individual owned herds on it, have official land rights*. The Lewa Wildlife Conservancy in Kenya's Meru District provides an interesting combination of individual and community conservation effort. The core of the conservancy is a former cattle ranch, part of which was developed as a rhino

Maasai farmer, Kenya. Photo: Sue Stolton.



sanctuary in 1983. Subsequently an area of state Forest Reserve, a second cattle ranch and a community group ranch were added to the original Lewa farm. The whole area is now a conservancy covering about 42,500 ha and managed by a non-profit organisation. It has important populations of black rhino *Diceros bicornis* and white rhino *Ceratotherium simum*, one of only three breeding populations of sitatunga *Tragelaphus spekei* in Kenya and 15% of the world population of Grevy's zebra *Equus grevyi* (Lewa Wildlife Conservancy website 2006). The conservancy itself is part of the Laikipia Wildlife Forum, a non-profit organisation which consists of 36 large-scale ranches, 47 community group ranches, and a number of tour operators, individuals and interest groups (Laikipia Wildlife Forum website 2006). The primary objectives of the forum are the maintenance of ecosystem integrity and processes, the establishment and development of community conservation projects in wildlife dispersal landscapes and the development of wildlife enterprises.

A number of group ranches have adopted various forms of conservation management on all or part of their ranches. The Kimana Community Wildlife Sanctuary is located in a critical wildlife corridor between the Amboseli and Tsavo West National Parks in Kenya. The members of the Kimana-Tikondo Group Ranch established the sanctuary to help generate tourism revenues for the local community, the better to use land that was unsuitable for agriculture and to maintain an important wildlife corridor (Barrow *et al.* 2000). The Ngwesi Group Ranch lies to the north of the Lewa Wildlife Conservancy and forms an important area for wet season movement of wildlife from the conservancy (Barrow *et al.* 2000). The conservancy has assisted group ranch members to establish a company to generate income for the community from wildlife-based tourism.

Other group ranches in Kenya have set aside parts of their land as wildlife sanctuaries, although there are concerns that some of these, like many of Kenya's national parks, are not large enough as ecological units on their own (Jones *et al.* 2005). Some group ranches in Kenya have formed Wildlife Associations in recognition of the need for extensive range areas to make wildlife a sustainable form of land use (Barrow *et al.* 2000). The Ol Chorro Oiroua Wildlife Association was formed by individual Maasai landowners in the northern part of the Mara-Serengeti ecosystem. It was established in 1992 to protect the northern wildlife dispersal areas of the Maasai Mara Reserve against encroachment by crop farming. According to Barrow *et al.* (2000), the association has been successful in halting habitat loss and in demonstrating that wildlife can earn significant incomes as part of an integrated land use approach.

In Tanzania, government policy encourages the establishment of Wildlife Management Areas (WMAs) on community land with the aim of promoting wildlife conservation outside government conservation areas and to transfer management to local communities in corridors, migration routes and buffer zones (Barrow *et al.* 2000). Such WMAs are being developed around conservation areas such as the Selous Reserve in south-eastern Tanzania. Privately-conserved forestry areas are also emerging in countries such as Tanzania where legislation provides for Village Land Forest Reserves, which are managed by the villagers themselves (T. Blomley pers. comm. 2005). Where these village reserves protect natural forest they have the potential to contribute to conservation of habitats not protected by formal protected area systems.

Southern Africa

Land under freehold and leasehold title

In Botswana, Namibia, South Africa and Zimbabwe, dual tenure systems are in place where large areas of land are under communal tenure (usually state-owned land to which residents have usufruct rights), and large areas of land are also held under freehold title. In all of these countries much of the freehold land was historically developed for cash crop farming and/or livestock ranching. However, many freehold farmers have moved from livestock to either mixed



A resort in Rostock Ritz, Namibia, is based on a private reserve adjoining the Damara Mountain Range.
Photo: Nigel Dudley.

livestock and wildlife, or exclusively to wildlife. Eco-tourism companies have bought large tracts of freehold land and developed them for wildlife- and wilderness-based tourism.

Some freehold farms are now operated as game ranches where the land is used exclusively for the production of wildlife for consumptive and non-consumptive use. Others are combined into large units called conservancies, where land-owners pool their land and other resources for the conservation and sustainable use of wildlife. It is estimated that in southern Africa, before the private land invasions in Zimbabwe, the combined area of private land (excluding community conserved areas) under some form of wildlife protection or sustainable wildlife management was a minimum of 14 million ha (Krug 2001).

In southern Africa, the move towards wildlife as a land use has been driven largely by market forces (Bond *et al.* 2004). In Namibia, South Africa and Zimbabwe, livestock ranching was heavily subsidised by the state through a number of direct and indirect means in order to support white farmers. With independence and political change, the subsidies have been removed. As a result the beef industry has been declining, and farmers have used favourable policy and legal environments to develop wildlife as a complementary and sometimes alternative form of profitable land use.

