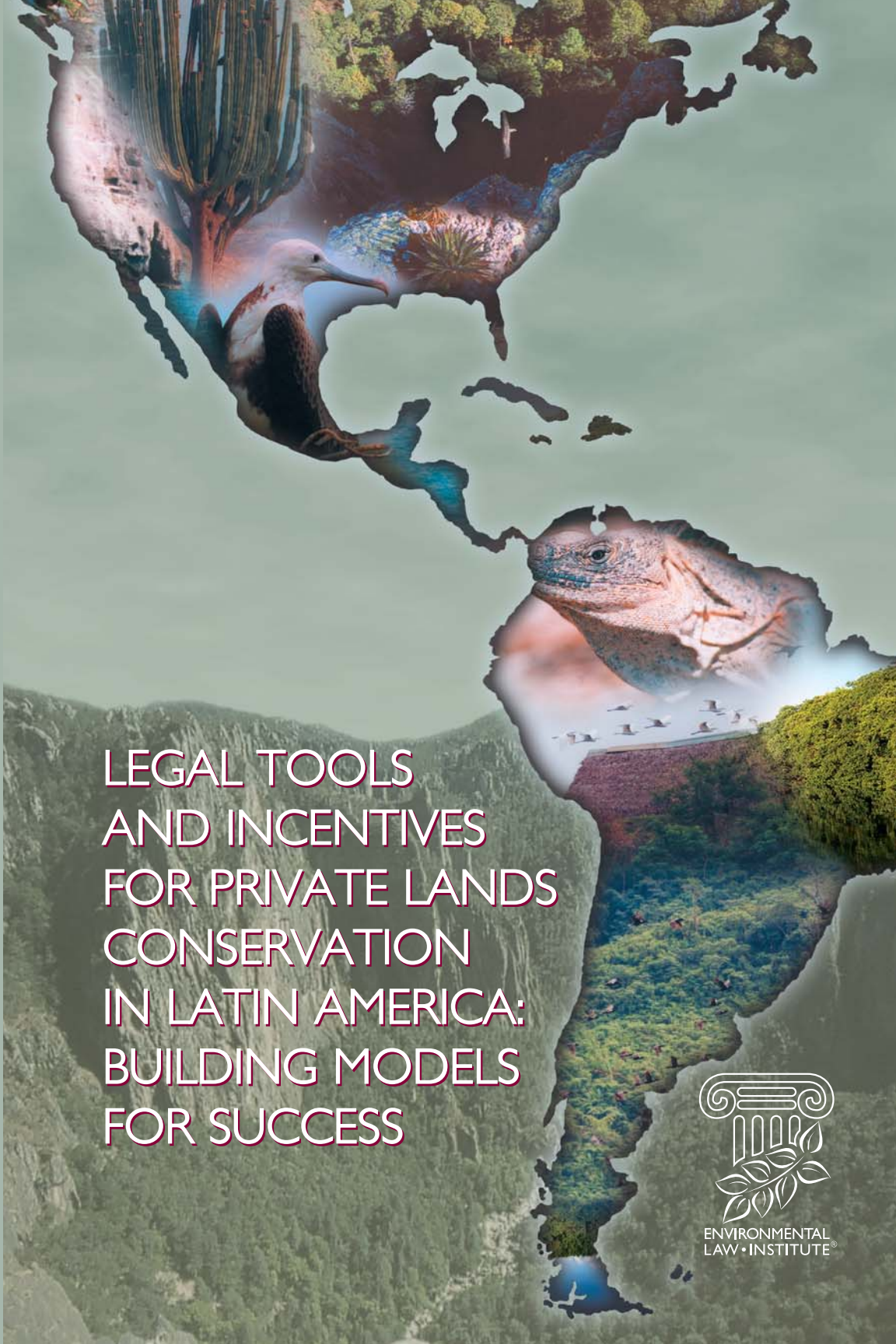


LEGAL TOOLS AND INCENTIVES FOR PRIVATE LANDS CONSERVATION IN LATIN AMERICA: BUILDING MODELS FOR SUCCESS

ENVIRONMENTAL LAW • INSTITUTE®

Cover design by Luis Vargas Vallarino, Factor Clave.
Photos by Biol. Jorge A. Rojas Tomé, Pronatura, A.C.

LEGAL TOOLS AND INCENTIVES FOR PRIVATE LANDS CONSERVATION IN LATIN AMERICA: BUILDING MODELS FOR SUCCESS

Environmental Law Institute
Centro de Derecho Ambiental y de los Recursos Naturales
Centro Ecuatoriano de Derecho Ambiental
Comité Nacional pro Defensa de la Flora y de la Fauna
Fundação O Boticário de Proteção a Natureza
Pronatura, A.C.
Protección del Medio Ambiente Tarija
Sociedad Paruana de Derecho Ambiental

September 2003

We dedicate this book to the nongovernmental organizations working tirelessly to conserve private lands in Latin America, and to all the private landowners who have chosen, from their heart, to seek to conserve the natural resources, nature, and beauty of their land.

Legal Tools and Incentives for Private Lands in Latin America: Building Models for Success

ISBN# 1-58576-059-5, ELI project code #0029

An electronic retrievable copy (PDF file) of this report may be obtained for no cost from the Environmental Law Institute website <www.elistore.org>.
[Note: ELI Terms of Use will apply and are available on site.]

Cover design by Luis Vargas Vallarino, Factor Clave; photos by Biol. Jorge A. Rojas Tomé, Pronatura, A.C.

ACKNOWLEDGEMENTS

This report was prepared by the Environmental Law Institute in partnership with the non-profit organizations in seven countries listed below. Byron Swift of ELI was the lead author for this report, together with Susan Bass of ELI and the country co-authors listed below. Other contributors to the report included Marcos Orellana and Kelly Mott, formerly with ELI, and Paula Boland, Juan Jose Dada, Jeff Langholz, Laura Paulson, and Sara Yeatman. In addition, Carlos Chacón of CEDARENA assisted in coordinating the overall study and report, and Sheila Abed and Sylvia Sanchez provided valuable assistance in their roles as coordinators of ARCA, particularly in holding joint meetings to explore policy issues. Additional contributions to the country reports and summaries were made by Luis Castelli (Argentina), Anita Akella (Brazil), Elisa Corcuera (Chile), Federico Fahsen and Ximena de la Macorra (Guatemala), and Dan Janzen (Costa Rica). Finally, ELI would like to thank the numerous representatives of government agencies, nongovernmental organizations, academic institutions, and private landowners and individuals who generously provided information for this report. Funding for this study was generously provided by The Tinker Foundation, the W. Alton Jones Foundation, the Overbrook Foundation, John and Ginger Sall, Marshall Field, Ivan Gayler, Sally Davidson, Peter Bross, and Lisa Rarick.

Partner Organizations and principal co-authors

Bolivia: Protección del Medio Ambiente Tarija, Verónica Sanjinés

Brazil: Fundação O Boticário de Proteção a Natureza, Verônica Theulen, Miguel Milano and Maria de Lourdes Nunes

Chile: Comité Nacional pro Defensa de la Flora y de la Fauna, Victoria Maldonado and Alberto Cortés

Costa Rica: Centro de Derecho Ambiental y de los Recursos Naturales, Carlos M. Chacón

Ecuador: Centro Ecuatoriano de Derecho Ambiental, Veronica Arias and Monica Tobar

Mexico: Pronatura, A.C., Martín Gutierrez

Peru: Sociedad Peruana de Derecho Ambiental, Pedro Solano

TABLE OF CONTENTS

PREFACE

Yolanda Kakabadse
President, IUCN-The World Conservation Union

This year, thousands of people from around the world will celebrate the V World Parks Congress in Durban, South Africa organized by IUCN and its Protected Areas Commission. This event marks an important opportunity to evaluate, expand, and consolidate the efforts that are made every day around the world to conserve and sustainably use our rich natural heritage.

Our thinking about protected areas has evolved a great deal since the first World Parks Congress in 1962. More and more, protected areas are recognized as motors of development, and an important source of the goods and resources needed for the social and economic welfare of nations. The water that we drink and use for our agriculture and industries, the air we breathe, some of the products we consume daily, the natural wonders we eagerly seek for their spiritual and recreational values, and genetic resources with important uses for medicines or cosmetics, are some examples of the goods and service that are produced in large measure thanks to the vision of those leaders who create and maintain our protected natural areas.

In this process, an element of particular importance in the past decades has been the growing contribution of the private sector. This has manifested itself in diverse forms, one of the principal ones being the growth of private protected areas through figures such as private reserves and conservation easements. It has also manifested itself in the important role the private sector has taken in the management and conservation of public areas. Instead of being seen as rivals, the present publication demonstrates that the private and public sectors have been working together in Latin America for their mutual benefit, generating economic and social benefits to local populations, communities, business enterprise, and the general welfare of nations.

More specifically, the present publication treats one of the most relevant themes of the public- private relationship for the conservation of natural areas in Latin America-the legal framework. As indicated in the following pages, this has involved much creativity and hard work over the past decades. In some countries, the legal framework already establishes the possibility of involving the voluntary efforts of the private sector in the conservation of natural sites.

However, it should be emphasized that it is still necessary for the regions' governments, NGOs, workers, businesses, indigenous communities, and the

general public to continue to find new ways to improve the legal framework and thereby facilitate the protection of more natural areas.

To conclude, I wish only to restate that in this process humanity is at a critical moment. Our generation has the challenge of advancing the frontiers of the creation of wild protected areas, for which it is each time more necessary to demonstrate the variety of benefits that these natural areas generate. Even more important is the need to direct actions at having such benefits extend beyond the natural and political limits of these areas. This is the objective of the next World Parks Congress, and this publication is an important contribution as we take this step into a new millennium.

I. INTRODUCTION

This report describes the use of legal tools and incentives mechanisms for the conservation of private lands in Latin America, and assesses their implementation record. It reviews the mandatory provisions that require the protection of private land, and explores in depth the use of voluntary instruments such as easements and private reserve designations that have grown in use since the early 1990s. The report ends with recommendations for an improved framework for private lands conservation, and presents model laws for the creation of private reserves and conservation easements.

This report was developed in partnership between the Environmental Law Institute and environmental law organizations based in seven countries in Latin America—Bolivia, Brazil, Chile, Costa Rica, Ecuador, Mexico, and Peru. Additional comparative information is included in this report for Argentina, Canada, Guatemala, Paraguay, and the United States.

Our research shows that although most countries lack an adequate conservation program for private lands, there has been growing momentum to protect private lands in the region over the last decade. New laws recognizing the creation of private reserves have been passed in a number of countries, starting with Brazil in 1990. Although no country yet has a national law authorizing conservation easements, NGOs have been creatively using traditional laws for appurtenant easements to protect natural habitat, starting with Costa Rica in 1992. In a few countries, limited financial incentives are offered to landowners who protect their lands, such as an exemption from property taxes or payments for environmental services. Finally, organized networks of conservation landowners have been established in most countries.

Our research however also showed that a number of barriers hinder the potential success of private lands conservation efforts in Latin America. Possibly most important is the lack of a comprehensive set of legal tools, such as conservation easements and private reserves, to support an effective private lands conservation program. Other barriers include land tenure laws that discourage conservation practices, and the lack of institutional capacity in the government agencies and private organizations involved in supporting private lands conservation efforts. Finally, there is a pressing need for substantially greater resources to support efforts to put in place adequate legislation and incentives, and carry out private lands conservation projects in areas of critical biodiversity.

While the challenges confronting private lands conservation movements are substantial, there is growing interest and activity in the conservation community and in other stakeholder groups to overcome these challenges. Major efforts to improve the legal framework are under way in most countries, and in Chile, Costa Rica, and Ecuador, legislation has been proposed that would provide a comprehensive and flexible set of legal instruments for private lands conservation. In addition, actions are being taken in a number of countries to establish economic and other incentives, improve institutional capacity, and increase public-private collaboration to integrate private conservation actions with the conservation of public protected areas and large landscapes.

II. THE NEED FOR PRIVATE LAND CONSERVATION

The conservation of privately-held lands is an important component of a national strategy for the protection of nature and sustainable use of natural resources. Private lands conservation can contribute meaningfully to this goal—often in ways not achievable by government efforts—by conserving critical sites for biodiversity and threatened ecosystems, supporting public-private partnerships to conserve large landscapes through conservation of buffer zones and conservation corridors, and promoting the sustainable use of natural resources, as described below.

To date, the creation of protected areas in Latin America has been primarily accomplished through the development of public protected area systems, which now conserve 5 to 15 percent of the territory of most countries. Although important additions to these public systems are still needed, the changing landscape and loss of large wilderness areas increasingly limit the opportunities for governments to create large new public protected areas. For conservation efforts to fully succeed, the public parks systems must be complemented by private conservation initiatives on the remaining land—over 80 percent in most countries—that is privately owned.

There is a strong need for private lands conservation efforts in Latin America today, as important areas for protection remain available on private lands, especially, critical sites for biodiversity, the buffer zones of public parks, and productive ecosystems where there are typically few public protected areas. A private lands conservation strategy is also attractive for cash-strapped governments because funds are not required for large scale land purchases, and in many cases private landowners contribute their own resources for the implementation of conservation practices.

A. CONSERVING CRITICAL SITES FOR BIODIVERSITY IN THREATENED ECOSYSTEMS

One of the most important contributions of private initiatives is that of protecting critical sites within ecoregions of global priority for conservation, thereby augmenting the coverage of a national system of protected areas. Private efforts are particularly important in order to save endangered ecosystems in fragmented landscapes where almost all land is privately owned. This is the case in four of the seven areas identified by Conservation International

as the most endangered biodiversity hotspots in the Americas—the coastal forests of Ecuador and Colombia, the Atlantic Forest of Brazil, the Mediterranean ecosystems of Central Chile, and many parts of Meso-America.[1] These ecosystems are endangered precisely because they are private lands and development efforts have reduced native vegetation to 2 to 5 percent of its former extent. We will lose an entire suite of species if we fail to protect the last key sites in these ecosystems. Adequate protection of these critical ecosystems will depend largely on a strategy that combines the consolidation of public protected areas with private lands conservation initiatives.

One of the most effective means of conserving those sites is land purchase and management by conservation non-governmental organizations (NGOs), some of which have conducted gap analyses to identify the most important sites for biodiversity conservation. This approach has been demonstrated best in Ecuador, where several NGOs have each begun to create a system of private reserves to protect endangered species and ecosystems that are not adequately covered by the state protected area system.

B. SUPPORTING PUBLIC-PRIVATE PARTNERSHIPS TO CONSERVE LARGE LANDSCAPES THROUGH BUFFER ZONES, CONSERVATION CORRIDORS, AND ASSISTING THE CONSERVATION OF PUBLIC PROTECTED AREAS

Private conservation actions not only directly conserve key sites of biological importance, but can also strengthen the protection of large landscapes and public protected areas through public-private partnerships. Such partnerships can combine the comparative advantages of both public and private sectors to enable conservation efforts to be more effective. These partnerships can take a variety of forms, and include collaboration in the political, regulatory, and fundraising aspects of land conservation. Examples later in this report will illustrate how private lands conservation efforts coordinate with government actions to conserve public protected areas by:

- *Protecting buffer zones*: Private reserves play a number of important roles when located within buffer zones of public parks. First, they directly protect lands outside the park, expanding the core area of protection and helping to conserve the park's resources. Second, they help protect park boundaries by establishing a conservation presence at key access points. Assistance in protecting park boundaries is critical in less developed countries, which may lack funding for adequate protection of national parks. Third, by establishing non-consumptive uses relating to the park, such as ecotourism, private conservation efforts help to build a constituency and critical political support for the public protected areas.

- *Linking parks through conservation corridors:* Private land conservation efforts may be essential to conserve natural corridors that help unite two or more official conservation units or private protected areas.
- *Protecting private lands within public protected areas:* Public protected areas often include private lands within their boundaries. These private lands may be an inholding within a public park or similar area, or may be part of a "mixed" public-private protect area that is intended to include and regulate private lands, without expropriating them. Applying conservation tools to these private lands strengthens and reinforces the conservation of the publicly protected area.
- *Leverage resources:* Government can leverage its resources by working in partnership with private actors such as conservation NGOs. Such private organizations can act in a more rapid and flexible manner than government bureaucracies, and can contribute to fundraising, outreach, lobbying and education activities that are difficult for governments to undertake.

Government support is critical to effective public-private conservation partnerships that can augment government conservation capacity. Such support includes both formal measures such as recognizing private reserves, providing financial incentives, and supporting private conservation initiatives through technical assistance and diplomacy. Of the countries studied, the government of Costa Rica has been the most actively engaged in an overall strategy to promote such a public-private partnership, which has resulted in significant conservation benefits for that country.

C. PROMOTING THE SUSTAINABLE USE OF NATURAL RESOURCES

Private lands conservation efforts can protect natural resources on a wide variety of lands, including productive lands that are unsuitable for strict protection, but nevertheless have resources important for sustainable development. By creating legal methods to balance conservation with extractive uses, private lands conservation tools may be used to ensure the sustainability of practices such as forestry, grazing, watershed protection, and recreation, as well as their compatibility with conservation objectives. Such tools can also help to assure long-term land uses on areas that are to be used for sustainable forestry or carbon sequestration projects.

Because such practices require flexible private land conservation tools, tools such as easements may be more relevant for this purpose than stricter categories of land protection such as private reserves. Because they are voluntary, such flexible tools may appeal to property owners who might otherwise resist direct government regulation.

Integration of conservation efforts within productive lands can also help the private sector adopt a new attitude towards land stewardship. This change is important because, historically, the private sector has not only failed to conserve its lands but has even contributed to its degradation through extractive practices of a short-term economic nature and habitat fragmentation. Private lands conservation tools can help landowners create consistency between economic uses and conservation and allow property to continue to be economically productive in a sustainable fashion, in accordance with the territorial zoning set forth by government and in support of the country's development and conservation objectives.

D. LIMITATIONS OF PRIVATE LANDS CONSERVATION

Some of the major limitations of private lands conservation include:

- *Size limitations.* Although private lands conservation actions are an important complement to government protection of natural areas, they are tend to address areas that are smaller in size than a national park, and so are not a substitute for government action. Governmental initiatives are typically needed for the conservation of large tracts, where social legitimacy, greater potential for financial resources, and state enforcement capacity may be required.

- *Ad-hoc in nature.* Some instances of private lands conservation will be ad hoc in nature, as they depend on the motivation of individual landowners, who may or may not be located in the most important sites for conservation of biodiversity or other natural resources. However, the actions of conservation NGOs as well as of international funding agencies tend to focus on priority sites, and government incentives can be limited to areas of conservation importance.

- *Dependence on judicial enforcement.* Many private lands conservation mechanisms such as private reserves and easements depend on adequate judicial enforcement, which can be difficult to secure in Latin American countries. Providing a stronger legislative framework for these tools, including specific enforcement provisions, and training for judges and public prosecutors, are ways to address this problem.

- *Lack of subsurface rights.* Private conservation efforts cannot protect the subsurface rights to the land, which are owned by the state throughout Latin America. This may make private efforts to conserve the surface more difficult.

- *Need for long-term stewardship.* Long-term stewardship is a challenge for many private land efforts, because current and future landowners may lack the necessary financial resources for the long-term conservation and management of the land.

Some of these disadvantages, such as weak enforcement and limited budgets, also apply to public protected areas. However, if well-managed, private protected areas may be better protected than public parks, as they tend to be smaller areas with greater management presence.

III. AN OVERVIEW OF PRIVATE LANDS CONSERVATION IN LATIN AMERICA

There has been growing momentum in efforts to protect private lands in Latin America. Conservation NGOs, private landowners, and governments have been experimenting with various legal mechanisms to accomplish private land conservation, which are described below.

The principal methods for private land conservation approaches in use in Latin America are:

- *Mandatory land use restrictions:* All of the countries studied have laws providing for direct government regulation of private lands for conservation purposes, principally to assure sound land use planning and erosion control.
- *Private Reserves:* Brazil, Costa Rica, Guatemala, and Ecuador all have a number of formally authorized private reserves. Brazil's private reserve law, enacted in 1990, is probably the best in the region, providing for the creation of reserves in perpetuity, and there are now over 500 private reserves in Brazil that protect over 500,000 ha.
- *Easements:* Even though no country studied has a national law authorizing conservation easements, NGOs in eight countries have used traditional appurtenant easements for conservation purposes. Costa Rica is the leader in this practice, establishing the first conservation easement in 1992, and today has over 50 easements. Three states in Mexico have approved laws that authorize conservation easements and allow them to be held by third parties.
- *Land purchase:* NGOs have purchased lands for conservation purposes in all of the countries studied. In Ecuador, three NGOs are systematically purchasing lands to create private reserves designed to conserve critical sites of biodiversity not covered in the state protected areas system.
- *Informal reserves:* Another common practice throughout the region is for conservation-minded landowners to informally describe their lands as a "reserve;" this practice however creates no formal legal protection.
- *Limited development projects:* Chile is the only country with many limited development projects, through which groups of friends or real estate companies buy land for both conservation and limited real estate development purposes.

- *Conservation concessions:* Peru has recently established a comprehensive law for conservation concession, which may also be created in Chile and Bolivia.
- *Community accords:* Communal lands may be protected through formal decisions taken by the community. Mexico and Peru have active projects involving the protection of community lands, and a few NGOs are assisting communities with these efforts.

Figure 1 shows the principal private lands conservation tools being used, and the degree to which they are being used in the countries listed.

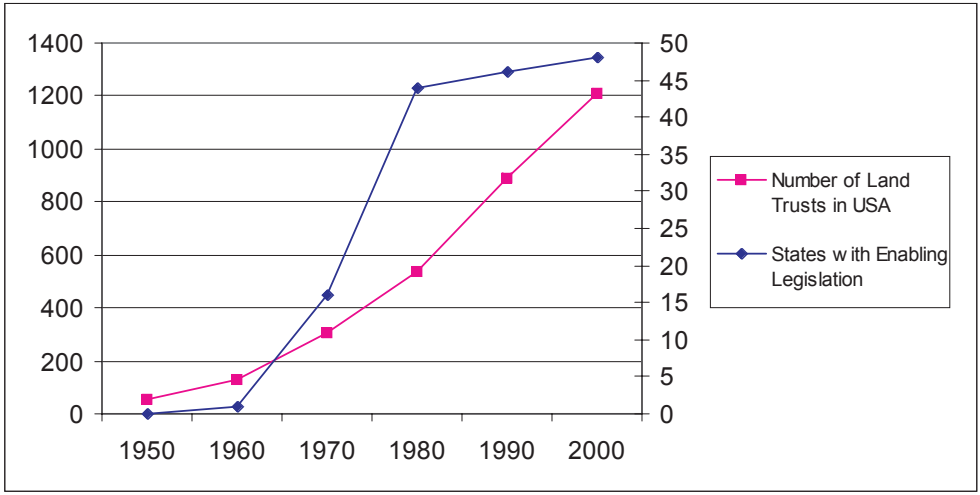
FIGURE 1 - USE OF PRIVATE LANDS CONSERVATION MECHANISMS IN THE AMERICAS

	Mandatory Land Use Restriction	Formal Private Reserve	Conserv. Easement	Appurt. Easement	Conserv. Concession	NGO Ownership	Economic Incentives
Canada			++	+		++	++
USA			+++	+		+++	+++
Mexico	+		+	+		++	+
Guatemala	+	++		+		++	+
Costa Rica	+	++		++		+++	++
Ecuador	+	++		+		+++	+
Peru	+	+			+	++	
Bolivia	+	+		+	+	++	+
Brazil	++	+++				+++	+
Paraguay	+			+		++	+
Argentina	+	+		+		+++	+
Chile	+	+			+	+++	

+ = weak or beginning; + + = moderate; + + + = strong or well established.

A major challenge for the growth of private lands conservation is the creation of simple and easily applied legal tools, so that private areas can readily achieve permanent protection. Experience in the United States has demonstrated that the passage of strong private lands conservation laws led to an explosive growth in the creation of private protected areas. The use of private lands conservation tools in the United States, such as conservation easements, was not widespread until the legal framework was developed during the 1970s and 1980s.[2] As shown in the figure below, development of the legal framework authorizing conservation easements led to explosive growth in their use, and a similar growth in the number and capacity of land trusts, which now number over 1,200 in the United States.

FIGURE 2. CREATION OF LEGISLATION ENABLING CONSERVATION EASEMENTS AND GROWTH OF LAND TRUSTS IN THE UNITED STATES (1950-2000)



Source: Land Trust Alliance (Washington, D.C. 2002)

Incentive mechanisms have also encouraged the growth of private lands initiatives, and incentives such as tax deductions have been widely used in the United States and Canada. A few Latin American countries offer limited financial incentives to landowners who protect their lands, such as an exemption from property taxes or payments for environmental services. However, only Costa Rica has created a reasonably attractive financial incentive, providing payments for environmental services of roughly $50 per hectare to 220,652 ha. of private protected areas.

IV. THE LEGAL CONTEXT FOR PRIVATE LANDS CONSERVATION IN LATIN AMERICA

The constitutions and civil codes of Latin American countries provide governments with considerable regulatory power over private land, which has been exercised in both negative and positive ways to affect conservation. This section discusses the general laws in Latin American nations that limit opportunities for private lands conservation, such as limitations on the extent of property rights and the requirement that private landowners make appropriate socio-economic use of their land. The next section discusses the laws that can affirmatively require conservation practices on private lands, especially in areas that have been designated by the state for protection. This legal context strongly affects the methods and opportunities for private lands conservation in Latin America.

A. LIMITATIONS ON THE EXTENT OF PRIVATE PROPERTY THAT CAN BE OWNED

Certain Latin American countries place limits on the right to own property that potentially limit conservation actions. Mexico places absolute limits on the amount of land that can be privately held: agricultural landowners cannot own more than 800 ha, and all others are permitted to own only the amount of land needed to raise 500 head of cattle—an amount that varies from 500 ha in rich soils to over 20,000 ha in the desert. Other countries do not so limit personal property ownership, although Venezuela is also considering strict limits. However, historically, many countries have taken action against the accumulation of large private landholdings, formerly known as "*latifundios*," in some cases expropriating these and redistributing the lands as part of agrarian reform movements. Today, this social legacy restrains purely private accumulation of large landholdings, and leads to a greater emphasis on a private-public partnership for land conservation in Latin America.

None of the countries in the study limit foreign ownership of land, except in limited instances, such as an ownership of land within 50-100 kilometers of the border for security or economic reasons. Interestingly, several Canadian provinces have recently passed laws that restrict foreign (and in some provinces also domestic) ownership of land to relatively small amounts. Thus, except in Mexico and Canada, there are few limits to the potential acquisition and ownership of land by conservation owners such as NGOs.

A property limitation common to all countries concerns ownership of subsurface property rights. In virtually all Latin American countries, private landowners by law own only the surface of the land, whereas in common-law countries, private property rights generally extend from below the surface to the sky above. Latin American governments therefore retain the rights to any minerals under the land, and can lease these rights without authorization of the landowner. A mining company can then exploit the minerals, even if doing so destroys the productive use of the surface, without paying any compensation to the owner. These policies apply even if lands are placed under conservation status by a private entity, and indeed some countries even allow mining in their national parks.

B. LAND INVASION AND THE REQUIREMENT TO MAKE SOCIO-ECONOMIC USE OF LAND

Traditionally, the land tenancy laws of Latin American countries have required landowners to make adequate socio-economic use of their land, by engaging in activities such as ranching or farming. Failure to make adequate socio-economic use of the land could result in government expropriation, or invasion by colonists. These colonists would then clear vegetation and begin to "use" the land by farming or ranching, giving them an opportunity to assert superior title to the property.

Another aspect of land tenancy laws is that ownership rights are defined according to the category of land owned. For example, in some countries, if the property falls within the cattle-raising category, the extent of land that may be owned is determined according to the number of cattle on it, taking into account the carrying capacity of the land; if more land is owned than is needed, the state has a right to expropriate the excess land.[3]

By encouraging the clearing of land to establish good title, these laws have driven extensive deforestation throughout Latin America. Although such laws have been repealed in some countries, and downplayed in others, they are still in effect in other countries. Even if repealed, the laws have established an important tradition that colors social perceptions about land use and appropriate procedures for conservation.

In an important victory for private lands conservation, some countries have added a land use category that specifically authorizes conservation as an appropriate use of the land. This ends the risk to landowners that protected land will be considered "vacant" and subject to expropriation. However, many landowners report that it is difficult to obtain a certification of conservation use for their land, principally because local government bureaucracies are not yet accustomed to processing these designations, thereby delaying and complicating land title proceedings.

C. IMPLICATIONS FOR PRIVATE LANDS CONSERVATION

The legal limitations on the right to own land in Latin America have important implications for protecting private lands. In many countries, reform of land tenancy laws may be a critical component of a private lands conservation strategy, and creation of a category of conservation use for land would greatly enhance private land conservation. Even in countries where the law of vacant lands has been repealed or conservation use is allowed, land owners may still face informal constraints on the amount of land they can conserve in a purely natural state. For example, many conservation-minded landowners believe that they need to make some kind of economic use of the land, such as ecotourism or scientific activities, or even perform some grazing or ranching, in order to protect their land within the cultural context of Latin America.

A particular problem arises with private land conservation initiatives that rely on purely private legal instruments, such as easement contracts between two private parties. If such initiatives require land uses that are inconsistent with requirements for socio-economic use, they could subject the land to expropriation, since by definition there would be no traditional socio-economic use being made of the land. To avoid this problem, most legislation dealing with private lands conservation in Latin America, such as laws authorizing private reserves or easements, requires state approval or involvement in the creation of private lands instruments.[4]

V. VOLUNTARY METHODS TO PROTECT PRIVATE LANDS IN LATIN AMERICA

Countries in Latin America have only recently begun to experiment with a variety of legal tools and methods to promote voluntary conservation of private lands. Some of the earliest efforts began in the 1970s and were led by the scientific community, such as land purchase to establish the Montverde and La Selva private protected areas in Costa Rica to safeguard the unique ecosystems and species found at these sites. These early efforts gained international recognition, and became models for private action to protect lands in Latin America.

Starting in the mid-1980's, private lands conservation efforts by conservation NGOs and landowners began to gain greater momentum. However, the national legal framework for private lands conservation in most countries still remains limited. Only a few countries have private reserve laws, and none have national conservation easements laws. As a consequence, private landowners and NGOs have had to be creative, for example, by adapting existing easement laws in the civil code for environmental purposes. However, many of the most effective approaches are not formally authorized by law, and limit the opportunity for private conservation.

The following discussion treats the most widely used voluntary legal tools for private lands conservation in the countries studied:

1. Land ownership by NGOs
2. Formally declared private reserves
3. Ecological easements created under the civil code
4. Independent or "in gross" conservation easements
5. Use of the right of usufructo or comodato[5]
6. Land donations to government protected area systems
7. Conditional gifts or bequests[6]
8. Land trusts and limited development efforts
9. Transfer of urban development rights
10. Informal private reserves

Each of these tools has different characteristics and advantages, and a full suite of such tools is needed to address the different concerns of large versus small landowners, conservation NGOs, or corporate or community holders. Land use may also influence the need for and selection of a private land conservation method. The private reserve model, with its stringent conservation

restrictions, may work best for strict biodiversity conservation, while conservation easements that allow more flexibility in the use of the land may work best for productive lands and working landscapes, where the objective is to integrate sustainable resource use with nature conservation.

These legal methods are described below, with reference to their implementation results in the countries studies. Particular attention is given to NGO ownership of land, private nature reserves and easements, legal tools that may be used for conservation purposes and create real property rights that run with the land, and so are durable even if the landowner changes.

A. LAND PURCHASE AND OWNERSHIP BY A CONSERVATION NGO

The most frequently used voluntary land conservation technique in Latin America has been ownership of property by a non-profit organization dedicated to land conservation. This form of ownership provides long-term conservation protection, as NGOs are legally obligated to follow the objectives defined in their status, which may only be changed through a process involving judicial scrutiny. Moreover, in most countries if a NGO dissolves, its assets must be transferred to another NGO with similar objectives, again with the supervision of a court. Together, these laws typically guarantee that the land will be subject to long-term conservation, provided that the NGO is able to raise adequate funds to manage and protect the area.

Another advantage of this method is that NGOs tend to protect lands of conservation importance, whereas decisions by private landowners tend to be more haphazard. NGO conservation action has proven valuable for the protection of endangered ecosystems, and other priority lands, such as corridors and buffer zones. Also, because NGOs have greater social representativeness than individuals, they can play a very significant role by working with governments in public-private partnerships for land and biodiversity conservation at both the local and national scale.

Some notable NGO conservation successes in land conservation include creation of the 30,500 ha cloud forest reserves in Monteverde, Costa Rica, the largest private reserve in Central America, as well as the initiative to conserve the large Guanacaste Conservation Area through a public-private partnership. In South America, the largest reserve is the vast 300,000 ha Pumalin Reserve in Chile created by the Conservation Land Trust, which is also creating a similar sized reserve in Corrientes, Argentina.[7] A few corporations have also been active in large-scale private lands conservation. The 22,000 ha Linhares Nature Reserve is protected by the Companhia Vale do Rio Doce in Brazil, and the 33,000 ha Sierra del Carmen Reserve in Mexico by CEMEX. In Brazil, 19,000 ha is protected in a collaborative arrangement by local and

international NGOs, with funding from U.S. corporations to offset their carbon emissions.

One of the most successful examples of NGO conservation in Latin America has been undertaken in Ecuador by three foundations: Jatun Sacha, Jocotoco, and Natura y Cultura. Each foundation has set out to establish a series of private reserves designed to conserve endangered ecosystems and species that lack protection in the state protected area system. Each group has a different focus, ranging from endangered plant communities to endangered bird species to priority sites in the southwestern region. Although the reserves established by these groups tend to be relatively small—several thousand ha each—they conserve unique ecosystems in critically endangered ecoregions that are dominated by private land ownership (see Ecuador study).

