

Grassroots Nature Reserves and Common Property Protected Areas

K. Kitamura and R. A. Clapp
Department of Geography
Simon Fraser University
British Columbia, Canada

1. Common property: an alternative to state-imposed resource regimes

The establishment of the International Association for the Study of Common Property (IASCP) and its continuing growth, as well as the large number of publications documenting the complexity and adaptability of local institutions, are tangible examples of advances in the theory and practice of common property (Dietz et al. 2002). This body of research arose in part to evaluate the “tragedy of the commons” posited by Hardin (1968). Many, indeed most, scholars of common property have defended the capacity of local communities to manage natural resources sustainably, criticizing the simplicity of Hardin’s model. These critiques assess Hardin’s model as “insightful but incomplete” (Feeny et al. 1990: 12); “real, but not inevitable” (Ostrom et al. 1999: 281); “a special case...only under certain circumstances” rather than “a broad and accurate generalization” (Dietz et al. 2002: 16); and even one that “fails to take into account the self-regulating capabilities of users” (Berkes et al. 1989: 92) demonstrating “the dangers of trying to explain resource use in complex socio-ecological systems with simple deterministic models” (ibid.: 93).

A question remains, however, as to whether common property scholars have responded fully to Hardin’s argument:

The National Parks present another instance of the working out of the tragedy of the commons. At present, they are open to all, without limit...The values that visitors seek in the parks are steadily eroded. Plainly, we must soon cease to treat the parks as commons or they will be of no value to anyone. What shall we do? We have several options. We

might sell them off as private property. We might keep them as public property, but allocate the right to enter them... These, I think, are all the reasonable possibilities. They are all objectionable. But we must choose—or acquiesce in the destruction of the commons that we call our National Parks.” (Hardin 1968: 1245)

Hardin’s argument that there are only two solutions to the destruction of open-access resources has been widely challenged by documenting cases that refute Hardin’s model. These counter-examples tend to be exclusionary, self-regulating local institutions for the sustainable management and extraction of renewable resources. Bromley (1992) emphasized the importance of distinguishing between the resources in question and the property arrangements governing those resources. There is general agreement on four forms of property (e.g. Berkes et al. 1989; Bromley and Cernea 1989), although different authors explain them in variable terms. In the terminology employed by Ostrom et al. (1999), the four property types are: (1) open access, (2) government property, (3) group property, and (4) individual property. The form of property, together with the mechanism for regulating resource use and the means of enforcing those regulations, constitute a resource regime.

This paper argues that common property regimes can also regulate resource use by a wide variety of stakeholders in order to conserve the many non-consumptive values of nature, as do protected areas. This gap in the literature appears to exist because conservation usually implies non-use, while common property theory is usually concerned with the consumptive use of common-pool resources where “exclusion from the resource is costly and one person’s use subtracts from what is available to others” (Dietz et al. 2002: 18).

Furthermore, protected areas are often regarded as a kind of institution entirely separate from common property regimes. Indeed, some advocates of local control have seen protected areas as examples of a new enclosure movement (Escobar 1995; Katz

1998), responsible for undermining otherwise effective systems of customary or indigenous resource governance (Peluso 1992; Neumann 1998). We share the concern for sustaining livelihoods based on local resource use and governance that motivates many of these researchers, but argue that common property theory can also be applied to resources which are not subtractable: many of the concepts, including institutions for collective decision-making, can sustain broader environmental values by facilitating non-consumptive resource use (Freese 1998). This paper will explore the potential synergies between common property theory and conservation strategy in the establishment and management of protected areas.

2. Protected areas

Each jurisdiction defines protected areas in a different way. The influential definition by the World Conservation Union is “an area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means” (IUCN 1994: 7). The last part of this definition leaves the door open for grassroots governance. Areas subject to collective, traditional or customary management by institutions of civil society can accomplish many of the same functions as state-established protected areas while preserving and regulating local access.

Protected areas constitute one of the major policy instruments for conservation of biological diversity and the natural environment. They protect zones whose ecosystem functions and species complements are relatively intact and provide a refuge for endangered species, as well as a baseline against which the effects of landscapes transformed by humans can be measured (Dearden 1995; Arcese and Sinclair 1997). Most of these functions do not require that humans be absent, merely that human

disturbances are limited in their severity and scale. Protected areas are simultaneously natural and cultural landscapes. We argue that they are compatible with human presence and cultural practices (Russell and Jambrecina 2002).

The spatial connectivity of protected areas is a critical concern for the maintenance of metapopulations. Margules and Pressey (2000) define a metapopulation as a network of local populations linked by dispersal. Protected areas are usually population sources, or zones of excess reproduction: that excess is essential to repopulate population sinks, where endangered species survive, but where mortality exceeds reproduction (Woodroffe and Ginzburg 1998). Protected areas can help maintain metapopulations if they are linked to other protected areas by corridors connecting similar habitats (Theberge and Theberge 2002). Corridors or buffer zones may be composed of many different forms of property, including common and private property as well as state-owned land.

Spatial approaches to conservation are usually complemented by other approaches, including education, scientific research, and endangered species protection. One important role of protected areas is to provide sites in which those other approaches can be implemented. Neo-conservative environmentalists advocate making conservation pay, by encouraging consumptive uses of the forest to reward its conservers. Such uses include natural forest management for high-value timber, collection of non-timber forest products, and biodiversity prospecting. Each of these tends to lead to the loss of biodiversity unless backed by non-market mechanisms, the most effective of which are protected areas (Crook and Clapp 1998). Considering their central role in many conservation strategies, it is unlikely that an alternative will be found to substitute fully for protected areas.