In Mozambique and Zambia, private individuals and companies are able to lease land from the government for farming activities. In both countries leased land that is marginal for livestock or crop farming is being used for wildlife. In Botswana, large areas of land, particularly around the Okavango Delta, are leased by district authorities to private sector hunting and tourism companies. These companies have to develop a management plan which also contains conservation objectives and activities. Some companies advertise the leased areas that they manage as private reserves. Such areas (along with community conserved areas) form effective “buffer” zones around the Moremi Game Reserve.

Examples of large-scale private reserves on freehold land are the Phinda Private Game Reserve in South Africa and the Gondwana Cañon Park in Namibia. Phinda is a 17,000 ha reserve on private land in the KwaZulu/Natal Province of South Africa owned by Conservation Corporation Africa (CC). Along with eco-tourism, two of the main aims of developing Phinda

were to repair habitat damaged by almost a century of cattle farming and to return the wildlife which had previously inhabited the area (CC Africa website 2006). More than 1,500 head of game have been introduced to the Phinda Reserve, and the mammal species list includes elephant *Loxodonta africana*, lion *Panthera leo*, cheetah *Acinonyx jubatus*, buffalo *Syncerus caffer*, white rhino and black rhino.

The 112,000-ha Gondwana Cañon Park is located within the Nama Karoo desert system of southern Namibia, on land formerly used by individual sheep farmers and which is now owned by a private company. The Gondwana approach is based on three pillars: ecology, finance through tourism, and social commitment. It is underpinned by a belief that without nature there would be no tourists, but without the tourists there would be no financing for nature conservation and no jobs for local people (Gondwana website 2006). A park management plan has been developed with conservation and tourism objectives, and profits have been re-invested in restocking the park with game and in habitat management. By mid-2005 springbok *Antidorcas marsupialis* numbers had increased to 4,500 from 500 in 1997, oryx *Oryx gazella* to 620 from 40, and Hartmann's mountain zebra *Equus zebra hartmannae* (an endemic sub-species) had increased from 20 to 420. The park's policy is to only introduce species that were thought to occur in the area historically.

Community conserved areas

TILCEPA (2004) suggests three features are important for recognising a community conserved area (CCA). Firstly, one or more communities should closely relate to the ecosystems and species culturally and/or because of survival and dependence for livelihood. Secondly, community management decisions and efforts should lead to the conservation of habitats, species, ecological services and associated cultural values, although the conscious objective of management may be different. Thirdly, communities are the major players in decision-making and implementation regarding the management of the site, implying that community institutions have the capacity to enforce regulations.

Many areas of land managed by local communities in southern Africa meet the definition of a CCA provided by TILCEPA (see above) as well as meeting these additional criteria. Community Conservation Trusts in Botswana and Communal Area Conservancies in Namibia are good examples of CCAs. Both have defined geographical boundaries, a representative body to take decisions on behalf of the community, and receive legal rights from government for the use of wildlife on their land. Their management objectives and activities combine conservation with supporting local livelihoods and have clear conservation outcomes.

In Botswana, Community Trusts are formed in areas designated as Controlled Hunting Areas. Communities receive a hunting quota from the Wildlife Department and are able to enter into contracts with the private sector to develop tourist lodges. Some communities such as Sankuyo, neighbouring the Moremi Game Reserve in the Okavango Delta, have few economic options because they live in a veterinary zone that excludes livestock. Maintaining their land under wildlife provides jobs and community income. The Sankuyo Community Trust is developing a tourism master plan for the area (S. Johnson, pers. comm.).

According to Arntzen *et al.* (2003) poaching is widespread in Botswana, but levels are falling within the community trust areas where communities or safari operators manage the hunting. They also suggest that wildlife-based community conservation encourages the conservation of biodiversity and has the potential to maintain or preserve the open grassy savannas of the Kalahari system in Botswana. This is in contrast with livestock dominated savannas, which have been transformed into thick bush (bush encroachment).

In Namibia, the Communal Area Conservancies are required by law to have a constitution which includes the sustainable use of wildlife as one of the conservancy objectives. Conservancies receive legal rights to enter into contracts with the private sector for trophy hunting and the

development of tourist lodges. Conservancies are also able to buy and sell wildlife, and hunt game for meat. There are 44 registered Communal Area Conservancies covering more than 10.5 million ha, including a range of habitats from desert and semi-desert in the west, to broadleaf woodland, riverine forests and floodplains in the north-east.

Torra Conservancy covers 352,000 ha of land in the arid north-west of Namibia. Large mammals found in the conservancy include black rhino, elephant, lion, leopard *Panthera pardus*, cheetah, giraffe *Giraffa camelopardalis*, oryx, kudu *Tragelaphus strepsiceros*, springbok and Hartmann's mountain zebra. The general population trend for all these species over the past 15 years or more has been upwards (NACSO 2004) and conservationists agree that without community commitment to conservation, species such as black rhino would not survive in the area. In 2003, the conservancy earned around N\$ one million (approx. US\$160,000) from trophy hunting, photographic tourism, live sale of game and own-use hunting. Part of the income was used for community benefit and part was used to finance the conservancy's own conservation activities. These included salaries for five community game guards and a conservation field officer, and a game monitoring system. Although wildlife roams across the whole conservancy, the community has zoned separate areas for tourism and trophy hunting which are off-limits for livestock and settlement.