The principal limitations on the use of land purchase as a conservation tool are the high cost of acquisition and the ongoing responsibility of private entities to raise the necessary funds for stewardship and protection. For these reasons, land purchase is perhaps most important for the conservation of critically endangered ecosystems where the need to protect and expand small areas is greatest. Land purchase by NGOs is not an attractive option for private landowners wishing to retain title to their property, or make productive use of heir lands. However, mixed NGO-corporate partnerships are feasible to conserve areas on productive lands, such as Hato Pinero in Venezuela, where a family foundation for land conservation protects 17,000 ha of forested lands within a 73,000 ha working ranch.[8]

The effective protection of high priority lands by NGOs through land purchase indicates the tremendous opportunity for using this tool if adequate funding were available. The Nature Conservancy's Adopt-an-Acre Program, World Land Trust and World Parks have each identified numerous private lands conservation projects proposed by local groups in Latin America that would protect critically endangered ecosystems, and are in need of funding.[9]

B. FORMAL PRIVATE RESERVES

1. Legal Structure

Many Latin American countries have developed the private reserve as a formal legal device to protect private lands. A private landowner must request this status from a government agency, which designates the land as a private reserve if it qualifies under criteria established by the law. The government approval process protects the landowner against the charge that by conserving their land they are not making adequate socio-economic use. Although using a private reserve for private land conservation provides less flexibility than an

easement, it may be advantageous when a country's land tenure laws do not recognize conservation as an adequate use of the land.

A typical private reserve law contains the following elements:

- *Designation Process:* A private landowner voluntarily makes a request for this designation to a government entity; if the area satisfies the qualification criteria, it is formally designated as a private reserve through a ministerial decree or similar process.
- *Qualification Criteria:*
  - The government must find that the land is valuable because of its ecological, biological, or other scientific characteristics (in general, countries have not imposed rigid criteria for such a determination.)
  - The landowner must also satisfy technical requirements, such as providing a detailed description of the property and its environmental values, a management plan, and proof of valid title.
- · *Land Use Restrictions:* Destructive land uses such as clearing natural vegetation, building structures, etc. are prohibited by law in some countries. Other countries are less specific, but require compliance with an approved management plan.
- *Ongoing requirements:*
  - The landowner must implement the management plan;
  - The landowner must submit periodic (usually annual) reports to the government that describe implementation of the management plan;
  - The state monitors compliance with the management plan and the reserve status.
- *Duration:* Brazil requires that the private reserve be of perpetual duration; some countries allow reserves to last for either a term of years or be perpetual; others such as Costa Rica require that the private reserve status last only a specific number of years.

2. Private Reserve Systems in Practice

The nature and extent of private reserve designation varies according to the country. The following chart quantifies the number and extent of private reserves in each country listed, as well as private protected areas within established country networks of conservation landowners.

Several countries, such as Brazil, Costa Rica and Ecuador, have fairly well-established legal systems for private reserves that have existed for more than a decade. In Brazil, the designation of a private reserve is perpetual and binding on all future owners, creating the strongest law in the region. In contrast, in Costa Rica, the reserve may only be established for a term of years (5-20) and

FIGURE 3 - COUNTRY NETWORKS AND USE OF PRIVATE RESERVE DESIGNATIONS AS OF 2002

	PRIVATE PROTECTED AREA NETWORKS			FORMAL PRIVATE RESERVES	
	Name	Number	Hectares	Number	Hectares
Argentina	(NGO)*			N/A	N/A
Bolivia	None			19	42,000
Brazil	No federal			367 (RPPN)	405,114
Brazil	Some states			192 (State)	82,117
Chile	RAPP	133	400,000	**	**
Colombia	RRNSC	172	35,000	N/A	N/A
Costa Rica	RCRN	77	55,000	**	**
Ecuador	CNBPE	65	70,000	88	113,683
Guatemala	ARNPG	51	21,637	51	21,637
Mexico	Initiating			1	13,500
Paraguay	(NGO)*			4	103,464
Peru	None			1	34,000

Sources: See generally, country studies in Part II.[10]

*Although Argentina and Paraguay have no formal networks, in Argentina the Fundación Vida Silvestre has created a landowner recognition program called Programa Refugios de Vida Silvestre, and in Paraguay the Fundación Moisés Bertoni operates a similar Programa de Reservas Naturales Privadas.

**In Chile and Costa Rica, the land data for formally designated reserves combines data for state-declared reserves and those created through private initiative, and so cannot be quantified here; information is lacking on formal reserves in Argentina and Colombia.

the designation is extinguished when the property leaves the ownership of the party that established the reserve. Chile also has a relatively old law allowing for the creation of Nature Sanctuaries that are roughly equivalent to private reserves, but burdensome requirements and a lack of incentives has resulted in limited use of this law. Other counties such as Peru and Bolivia have passed legislation enabling the creation of private reserves only recently, and landowners there have just begun to establish private reserves. Mexico has no private reserve law. An improved legal framework could therefore strengthen private reserve laws in most countries.

In Latin America, more private reserves have been created in Brazil than in any other country, and as of 2002 there were 367 federal and almost 200

state Private Reserves of Natural Patrimony (RPPNs). IBAMA (the federal environmental agency) approves and designates the federal reserves, and the state environmental agency does so for state ones. Once officially designated, a federal reserve is permanent, and restricts the majority of rights to develop the land. The lands are also exempt from payment of rural property taxes, and federal reserve owners are expected to have access to the financial resources of the National Environmental Fund (FNMA) to promote research and environmental education programs. Many of the most successful RPPNs are owned by, or under the management of, NGOs.

Since 1981, private landowners in Ecuador have been able to designate their lands as *Bosque Protectores*. The process for creating such reserves is relatively simple, and as of 2001, 88 such reserves, covering 113,683 ha, have been created by private entities[11] However, many of these designations have not resulted in effective protection of the site, although some, including some managed by conservation NGOs, are being adequately conserved. The practical success of the reserves in Ecuador appears to be principally a function of whether the landowner or management entity declaring the reserve has the commitment and the financial resources needed to protect the area.

In Costa Rica, many private reserves have been created, but are not permanent as in other countries. The most commonly used designation, the Private National Wildlife Refuge, has a duration of only 5-20 years, but can provide the landowner with significant additional protection against land invasion and qualifies the landowner to receive a financial incentive through payment for environmental services. Another form of reserve is a forestry reserve, whereby a landowner commits to a conservation regimen for his lands. However, in both cases, the law creates only personal obligations on the part of the landowner, rather than obligations that bind future owners of the land.

Bolivia and Peru have only recently passed laws authorizing private reserves. Peru adopted such a law in 2001, and the Chongoyape campesino community has created the first private reserve of 34,000 ha, which will be managed for ecotourism and deer hunting. Unlike Brazil and Ecuador, private reserve designations in Peru are not permanent, but have an initial 20 year term, subject to renewal. Bolivia currently has 19 private reserves called RPPNs authorized under the Forestry Law of 1996; previous attempts to create private reserves as wildlife refuges or under special decrees had failed. However, the requirement for clear title poses a significant barrier to the creation of private reserves in Bolivia as the government is in the process of redefining property boundaries, and only 12 percent of landowners currently have approved title documents.

3. Advantages and Disadvantages of Private Reserves

Private reserves have a number of strengths as well as limitations that affect their potential use. First, they must be recognized by a government entity as having special value for conservation, which provides government endorsement, but also limits the opportunity to create them. Second, the designation imposes a number of land use restrictions and procedural requirements that obligate the owner of the private reserve to develop and follow a management plan, and make annual reports to the government. These restrictions tend to make private reserves a tool used for strict conservation purposes. Private reserves therefore fall somewhere between a voluntary land conservation practice of private landowners, and a form of land management similar in some ways to the operating concepts of larger national parks.

Overall, the advantages of using private reserve designation to protect lands include:

- Creates greater juridical security of land tenure because governmental approval of private reserves recognizes the property's importance and endorses the proposed land use as a valid socio-economic use, avoiding problems with land tenancy laws;
- Provides a basis and structure for the provision of government financial, technical or other incentives by determining the lands to be of priority value; and
- Helps to assure continued compliance with the conservation objectives of the designation, through a government monitoring process.

The disadvantages associated with the use of private reserves are:

- Private reserves status is limited to strict conservation of lands considered of biological importance to the government;
- The government approval process can be burdensome and time-consuming, potentially discouraging anyone but the most determined conservation owner from gaining this status; and
- Private reserves are basically treated as mini-parks, with requirements to adopt management plans and report on progress to the government parks authority, which can be burdensome to private landowners.

These advantages and disadvantages suggest useful reforms for private reserve laws. Instead of treating private reserves as “mini-parks,” governments need to establish terms, conditions, and procedures for private reserves that recognize the independence and voluntary initiative of the private landowner, and allow for more flexibility in management of the property than that asso-

ciated with public protected areas. The procedures and paper-work required should be made as least burdensome as possible. In order to assure legal recognition of the reserve, a formal government approval process is necessary, which should include an on-site visit. A five-year updating of the management plan, or adequate government monitoring procedures could replace the need for annual reports from the landowner. The government might also elect to develop categories of private reserves and the nature and strictness of requirements could determine any incentives or benefits provided to the landowner.

C. EASEMENTS

1. Overview

No country in Latin America has yet to enact national legislation authorizing the use of easements for conservation purposes, or allowing such easements to be held by independent third parties. However, NGO working with conservation-minded landowners have used the traditional form of appurtenant easement under the Civil Code for conservation purposes in a growing number of Latin American countries. The lack of a secure legal framework and a number of other barriers are slowing the use of easements in the region, and removing these barriers is a priority for environmental law groups in the hemisphere.

An easement is a voluntary agreement in which a landowner agrees to limit the use of property, and can be created for a term of years or for perpetuity, depending on the country. They can be used for conservation purpose by limiting the rights to use land in certain ways or the intensity of development, in order to conserve natural features of the land. However, a potential problem with the use of easements for conservation purposes is that most easements create positive rights, such as a rights-of-way, over the land; conservation easements, however, create negative rights that prevent certain uses of land, and so may be more difficult to enforce. Because easements are real property rights, they are inscribed in the registry of deeds, and are binding on future landowners, making them a useful tool for long-term conservation purposes.

There are two kinds of easements that can potentially be used for private lands conservation: traditional appurtenant easements that involve easements between two adjacent properties, and easements "in gross," which can be held by a party other than the owner of the adjacent property such as a government organization or a non-profit conservation organization.[12] The property laws of Latin American countries are based on the European civil code and only recognize the traditional form of appurtenant easement created between two neighboring estates.

None of the countries in the study have a national law that explicitly recognizes the use of traditional easement for conservation purposes, nor authorizes the creation of independent or "in-gross" easements, which run with the land but can be held by independent entities.[13] The in-gross easement eliminates the need to have the easement held by an adjacent property owner (the dominant estate), and allows the easement to be held and monitored by conservation groups that act as land trusts. These latter type of rights must be created by statutory authority, which has only been accomplished in three Mexican states: Nuevo Leon, Quintana Roo, and Veracruz.

The laws in the Mexican states that have authorized conservation easements require that any private lands conservation instrument, including easements, be approved by the state, and further provide that the land become part of the state protected area system. In doing so, these laws add an element of government involvement that is usually lacking with easements created in common law jurisdictions like the United States. However, having easements formally approved by the state or becoming part of the state protected area system may provide an additional element of protection, because the state involvement may protect the land against other state actions that may harm the land (see the Mexico case Las Cañadas case study for an example). Therefore, in this respect easements in civil law countries may become even stronger than conservation easements available in common law countries.

Creating the laws that authorize independent or in-gross conservation easements that may be held by land trusts and other like entities is one of the most important legal reforms to be achieved in Latin America. Proposed laws authorizing in-gross conservation easements have already been introduced in a number of countries such as Chile, Costa Rica, and Ecuador.

2. History and Use of Easements

Costa Rica pioneered the use of easements for conservation purposes in Latin America by beginning to use appurtenant easements to protect land in 1992. Since then, over 50 easements have been created in this country, principally by the Center for Environmental Law and Natural Resources (CEDARENA). Starting in 1998, a small number of easements have also been created for conservation purposes in other countries. The box below summarizes the history and use of easements for conservation purposes in Latin America as of December 2002.

FIGURE 4. USE OF TRADITIONAL EASEMENTS FOR CONSERVATION PURPOSES AS OF 2002

Country	Lead Organization	Year of first easement	Number of easements	Approx. hectares protected
Argentina	Fundación Neuquen	2000	1	144
Costa Rica	CEDARENA	1992	42	5,000
	Others		15 (approx.)	500
Ecuador	CEDA	1999	4	300
Guatemala	FundaEco	1999	4	7,233
Mexico	Pronatura	1998	10	unavailable
Paraguay	Natural Land Trust	2000	12	unavailable

All of these easements employed the traditional form of appurtenant easement under the Civil Code that require two adjacent estates, with the exception of one easement in Mexico. A number of techniques, described below, have however allowed traditional easements to be created in variety of circumstances that use or expand the strict requirement for adjacent private properties.

a. NGO purchase of lands that can serve as adjacent estates. One way to meet the requirement for adjacent lands is for a conservation NGO to acquire by donation or purchase a piece of property adjacent to the land to be subject to the easement. This allows the NGO property to be the dominant estate, and the NGO to hold the easement over adjoining lands.

b. Use of non-adjacent lands. Another creative method is to create an easement between properties that are non-adjacent, but have some relationship or shared characteristics in order to establish an adequate nexus. One example is an easement created by CEDARENA between a parcel of private land and a nearby state reserve that shared the same birds.

c. Reciprocal easements. Reciprocal easements allow adjacent landowners to limit their respective land uses through easements granted to each other, allowing both properties to be protected. Conservation groups working with private landowners in Mexico and Paraguay have used reciprocal easements with provisions that give the third-party NGO the right to enforce the easement provisions, with specific authority to enter the property, monitor compliance, and judicially enforce the rights and obligations derived from the

easement. The use of reciprocal easements can therefore create enforceable rights over land for a conservation NGO without the need for the NGO to own adjacent land.

d. Use of public lands as the dominant estate to hold an easement. In Mexico and Costa Rica, easements over private land have been created using adjacent or nearby public lands as the dominant estate. In Mexico, an easement was created at Rancho el Paval within the El Triunfo Biosphere Reserve in Chiapas, in which the dominant estate was the Reserve itself. The easement also provided rights to a third party (Pronatura) to enforce the easement, along with the Director of Reserve. Pronatura also helped create an easement at Las Berenjenas, 800 ha of pine forest owned by the NGO Bosque Antiguo, in Jalisco, in which the dominant estate was the adjacent lands held by the Huichol indigenous group, integrating cultural and environmental objectives in the same instrument.

e. International easement. In Tecate, Baja California, a conservation easement was created between two portions of one hill, with the land subject to the easement located in Mexico and the dominant estate located in the United States.

Although the above methods are creative solutions, several are novel arrangements that pose legal uncertainties that have not been tested in court. One potential problem involves the legality of the practice of giving a third party such as an NGO the right to sue or enforce the easement. Since traditional civil law doctrine only recognizes the right of the holder of the easement to enforce its provisions, this practice may not survive legal scrutiny. Moreover, it is unclear whether the monitoring and enforcement rights granted to NGOs are real property rights that follow the property through subsequent changes in ownership, or personal rights enforceable only against the original maker of the easement. The uncertainty over the nature of the enforceable rights granted to NGOs could undermine the effectiveness of these techniques.

3. Barriers to the wider use of easements

a. Legal limitations to easements

The absence of national laws explicitly recognizing the use of traditional easements for conservation purposes, or authorizing in-gross easements, is a major barrier for the widespread use of conservation easements. As noted above, in-gross easements can only be created by statutory authority, and such

laws currently do not exist in Latin American except for the Mexican states of Nuevo Leon, Quintana Roo, and Veracruz.

b. Lack of clear land title

A lack of clear land title is also a major challenge to the use of easements in many countries. In Bolivia, where the government is in the process of revising land titles, clear title exists for only 12 percent of the land area. In the Amazon basin, many rural lands are subject to conflicting possessory claims, and several different land titles may exist due to claims of differing municipalities over the same territory. These difficulties inhibit the creation of easements, which require clear and valid land title for their creation.

c. Uncertain enforcement

Judicial systems are in general relatively weak in Latin America, raising the question of how the assertion of new rights such as the use of easements for conservation purposes will be treated in courts. Only two easements have been litigated: the Las Cañadas easement in Mexico, which was defended successfully by the conservation NGO Pronatura, and another in Argentina, also successfully defended by the Fundacíon Neuquen. Litigating such cases is costly —the defense of the Las Cañadas easement cost approximately $15,000.

Creating laws that authorize independent or in-gross conservation easements that may be held by land trusts and other like entities, and improving judicial enforcement, are some of the most important legal reforms needed to promote private lands conservation in Latin America.

D. INFORMAL PRIVATE PROTECTED AREAS

Many privately owned lands are protected informally, solely on the basis of the commitment of the current landowner to conserve the land. Although such commitment to conservation may be strong and the protection measures excellent, the lack of legal designation or guarantee that the conservation measures will continue after the current landowner dies or sells the property jeopardizes the long-term conservation of the property.

Creating strong, flexible and readily implemented procedures for private land conservation is a necessary step to translate the conservation commitment of such landowners into legal reality.

E. CONSERVATION CONCESSIONS ON PUBLIC LANDS

Conservation concessions are lease agreements in which governments lease *public* lands or resources to conservation groups to be managed for con-

servation purposes. The extensive private involvement in leasing public lands for forestry and other extractive purposes indicates conservation concessions are a potentially important instrument for conservation action.[14]

The first purely conservation concessions were granted in Chile, where the law provides that the Ministry of Bienes Nacionales may grant concessions to NGOs for conservation purposes. The terms of such are favorable—NGO concession holders are not required to pay any fees to the government, and the duration of the concession may be indefinite and is not subject to the normal 50 year limit of commercial concessions.[15] Several large conservation concessions were granted in the early 1990s to three environmental foundations, including a 35,000 ha area within Isla Magdalena to Fundación Lahuen. However, none of the foundations were able to establish the management or infrastructure needed to maintain the concession, and consequently control of the areas reverted back to Bienes Nacionales.[16] Other smaller land concessions have since been granted in Chile, but generally to companies seeking to develop land for ecotourism purposes.

Peru recently established the right to a conservation concession under the new regulation of the Forestry and Wildlife Law[17] and created the first concession over 135,832 ha in the Rio los Amigos watershed by a Ministerial Resolution in August 2001. The concession protects an Amazonian watershed in its natural state, and grants to the non-profit group ACCA the exclusive rights to the area for conservation purposes for a renewable period of 40 years. ACCA agreed to make an initial investment of $5 million over the first five years and to reinvest in the reserve any additional income generated from research and capacity-building activities.

Although Brazil and Bolivia both have laws authorizing conservation concessions on public lands, they have rarely been implemented. Bolivia's law authorizes concessions "for conservation and protection of biodiversity, research and ecotourism,"[18] and although this provision has been used once, that concession is not currently active. An impediment to the use of concessions in Bolivia today is that most properties lack clear land title, a problem that is likely to continue until Bolivia's land titling "saneamiento" process has been completed.

A second type of use of concessions for conservation purposes has occurred when conservation NGOs outbid resource users for the rights to traditional extractive concessions over public lands. In a number of countries Conservation International (CI) has purchased the rights to existing timber concessions from logging companies and then nullified them. In Bolivia, CI paid $100,000 to the holder of a roughly 45,000 ha timber concession to leave Madidi National Park, allowing the government to upgrade the status of roughly 300,000 ha of the park from a multiple use zone to a strictly protected area. Also in Bolivia, CI paid a timber company $170,000 to renounce its

claim to a timber concession of 105,000 ha, of which 52,100 ha was within the Biosphere Reserve Pilan Lajas. In Guatemala, CI and the local group ProPeten negotiated a deal with a community with rights to harvest timber within 75,000 ha within the Maya Biosphere reserve to allow the land to be leased instead for conservation purposes.[19]

F. DONATION OR TRANSFER OF LANDS TO A PUBLIC PARK SYSTEM

Another strategy for private lands conservation—primarily used by NGOs—is for a private entity to purchase land and then donate it to the government for inclusion in the public park system. This practice is common in the United States where local land trusts regularly buy land for subsequent transfer or sale to government conservation agencies (see U.S. country study). Donation to the public park system assures long-term conservation of the land and allows the government to assume the costs of management. There are also political and cultural reasons to conserve large landholdings as governmentally declared protected areas, given Latin American social history that discourages the holding of large extensions of land in private ownership.[20]

We found that this approach has only been pursued in countries with well-run park systems, such as Argentina, Chile, and Costa Rica. In Argentina, private donations of land in 1903 helped to establish the park system.[21] More recently, 3,796 ha of Atlantic forest were donated by the Cat Survival Trust to the Misiones province to become the Piñalito Provincial Park in 1997,[22] and Fundación Vida Silvestre Argentina and Patagonia Land Trust donated 60,000 ha of coastal land in Santa Cruz province to the federal government to create a national park.[23] Similarly, in Chile, a few small parcels of land have been donated to the public park system, and the owner of the vast Pumalin private park has expressed an intention to ultimately give the property to the state as a public protected area.[24] In Costa Rica, the Fundacion de Parques Nacionales, an NGO with government representation, has served as an intermediary to transfer privately purchased lands to the government. The Costa Rica country study also documents the Guanacaste case study, in which NGOs bought land that would later be included in an expanded park's boundaries.

Although donating land to the government is a direct method of private-public partnership to assure long-term protection, there are several factors limiting the widespread use of this tool. First, it is only practical in countries that have well-run public park systems, with park agencies that are capable and willing to take on increased responsibilities. In many countries, the park service lacks the funding to manage the existing protected area system, much less accept new donations. Second, governments will generally only accept donations of land if they are in areas the government has already identified as a high priority for biodiversity conservation.

G. COMMUNITY ACCORDS

The conservation of community-owned property is an important element of private lands conservation in Latin America. In most Latin American countries, a significant portion of private rural lands may be held in common ownership by *campesino* communities, which are productive communities organized under the country's agrarian laws. In addition, many indigenous communities live on reserved lands, but these typically are composed of public lands, and are not here considered private lands initiatives.

Depending on the flexibility of a country's laws, lands that are privately owned by communities can be subject to conservation easements, private reserves, and other land conservation instruments, just like any other private lands. In addition, community lands can be protected by quasi-legislative decisions made by community assemblies and other similar bodies that are empowered to act on behalf of the community. In general, these community agreements are made in consideration of some financial benefits to community members in compensation for conservation actions.

Despite the extent of community-owned lands in Latin America, there are comparatively few instances of formal private land protection actions undertaken by communities. One of these is outlined in the Chapparri case study in the Peru chapter, where a campesino community set aside 34,000 ha of its lands to create Peru's first private reserve. Also in Peru, the conservation group Tropical Nature has obtained the agreement of several communities to conserve their rainforest lands in exchange for providing capital and tourism expertise to help develop jointly owned ecotourism projects on community lands. These examples indicate the potential of working with communities, but also that some organizing force by an individual or NGO may be necessary to initiate and help to carry out a formal conservation program.

Mexico is a particularly important country in this regard, as communal groups organized as *ejidos* or communities own 52 percent of all land. Here, the conservation NGO Pronatura has helped create conservation agreements with land-owning communities to protect the areas of Las Bufas and El Carracito in the Sierra Madre Occidental. This is a complex process, as Mexican law requires that community agreements be carried out through a number of procedures, including certification by a formally convened Assembly in the presence of a federal government official, and inscription in the National Agrarian Registry. In another case, Pronatura acquired the timber rights over 2,500 ha of communal land for a term of 15 years, for an annual payment to the community members, in return for which community members agreed to refrain from cutting trees and taking other actions that might disturb sensitive conservation areas.

H. OTHER PRIVATE LAND CONSERVATION MECHANISMS

1. Usufructo

The *usufructo* is a personal, contractual civil law right over land through which a property owner grants to another the use and enjoyment of the property. Because it is a personal right, a usufructo does not bind subsequent landowners, and can last no longer than the life of the beneficiary, or 20-30 years in the case of organizations. It can be adapted for conservation purposes by setting forth limitations on the use or development of the land. The landowner has the right to monitor the property to ensure conservation, although monitoring rights can also be granted to third parties. In the event of a breach of the conservation obligations, the general civil rules regarding breach of contract apply. The contract of *usufructo* is formalized before a notary public, and inscribed in the public registry, making it enforceable against others.

Creative use of the *usufructo* can help lower the cost of purchasing land for private conservation. In Mexico, Pronatura was able to purchase ecologically valuable property at a significantly reduced price because the owner was given through a *usufructo* the right to continue to live on and use the property for his lifetime, subject to a number of conservation-oriented conditions and restrictions on land use.

2. Comodato

The *comodato* is a civil law contract through which a landowner lends land, or rights to resources on the land, to another person free of charge. The recipient is under the obligation to return the land or resources in the same condition, either upon request, after the expiration of the term of the contract, or upon realization of an agreed condition. The rights and obligations flowing from this contract are personal and do not transfer to subsequent owners. If the person who transfers the *comodato* dies, the obligations and rights are transmitted to his or her heirs. Contracts of *comodato* over lands are usually in writing and signed before the notary public, making them enforceable against others. The landowner or his designee monitors the use of the property, and if the user does not comply with the terms of the contract, the landowner has the right to terminate the *comodato* and obtain restitution of the property. As with other personal contracts, typically only the parties of the agreement can enforce or modify the agreement.

3. Conditional Donations and Legacies

Land may be transferred to others without charge through a donation or legacy, but conditioned on the fulfillment of elements that guarantee its future conservation. A donation is made by a living person, whereas a legacy is made through the testament of a deceased person. These instruments need to be witnessed by a notary public and inscribed in the lands registry of deeds to be effective. Also, by including a reversion clause in a donation, the donor can require that property automatically revert to the original owner if the person to whom it is given does not comply with the conservation objectives. The donor is responsible, however, for monitoring the property to detect any violations and for bringing any enforcement, which can reduce the usefulness of this device for long-term protection.

4. Lease Agreements

A lease contract allows a person to temporarily use property in exchange for the payment of rent, and can be used for conservation objectives by including land use limitations in the contract. Rental agreements, however, are of limited use for long-term conservation because they are personal in nature, and do not create real property rights that automatically transfer to future owners of the land. They are appropriate in situations involving property owners who have not been convinced to use more permanent methods.

A rental contract can also be used by an NGO or to conserve lands without needing to pay for the costs of acquisition. Fundacion Jatun Sacha recently leased 2000 ha of dry forest in southeastern Ecuador for 30 years for conservation and scientific research.[25] The Foundation pays no rent, but agreed to pay the owner half of any net proceeds of revenue-producing activities on the site, such as educational courses and ecotourism. It is hoped that this reserve will become self-supporting, and that the owner will sufficiently benefit from his share of the revenue-producing activities to continue the arrangement.[26]

VI. INVOLUNTARY CONSERVATION RESTRICTIONS ON THE USE OF PRIVATE LANDS

In Latin America, involuntary conservation restrictions created by direct government regulation has been has been the most widely used legal approach for achieving the conservation of private lands. This approach takes a number of forms under the forestry and protected area laws: general restrictions placed on all landowners to protect soils and watersheds; general restrictions regulating tree-cutting; and special restrictions on private lands that lie within designated resource conservation areas. These limitations reflect the extensive state power in civil law countries to regulate uses of land, and have few equivalents in common law countries.[27]

Due to their influence on and importance for private lands conservation, these laws are briefly reviewed below. Despite the strong mandatory conservation measures incorporated in these laws, however, they are rarely, if ever, enforced in most countries. While these laws could form one of the strongest possible tools for private land conservation, they are ineffective because of this institutional lack of enforcement.

A. GENERAL RESTRICTIONS ON LAND USE

1. Restrictions related to soil conservation and erosion control

All of the countries studied impose a number of environmentally beneficial limitations on land uses, principally to assure sound land use planning and erosion control. One set of laws requires either the strict or partial conservation of natural vegetation along water courses, in watersheds and on steep slopes. In addition, most countries also require a management plan and permit for the cutting of any tree on larger rural properties, potentially allowing the state great control over forest exploitation or development practices. These laws are summarized in the box below for selected countries.

These general restrictions against deforestation along watercourses, in watersheds, and on steep slopes, however, are rarely enforced in any country. The requirement for a management plan before the cutting of timber is typically enforced only against large landowners and commercial timber operations, leaving many deforestation activities unaffected. Government capacity to review and monitor forestry management plans is also weak in most coun-

FIGURE 5. SELECTED COUNTRY LAWS IMPOSING LAND USE RESTRICTIONS FOR ENVIRONMENTAL PURPOSES

	Protection of watercourses	Watersheds	Steep slopes	Forestry plan required
Argentina	100 meters	yes	> 20 degrees	
Brasil	30–500 meters	yes	> 45 degrees	
Bolivia	10 & 100 meters	yes	> 45 degrees	properties > 3 ha
Chile	100-200 meters	limited	> 45 degrees	variable (>20–1000 ha)
Costa Rica	10–50 meters	limited	n/a	properties > 2 ha
Ecuador	50 meters	some areas	n/a	all properties
Peru	50 meters	yes	n/a	all properties

tries. Although these laws could provide the framework for one of the strongest approaches for private conservation, their potential remains untapped because of this widespread lack of enforcement.

2. Conservation restrictions

In addition to these general laws, some countries, most notably Brazil, have even stronger laws that impose mandatory conservation practices on landowners. Brazil requires all rural private landowners to preserve 20 to 80 percent of their property in natural conditions, and in some areas, such as the Atlantic Forest, totally prohibits the cutting of trees on any part of the property. These provisions in Brazil likely represent the strongest private lands conservation tools in the Americas. Enforcement of these laws, however, is sporadic at best, and as a result these laws may have slowed, but not halted, deforestation in many critically endangered ecosystems.

Conservation International conducted one of the few studies that has examined the root causes of the failure to enforce environmental laws, in a study regarding illegal deforestation in southern Bahia's Atlantic forest.[28] The study found that despites efforts by the government, enforcement of environmental laws was weak because the probability of detection is generally low, and a number of other serious problems could led to the failure to impose sanctions on violators:

a. the complex procedure by which cases are handled as they travel through six offices in three cities results in paperwork becoming "lost";
b. this process coupled with jurisdictional confusion results in delays so long that the prosecutor could become unable to proceed with a case;

c. if the case was tried, the lack of familiarity of prosecutors and judges with environmental laws could result in lack of conviction; and
d. the overall scarcity of prosecutors and judges, especially in remote areas with the most forest, could prevent any effective enforcement.

The study concludes that weaknesses exist in virtually every step of the enforcement system, and that improvements were needed in a number of key areas, including more adequate budgets, clarification of jurisdictional issues, greatly simplified procedures, and improved training and capacity of key personnel. It further pointed out that improving only one area, such as hiring more personnel to increase detection of infractions, may have little effect unless problems in other areas were also addressed.

B. MIXED PUBLIC-PRIVATE PROTECTED AREAS

Another significant form of conservation restriction on private lands in Latin America occurs when governments establish protected areas that include and regulate private lands, without expropriating them. These "mixed" public-private areas are different from traditional public parks, where private lands within the park are considered "inholdings" that should eventually be purchased by government. In "mixed" protected areas, the private lands are intended to stay private, but must comply with conservation restrictions. These mandatory restrictions limit uses of the land in a way similar to conservation easements, and have virtually no equivalent in common law jurisdictions such as the United States.[29]

Typically, these mixed public-private protected areas cover relatively large natural areas of special importance for the conservation of biodiversity or natural resources. Although they consist mostly of private lands, many surround one or more publicly owned core areas such as national parks. Typically, the government allows agricultural and grazing to continue on private lands, but restricts other private land uses that could degrade the area's natural resources, such as prohibiting the cutting of trees, industrial uses, and contamination of soils.

BOX 1. PROTECTED AREAS INTENDED TO INCLUDE AND REGULATE PRIVATE LANDS

Brasil	Area of Environmental Protection (APA)/others
Bolivia	Integral Management Natural Area
Chile	Nature Sanctuary/others (publicly declared)
Costa Rica	Wildlife Sanctuary, Reserved Zone (publicly declared)
Ecuador	Bosque Protector (publicly declared)
Mexico	All public protected areas
Paraguay	Managed Resources Reserve, potential areas in SINAP
Peru	Buffer zone of any public protected area.

These mixed public-private conservation areas have been frequently used in Latin America, as shown in the box below. However, in Chile and Costa Rica, a fairly recent development has been that the government today only declares such areas with the consent of the landowners involved. The amount of land covered by these public-private areas can be considerable in some nations—11 million ha in Brazil, and as much as 6 to 11 percent of the country in smaller nations such as Costa Rica, Ecuador, and Paraguay. In Mexico, this paradigm applies in the case of virtually all public protected areas because the government owns only 30 percent of the land in public protected areas and has only limited intentions to purchase the remaining land. In these countries, the amount of private land subject to conservation restrictions in these "mixed" public-private areas far exceeds the amount protected by the voluntary use of land conservation tools.

FIGURE 6. EXTENT OF MIXED PUBLIC-PRIVATE PROTECTED AREAS

	Designation	Area (ha) (% of country)	Area protected by voluntary means (ha)
Brazil	Area of Environmental Protection, etc.	11,577,757	405,114
Costa Rica	Zona Reservada, Reserva Forestal, etc.	563,686 (11%)	200,000 (PSA)
Ecuador	Bosque Protector (state-designated)	2,237,183 (9%)	113,683
Paraguay	Potential Areas for Protected Area System	2,662,000 (6%)	200,952

Actual implementation of the restrictions imposed on private lands within such "mixed" areas varies by country. Although they are better enforced than the general restrictions on private lands mentioned above, the restrictions are not strongly enforced, allowing gradual degradation of the area. In Ecuador, implementation of Bosque Protectores is relatively weak, and the responsible land management authorities are often under-funded. As a consequence, many Bosque Protectores have been stripped of their vegetation by inappropriate land use. In Brazil, the regulations for the mixed public-private protected areas, such as Areas of Environmental Protection, are stronger, but many productive uses continue to be allowed. In all countries, additional protection measures for the private lands within these areas would significantly enhance the conservation benefits.

Another possible aspect of a public-private partnership for these "mixed" areas would be for governments to give priority in providing incentives and assistance to private lands within these important areas. Costa Rica pursues exactly such a course in establishing the priorities for its payments for environmental services—priority is given first to lands within public protected

areas, and then to lands recognized as private reserves. This strategy would also address concerns expressed by Latin American governments that government-sponsored incentives for private lands conservation should be allocated only to lands that have been determined to be a priority for nature conservation.

Increasing the protection of these valuable areas is arguably one of the most important challenges for private land conservation in Latin America. The government designation defines these areas to be particularly important for the conservation of natural resources and biological diversity, and also imposes conservation restrictions on all private lands within it. These areas are particularly appropriate for public-private collaboration therefore, and the private sector can contribute significantly to their conservation to both increase the effectiveness of state enforcement, and work with landowners to implement additional private land conservation measures on properties.