It is also true, however, that protected areas have serious shortcomings. Many

residents in and around by some state-established protected areas have been excluded from access, use and decision-making (Cronon 1995; Colchester 1996; Stevens 1997). They are often people politically and economically disadvantaged, including indigenous people. The so-called “Yellowstone model” of top-down, exclusionary protected areas, according to Hess (2001: 160), is “state expropriation of customary tribal lands.” State-imposed solutions are often blunt instruments neglecting local rights and knowledge about sustainable and equitable resource management. It should also be noted that the benefits and costs derived from protected areas are not always shared equitably. For example, the operating costs of park management are normally covered by government budgets, often with no mechanism to collect payments from direct beneficiaries such as visitors and tour operators (Hess 2001). NGO-promoted, internationally-funded conservation strategies like biosphere reserves may also have inadequate provision for local control (Sundberg 1998).

At least 10% of the earth surface has been designated as protected areas (IISD 2003). However, the above mentioned problems are magnified precisely because of the growth of protected areas. For protected areas to be more widely supported, they must address both local governance and livelihood. In this context, community-based natural resource management and co-management have been proposed in pursuit of combining the socio-economic well-being of local residents with sustainable ecosystems (Wells and Brandon 1992; Ecotrust Canada and Ecotrust 1997; Jeanrenaud 1999; MacKinnon 2001). One of the key issues discussed at the fifth World Parks Congress held in Durban, South Africa was community control of areas for conservation (IISD 2003). It is timely, therefore, to investigate whether, and if so, how grassroots nature reserves can facilitate the dual goal of environmental conservation and local livelihood improvement. This paper examines grassroots nature reserves by integrating theories and experiences gained

from the study of common property.

3. Common property and protected areas: gap and connection

This section compares common property and protected areas, in order to identify the differences between the two, and proposes one way to conceptualize a hybrid form. A first difference is that many examples of common property institutions are local, self-forming ones, while protected areas are often top-down government initiatives. Second, the type of resources in question is usually clear and specific in common property regulations, such as a species of fish, irrigation water, or a bounded area of timber. Protected areas often deal with less tangible values, such as biological diversity, ecosystem integrity, and environmental services. Third, common property regimes are typically concerned with consumptive uses, such as fishing, grazing, and logging. In contrast, protected areas embrace non-consumptive values and uses like recreation and scientific research. Fourth, most common property regimes are formed by a group of local residents to exclude outsiders, while stakeholders of protected areas can be wider in range, including unidentified park visitors and distant participants who may never visit the region. Most ethical frameworks will also acknowledge human obligations toward non-human stakeholders, including endangered species. These differences are summarized in Table 1.

Table 1: Difference between common property and protected areas

	Common property	Protected areas
Governance	Grassroots	Top-down
Resource type	Specific, such as a target species	Broad, including many environmental values
Resource use	Consumptive	Non-consumptive
Stakeholders	Specific users, often resource-dependent	Widespread, multi-species, including some unidentifiable

Most common property institutions regulate local users who extract raw materials, whether for sale or subsistence. Protected areas benefit many humans at a distance, by sustaining environmental services like biological diversity, and as a destination for recreation; the primary local beneficiaries are usually non-human species. We suggest, however, that the benefits of each can be combined. The term “common property protected area” (CPPA) means: a bounded area of land and/or water under real or effective common property governance, and managed for both conservation of the natural environment and improvement of local livelihoods. This conceptualization is intended to make explicit the overlap between common property and protected areas. CPPAs have grassroots control and leadership, but usually with support from distant institutions; the resource values they protect are broad, and the uses they support are predominantly non-consumptive. The stakeholders are apparently quite different in both scale and in their dependence on the resource: the following two case studies can help evaluate whether it is possible to reconcile the interests of both groups.

4. Case studies

Two grassroots nature reserves in Costa Rica were studied to investigate whether

there are working examples of CPPAs; and if so, how they work for conservation and sustainable community development. Costa Rica has several unique characteristics that deserve attention. It is internationally renowned for its progressive conservation policy. Despite its history of rapid loss of forest cover due to logging, coffee farming, banana plantations, and other intensive land uses, over a quarter of its land has been protected. Natural landscapes and biodiversity, supported by other factors such as peace, political stability, high levels of education, and hospitable people, have attracted many visitors from abroad, particularly from North America and Europe. Costa Rica is now one of the most popular ecotourist destination in the world. Costa Rica's protected area system, however, has only a few decades of history. The rapid expansion of protected areas has sometimes caused conflict between the government and local people (Evans 1999; Rodriguez 1997).

Costa Rica has established a nationwide *Red Costarricense de Reservas Naturales Privadas* (Costa Rican network of private natural reserves). 'Private' in this case refers to all lands not owned by the state: the published list includes both communal and individual properties without distinguishing among them. Both group and individual properties have strengths and weaknesses as the basis for a CPPA, and the social and environmental implications of each merit separate examination.