The impact of privately conserved areas

The data above about the types of privately conserved areas, the amount of land they cover and the wildlife species and habitats they protect suggest that such areas have positive conservation impacts. Important populations of endangered species such as black rhino are being protected on private land by individuals, companies, and communities in Kenya and Namibia. Many privately conserved areas have viable populations of species such as elephant and large predators. Many protect a variety of natural habitats that would otherwise be converted to other forms of land use, and many are trying to restore degraded land.

In many cases, privately conserved areas have been established adjacent to government reserves. This is often because many such reserves are unfenced and wildlife roams freely across neighbouring land, but also because proximity to government reserves provides opportunities to take advantage of existing tourism routes and destinations. Government reserves often form the "core" wildlife area of larger systems and the privately conserved areas provide seasonal dispersal ranges for species such as elephant, or corridors between government controlled "core areas". This is an important function as it has been increasingly recognised that many government protected areas are not sufficient in size to provide adequate protection to many species, but at the same time it is often not politically possible (particularly in developing countries) to formally proclaim more land as national parks or game reserves. Privately conserved areas are forming important components of broader landscape conservation approaches.

Although there is a strong case for the positive contribution of well-managed privately conserved areas to wildlife conservation and the conservation of natural habitats, it is more difficult to draw conclusions about contribution to ecological processes. Bond *et al.* (2004) found that for southern Africa there were few comprehensive data measuring the impact of the switch from livestock to wildlife on ecological conditions across freehold land. In addition, much of the monitoring that takes place in community conserved areas focuses on wildlife numbers and diversity rather than on important factors such as plant diversity. This is an area that requires more research.

In East and southern Africa, conservation cannot divorce itself from broader political issues such as poverty, population growth, land hunger, land reform and land redistribution. Conservationists, NGOs and government conservation agencies have realised that conservation has to compete with other forms of land use that provide food, jobs and livelihood security. If government protected areas and privately conserved areas are to retain political legitimacy they

must meet societal needs. This realisation has led private parks and conservancies such as Phinda in South Africa, Gondwana in Namibia, and Lewa in Kenya to place considerable emphasis on providing benefits to poor community neighbours. These benefits are in the form of jobs, contributions to schools and other social welfare activities, but often also in the form of assistance to communities in managing their own conservation areas. The same realisation has led governments across the two regions to introduce policies and legislation that enable local communities to use wildlife sustainably and reap economic benefits that make wildlife an attractive form of land use. However, the issue of equity in land distribution remains an important challenge to privately conserved areas. Land reform and redistribution is a crucial issue in southern Africa where dual tenure systems exist and whites control large areas of land. The land seizure policy adopted by the Zimbabwean Government in recent years clearly illustrates this. Kenya has also experienced recent political tensions over land ownership.

Durstenbrook Farm, Namibia: guests at an 'eco-tourist' guest farm just outside Windhoek. Photo: Nigel Dudley.



Further, although there is a favourable policy environment for privately conserved areas that provides incentives to keep land under wildlife, policy and legislation are often not fully implemented by officials, many of whom believe that wildlife should be owned by the state or are driven by a bureaucratic need to hold on to power (Bond *et al.* 2004, Murphree 1991). In southern Africa, government policy needs to go further in devolving management authority over wildlife to local communities to provide an adequate foundation for community wildlife management (Jones and Murphree 2004).

Privately conserved land as protected areas

Not all of the privately conserved land discussed above can necessarily be deemed a private protected area according to the IUCN definition of a private protected area (see introduction). There are two key issues:

The overall objectives of the area: areas set aside primarily for reasons other than conservation (tourism, hunting or game farming for instance) may help protect wildlife and wild habitat as a side-effect but not as a primary aim. If the objective is not conservation, then there is little to guarantee that using the area for economic gain will promote bio-diversity. In Namibia, for example, some game ranches have introduced exotic species from South Africa to increase the number of species available to trophy hunters. Some game ranchers will reduce predators that prey on game animals that have been bought and introduced to the ranch.

The permanence of protection: private areas are likely to have less guarantee of permanence – for example a change of ownership or a change in market conditions could mean a change in use, or changes in government policy could reduce the incentives to keep land under wildlife. Expanding human populations and increased demand for land could lead to pressure for areas such as sacred groves to be used for other purposes.

Neither of these reasons provides insurmountable arguments against recognising privately conserved areas as protected areas. In reality, many privately conserved areas have mixed management objectives and combine conservation with profit. Partly, this is due to recognition that discerning eco-tourists at the high end of the market are looking for a wilderness experience and a strong link to conservation. Many of the freehold farmers that formed conservancies in Namibia have done so because they wanted improved conservation of the land as much as increased profits (Jones 2005). In a study of wildlife use in Namibia, Ashley and Barnes (1996) found that part of the value of game to freehold farmers was not just in the profit that could be made or in the diversification of risk, but in aesthetic (non-use) benefits.

There is little doubt that private protected areas can be as effective, and in some cases more effective, than state protected areas. In places with serious poaching pressure, well-funded private hunting reserves may be better able to maintain viable populations of large mammals than official protected areas with fewer resources. Although the mixing of sport hunting and conservation provides an ethical dilemma for some conservationists, its effectiveness is not open to doubt.