C. PRIVATE LANDS THAT ARE INHOLDINGS WITHIN PUBLIC PROTECTED AREAS

Private land conservation tools may also be important to conserve the private lands that remain as inholdings national parks and similar public protected areas in the region. The extent of privately owned lands in national parks varies greatly—it is only from 5 percent in Chile (and the US) and 17 percent in Costa Rica, but reaches 70 percent in Mexico.[30] In many instances, private lands have remained as inholdings for a long time, especially in countries where governments have lacked the resources to expropriate and compensate landowners for these properties.

During the interim period when the land is still private, most governments severely restrict land uses, and require that no action be taken that would degrade the natural resources of the area. Because governments lack the resources to expropriate the lands, as well as the capacity to enforce the restrictions, however, private lands conservation tools may be needed to help conserve these inholdings. Ultimately, however, a more permanent solution is needed. Preferably, the government would purchase the lands, in which case the private lands tools would have served a useful interim function in preventing incompatible uses; another option would be to redesignate the area as a managed resources reserve where private ownership could continue, in which case the private lands conservation measures would become permanent.

VII. INCENTIVES FOR PRIVATE LANDS CONSERVATION

Another important element of a private lands conservation strategy is the creation of incentives for landowners to conserve their lands. Government are able to offer two major kinds of incentives—financial incentives such as tax exemptions, and juridical incentives that increase the security of land tenure (that is, protecting the land against challenges by parties ranging from squatters to the government). The use of such incentives has however been very limited: a few countries have provided tax incentives, but only Costa Rica has provided a significant financial incentive for landowners, and most countries do not provide enhanced or even effective juridical security for protected lands. These use of juridical and economic incentives are reviewed below.

In addition to these incentives, communities are receptive to negotiated arrangements that provide economic benefits to the community in return for land conservation. Landowners can also be very receptive to non-economic incentives, which include public relations in the case of companies, and training and access to technical assistance.

A. JURIDICAL INCENTIVES

Increasing the juridical security of land through designation of the property as a private protected area was found to be a major incentive in many countries, especially in those with relatively weak judicial systems. Private landowners repeatedly expressed the hope that designation would protect them from having their land seized and given away by the state, or would support their legal actions against mining claims or unauthorized land invasions. A related incentive in some countries, is that government recognition of the property as an official private reserve creates juridical security by satisfying the owner's need to justify the socio-economic use of the lands.

Although enhancing juridical security would be a major incentive, the study found relatively few instances in which private conservation status led to greater juridical security for land. In many instances, the conservation status of land did not even lead to effective government enforcement of existing laws protecting property rights, especially those protecting against land invasion. In some cases, the government land reform agency was even the cause of the problem, in giving away land title or supporting land claims within private protected areas. Clearly, governmental recognition of the importance of private protected areas, and effective or preferential enforcement of existing laws in such areas, would be a major incentive to their creation.

Ideally, governments would not only enforce existing laws, but create improved procedures to protect the juridical security of formally protected private lands. One country that does so is Costa Rica, whose laws provides expedited judicial review in the case of invasions of land that has been designated as a private reserve.

B. ECONOMIC INCENTIVES

Economic incentives for private landowners interested in protecting their properties are still infrequently used in the region. Property tax exemptions exist in a few countries, but these are modest, and have been withdrawn in times of financial crisis. The only country in the study to offer significant economic incentives for private land conservation is Costa Rica, through its payments for environmental services of roughly $50 per hectare per year. However, given the substantial pressures on the budgets of most Latin American countries, the future of economic and tax incentives to promote private lands conservation is not promising.

The most common financial incentive is an exemption from property tax for lands participating in official private lands conservation programs. Brazil and Costa Rica currently provide such an exemption, but in Ecuador, Guatemala, and Bolivia, the exemption was once available, but has been withdrawn in the current fiscal crisis. However, because Latin American rural property taxes are traditionally very low and the tax collection systems are weak, this form of incentive has not been highly attractive to private landowners.[31] Even where the exemption exists, some owners feel obliged to continue to pay the taxes to avoid possible arbitrary actions by government land reform agencies, who may choose not to recognize the tax exemption and then impose penalties or confiscate the land.

Another potentially important incentive for NGOs is a tax exemption for lands held by non-profit foundations or similar organizations. Of the countries studied, only Costa Rica provided such an exemption, and then only if the organization was properly qualified.

Overall, the most successful financial incentive program has been Costa Rica's program involving payments for environmental services, which now covers 220,652 hectares. Through this program the government makes cash payments of roughly $50 per hectare to private landowners to conserve or sustainably manage their properties. Priority is given to owners of lands within national park boundaries and to those who have formally established private protected areas. Although this program has been highly successful in attracting the interest of private landowners, not all eligible landowners receive payments, and the contracts are limited to a term of five years, after which all landowners must renew their solicitation.

VIII. THE WAY FORWARD: MODELS FOR SUCCESS

Private lands conservation efforts can play an important role in the protection of biodiversity and sustainable use of natural resources in Latin America. Our research confirmed the strong interest of private landowners in carrying out conservation activities, and of national and international NGOs and donors in supporting these efforts. The following actions are needed to establish the fundamental legal and policy tools to effectively support private lands conservation efforts.

A. STRENGTHEN THE LEGAL FRAMEWORK FOR PRIVATE LANDS CONSERVATION

The lack of strong legal frameworks for private lands conservation is the major barrier to the increased use of private land conservation tools in the region. Although countries have made advances in this area, no country has a comprehensive framework in place. Only a few countries have passed laws authorizing the establishment of private reserves, and no country has yet enacted national legislation explicitly authorizing the use of easements for conservation purposes, or providing for independent conservation easements that can be held by land trusts.

A comprehensive legal framework for private lands conservation will have at its core strong laws authorizing the creation of conservation easements, private reserves, and conservation concessions. These three tools provide parties of different size, financial needs, and interests—large and small landowners, conservation NGOs, rural and indigenous communities, and the government—with a broad range of approaches for structuring private lands deals. Legislation authorizing such tools has been introduced in the legislatures of Chile, Costa Rica, and Ecuador.

Conservation easements. A model conservation easement law is provided in the Appendix that would authorize the establishment of easements for conservation purposes, and allow qualified organizations to hold such easements (establishing independent or "in-gross" easements). The model law also authorizes such easements to be established for perpetuity, and provides a number of enforcement and incentive mechanisms.

Private Reserves. A model private reserve law in the Appendix would authorize governments to recognize private reserves in areas of importance for biodiversity or resource conservation, either for a term of years or in perpetuity. The law requires landowner to develop an appropriate management plan and provides for monitoring and reporting requirements to ensure compliance, involving either the government or a designated third party such as a conservation NGO. It also allows private reserves to become part of the governmental protected areas system, which may help assure protection of the property against other government agency actions.

Conservation concessions. Although we do not provide a model law in this area, the legal framework should also allow authorizing concessions over public land to be made for conservation purposes to qualified NGOs. This legal tool would allow NGOs to manage public lands, either without the obligation to pay fess to the government or under financial arrangements that meet the economic needs of local communities, the government, and other relevant parties.

B. STRENGTHEN JURIDICAL SECURITY OF CONSERVATION LANDS, INCLUDING REFORM OF LAND TENURE LAWS AND IMPROVED LAW ENFORCEMENT

A number of important steps are need to assure the juridical security of private lands that are placed into conservation status:

a) First, land tenure laws need to be reformed to explicitly recognize conservation as an appropriate use of the land. Otherwise, landowners engaged in conservation may not be able to justify the socio-economic use of their land, making it difficult to defend it against invasion by squatters or potential confiscation by the government.
b) Steps should be taken to ensure that laws protecting property rights are enforced on private conservation lands, especially to protect against land invasion; governments should also implement new procedures that provide for more rapid judicial and enforcement response to violations of property rights on conservation lands.
c) Finally, governments should ensure that all governmental agencies support private lands conservation actions, including land reform, tax and planning agencies.

C. ESTABLISH ECONOMIC INCENTIVES FOR PRIVATE LANDS CONSERVATION

To the extent that it is economically feasible, countries should develop economic incentives for private individuals, NGOs, and communities to adopt private lands conservation practices. These should include property tax exemptions for lands placed in conservation status, tax exemptions for lands owned by non-profit organizations, and hopefully also payments for the environmental services provided by conservation lands. If not already established, governments should establish national environmental trust funds, with support from international development assistance, and authorize the use of such funds for private conservation activities. Other incentives include qualification for government financial or technical assistance in monitoring and managing lands for conservation. In providing incentives, priority should be given to properties that are within public protected areas, or have been granted official recognition as private conservation lands.

D. INCREASE INSTITUTIONAL CAPACITY AND FINANCIAL SUPPORT TO KEY INSTITUTIONS PROMOTING PRIVATE LAND CONSERVATION

Increased capacity needs to built in the private and public actors involved in conserving private lands, and support directed to them. In the public sector, governments need to develop capacity to authorize and monitor formal private conservation lands, and need to better integrate private lands conservation actions into their overall conservation strategies. In the private sector, conservation NGOs need greater support and capacity to fulfill their leadership role in developing private lands conservation tools, identifying private lands conservation opportunities, establishing and maintaining private conservation areas, and providing technical assistance to conservation-minded landowners.

E. ENHANCE TRAINING AND EDUCATION OPPORTUNITIES FOR PRIVATE LAND CONSERVATION

Coupled with building institutional capacity is the need to enhance training and education opportunities for the key sectors involved in private lands conservation, such as government parks agencies, conservation NGOs, and large land-holding entities such as communities. Subsequently, training should extend to other sectors involved in land transactions and enforcement, such as commercial lawyers and private sector technical experts, as well as gov-

ernmental sectors such as local registrars, and judges and prosecutors for law enforcement.

The topics and forms of training will vary depending on the institutional needs, and may range from general capacity-building to the application of detailed technical issues and procedures. Training may be provided through short courses, "train-the-trainer" and other forms of workshops, and internships, as well as formal education programs and fellowships for promising individuals dedicated to biodiversity conservation on private lands.

F. INCREASE PUBLIC-PRIVATE COLLABORATION IN THE MANAGEMENT AND CONSERVATION OF PROTECTED LANDS, AND PARTICULARLY PUBLIC-PRIVATE PROTECTED AREAS

Finally, private lands conservation efforts need to be coordinated with and integrated into public conservation strategies to be most successful. Collaboration is especially important to conserve ecosystems not represented in the public protected areas, and help support public protected areas by protecting buffer zones and conservation corridors. A conservation strategy that coordinates and integrates public and private efforts can also seek to assure that private efforts focus on areas of priority for biodiversity conservation or sustainable use.

One of the most important objectives of private land conservation is to improve the management of private lands within "mixed" public/private protected areas that regulate private land uses on designated public protected areas. Attention needs to be paid to enhancing state capacity to manage these areas and to monitor compliance on private lands, and to private actors to implement private lands conservation measures. Effective partnerships can use the respective capabilities of the public and private sectors to maximize the effectiveness of land conservation programs, as well as develop financial resources through international and national sources.

IX. CONCLUSION

There is increasing interest, momentum, and activity in the conservation NGO community and other stakeholder groups to improve private land conservation throughout Latin America. NGOs are working with governments to build adequate legal frameworks and incentives for private lands conservation, in an effort that has already succeeded in developing new policies and laws in several countries and introduced comprehensive legislation for approval in Chile, Ecuador, and Costa Rica in 2002. In several countries, efforts are being made to launch the training and public-private partnerships that are critical to the long-term success of private lands conservation in the region.With adequate funding and resources from a variety of local and international public and private sources, the conservation community—in partnership with landowners and other stakeholders—is well positioned to help complete the national legal and incentive frameworks needed to support the conservation of private lands.

PART II - COUNTRY REPORTS

I. ARGENTINA *(COUNTRY SUMMARY)*[32]

The Republic of Argentina is a federal nation in which each province has reserved its authority over natural resources. Therefore, most laws for the conservation of private lands occurs at the state level, although there are certain federal powers relevant to private lands conservation. Because of this, Argentina has an extremely varied landscape with regards to private lands conservation, with legal authorities existing only in some provinces.

A. FORMAL PRIVATE RESERVES

Several provinces have passed a protected areas law at the provincial level that authorizes the establishment of private reserves. Provincial rules are summarized in a recent book by Luis Castelli, *Conservacion De La Naturaleza En Tierras De Propiedad Privada* (2001).[33]

Buenos Aires Province: The provincial Reserve and National Park Law[34] of 1990 authorizes the creation of private nature reserves with the landowner's consent. These reserves are entered in the Land Registry so that the status will be binding upon subsequent landowners. The law provides that the reserves exist indefinitely unless a specific time period is stated, and become part of the Provincial Protected Areas System. Private landowners may receive benefits such as exemption or reduction of real estate tax for the period of the declaration, or economic assistance from the Provincial Government to help maintain the land.

Chubut Province: A recent provincial law[35] created the Provincial Natural Protected Areas System, which includes all of the current Natural Tourism Reserves and future Natural Protected Areas. The latter areas can be either public or private, but their management must follow state guidelines with an ultimate goal of conservation of biodiversity or natural or cultural resources. By landowner request, private areas can become part of the Provincial Protected Areas System. The law also anticipates fiscal and economic incentives to promote private conservation.

Misiones Province: Misiones has been one of the most active provinces in fostering the creation of private protected areas, and sixteen private reserves totaling 12,565 ha have been created over the past decade. The province also has also created 17 provincial parks totaling 128,828 ha. These protected areas are part of the Province's ambitious plan to create a Green Corridor that unites and protects the Atlantic Forest ecosystems that covers much of the province.

Misiones' provincial park and reserve law[36] classifies natural protected areas, and includes a category for private reserves that are productive units but provide for biodiversity conservation. Landowners can create a private reserve for an indeterminate period or for a term of years, but cannot change the status for 20 years, and the reserve becomes part of the provincial Natural Protected Area System. Once a management plan is approved, landowners receive a 60 percent reduction in provincial real estate tax if they do not exploit more than 30 percent of their forests, and an 80 percent reduction if the reserve is of native forest with no exploitation.[37]

Río Negro Province: In Río Negro, a provincial law[38] for protected areas that may be interpreted to apply to both public and private protected areas as long as they are managed according to provincial guidelines. If petitioned, the provincial authorities may declare land a Wildlife Refuge, and provide technical support to create a management plan. This land would then be integrated into the Provincial Natural Protected Areas System. Although the provisions are yet unused, the law also provides an avenue for fiscal and economic incentives for private land conservation, such as deferment or exemption from all or part of real estate taxes, promotion credits, technical assessment or scientific support.

Salta Province: The Provincial Protected Areas System law[39] for Salta provides for the creation of Private Nature Reserves that must last for no shorter than 20 years, and can be created to last indefinitely. Landowners can incorporate their land as Natural Monuments, Cultural Centers, Protected Landscapes, Cultural Nature Reserves, Multiple-use Nature Reserves and International Management Categories. Through special agreements these can become part of the Provincial Protected Areas System. The law anticipates tax, technical and scientific incentives encouraging private conservation. However, if the contract is broken after 20 years, the owner retroactively loses any benefits. The law also introduces the concept of payments for “environmental services” and authorizes a state government fund that will be used to protect and promote protected areas.

B. EASEMENTS

In Argentina, easements may be formed that create only personal rights that bind the current landowner, or real rights that are permanent and bind all future landowners. In addition, the province of Chubut passed a state law for protected areas in 2000 that expressly authorizes the creation of easements in favor of the provincial government. By so doing, the law potentially allows for the creation of independent or "in gross" conservation easements, although none have been registered so far. However, there has been very little use of the easement for environmental purposes in Argentina.

The only example of such an easement has been in Neuquen, where the Fundación Neuquen para la Conservación de la Naturaleza created and successfully defended an appurtenant easement created for conservation purposes. This easement was a real easement constituted for perpetuity between two properties—one owned by Fundación Neuquen and the other an adjacent property Campo de la Piedra. The easement held by the foundation severely restricted economic uses on 144 ha of the other property. The latter property was sold shortly after the easement was created, and the new owner demanded the dissolution of the easement before a Tribunal of Arbitration, arguing that the environmental easement in question had created only a personal right rather than a real property right, and therefore was extinguished when the former owner sold the property. The Tribunal has recently ruled that the easement was valid, that conservation easements were of public interest when properly constituted, and that appurtenant easements for environmental purposes can be created in Argentina with real character and for perpetuity.[40]

This represents only the second judicial defense of an easement established for conservation purposes in Latin America.

C. NGO OWNERSHIP OF LAND FOR CONSERVATION PURPOSES

A number of NGOs have been active in purchasing and protecting key conservation lands in Argentina. One of the first was Wildlife Foundation of Argentina's (FVSA) purchase of 3,243 ha to create the private Wildlife Refuge Urugua-i, next to the large Provincial Park Urugua-i in Misiones. More recently, the Conservation Land Trust has undertaken to purchase the private lands within the provincial park Reserva Natural Esteros del Ibara[41] to restore its grasslands and marshes, and so far has purchased almost 300,000 ha. This area is particularly important for mammals such as the Marsh Deer, and is possibly the most important global site for certain endangered bird species such as the Strange-tailed Tyrant and Ochre-breasted Pipit.

D. DONATIONS OF LAND TO THE NATIONAL PARK SERVICE

The first protected areas in Argentina were created in 1903 from a donation of lands of great scenic beauty in Patagonia by Perito F.P. Moreno to be preserved intact for future generations by the national government, initiating the national park system.[42] Others examples in Argentina include the recent purchase of 60,000 ha of coastal land in Santa Cruz province by the Fundación Vida Silvestre Argentina and Patagonia Land Trust, for creation of a national park,[43] and the NGO purchase and donation of 3,796 ha of Atlantic forest to the Misiones province to become the Piñalito Provincial Park in 1997.[44] Similarly, the intention of the Conservation Land Trust is to ultimately donate the vast private landholdings being purchased in the Esteros de Ibarra to the state, if the state can guarantee that the lands will be managed as a strictly protected public park.

E. INCENTIVES FOR PRIVATE LANDS CONSERVATION

Due to the economic crisis in Argentina, there are few opportunities to create economic incentives such as tax incentives for private lands conservation. The following incentives systems have been established, but are used infrequently or not at all.

Direct economic incentives: In Buenos Aires province, the provincial government has established a system to promote private conservation by providing direct economic assistance, such as maintenance and repair, for a declared reserve. The concept of *payment for environmental services* was recently introduced in the Salta province through Law No. 7107/2000. Environmental services are defined as benefits and/or advantages to society from ecosystems or natural cycles for which one can receive a payment. The Provinces of Salta and Entre Ríos have laws allowing the province to consider new stimuli to promote conservation.

Fiscal incentives: These incentives, such as tax exemptions are the most common incentives in Argentina, though effective are limited given the fairly inefficient tax system. The provinces of Buenos Aires, Chubut, Entre Ríos, Misiones, and Río Negro all have laws granting tax incentives for private conservation. In Salta, a tax exemption is granted for a maximum of 20 years, except for taxes on economic activities, which last only 10 years.

Service Incentives: Chubut Province's Rural Custody program has a system where the Provincial Tourism Organization provides technical and scientific

assistance at a landowners request and will include the private land in its tourism promotions.

F. INFORMAL PRIVATE PROTECTED AREAS

FVSA operates a voluntary program of wildlife refuges, which now covers 12 sites and 50,000 ha in Misiones (5), Chaco (1), Entre Ríos (1), Córdoba (2), San Juan (1), Santa Cruz (1), and Tierra del Fuego (1).[45] This network is composed of landowners who sign a formal Contract of Refuge with FVSA and agree to conserve natural resources as a management objective of their property, and promote the sustainable use of natural resources, education, and research. There has been reasonably good conservation of these lands, although some landowners have dropped out of the program.

II. BOLIVIA

COUNTRY PARTNER: PROTECCIÓN DEL MEDIO AMBIENTE TARIJA

SUMMARY

In Bolivia, the use of private land conservation methods is limited mainly to the creation of private reserves, which can now be formally constituted as Natural Heritage Private Reserves (NHPRs) under the Forestry Law. A few such reserves have been created by a limited number of conservation-minded owners, but the history of private reserves is not particularly encouraging, and several have failed in their purpose because their status as reserves did not protect them from illegal land colonization. However, there are successful examples of private reserves created for biodiversity conservation by environmental NGOs such as those established by *Fundacion Amigos de la Naturaleza* and *PROMETA*. Other instruments such as conservation easements have not been applied to private land conservation in Bolivia.

A national agenda to promote private land conservation includes: a) expanding the concept of private reserves defined in the Forestry Law, which currently limits the area of a reserve to a maximum of 5,000 ha; b) developing the mechanism of Private Protected Areas in the Protected Areas Law; c) applying the traditional form of easements found in the Civil Code for conservation purposes; and d) developing formal legislation supporting conservation easements.

I. IMPORTANCE OF PRIVATE CONSERVATION IN BOLIVIA

Bolivia has a high biological diversity due to its topographic characteristics, its location in the Neotropical zone, and its variety of fragile ecosystems. The nation has 1,098,581 sq km, of which 84 percent remains covered by forests, and has 15 differentiated ecoregions, of which nine are of high conservation priority based on their characteristics and general state of conservation.[46] The National System of Protected Areas has more than 60 conservation units of national, departmental, municipal and private interest, and covering approximately 19 percent of the nation. Of these, 21 protected areas covering 15 percent of the national territory (167,000 sq km) are federal and are under the administration of the National Service of Protected Areas and/or civil society organizations (NGOs, indigenous groups, etc.) through co-

administration agreements.[47] There is also approximately 228,280 ha under private protection, equivalent to 0.2 percent of the nation.[48]

II. PRIVATE MECHANISMS FOR LAND CONSERVATION

A. Historical experience with private protected areas

The first initiatives of private land conservation in Bolivia arose in the 1970's, when some private owners in the eastern region declared their properties by means of Supreme Decrees and Ministerial Resolutions. The Huancaroma Ranch in 1975, and San Rafael, Espíritu, and Yacuma ranches in 1978, were created as Wildlife Refuges; and El Porvenir, Esmeralda, El Salvador, and the Cayman ranches were created as Wild Fauna Refuges in 1988. These attempts were unable to fulfill their conservation objectives due to the difficulties of the legal and institutional framework in which they were established, and because they were isolated initiatives created at a time in which the instruments for conservation and management of natural resources, biodiversity, and protected areas, were not clearly defined. However, some of the owners of these initial areas—in spite of the failure in the first attempt—are still willing to retake the initiative as long as an adequate legal framework and economic and technical incentives exist.

B. Natural Heritage Private Reserves

At the moment, private reserves can only be created under the Forestry Law,[49] which authorizes the creation of Natural Heritage Private Reserves (NHPRs). These reserves are defined as: "voluntary ecological/conservation easements established by the owner to preserve the values or scenic beauties in his property." The owner can voluntarily define the management activities to be developed in the area through the Predial Ordering Plan (POP). Art. 13 (V) of the Forestry Law establishes that ".. the NHPRs are in the possession and dominion of the owner, are inviolable by third parties and irreversible for cause of abandonment." Importantly, the NHPR status allows an owner to fulfill the need to justify the socio-economic function of their property.

This mechanism has been created with the purpose of preserving the areas classified as protection areas under the Forestry Law (typically areas of steep slopes, poor soils, etc.).[50] Other restrictions are that NHPRs cannot have an area greater than 5,000 ha, and cannot be created for less than a 10-year term (the law does not establish a maximum term). Another limitation is that their creation under the forestry law makes it easier to protect forested lands than other kinds of ecosystems in NHPRs.

The incentives for those who create NHPRs is an exemption from payment of property and legal security taxes.[51] However, a slight financial disincentive is that use of this mechanism is subject to the duties on the transfer of real estate.

To date there are 19 areas legally recognized as NHPRs, and five that are in process of being legally recognized, almost all of them located in the Santa Cruz Department. Examples of NHPRs are PROMETA's Corbalán reserve in Tarija, and the privately owned Porvenir ranch and Refugio los Volcanes in Santa Cruz.

Some private owners who have created NHPRs on their lands point out the problem that government authorities do not give the necessary legal guarantees for protection to individuals who want to use this mechanism. In one situation, a protected property was invaded by colonists and there was no state response to dislodge the invaders. In others, the owners have continued to pay property taxes in spite of the tax exemption they are entitled under the law, for fear that nonpayment may be used by the state as an argument to confiscate their property.

Importance of legal prerequisites for the declaration of protected areas as NHPRs

In order to create an NHPR, an owner must first fulfill all the requirements of land titling under the National Service of Agrarian Reform Law (INRA), which regulates the titling of rural private properties. This creates a long and bureaucratic process before any private lands conservation measure can be used and is particularly complicated by the current effort (called a "saneamiento") to revise land titles throughout Bolivia.[52]

A first requirement of the Ley INRA is that the owners must demonstrate a valid title. Presently all rural properties in Bolivia are being subjected to a "saneamiento" process under this law that verifies compliance with the various aspects of title, including fulfillment of the socio-economic function, conciliation of possession conflicts, and certification of title. However, this process is being accomplished very slowly, and only approximately 12.6 percent of the national territory has been titled by the end of 2001. Therefore, the reason many private properties cannot be recognized as NHPRs is that they are still undergoing this titling process.

Secondly, the INRA Law states that private owners must demonstrate the socio-economic function of their property or run the risk of it being expropriated by the state.[53] The INRA Law allows the justification of the socio-economic function through conservation and biodiversity protection activities, as well as research and ecotourism. Therefore, this law recognizes that creation of a NHPR justifies the socio-economic function of the land. This provides

an important impulse for the creation of NHPRs, as it provides protection for land that is not being used and are in a natural state, against state expropriation.

Finally, the INRA Law requires that each property to have a Plan of Ordering Predial (POP), a technical instrument that defines the land use capacity, and how the socio-economic function will be fulfilled, and the land managed. The POP also defines the areas of steep slopes, watersheds, and borders of watercourses that are subject to mandatory administrative easements imposed by law that are intended to conserve those areas. All these elements are requirements that must be fulfilled before the creation of an NHPR.

C. Private Reserves under the General Regulation of Protected Areas

The Environmental Law[54] authorizes the creation of private protected areas with a more general application than the existing ones under the Forestry Law. Pursuant to this law, the General Regulation of Protected Areas authorizes the creation of private protected areas: "private protected areas are those managed and financed voluntarily by individuals that without being part of the National Service of Protected Areas, will develop their activities within the framework of the system and of the assembly of norms that regulate the subject matter."[55] Unfortunately, the specific regulation to implement this has not been issued, and so this mechanism for private conservation does not yet have practical application.

The General Regulation in its Art. 31 also promotes biodiversity conservation in buffer zones and ecological corridors that surround and connect public and private protected areas.

D. Use of Easements for Conservation Purposes

In Bolivia there are two potential instruments for creating easements for conservation purposes: the Administrative Conservation Easements created under the Forestry Law, and the traditional appurtenant easements of the Civil Code.[56]

a) Administrative Conservation Easements

The Forestry Law defines the Administrative Conservation Easements as: "Legal limitations to the rights of use and exploitation imposed on a property in regard to the conservation and sustainability of renewable natural resources." They are imposed by law and are important for biodiversity conservation because they are constituted in perpetuity, impose conditions of strict and specific protection, and do not require a dominant estate. They

must be incorporated into a POP that defines the fragile areas that are subject to these mandatory easements, such as slopes/hillsides, water bodies, windbreak curtains, etc. Similar requirements are imposed by law in other countries, but the term Administrative Easements is only used in Bolivia.

At this moment, 87,278 ha exist under protection through the Administrative Conservation Easements within private properties that have authorization of the Forestry Superintendence to undertake forestry developments. Although this mechanism cannot be used voluntarily by the owner to protect fractions of his property, it is an important instrument for the State to demand the protection of fragile or important areas for biodiversity that are located on private property, and granting as an incentive a tax exemption to owners who make use of it.

b) Voluntary appurtenant easements

Traditional easements can be applied in private land conservation on a voluntary basis. They are regulated by the Civil Code, which defines this mechanism as follows: "By virtue of the easement the owner of the rural property can, for utility or benefit, make use of someone else rural property or prevent the owner of the latter the exercise of some of its faculties."[57] Such easements require the existence of two adjacent estates of different owners in order to constitute a traditional or appurtenant easement. Their conditions and limitations can be flexible in terms of management of the area; they are perpetual or for a fixed term, are officially recorded in the registry of deeds, and enforcement can be demanded by the affected party.[58]

Despite the use of appurtenant easements for private lands protection in other countries of Latin America with a similar legal framework, they have not been used in Bolivia for the protection of important areas for biodiversity in private lands, due in part to a lack of publicity.

D. Conservation concessions

Article 26 (3) of the INRA law authorizes "To grant concessions of fiscal lands for biodiversity conservation and protection, research and ecotourism, previous certification of the INRA regarding the existing property rights in the concession areas; to modify them, to revoke them, to expire them and to establish patents for this concept." The only use of this legal instrument at the national level is one by Conservation International, an NGO that purchased a forestry concession for conservation purposes.

The slowness of the titling "saneamiento" process under the INRA law, discussed above, is the main reason why this instrument has not yet been applied--the exact location of fiscal land available to be granted under concession is currently unknown in most of the nation.

E. Land purchase by NGOs

There are some private protected areas in Bolivia that have been created by NGOs such as the Fundacion Amigos de la Naturaleza (FAN) and Protección del Medio Ambiente Tarija (PROMETA). PROMETA has purchased and established three private protected areas of 14,805 ha, including the Corbalán reserve described in a case study below.[59] FAN has also been especially active around the Amboro protected area. These NGO areas are some of the best examples of protected areas in Bolivia because the organizations have the capacity to provide funds for their constitution and protection.

Future needs

Enhancing the environment for private lands conservation requires the adequate application of the existing legal instruments, and the development of new ones:

1) Improve the definition and existing process of the NHPRs under the Forestry Law, which limit them to 5,000 ha and favors their creation on forested lands with fragile soils. The procedure for the creation of NHPRs in Bolivia is complicated and takes a long time. For this reason only those owners who have a really strong motivation will be successful in obtaining the declaration of the areas as NHPR.

2) Issue a complementary regulation for private conservation under the protected area law covering their creation, form of declaration, and form of administration and management. PROMETA has been the leader of this process and consensus has been reached with the public and private sectors that participated in the workshops on the Formulation of Policies for Private Conservation in Bolivia, and later the Instruments of Private Conservation in Bolivia, undertook in the city of Tarija, Bolivia in September of 2000 and November of 2001 respectively,[60] where a proposal of Private Protected Area was developed.[61]

3) Develop forms of private conservation that allow owners to protect their lands, but also continue economic activities such as cattle ranching. Currently, the NHPR figure can only be used for strict conservation. There is considerable demand for more flexible instruments, and in the Beni Department, private cattle ranchers owning 30,000 ha have expressed interesting in protecting their lands, but in a way that allows continued cattle ranching activities.

4) The role of the state needs to be strengthened in the creation and protection of private protected areas, including agencies such as the Forestry Superintendence, the Agrarian Superintendence, the INRA, and the National Service of Protected Areas. These institutions must be integrat-

ed and fulfill the role that has been assigned to them under applicable laws and regulations. Past experiences with private protected areas demonstrate that state support to the private owners has been minimal, that private owners did not receive adequate protection, incentives, or legal security, and that the property tax exemptions were not guaranteed with certainty.

5) Develop legislation that authorizes the use of easement for conservation purposes, and allows them to be held by the government or authorized NGOS.

CASE STUDY 1: REFUGIO LOS VOLCANES

Description

Refugio Los Volcanes is a private protected area, which the owner is trying to establish as a formal reserve. It is located near Bermejo in the Santa Cruz department in a spectacular natural setting, in a bowl of primary forest ringed by red cliffs rising 200 meters above the ground. The reserve protects a montane moist forest (yungas) of high biodiversity,[62] which is especially important as it is adjacent to and helps protect the southern part of the Amboró National Park and Integral Management Natural Area—an area of international importance for the conservation of biodiversity. The private reserve creates a conservation presence and vigilance that protects an entry point into Amboro NP & IMNA, preventing illegal use and colonization of that area.

History

In 1992, the owner, Albert Schwiening, first saw the property in an overflight and was so impressed by its natural beauty that he visited it on foot the following week. The existing owner was raising a few head of cattle on a flat spot by the river with little economic return[63] and wanted to leave, and so offered to sell it to him on the spot. Albert accepted and subsequently bought two other adjacent properties for a total of 293 ha. The present infrastructure includes two small houses, an entrance road, and three trails that allow nature study.

The owner's initial motivation to create the reserve was to own a beautiful spot for personal recreational use and conservation, although he now plans to have limited ecotourism as well. His incentives for creating an official NPPR status are largely out of personal desire to see the area conserved; secondarily, he thinks reserve status might help with ecotourism and promote scientific investigation in the area in which he has a personal interest.

Land use

The owner has initiated conservation land uses such as investigation and limited ecotourism. The land quality of Los Volcanes does not permit significant economic use, as it is composed of mostly of steep slopes greater than 25 degrees inclination (in theory, under Bolivian law such lands should be treated as "protection lands" in which development activities are limited). Also, the owner has promoted scientific investigation (the bird group Armonia hopes to establish a biological station here), and plans for environmental educational opportunities, further strengthening the understanding and protection of the region's biological resources.

Legal proceedings

Although he intends to pursue only conservation activities, the owner legally has justified the socio-economic use of his land by listing his property as a "small cattle raising property" of less than 500 ha. All property owners classified as small are exempt from property tax, as are campesino and indigenous communities.[64] Albert notes he would like to have justified the socio-economic use of the land as an area for ecotourism and investigation, but this would have meant significant bureaucratic procedures and delay, even though it is allowed under the law.[65] Seeking such an unusual justification would have meant that his simple land registration request would be forwarded to the INRA headquarters in La Paz, with consequent red tape and further delay.

The property owner has been pursuing the legal steps to have Los Volcanes established as a Natural Private Patrimony Reserve (NPPR) since 1996. The first step consists of presenting a valid legal title to the land to the Secretariat of Forestry as part of the application process. This first step has been difficult and time-consuming; although the owner has title to the land, the title has not been certified under the "saneamiento" process for all land titles in the country required by the 1996 INRA law. In 2000, an authorized representative of INRA measured the property boundaries with the participation of all neighboring property owners to establish lack of conflicts. All neighbors signed an act of conformity establishing that there were none. One of the bureaucratic difficulties of the process, for example, was that the measurement process determined that there was a half-hectare overlap with the Amboro protected area. The owner donated this half hectare to the government to speed up the process, but reports it then took two weeks to persuade INRA they did not have to then redo the entire survey!

Second, the owner hired a qualified person with a government license to do a technical proposal to establish a Plan de Ordenamiento Predial (POP), which is required of every private land-holding. The POP was presented to the Agrarian Superintendency in 2000, who gave it initial approval and passed it

to Forestry Superintendency for ultimate approval. This approval is still waiting until the "saneamiento" process is completed.