Another innovation by the Costa Rican government is a mechanism to support non-public forest conservation with the payment for environmental services (*Pago por Servicios Ambientales*; PSA). This policy is based on the notion that ecological functions provided by forests, such as carbon sequestration, watershed protection, biodiversity conservation, and scenic beauty, should be valued, and those responsible for conserving those functions compensated. PSA supports forest preservation (both primary and secondary), reforestation (both for production and for watershed protection) and

agroforestry. In the case of forest preservation, contracted owners receive an annual payment of 17,420 colons per hectare (approximately US\$40 in early 2004). A contract is effective for five years, and is renewable.

There are several reasons for the PSA, which first emerged as a replacement for reforestation subsidies. The structural adjustment programs of the World Bank and the International Monetary Fund required that government subsidies to the forest industry be eliminated (de Camino et al. 2000; Rojas and Aylward 2003). The government complied, but replaced the subsidies with the PSA. The government's position is that the PSA is not a subsidy to industry, but compensation to forest landowners for the forest management costs they incur under the 1996 amendment to the Forest Law (Snider et al. 2003). Thus the PSA is intended to fund the costs of complying with government mandates, but not necessarily to pay landowners more than they would receive from other land use options such as agriculture (Snider et al. 2003). The PSA is also justified as a means of forestalling global warming: it is primarily funded from taxes on fuel, and the forests it promotes help to absorb the carbon dioxide emitted by motor vehicles (Rojas and Aylward 2003).

We studied two types of grassroots nature reserves. One, a community-owned forest in Talamanca, fits the common property model of collective control. The other, an individual forest property in San Carlos, provides a comparison with the common property case. K. Kitamura visited each reserve for four or five weeks, respectively. During these nine weeks in the case sites and three weeks in the national capital of San Jose, participant observation and semi-structured interviews with seventeen people were conducted. Printed documents relevant to the study were collected whenever available, although such materials were rare in the remote locations of the two cases. Representatives of both cases, i.e. the president of community association in Talamanca

and the property owner in San Carlos, were informed of the purpose of the research before the visit. The general purpose of the research was also explained to the other informants in both sites.

While the primary requirement for the sites to be selected was that they represent the two types of grassroots nature reserves, a secondary reason was that they agreed to accept Kitamura as a volunteer worker. This provided the researcher with a better position for participant observation. The volunteer's duties at the lodge in San Carlos were guiding and serving meals and drinks. In Talamanca, where only a few tourist groups visited the lodge during the entire period of the stay, the researcher normally stayed at the house belonging to the family of the community association's president. Daily work was mostly to help in household duties (for example, corn cultivation, demolition of their old house, and construction of the new one) except when there was work to be done for the association.

Both cases held high standing in the ecotourism ratings. Each received Level 3 of the Certification for Sustainable Tourism (CST) by the government agency, Costa Rican Tourism Board (ICT). CST evaluates hotel operation on a scale of 0 to 6, based on a strict scoring system. As of May 2004, only two hotels each were awarded Levels 4 and 5, hence Level 3 is considered fairly high. Guidebooks also rate the sustainability of listed ecotourist establishments: beyond a general travel guide, *The New Key to Costa Rica* (Blake and Becher 2002) evaluates eco-lodges by the authors' observations and readers' feedback. Roughly eighty lodges are selected as examples of best practices in terms of their natural attraction, environmental impact mitigation, local community initiative, and other factors. Both of the cases in this paper are included in this list.

Limitations of the research

It is important to acknowledge the limitations of this research. A stay for four to five weeks in each case site is not necessarily long enough for a social study involving participant observation. It should be noted that the early period of the stay was spent for ice-breaking and trust-building. Although the researcher was well treated in the communities from the beginning, it took several days to broach potentially sensitive issues related to the management of the lodge and reserve. Several key informants spoke English, but in both Talamanca and San Carlos, Spanish was the language commonly spoken. The researcher's limited command of Spanish must be regarded as a constraint: most of the people interviewed in Spanish were patient enough to clarify the meanings for the researcher. However, casual conversations with local people were not always fully understood, limiting some observations.

Probably the most important limitation is the generalizability of the results. This is due both to the cultural and ecological specificity of landscapes suitable for protected areas, and to the small number of cases studied. A larger number of case studies would certainly facilitate generalization, but because there are a number of factors, both natural and human, that are difficult to identify, we have avoided asserting clearcut causal mechanisms or criteria for the success of CPPAs.

5. Talamanca: Community-owned reserve

The first case is the property of a community association located in the Talamanca region in eastern Costa Rica. Talamanca includes the Caribbean coast to the border with Panama, and is considered as one of the poorest regions in Costa Rica. One of the characteristics of Talamanca is ethnic diversity with three widely acknowledged groups: indigenous peoples (Bribri, Cabecar and Kekoldi), Afro-Caribbean black people,

and white people mostly of Spanish origin.

A major obstacle for economic development in Talamanca has been difficult access and limited transportation, although the road network has been gradually improved. Cacao was a major commercial crop until the *monilia* fungus devastated the plantations in the 1970s. Diversification of the local economy has since been pursued, and a non-governmental organization called Asociacion ANAI has been a catalyst for conservation and community development (Wells and Brandon 1992). A national park was designated in Cahuita in 1978 and became a popular tourist destination. Puerto Viejo close to the border is also an important tourism center. There is another protected area at the very edge of the country's territory along the coast, Gandoca-Manzanillo National Wildlife Refuge.