Further, a number of privately conserved areas fit well with several of the IUCN protected area management categories, particularly when the conservation outcomes discussed above are considered. For example, private reserves such as Phinda, Gondwana, and similar land units in Kenya meet the criteria for **Category II** *an area managed mainly for ecosystem protection and recreation*:

Natural area of land and/or sea designated to (a) protect the ecological integrity of one or more ecosystems for present and future generations; (b) exclude exploitation or

occupation inimical to the purposes of designation of the area; and (c) provide a foundation for spiritual, scientific, educational, recreational and visitor opportunities, all of which must be environmentally and culturally compatible.

Stolton and Dudley (in preparation) suggest that Category IV is an appropriate categorisation for the many private protected areas which are managed to conserve large mammals. For example, approximately 80% of larger game mammal species are reportedly found on privately owned commercial farms in Namibia (Richardson 1998), and private farmland in Namibia hosts the largest cheetah population left in Africa (Krug 2001). **Category IV** is an area managed mainly for conservation through management intervention and is described as:

An area of land and/or sea subject to active intervention for management purposes so as to ensure the maintenance of habitats to meet the requirements of specific species.

Community conservation initiatives such as some group ranches in Kenya, Community Trusts in Botswana, and Conservancies in Namibia, fit well within IUCN **Category VI** an area managed mainly for the sustainable use of natural resources:

... containing predominantly unmodified natural systems, managed to ensure long-term protection and maintenance of biological diversity, while also providing a sustainable flow of natural products and services to meet community needs.

In South Africa, land taken under *apartheid* and restored to the Makuleke community in South Africa falls within the Kruger National Park, and is still managed as an integral part of the park by the community and park authorities (**Category II**).

Taking these points into consideration, we suggest that there is sufficient reason for accepting that many of the privately conserved areas in East and southern Africa can be described as private protected areas, with a good degree of confidence that they are meeting important conservation as well as socio-economic objectives.

References

- Arntzen, J.W., Molokomme, D.L., Terry, E.M., Moleele, N., Tshosa, O. and Mazambani, D. 2003. Final Report of the Review of Community-Based Natural Resource Management in Botswana. Report prepared by the Centre for Applied Research for the National CBNRM forum, Gaborone.
- Ashley, C. and Barnes, J. 1996. *Wildlife Use for Economic Gain: The potential for wildlife to contribute to development in Namibia*. Research Discussion Paper No. 12. Directorate of Environmental Affairs, Windhoek.
- Barrow, E., Gichohi, H. and Infield, M. 2000. Rhetoric or Reality? A review of community conservation policy and practice in East Africa. *Evaluating Eden Series no. 5*. International Institute for Environment and Development, London.
- Bond, I. with Child, B., de la Harpe, D., Jones, B., Barnes, J. and Anderson, H. 2004. Private Land Contribution to Conservation in Southern Africa. In: B. Child (ed.). *Parks in Transition: Biodiversity, rural development and the bottom line*. Earthscan/IUCN South Africa, London. 29–61.
- Child, B. 2004. Parks in Transition: Biodiversity, Development and the Bottom Line. In: B. Child (ed.). *Parks in Transition: Biodiversity, rural development and the bottom line*. Earthscan/IUCN South Africa, London. 233–256.
- Conservation Corporation Africa website 2006: <http://www.ccafrica.com>
- Gondwana Desert Collection web site 2006: <http://www.gondwana-desert-collection.com>
- IUCN. 2005. Benefits Beyond Boundaries: Proceedings of the Vth IUCN World Parks Congress. IUCN, Gland and Cambridge.
- Jones, B.T.B. 2005. Critical Stocktaking Assessment and Report on communal and freehold Conservancies to explore areas of mutual co-operation, collaboration and synergy. Conservancy Association of Namibia (CANAM) and the Namibian Association of CBNRM Support Organisations, (NACSO), Windhoek.
- Jones, B.T.B. and Murphree, M.W. 2004. Community-based Natural Resource Management as a Conservation Mechanism: Lessons and Directions. In: B. Child (ed.). *Parks in Transition: Biodiversity, rural development and the bottom line*. Earthscan/IUCN South Africa, London. 63–103.
- Jones, B.T.B., Okello, M.M. and Wishitemi, B.E.L. 2005. Pastoralists, conservation and livelihoods in East and Southern Africa: reconciling continuity and change through the protected landscape approach.
- Krug, W. (2001). Private Supply of Protected Land in Southern Africa: A Review of Markets, Approaches, Barriers and Issues. Workshop Paper, World Bank/OECD International Workshop on Market Creation for Biodiversity Products and Services Paris, 25 and 26 January 2001, OECD Working Group on Economic Aspects of Biodiversity.
- Laikipia Wildlife Forum website 2006. <http://www.laikipia.org>
- Lewa Wildlife Conservancy website 2006. <http://www.lew.org>
- Murphree, M.W. (1991). Research on the Institutional Contexts of Wildlife Utilisation in Communal Areas of Eastern and Southern Africa. In: J.G. Grootenhuys, S.G. Njuguna and P.W. Kat. (eds). *Wildlife Research for Sustainable Development*. National Museums of Kenya, Nairobi.
- NACSO. 2004. Namibia's communal conservancies: A review of progress and challenges. Namibian Association of Community-based Natural Resource Management Support Organisations, Windhoek.
- Richardson, J.A. 1998. Wildlife utilisation and biodiversity conservation in Namibia: conflicting or complementary objectives? *Biodiversity and Conservation* 7, pp. 549–559.