Third, and parallel to this effort for land title, the property owner initiated in 2001 the declaration of this area as NHPR before the Forestry Superintendency. To do so, the owner submitted a notarized document in which he voluntarily declares the desire to create the RPPN, and identifies the extension and limits of the property, the values to be protected, the proposed zincification and limits in the use of property, the term of years (50 years in this case), and the standards for management and vigilance in area. This declaration is also waiting for the title saneamiento process to be completed in order to proceed.

Overall, the cost of the legal procedures to establish the land title with INRA and create the Plan de Ordenamiento Predial has been $3,500.

CASE STUDY 2: EL CORBALÁN RESERVE

The El Corbalán private protected area is a NHPR of 4,500 ha of property administered by PROMETA, a conservation NGO that establishes and manages private protected areas in representative ecosystems of Bolivia, particularly in Tarija.

Description of the area

This NHPR of 4,500 ha is located in the Gran Chaco Province of the Tarija Department in the south of Bolivia. The main conservation value of the reserve is its protection of a representative sample of semi-arid Chaco,[66] an ecosystem with important genetic richness and many endemic species.[67] The reserve has lagoons of natural formation and diverse historical and archaeological values that have not yet been evaluated, such as that from the remaining original Tapiete culture and the 1932-35 Chaco conflict between Bolivia and Paraguay.

History

In 1996, PROMETA extended its work strategy to include the conservation of national biodiversity through private conservation. The objective of its work in the Chaco is to protect a representative sample of the semi-arid Chaco. This site was selected after an extensive search of properties in the Gran Chaco Province. In December of 1996, PROMETA acquired three contiguous properties of 4,500 ha in very good condition and close to the Paraguayan border, with the support of the Spanish organization CIPIE. These lands were previously used for extensive cattle grazing with low impact, so much of the area is still in a good conservation state.

PROMETA currently manages the NHPR for conservation purposes such as research, ecotourism, and environmental education.[68] The reserve has an operation center, interpretation and monitoring footpaths, two secondary monitoring camps, a coordinator and a park ranger as the personnel responsible for the reserve. However, one of the main threats of the reserve is the extensive cattle ranching that continues to be done on neighboring lands and that cannot be adequately controlled by PROMETA because it has not yet been able to fence the property.

With respect to the issue of incentives, from its purchase in 1996 to August 2001, the reserve did not receive any type of public or private incentive. At the moment only the 2,500 ha that have been recognized as NHPR benefit from the property tax exemption. In total, the legal and technical expenses for the constitution of the area as a NHPR through 2001 are $2,000.

Legal background

In 1997, PROMETA filed a request for the legal recognition of the 4,500 ha as NHPR before the Forestry Superintendent, including all of the requirements demanded by the Forestry Law. Nevertheless, despite the approval of the POP, the Forestry Superintendent did not grant legal recognition due to the lack of proper titles for 2,000 ha that comprised two of the acquired properties.

In the same year, PROMETA filed the title request, together with technical requirements such as the POP, for the whole property before INRA. PROMETA justified the socio-economic function of the land as development of strict conservation activities such as research, environmental education, and ecotourism, as authorized in the INRA law. However, in 2000 the national government postponed the titling process for all properties in the Gran Chaco Province, including the Corbalán area, and so to date the titling process is still not complete.

In June of 2001, PROMETA filed a new request before the Forestry Superintendent to obtain the recognition of the 2,500 hectares that have a proper title as a NHPR, and made a new POP. On August 22 of 2001, the Forestry Superintendent legally recognized those hectares as NHPRs through Resolution Nº 011/2001. The title search of all the property on the part of the INRA was left pending, as well as the formal legal recognition of the 2,000 ha as NHPRs.

Creation of bi-national private protected area

In April 2001, the idea of a bi-national private protected area to conserve the South American Chaco in the Corbalán area was launched by PROMETA and the Paraguayan organization IDEA. This idea was realized on July 29, 2002, when the Corbalan was linked with 4,000 ha, purchased by IDEA, in

the Infante Rivarola area located in Paraguay. Together they form El Corbalan/Cañadas El Carmen Peace Park, the first trans-frontier private protected area in the Southern Cone. This demonstration of internal cooperation is of particular importance because the 1932-35 Chaco conflict between these same countries took place in this area.

III. BRAZIL

COUNTRY PARTNER: FUNDAÇÃO O BOTICARIO DE PROTEÇÃO À NATUREZA

Brazil has a number of strong laws regarding private lands conservation that are both of a mandatory and voluntary nature. One nationwide law requires all rural property owners to protect from 20 to 80 percent of their land in natural reserves—the strongest private land protection law in the Americas, although it is only infrequently enforced. Brazil also has one of the best systems for permanently protected private reserves in Latin America, with 367 federal reserves and 192 state reserves that protect 487,231 ha. The use of easements has not been initiated in Brazil, and there are only limited incentives for private lands conservation.

I. MANDATORY CREATION OF PROTECTED AREAS ON PRIVATE LANDS

A. Legal Reserves

One of the strongest legal requirements for the conservation of private lands is a Brazilian law that requires private owners to conserve a portion of their property as a nature reserve. The first form of this legal instrument was Decree No. 23.793 of 1934, which defined the category of protected forests as preserved forest areas in private properties. In 1965, this decree was replaced by legislation that requires rural private landowners in Brazil to keep at least a certain percent of private property as a Nature Reserve, where economic uses are permitted but vegetation must be kept. Currently, the law requires protection of 50 to 80 percent in the northern regions of Brazil, 35 percent in certain cerrado regions, and 20 percent in the rest of the country.[69] Although a very strong law, it is rarely complied with, greatly reducing its effectiveness.

B. Mandatory Protection of Forests in Critical Ecosystems

Brazil also has laws that absolutely prohibit the cutting of native vegetation, such as Res. 750 that forbids the cutting of timber and other vegetation in the Atlantic Forest. Another law protects and prohibits the cutting of the Araucaria tree, found in the araucaria forests of southeastern Brazil. Enforcement of these prohibitions exists, but is sporadic at best. A study by

Conservation International reveals that lack of communication and delays among the different IBAMA offices responsible for enforcement results in a very low rate of conviction even if arrests are made for illegal activity. However, the incoming Brazilian Administration in 2003 has announced the hiring of 200 additional IBAMA personnel to strengthen enforcement.[70]

C. Conservation restrictions on private lands

As in other Latin American countries, the forests and other natural vegetation located in the following areas are considered to be of permanent preservation: the borders of rivers or any watercourse for a width of 50-300 meters, steep slopes, or those at altitudes higher than 1,800 meters.[71] Although these restrictions imposed by the Forestry Code are obligatory and very old, and most people are aware of them, they are generally not complied with, and enforcement actions have only been taken for a few properties.

D. Environmental Protection Areas and other Government Public-Private Protected Areas

The designation of "mixed" public/private protected areas is widely used in Brazil, and include: Environmental Protection Areas (APAs), Areas of Ecological Interest, Ecological Corridors, and Buffer Zones for Conservation Units.[72] Within these areas, core zones of public protected areas such as national parks may exist, but extensive private lands are also included within the area and are subject to regulation. These designations can be declared by the federal, state, or municipal government under Brazilian law, and impose significant restrictions on the private lands within them. Although the protection they offer is not strict, they greatly facilitate the enforcement of the general land conservation regulation applicable to Brazilian land, and the use of stronger voluntary initiatives for private lands protection within the designated areas.

Private lands within these public/private protected areas are subject to both the management plan created by the park service and updated by consultative councils, and certain general regulations such as one that prohibits hunting.[73] Typically, the management plans limit business uses of the land, the conversion of forests without a permit, and the subdivision of land; although it is possible under Brazilian law for regulation to totally limit economic uses of private property. Although regulations within these areas limit many land uses, enforcement is only partial. Consequently, conservation results depend largely on the management capacity of the government, together with additional private lands conservation measures taken by landowners.

The most commonly used such designation is the Environmental Protection Area (APA), which can be declared by federal, state, and municipal governments. These are fairly large areas that can include a wide range of natural or semi-natural landscapes and/or marine areas with notable biotic, esthetic, or cultural attributes that require protection in order to ensure the well-being of the human populations, conserve or improve the local ecological conditions, or preserve important natural and cultural landscapes and features. These may contain fully protected areas, so that the entire APA serves as a large landscape that acts in part as a buffer zone for these more strictly protected areas (Milano, 2002).

FIGURE 7. ENVIRONMENTAL PROTECTION AREAS (APAS) CREATED AT FEDERAL AND STATE LEVEL IN BRAZIL

	Federally designated (ha)	State designated (ha)	Total (ha)
Alagoas	8,600	19,890	28,490
Amapa		23,000	23,000
Amazonas		1,062,100	1,062,100
Bahia		256,607	256,607
Brazilia–Federal District	123,200	71,000	194,200
Ceara	5,480	32,690	38,170
Espirito Santo		18,602	18,602
Maranhao	61,000		61,000
Minas Gerais	654,317	19,050	673,367
Para	21,600	5,003,367	5,024,967
Paraiba	14,640		14,640
Parana	320,830	715,729	1,036,559
Pernambuco	2,700	23,953	26,653
Piaui		96,743	96,743
Rio Grande do Norte		98,623	98,623
Rio Grande do Sul	318,000		318,000
Rio de Janeiro	92,140	57,949	150,089
Rondonia		27,951	27,951
Santa Catarina	3,000		3,000
Sao Paulo	216,000	1,877,775	2,093,775
Sergipe		270,221	270,221
Tocantins	61,000		61,000
Total	1,902,507	9,675,250	11,577,757

Source: UNEP World Monitoring Center, Protected Area Database (2003)

The legal act creating the unit will establish the specific management objectives and use restrictions from among those in the list outlined for the category. Tourist and recreational activities are generally permitted, along with other forms of occupation and use provided that are in harmony with the specific objectives of each unit. Once declared, the government authority should then develop a management plan for the area, and establish a Deliberative or Consultative Counsel to help guide this process. The designation of a federal APA creates enforcement authority in IBAMA, which can impose fines and confiscate equipment; although, only the police can make an arrest.

Because areas within these public/private protected areas such as APAs are not subject to strict conservation, these areas serve more for regional planning than for the effective conservation of nature. Furthermore, achieving conservation is difficult in these areas, as they are frequently very extensive, with few technical criteria, insufficient human and financial resources for management, and a large number of private owners. These areas are, however, particularly appropriate for public/private collaboration in achieving the management objectives of the area, and the implementation of private land conservation tools is facilitated by the state designation.

E. Enforcement of Environmental Laws

One of the key problems in realizing the conservation potential of the above laws is their weak enforcement. It has been observed that many enforcement systems in biodiversity-rich countries are inefficient and ineffective, and therefore present a weak deterrent to violation of laws establishing environmental rules or protected area boundaries. Although Brazil devotes significant resources to IBAMA, the environmental agency, and has a unique system of Environmental Public Prosecutors, enforcement of the above rules remains weak.

Case Study 2 presents a study of illegal deforestation in southern Bahia's Atlantic forest carried out by Conservation International that examines the root causes of the failure to enforce environmental laws. The study found that despite efforts by the government, enforcement remains weak due to failures in both detection of infractions and in the ability of several state agencies to carry out the complex chain of procedures needed to impose sanctions on violators.

II. VOLUNTARY SYSTEMS OF PRIVATE LAND CONSERVATION

Brazil has a number of tools for the conservation of private lands, most notably through the creation of private reserves (RPPNs). Although interest in creating RPPNs has grown, it is still necessary to make better use of the

existing legal mechanisms and to add other instruments such as conservation easements, which are totally lacking. Also, a frequent complaint of private owners is the lack of incentives or economic support for the creation or maintenance of private protected areas.

A. Private Reserves of Natural Patrimony (RPPNs) at Federal and State Level

In 1990, a new law allowed the creation of Private Reserves of Natural Patrimony (RPPN) and started a new period for conservation of private lands in Brazil.[74] RPPNs are defined as:

> Area of private title to be especially protected, by initiative of its owner, upon recognition of the Public Power, for being deemed to be of significant importance because of its biodiversity, or of its landscape aspect, or also because of its environmental characteristics justifying recovery actions.[75]

Previously, limited forms of private reserves were able to be created pursuant to Article 6 of the Forest Code, which allowed private owners to maintain part of their properties recognized as protected areas,[76] or as "Native Animal Refuges" where hunting was prohibited.[77]

Landowners voluntarily request designation of their land as an RPPN, but once granted, the designation is permanent and cannot be changed; permitted uses in RPPNs are only for scientific investigation, and visitation for touristic, recreation or education objectives.[78] Designation of an RPPN provides the landowner a number of limited incentives, including an exemption from rural property tax, and for institutional owners of RPPNs, access to funding from the National Environmental Fund, although few make use of this access in practice.

Currently, according to IBAMA, 367 RPPNs were created in the Brazilian territory by 2002, totaling 405,114 ha of protected private lands.[79] State laws have also been passed in Mato Grosso do Sul, Paraná, Pernambuco and Minas Gerais authorizing the creation of RPPNs at the state level.[80] Collectively 192 state reserves have been created covering 82,117 ha. However, many of these state reserves are quite small—averaging 170 hectares in Paraná, which is far too small to successfully conserve species over the long term.[81]

FIGURE 8. NUMBER OF FEDERAL AND STATE PRIVATE RESERVES (RPPNS) IN BRAZIL IN 2002

	Year law enacted	Number	Hectares	Average size
Federal RPPN		367	405,114	1,104
Mato Grosso do Sul		12	46,653	3,887
Paraná		154	26,151	170
Pernambuco		3	147	49
Minas Gerais		23	9,143	398

Source: Fundação O Boticario de Proteção à Natureza (drawing on IBAMA data).

Generally, there are three classes of persons interested in creating RPPNs: individual property owners, NGOs, and private firms. Individual property owners tend to have inadequate resources to support infrastructure, staff, or the creation of an adequate management plan. NGOs have the greatest understanding and often their areas are priority areas purchased for conservation purposes with external assistance. Private firms can own large areas, and may create reserves to link the name of the firm with a commitment to environmental conservation.

A number of the successful RPPNs and similar reserves have been established with a significant relationship to ecotourism, as shown in the case studies below.

The *Vagafogo Wildlife Sanctuary* in the state of Goiás was one of the first six RPPNs created in Brazil, in 1992. The owners of Vagafogo farm, with 46 hectares, signed a partnership with the Fundação Pró-Natureza to protected 17 ha. in an form of RPPN in order to preserve cerrado, dry forests and riparian forests. The reserve has a management plan, an infrastructure including a visitor center and accommodation, and attracts 11,000 visitors a year. The Sanctuary also has an instituted environmental education program which finances researchers and provides education to the communities surrounding the reserve. Currently the reserve's maintenance costs are covered by the resources deriving from visitor fees and the sale of meals and farm products, assuring economical sustainability without affecting the integrity of the RPPN.

The *Una Ecopark* is a 383 ha. RPPN located in Bahia, and was created in 1999 by the Instituto de Estudos Sócio Ambientais da Bahia with financial support from Conservation International. It is situated in one of the most important fragments of Brazil's Atlantic Forest for biodiversity, and its goal is to demonstrate that ecotourism is an economically viable alternative to timber extraction. The Ecopark receives an average of 3,200 visitors annually who are attended by local interpretive guides and visit a forest canopy walkway; the

fee charged the visitors covers a major part of the area's operating costs. The Ecopark's location in the buffer zone of the Una Biological Preserve also contributes to the preservation of this ecologically rich public protected area. Scientific research carried out at the park includes a floristic inventory and plant sociology study of the Ecopark and neighboring Una Biological Preserve, carried out by the Comissão Executiva do Plano da Lavoura Cacaueira Herbarium and the New York Botanical Garden.

Finally, the *Linhares Natural Reserve* is not an RPPN, but is part of a World Heritage Site declared by UNESCO. It consists of 22,000 ha. of forest land owned by the Companhia Vale do Rio Doce (CVRD), a large mining company.[82] The company originally bought the land in the 1950s and 1960s to provide timber for rail-ties its railroad, but fortunately, never cut the trees for this purpose. Then, as conservation awareness grew in Brazil, the company decided to protect the land as one of the last and most significant remnants of the Atlantic Forest ecosystem in the state of Espírito Santo. In 1973 the firm signed an agreement with the Ministry of Mines and Energy for the first forestry research project based on local species, and in 1978, initiated a policy to protect the area, with an emphasis on forestry research and environmental stewardship.

CVRD has invested an estimated $14 million in land purchase, infrastructure and operations, and the reserve has an extensive infrastructure, visitation facilities, and a professional administration. The master plan designates 45 percent of the Reserve as primitive areas, and restricts use in 85 percent of the area. The reserve is very well protected, with boundaries patrolled by 20 guards, and contains populations of critically endangered species that have been extirpated elsewhere. It is one of the largest national study and research centers for the preservation and recuperation of the Atlantic Forest, and a portion of the land is dedicated to large nurseries to propagate 800 Atlantic Forest tree species. The seedlings produced are sold or used for the recuperation of degraded areas and for urban tree-planting programs, which generates income for the reserve along with the tourism infrastructure.

Informal Private Protected Areas

Many landowners in Brazil protect their land informally as private protected areas. One of the first initiatives in the country to promote and support such initiatives was the Program of Wildlife Sanctuaries, created in 1987 by the NGO FUNATURA. This Program, which is still in effect, has the purpose of assisting landowners in managing their areas, which may vary greatly in conservation uses. The program also promotes the concept of protecting private lands to gain greater conservation of natural ecosystems, especially in the cerrado, where FUNATURA has acted more intensively. This pioneering

program been innovative, and achieved some successes although not all landowners have continued with protective measures over their lands.

Another informal mechanism used by some landowners in Brazil is recordation of their lands in the registry office as being for conservation purposes. However, there is no legal effect of this designation, nor any official compilation of the extent of these lands.

Easements

Article 695 of the Civil Code provides: "An easement is imposed by one property over another pertaining to a different owner. Through the easement, the owner of the servient estate loses the exercise of some of its property rights, or becomes obliged to allow the use by the owner of the dominant estate for certain purposes." As with other Latin American countries, this civil law provision for appurtenant easements may be adapted for conservation purposes. However, there have been no such uses of traditional easements for conservation purposes in Brazil.

Servidão florestal

A new legal instrument has been created under a transitory law[83] that allows a landowner to establish a "servidão florestal" to strictly protect any portion of their lands not already contained within the Legal Reserve or any Permanent Preservation areas on their property. Within this area the landowner gives up the right of "suppression or exploitation of the native vegetation." The law also provides for establishment of a Flora Reserve Quota on private lands that is made up of the areas within a servidão florestal, RPPN, and any portion of the Legal Reserve area that is in addition to the minimum percentage required by law. Once certified by a government environmental agency, the amount of land in the quota can then be traded to other landowners who need to protect additional land to satisfy their requirements for the Legal Reserve, provided the two lands represent the same ecosystem and are situated in the same river basin.

The servidão is a real right that protects land on a permanent or temporary basis, is registered in the land registry, and cannot be altered during the period of its validity. The area covered by the servidao florestal is also exempt from payment of the Rural Land Tax (ITR). There is no legal impediment to prevent the development of recreational and ecotourism activities, provided that these are compatible with the conservation of natural resources. However, this mechanism is still very recent, and so there is no clear definition as to how it will actually work in the country.

This servidão binds future landowners, and is especially interesting because it can be held by non-adjacent landowners that are located within the same river basin, similar to the "in-gross" form of conservation easement. It also raises the possibility that an independent entity such as a conservation NGO could pay for and own the servidao. A significant feature of this device is that it could protect lands particularly important for conservation, such as areas next to public parks or those that form conservation corridors, in exchange for lesser protection of other properties.

Real concession of use

A potential law, which have never been used for conservation purposes, is the *concession of use of public or private lands*, created in 1967 as a real resolvable right that may be either paid or free, and for either a limited or indeterminate time.[84] This concession must be inscribed in the real estate registry, and the concessionaire, which may be an NGO or government entity, may then use the land for the purposes established in the contract. There does not need to be a dominant and servient estate, as is the case with easements in Brazil. The concession can, however, be terminated before its term if the concessionaire uses the real estate differently from that established in the contract. In theory, this type of concession could be used to achieve many of the objectives of an ecological easement, as the contract could contain clauses that make the concession relate to the conservation of the natural resources and fauna and flora of the property. However, the concession document would likely need to state that the concession rights bind future heirs and successors, and the enforceability of such a clause is not clear.[85]

Incentives

Exemption from Property Tax for RPPNs

Owners of RPPNs may obtain a rural property tax exemption from the National Institute of Colonization and Agrarian Reform (Instituto Nacional de Colonização e Reforma Agrária), as they become part of the National Protected Areas System of the Environment (SISNAMA).

Ecological Sales Tax(ICM)

Some Brazilian states use a portion of sales tax revenues (called Imposto sobre Circulação de Mercadorias e Serviços or ICMS) for ecological purposes, creating a unique tax incentive. All states receive a portion of the ICMS revenues, and some states designate part of their income to municipalities who

support RPPNs and other protected areas, as a form of payment for environmental services. This use of "Ecological ICM" revenues creates an economic incentive for municipalities to promote the creation of conservation areas within their jurisdiction.

The state of Paraná instituted the first Ecological ICM, which consists of the distribution of 5 percent of the state's share of the sales tax to municipalities for protected areas. In 2002 and 2003 the municipalities in this state received R$1.4 million annually (US$ 460 million), and the ecological ICMS means that five percent of that amount, or US$23 million/year, was distributed among the municipalities of the state that maintain public or private units of conservation.

The first state after Paraná to implement the Ecological ICM, was the State of Sao Paulo, which designates 0.5 percent of financial resources for areas of environmental protection, but only for state conservation units, and not protected areas managed by other levels of government, or private reserves such as RPPNs.[86] Rondonia is also using an Ecological ICM in a way similar to that of Paraná,[87] devoting 5 percent of the state's revenue to municipalities for support of private and public protected areas. The Rondonian law is different in that it provides for the reduction of the Ecological ICM to municipalities whose units of conservation suffer invasions or other types of degradation, which in Paraná is treated only by way of complementary regulations. The creation of the Ecological ICM in Rondônia has great importance, because it opens the possibility for the use of that system of incentives in the states of the northern region. Today, similar laws exist in Rio Grande do Sul[88] and Minas Gerais.

A noteworthy aspect of this device is that the state government controls the tax revenues, and so has the power to control the flow of funds to the municipalities. The state can therefore decide what protected areas to support, and can also allocate funds depending on the effectiveness and quality of the conservation actions taken. The strength of this incentive is shown by the 154 RPPNs in Paraná state, which allocates funding to municipalities for private protected areas, but only 10 in Sao Paulo, which does not include private protected areas.

Other Incentives—Access to the National Environmental Fund

The Decree establishing RPPNs contemplates that the property owners can solicit cooperation from environmental entities registered in the Cadastro Nacional de Entidades Ambientalistas, maintained by the Conselho Nacional del Meio Ambiente (CONAM), but few organizations have the capacity or finances to assume this obligation. Another incentive is the priority given to such projects with the National Environmental Fund, but this is little used for

two reasons: first, this Fund only supports legally constituted entities, and not individuals, which excludes many private landowners; and second, the technical difficulty for private property owners to develop a successful proposal.

Networks of Private Reserves

The first experience of creating a network of private reserves in Brazil was the National Network of Private Properties (RENAPP), the purpose of which was to join efforts, contribute to the exchange of information, and strengthen capacity. As a result of internal problems, this network never worked as it should have, and was subsequently closed down.

In some Brazilian states, networks have been created to strengthen capacity and share information among private protected area owners. The first was in 1997, when private reserve owners in the state of Rio de Janeiro met and founded the Associação dos Proprietários de Propriedades do Patrimônio Natural do Estado do Rio de Janeiro, with the objective of helping the creation of new areas, and develop partnerships and funding sources. Similar associations have since been created in Bahia, Paraná, São Paulo, Mato Grosso do Sul and a number of other states.

Future Needs

New law authorizing conservation easements. Develop a general law at the federal level that promotes private land conservation and creates a national legal basis for the establishment of both appurtenant and in gross easements for conservation purposes.

New law authorizing conservation concessions. A new law or regulation, or revision of the 1967 law regarding real concession of use, is needed to clarify that concession of public land may be made for conservation purposes, and establishing the procedures to do so.

Improved enforcement of environmental protective provisions on private lands. Enforcement. Improvements in the enforcement of private land conservation laws are needed in a number of key areas, notably the lack of adequate budgets, clarification of jurisdictional issues, greatly simplified procedures, and improved training and capacity of key personnel

CASE STUDY 1—GUARAQUEÇABA ENVIRONMENTAL PROTECTION AREA AND SALTO MORATO RPPN

The Guaraqueçaba Environmental Protection Area (APA) is a large 314,400 ha protected area created by federal decree in 1985[89] that covers both private and public lands in Paraná state. The area encompasses forested coastal mountains and plains, islands with restringa vegetation, and mangrove swamps. It also contains approximately 10,000 people in a number of small communities, together with the town of Guaraqueçaba. This APA and the surrounding region is biologically important because it remains 90 percent forested and represents one of the last large remnants of the Atlantic Forest and associated ecosystems.

The APA of Guaraqueçaba is composed of a mosaic of public and private lands. Two strictly protected public areas form a core area that covers roughly 25 percent of the APA, the Superagüi National Park of 70,000 ha, and the Guaraqueçaba Ecological Station of 13,638 ha. There are also several private protected areas principally operated by environmental NGOs. Most of the remaining land is privately owned, which are subject to significant restrictions on potential land uses due to the designation of the APA. All these categories of land, the influence of the APA, and other private lands laws on their conservation and use, are described below.

Public Protected Areas

The infrastructure of the Guaraqueçaba APA, shared with the Guaraqueçaba Ecological Station and the Superagüi National Park, consists of an administrative headquarters with three to four staff. There are also accommodations for researchers, a visitors' center, one surveillance post on Rabelo island, three cars, and 10 boats. Although 17 years have passed since the area's creation, few official management actions have been put into effect.

At present, to improve management and comply with the legal requirements, the creation of a deliberative council for the APA is under discussion. This council acts as an intermediary between the public authorities and organized civil society. The process of defining and implementing a Council for an APA has been difficult in light of the need to define an adequate process to select representative members from amongst local communities and other interested parties, and to define procedures for the Council that will allow the collective interest and not the individual interests of the representatives to prevail.

Private Protected Areas

Because the land use restriction imposed by the designation of an APA does not require strict conservation, several NGO initiatives within the APA have been taken to create strictly protected private lands. The Fundação O Boticário de Proteção à Natureza has created the Salto Morato Natural Preserve, a 2,340 ha RPPN, and the NGO SPVS has purchased two privately protected areas with support from The Nature Conservancy, the Guaraqueçaba Climate Action Project of 7,000 ha, and the Atlantic Rainforest Restoration Project of 12,000 ha. In addition, there is the small Amadeu RPPN of 500 ha created for ecotourism purposes by a local hotel-owner, who operates boat trips to this area as an attraction to his guests.

The **Salto Morato Natural Preserve** was inaugurated in 1996 by the NGO *Fundação O Boticário de Proteção à Natureza* as a first step in its objective of conserving a well-managed private reserve in each of Brazil's principal ecosystems. This reserve now protects 2,340 ha of Atlantic Forest, one of the world's most threatened ecosystems. The only activities allowed in the Reserve are related to its four goals: conservation of biological diversity, research, environmental education, and open-air recreation. The infrastructure includes a visitors' center; a research center with accommodations for researchers, trainees or volunteers; housing for administration and guests; interpretative trails; camping and picnic areas; maintenance facilities; and an open-air amphitheater.

The annual budget for operations is $50,000 plus any capital needs, which is partly covered by annual earnings of $12,000 from visitation fees (R3) and facility rentals; the Foundation hopes to increase these revenues to cover basic administrative costs. The Foundation has invested $1.8 million in the reserve through 2002, including $ 300,000 from The Nature Conservancy for the acquisition of the area, and $1.5 million for infrastructure, personnel and maintenance contributed principally by the *O Boticário* company, which allocates 1 percent of its profits annually to the *Fundação O Boticário*.[90]

More than 50,000 people have visited the reserve, including 125 school and university groups for practical classes. Approximately 8,000 people visited the reserve in 2002, which is well below its carrying capacity of 25,000. Visitation is carefully controlled, and visitors have access to only 2-3 percent of reserve lands unless accompanied by a guide. In addition to visitors, research in the area is ongoing and has resulted in four doctorate theses, four masters dissertations and several other graduate studies.

The Reserve also has volunteer, training, and professional development programs. The volunteer program began in 1996, and over 150 volunteers from seven countries including Germany, Australia, Brazil, Denmark, United States, France, and Switzerland have contributed to the reserve. The training

program focuses on developing skills needed for the management of conservation units, and 33 students have now been trained in biology, forestry, and other disciplines. A Skills Acquisition Center for Biodiversity Conservation was inaugurated in 1998 at the Salto Morato Natural Reserve with resources from the Brazilian Biodiversity Fund (FUNBIO). It offers professionals a diversity of courses such as management of protected natural areas, environmental education in conservation units, training of park guards, inventory and evaluation of biodiversity, and workshops offered to the inhabitants of the village of Morato. Up to the present day, around 40 courses have been held with in excess of 1000 participants from all Brazilian states.

The Salto Morato Natural Reserve also implements programs to provide benefits to the communities surrounding the reserve, especially the adjacent village of Morato. This aims to create economic livelihoods that are not dependant on the illegal extraction of palmito, historically the major source of income for many families in the area. The program has the participation of 33 families that create handicrafts in a Craftsmen's Association, with some products sold to the *O Boticário* company.

Reserves for Sequestration of Carbon Managed by Society for Wildlife Research and Environmental Education (SPVS)

Two other areas in the Guaraqueçaba APA are subject to long-term protection pursuant to contracts to maintain them as areas for sequestering carbon. The Society for Wildlife Research and Environmental Education (SPVS) has purchased and manages two such properties in its Program for Action Against Global Warming[91]—the Guaraqueçaba Climate Action Project of 7,000 ha and the Atlantic Rainforest Restoration Project of 12,000 ha. The funding for these projects, plus another smaller one just outside the APA, has been provided by three large U.S. companies through The Nature Conservancy, totaling $5 million for land acquisition and $13 million for management and creation of a permanent trust fund.[92] These projects, initiated in 2000 and 2001, are among the first carbon sequestration projects in all Brazil.

SPVS's project intends to combat global warming by restoring the degraded areas within these areas, and then conserving the Atlantic Forest within them. In their program they expect to provide greater local employment and income benefits to local communities than the prior land use, which was principally buffalo ranching. The project will remove 2.5 million tons of carbon from the atmosphere over 40 years, by reforesting degraded areas, after which the trust fund would provide ongoing management funding for conservation of the areas.

Private Commercial Properties within the APA

Most of the land within the APA continues to be private commercial properties, almost all of which are forested. Prior to the declaration of the APA, a land war raged in the area with large landowners attempting to purchase or assume small parcels to create large zones for the extraction of palm heart (palmito),[93] timber, and other agricultural products. The declaration of the APA had a significant effect on these properties as the extraction of palmito and other timber from the forest was prohibited, and other activities became subject to a management plan and regulatory oversight. Property prices dropped significantly except for areas next to the road, and the land war ended due to the greatly diminished economic potential of property.

A review of the lands adjacent to the Salto Morato RPPN indicate that relatively large expanses of land are subject to sustainable economic uses that preserve the forest, due principally to the declaration of the APA and the relative inaccessibility of the area.

- Property A–66,000 ha. The main economic use was formerly the managed extraction of palmito. Still today, this company's property boundaries are constantly patrolled by three armed guards to prevent illegal cutting of palmito, which requires seven years to mature to the size it can be harvested.
- Property B–10,000 ha. An individual raises buffalo near the road on 800 ha. and is beginning a program to grow palmito in a plantation in some other areas.
- Property C–8 ha. An individual raises horses.
- Property D–1,000 ha. Now abandoned, formerly partly in pasture.
- Property E–12,000 ha. Small areas for raising buffalo.
- Property F–15,000 ha. Corporate owned. Originally palmito extraction, now none.
- Property G–20,000 ha. Corporate owned, with a caretaker. No economic uses.
- Property H–15,000 ha. Company is rented the land to a Catholic NGO that intends to plant palmito as a community development project.
- Property I–3,000 ha. No use, owned by an absentee individual owner.
- Property J–4,000 ha. No use, owned by an absentee individual owner.
- Property K–700 ha. Owned by a local family, planting palmito.

Overall, over a 100,000 ha of forested lands either have little or no economic use, which contributes significantly to the maintenance of the conservation values of the APA.

CASE STUDY 2—ENFORCEMENT OF CONSERVATION RESTRICTIONS IN THE ATLANTIC RAINFOREST

Conservation International conducted one of the few studies that has examined the root causes of the failure to enforce environmental laws, such as those that require landowners to protect forests on their private land, by studying enforcement of illegal deforestation in southern Bahia's Atlantic forest.[94] The study found that despite efforts by the government, enforcement of environmental laws was weak because of failures in both detection and in the chain of procedures needed to impose sanctions on violators.

In the region of study, the following enforcement chain is needed to convict a violator:

1. Detection of the violation;
2. Citation including all appropriate data on the infraction and the violator;
3. Processing of the case by the local office of the federal environmental agency IBAMA;
4. Processing of the case by the regional office of IBAMA;
5. IBAMA makes a notification of the fine to the violator;
6. If the violator appeals the fine, a judicial process is started, and the citation must be sent from IBAMA to the Federal Prosecutor's Office.
7. Prosecution and trial leading to conviction.

The study found that not only was the probability of detection generally low, but that jurisdictional confusion, convoluted procedures, and a general lack of capacity create a situation in which citations can take years to reach the prosecutor handling the case. The elaborate and unnecessary procedure in which cases travel through six offices in three cities from the citation phase to the prosecution phase lends significantly to overall weakness of enforcement. A further problem was the scarcity of prosecutors and judges, especially in remote areas with the most forest. Many municipalities of high ecological importance, for example, have no permanent public prosecutor.

Overall, common problems were found to be: cases must pass through so many offices and travel so much distance they are often 'lost', either accidentally or purposefully before they get to the prosecution phase; bureaucratic delays in every office that the citation passes can take so long that cases often reach the public prosecutor with appropriate jurisdiction only after the statute of limitations for the crime has been exceeded; jurisdictional confusion exists with several state agencies being involved; citations are often poorly filled out or contain low quality evidence, and inhibit a prosecutor's ability to build a

strong case; and if the case was tried, the lack of familiarity of prosecutors and judges in environmental laws could result in a lack of conviction.