The case community, with a population of just over one hundred, is located approximately eight kilometres inland from the coastal village of Gandoca. A three-year nursery project was supported in the 1980s by ANAI to provide the people in the community with an opportunity to gain knowledge and skills in reforestation. When the project ended in 1989, the community members decided to form a community association to extend their collective initiatives. With assistance from ANAI, the association acquired 116 hectares of land that includes a primary forest.

The association's aims include both conservation and development. Its first project was to determine the conditions suitable for growing 27 native tree species, and to start a nursery and afforestation campaign. The association established a sawmill, and timber production became one of its main activities. Such measures as selective felling and log hauling using water buffaloes instead of tractors, led to the project's eco-certification by SmartWood. The timber production, however, was not economically viable and

terminated in 2001 after five years of operation. The president of the association recalls in an interview with the researcher: “It was a nice project. Beautiful to see water buffaloes dragging the logs. It was covered in a number of media as well. But none of them reported that with each piece of wood we produced, we were losing money.”

The ecotourism project began in 1992 with construction of a lodge for a maximum of 29 guests, as well as trails in the forest. The price in 2004 is US\$35 per night per person, including accommodation, meals, a guided walk, and an evening presentation on the history of the region and the association. A day visit without lodging is for \$15 per person. The lodge is used only for groups with reservations. Except for one community member who lives in the lodge as a caretaker, there is no full-time staff. Each time a group comes, a team of workers are assigned from the association members. The visiting group needs to have at least five persons to cover the wages for the workers and other costs such as food. Smaller groups occasionally visit the community but stay at the house of the president.

Each person or family in the community can decide to join the association or not; no membership fee or other obligation is required. The association currently has eight member families and seventeen individuals. Decisions are made by a board of seven directors, who normally meet monthly. External stakeholders include Asociacion ANAI, three universities in Costa Rica, and two universities in the United States, all of which bring study tour groups to the reserve and lodge. The association is also part of the Talamanca Network of Community Ecotourism established to publicize the various lodges and service providers, and to “sell” the region as a package with diverse cultures of indigenous, black and white peoples.

Revenue from tourism goes to the account of the association, and distributed to

members in the form of wages. This means that no cash income is automatically generated for the association members unless they are actually engaged in working at the lodge. Such work is usually only one of a range of income sources. For example, in the household of the president, more than half of the total income comes from the sale of cows, chicken, eggs, fruit and other farm products, while 29 percent from tourism, and about 20 percent from environmental services payment.

The association contributes to the community in general through donations to the local elementary school, and to the church and village committees working on community issues such as road maintenance and improvement. The association has been funded by international donors, including the small grant program (up to US\$20,000 per project) of the Global Environment Facility. A smaller source of revenue is the environmental services payment for a total of 116 ha, which provides approximately US\$5,000 per year. Ongoing operating costs include the construction of the boardwalks and maintenance at three-year intervals, as well as a mandatory insurance payment for each worker. The workers insurance might be discouraging the association from sharing the working opportunities widely among the members because the amount of payment per worker is fixed regardless of the type or duration of work.

Conservation, connectivity and the protected area network

The association's reserve and lodge can only be reached on foot, and the trail leading to the lodge goes through forests owned by two international conservation NGOs: The Nature Conservancy based in the United States, and Tropica Verde based in Germany. These forests are mostly primary forests and their management is entrusted to the association. Although they are small in size, i.e. 28 and 18 hectares respectively, they provide an additional forest cover connected to the forest owned by the association.

In a much broader scale, the association's reserve is a part of the Talamanca-Caribe Biological Corridor. The corridor covers Cahuita National Park, Gandoca-Manzanillo National Wildlife Refuge, all or parts of the three indigenous reserves, and non-public lands. The corridor is administered by a consortium of non-governmental organizations, including the case association. The corridor is also adjacent to La Amistad International Park that crosses the border between Costa Rica and Panama.

Due to the lack of baseline data, it is difficult to assess the state of the natural environment and its change over time within and around the reserve. The region's dominant land uses are pastures and banana plantations, so conservation of the remaining forests is an important goal, and extends to preservation of the primary forest, the promotion of natural regrowth in the secondary forest, and reforestation with native species. A wide variety of wildlife, including migratory bird species, can be observed on the association's property, although several species, e.g. iguana and tapir, have become scarce due to hunting and habitat loss. Because of the limited visitation by tourist groups, problems such as overuse of trails, garbage and water contamination due to tourist activities appear to be insignificant. Sewage is currently discharged to a creek. While proper treatment of sewage has been considered, the lack of funds has prevented the facility from being installed.

Achievements and challenges

The association has pursued a number of initiatives, and even though several have faltered, its capacity has grown. Members have learned how to host tourists, how to search and apply for funding, and how to work together as a group. There are, however, several challenges. One barrier for tourism promotion is the difficulty in access. Normally,

visitors need to walk 40 minutes to reach the lodge, and the trail includes wet and muddy sections, as well as boardwalks. The lodge was designed and built to last for ten years. This period has already passed, although there seems to be no immediate danger for the moment. How to finance reconstruction in the near future is an important and difficult issue.

Fifteen years after the association's establishment, its collective activities have been scaled down. Currently, tourism is the only on-going project, and even this only project is not very active. For the month of March 2004, for example, only two groups had reservations at the lodge. One of them had to cancel its visit due to heavy rain that prevented their boat from embarking. While there are busier months like June and July, when North American universities normally organize study tours, the lodge is never operated on a full-time basis.