Stolton, S. and Dudley, N. In prep. Non-State Protected Areas. In: Protected Areas in Eastern and Southern Africa: Reporting protected areas and applying the IUCN categories. A report of the Strengthening African Protected Areas Networks Project, UNEP-WCMC, UK.

TILCEPA. 2004. Community Conserved Areas: A bold Frontier for Conservation. Briefing Note 5. IUCN WCPA-CEESP Theme on Indigenous and Local Communities, Equity and Protected Areas. IUCN, Gland.

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Brian T.B. Jones is an independent environment and development consultant based in Namibia. PO Box 9455, Eros, Windhoek, Namibia. E-mail: bjones@mweb.com.na

Sue Stolton and Nigel Dudley are Equilibrium Consultants, 47, The Quays, Cumberland Road, Spike Island, Bristol, BS1 6UQ, UK. E-mail: equilibrium@compuserve.com

Résumés

L'importance socio-économique des réserves de faune privées basées sur l'écotourisme dans la province du cap Est de l'Afrique du Sud

REBECCA SIMS-CASTLEY, GRAHAM I.H. KERLEY, BEVERLEY GEACH ET JEFF LANGHOLZ

L'écotourisme sert de source principale de revenu pour un grand nombre de zones protégées privées mondiales. Nous avons examiné sept zones protégées privées écotouristiques en Afrique du sud pour identifier leurs points clé et leurs défis. Les conclusions comprennent: 1) les trois premières attractions aux réserves privées furent la faune et la flore sauvage, les paysages, et la meilleure qualité des logements et du service; 2) établir une réserve fut une entreprise coûteuse, exigeant une dépense initiale moyenne de \$4,6 millions; 3) en remplaçant l'agriculture par l'écotourisme orienté sur la faune et la flore, le nombre d'emplois fut multiplié par 3,5, la valeur moyenne des salaires payés par réserve fut multiplié par 20, et le salaire moyen annuel fut plus que quintuplé, passant de \$715 à \$4 064 par employé; 4) les réserves contribuèrent à plus de \$11,3 millions à l'économie régionale par an; 5) les réserves représentèrent une contribution substantielle pour la conservation de la biodiversité; et 6) le manque de soutien des instances gouvernementales fut la principale préoccupation lors du face à face avec les propriétaires des réserves. L'analyse indique que l'écotourisme est une alternative écologique souhaitable par rapport aux autres usages des terres, et souligne aussi le besoin de soutien du gouvernement pour fournir aide et assistance aux infrastructures des réserves privées.

La conservation des terres privées en Australie

PENELOPE FIGGIS, DOUG HUMANN ET MICHAEL LOOKER

En Australie, les organisations gouvernementales et non-gouvernementales prennent de plus en plus conscience du fait que les zones protégées traditionnelles seules n'atteindront pas un état satisfaisant de conservation de la biodiversité à l'échelle continentale. Plusieurs aspects de « l'île continent » renforcent cette réalité. Tout d'abord, environ 70% du continent australien est privatisé, soit par bail, pleine propriété, ou appartient aux tribus aborigènes. Deuxièmement, un grand nombre des écosystèmes les plus menacés existent uniquement sur des terres privées. Troisièmement, les menaces contre la biodiversité ne peuvent pas être identifiées uniquement par les parcs publics. Par conséquent, un effort important est en cours pour trouver de meilleures solutions plus innovatrices pour protéger la biodiversité à travers le régime foncier tout entier. Les gouvernements fédéraux et nationaux ont produit un éventail d'initiatives pour encourager la protection de l'environnement sur les terres privées. La gamme de moyens proposés va des programmes volontaires pour sauvegarder la faune et la flore sauvage, aux accords contractuels pour protéger les zones écologiques importantes d'une propriété, à l'exécution d'engagements relatés aux titres de propriétés. Des méthodes d'encouragement et des outils à visée économique sont aussi en train d'apparaître pour encourager les titulaires terriens à conserver certaines zones de leur propriété ayant une végétation autochtone.

Les zones protégées privées et leur rôle clé dans la conservation du point chaud de biodiversité de la Forêt Atlantique, en Brésil

DENISE MARÇAL RAMBALDI, ROSAN VALTER FERNANDES ET MARCIO AUGUSTO REOLON SCHMIDT

Ceci est une brève revue sur les terres protégées privées du Brésil; le concept de Réserve du Patrimoine Naturel Privé (Reserva Particular do Patrimônio Natural - RPPN); les aspects légaux et institutionnels liés aux RPPNs; l'intérêt des zones protégées privées dans la conservation du point chaud de la diversité biologique qu'est la Forêt Atlantique, et l'importance des services écologiques fournis aux Brésiliens; les contributions privées au bénéfice du public; l'effort de rétablissement du tamarin lion doré *Leontopithecus rosalia* dont l'espèce est en danger; et le potentiel des terres protégées privées à contribuer à la restauration du paysage et au développement durable en général.