The study concludes that weaknesses exist in virtually every step of the enforcement system. Low probabilities of detection, prosecution, and conviction, combined with inappropriate fines and lengthy processing times result in an enforcement system that is weak, and that provides an inadequate disincentive to the commission of environmental crime. The study concludes by stressing that improvements were needed in a number of key areas, notably the lack of adequate budgets, clarification of jurisdictional issues, greatly simplified procedures, and improved training and capacity of key personnel. It cautioned that improving only one area, such as providing more personnel to improve detection, might do little to increase enforcement without improvement in other areas.

III. CANADA

COUNTRY SUMMARY[95]

In Canada, the federal and provincial governments share responsibility for protected areas in a federal system, and these governments have created many public protected areas, dating from the 19th century.[96] One reason for the emphasis on government-protected areas is the most land in Canada is publicly owned—more than 90 percent of the land in many provinces (British Columbia, Quebec, Newfoundland and Labrador) and the northern territories.[97] An interesting consequence of this scarcity of private land is that a number of provinces have laws that place strict limits on the right of foreign or non-provincial entities to own land, to 20 acres or less.[98]

Notwithstanding the emphasis on public land protection, recently private lands conservation instruments have begun to be more widely used. In 1990, the Canadian Government developed the *Green Plan* with the objective of increasing the total area protected to 12 percent of Canada's land.[99] However, given the cost of managing existing public protected areas, it became evident that there would not be enough public money to achieve this ambitious goal through traditional means. Rather than abandon the *Green Plan*, NGOs proposed that Canada achieve part of the goal at a lower cost through public-private partnerships, including tax incentives that promote private lands conservation. The next decade witnessed a growth in private sector land conservation efforts, a growing land trust movement, and partnerships with various levels of government to create better legal mechanisms and financial incentives to conserve private lands.

Initially, these private land conservation efforts were constrained by the land laws, tax systems, and land use planning policies of individual provinces or territories. As a consequence, as late as 1995, the two main habitat protection tools in Canada were outright acquisition by government or the private sector and short-term (5-10 year) leases. Informal agreements with private landowners were also used with some frequency. However, effective legal tools for private lands conservation began to be developed and implemented in the 1990s, as described below.

A. GROWTH IN THE USE OF CONSERVATION EASEMENTS

Until recently, Canadian provinces did not have laws authorizing easements for conservation purposes. Without such laws, only common law easements and restrictive covenants could be used, which were limited in their application for conservation purposes. Common law or appurtenant ease-

ments could only be made between two adjoining estates, required the easement holder to benefit from the agreement, and limited enforcement to the landowner holding the easement. Such requirements limited the kinds of obligations that could be imposed, virtually excluded conservation organizations from holding or enforcing easements, and were vulnerable because they were not supported by statute.

In the early 1990s, some provinces and territories began to adopt laws authorizing conservation easements in their legislature, beginning with British Columbia's *Land Title Act*, the Yukon's *Environment Act*, Manitoba's *Heritage Resources Act*, Ontario's *Conservation Land Act* and Nova Scotia's *Conservation Easements Act*. However, some of these initial laws failed to adequately protect natural areas because they generally targeted heritage or historic sites, and allowed only government agencies to hold the agreements.[100]

Due in part to lobbying by NGOs and individual landowners, municipalities, provinces, and eventually the Crown began to support legislative amendments authorizing independent or "in gross" conservation easements. A series of amendments were then passed to the provincial laws, based to an extent on the U.S. *Uniform Conservation Easement Act*,[101] that allowed easements for the conservation of natural lands to be held by NGOs and government agencies in perpetuity. Today, every province and territory except Quebec,[102] Newfoundland, Labrador, Nunavut, and the Northwest Territories has conservation easement legislation. These laws provide a sound and enforceable basis for conservation easements in much of Canada.

B. INCENTIVES THROUGH THE INCOME TAX ACT

Federal tax reform to provide incentives for private lands conservation has faced greater resistance from the federal government than other legislative reforms, due to its economic consequences. However, a series of laws have been passed that significantly improve tax incentives for private lands conservation over the past few years.

Federal income tax legislation allows a tax credit from land donated to the Crown to be used against 100 percent of a donor's annual income. However, until 1995, land donations to municipalities and registered NGOs could only be used against 20 percent of the donor's income.[103] Even with six years to use the tax credit, the donor might not be able to use its full value. By differentiating between donations to the Crown and donations to conservation organizations and municipalities, federal income tax legislation created a disincentive to donate land to the latter groups at a time when the Crown was struggling to meet management costs of its protected areas.

Private sector publications about the inequities of the tax system such as *You Can't Give It Away: Tax Aspects of Ecologically Sensitive Lands (1992)* called for the removal of disincentives to conservation land donations. As a result of the mobilization of NGOs, corporations, municipalities, and provinces, the Income Tax Act was amended in 1995 by the Ecological Gifts program that promoted the donation of ecologically sensitive lands and easements for conservation objectives,[104] and established a standard way of assessing their values. Many provinces also provide provincial tax incentives for land conservation, which occasionally include property tax incentives.[105] The Income Tax Act and its Ecological Gifts program further provide for the ongoing protection of lands under the program through penalty provisions that impose a tax penalty on unapproved land use changes or dispositions of land or easements.

C. IMPLEMENTING PRIVATE LANDS CONSERVATION

Passage of an improved legal framework has led to increased activity in private lands conservation. Between 1997 and 2000, private entities made over 165 ecological gifts worth over CAN$25 million in eight provinces protecting over 14,000 ha of land. Increasing capacity is represented by the over 136 non-governmental organizations that are now registered to receive ecological gifts.[106]

The Nature Conservancy Canada is the only national charity dedicated to the preservation of ecologically sensitive lands through acquisition and conservation easements. Since 1962, NCC has secured the protection of more than 1,200 properties and a total of 721,000 ha. Historically, because of inadequate laws and incentives, NCC relied principally on government agencies to own and manage the properties it secured. With the growth of private reserves, conservation easement laws, and changes in incentives, NCC began to retain ownership and stewardship responsibilities and now owns 150 sites, which it independently monitors together with its easement holdings.[107]

IV. CHILE

COUNTRY PARTNER: COMITÉ NACIONAL PRO DEFENSA DE LA FLORA Y DE LA FAUNA

While there is a movement for private land conservation in Chile today, adequate legal tools have not been developed to fully support private lands initiatives. Although the 1994 Environmental Framework Law authorizes the creation of private protected areas for conservation purposes, regulations have not been promulgated to implement this provision until June of 2003. Likewise, use of easements for conservation purposes is limited to the general civil law norms for appurtenant easements between adjoining properties, limiting the use of this tool for private lands conservation. The few legally protected private areas have been created under a variety of statutes that allow the limited protection of properties as nature sanctuaries, sites of scientific interest, tourist attractions, and the like.

A noteworthy aspect of private lands conservation in Chile, and one that is virtually lacking in other Latin American countries, has been "limited development" projects that mix conservation and limited real estate development objectives. In these projects, a group of interested people or a company buys land and protects most of it while allowing limited development, such as building vacation homes, on the remaining portion. There is considerable variety however as to the restrictions placed on the development, as well as on the level and duration of protection among different projects.

I. INTRODUCTION

The conservation of private lands is particularly important in Chile because the vast majority, or roughly 80 percent, of Chilean continental territory is privately owned. Private lands conservation is especially important for the conservation of ecosystems in the central and northern parts of Chile, where almost all land is privately owned. Public protected areas in the National System of Protected Areas (SNASPE) are concentrated in the south, cover only about 3 percent of the northern part of the country,[108] and only 1 percent of the central Mediterranean part (regions IV to VIII), which is considered a global priority for biodiversity conservation. Overall, of the 85 vegetation sub-divisions in Chile,[109] 22 percent lack any representation in the

SNASPE, and half of those represented have less than 5 percent of their area protected, which is inadequate to maintain evolutionary processes and genetic diversity.[110]

Another problem is that public protected areas in the under-represented central and northern parts of the country are usually small and fragmented, and lack biological corridors, affecting the viability of many species' populations. There is also a lack of technical and financial support for the SNASPE —only 47 percent of the 94 protected areas have a management plan in place, and only 64 have permanent park rangers on staff. These limitations of the public system of protected areas, coupled with the predominance of private lands in Chile's important ecosystems, calls for increased cooperation between the public and private sector and a mixed public-private strategy to achieve the goal of adequate and effective *in situ* biodiversity conservation of all of Chile's ecosystems.

II. LEGAL TOOLS FOR PRIVATE LANDS CONSERVATION

In Chile, the creation of conservation areas by private parties is a recent trend, resulting from the increased environmental awareness among private landowners.[111] While only two or three private protected areas are known to have been established during the late 1980s, an increasing number of private lands conservation projects occurred in the 1990s. During this decade, the non-profit group, *Comité Nacional Pro Defensa de la Fauna y Flora* (CODEFF), played a major role in raising awareness and in developing principles, practices, and guidelines to promote private land conservation. In 1997, CODEFF established the Network of Private Protected Areas (RAPP),which included 31 formal and informal protected areas in 1997, and in 2002, has 110 members with 133 such properties conserving more than 400,000 ha of land.

From the table it is evident that private lands conservation efforts in Chile are scattered among the different regions of the country, as they reflect the priorities of individual landowners rather than a national conservation priority. Like the state protected area system, land in the important Mediterranean ecosystem of regions IV to VIII is under-represented in these efforts, and properties in the scenic Lake District are over-represented.

FIGURE 9. PUBLIC AND PRIVATE PROTECTED AREAS IN CHILE

Region	*Area (ha)*	*Public protected areas*		*Privately protected areas (2002)*	
		Number	*Area (ha)*	*Number*	*Area (ha)*
I Tarapacá	5,878,560	5	633,706	0	0
II Antofagasta	12,525,330	4	345,272	0	0
III Atacama	7,470,470	3	148,544	0	0
IV Coquimbo	4,065,630	4	15,175	2	1
V Valparaíso	1,639,613	7	44,494	10	4,090
Metropolitana	1,554,940	2	13,194	5	9,654
VI O'Higgins	1,645,630	3	46,460	10	31,082
VII Maule	3,066,150	7	18,669	18	7,201
VIII Bio bio	3,693,930	5	84,359	17	13,739
IX Araucanía	3,194,640	13	296,732	16	2,087
X Los Lagos	6,824,670	13	606,557	37	303,426
XI Aisén	10,899,717	17	4,288,656	17	5,152
XII Magallanes	13,203,350	11	7,581,753	1	120
Chile	**71,972,394**	**94**	**14,123,571**	**133**	**376,552**

Sources: CODEFF, 2003 (unpublished data); Corcuera, 2002; CODEFF, 2001. Boletín Nº 6 RAPP, Red de Areas Protegidas Privadas CODEFF - WWF, July 2001.

An analysis of the primary categories of private lands conservation and the percentage of the total number of private land initiatives within each category shows the relative importance of the limited development initiatives such as conservation communities and eco-real estate projects.

FIGURE 10. TYPES OF PRIVATE LANDS CONSERVATION INITIATIVES IN CHILE

Category	Percentage
Individual Private Protected areas (formal or informal)	38%
Land Donations to the National Park System	7%
Conservation Communities	25%
Eco-Real Estate and Ecotourism Projects	22%
Private Conservation Concessions on Government Lands	7%

Source: Corcuera, 2002.[112]

As can be seen from the data above, private protected areas in Chile are heterogeneous in nature, and may vary in their usefulness in achieving larger conservation goals. For instance, most private protected areas are smaller in area than the size needed to maintain species of larger animals. Notwithstanding, some sites do protect clear site-specific values, such as the protection of a penguin nesting area (Ahuenco community case study), some are very large, and others protect buffer zones or serve as corridors linking larger areas. A review by CODEFF of 104 private protected areas in 1999 found that 28 (27 percent) were important sites for biodiversity, either because they protect critical sites, or serve as buffer zones or conservation corridors.

A. Formal Private Protected Areas

1. Private Protected Areas in the Environmental Framework Law

Article 35 of Chile's 1994 Environmental Framework Law Nº 19.300 authorizes the government to implement a system of private protected areas, and states that the governmental agency responsible for protected areas will accredit and supervise the areas. The law provides that these areas can be terminated upon the completion of the defined term or upon the request of the landowner; further, these areas are to be exempt from property tax, but that the tax or other fiscal incentives must be repaid if the landowner terminates the reserve status.[113] However, regulations implementing this law were not passed until 2003, and so no areas have yet been designated.

In May, 2003, CONAMA finally passed regulations implementing this provision. Under the new rules, private reserves can be declared on areas that "contribute significantly to assuring the biodiversity, the preservation of nature, and the conservation of the national heritage."[114]

2. Nature Sanctuary and Other State-declared Protective Designations over Private Lands

In Chile, there are a number of kinds of protective categories that may be declared by the government for the protection of private lands. These types of land designations allow private owners to maintain ownership of their land, subject to significant use restrictions, and include: Nature Sanctuaries, Sites of Scientific Interest, Soil Districts, Forest and Water Conservation Districts, Touristic Protected Areas, and sites where hunting is prohibited. Once created, the protective designation is binding upon subsequent landowners and is perpetual, with the exception of prohibited hunting areas that can be established for a period of time.

Nature Sanctuary: The Council of National Monuments in the Ministry of Education may declare a property a Nature Sanctuary if it is of scientific interest for research in geology, paleontology, zoology, botany or ecology, or if its natural heritage is of interest for conservation, science, or the State. Although the government can create these protected areas with or without the consent of the landowner, and in the past has done so, the council currently requires a letter from the owner accepting the declaration in order to avoid potential problems related to infringement of private property rights.

The proponent of a Nature Sanctuary, whether the government or the landowner, normally assumes the costs of producing the relevant biological studies, land descriptions and other legal documents needed. To qualify as a nature sanctuary, the property must possess important natural characteristics, such as serving a buffer zone for SNASPE areas, forming part of a biological corridor, or conserving ecosystems that are not well represented in the SNASPE. Once declared, landowners are in charge of managing the property at their own cost. The area is protected in perpetuity, although a subsequent law or government decree could remove the protection.

The Nature Sanctuary designation appears to be one of the more effective legal instruments in force for private lands conservation in Chile today. This mechanism promotes nature conservation as the main objective for use of the property, provides a framework for management plans, requires protection in perpetuity of the property, and establishes monetary sanctions in the case of environmental damage. As of 1999, there were 26 areas formally declared as Nature Sanctuaries.[115] Among these are Cascada de las Animas, a 3,600 ha area in the Metropolitan region that is the subject of a case study, the Alto Huemul area in Region VII that covers 35,000 ha. (of which 19,000 ha has been purchased for conservation purposes), and CODEFF's Los Huemules del Niblinto area of 7,500 ha in Region VIII.

The Nature Sanctuary designation offers limited conservation protection. The Council generally requires the owner to prepare a management plan for the property, and all activities included in the management plan may be undertaken without further consultations, provided that the plan was approved by the council and by CONAMA. In contrast, if there is no management plan in place, each proposed activity in the protected area must be approved by the Council, and, depending of the magnitude and type of activity, an environmental impact assessment must be undertaken. The owner cannot destroy the site or undertake activities that can damage the site (for example, build roads, infrastructure or other activities) without the approval of the Council. Likewise, no hunting or other forms of taking wildlife is permitted in the area.

The State acquires a general supervisory role over the property, and has the right to request protection measures. The law also obligates civil authorities,

the army, and the police to cooperate in enforcing the resolutions adopted by the council. Violations of requirements carry monetary sanctions, and the law provides that those responsible for damages may face criminal and civil penalties. The local community can denounce potential or actual environmental damage to the Council, but do not have the right to pursue legal action on their own.

In general, it has been found to be difficult for individual landowners to develop the necessary legal and technical information to complete a formal proposal for a Nature Sanctuary to the government—some even lack precise boundaries or maps of their property. Creating this information requires funding as well as dedication. The law also fixes no time limits for the government to respond to request, which can take more than a year and can affect a private owner's motivation.

Sites Of Scientific Interest re Mining: The Ministry of Mining may create this status, which restricts mining activities on a site. The category is used to protect sites of interest for scientific research, astronomic activities or natural values, and to restrict mining activities in protected areas. The President, the Ministry of Mining, the landowner, or other governmental agencies may initiate the process whereby an area may be declared of scientific interest. Once declared, mining in these areas can only take place upon the completion of an environmental impact assessment study (SEIA) and a finding by the President, published by a special decree, that there will not be any damage to biodiversity conservation.

Almost all Sites of Scientific Interest re Mining have been declared over public protected areas—of the 44 such sites, 39 cover either public protected areas of the SNASPE or Nature Sanctuaries. Historically, these sites have served as double protection over public protected areas to prevent mineral exploration and exploitation in conservation areas. Of all other areas registered in the RAPP, only one, the Nature Sanctuary Los Huemules del Niblinto, has been designated a Site of Scientific Interest re Mining.[116]

Prohibited Hunting Area: The Ministry of Agriculture, through the Agriculture and Livestock Service (SAG), may declare an area to be closed to hunting or other forms of taking wildlife. These areas may be declared to provide special protection for endangered wildlife, to provide a means for complying with international conventions that protect certain species, or to protect fauna otherwise in need.

There are 13 Prohibited Hunting Areas in the country, which cover large areas—between 1,800 and 434,250 ha. They are primarily created at the initiative of the government, and to date there has not been a significant private initiative for the declaration of such an area.

Tourism Area Protection: The Ministry of Agriculture, upon the recommendations of the National Tourism Service (SERNATUR), may declare a site protected because of its tourism attributes. In these sites, it is forbidden to cut trees within 100 meters of a river, lake or public road, as well as in steep slopes and other areas not apt for agriculture, or when doing so would affect the touristic values.

The proponent of any one of these types of protected areas, whether the government or the landowner, will normally assume the costs involved in producing the relevant biological and other studies, and legal documents needed for the declaration of these areas. Although the declaration process is not described in the law, in practice an application must be made to the appropriate ministry providing: a) the reasons why the area is of importance for the designated purpose; b) a general study of the land, its ecosystem, and other values; c) the legal documents of ownership; and d) a map of the property with boundaries.

B. Land purchase and Ownership by Conservation NGOs

One practice in Chile for attaining long-term protection of private protected areas is the purchase and ownership of lands by a conservation NGO. CODEFF, for example, owns and manages some private protected areas of particular value for endangered species such as the Huemul deer, including the 7,500 Los Huemules del Niblinto Nature Sanctuary and a 400 ha area adjacent to the Rio Simpson National Park. The Universidad Austral de Chile has protected 80 ha of Coastal Olivillo forest and is proposing a marine extension of the area.

Another NGO-owned area is the Pumalin Park in the Xth Region of Chile created by the U.S. non-profit group Conservation Land Trust (CLT). Covering almost 300,000 ha, Pumalin Park is one of the world's largest private protected areas. CLT has reportedly invested $5 million in land purchases to create the Park, and many millions more in infrastructure and model development projects. In 2000, the Park received 12,700 visitors and annual operating costs approach $1 million.[117] According to CLT's 2002 annual report, "Pumalin Park's ultimate destiny is still undecided, although it is hoped that it will eventually be incorporated into Chile's national park system administered by the Chilean Park Service. This will be decided at a later date, when conditions are both administratively and economically convenient for the Chilean government. Meanwhile, CLT is developing an infrastructure for public access, and already thousands of visitors pass through the park and enjoy its facilities each year. . . . Working farms, such as these on the borders of the conservation areas, are part of a larger attempt to restore degraded land-

scapes and to address the challenge of creating viable rural economies that allow settlers to live compatibly adjacent to protected wilderness."[118]

The creation of Pumalin Park sparked a high degree of controversy in Chile. The process of acquiring and setting aside such a large amount of land as wilderness alienated certain elements of the Chilean political spectrum, who attacked the creation of the Park on the grounds that it represents undue interference by outsiders with national sovereignty. On the other side, promoters of the Park and allies within the environmental community supported protection of this land and pointed out the inconsistency in creating controversy over the conservation of large extensions of land, and not actions by foreign companies to purchase similarly sized or even larger extensions for forest exploitation.

C. Donation of Land to the Public Park System

Land donations to the national park system are a modest emerging phenomenon in Chile. During the 1990s several relatively small plots of land, varying from 147 to 417 ha, were donated to Bienes Nacionales to be administered by Chile's National Forestry Agency (Corporación Nacional Forestal or CONAF) with the objective of expanding current protected areas or creating new ones.[119] A private landowner donated 417 ha in Region VII to create the Bellotos del Mellado National Reserve, and the Millalemu Logging Company, a subsidiary of the Shell oil company, donated 147 ha in the Mediterranean region to CONAF in 1995, which became the Los Queules National Reserve. Finally, the expressed intent of the creators of Pumalin Park, as discussed in Section A.3. above, is ultimately to donate it to the state as a national protected area.

There are also a few cases where land rights have been given temporarily to the government for conservation purposes. In 1992, the owners of Hacienda Paposo gave an usufructo over their Paidahue property to CONAF to be administered as a National Reserve for a period of 30 years. The Corporación del Cobre gave a 30-year, no-cost lease of its property Roblería del Cobre de Loncha en la VI Región to CONAF to create a National Reserve that was established in 1996.

The donation of private land to become part of the public protected areas system is a good option for landowners whose interest is in the long-term conservation of the land, provided the public system is well managed. The land's permanent protection is assured, and the government assumes the long-term costs of management. An added advantage is that donating land to the public protected system helps protect against mining claims, as private landowners do not own the rights to minerals under private land. However, the option of donating land is practical only for lands located in areas identified by the gov-

ernment as a high priority for conservation, and in countries whose parks systems have the resources to administer added lands.

D. Limited Development Initiatives

To a greater degree than in any other Latin American country, Chile has experienced a number of "limited development" projects that combine land conservation with limited real estate development. The scope of these projects ranges from groups of friends that purchase land for conservation or recreational purposes (so-called "conservation communities") to for-profit real estate ventures that capitalize on peoples' desire to live in a beautiful setting. In both cases the participants or shareholders have the right to own a house within a portion of the area that has been designated for development. These initiatives all set aside most or a significant portion of the land for protection, but vary in the degree of protection of the conservation lands.

Limited development efforts employ a variety of mechanisms to ensure permanence and long-term management care. Funding for long-term management is generally provided by charging fees to members, which have averaged $25 per month in most projects (see figure below). Most projects provide for permanent protection by having a company hold title to the land, so that if one of the participants or shareholders wants to withdraw, the land is not divided and a portion sold, but instead the individual sells their shares in the company to another. Conservation of the land is defined as a purpose of the holding company, that can only be changed if all or most of the participants agree to do so. The procedures for changing the conservation purposes of the land can be made to require unanimity, so that changing the purpose becomes difficult to achieve in practice. In one case, a company transferred title of the protected portion of the land to a non-profit foundation created for that purpose, in order to ensure its permanent protection.[120]

The size of these limited development initiative areas vary from 90 ha to 20,000 ha, and the number of members or shareholders range on average from 20 to 400 (see figure below). One of the first and largest eco-real estate projects is the 20,000 ha Tepuhueico Lake Development and Park on Chiloé Island, which will include 5,000 privately sold plots and a 15,000 ha area set aside as a communal park. Another large project is the 19,000 ha Altos de Huemul project. Most projects, however, only protect 500-2,000 ha. An example of a conservation-oriented limited development project is the Ahuenco community, created by a group of scientists who bought 740 ha of land on Chiloé island in Region X to protect a beautiful bay and penguin nesting area, which is the subject of a case study.

The tables below provide information on two types of popular limited development initiatives in Chile today: conservation communities and conservation real estate projects.

FIGURE 11. EXAMPLES OF LIMITED REAL ESTATE DEVELOPMENT INITIATIVES IN CHILE

Conservation community	*Total Area (ha)*	*# shares*	*Cost per share(US$)*	*Monthly fee (US$)*
Altos del Huemul	19,000	90	n/a	None
Ahuenco	740	59	5,500	25
Factoria	2000	43	10,000	25
Namuncay	400	20	27,000	50
Quirra-Quirra	207	25	7,250	25
Lago las Rocas	600	3	n/a	None

Source: Corcuera, 2002 (citing studies).

Real estate project	*Total area (ha)*	*Protected area (ha)*	*Number of lots*	*Cost per lot (US$)*	*Monthly fee (US$)*
Oasis La Campana	2,500	1,000	484	20,000	25
Lago Tepuhueico	20,000	15,000	5000 (1000 sold)	6,500-14,000	none
San Francisco de Los Andes	8,100	1,800	400	11,500-30,000	60
Parque Los Volcanes	1,600	1,150	330	14,000	22
Parque Kawelluco	1,200	800	400 (60 sold)	n/a	25
La Invernada	530	660	94	11,500	25

Source: Corcuera, 2002 (citing many studies). See also websites: www.huilohuilo.cl; www.parquevolcanes.cl; www.reserva.cl; www.lainvernada.cl.

In addition to these, other jointly owned properties registered in the RAPP that protected 1,000 ha or less are: El Asiento, Parque Huaquén, El Boldo Negro, Agrrícola Santa Rosa de Lavaderos, Alto Pichares, Comunidad Paillahue, Los Caiquenes, El Macal, and La Esperanza.

The growing popularity of these limited development initiatives indicate that the demand for land with conservation restrictions in place has triggered a market response: developers are supplying conservation parcels in communal parks and ready-made protection projects, saving buyers the effort of organizing their own individual or group grassroots project. The creation of conservation communities and eco-real estate ventures further demonstrates that

there are Chileans willing to spend substantial sums on land conservation, without necessarily expecting a major financial return, provided there is an incentive such as having the right to use the area for recreation or to build a second home. Although Chile's relative prosperity and respect for property rights is certainly a factor in their success, the growth in the number of these limited development initiatives may indicate the potential throughout Latin America for initiatives that combine conservation objectives with individual enjoyment and ownership.

E. Conservation easements and related mechanisms

Although the Civil Code allows for the use of such devices, conservation easements and other forms of contracts such as the *usufructo* and the *comodato* have been very seldom used in Chile for conservation purposes. Some problems with the use of such legal mechanisms is the lack of knowledge of the private and public sector about their potential application to habitat protection on private lands; the lack of legal and governmental recognition of private protected areas; the lack of incentives to support activities of protection, restoration, and management; and insufficient technical and legal support needed to use these tools.

Comodato and Usufructo

Contracts of both comodato and usufructo have been used once in Chile for conservation purposes. A private individual granted a 110 ha property called Chepu on the Island of Chiloé to CODEFF in comodato for protection, research and education purposes. Also, a private entity has granted rights over a property called Paidhue in Region II to CONAF under a contract of usufructo for 30 years, to be administered as a National Reserve.

Easements

The only easement created for land conservation in Chile is one done by PROTÉGÉ in the foothills of Santiago, which was called a land use easement but is similar to a conservation easement.[121] A somewhat related use of easements occurred in the Oasis de la Campana real estate development project, where reciprocal easements were created between the different properties in the development and with undeveloped areas. This allowed for the restriction of uses on this property for conservation purposes, such as the prohibition of building in some areas. This area is adjacent to the Campana National Park in central Chile and protects montane dry forest of high conservation priority.

CODEFF is trying to establish several other easements.[122] One project would establish reciprocal easements between two lands in the Cani mountain range with the objective of protecting the forests and lagoons on both properties, as well as the sacred way of the indigenous peoples, and permitting ecotourism activities. Another effort is to create an easement between a property owner and the Villarica National Park in Region X, but this is complicated by the difficulty of limiting the rights of a public property in favor of a private person.

F. Conservation Concessions

In Chile, the Ministry of Public Property may grant concessions over public lands to private entities for conservation purposes. The holder of the concession is not required to pay any fees to the government, and the term of the concession is indefinite and not subject to the normal 50 year time limit applicable to commercial concessions.[123]

There have been a limited number of experiences with conservation concessions in Chile. In the early 1990s, the national government decided to experiment with having private foundations administer national lands through conservation concessions, and the Ministry of Public Property awarded three concession contracts to environmental foundations. The three foundations—Melimoyu, Lahuén, and EDUCEC—received concessions to parcels on public lands for which there was no existing management structure, with requirements to administer the lands in accordance with specific conservation goals for a limited number of years. The parcels ranged in size from 17,000 ha to a 35,000 ha tract on Magdalena Island. These early experiences met with only limited success, as the private foundations were unable to generate sufficient resources to adequately manage these areas. There was also an absence of a clear policy on cooperation between the public and private parties involved. The contracts were not renewed when they expired in 1997, apparently by mutual consent.[124]

In 2001, the Ministry of Public Property initiated a second round of concession contracts for the private administration of public lands, this time for much smaller areas focused on for-profit ecotourism ventures rather than strict conservation.

G. Informal Private Protected Areas

In Chile many landowners conserve their property without formal legal designation of their land as a private protected area. Many of these properties are part of the Chilean Network of Private Protected Areas (RAPP) and the

owners may consider stronger forms of protection once legal tools become available and more easily used.

H. The Network of Private Protected Areas (RAPP)

The RAPP is an informal alliance that includes both formal and informal private protected areas, and has grown from 31 areas covering 275,141 ha in 1997 to 133 areas covering about 400,000 ha in 2002. The RAPP promotes coordination of private landowners committed to the conservation of natural heritage on their properties and the exchange of information and experience among members, particularly on technical and legal issues. Its efforts are focused on the following activities:

- *RAPP consultant group:* This group provides technical assistance for the preparation of flora and fauna baselines, management plans, legal matters, ecotourism guidelines, and other issues.
- *Green Real Estate:* This initiative identifies properties of priority for biodiversity conservation and identifies persons or institutions interested in purchasing these properties for conservation purposes.
- *Communications:* This initiative includes preparation of the RAPP Bulletin and development of national and regional workshops.

The size, legal protection, and biological significance of areas included within the RAPP varies a great deal and depends on the motivation of the landowners, which include universities, NGOs, scientific research institutes, forestry companies, private enterprises, communities, groups of friends, families, and individuals. The size of the areas in the RAPP network ranges from properties of 1 ha to the vast Pumalin Park of 300,000 ha; the average size is around 400 ha. Since many of the areas are only informally protected, conservation practices vary greatly in efficiency and results. Some lands are strictly conserved, whereas others allow logging or ranching, and still others conduct a wide range of environmental practices. In addition, only a few of the informal areas have baseline studies, management plans, and dedicated personnel.

III. FUTURE NEEDS

We recommend the following actions to enhance the legal framework for private lands conservation, create incentives and strengthen relevant institutions, to ensure the long-term success of private lands conservation initiatives in Chile. The national legislature is currently considering a national law on private protected areas that would authorize conservation easements and other

instruments, and provide greater incentives to encourage the protection of private lands.

1) *Create and Improve Legal Mechanisms for Formal Private Protected Areas:* A law needs to create a general framework for creating private protected areas, with adequate structure and incentives. The law should also define the government's role, and provide specific time frames in which the government must act in processing a request. In addition, existing legal mechanisms such as the designation of Nature Sanctuaries should be promoted--very few Nature Sanctuaries have been created, and there are no incentives for the landowner, only restrictions on land use. This mechanism would be more frequently and effectively used by landowners if specific incentives and better standards for the creation of Nature Sanctuaries existed in the law.

2) *Conservation easements:* Although Chilean law allows for the creation of easements, it makes no specific reference to conservation easements, creating significant legal questions about their potential recognition and enforceability. Clear and specific legislation is needed that recognizes conservation easements, both between properties and of the independent or "in gross" type that are between a property and an institution (NGO or government), in order to guarantee greater effectiveness of this legal tool for long-term private lands conservation.

3) *Establish Incentives:* A range of economic and social incentives are needed to promote private lands conservation. Market incentives include the reduction of property taxes for protected lands, direct subsidies to protected lands for ecosystem services, income tax deductibility for gifts of lands or easements, and access to national funding mechanisms on a competitive basis. Other incentives include greater social recognition, access to training, and technical assistance. Although the cost of a comprehensive package of incentives has not been estimated, the Environmental Law Center of the University of Chile is studying the effectiveness of economic incentives for CONAMA. Also, interviews with private protected area owners indicate that along with economic incentives, many place significant value on relatively inexpensive incentives, such as technical assistance, training, and formal recognition.[125]

4) *Enhanced Government Role and Improved Public-Private Cooperation:* The potential for land conservation in Chile is shared between the government public lands conservation agency and private actors such as individuals, foundations, NGOs, universities, and cooperative ventures that can

protect private lands. However, cooperation between the government and these private actors to achieve conservation goals has been limited, even though Article 35 of the Environmental Law states that the government will seek to promote private protected areas. The government needs to adopt policies, in consultation with the private sector, to enhance the private sector's ability to conserve lands and to develop cooperative mechanisms. We recommend that the government develop a national policy that identifies how their support for private lands initiatives can best enhance biodiversity and natural resource conservation, giving priority to critical sites, under-represented ecosystems, areas that connect existing protected areas, and the buffer areas around public parks.[126]

5) *Enhance NGO Institutional Capacity:* Many environmentally conscious landowners engaged in informal private lands conservation efforts may prefer for their land to be protected in perpetuity, but may not know about legal methods to ensure long-term conservation. Non-profit organizations, such as CODEFF, can play a very important role in providing technical assistance to landowners in securing permanent protection of their lands. This assistance may include negotiating the agreements, and even assuming stewardship or monitoring responsibilities in perpetuity. Financial support is needed for the development and delivery of technical assistance.

CASE STUDY 1: NATURE SANCTUARY OF CASCADA DE LAS ANIMAS

Cascada de las Animas is a 3,600 ha private protected area in the central Chilean Andes near Santiago. It protects Mediterranean forest, an ecoregion that is considered one of the top 25 priority global hotspots for biodiversity conservation due to the presence of a number of endemic and endangered species and the high degree of threat. The vegetational communities are essentially sclerophic forest and thicket.[127] Private lands conservation is an important conservation strategy for this region, as only 1 percent of this ecosystem is represented in the state protected areas system.

Land status and protection

The property is a 3,600 ha parcel, officially titled and recorded in the land registry. The original owner, Eduardo Astorga Barriga, has been interested in providing long-term legal protection and developing activities for biodiversity conservation for the property since he bought it 50 years ago. Today, this property is owned by the Agricultural Society Cascada de las Animas, a for-

profit company that includes the parents and their 10 sons. Environmental conservation is an important objective for all the owners, and most of them work on these issues.