The primary economic activities of the community are carried out at the household level, and the communally owned property is used only for supplementary income generation. This can be interpreted both positively and negatively. One aspect is that there is no collective mechanism to make a significance improvement in the livelihoods of the community in general. Each household in the community has to be economically self-sufficient. On the other hand, the forests under common property receive limited pressure for use. This might be regarded as an advantage from the viewpoint of conservationists.

An executive of ANAI pointed out:

For the ecotourism project to be successful, it is necessary that someone from outside do the marketing, who has skills and resources. Successful local businesses are mostly tour guides who devote all of their energy to the work. They find the needs of customers and can quickly adjust to these needs. In the case of community association, the members are

more concerned with animals they raise than the community project, for example. Because decisions and actions are made in a collective way, quick response to the market is difficult. Their clients are several university groups, but it is not the association that reached out. It is those universities that found the location. That is not marketing.

The low level of dependence on collective activities, however, is not necessarily regarded as a problem. The president of the association remarked:

It is true that we need to fill a thousand bed-nights per year to be profitable. But if we have more tourists, I cannot spend my time in my own farm. I may be able to earn more cash that way, but then it means my family belongs to no land.

Even though a substantial proportion of the family's food is harvested in the farm and garden, cash is necessary to meet monetary expenses like children's schooling and house construction. One way to connect the household economy and tourism is by hosting visitors at farms belonging to the members of the association: this idea is under consideration in the association.

6. San Carlos: Individually owned reserve

The second case is a property of an individual owner, located in the northern region of San Carlos. The region is near the border with Nicaragua, and it was found out in the interviews with local people that a majority of the population in the region are Nicaraguan immigrants. The current property arrangement began in 1981, when the 110 hectares of primary rainforest were purchased by a person originally from former East Germany, who had come to Costa Rica as an executive of a financial institution. The use of the property for ecotourism was first planned in 1989. After improvement of the access from outside, a lodge was built on a hill at the edge of the primary forest. The current capacity of the lodge is 40 persons in 20 rooms. Major tourist attractions include a guided walk in the forest and canoeing in the lagoons. Optional activities are a boat tour to the border to Nicaragua and horseback riding.

An additional 180 hectares of pastoral and forest lands were subsequently purchased next to the initial property. This area has been converted into two more lagoons (6 ha), a farm growing hearts of palm (22 ha), a timber plantation (40 ha), and pasture (30 ha). The remaining 82 ha has been left to natural regeneration.

A few kilometres from the lodge is another recently opened lodge owned by a Costa Rican, though not originally from the local community. In addition to 2 ha of land consisting of 4 riverside cabins and a garden, the lodge has approximately 300 hectares of primary and secondary forests combined. While the current maximum capacity is 12 persons, construction is underway for five more cabins. The total capacity will increase up to about 30 persons, with prices and tourist activities similar to the case study lodge, and additional job opportunities for local residents. Currently five people work at the new lodge, including the owner. The new lodge is basically considered as a collaborator, rather than a competitor, by the lodge owner of the case study. The owners exchange information and opinions in order to attract more tourists into the region. Indeed, the general manager of the case lodge was seen giving advice in person to the new lodge owner regarding brochures for advertisement.

The main economic benefit of the private reserve is the revenue from tourism. Another source of income is the environmental services payment, but the amount of payment for the primary forest to the owner is less than 3% of the tourism income. It is also important to note that the owner has always had another profession. Tourism was an unprofitable side business, at least for the first several years, and forest protection was due largely to the owner's personal values, rather than to economic calculations.

The most direct economic impact of the lodge is the jobs created. All staff positions except the operation manager are recruited from the local community. The operation

manager position is necessary because the owner and his son, the general manager of the lodge, live in a suburb of the capital San Jose, although they go to the lodge frequently. The operation manager has to be able to speak Spanish, English and German, and those who have filled the position have been European nationals. A website is now used when the position becomes available and a call for applications is posted. There are six locally hired full-time positions in cooking, cleaning, guiding, garden management, facility management, and as night guard. A few part-time positions become available in the high season: these are also filled by local people.

Since there has been little contact between tourists and local people to date, the socio-cultural impacts are considered to be limited both in a positive and negative sense. A new program, however, has recently been established by one tour guide who comes with German tourist groups several times a year. The new program is a visit to the village, particularly the local elementary school. The purpose is to provide tourists with an opportunity to look at the life of the village, instead of passing it by in a tour van. Many have volunteered group or individual donations to help the school, which is in constant need of funds to purchase materials for students. There were student groups from American high schools in the past, who devoted their stay to a volunteer work of painting the buildings of local schools and a church. The new program is an attempt to connect regular tourists and local residents in a more direct way. The impacts of this program, if adopted on a regular basis, are uncertain at this stage.

Conservation, connectivity and the protected area network

The primary forest of this case harbours almost 140 plant species of plants. It serves as habitat for a wide variety of wildlife including two species of poison dart frog, agouti, tapir and three species of monkeys. The region is part of the country's only

remaining habitat for the great green macaw, an endangered species of the parrot family. Conservationists have argued for the protection of the region's forests and their enrichment with tropical almond trees, on which the macaw and other animals depend for feeding and breeding.