Encourager la conservation des sites clé de haute priorité et des développements ruraux en Amérique Centrale: le rôle des zones protégées privées

CARLOS M. CHACON

Avec un peu plus d'un demi-million de kilomètres carrés, les sept pays d'Amérique Centrale accueillent plus de 8% de la biodiversité mondiale. Plusieurs années d'efforts ont été nécessaires pour préserver ce patrimoine naturel, ce qui a effectivement permis de désigner environ 26% de cette région en tant que zone protégée. Cependant, avec des taux historiques élevés de déforestation et une fragmentation croissante du paysage, l'Amérique Centrale fait aussi face à d'importantes menaces vis-à-vis de son développement durable. Par conséquent, une nouvelle démarche a été créée dans le but d'encourager la conservation et l'usage durable des ressources naturelles de la région. Cette démarche consiste à développer des partenariats avec les propriétaires privés fonciers intéressés par la protection des ressources sur leurs terres, par le biais de la création d'Aires Protégées Privées (PPA). Bien qu'il n'existe pas de définition précise pour décrire ce qu'est une PPA en Amérique Centrale, et qu'il n'y ait actuellement pas de données sur ce sujet, les informations connues laissent supposer qu'il y aurait environ 2900 propriétaires fonciers qui protégeraient officiellement plus de 509 000 hectares dans la région. Il est important de noter, par rapport à cet article, qu'il existe dans cette région d'importants contrastes au niveau de la taille, du statut légal, de la titularisation des terres, de la reconnaissance officielle, du temps de réponse, de l'aménagement du territoire, de la gestion et des types d'habitats protégés par ces PPA. Cet article explore donc la diversité des efforts évoqués précédemment, et décrit succinctement leurs points forts, leurs potentiels et leurs impacts. La conclusion est telle que le nombre d'aires protégées privées est en train de s'accroître en Amérique Centrale, qu'elles abritent d'importants sites naturels et qu'elles constituent un élan dynamique pour l'économie et le développement des secteurs ruraux de la région.

Conservatoires associatifs de propriétés foncières (« Land Trust »), réserves privées, et droits de passage pour la protection des ressources (« Conservation Easement ») aux Etats-Unis

JOHN BERNSTEIN ET BRENT A. MITCHELL

Durant le siècle dernier, un vaste réseau de terres privées non gouvernementales ayant un statut de protection a évolué aux Etats-Unis. Ce réseau (qui, dans quelques états de l'Est, représente près de 10% de la surface totale des terres) a été créé par conservatoires associatifs de propriétés foncières (« land trusts »), organisations caritatives privées qui remplissent un rôle au niveau de la protection de l'environnement, et complètent celui du gouvernement. Un outil légal, connu sous le nom de « conservation easement », par lequel les propriétaires privés fonciers cèdent certains de leurs droits sur leurs terres afin de protéger les ressources naturelles ou culturelles, a été l'instrument dans la réussite de ce mouvement. Un système de déductions d'impôt sur le revenu dans un but caritatif, de crédits, et de subventions gouvernementales, a vu le jour pour soutenir ce mouvement. Durant ces dernières années, un certain nombre de questions ont été posées sur la façon dont ces terres privées servent à l'intérêt publique, et à quel point l'initiative privée de la conservation des terres se rapproche des priorités gouvernementales.

Protéger la nature et le territoire en Europe du Sud: une approche sociale

MIQUEL RAFA

Une initiative privée de conservation du territoire vient d'être mise en place en Catalogne, Espagne, chose qui n'existait pas il y a dix ans. La Fondation pour le Territoire et le Patrimoine (FTiP) est devenue le propriétaire foncier privé le plus important de la région et la plus grande organisation privée de conservation des terres dans le pays tout entier - ceci en huit ans seulement. Ce développement rapide, qui inclut 20 réserves indépendantes et plus de 70 accords de gestion, est financé par des "Fonds Sociaux" provenant d'un type d'institution particulier : une caisse d'épargne à but non-lucratif (Caixa de Catalunya), qui n'a pas d'investisseurs privés, et dont les bénéficiaires doivent être réinvestis dans la caisse d'épargne, ou bien doivent cotiser aux causes sociales. Ainsi, une fondation privée est en train d'établir des réserves privées pour l'usage et bienfait du public, ce que la Fondation appelle "propriété sociale."

Les zones protégées privées d'Afrique de l'Est et du Sud: leur contribution à la conservation de la biodiversité et au développement rural

BRIAN T.B. JONES, SUE STOLTON ET NIGEL DUDLEY

Les régions d'Afrique du Sud et de l'Est sont renommées pour leurs systèmes extensifs de parcs nationaux et de réserves de chasse, établis par les gouvernements pour assurer la protection des nombreuses espèces joyaux de l'Afrique. Cependant, un des faits moins connus sur ces deux régions du continent africain est l'étendue des terres qui sont sous le régime de conservation privée. Les territoires de grande surface sont gérés dans des buts divers, pour leur faune et leur flore sauvage, par des instances non liées à l'état.