This property was designated as a Nature Sanctuary in 1995,[128] an action that was prompted in large part to the threat of an natural gas pipeline that was proposed to cross the property. The Astorga family solicited the designation from the Consejo de Monumentos Nacionales, the relevant government authority, and presented information on the flora and fauna, and the conservation importance and beauty of the property, which contains waterfalls. The Consejo then requested a baseline inventory of the area by the Universidad Católica de Chile in order to evaluate the request and granted it in a record time of three months.

Simultaneously, many local people and institutions began to protect the passage of the pipeline through their area, and there were demonstrations and many articles in the press. It is difficult to say if this popular uprising, the conservation importance of the area, or a combination of these were responsible, but the pipeline's route was moved to pass through a different area.

Financial support to protect the area at the moment comes from ecotourism activities. Most of the recreational activities take place in an area that is contiguous to the sanctuary and has picnic spots, cabins, and a restaurant. In the Sanctuary there are paths for walking or horseback excursions. Groups of visitors receive an educational talk before entering, and are generally guided. Programs of environmental education allow children and adolescents establish a relationship with nature and understanding of conservation. In winter, fewer tourists visit the area, diminishing the income generated by ecotourism and recreational activities, and consequently, the amount of funds available to protect the area.

The owners recognize that the designation of the area as a Nature Sanctuary is a benefit because it attracts more people to the area and engages the local municipality in promoting this area for its natural values. They understand that more technical support is needed to improve the trails, signs, and the guided activities in order to assure more sustainable tourism and hope to promote the area through greater advertising. They are also working to create a foundation in order to raise money through projects or grants for improved management. However, the owners also need training in fundraising and carrying out conservation projects.

The use of the Nature Sanctuary mechanism in the Cascada de las Animas case has been successful on several fronts. Local biodiversity has been conserved, and the owners are actively engaged in conservation and restoration activities, and low impact economic activities. The property is also now protected in perpetuity.

CASE STUDY 2: PERUCO - INFORMAL PROTECTED AREA

Peruco is a 3000 ha protected area located in the Andes of the VIII Region, in a transitional zone between the Mediterranean and temperate rainforest ecosystems. Its vegetational forms are scarcely represented in the national system of public protected areas (SNASPE).[129] The area also protects riparian zones and several endemic species, some with highly restricted ranges like several cat species and the Huemul deer, of which only 1500 exist. The presence of huemul using this protected area is of much importance, as the northern population located in this zone is critically endangered, numbering no more than 50 individuals. Overall, this ecotonal zone has a high biodiversity and forms part of the central Chile hotspot for biodiversity.

Land status and protection

The area belongs to a single owner, who has registered the property as part of the Chilean network of private protected areas (RAPP), but it has no formal legal protection. Peruco is part of an old family hacienda that was divided between the sons, one of whom decided to protect the forest on the high parts of the property where the huemul used to live and to sustainably use the lowers parts of the forest in a limited way. At the moment the owner is not implementing any forestry activity, just habitat restoration. Only a couple of hectares are destined for humane activity, including the house, fruit trees, and space for some domestic animals for the caretakers.

Many property owners do not initially consider their properties to be "protected areas," but when asked to consider their activities and objective, recognize that they are undertaking conservation activities and wish their property to remain conserved. This was the case with the owner of Peruco, and his work with CODEFF led him to become a member of the RAPP and consider his land a protected area.

The owner is a lawyer and financially supports the area from his work. The resources are used for basic protection activities such as for a caretaker, signs, and environmental education for people that go to the area. Forest restoration has been implemented in approximately 10 ha. The owner doesn't have the money for all the protection and conservation activities the area needs, or for the restoration and management of the forest.

Conclusion

Peruco is a typical example of private owners who are interested in land conservation. The present owner is protecting the land due to his own personal motivation, and is able to do so because of funds he is able to make avail-

able from his work as a lawyer. However, the land is not legally protected in any long-term fashion, and subsequent owners may lack the motivation to protect the area or the economic capacity to do so even if they have the motivation. Most property owners are conserving their lands in this informal way, and systems of protection and incentives must be directed to the needs of these owners.

Today, land protection instruments do not include any economic incentives or other help to the conservation activities these owners are accomplishing, and it may be difficult to persuade owners to restrict their land uses with no compensating benefit. Involving these property owners in conservation issues is one priority of the private lands conservation movement.

CASE STUDY 3: AHUENCO–TOIGOI PARK AND THE AHUENCO CONSERVATION COMMUNITY[130]

The Ahuenco-Toigoi Park is a 730 ha parcel protecting Ahuenco Bay in Chiloé Island in the X region owned by the Ahuenco Conservation Community (ACC). A group of conservation-minded scientists initiated this project in 1993 in response to finding a 280 ha parcel of land for sale on Ahuenco Bay. This beautiful locale contains temperate rainforests and the regions' only breeding site for the Magellanic Penguin, together with other charismatic species such as the pudu (world's smallest deer) and the sea otter. As none of the scientists could individually afford to buy this parcel, they wrote an informal prospective inviting their friends, and friends of friends, to join together to form a conservation community that would own the land.[131]

Although the primary motivation for buying the land was for its conservation, each member retains the right to build a structure for private recreational use upon one hectare, with the remaining land to be kept as a communal park. Sixteen conservation investors were attracted—enough to form the ACC—and the land was purchased in 1994. Three years later, the adjacent 450 ha parcel of Toigoi was purchased with a loan, using the Ahuenco parcel as collateral. The loan was paid off as new members slowly joined through a second round of solicitations. The ACC hopes also to buy a third piece of land to expand the area to 1200 ha and create a biological corridor connecting with Chiloé National Park. As of 2002, the ACC has 42 shareholders and is open to receiving 10 more.

Interviews with shareholders indicate that most people joined the ACC for both personal reasons, such as having the right to build a home in a beautiful recreational spot, and altruistic ones, such as conserving a beautiful part of nature and several endangered species. The Ahuenco conservation community offered most shareholders the opportunity to “do something good” for a reasonable economic investment.

Legal Structure: The Challenge of Ensuring Lasting Conservation

In 1994, during discussions about the legal structure that the ACC should adopt, a problem became apparent: Chilean law provides no clear option for creating a private park or private reserve. But if the land was simply bought by the individuals in common ownership, no long-term protection would be assured, for each of the co-owners of the land would have the legal right at any moment to request their proportional share of the land, withdraw from the community, and thereafter be free to do anything they wished with their portion of the land.

Thus, in order to ensure lasting conservation, the land was not bought by individuals, but by a real estate company created specifically for this purpose. The company, Inmobiliaria Ahuenco S.A., has conservation-oriented statutes. Each of the individual members then bought a share in the real estate company rather than a portion of the land. If a member decides they no longer want to participate in the community, they can sell their share in the company rather than their portion of the land. The only way to change the real estate company's statutes with regards to land indivisibility is by a unanimous vote of shareholders. Having 42 conservation-minded buyers who freely bought into a conservation project, unanimity to dissolve it is viewed as practically impossible. Thus, the long-term survival of the project is achieved.[132]

Eight-Year Evaluation: Successes and Difficulties

Soon after purchase of the initial Ahuenco parcel, the first voluntary board (composed of a President, Treasurer, and Secretary) was elected for a two-year term from amongst the ACC´s members with high hopes. However, from the outset, most of the ACC´s members were professionals living in cities far away from Chiloé, and busy people with little time to dedicate to the stewardship of the Ahuenco community. The daily bureaucratic tasks related to owning land, such as paying the caretaker´s salary and land and income taxes, providing infrastructure and maintenance, etc., consumed each successive board's limited time and energy, leaving little time to think ahead strategically. Burnout hit every one of the community's leaders, who after their two-year term would emphatically refuse another term.

As the community's members learned more about land conservation, the major omissions and issues became clearer. No base-line studies had been conducted, so measuring success in conservation was difficult. No comprehensive management plan or zoning effort was ever done, so each decision on new infrastructure was adopted without the benefit of a long-term vision. It also became evident that the area designated for the shareholders one ha individual-rights plots was one of the most ecologically fragile areas, and any

development there would affect the scenic vistas. As no individual houses had yet been built, there was time to implement needed changes, but the board simply did not have the energy or time to tackle such fundamental and time-consuming issues. Motivation was lost, internal communications lagged, and people stopped paying their monthly dues.

In January of 2002, eight years after the ACC was formed, the difficulties were so apparent and critical that the need to hire professional staff became obvious. A new board was elected, this time with its first and most urgent task to hire a half-time local administrator to would deal with time-consuming details, liberating the board for strategic issues. Life has slowly started to breathe back into Ahuenco-Toigoi Park. Work is underway on the management plan, discussion has started on changing the individual rights to build structures in order to lessen impact, and daily on-site stewardship has improved dramatically. The reliance on professional staff has been key. This use of professional staff, however, could not have been achieved much earlier, because the community needed a critical mass of paying shareholders in order to raise the necessary funds to support the staff, which did not happened until many years into the initiative.

But even during the initial eight-year period, the ACC achieved many successes. These included building a cabin for shareholders, not a small feat considering there is no access into Ahuenco except by a half hour boat ride followed by a two and a half hour walk; maintaining a caretaker on the land, whose mere presence has made the penguin population balloon from approximately 250 to over 2,000 each summer; building a camping site to regulate and concentrate the impact of trekkers heading into Chiloé National Park; and, of course, buying the adjacent Toigoi parcel. In addition, several research projects have been conducted on the land.

This case study shows that, while not everything has been ideal in the Ahuenco-Toigoi Park, the accomplishments have out-numbered the failures. If the members of this initiative were to start this project over with what they know today, many of the pitfalls could be avoided. What has been learned can be applied to other similar projects. Conservation communities offer a creative solution for obtaining legally binding and long-term land protection within a legal void. The experience also shows the great potential for harnessing market forces for land conservation and creating locally funded projects that are financially sustainable over time.

V. COSTA RICA

COUNTRY PARTNER: CENTRO DE DERECHO AMBIENTAL Y DE LOS RECURSOS NATURALES

Costa Rica was home to some of the first formal efforts to establish private reserves in Latin America, which helped inspire private conservation efforts throughout the continent. Costa Rica was also the site of the first easements created for conservation purposes in Latin America in 1992, and continues to lead Latin America in the use of conservation easements, with over 40 developed. Although NGOs have played the key role in developing private lands conservation, beginning with scientific organizations in the 70s and 80s and today with conservation NGOs like CEDARENA, the government also has played a critical supporting role in this effort.

The private conservation movement remains strong in the country, and is marked by an unusually high degree of collaboration between private land conservation and the public protected areas system. One aspect of this has been the catalytic role of private reserve owners in initiating government action to create or expand adjacent public protected areas. The government in turn supports private conservation efforts through technical and political collaboration, payments for environmental services and increased juridical security for protected private lands. This collaborative approach has been especially productive because Costa Rica has both well-established private conservation groups and a well-managed public protected areas system.

Costa Rica also has the best system of incentives for private lands conservation in Latin America. It has virtually the only functioning system of economic incentives, which include tax exemptions for conservation lands, and a unique system of "payments for environmental services" that covers over 200,000 ha and provides roughly $50 per ha to landowners to keep land in its natural state. In addition, Costa Rica provides added juridical protection for lands placed in a conservation category, which receive priority assistance from the government in repelling invasions and other aspects important to land security. Finally the Costa Rican court system has supported private land conservation action against threats, even though involving the court system can be difficult and expensive.

Although much has been achieved in Costa Rica for private lands conservation, the legal framework for the conservation of private lands is far from adequate. This limits the potential of private lands conservation to conserve important elements of the national territory and to contribute to rational

resource use. A number of important legal reforms are needed to permit private landowners to contribute more forcefully for the conservation of national lands. Several of the needed reforms contained in a current bill in Congress would establish conservation easements and other mechanisms.

I. THE INTERACTION BETWEEN PRIVATE RESERVES AND THE STATE PROTECTED AREA SYSTEM

A. Collaboration between private reserves owners and state protected areas

The history or private reserves in Costa Rica began with early efforts to establish and protect the Monteverde Cloud Forest Reserve and La Selva Biological Station in the 1970s. In both cases, these private initiatives led to the establishment of major private protected areas and research establishments, and the creation or major expansions of larger neighboring state protected areas—the Arenal Forest Reserve and the Braulio Carrillo National Park extension.

The Monteverde Cloud Forest Reserve was started in the 1960s when the Quaker community at Monteverde initiated a forest reserve on the mountaintop to assure a continuous supply of water for its dairy herds. The area subsequently became famous as a bird watching and research destination, and in 1972 the Tropical Science Center acted to establish a private reserve to counter the growing threat of deforestation. TSC purchased an initial 328 ha at the initiative of George and Harriet Powell and Wolf Guindon, and in 1975 the 554 ha community watershed reserve was integrated into the reserve. The Tropical Science Center has continued to expand and manage the Reserve, which is now 10,500 ha. Starting in 1988, the Monteverde Conservation League began to purchase additional lands, financed by donations from school children around the world; this effort resulting in the creation of the neighboring 20,000 ha Children's Eternal Rainforest, which is now the largest private reserve in Central America.[133] Complementing the acquisition of lands for these private reserves were successful efforts by both NGOs to create and expand the Arenal Conservation Area to cover both the Monteverde Reserve and large extensions of forest towards the Atlantic lowlands, which now protects 45,000 ha.

A second early initiative was the La Selva Biological Station, a private protected area of 1,600 ha established in 1968 by the Organization of Tropical Studies through the purchase of the farm of Dr. Leslie Holdridge. In the 1980s, OTS became concerned that the reserve would lose its biological integrity due to growing deforestation in the region, and began to both acquire and protect adjacent lands. Its key success was in persuading the gov-

ernment to extend the Braulio Carillo National Park 20 kilometers downslope to connect with the biological station, creating a protected altitudinal transect from 2,906 to 35 meters above sea level, which OTS helped to finance.

A third more recent example of this private-public collaboration in creating large protected areas has been the formation of the Guanacaste Conservation Area (ACG), a case study. Private conservation groups and scientists played a leadership role in influencing the consolidation of three national parks and several reserves into one large 153,000 ha management unit, and helped to raise the $31 million needed to acquire land and create an endowment fund. A private initiative led to the acquisition of over 70,000 ha of private lands to consolidate the area between the national parks, most of which held by intermediary NGOs, to eventually to be incorporated into the park boundaries.[134] The park is managed as a single unit by both the government and BioGuanacaste, a Costa Rican non-profit entity with mixed government and non-government leadership, and the endowment is held by the Fundacion de Parques Nacionales, also a mixed public and private entity. Dr. Dan Janzen, the leader of this effort, has written:

> It was assumed from its beginning in 1986 that the ACG would eventually be entirely government owned—for survival into perpetuity—but with a biodiversity management akin to the flexibility, circumstance-dependent and mission-oriented management philosophy characteristic of the private sector—again, for survival into perpetuity….
>
> A real world alliance between the fickle but fluid private sector conservation effort, and the stolid but innovative government conservation effort, has been a trademark of the three decades of Costa Rican wildland conservation history. It was essential to the formation of the ACG as a whole...[135]

B. Mixed Public and Private Conservation Areas Within the State Protected Areas System.

The state protected areas system (Sistema Nacional de Areas Protegidas) covers 1,304,304 ha, or 25.58 percent of the national territory. This system includes 732,205 ha in areas such as national parks that are intended to be owned by the state; 16 percent of these areas are private lands, which are considered in-holdings to be purchased by the government. Another 572,099 ha are in "mixed" public and private protected areas that are publicly declared but consist 70 percent of private lands. These lands remain as private property, but are subject to conservation restrictions on the land uses that can be made.

FIGURE 12. LANDS PROTECTED UNDER THE NATIONAL PARK SYSTEM BY CATEGORY

Management Category	#	Area (ha)	% of country	% private land
Parques Nacionales	25	623,771	12.2	15
Reservas Biológicas	8	21,674	0.4	49
Humedales (includes mangroves)	15	77,869	1.5	12
Monum.Nal & Estación Exper.	2	7,561	0.1	17
Reservas Nat. Absolutas	2	1,330	0.0	0.1
Subtotal - public areas	**52**	**732,205**	**14.2**	**16**
Zonas Protectoras	32	155,817	3.0	76
Reservas Forestales	11	227,834	4.5	74
Refugios de Vida Silvestre	58	180,035	3.5	59
Otras áreas (fincas)	8	8,413	0.2	
Subtotal - pub./private areas	**109**	**572,099**	**11.2**	**70**
Total	**161**	**1,304,304**	**25.6**	**39**

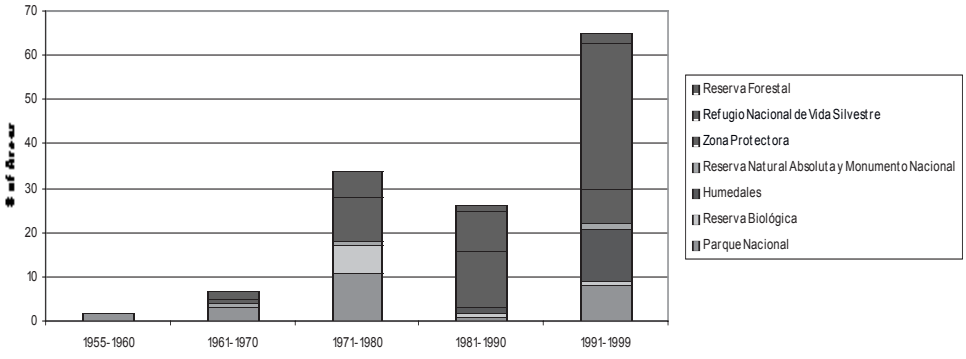
Created by: INBio, 2002.
Sources: Information Service SINAC-MINAE (September, 2001). MINAE-SINAC *Land Tenancy in Natural Protected Areas*. Mimeograph (October, 1999).

In addition, the trend in recent years has been an increasing use of the form of mixed public/private areas within the national protected areas system of Costa Rica, as shown below. This is due in part to the disappearance of pristine areas where the government can expropriate large amounts of vacant land, and the increasing population and human presence in rural areas, which makes it both more expensive and difficult to create publicly-owned protected areas.[136]

C. Biological Corridors linking Protected Areas

Another way in which the conservation of private lands complement government efforts is through the development and consolidation of biological corridors between public protected areas, which can unite such areas within the country and beyond its borders. Twenty-eight biological corridors are being developed within Costa Rica, and at a regional level the strategy exists to develop a Mesoamerican biological corridor. These strategies include the conservation of large areas that are primarily private property. If private property owners do not see the conservation of natural areas as an attractive option that is economically viable, it will not be possible to consolidate these corri-

FIGURE 13. CREATION OF PROTECTED AREAS IN COSTA RICA (BY DECADE)



Source: INBio, 2002

dors and maintain viable populations of biological richness within the national protected area system.

II. VOLUNTARY METHODS OF PROTECTING PRIVATE LANDS

Although there are many private lands conservation initiatives in Costa Rica, the legal framework is incomplete. The various conservation mechanisms are described below, but no single mechanism provides all of the needed attributes. Designation of land as a Private National Wildlife Refuge creates secure legal protection and benefits from government incentives, but only lasts for 5-20 years. Easements are permanent, but must be created as appurtenant easements under the civil code as there is no legislation authorizing conservation easements. These problems would be resolved in a pending legislative bill that would allow private reserves to be created for perpetuity, and authorize independent conservation easements.

A. Private National Wildlife Refuges

Private individuals may protect their lands by creating a Private National Wildlife Refuge under the Wildlife Conservation Law for periods of 5, 10 or 20 years.[137] This is currently the most commonly used device for the designation of a private reserve. The landowner must present a clear title and survey of the property, and develop a management plan that describes the property's natural attributes and recommends specific actions towards its conservation and sustainable use. The Ministry of Environment (MINAE) then declares the land a refuge if it decides there are adequate biological values on the property. The owner must carry out the conservation measures and land use

restrictions included in the approved management plan, refrain from any activity that may change the natural environment of the protected area, and comply with the Wildlife Conservation Law. MINAE inspects the land to evaluate compliance every five years, after which the status is renewed.

To date, 63 such refuges have been created covering 180,035 ha, which includes both privately initiated areas and those created by the government. The first 14 of these areas were state-created, and cover approximately 166,000 ha; almost all subsequent areas were privately initiated, and cover principally private lands, although much smaller in size.[138] Landowners who create such refuges receive various incentives, including the exemption from payment of property taxes, and expedited access to public processes to remove squatters who have invaded the land.

The principal limitations of this category are the limited capacity of the state to receive and process requests, as well as to supervise and monitor the conservation of these private lands. Some property owners have spent as long as two years in the process of creating a private refuge. A second limitation is the temporal nature of the designation, as there are landowners who would like to protect their lands for perpetuity.

B. Private reserves created under the Forestry Law.

Property owners who are interested in temporarily protecting their lands can incorporate them voluntarily into the *forestry system*, and receive the same incentives as mentioned under Private National Wildlife Refuges. This has the same limitations as those mentioned above for a refuge. In addition, there is always the risk that the private property owner may withdraw his land placed in the forestry system at any moment.

C. Land purchase and ownership by NGOs

As in other countries, some of the most important private reserves are owned by NGOs. However, the collaboration between private and public sectors in Costa Rica is so developed that almost all of these reserves now also have some kind of formal designation by the government. Both the Monteverde and La Selva reserves mentioned above, although initially purely private efforts, are now located within the large public protected areas that they helped to create. Many of the smaller private reserves based on ecotourism have also received formal recognition as Private National Wildlife Refuges. However, even if an NGO reserve is purely informal, Costa Rican law generally provides for tax exemptions for conservation lands owned by foundations or other types of non-profit entities.

D. Informal Private Reserves

Many property owners in Costa Rica are interested in conserving part or all of their properties as private protected areas. Aside from the NGOs who own land, the majority of these persons wish to combine conservation practices on their land with productive activities such as agriculture, cattle grazing, forestry or ecotourism. The Red Costarricense de Reservas Naturales Privadas unites more than 77 official members who are owners of private reserves that contain more than 55,000 ha under various regimes of protection (both formal and informal).

E. Easements

Due to the limitations of available legal tools for those interested in the conservation of private lands, some property owners have used existing mechanisms contained in the civil code, such as easements, usfructo, and leases, and applied them for conservation purposes. However, so far their use has been *ad hoc*, with a lack of clarity on the rules and laws for their use. In addition, lands using them receive none of the economic or other incentives indicated above.

The principal tool has been the appurtenant easement, which has the advantage of protecting lands for long periods of time, including perpetuity. The Costa Rican NGO CEDARENA created the first easement for conservation purposes in Latin America in 1992, and has to date created 42 ecological easements that cover approximately 5,000 ha of private lands; other entities have created approximately 15 easements covering 500 ha.[139] Considerably more easements have been created in Costa Rica than any other Latin American country. Several innovations have been developed in Costa Rica to avoid the weaknesses of civil law easements. Examples include:

- creation of an easements between non-adjacent lands that share some characteristic, such as the same birds;
- creation of reciprocal easements between properties adjacent to each other; and
- creation of easements between several properties along a biological corridor.

The use of ecological easements in Costa Rica has grown due to the concern of environmentally minded landowners over the future land use of their properties, once they are sold or transferred to third parties. These landowners are interested in making a lasting contribution to society and placing an easement on their land provides them with the opportunity to do so. Therefore, given the fact that the easement is the only available legal instru-

ment that runs with the land and lasts for perpetuity, it is the preferred approach for these cases.

IV. INCENTIVES FOR PRIVATE LANDS CONSERVATION

A. Exemption from Property Taxes

Lands categorized as Private National Wildlife Refuges or Forest Reserves, or that receive environmental service payments, receive an exemption from payment of property taxes. Because Costa Rican property taxes are generally higher than in other countries, landowners receive more benefits from this exemption than in other counties. In addition, certain forms of private non-profit groups such as foundations and non-profit associations declared by the Government of "public interest" are exempt from payment of taxes on lands that they own.

B. Contracts for Payments for Environmental Services (PSA).

Costa Rica has a unique system of payments for environmental services that covered 220,652 ha from 1997-2000. In this system, the government gives landowners cash payments equivalent of $50 per ha to conserve or sustainably manage their land, in recognition of the environmental services generated on private lands.[140] For private property owners with limited economic resources, the payment for environmental services—although relatively small—is of great assistance in maintaining conserved lands. However, PSA payments area also short-term, as funds are provided to landowners only for contract lasing five years, which does not create long-term security. In addition, there is more demand for these payments then funding available in the government, and at this time only 25 percent of landowners interested in receiving PSA obtain them. Therefore, the government has developed a priority system in which priority is given first to private lands within national parks and similar protected areas, and second to lands designated as private wildlife refuges or other protective categories. This helps to ensure that government incentives are provided to lands of high conservation importance.

C. Juridical security

Costa Rica has also been more effective than other countries in providing juridical security to conserved private lands, as it provides for expedited governmental action if there are invasions of lands designated as Private National Wildlife Refuges or Forest Reserves. If people without rights to the land (squatters) invade such lands, the owners can just go to the closest police station, show to them a certification of their property's land title with proof of

their protective status, and the police have five days to evict the squatters. Without this status, landowners must follow the traditional long legal process to evict invaders.

V. ENFORCEMENT OF PRIVATE RESERVES

The enforcement of private lands conservation systems has been tested a number of times in Costa Rica, principally in defense against invasions by squatters of lands designated as private forest or wildlife reserves. Two examples of organized land invasions on Private Wildlife Refuges that were successfully repulsed are the Hacienda Baru case study and the Triangulo property near Tortuguero Park. In both cases, the owners were engaged for years in legal proceedings to first evict the squatters and then defend against their legal claims. In the latter case, over $200,000 was spent in legal defense, which was provided by a Danish NGO. Although the courts of Costa Rica in both cases supported the owners defense of their land, it required great perseverance and financial means to be successful.

There aren't any examples of landowners who declared wildlife private refuges and then did not follow their management plan. Usually those plans are flexible and they can be amended. If they were violated, the property would lose its wildlife refuge status.

Finally, although over 50 easements have been created for conservation purposes in Costa Rica, there have been no cases in which their enforcement has been tested in a court.

VI. CONCLUSIONS—THE FUTURE OF PRIVATE LANDS CONSERVATION

Although there have been many achievements in the conservation of private lands, continuing and advancing these efforts is intimately linked with improvements in the national legal framework. There is a need to develop and apply laws authorizing the following legal instruments:

- the use of traditional civil law easements for conservation purposes;
- independent conservation easements that can be held by third parties such as the government or conservation NGOs (land trusts);
- creation of national monuments to conserve specific species or natural resources;
- creation of private nature reserves, for either a term or for perpetuity;
- systems of transferable development rights in order to create economic instruments to help achieve rational land use policy.

Recently, in October of 2002, a proposed law was introduced in the national legislative assembly that seeks to create precisely this new legal framework for the conservation of private lands.

CASE STUDY 1: HACIENDA BARÚ

Physical description

Hacienda Barú is a private property of 337 ha on the Pacific Coast of Puntarenas province. It contains 315 ha of forest, of which 132 ha is primarily humid tropical forest, 1.5 kilometers of pristine beachfront, small areas of plantations, an ecotourism facility of several cabins, and a restaurant. A public road traverses the property parallel to the coast. This reserve provides habitat to numerous wild species, including 61 mammal species, 50 reptiles and amphibians, 350 birds and 207 plants, including some species that are threatened or endangered.[141] The higher portion of the reserve forms part of Paso de la Danta Biological Corridor, an ambitious project to re-forest a path from Los Santos Forestry Reserve to the Terraba wetlands and Osa Peninsula that would form a wildlife corridor for species such as the endangered Baird's Tapir.

History

During the 1970s, the Hacienda Barú ranch was used for grazing with over 150 head of cattle, and aerial photographs of the time show the property largely devoid of trees. In 1972, Jack Ewing arrived at Barú to manage the cattle ranching operations, and experienced a personal transformation to become committed to the conservation of the property. He purchased Hacienda Barú in a partnership arrangement, and in 1976 prohibited hunting on the property. In 1979, cattle ranching was restricted to a few flat pastures after the owners found that it was not economically beneficial and was ecologically destructive of the property's sloping lands. During the late 1980s, in partnership with Steve Stroud, Hacienda Barú began experimenting with eco-tourism, at present its main income from productive activities (other income includes payments for environmental services).

At present, potential changes in the ownership interest in Hacienda Barú, whose market value is estimated in approximately $5-6 million, has led to the owners' effort to establish permanent legal protection of the land through a number of additional devices, described below. A variety of instruments are being used as none alone provides all the adequate legal protection.

Private Lands Conservation Mechanisms

1. National Wildlife Refuge

In April 1994, Hacienda Barú applied for Wildlife Refuge status with MINAE. In October 1995, the application was approved and a decree was signed declaring Hacienda Barú as a Wildlife Refuge comprising a mixture of both private and public lands (in Cost Rica the first 50 meters of land behind a beach is public and the 150 beyond that is public land subject to private concession).[142] Accordingly, certain limitations were established on the property, including measures to control forest fires and prevent illegal hunting.

Wildlife Reserve status can last for up to 20 years, but to maintain this status an inspector has to evaluate compliance with the management plan every 5 years. This inspection was carried out at Hacienda Barú in 2000, and involved several visits by MINAE staff who evaluated the property and certified compliance.

Wildlife Refuge status has been important to Hacienda Barú for three reasons: first, it gives Hacienda Barú priority for receiving payments for environmental services, which have helped to financially support the reserve; second, it avoids property taxes; and third, it significantly assists its legal defense against squatters, as described above.

2. Payment for Environmental Services

Hacienda Barú has annually obtained Payments for Environmental Services from the national government on 250 ha of its lands. These payments of approximately $50 per ha are made by the government under 5-year contracts with owners who agree to maintain the native vegetation on the land. With these funds, Barú covers part of its operational costs, including making a donation to MINAE to cover the salaries of two guards located on their land. These guards, although in practice working with Barú, are formally employed by MINAE, which gives them the authority of the State to enforce environmental laws.

3. Creation of a Foundation to Own the Lands

The owners of Hacienda Barú are currently discussing the creation of a foundation to receive and own these lands. The use of a foundation offers the possibility of perpetual status, as according to Costa Rican law the statutes of a foundation cannot be modified. Another advantage is that it avoids property taxes. To help support the foundation, the owners contemplate that the foundation would receive the income derived from leasing the tourism facili-

ties to third parties. Management of the reserve would be guided by a Limits of Acceptable Change plan that consultants from the University of Colorado are preparing.

Another non-profit group, the *Asociación de Amigos de la Naturaleza del Pacífico Central y Sur (ASANA)* has also been supported by the owners of Hacienda Baru since the mid 1990s. This organization has implemented environmental education, water conservation, and land titling activities, working with local schools, civic organizations, and farmers. It is also currently helping create a biological corridor called *Paso de la Danta* to link two national parks in the region. According to the new administration scheme envisaged for Barú, ASANA would monitor compliance of contracts entered into by tour operators and could receive from the foundation part of the income derived from tourism.

4. Easements

The owners are also proceeding to establish easements on the property in order to limit uses of the land to conservation uses. These easements would be traditional appurtenant easements created under the Costa Rican civil code, with Hacienda Baru the servient estate and the dominant estate would be nearby land owned by a local land trust (probably CEDARENA). The easement would restrict the land use of most of the property to scientific research and ecotourism purposes, such as hiking, camping and the existing platforms used for zip-line tours. The easements would allow for limited development in certain areas: a hotel area of limited size, a small commercial zone and a property where ASANA's offices are located.

The land trust would acquire the responsibility for monitoring compliance with the easement, and would also defend the easements in Court if necessary. The owners are paying for the costs of creating this conservation easement.

Threats to Land Security and Legal Defense Against Squatters

The most serious threat to the conservation efforts occurred in July of 1995, when organized squatters invaded Hacienda Barú and occupied the lands along the beachfront. The invasion was organized by leaders who sold 47 lots on Hacienda Barú's beach front property to landless peasants, whom they subsequently charged approximately $15 per week over two years to assert their legal title. It was said that the operations were carried out by middlemen, who were directed and financed by wealthy people from a nearby town who intended themselves to obtain the land if the squatters were suc-

cessful. Some of these middlemen were later on sent to jail, upon convictions for drug trafficking and fraud.

After intensive efforts by the owners of Hacienda Barú, in January 1996, the squatters were evicted from the property by the national police. One of the critical issues that led to the successful eviction was that the invaded land was under the jurisdiction of MINAE as it was a wildlife refuge—this meant that highly corrupted local Municipal officials no longer had jurisdiction over those lands.

Subsequently, Hacienda Barú had to defend itself from numerous lawsuits initiated by the middlemen who had organized the squatters, and did so successfully.[143] The legal defense involved several proceedings initiated by the squatters before the *Sala Cuarta* (Constitutional Court) against MINAE and Barú for alleged improper eviction and denial of right to land. But each time the Court ruled in favor of Barú, since their ownership and concession rights to these lands was clear. The squatters also sued for lost profits in the civil venue. Further, squatters also resorted to the *Defensoría de los Habitantes*, alleging that MINAE had abandoned its duties in overseeing Hacienda Barú's compliance with the wildlife refuge status. In response to these *denuncias*, MINAE had sent inspectors, but found no fault. Additional harassing actions included several attempts to burn Hacienda Barú's facilities, and personal threats were made to the owners and employees of Hacienda Baru, which temporarily led to the hiring of armed guards for protection.

CASE STUDY 2: PUBLIC-PRIVATE PARTNERSHIP TO CREATE THE GUANACASTE CONSERVATION AREA[144]

An exceptional example of a public-private partnership for land conservation has been the formation of the Area de Conservación Guanacaste (ACG) in northwestern Costa Rica. This protected area of 110,000 terrestrial and 43,000 marine ha stretches from 6-18 km out to sea to dry-forested coastal lowlands, over cloud-forested volcanoes of 1400-2000 m, and down into the Atlantic rainforest; it contains about as many species as North America.[145] Although this area is government-owned, it was formed through a private-public partnership that included an NGO purchase of about 70,000 ha of private lands to consolidate three widely-separated national parks into a single management unit, and the creation of a public-private alliance for its management.

The key roles in this effort were played by the national government's Ministry of Natural Resources and Energy and its National System of Conservation Areas, the latter ably led by people like Alvaro Umaña, Rene Castro, Hernan Bravo, Carlos Manuel Rodriguez, Alvaro Ugalde, Mario Boza, and Raul Solorzano. Two NGOs (the Guanacaste Dry Forest Conservation

Fund created by Dan Janzen, and BioGuanacaste created by a consortium of concerned residents and biodiversity managers) have become key players. Critical roles were also played by a succession of Presidents, national NGOs such as the Fundación de Parques Nacionales, Fundación Neotropica, INBio, Universidad de Costa Rica, Universidad Nacional, and Centro Cientifico Tropical, and their international associates—The Nature Conservancy, WWF, Conservation International, IUCN, and UNESCO.