Adjoining the lodge are 400 hectares of primary forest owned by a San Jose-based Costa Rican business owner, who intends to maintain the forest for its environmental and amenity values. Combined with the lodge's 110 hectares, an area of approximately 500 hectares of primary forest has been protected. The area of this case is a part of proposed national park. This national park, when established, will be the core protection area within the San Juan-La Selva Biological Corridor. The biological corridor, as well as the national park proposal, is an initiative led by conservationists using the endangered great green macaw as a flagship target. The 500 ha primary forest, as well as the adjacent 300 ha primary and secondary forests mentioned earlier, will be within the new national park, with no anticipated change in the current property rights. A conservationist advocating the park establishment told the researcher that this would be a new type of national park in Costa Rica, with a concept similar to UNESCO's biosphere reserves.

The impacts of tourism on the environment appear to be limited. Because the reserve is a private property and only the guests can enter, the number of visitors into the forest seldom exceeds ten per day. As for the water used in the lodge, there is a natural spring four kilometres upstream of the creek, and a well within the property. For drinking, however, tourists drink bottled water. Sewage is received in an underground tank, which is vacuumed by a contracted sewage treatment company. Solid waste is sorted and brought to San Jose. It is intended to recycle different types of waste as much as possible.

There are two instances of feeding the wildlife, which may have negative impacts.

The lagoons have caimans (a variation of crocodile) and mud turtles. Some individuals of these species are fed with chicken meat every other night as tourist attraction. There are also two feeding spots for birds, right in front of the dining room of the lodge. A variety of birds come to these spots to eat bananas placed every morning. Other animals such as coati and green basilisk were also observed to eat bananas on the feeding spot from time to time. The animals and birds appear to be only partially dependent on the feeding, considering the limited quantity and frequency of feeding. One exception is a keel-billed toucan that lost contact with its parent while an infant and has since been fed by humans. This tame bird, which is an attraction for the guests, does not mix with other toucans and probably cannot survive without human care.

Achievements and challenges

As a private business, this case appears to have achieved as much as it could in terms of conservation and community development. Since much of the natural forest in the region has been lost, particularly along the San Carlos River, the forest preserved in this case property is of high importance. The property generates enough revenue from tourism that the forest has been protected from consumptive use. The local communities receive support from the business.

If we look at the case from the community perspective, however, there are several points that are considered as limitations of individual property. The reserve is located seven kilometres away from the center of the community, and one kilometre from the nearest segment of the community. Distance, direction and size make it difficult to call the reserve a part of the nearest community. More importantly, the villagers, including the full-time lodge staff, do not participate in making the major decisions like the hiring of the operation manager. When a new operation manager comes, the staff must adjust their

work to his/her direction. This is normal in the relationship between the employer and the employees, but the lack of participation in decision-making contributes to the perception of the local people that the reserve and lodge are the projects of outsiders, not the community.

7. Conclusions

Examples of common property protected areas exist with varying levels of achievement. The CPPA concept has proven useful in examining the cases, although more lessons need to be learned to build a more complete framework for analysis. This is especially important because of the presumably high level of variation in the types of data available and the techniques of data collection suitable for each case.

An important finding is that the CPPA should be extended to include effective as well as formal common property. As the San Carlos case demonstrates, an individual property can be part of a larger territory dedicated to conservation and local development. Therefore, common property protected areas can be redefined as: areas owned as common property, as multiple private properties, or as a combination of community and private lands, that are cooperatively managed for both conservation of the natural environment and improvement of local livelihoods. State-owned lands could conceivably be part of a CPPA if they are subject to local control: effective local governance is more important than formal ownership.

Since a CPPA is a hybrid of common property and protected areas, the criteria for evaluating such cases need to be drawn from both common property and protected areas. Scholars of common property have shown that there are numerous examples in which common property regimes have managed the resources sustainably. Analysis of the cases yields several key conditions and attributes of effective common property

institutions (Ostrom 1990; McKean 2000). Agrawal (2002) synthesized a list of “critical enabling conditions for sustainability on the commons.” The list includes more than thirty conditions, clustered in several groups.

Lessons have also been learned from the ongoing evaluation of protected areas (e.g. Hockings 1998; Hocking et al. 2000), as well as related institutions such as ecosystem management (Grumbine 1997; Lertzman et al. 1997; Rigg 2001), community-based natural resource management (Bradshaw 2003; Kellert et al. 2000) and collaborative natural resource management (Conley and Moote 2003). Some of those lessons can be extended to CPPAs. For example, regarding the size of an area, each unit should be small enough to permit enforcement of the rules, but connected to a larger area for wildlife habitat protection. This is a unique characteristic, as a result of combining observations from common property and protected areas. A more controversial example is the level of dependence on land and resources. Common property scholarship suggests a high level of dependence by community members encourages self-regulation of resource access and consumption, while protected areas normally intend to reduce the intensity of resource use, and often to eliminate consumptive uses entirely.

While a comprehensive list of criteria is beyond the scope of this paper, we can propose as a guide for further research several conditions that are important for the evaluation of existing CPPAs and the planning of future ones (Table 2).

Table 2. Characteristics of common property protected areas

Area size	Small size for each unit, connection to larger areas
Boundaries	Clear boundaries and compatible neighbours
Characteristics of local community	Close to the reserve; low level of poverty; shared norms; interdependence among members; high social capital and capacity (leadership, knowledge, skills, institutional base, financial and human resources, etc.)
Stakeholder relations	Multi-layered structure (local community in the core; state, academic and NGOs in the periphery)
Decision-making	Participatory and consensus-based decision-making methods and processes
Planning	Conservation <i>and</i> livelihood improvement clearly identified as dual goals; explicit priorities established (species to protect, activities to implement,...)
Assessment	Indicators to measure outcomes; mechanisms to incorporate outcomes in future planning

Last but not least, the importance of the context in each case study should be stressed. Recognizing the uniqueness of each case is necessary, particularly when comparing them (Sato 2003; Stern et al. 2002).