Ce document procure un aperçu général sur les zones privées protégées dans l'Est et le Sud de l'Afrique, et évalue leurs états de conservation et leurs impacts socio-économiques. Les problèmes clés concernant la nature et l'avenir de ces secteurs protégés sont également discutés. A cause du grand nombre de ces secteurs en Afrique de l'Est et du Sud, et de leur variété, il est impossible de tous les décrire et les analyser en détail dans un article de ce genre. Nous avons donc essayé de donner un aperçu général sur ces zones protégées privées dans ces deux régions africaines, et nous nous sommes ensuite concentrés sur des exemples spécifiques qui illustrent au mieux l'importance de tels secteurs.

Resúmenes

La importancia socioeconómica de las reservas privadas de fauna basadas en el ecoturismo en la Provincia del Cabo Oriental de Sudáfrica

REBECCA SIMS-CASTLEY, GRAHAM I.H. KERLEY, BEVERLEY GEACH Y JEFF LANGHOLZ

El ecoturismo es la principal fuente de ingresos para muchas áreas protegidas privadas de todo el mundo. Estudiamos siete áreas protegidas privadas turísticas en Sudáfrica para identificar características y retos fundamentales. Éstas son las conclusiones: 1) las tres principales atracciones de las reservas privadas fueron la fauna y flora, los paisajes, y el alojamiento/servicio de gran calidad; 2) montar una reserva resultó ser una empresa costosa requiriendo un desembolso inicial medio de 4,6 millones de dólares; 3) con la transición desde el cultivo al ecoturismo, los puestos de trabajo aumentaron por un factor del 3,5, el valor medio de los sueldos por reserva se multiplicó por 20, y el salario medio anual aumentó más de cinco veces, pasando de 715 dólares a 4.064 dólares por empleado; 4) las reservas aportaban más de 11,3 millones de dólares por año a la economía regional; 5) las reservas contribuyeron de manera importante a la conservación de la biodiversidad; y 6) la falta de apoyo por parte de las autoridades fue el desafío más acuciante al que se enfrentaron los propietarios. El análisis apunta al ecoturismo como una alternativa económica y ecológica deseable para otros usos del suelo, al tiempo que destaca la necesidad de que los gobiernos apoyen la creación y gestión de las reservas privadas.

La conservación en las fincas privadas de Australia

PENELOPE FIGGIS, DOUG HUMANN Y MICHAEL LOOKER

En Australia, las entidades gubernamentales y no gubernamentales son cada vez más conscientes de que las áreas protegidas tradicionales no conseguirán por sí solas una conservación adecuada de la biodiversidad a escala continental. Varios aspectos de la "isla continente" refuerzan esta realidad. En primer lugar, sobre el 70% de Australia está en manos privadas, ya como propiedad vitalicia franco, arrendamiento o en propiedad de aborígenes. En segundo lugar, muchos de los ecosistemas más amenazados están en terrenos privados. En tercer lugar, las amenazas a la biodiversidad no se pueden tratar sólo a través de parques nacionales. Por consiguiente, se está haciendo un gran esfuerzo para encontrar métodos mejores y más innovadores para proteger la biodiversidad en todos los terrenos independientemente de su propiedad. Los gobiernos federal y estatal han creado una serie de iniciativas para fomentar la conservación en terrenos privados. El conjunto de herramientas va desde programas voluntarios para conservar la flora y la fauna, pasando por acuerdos contractuales para proteger los sectores ecológicamente importantes de una propiedad, hasta añadir cláusulas a los títulos de propiedad territorial. También están surgiendo métodos de incentivación e instrumentos de mercado para animar a los propietarios a que conserven determinadas áreas de vegetación autóctona en sus tierras.

Las áreas protegidas privadas y su papel fundamental en la conservación de la biodiversidad del *hot spot* de la Selva Atlántica, Brasil

DENISE MARÇAL RAMBALDI, ROSAN VALTER FERNANDES Y MARCIO AUGUSTO REOLON SCHMIDT

Este es un breve informe sobre las áreas protegidas privadas en Brasil; el concepto de la Reserva Particular del Patrimonio Natural (Reserva Particular do Patrimonio Natural – RPPN); los aspectos legales e institucionales relacionados con las RPPNs; la relevancia de las áreas protegidas privadas en la conservación de la biodiversidad del *hot spot* (área crítica para la biodiversidad) de la Selva Atlántica, y los valiosos servicios medioambientales ofrecidos a los brasileños; las contribuciones privadas para el beneficio público; los esfuerzos dedicados a la recuperación del amenazado títí león dorado *Leontopithecus rosalia*; y el potencial de las áreas protegidas privadas de contribuir a la restauración del paisaje y al desarrollo sostenible en general.