History

Much of the ACG was formerly owned by Luis Samoza, president of Nicaragua from 1956 to 1963, and was also the site of the Santa Elena Airstrip built by Oliver North in the mid-1980s. Shortly after the Samozas occupied the Guanacaste area, Kenton Miller, then a forestry officer with the Food and Agriculture Organization, was invited by the government to examine the tourism potential of the 1,000 ha Santa Rosa Historical Monument. Rather than proposing it stay a small historic monument, however, Miller submitted a plan to create and manage Santa Rosa as the first wildland national park in Costa Rica. The government expanded the target area to 10,000 ha, stretching from the sea to the Interamerican Highway, and in 1971 Santa Rosa became one of Costa Rica's first national parks.[146] Subsequently, additional separate public protected areas were created in the region, including the Guanacaste and Rincón de la Vieja National Parks, Sector Murciélago, and the Bahía Junquillal Wildlife Refuge.

Conservation Strategy

By 1985, the stresses of annual anthropogenic fires[147] (exacerbated now by the introduction of exotic grasses such as jaragua), poaching, small size, neighboring wars, shrinking government budgets, and a host of more minor ills were already rapidly reducing its biodiversity conservation potential to not much more than a brushy dry forest cattle pasture with forest fragments in ravines. At this point, Dan Janzen, a scientist researching at Santa Rosa since the early 1970s, proposed an ambitious plan to restore the ecosystem. This meant significantly expanding and integrally managing the area, as large intact ecosystems are needed to achieve the goal of conserving virtually all of the area's original biodiversity.[148] This goal was achieved under the public-private partnership described below, and in 1991 the area was re-named the Area de Conservation Guanacaste,[149] amalgamating three national parks, two wildlife refuges, a forest reserve, a zona protectora, and the matrix of surrounding private land that was purchased for inclusion.

In 1986, Janzen commenced a private initiative and aggressive fundraising campaign that has raised $11.8 million in private funds to buy the land around Santa Rosa and implement the habitat restoration program. The funds came primarily through international foundations and individual donors, and were initially channeled through The Nature Conservancy and later through the Guanacaste Dry Forest Conservation Fund (GDFCF), non-profit organization established in the United States by Janzen.[150] Nearly 300 individual properties were negotiated and purchased from willing sellers, ranging in price from a symbolic $1 purchase of a 7,000 ha parcel to the $16 million paid by the Costa Rica government to expropriate the 15,800 ha Santa Elena property. In the later case, the private sector paid several million dollars in legal fees and provided three years of hard work, in another effective public-private partnership.

The core of this public-private partnership is that most properties were first purchased by non-government entities; initially the parastatal Fundacion de Parques Nacionales (FPN), and more recently by the GDFCF, acting as intermediaries, for ultimate transfer to the government. Because both organizations are certified non-profit public charities, under Costa Rican law they pay no taxes on these lands and pay reduced or no transfer taxes. By 1991, once enough properties had been acquired, the lines of the public protected area were redrawn and expanded to include the privately purchased areas, and their titles began to be transferred to the government, a process that continues to this day as new sectors are added.

One of the chief reasons for transferring the property to government ownership is that large private landholdings, even if managed for conservation purposes, are not well accepted in the cultural context of Latin America. "Irrespective of considerations of management logic, such a single property would have been substantially too large to be allowed by the social forces characterizing Costa Rica's contemporary democratic society to exist as one private holding in a tiny country."[151]

The last chapter of this project began in the late 1990's, when the Rincón Rainforest project was initiated to purchase and conserve 5,000 ha of additional rainforests along the ACG's eastern boundary.[152] These wet forests are used by many dry forest species during the dry season, and so their conservation became important to allow the biodiversity of the entire large dry forest ecosystem to survive (especially as global warming creates a hotter and drier climate).

This is again a private initiative that will result in the NGO purchase of about 50 unoccupied private landholdings, but with substantial public sector political and logistical support. The project's connection to the government-created ACG provides a moral and political conservation context in the eyes of the local, national, and international audiences. The public sector also pro-

vides technical and administrative resources in the process of identifying and purchasing these lands, and once purchased the ACG staff actually administers them together with the GDFCF. All these lands will eventually be incorporated into the ACG under full government ownership once boundaries are finalized, the infrastructure established, the forest restoration process in progress, and a mechanism established to ensure the income from its $500,000 privately-raised endowment will be dedicated to the management of this sector.

1. Management of the ACG

The entire ACG is managed as a single unit in a public-private partnership, in what has been described as "an exercise in biological and social engineering."[153] This required in 1986 the directors of the (then) existing Servicio de Parques Nacionales, Direccion General Forestal, Direccion General de Vida Silvestre, and the Fundación de Parques Nacionales, a private NGO with government-appointed directors, to relinquish their political and administrative power over personnel and land to the control of a single administration, budget, and goal (restoration and conservation). This far-reaching step in 1986 broke ground for today's Sistema Nacional de Areas de Conservacion, which is the amalgamation of the three government agencies.[154]

The greatest amount of funding for the entire project came from a debt-for-nature swap in 1987 with $3.5 million provided by the Swedish government for discounted Costa Rican debt. Far more debt was collected than anticipated, however, and the Central Bank originally refused to redeem more than $5-$6 million worth of debt. Alvaro Umaña, then Minister of Natural Resources, together with the NGO community, lobbied the Central Bank and convinced them to pay for 75 percent of the purchased debt, generating $18 million for the endowment fund, land purchase, and infrastructure. After being used for certain expenses, the endowment fund now totals $6-7 million[155] and is held by the FPN.

The income from this endowment, together with tourist and other fees, and environmental service payments from the Costa Rican government of roughly $50 per ha per year in the Rincón Rainforest, provides the $1.4-1.7 million annual ACG budget. Essentially all the budget is spent locally, with about 20 percent directed to carrying out a biological education program in the ACG for 2,500 children in all neighboring schools. The reality and the goal is that conservation of the ACG will not cost the national budget anything, and that it will eventually contribute at least as much to the national economy as it would if converted to what would otherwise exist here—low-grade commercial agroscape.

Conclusion

The creation of the ACG is the story of an extremely effective public-private partnership dedicated to land conservation. The private sector provides much of the entrepreneurial leadership of this 15 year effort to restore and conserve 2 percent of the country, and took the lead in purchasing 70,000 ha of private lands to join together the existing public lands into one coherent ecoscape. The private efforts also raised about $12 million of the total $45 million cost of this effort to date, and were instrumental in motivating the government to obtain or provide the remainder.

The role of the government in the public-private partnership was critical, and included:

- willingness to create one consolidated private-public administrative unit for the ACG;
- political collaboration (especially critical for debt-for-nature-swaps, expropriation in the one critical case of the Santa Elena Peninsula, and supporting legislation as needed);
- social legitimacy locally, both nationally and internationally;
- government legal power (authorizing arrests and repelling squatter incursions); and
- very considerable classical "national park conservation knowledge."

Key assumptions of the public-private partnership are described by Dan Janzen as follows:

> It was assumed from its beginning in 1986 that the ACG would eventually be entirely government owned—for survival into perpetuity—but with a biodiversity management akin to the flexibility, circumstance-dependent and mission-oriented management philosophy characteristic of the private sector—again, for survival into perpetuity. NGO-government negotiation is the order of the day in these transfers, with both sides of the table frequently shifting in their power, intent, capacity, and self-confidence—but with the theme in common of 'conservation of the wildland biodiversity into perpetuity.' A real world alliance between the fickle but fluid private sector conservation effort, and the stolid but innovative government conservation effort, has been a trademark of the three decades of Costa Rican wildland conservation history. It was essential to the formation of the ACG and will be essential to its continued survival.[156]

ECUADOR

COUNTRY PARTNER: CENTRO ECUATORIANO DE DERECHO AMBIENTAL

There has been a great deal of activity in the conservation of private lands in Ecuador, of both a formal and informal nature. Landowners may obtain formal legal protection for their lands through designation by the government as a Protective Forest (*Bosque Protector*), and private landowners have voluntarily created 88 such reserves. There are literally hundreds of informal private protected areas created by landowners, in many cases with a connection to ecotourism activities. In addition, and unique to Ecuador, are several systems of private protected areas created by conservation NGOs that have been carefully designed to conserve critical areas for biodiversity that fall outside the state protected area system. Finally, while conservation easements began to be created in Ecuador in 1999, these easements are traditional appurtenant easements between adjacent estates, which significantly limits their potential application.

In addition to these voluntary methods of land protection, the government has extensively used the *Bosque Protector* device to restrict the uses of private lands within critical areas.[157] Seventy of these areas have been created by the government, often to protect watersheds, and which now cover 2,237,183 ha, or 8 percent of the country. However, mere designation of an area as a *Bosque Protector* has done little to protect the land, and their actual protection depends greatly on the conservation efforts of the entity that manages the reserve.

I. GOVERNMENT PROTECTED AREAS COVERING PRIVATE LANDS

A. *Bosque Protectors* Created through Government Initiative

In Ecuador, land can be permanently protected through designation as a *Bosque y Vegetacion Protectora* (Protective Forest and Vegetation) under the Forestry and Conservation of Natural Areas and Wildlife Law.[158] The designation of lands as a *Bosque Protector* can be done in two entirely different ways, depending on whether the declaration is initiated by government or by a private landowner. This section discusses government declaration of a *Bosque Protector* over sensitive lands, which thereby restrict private land uses within the area. Also, private landowners can voluntarily obtain this designation to

create a formal private reserve on their lands, which is covered in the next section. The *Bosque Protector* status is the same in both cases, but the landowner's voluntary commitment to create the reserve is present only in the latter.

The National Forestry Agency, the authority responsible for *Bosque Protectors*,[159] has made an inventory of Bosque Protectors, presented below in Table 1. By 2001, 161 *Bosque Protectors* have been declared, covering a total area of 2,455,287 ha, or approximately 9 percent of the surface area of Ecuador. Over 90 percent of the area is contained in the publicly-initiated Bosque Protectors, but 88 privately initiated areas have been created covering 113,683 ha.

FIGURE 14. NUMBER AND AREA OF BOSQUE PROTECTORS OF ECUADOR

	Amount	Percentage of the total	Approximate area (ha)	Total area percentage
Public	70	43.5	2,237,183	91.1
Private	88	54.7	113,683	4.6
Mixed	3	1.9	104,421	4.3
TOTAL	**161**		**2,455,287**	

Database: Inventory of Bosque Protectors at the national level, Environmental Ministry. (2001).

The forms of vegetation, natural or cultivated, that can be considered for designation as a *Bosque Protector* are those with one of the following attributes: (i) have the conservation of soil and wildlife as a principal function; (ii) are situated in areas that allow for the control of heavy rainfall or the preservation of hydrological basins, especially in zones of scarce rainfall that occupy mountain summits or contiguous areas of the sources, streams, or water deposits; (iii) constitute wind breaks; (iv) are located in areas of hydrological and forestry research; (v) are located in strategic zones for the national defense; or (vi) constitute a factor in the defense of natural resources and infrastructure works of public interest.[160]

The only activities permitted within *Bosque Protectors* are contingent upon prior authorization from the National Forest Agency and are the following: the opening of firebreaks; phytosanitary control; promoting wild fauna and flora; public works or a priority nature; and scientific, tourist, and recreational activities. A change in the regulation as of May 2, 2002 allows sustainable forestry activities as long as they do not conflict with the preservation criteria. In addition to these general restrictions, additional restrictions on land use can be imposed by the decree establishing the reserve,[161] or be contained in the management plan.

Most of the *Bosque Protectors* created by the government are large areas declared for public purposes by Ministerial Resolution to protect hydrological

basins, threatened forest ecosystems, mangrove ecosystems, green zones surrounding cities, or areas of importance for biodiversity conservation, among others. In these cases, the *Bosque Protector* typically includes many private property owners within its limits, who may not have agreed or even participated in the decision to create the *Bosque Protector*. The *Bosque Protector* designation significantly restricts the lands uses that can be made on these private properties, as described above.

In practice, *Bosque Protector* status has provided only weak protection for lands. Management authority is typically vested in the entity that requested creation of the *Bosque Protector*, such as a municipality, which must create the management plan and is responsible for enforcing the land use rules of the designation. However, management has traditionally been weak, and in many cases the *Bosque Protector* designation has been ineffective in preventing the clearing of private lands within the reserve and their conversion to agricultural or grazing use. Problems with *Bosque Protectors* are discussed following the next section.

III. VOLUNTARY METHODS OF PRIVATE LANDS PROTECTION

Although voluntary efforts to protect private property have increased greatly in recent years, such efforts have existed since 1942 when conservation actions were undertaken by the Primavera Ranch in Napo Province. The first formal private reserve was the Río Palenque Scientific Station, a 200 ha reserve in Esmeraldas, established by Calaway Dodson and the University of Miami in the 1970's. Other early reserves were Janueche, Jatun Sacha, and Rio Guajalito reserves that were established in the 1980s. Today, there are a great number of private protected areas in Ecuador, making it, along with Costa Rica and Brazil, one of the countries with the highest number of private protected areas in Latin America.

A. *Bosque Protector* Designation Created by a Private Landowner's Initiative

Landowners can obtain permanent designation of their lands as a private reserve through designation as a *Bosque Protector*. The *Bosque Protector* is declared via a ministerial resolution after the applicant has complied with the requirements established by the law and its regulations. This is the only legal instrument that allows private participation in land conservation.

The following steps are needed for a landowner to obtain designation as a *Bosque Protector* for qualifying land:

1. The interested party makes a request to the Environmental Ministry or the forest district, together with a public deed to the property, a current certificate issued by the Registry of the Property stating that there are no encumbrances, and a topographical document issued by the Military Geographical Institute describing the zone;
2. An inspection of the zone must be made to verify whether the property complies with the requirements for declaration as a *Bosque Protector* (on the basis of the hydrological conservation utility of the forest subject to declaration);
3. The declaration of the areas as a Bosque Protector is made by ministerial resolution; and,
4. The interested party has a period of 180 days to draft a management plan, which must be inscribed in the property registry.

Once created, the designation is durable and cannot be changed by subsequent landowners. If created by the state, it can only be revoked for ecological reasons; if by a private owner, the designation can only be revoked through an administrative process for fundamental reasons such as the impossibility of achieving the objectives of the reserve due to land changes. In addition, the landowner has traditionally received an exemption from the payment of rural property taxes, although all such exemptions have been nullified due to the country's economic problems. However, it has been reported that the authorities did not always allow this exemption in practice and may require the owners to continue to pay taxes.

The reason private landowners have initiated *Bosque Protectors* vary, although a number have been created for conservation purposes and are members of the private protected areas network. One example is the Cerro Blanco reserve in Guayaquil, which protects a globally important site to protect endemic biodiversity.[163] This *Bosque Protector* was created in 1989 and after several expansions now totals 6,000 ha. It is managed by a NGO called ProBosque that receives considerable support from Cemento Nacional, creator of the reserve, and expends constant efforts to protect the area from fire and illegal invasions.[164] However, many private landowners who have obtained this declaration have done so not for conservation purposes, but principally with the objective of potentially increasing the security of their properties against invasions.[165]

Problems with *Bosque Protectors*

In practice, *Bosque Protector* status has provided only weak protection for lands placed in conservation status. Although it has sometimes affected government land use decisions that have resulted in some added legal protection,

Bosque Protector status has generally not been able to protect the land from invasion or conversion of the forest to agricultural or grazing use. Some specific problems are listed below.

a. *Creation of Bosque Protectors that do not fulfill the legal prerequisites:* At the moment, there are *Bosque Protectors* that do not fulfill the requirements set out in the Forestry Law, an example of the lack of adequate control by the relevant government authority. Prior to the declaration, the Environmental Ministry is required to conduct a number of studies that make it possible to determine if the area complies with the prerequisites for a *Bosque Protector*, and issue an evaluative report.[166] Due to administrative and financial reasons, the government authority does not have the resources necessary to make visits, conduct adequate studies and ensure compliance with such requirements. In certain cases the process is completed only with the documentation submitted by the interested party.

b. *Lack of Management Plans:* The absence of management plans for a majority of the areas with *Bosque Protector* status demonstrates a significant weakness in the use of this tool. Table 2 shows that only 17 percent of the *Bosque Protectors* have management plans. Moreover, the Environmental Ministry, which is in charge of advising on the elaboration of these plans, often fails to do so, and the responsible Forest Districts are failing to monitor compliance. The absence of management plans is an indicator that the activities being undertaken in the existing *Bosque Protectors* may not meet conservation and protection objectives.

FIGURE 15. NUMBER OF BOSQUE PROTECTORS WITH A MANAGEMENT PLAN, BY CATEGORY.

	With management plan	Without management plan
State/Public	19	69
Private	6	64
Mixed	3	0
TOTAL	**28**	**133**

* The data refers to the 161 *Bosque Protectors* in the Inventory of Bosque Protectors at the national level, Environmental Ministry (2002).

c. *Lack of enforcement against invasions and land conversion:* In general, the actual protection afforded by *Bosque Protector* status has been shown to depend to a great extent on the motivation and resources of the entity that is in charge of management of the reserve. The state-declared *Bosque Protectors* have generally failed to protect the areas against cutting of forests and conver-

sion of the land to agricultural use, although the protected status may slow this trend in some cases. There are some instances in which *Bosque Protectors* have been completely cleared of vegetation, and no longer serve the purposes for which they were created.

Privately declared *Bosque Protectors* have been somewhat better protected, in part because they are smaller, and the landowner has voluntarily committed to protect the land. The best examples are those that are owned by nonprofit foundations, such as scientific stations, which have adequate resources to monitor and protect the reserves against land invasions.

d. *Lack of effectiveness of the tax exemption for Bosque Protectors:* Although lands designated as *Bosque Protectors* used to be exempt from rural property taxes, this did not create a major financial incentive, since rural property taxes are very low in Ecuador and property owners tend to understate the appraised value of their properties for tax purposes. These taxes are also not collected on an annual basis; typically, they accumulate and are paid by the purchaser of the property upon its sale. Even if accumulated over 12-20 years, the taxes are not generally more than a few percent of the total sale price. Therefore, the tax exemption for Bosque Protectors did not in practice create any significant financial incentive for conservation.

e. Lack of support from other government agencies: The designation of lands as a *Bosque Protector* can mean that government agencies change their policies in order to protect the lands in the reserve, but this effect is not consistent, and not all agencies appear to recognize the protected status. In one case study, *Bosque Protector* status meant that government authorities did not issue permits for cutting trees on *Bosque Protector* lands, which depressed the price of the land, and it was subsequently sold to an NGO and used as a scientific station. On the other hand, representatives of the Instituto Nacional para el Desarrollo Agropecuario (INDA) have given people permission to lay claim to areas within *Bosque Protectors*, even though this is in theory not legal.[167] The tax authority also in many cases continued to require owners of lands within *Bosque Protectors* to pay property taxes, even though the law exempted such owners from the tax. This lack of regard for protected area designations by government agencies with other primary missions means that the government may be a principal direct cause of the loss of protection within the *Bosque Protector*. Therefore, a more coordinated government policy of protecting *Bosque Protector* lands would add considerable protection.

B. Land Purchase and Ownership by an NGO

More than in any country except possibly Costa Rica, NGOs have been active in Ecuador in the purchase and ownership of lands for the protection

of critical sites for biodiversity conservation. As in other countries, ownership by a legally constituted environmental NGO confers a degree of permanence to the land protection, and the NGOs involved actively seek or generate funding to maintain the properties in a natural state.

An important use of private reserves—that is best exemplified in Ecuador—has been the creation of systems of private reserves by conservation NGOs to protect critical sites within the country's most highly threatened ecosystems. Three organizations have developed such reserve networks following years of scientific work and "gap analyses" that identify the most important remaining sites that need to be protected to conserve the biodiversity of the country. These reserves are typically 1,000 to 10,000 ha in size, and are located in forest ecosystems that have already lost 96 to 99 percent of their former extent, with remaining tracts mainly on private lands. Most of these reserves are fairly well protected, have on-site management, and conduct a wide range of research, reforestation, and community extension projects. These private reserve systems are:

FIGURE 16. PRIVATE PROTECTED AREA SYSTEMS CREATED BY NGOS IN ECUADOR

Organization	Founded	Number of Areas		Size of Areas (Ha.)	
		Current	Planned	Current	Planned
Fundacion Jatun Sacha[168]	1988	5	6	8,500	15,000
Objective: Endangered ecosystems not well represented in Ecuador's protected areas					
Nature & Culture Int'l[169]	1997	3	6	8,000	24,000
Objective: Conservation of all representative habitats in southwest Ecuador					
Fundacion Jocotoco[170]	1998	7	10	6,000	60,000
Objective: Conservation of habitat of endangered bird species					

These groups pursue a number of strategies to raise funds to expand and manage their lands. Funds for land purchase come almost entirely from international private donors, such as individuals and foundations. Funds for management of the areas come from private as well as governmental international donors; fees for courses given at the areas or from volunteers who work at the sites; and in a few cases where the infrastructure exists, fees from ecotourism and scientific research. Fundacion Jatun Sacha has been able to makes some of its reserves self-supporting, primarily from charging fees to course participants and volunteer interns.

C. Informal Private Protected Areas

Today, many privately protected areas in Ecuador are simply declared informally by the landowner as a way to show an intention to conserve the

natural heritage. Often, these areas, which can be called "reserves" by their owners, are linked with an ecotourism business. These vary from a few dozen ha of forest owned by a family that accepts tourists into its farmhouse to help generate additional revenues, to properties such as the 1,170 ha Cabanas San Isidro, owned by dedicated conservationists who have purchased additional lands to form a buffer zone for the nearby Antisana Ecological Reserve.[171] Most of these areas lack any formal designation as a protected area that would ensure their long-term survival.

D. Conservation Easements

Starting in late 1990s, the Centro Ecuatoriana de Derecho Ambiental (CEDA), began to actively promote the use of easements as a private land conservation tool.[172] In July of 1999, after seeking to interest several entities in creating a conservation easement, it assisted the Jatun Sacha Foundation and the Health and Habitat Foundation to establish the first easement for conservation purposes in South America over a 700 ha area. CEDA also helped to create the second conservation easement in Ecuador in 2001 between the Lima family and the Ceiba Foundation that covers 600 ha in Pichincha (see case study).

Both of these easements are traditional appurtenant easements created between neighboring properties, and restrict land use to conservation purposes for a term of 25-30 years. Despite the possibility of creating an easement in perpetuity, in both cases the parties felt more confident in establishing a fixed term, as conservation easements are a new innovation. The enforceability of easements used to restrict land uses for conservation purposes has not been tested in Ecuador, and may be uncertain, as such uses are neither traditional, nor specifically authorized under any Ecuadorian law.

Currently, the possible use of establishing conservation easements is being publicized, and potential interested landowners are being identified in Ecuador, led by NGOs such as CEDA. There are major opportunities for the establishment of conservation easements, and there are currently six projects in different negotiation stages, covering an approximated area of 1,000 ha. Conservation easements however take time to negotiate and create, due in part to their innovative nature and in part to the time needed by the parties to decide that the conservation easement option is the best conservation strategy.

Many of the uncertainties regarding conservation easements would be resolved by a proposed law to establish the right to create easements for conservation purposes, and to allow them to be created in favor of an organization, without the requirement for a dominant and servient estate.

E. Networks of Private Reserves

In order to promote greater cooperation among private landowners dedicated to protecting remaining native forests, a network called National Corporation of Private Forests of Ecuador was created in 1996. The network is comprised of 65 private landowners owning 70,000 ha.[173] The members must comply with certain requirements including holding the title to lands with native forest and/or forest in process of recovery; declaring themselves identified with the conservation objectives of the network; paying an affiliation quota; and being willing to adopt programs on sustainable management, environmental education, and/or community work. This group includes owners who informally maintain their properties as private reserves, NGOs with conservation properties, and owners with lands formally declared as *Bosque Protectors*.

F. Conclusions

Overall, the degree of protection provided by *Bosque Protectors* or other forms of private protected areas appears to depend principally on the will and resources of the proponent or owner of the area. Typically, the lands cannot withstand development pressure without significant efforts by the owner of the land, which requires a sustainable commitment and financing strategy. To date, the smaller areas created by NGOs or conservation owners have been better protected than government-designated *Bosque Protectors*, in which a private or state actor attempts to enforce land-use conditions over a larger area and many private property owners. Also, private efforts located adjacent to public protected areas are shown to play an important role in helping to enforce protection of the public area, and in carrying out scientific research and public education in support of the public area.

IV. FUTURE GOALS

The following steps are important to advance and strengthen the legal tools for private lands conservation in Ecuador. In discussing these steps, this section makes specific reference to the private lands conservation measures contained in the proposed Special Law for the Conservation and Sustainable Use of the Biodiversity, which has been developed with strong input from the conservation community and is being considered by the national legislature.

1. Improve the legal framework.

a) *Legislation authorizing conservation easements.* A major weakness in Ecuador's law is the lack of legislation that specifically authorizes the creation

of conservation easements that restrict land uses, and allow such easements to be held by qualified organizations even if they do not hold nearby land. The proposed Special Law for the Conservation and Sustainable Use of the Biodiversity would implement both of these recommendations and would provide a more secure basis for the creation and enforcement of conservation easements.

b) *Legislation authorizing private natural reserves.* The private reserve system in Ecuador has experienced some success, but monitoring and enforcement of restrictions on private lands remains weak. The proposed Special Law would authorize the creation of "Private Natural Reserves" in qualifying areas by the Environmental Ministry, at the request of the landowner, who would need to develop an adequate management plan. Unlike *Bosque Protectors*, such areas would become part of the governmental system of protected areas, possibly leading to greater access to incentives.

c) *Legislation authorizing conservation concessions* is needed in order for conservation entities to be able to manage state lands under concession for conservation purposes.

2. Strengthen government regulation of private land use restriction within protected areas such as *Bosque Protectors*: Greater resources and capacity need to be devoted to enforcing the restrictions created by government-designated *Bosque Protectors* if they are to succeed in their purpose of protecting natural vegetation and forests. The government needs to review the status of *Bosque Protectores*, create management plans for those that continue to qualify under the criteria, strengthen their management, monitor land uses, and take protective actions when needed. This could be done with greater state resources and partnerships with the private sector. Finally, all government agencies should accept responsibly for protecting *Bosque Protectors*, and not authorize incompatible lands uses, title land within them for other uses, or fail to enforce tax exemptions or other incentives within these areas.

3. Create incentive mechanisms: There should be experimental investigation of incentive systems such as payments for environmental services, trust funds for payments for private lands conservation actions, and other incentives to conservation easements or private reserves. Priority could be given to properties that are within designated priority areas such as *Bosque Protectors* or other state protected areas. The new proposed law would create incentives such as payment for environmental services.

4. Institutional Strengthening. Greater resources and capacity need to be built in both governments and conservation NGOs to support the implementation of private lands conservation tools and practices. Conservation NGOs such as CEDA have played a lead role in developing and implementing private land conservation tools such as easements and private reserves, but depend to a greater deal on external support to continue to play this major role.

CASE STUDY 1—*BOSQUE PROTECTOR* AND PRIVATE RESERVES IN THE SAN FRANCISCO WATERSHED

This case study describes a large *Bosque Protector* established in 1970 that covered the private lands within the watershed of the Rio San Francisco in Loja state. Subsequently, two smaller private reserves were created within this area by non-profit foundations, one by the Fundacion Cientifica San Francisco of 1,000 ha, and the other by Fundacion Arco Iris of six ha. This case study examines the history and effectiveness of these various forms of private reserves.

Bosque Protector San Francisco: This *Bosque Protector* is located along the northern boundary of Podocarpus National Park, 25 km from the city of Loja on the highway that leads to Zamora, this area lies within the Amazon basin and is considered an area of transition to the Andean region. It has an important hydrographic network that feeds the San Francisco River. The area is principally cloud forest, with notable stands of Podocarpus trees, with rough topography and frequent landslides. Although lands in the lower part of the *Bosque Protector* reserve have been cleared for agriculture and cattle raising, there still is extensive vegetation in good condition, especially at higher altitudes as one approaches the limits of the Park.[174]

The *Bosque Protector* was created by Ministerial decree on behalf of the Empresa Electrica Regional del Sur in 1970 to protect the watershed of the San Francisco River.[175] Protecting the watershed was important in order to provide water for the company's hydroelectric unit built that year, the first to provide electricity to the region. Subsequently, a large portion of the *Bosque Protector* was incorporated into the Podocarpus National Park in 1982, leaving only the northern portion along the Loja-Zamora road within the *Bosque Protector*.

The area's designation as a *Bosque Protector* does not require the expropriation of private land; its chief effect is to restrict the uses of the private lands that lie within the reserve boundaries. However, as of 2001, most of the land in the *Bosque Protector* has been cleared for cattle-raising and agriculture, and land clearing is creeping up the slopes towards the Park. Exceptions to this are two areas owned by conservation NGOs, discussed below, plus an area of

forest owned by the Universidad Tecnica Particular De Loja, and an area of 600 ha voluntarily conserved by an American owner. Much of the rest of the forest has been cleared to provide cattle pasture.

Enforcement of the *Bosque Protector* is the responsibility of the proponent, in this case the electric company. In the opinion of some, the electric company never adequately fulfilled its function to protect the land. They hired only one guard to live within the area of the *Bosque Protector*, and this person was never trained in the use of legal tools to prevent inappropriate land uses within the area, or given the authority to execute the laws. There was also very little outreach to the surrounding communities about the ecological or economic importance of the *Bosque Protector*.

Overall, the *Bosque Protector* status proved to be not very effective in protecting the natural vegetation. On the positive side, *Bosque Protector* status meant that the government forestry agency did not grant permission to property owners to cut timber within the area, helping to protect the forests. However, *Bosque Protector* status was not effective in halting spontaneous land clearing for cattle-raising and agricultural use, especially in the areas close to the road. No government agency attempted to enforce the restrictions of the Bosque Protector against these small farmers, and the enforcement efforts of the hydroelectric company responsible for the *Bosque Protector* were weak.

San Francisco Reserve: In 1997, the NGO Nature and Culture International (formerly Foundation San Francisco) bought 1,000 acres of land from a private property owner within the Bosque Protector in order to create a scientific research station. The cost of the land was low, approximately $20,000, because the landowner had not been able to obtain governmental permission to cut timber on the land, which was his original intent. He subsequently was unable to find a commercial buyer for the land and sold it to the Foundation for scientific purposes. The foundation built a large research station on the land, in collaboration with a consortium of German universities which carry out an extensive research program at this station, valued at approximately $1 million per year, making the station one of the foremost centers of tropical forest research.

Nature and Culture International was created as a nonprofit organization in 1997 as a collaborative effort between a San Diego businessman, a German research scientist, and conservationists in Loja. The Foundation charges modest fees for the use of its research station, which supports the operating costs of the station and conserving the area, as well as a small core staff for the Foundation in Loja. The Foundation has now broadened its mission from an initial focus on the research station to one of creating and conserving private protected reserves in representative ecosystems throughout the state of Loja (see Figure 16 above).

Arco Iris Reserve: In December of 1995 an agreement of cooperation was signed between Foundation Arco Iris and the INEFAN for the administration and management of the Podocarpus Park. This agreement contemplates a more direct participation of ArcoIris in the management of this sector for the Park, including the development of infrastructure, provision of equipment and personnel, patrolling the boundaries and helping with conservation and development activities.

In 1996, as part of the activities to protect the Park, Foundation Arco Iris purchased a small six ha property within this region of the Park, known as San Francisco, and directly along the Loja-Zamora road. The initial intent was to donate the land to INEFAN to provide a site for a guard post, but INEFAN did not have the resources to build and maintain a guard post there. Arco Iris subsequently kept the land under an agreement with INEFAN, and with USAID funds built a house that serves as an education center, guard post, and lodging for visitors.

A primary motive for creating the Arco Iris private reserve was to protect the north side of the Park, which lacks any other guard station. Another important motive was to create a center for interpretive education, and the center now regularly receives school groups. Such educational activities are almost entirely carried out by NGOs such as ArcoIris and local schools, as the Park Service has no budget for such activities.

The presence of both private reserves have succeeded in helping to protect the northern boundary of the Podocarpus Park, and in reducing the amount of illegal logging, hunting, and fires in the area. The fires were set by neighboring cattle ranchers to clear vegetation to promote the growth of pastures on their lands near the park. Since the creation of the reserves, there have been no forest fires in this area, although previously they had been an annual event.[176]

An important feature of both the Arco Iris and Foundation San Francisco reserves is that there is considerable assurance that they have perpetual protection due to their ownership by a legally constituted non-profit organization. Such organizations must continue to follow their non-profit conservation objectives, and even if they cease to exist, the laws of Ecuador require that their assets be transferred to another non-profit organization. Further, their non-profit status allows these groups to seek funds from government, private, and foundation sources, enabling the necessary support for land conservation activities.

CASE STUDY 2—CONSERVATION EASEMENT "EL PAHUMA," PICHINCHA

The reserve El Pahuma protects 600 ha of cloud forest owned by the Lima-Acosta family along the Quito-Mindo road. The reserve forms a con-

tiguous natural area of mountainous humid forest and primary and secondary cloud forest that constitutes habitat for a high diversity of plants and animals, and has ecological, cultural, scientific, educative and aesthetic values. To date the area has not been object of deforestation, exploitation, or development. Preliminary inventories indicate that the reserve has 131 species of birds and 187 species of orchids.[177]

An easement to protect this land was drafted with the assistance of the Centro Ecuatoriano de Derecho Ambiental ("CEDA") and was inscribed in the Registry of the Property in 2000. This easement is constituted as a traditional appurtenant easement, with the Lima-Acosta property being the burdened or servient estate, and benefiting the adjacent dominant estate held by Foundation Ceiba, a non-profit foundation.

The easement was established for conservation purposes and has a term of 25 years. It prohibits any uses that diminish or negatively affect the purpose and objective of the easement. It expressly forbids: the commercialization of wood; the cutting of trees to deforest the area for agriculture purposes or for the construction of roads, buildings or footpaths; the alteration, removal or cutting of arboreal and non arboreal vegetation; the hunting or killing of wild animals; the extraction of plants or wild animals (alive or dead), the extraction of any cultural resource, the maintenance of cattle offspring or other farming animals; mining exploration and extraction; and the contamination of soil, air, and water. Part of the easement contract includes monitoring activities, allowing an annual inspection and non-programmed visits by the easement holder, Foundation Ceiba, as well as an annual inspection by CEDA.