The present research suggests that common property protected areas can augment conventional protected area networks, as long as such reserves meet both environmental and social objectives. From the perspective of conservationists, those reserves, each of which might be small by itself, can work together as buffer zones or corridors to connect national parks and other state-established protected areas. It is neither desirable nor realistic to expect the state to acquire all the private lands needed for conservation and assign staff to all of them. Promoting CPPAs, particularly in local

communities with high levels of social capital and capacity, is a rational alternative. Governments can support conservation activities in civil society with publicity, official recognition, technical assistance, and financial support mechanisms.

From the perspective of local communities, those reserves can improve local people's quality of life by conserving the natural environment and diversifying income sources, provided that there are sufficient financial mechanisms, including ecotourism revenues and government subsidies, to make up for the withdrawal of these lands from commodity production. CPPAs, therefore, have high potential to reconcile conservation goals with sustainable community development. Further research is necessary to understand the benefits and challenges of common property protected areas, as well as to improve their role and function.

Acknowledgements

We are grateful to all the people who generously provided information for this research, particularly those in the studied sites for their cooperation and hospitality. We also thank Kate Roberts of CUSO, whose support and advice helped the fieldwork greatly.

References

- Agrawal, A. 2002. Common Resources and Institutional Sustainability. In E. Ostrom, T. Dietz, N. Dolsak, P.C. Stern, S. Stonich, and E.U. Weber (eds.) *The Drama of the Commons*. Washington, D.C.: National Academy Press. pp.41-85.
- Arcese, P., and A.R.E. Sinclair. 1997. The Role of Protected Areas as Ecological Baselines. *Journal of Wildlife Management* 61: 587-602.
- Berkes, F., D. Feeny, B.J. McCay, and J.M. Acheson. 1989. The Benefits of the Commons. *Nature* 340: 91-93.
- Blake, B., and A. Becher. 2002. *The New Key to Costa Rica*. Sixteenth Edition. Berkeley, CA: Ulysses Press.
- Bradshaw, B. 2003. Questioning the Credibility and Capacity of Community-Based Resource

- Management. *The Canadian Geographer*, 47 (2), 137-150.
- Bromley, D.W. 1992. The Commons, Common Property, and Environmental Policy. *Environmental and Resource Economics* 2: 1-17.
- Bromley, D.W., and M.M. Cernea. 1989. *The Management of Common Property Natural Resources: Some Conceptual and Operational Fallacies*. Washington, D.C.: World Bank Discussion Paper 57.
- Colchester, M. 1996. Beyond 'Participation': Indigenous Peoples, Biological Diversity Conservation and Protected Area Management. *Unasylva* 47(3), 33-39.
- Conley, A., and M.A. Moote. 2003. Evaluating Collaborative Natural Resource Management. *Society and Natural Resources* 16: 371-386.
- Cronon, W. (1995). The Trouble with Wilderness; or, Getting Back to the Wrong Nature. In *Uncommon Ground*, edited by W. Cronon, pp. 69-90. New York: Norton.
- Crook, C., and R.A. Clapp. 1998. Is Market-Oriented Forest Conservation a Contradiction in Terms? *Environmental Conservation* 25(2): 131-145.
- de Camino, R., O. Segura, L.G. Arias, and I. Perez. 2000. *Costa Rica: Forest Strategy and the Evolution of Land Use*. Evaluation Country Case Study Series. Washington: World Bank.
- Dearden, P. 1995. Parks and Protected Areas. In B. Mitchell (ed.) *Resource and Environmental Management in Canada*. Toronto: Oxford University Press. pp.236-258.
- Dietz, T., N. Dolsak, E. Ostrom, and P.C. Stern. 2002. The Drama of the Commons. In E. Ostrom, T. Dietz, N. Dolsak, P.C. Stern, S. Stonich, and E.U. Weber (eds.) *The Drama of the Commons*. Washington, D.C.: National Academy Press. pp.3-35.
- Ecotrust Canada and Ecotrust. 1997. *More Than the Sum of Our Parks: People, Places and a Protected Areas System for British Columbia*.
- Escobar, A. 1995. *Encountering Development: The Making and Unmaking of the Third World*. Princeton, NJ: Princeton University Press.
- Evans, S. 1999. *The Green Republic: A Conservation History of Costa Rica*. Austin, TX: University of Texas Press.
- Feeny, D., F. Berkes, B.J. McCay, and J.M. Acheson. 1990. The Tragedy of the Commons: Twenty-Two Years Later. *Human Ecology* 18: 1-19.
- Freese, C.H. 1998. *Wild Species as Commodities: Managing Markets and Ecosystems for Sustainability*. Washington, D.C.: Island Press.
- Grumbine, E. 1997. Reflections on 'What Is Ecosystem Management?'. *Conservation Biology* 11: 41-7.