Fomentando la conservación de puntos clave prioritarios y el desarrollo rural en Centroamérica: el papel de las áreas protegidas privadas

CARLOS M. CHACON

Con poco más de medio millón de kilómetros cuadrados, los siete países de Centroamérica albergan más del 8% de la biodiversidad mundial. Durante varios años se han llevado a cabo esfuerzos para conservar este patrimonio natural y de

hecho casi el 26% de la región ha sido designada como área protegida. Sin embargo, con tasas de deforestación históricamente altas y una creciente fragmentación de paisajes, Centroamérica también se enfrenta a amenazas serias para su desarrollo sostenible. Consecuentemente, ha surgido un nuevo enfoque para fomentar la conservación y el uso sostenible de los recursos naturales de la región que consiste en colaborar con terratenientes mediante la creación de áreas protegidas privadas (APP). Aunque en Centroamérica no existe una definición exacta de lo que es una APP, y tampoco existen datos claros sobre este tema, al día de hoy, la información disponible muestra que hay unos 2,900 terratenientes que protegen oficialmente más de 509,000 hectáreas en la región. Es importante señalar, como hace este artículo, que hay diferencias importantes a lo largo de la región en lo que se refiere al tamaño, categoría jurídica, tenencia, reconocimiento oficial, marco temporal, usos de las tierras, gestión y tipo de hábitat protegido por estas áreas. Por consiguiente, el artículo explora la diversidad de estos esfuerzos, describiendo brevemente sus características más importantes, los incentivos disponibles y su impacto. La conclusión es que el número de áreas protegidas privadas está creciendo en Centroamérica, que éstas protegen las zonas naturales importantes y que también están convirtiéndose en importantes fuentes de ingreso y desarrollo para las áreas rurales de la región.

Fondos territoriales, reservas privadas y servidumbres para la conservación en los Estados Unidos

JOHN BERNSTEIN Y BRENT A. MITCHELL

Desde el siglo pasado se ha ido creando en los Estados Unidos una amplia red de tierras protegidas privadas no gubernamentales. Esta red (que en algunos estados del este cubre casi el 10% del área total del territorio) fue creada utilizando fondos territoriales que consisten en organizaciones privadas sin ánimo de lucro dedicadas a la conservación y que complementan el trabajo del gobierno. El mecanismo legal que ha jugado un papel fundamental en el éxito de esta iniciativa es conocido como la servidumbre para la conservación, y a través de esta, los propietarios privados renuncian a ciertos derechos sobre sus tierras a perpetuidad para proteger los recursos culturales o naturales. Para apoyar este programa ha surgido un sistema de desgravación de impuestos, créditos y subvenciones del gobierno. En los últimos años se ha cuestionado lo bien que estas tierras privadas sirven a los fines públicos y la medida en que estas iniciativas privadas para la conservación del territorio satisfacen las prioridades del gobierno.

La protección de la naturaleza y los paisajes en el sur de Europa: un enfoque social

MIQUEL RAFA

En Cataluña, España, se está implementando una iniciativa privada de conservación del territorio, algo insólito hace una década. En tan sólo ocho años, la Fundación Territorio y Paisaje (FTIP) se ha convertido en el mayor terrateniente privado de la región – y en la mayor organización privada de todo el país para la conservación del territorio. La iniciativa incluye 20 reservas vitícolas y más de 70 acuerdos de gestión. Su desarrollo rápido se debe a la financiación a través de los “Fondos Sociales” de un tipo especial de institución, una caja de ahorros sin fines lucrativos (Caixa de Catalunya) que no tiene inversores privados, y cuyos beneficios deben ser reinvertidos en el banco o destinados a obras sociales. De esta manera, una fundación privada está estableciendo reservas privadas para uso y disfrute del público, lo que la Fundación llama “propiedad social”.

Las áreas protegidas privadas en el este y sur de África: contribuyendo a la conservación de la biodiversidad y al desarrollo rural

BRIAN T.B. JONES, SUE STOLTON Y NIGEL DUDLEY

El este y el sur de África son conocidos por sus amplios sistemas de parques nacionales y sus reservas de fauna establecidos por los gobiernos para proteger a muchas de las especies más emblemáticas de África. Sin embargo, lo que quizás sea menos conocido es la extensión del territorio bajo protección privada en ambas regiones del continente. Una gran parte del territorio es gestionada por entidades no estatales que conservan la flora y la fauna para diversos fines.

Este artículo proporciona una visión general de las áreas protegidas privadas en el este y el sur de África, y evalúa los impactos que estos tienen en términos de conservación y a nivel socioeconómico. Considera cuestiones clave referentes a la naturaleza y el futuro de estas áreas protegidas. El número y la variedad de áreas conservadas protegidas privadas en el este y sur de África hace imposible describirlas todas a fondo en un artículo de esta naturaleza. Hemos intentado proporcionar una amplia visión de las áreas protegidas privadas en estas dos regiones de África y luego nos hemos centrado en ejemplos específicos que ilustran mejor la importancia de dichas áreas.

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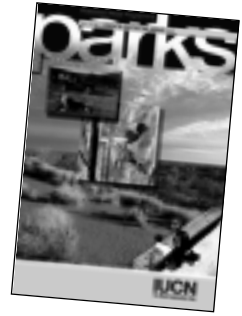
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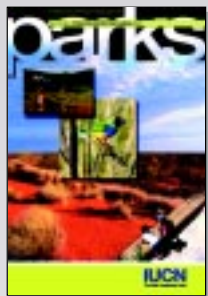
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