- Hardin, G. 1968. The Tragedy of the Commons. *Science* 162: 1243-1248.
- Hess, K. 2001. Parks Are for People – But Which People? In T.L. Anderson and A. James (eds.) *The Politics and Economics of Park Management*. Lanham: Rowman & Littlefield. pp.159-181.
- Hocking, M. 1998. Evaluating Management of Protected Areas: Integrating Planning and Evaluation. *Environmental Management* 22(3): 337-345.
- Hocking, M., S. Stolton, and N. Dudley. 2000. *Evaluating Effectiveness: A Framework for Assessing the Management of Protected Areas*. Gland, Switzerland; Cambridge, UK: IUCN.
- IISD (International Institute for Sustainable Development). 2003. A Summary Report of the Vth IUCN World Parks Congress. *Sustainable Developments* 89(9): 1-16.
- IUCN (International Union for the Conservation of Nature). 1994. *Guidelines for Protected Areas Management Categories*. CNPPA with the assistance of WCMC. Gland, Switzerland; Cambridge, UK: IUCN.
- Jeanrenaud, S. 1999. People-Oriented Conservation: Progress to Date. In S. Stolton and N. Dudley (eds.) *Partnership for Protection: New Strategies for Planning and Management for Protected Areas*. London: Earthscan. pp.126-134.
- Katz, C. 1998. Whose Nature, Whose Culture?: Private Productions of Space and the “Preservation” of Nature. In B. Braun, and N. Castree (eds.) *Remaking Reality: Nature at the Millenium*. New York: Routledge. pp.46-63.
- Kellert, S.R., J.N. Mehta, S.A. Ebbin, and L.L. Lichtenfeld. 2000. Community Natural Resource Management: Promise, Rhetoric, and Reality. *Society and Natural Resources* 13: 705-715.
- Lertzman, K., T. Spies, and F. Swanson. 1997. From Ecosystem Dynamics to Ecosystem Management. In P.K. Schoonmaker, B. von Hagen, and E.C. Wolf (eds.) *The Rain Forests of Home: Profile of a North American Bioregion*. Washington, D.C.: Island Press. pp.361-382.
- MacKinnon, K. 2001. Editorial – Integrated Conservation and Development Projects, Can They Work? *Parks* 11(2): 1-5.
- Margules, C., and R. Pressey. 2000. Systematic Conservation Planning. *Nature* 405: 243-253.
- McKean, M.A. 2000. Common Property: What Is It, What Is It Good for, and What Makes It Work? In C.C. Gibson, M.A. McKean, and E. Ostrom (eds.) *People and Forests: Communities, Institutions, and Governance*. Cambridge, Mass: MIT Press. pp.27-55.
- Neumann, R.P. 1998. *Imposing Wilderness: Struggles over Livelihood and Nature Preservation in Africa*. Berkeley: University of California Press.
- Ostrom, E. 1990. *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge: Cambridge University Press.

- Ostrom, E., J. Burger, C.B. Field, R.B. Norgaard, and D. Policansky. 1999. Revisiting the Commons: Local Lessons, Global Challenges. *Science* 284: 278-282.
- Peluso, N.L. 1992. *Rich Forests, Poor People: resource control and resistance in Java*. Berkeley: University of California Press.
- Rigg, C. 2001. Orchestrating Ecosystem Management. *Conservation Biology*, 15 (1): 78-90.
- Rodriguez, J.M. 1997. Costa Rican Parks: Fields of Conflict. *Forum for Applied Research and Public Policy* 12(1): 49-52.
- Rojas, M., and B. Aylward. 2003. *What Are We Learning from Experiences with Markets for Environmental Services in Costa Rica? A Review and Critique of the Literature*. London: International Institute for Environment and Development.
- Russell, J., and M. Jambrecina. 2002. Wilderness and Cultural Landscapes: Shifting Management Emphases in the Tasmanian Wilderness World Heritage Area. *Australian Geographer* 33 (2): 125-139.
- Sato, J. 2003. Nature and the Significance of Case Analysis in Development Studies. *Journal of International Development Studies* 12(1): 1-15. [in Japanese]
- Snider, A.G., S.K. Pattanayak, E.O. Sills, and J.L. Schuler. 2003. Policy Innovations for Private Forest Management and Conservation in Costa Rica. *Journal of Forestry* 101(5): 18-23.
- Stern, P.C., T. Dietz, N. Dolsak, E. Ostrom, and S. Stonich. 2002. Knowledge and Questions After 15 Years of Research. In E. Ostrom, T. Dietz, N. Dolsak, P.C. Stern, S. Stonich, and E.U. Weber (eds.) *The Drama of the Commons*. Washington, D.C.: National Academy Press. pp.445-489.
- Stevens, S. 1997. The Legacy of Yellowstone. In S. Stevens (ed.) *Conservation through Cultural Survival: Indigenous Peoples and Protected Areas*. Washington, DC: Island Press. pp.13-32.
- Sundberg, J. 1998. NGO Landscapes in the Maya Biosphere Reserve, Guatemala. *Geographical Review* 88(3): 388-412.
- Theberge, J. C., and J.B. Theberge. 2002. Application of Ecological Concepts to the Management of Protected Areas. In P. Dearden, and R. Rollins (eds.) *Parks and Protected Areas in Canada*. Toronto: Oxford University Press. pp.70-95.
- Wells, M., and K. Brandon. 1992. *People and Parks: Linking Protected Area Management with Local Communities*. Washington, D.C.: World Bank, World Wildlife Fund, and USAID.
- Woodroffe, R., and J. R. Ginsburg. 1998. Edge Effects and the Extinction of Populations inside Protected Areas. *Science*, 280 (5372), 2126-2128.