The motivation of the Lima-Acosta family in creating the easement was the conservation of existing species in this particular habitat with an emphasis on orchids. Also related was their decision to not make traditional use of this land for cattle-raising, but to initiate ecotourism. Part of the deal was that Foundation Ceiba would support ecotourism, training, and ecotourism infrastructure development.

The easement contract also creates a number of rights and obligations for the Ceiba Foundation. The obligations include: to obtain funds for the development of ecotourism activities; to give copies of documents created by scientific research; and to issue an annual economic report on the expenses and contributions made to the reserve. Its rights are: to protect and preserve the servient estate and its natural and cultural resources; to enter the servient estate for monitoring purposes; to prevent any activity that is in conflict with the easement; to elaborate a mutually agreed management plan and to monitor the property according to the management plan.

The rights and obligations of the servient estate are: not to sell, transfer, or rent the property; to maintain the improvements; to elaborate a joint management plan; to receive a copy of the monitoring data obtained by others; to

request from the dominant estate the execution of restricted activities subject to prior notification; and to not be held responsibly for third party violations. It has the obligation to pay taxes and to maintain and protect the servient estate.

Conclusions

Conservation easements take time to negotiate and create, due in part to their innovative nature and in part to the time needed by the parties to decide if the conservation easement contract option with legal effects is the best one. With respect to the time of duration, there have been concerns on the part of parties in entering into perpetual contracts. Enforcement of easements has also not been tested in Ecuador. One of the objectives in the constitution of this conservation easement is the possibility of replicating the use of easements with neighbors of the area, and thereby expand the area under conservation. In both cases of constituted conservation easements in Ecuador, there is interest on the part of the neighbors in creating conservation easements.

GUATEMALA *(COUNTRY SUMMARY)*[178]

Several methods of private land conservation are being implemented in Guatemala, including creation of formal private reserves, informal protected areas, and more recently, the use of such civil law instruments as usufructos and easements for conservation purposes. Although in Guatemala there are no conservation concessions as such, there are many communal and industrial timber concessions where timber and non-timber products are harvested on a sustainable basis, and some of the National Parks are co-managed by NGOs. There is an Association of Private Natural Reserves of Guatemala (ARNPG) that has been effective in promoting the use of private land conservation mechanisms, and their application in areas of importance for conservation.

Overall, 68,755 ha have been protected through private land conservation tools, and another 153,100 ha are protected in Biotype Reserves held by national universities.

FIGURE 17. PRIVATE LAND CONSERVATION IN GUATEMALA

Private land conservation	Number	Area (ha)
University Biotope Reserves	8	153,100
Land Owned by NGOs	29	37,370
Formal Private Natural Reserves	51	21,697
Conservation Easements	4	7,233
Usufruct	2	2,455
Total	94	221,855

Source: Association of Private Natural Reserves of Guatemala (2003)

I. PRIVATE NATURAL RESERVES

Guatemala's Protected Areas Law includes a category for Private Natural Reserves (PNRs) which are included in the National Protected Areas System.[179] These reserves are properties recognized by the state, whose owners voluntarily agree to conserve the habitat and species of flora and fauna, for an undefined period of time.

As of December 2002, there are 51 officially registered PNRs protecting 21,637 ha. The reserves represent nine of the 12 ecosystems in the SIGAP, two of which, dry thorn forest and a class of premontane forest, are protected only in Private Natural Reserves.

Most of these privately owned reserves are located in the core or buffer zones of National Protected Areas, supplementing the conservation of these areas. They are concentrated in the Protected Multiple Use Zone of Lake Atitlán, where they create biological corridors to the Madre Vieja and Nahualate watersheds, the cloud forests of the Sierra de las Minas Biosphere Reserve, and the Quetzal Biotype Reserve in the Izabal and Petén areas. At an international level, private reserves form part of regional projects, like the Mesoamerican Biological Corridor, and the Calakmul-Petén Binational Protected Area initiative. The strategic location of the reserves is due in part to the active role of the ARNPG, which has been funded by USAID and TNC to assist in private lands conservation, and has which promoted the creation of reserves around protected areas and in relevant biological corridors.

In addition to the existing reserve, there are 23 properties in the process of being registered that would protect 34,370 ha in the Sierra de las Minas Biosphere Reserve and the Maya Biosphere Reserve (both areas co-managed by Fundación Defensores de la Naturaleza and the government National Protected Areas Council (CONAP).

There are a number of constraints to formally establishing private reserves: the lack of incentives, the lack of landowner awareness and interest, problems identifying land boundaries, and problems regarding land tenure. In addition, some landowners fear declaring formal reserves because of their perception that it may allow the populist government to confiscate their land as idle land, or regulate it as a government reserve.

II. BIOTOPE RESERVES OWNED BY UNIVERSITIES

Biotope reserves are a kind of formal reserve owned and managed by universities. The Universidad de San Carlos has seven such reserves covering 152,198 ha: Laguna del Tigre, Naachtun-dos Lagunas, Cerro Cahuí, El Zotz, Chocón Machacas, Quetzal (Mario Dary), and Monte Rico. The Universidad del Valle has one reserve of 900 ha near Atitlán Volcano, directly bordering Los Andes and El Vesubio PNRs. In this area there is a network of 11 PNRs covering 4,577 ha, which conserve such endangered species as the horned guan and the quetzal.

III. LAND OWNED BY NGOS

Conservation NGOs in Guatemala together own 43,033 ha of cloud, rain, and dry thorn forests. Fundación Defensores de la Naturaleza is the largest landholder and owns 20,370 ha in the Sierra de Las Minas Biosphere Reserve and 9,000 ha in the Lacandón National Park, and is in the process of declaring their properties as private reserves. Several properties owned by

FUNDASELVA, Amigos del Bosque, and Fundación Bidas protect the cloud forest of the Yalijux mountains and have been registered as Private Natural Reserves.

Creation of the Sierra de Las Minas Biosphere Reserve gives a good example of the potential role of private lands conservation. Fundación Defensores de la Naturaleza took the first step in creating this area when it purchased the initial 4,000 ha within the core area with financial support from the NGO World Parks. This was the first significant land purchase by Defensores, and subsequently The Nature Conservancy designated them as a country partner and invested in institutional strengthening and fundraising assistance. Defensores went on to purchase more lands and urged the government to create the Biosphere Reserve, which now covers 263,300 ha. Defensores now co-manages this huge protected area with the government.

IV. CONSERVATION EASEMENTS AND OTHER CIVIL CODE INSTRUMENTS

As in other countries in Latin America, Guatemala lacks a specific law for conservation easements, but appurtenant easements have been used for conservation purposes. Four of them have been established in the Cerro San Gil protected area in Izabal, covering 7,233 ha, and are held by Fundación Para el Ecodesarrollo y la Conservación (which also co-manages the protected area with CONAP). Defensores de la Naturaleza is also considering establishing easements over the properties as a further measure of assuring their conservation in perpetuity.

One other civil code instrument has been used recently, a 30 year right of usufruct over 2,455 ha of cloud forest in the Maya Biosphere Reserve, which has been given to Defensores de la Naturaleza for conservation purposes.

V. CONCESSIONS

There is no right in Guatemala for the state to grant a concession over public land for conservation purposes, but in the Multiple Use Zone of the Maya Biosphere Reserve the state has granted 14 communal and two industrial timber concessions over 561,402 ha of state land. In these, CONAP must approve sustainable management plans, and monitor the proper certification of the timber. These concessions have proven to be more protective of the forest than the alternative uses of the land for subsistence agriculture or cattle ranching, as the land is to remain forested, and there have been practically no forest fires registered within the concessions.

VI. INFORMAL PROTECTED AREAS

There is no accurate data on the number or location of informal protected areas in the country. Landowners are either not aware of the possibility of legally establishing a PNR, not interested, or are afraid of governmental intervention if they do. It is important to promote their registration since they represent a growing potential for the private land conservation movement.

VII. PUBLIC-PRIVATE COLLABORATION

There exists today a collaborative relationship between CONAP, private land owners, and local and international NGOs interested in the conservation of lands. One of the chief examples of this is the co-management of protected areas: the Fundación Defensores de la Naturaleza co-manages the Sierra de Las Minas Biosphere Reserve, the Lacandón National Park, the Refugio de Vida Silvestre de Bocas del Polochic, and the Naciones Unidas National Park. The Fundación Para el Ecodesarrollo y la Conservación co-manages the Cerro San Gil protected area, and is the first Guatemalan NGO to have created a conservation easement.

There is also collaboration in developing private reserves in the areas surrounding public protected areas. In the Multiple Use Protected Area of Lake Atitlán, 11 private reserves protect another 3,677 ha. In the Yaxhá-Nakúm-Naranjo protected area in Petén, one PNR has been declared[180] and the owners of the properties surrounding the southern part of the lagoon are in the process of registering their reserves, which will add approximately 3,600 ha to the protected area. The existing private reserve and its neighbors are organized and have hired six park rangers and a supervisor to help patrol the properties and the park, and develop basic infrastructure. As described above, there was extensive public-private collaboration in the creation of the Sierra de las Minas Biosphere Reserve as well.

VIII. INCENTIVES

Originally, the Protected Areas Law contemplated incentives to reduce property taxes and exempt up to 50 percent of income taxes on whatever was produced in formally declared PNRs. Unfortunately, these incentives have been rescinded, and there are no incentives for PNRs.[181] The only existing incentive is for the protection of watersheds, which promotes needed reforestation of appropriate lands and is implemented by the National Institute of Forests.[182]

IX. NETWORK OF PRIVATE PROTECTED AREAS

The significance of a well-functioning and funded coordinating network for private reserves can be seen in Guatemala. In 1998, the Association of Private Natural Reserves of Guatemala (ARNPG) was created with the help of strategic alliances with TNC and USAID for institutional strengthening. Prior to its founding, only 11 private reserves had been created, but since 1998, 40 more reserves have been declared, and the ARNPG has been working closely with land owners to promote natural private reserves in important areas for conservation throughout the country. Particular efforts have been to work with landowners to create private reserves in Atitlán and, with the National Fish and Wildlife Foundation and the Asociación Nacional del Café (ANACAFE), for the promotion of natural reserves and environmentally friendly agriculture among coffee growers. Currently, ARNPG is working to elaborate on the national strategy of conservation of private lands along with TNC, WWF, CONAP, the Guatemalan Environmental Trust, the Environmental Law and Sustainable Development Institute, and other government institutions and NGOs.

X. PROBLEMS AFFECTING PRIVATE LANDS CONSERVATION

The following problems affect the conservation of private lands:

- Campesino farmers, indigenous groups, and certain interest groups and policy makers believe that forested land is idle and represents "vacant land," thus subject to invasions and the practice of often unsustainable subsistence agricultural practices. The government has not been able to successfully address this short-term view.
- Landowners fear declaring formal reserves on their lands because of the potential that a populist government may regard conservation land as "idle" land, and subject the owner to penalties or confiscation.
- The environmental services provided by conserved lands and reserves have not been seriously identified, measured, or quantified.
- The lack of respect by the government and rural farmers towards the laws that recognize private property, and a lack of enforcement of court orders when the law is applied.
- The lack of incentives or institutional support for private land conservation.

XI. CONCLUSIONS

Important future needs for the conservation of private lands in Guatemala include:

- Reform of the lands tenancy laws to authorize conservation uses of land;
- Update environmental laws to establish new legal conservation tools including conservation easements that can be held by appropriate government agencies or NGOs;
- Identify and quantify the environmental services provided by conservation lands in order to improve public understanding, and to help provide incentives for them.
- Improve law enforcement, especially on conservation private property;
- Increase institutional capacity for private lands conservation, and international support;
- Support public-private collaboration in the management and conservation of protected areas; and
- Establish economic and other incentives for private land conservation.

MEXICO

COUNTRY PARTNER: PRONATURA, A.C.

I. INTRODUCTION

Mexico is considered one of the world's megadiversity countries as it contains 10 percent of the planet's species on 1 percent of its land. It ranks first in the number of reptiles and amphibians, second in mammals, and fourth in vascular plants; also, a high 30 percent of all species are endemic to the country.[183]

The conservation of private lands is an extremely important element of a conservation strategy for Mexico, perhaps more so than in any other country. Approximately 88 percent of land is owned privately, partly as a result of the redistribution of land to small owners and communal groups after the Mexican Revolution. Also, although Mexico's public protected areas system includes 138 areas and over 5 million ha, about 70 percent of these lands are private. Private lands protection is important within such public protected areas, as the general policy of the Mexican government is not to expropriate the private lands within them, but to allow private ownership to continue under limited regulation. Most of the important natural areas in Mexico will therefore require a combination of private and public action for their adequate protection.

A. Private property rights in Mexico.

Mexico has unique characteristics of land tenancy that emphasizes private property holdings, and particularly communal property. These laws derive in part from the Mexican Revolution of 1910-1917, that resulted in the breaking up of large land holdings and the distribution of land to communal groups such as ejidos. As a consequence, property in México is constituted by a mosaic of tenancy that includes ejidos, communities, small (individual) property owners, colonial title, and federal and state lands.[184]

Overall, private property constitutes 88.5 percent of the 197.7 million ha in the country. Of this private land, 36 percent is private property owned by 1.4 million individual small property holders, and 52 percent corresponds to communally owned property and is distributed among 3.5 million people organized in either ejidos or communities. This land ownership indicates that only 5 million people, or 5 percent of the population, owns 88 percent of all national territory.

FIGURE 18. LAND OWNERSHIP IN MEXICO

Type of property	Extent	%	Number of owners	%
Private	71,679,818	36	1,410,742	1.4
Ejido & communal	103,290,090	52	3,523,636	3.5
Total	197,700,000	100	100,349,766	100

Source: VII Censo Agrícola-Ganadero y Ejidal, INEGI, 1994 y Programa de Titulación y Certificación de Parcelas y Solares (PROCEDE).

B. Limitations on private property rights in Mexico

1. Limitations on the extent of land a private entity may own

Mexican law strictly limits the amount of property a private person, whether individual or organization, may own. This limit is a function of the productive nature of land, and varies from a limit of 800 ha for agricultural land to a maximum of the amount of land necessary to maintain 500 head of cattle for grazing or forestry land. The latter amount varies according to soil fertility, from 500 ha (1 ha per cow) in fertile zones to over 20,000 ha (40 ha per cow) in desert zones.[185] Although this law has been evaded by methods such as holding land under the name of friends or other legal entities, or in different states, the law's purpose is to restrict one's land ownership in all of Mexico to this amount.

2. Requirements for the social function of property

As in other Latin American countries, the Mexican Constitution[186] recognizes the ownership rights of private persons over private property only when it fulfills a social function. In recent years, however, the requirements for social function have changed: although the social purpose for which property is held continues to be relevant for the form in which and the amount of property that can be held, Mexican law no longer threatens the expropriation of land if adequate social "use" is not made. Fortunately, this law, called the law of vacant lands, was repealed in 1992. Today, the conservation and rational use of natural resources is considered to be an issue of national security, and consequently more emphasis is being given to the need to provide incentives for conservation and sustainable management by private landowners.

II. PRIVATE LANDS WITHIN PUBLIC PROTECTED AREAS

The role of private land conservation in public protected areas is especially significant in Mexico, as a very high proportion, 70 percent, of land in protected areas is privately owned.[187] In Mexico, federal lands are principally the highlands above 1500 meters and the borders along watercourses. Unlike other countries in the hemisphere, the government of Mexico generally does not expropriate and acquire land for its protected area system, although the National Commission of Natural Protected Areas (CONANP) has recently declared its intention of acquiring 500,000 ha of core areas within the park system.[188] Although the parks agency has the power to acquire lands within decreed protected areas, the state generally lacks the budget to do so, and the government favors the model of mixed public/private areas subject to restrictions on the uses of private lands.

Generally, CONANP acts to implement the restrictions on private land and manage any existing public lands with a public protected area. This philosophy is stated in Article 47 of the Law of Environmental Equilibrium:

> In the establishment, administration, and management of natural protected areas …, the Secretary is to promote the participation of its habitants, property owners or possessors, local governments, indigenous tribes, and other social organizations, public and private, with the objective of bringing integral development of the community and assure the protection and preservation of the ecosystems and their biodiversity.

Therefore, public protected areas tend to consist of a boundary drawn around an important ecological area, within which private property is subject to a number of special restrictions on use.[189] Although other countries in the hemisphere tend to have one or more categories of public protected areas that contemplate a mixture of private and public lands, in Mexico this method applies to most public protected areas, even national parks.

What makes private land protection especially important within declared public protected areas is that the regulations governing land use within the area limit only certain development rights[190] and are typically not adequate to require conservation land stewardship by private landowners. While prohibiting major land development and industry, they may allow for continued grazing, farming, and many other practices, and so do not create a conservation regime for the area that will enhance its natural values. Additional private lands conservation programs for sites within national protected areas are therefore needed to establish a true conservation regime for the area.

III. LEGAL INSTRUMENTS FOR THE CONSERVATION OF PRIVATE LANDS.

A. Introduction

Mexico is a federal nation, so legislation for the protection of private lands can be established at the federal level for certain purposes, but must principally be established in each of 32 independent states and the federal district. This creates complexity, as each has their own laws and legislative processes, including civil codes, state laws of the environment, and public registries. Most of these civil codes are similar however, as they all derive from the Civil Code of 1824, and have similar provisions concerning real property rights.

Most activity on private lands protection has taken place at the state level, where conservation groups such as Pronatura have used the civil legislation to establish contractual civil law land rights that are durable and effective against third parties. These are:

- Voluntary easements created for conservation purposes;
- The rights of *comodato* and *usufructo*;
- Donations and conditional legacies;
- Purchase of contracts to cut timber or make other resource uses;
- Trusts (fideicomisos);
- Rental agreements; and
- Land ownership by NGOs and commercial entities.

Formal private reserves have rarely been used in Mexico, although legislative authority has existed at the Federal level since 1996 to declare a private reserve as "Productive Areas Dedicated to the Public Interest."

It is important to note that each of the legal instruments used for private lands conservation will function better if it is approved or recognized to be of a public purpose by a government entity. This action guarantees that the land protection action complies with the social function of property that is required by article 27 of the Constitution. It may also carry important juridical consequences: It enhances the landowners ability to oppose future expropriation's or other actions of the government, which could degrade the environmental values of the site; it creates eligibility for any government-sponsored incentives; and it obtains government help, such as the government enforcement agency PROFEPA in defending title against third parties. These factors show that private lands protection mechanisms in Mexico will be more of a shared private-public nature than in common law countries such as the USA or Canada.

The most important legislative initiative for private lands conservation came in the late 1990s, when the states of Veracruz and Nuevo León incorporated in their environmental legislation a chapter on instruments of private conservation, recognizing conservation easements, private reserves, and contracts of conservation. These laws requires the approval of the state both in the creation of easements and of private reserves. This action of approval by the state also has the effect of making the property part of the official protected area system of that state; this provides considerable added protection against other state actions taken such as expropriation or the imposition of governmental rights-of-way.

B. Private reserves

1. Federal legislation for Private Reserves.

At the federal level, Article 59 of the Ley General del Equilibrio Ecológico y la Protección al Ambiente establishes that property owners and communities that destine their lands to conservation must have a certificate of the Secretary of Environment and Natural Resources (SEMARNAT). The regulations for Protected Natural Areas designates such areas as "*Areas Productivas Dedicadas al Interés Público*" and establishes the government park service, CONANP, as the government entity in charge of their creation and control.

To formally create such an area, the property owner must present to the Secretary a proposal which manifests an interest in voluntarily designating the lands for conservation for a period of at least 10 years, a description of the importance of the natural resources of the area, and the need for their preservation, and the proposed management regime for the area. Once presented, the Secretary must make a field visit within 60 days and emit the certificate within 90 days following a proposal.[191] If these periods lapse without an action by the Secretary, the proposal is considered rejected. The certificate can be voided if the lands no longer contain the original native ecosystems, or they have been totally or irreversibly damaged by productive activities.

The certificate can be renewed for an additional 10 years, but can be terminated by the property owner or if it becomes impossible to comply with the obligations of the certification.

In theory, certified property owners are able to take advantage of the economic incentives and technical assistance of the government, but no incentives have been established to date. Certified lands also benefit from a provision that they can be monitored and inspected by the Federal Procuraduría Federal de Protección al Ambiente, who can help bring administrative proceedings in case of invasions or other harmful actions by third parties.

To date, only one reserve has been created since this legal option was made available in 1966, the Chamela-Cuixmala reserve covering 13,500 ha of tropical dry forest in Jalisco.

2. Private Reserves at the State level.

The figure of a private reserve must be created through legislation, and so the only states with the potential for creating private reserves are Nuevo Leon and Veracruz due to their recently established private lands legislation. Their legislation authorizes the creation of private reserves on lands with significant biological resources, as well as campesino reserves on communal lands of ejidos and communities, and conservation gardens for the conservation of germplasm. No such reserves however have actually been created so far.

C. Traditional easements used for conservation purposes

Most private lands conservation actions taken so far in Mexico have been through the use of traditional appurtenant easements created under the Civil Code of a state. These are voluntary agreements between two or more property owners in which at least one of the property owners restrict the type or intensity of use over the land, for the purpose of preserving the land's natural attributes, scenic vistas, or historical, architectural, archeological or cultural aspects. These easements are formalized before a Notary Public and then inscribed in the public registry of property and commerce, in the second half of the book.

By their nature, easements are durable instruments that can last for a number of years or for an indeterminate time, although one cannot use the term perpetual because in Mexican law perpetual rights do not exist. In particular, easements are subject to a series of natural causes of extinction, although if these are not realized easements will continue to operate continuously, protecting land from actions of third parties, and binding future owners of the land to the terms of the easement. There also exists a great flexibility in easements use, as they can be matched to the circumstances and needs of each property owner.

Approximately ten easements have been developed for conservation purposes since 1998, all by the conservation NGO Pronatura. Pronatura has used a number of innovative strategies to avoid the limitations of appurtenant easements:

Reciprocal easements between private property owners. The first easement in Mexico created for conservation purposes in Mexico is described in case study 1, and consisted of reciprocal easements binding two adjacent property own-

ers. The use of reciprocal easements avoided the need for Pronatura to own a dominant estate, although Pronatura continues to have monitoring power as it is named a guardian of the easement conditions in the contract.

Easements in favor of a Natural Protected Area. In "Rancho el Paval", within the Biosphere Reserve el Triunfo in Chiapas, an easement for conservation purposes was constituted in which the dominant estate was the reserve in its totality. This easement also authorized a third party (Pronatura) to enforce the easement's conditions, together with the administrator of the reserve.

Easements in favor of an Indigenous Community. A conservation easement was constituted for the "Las Berenjenas" property owned by the non-profit organization Bosque Antiguo A.C. in Jalisco, with the lands of the neighboring indigenous Huichol community serving as the dominant easement. This conserves 800 ha of ancient pine forest, and integrates cultural and environmental factors in the same instrument.

International easement. Pronatura has creating an easement for conservation purposes between a property in Mexico in Tecate, Baja California and an adjoining property in the Untied States.

D. Conservation contracts creating independent or "in gross" easements

1. Created by legislation

Recent legislation in the states of Nuevo Leon and Veracruz authorize *conservation contracts*. These are voluntary agreements creating a real right limiting the uses of private or communal property with the object of conserving, protecting or restoring ecological or natural attributes, and that may be held by third parties. This creates a right similar to the "easement in gross" of the United States that allows conservation servitude to be given to third parties such as non-profit organizations or government entities. This is a significant expansion of the right to create a protective partial interest in land, as traditional appurtenant easements created under the Civil Code can be held only by adjacent landowners.

Although these contracts can be made between private parties, the legislation provides that the contract must also be certified by the State. This State approval helps to assure that the land use under the conservation contract will be considered to fulfill the social function of the land.

2. Special case of Quintana Roo

In the state of Quintana Roo the Civil Code establishes a real right called a "right to the surface" that is not found in any other state code, and that creates the basic elements needed for private conservation. This real right allows its holder to seed, plant or build on someone else's land, and with sufficient restrictions can be used for conservation purposes.

Also, the Quintana Roo code, article 2215, establishes the possibility of creating new rights of a real character, again in contrast to other codes and their regulations, that are restricted by the general theory that prohibits creation of more rights than are enumerate in the law. By using this disposition, Pronatura on July 25, 2001 constituted the first "*easement in gross*," or independent easement, without a neighboring or dominant estate in Latin America at Rancho Carmelita.

E. Property trusts (fideicomisos de tierras)

Mexican law authorizes the establishment of trusts under Mexico's Law of Credit for properties dedicated to long-term conservation use.[192] This device can be very effective as various entities monitor compliance of the conservation conditions established in the contract, including a technical committee and the fiduciary bank. A unique advantage of such trusts is that the land held in them is not counted against the total amount of land that can be owned by one entity in Mexico. These trusts are not considered a new juridical entity, so land they own are not counted as part of private property, allowing the possibility of creating a large amount of land subject to one management unit.

These trusts are strong instruments; once constituted before a public notary and inscribed in the public registry, they create rights enforceable against third parties. One disadvantage is the high cost charged by banks to administer and manage them, which is an annual fee of approximately 4 percent of the value of the property in trust. However, the principal limitation is that their maximum duration is 30 years that can be renewed. However, an exception to this limit is that trusts constituted for the operation of *museums* can be perpetual. This allows the possibility of creating a perpetual trust for conservation lands that may be considered a museum of living natural history, as was done in the case of the Museum Maderas del Carmen that protects 12,000 ha of private lands in northern Coahuila.

F. Land ownership by non-profit or other organizations

Land ownership by a non-profit organization presents special problems in Mexico due to the limitation on the amount of land any private entity can

own, as described above. However, non-profit groups can address this limitation on their efforts to conserve important lands by creating a new organization or trust to own the lands, distinct from the parent organization, and with the objective to manage, conserve, and restore the lands forming its patrimony.

When dealing with ejidos and communities, one can create a special organization under article 75 of the agrarian law to hold lands that are subject to communal ownership by the community, which includes their forested lands.[193] Once created, this type of entity can own 25 times more property than the normal limits to private property ownership, creating the possibility of conserving large extensions of land.

There have been a small number of land acquisition projects in Mexico, although this tool is not as frequently used as in other countries in part due to the restrictive property laws of Mexico. Pronatura has purchased important lands in the Cuatro Cienegas Protected Area, as has a local NGO with funding support from The Nature Conservancy and CEMEX, the giant Mexican concrete company. CEMEX has also purchased for conservation purposes 33,000 of the 55,000 ha within the Maderas del Carmen Protected Nature Reserve in northern Coahuila.[194] Another major recent project is the effort by a number of conservation groups and U.S. foundations to raise $3.3 million buy all lands on the 9,500 ha Isla Espiritu Santo in the Sea of Cortez-especially significant because it involves a "friendly expropriation" of ejido lands, the only possible method for acquiring ejido lands that are designated for common use. These lands were then transferred to the Mexican parks agency to manage for conservation purposes.[195]

G. Community accords

Because of the prevalence of communal land ownership in Mexico in ejidos or communities, the use of community agreements to protect their lands is especially relevant. Although the form of these agreements varies, conservation-oriented agreements have been reached with a number of communities owning significant conservation lands; some of which have been formalized in the passage of community accords by the deliberative body of the ejidos or communities. These agreements include the protection of the Monarch butterfly wintering grounds in the fir forests of Michoacan, which are owned by eight ejidos and included in a government biosphere reserve,[196] work with ejidos surrounding the large Calakmul Biosphere reserve,[197] and work by Bosque Antiguo to create a community accord with the Huichol indigenous community that owns a large portion of the El Carricito area in Jalisco.

IV ECONOMIC AND FISCAL INCENTIVES FOR PRIVATE LANDS CONSERVATION

The creation of economic and fiscal incentives for private lands conservation can promote changes in behavior and decision-making of economic actors towards the use of biodiversity. Mexico has a National Policy of Biodiversity, based on the international Convention on Biodiversity, which promotes the establishment of a system of incentives for the conservation and sustainable use of biodiversity.[198] Although this policy and the General Law of Environmental Equilibrium[199] both state that fiscal and economic incentives should be established to promote the conservation of private lands, none have been established to date.

Property taxes are under the jurisdiction of local municipalities in Mexico, so exemptions or deductions from such taxes must be authorized by municipal legislatures. In practice, Pronatura has negotiated individual exemptions from property taxes for certain private lands that have taken conservation actions, such as a 70 percent reduction in the property tax owed for the Rancho Longoria in Tamaulipas. On the other hand, and in contrast to some other countries, donations or bequests of lands for conservation purposes are not exempt from the payment of income taxes or property transfer taxes.

V. FUTURE NEEDS

1) Develop state laws that establish the right to create private reserves, recognize the right to create easements for conservation purposes, and authorize independent or in-gross easements in each state, in addition to Nuevo Leon and Veracruz.

2) Develop a general law at the federal level that promotes private land conservation and creates a national legal basis for the establishment of both appurtenant and in gross easements for conservation purposes, transferable development rights, and an improved process for private reserves, without the need to modify 32 local state laws of the environment.

3) Recognize in federal law the public benefit of private lands conservation actions for the purpose of establishing socio-economic use of land as required by the Constitution, and implement a National Registry of such approved sites.

4) Create a commission to study reforms needed to laws related to public protected areas to better integrate private land conservation practices, and empower both public and private land conservation practices within such

areas. The commission should address the obstacles created by Mexican land regulation to private land conservation. Particular consideration should be given to removing the limit on the amount of land that can be owned by private non-profit conservation organizations within designated public protected areas. This law hinders the ability of conservation groups to protect lands within such areas and makes little sense as they are attempting to help the government achieve their goals in these designated areas.

5) Develop improved laws for the enforcement of private land conservation measures.

6) Establish better incentive mechanisms at the federal and state levels for private landowners wishing to protect their lands. Federal incentives should be created in the federal fiscal laws, and include federal income tax deduction and a federal mechanism for payments for environmental services such as carbon sequestration. State laws should provide for an exemption of property tax for properties that have implemented private lands conservation mechanisms.

CASE STUDY 1: CUATRO CIENEGAS, COAHUILA, MEXICO

Description of Area

Cuatro Cienegas is an aquatic ecosystem of water holes or "pozas" in the Chihuahuan desert, with an extraordinary diversity of fish, mollusks, scorpions, and reptiles.[200] Although the hundreds of water holes are in close proximity, some have been isolated from each other for many thousands of years, creating a unique fauna in each one. The Cuatro Cienegas ecosystem is considered one of the most important wetlands in Mexico, and is of international significance in its endemism and relevance for the study of evolution.

In 1994, the federal government declared a 84,347 ha federal Area of Protection of Fauna and Flora to protect much of the Cuatro Cienegas valley. The objectives of the decree are to preserve habitats and the fragile ecosystems; assure the continuity of ecological evolutionary processes and equilibrium; protect the biodiversity, especially the endemic species; and scientific study. This federal protected area designation prohibits the following activities and land uses:

a) Modifying the natural conditions of the aquifers, narrow valleys, natural streams, springs and brooks; pouring any pollutant in the soil surface, underground, stream or water hole;

b) Hunting, fishing, collection or use of native flora and fauna without SEMARNAT permission;
c) Construction activities, or any other similar activity, without SEMARNAT permission;
d) New human settlements;
e) Recreational activities in non-licensed areas;
f) Generating noise, vibrations, or electric energy that might cause alterations to flora and fauna;
g) Littering in inappropriate places such as caves, rivers, springs, mountains, water holes, roads;
g) Use of untreated residual water to irrigate crops;
h) Altering or destroying reproduction sites for wildlife, or introducing any exotic species;
i) Conducting any mining activity without appropriate permission or environmental studies.

However, these park regulations are not sufficient to allow many damaging activities to be adequately controlled or stopped, including grazing, gypsum mining, uncontrolled tourism, water extraction from the "pozas," or even the conversion of some pozas to aquaculture.

The federal parks service (CONANP) manages the area and implements the above regulations. The federal role in the park attempts to preserve the unique natural resources of the Cuatro Cienegas valley by means of cooperation between institutions, social participation, environmental education, and the promotion of the sustainable use of the natural resources. It acts to strengthen the relationship between the different organizations that are involved in the area, including the three levels of government, private sector, inhabitants of the region, universities and research institutions, and NGOs. Given the Mexican policies of land ownership, federal authorities have not sought to acquire land in the protected area.

Biological and ecosystem values:

The isolation of the water holes has resulted in a large number of endemic aquatic species found nowhere else on earth, and has created an unusual opportunity for the study of evolution; Cuatro Cienegas has been likened to the Galapagos Islands in this regard. Cuatro Cienegas also harbors formations of pure gypsum sands that are unique to Mexico and also harbor endemic species.

Current land use

Current land use is largely for extensive grazing of the desert lands by cows and horses. There is also a small amount of small-scale agriculture on some ejido lands, as well as recreational use of some of the large pozas for swimming

FIGURE 19. SPECIES ENDEMIC TO CUATRO CIENEGAS RESERVE:

	Total species	Endemic species
vascular plants	623	18
scorpions	19	5
reptiles	60	9
fish	17	10
crustaceans	27	6
mollusks	28	13
amphibians	8	-
birds	154	-
mammals	60	-
Total	996	61

(especially during Easter Week). Property ownership within the area is 60 percent ejido, and 40 percent private property. Water rights, however, are 90 percent concessioned to ejidos based on agreements made decades ago when the land, which was owned by one large hacienda, was divided into smaller holdings. Finally, two or three mining companies own property within the area on which they have rights to mine the gypsum, although little mining has taken place in recent years.

Threats to the area include:

a) *Consumption of water* through wells for alfalfa growing. These wells are principally located on surrounding areas and valleys, with unknown consequences on the water ecosystem of Cuatro Cienegas. There is also some direct appropriation of water from pozas for local irrigation, including four of the pozas on Pronatura's Pozas Azules property itself.
b) *Continued grazing* with the reserve. Given the fragility of desert lands, any grazing may be an unsustainable use of the resource and lead to its gradual deterioration. A positive element is that landowners tend to fence off the pozas to prevent their animals from falling into them.
c) *Introduced species*, the most significant of which is an aggressive exotic Joya fish, has been found now in 4 pozas including the one at the visitor center. SEMARNAT staff have taken aggressive actions to control the fish, but it is extremely difficult to eradicate it completely.
d) *Mining of gypsum* (calcium sulfite) dunes by two to three mining companies that own the land or rights. Mining is no longer a current threat to the area as this activity stopped a few years ago.
e) *Aquaculture*. An owner has filed and had approved (!) a permit to raise brine shrimp species (*Artemia franciscana*) in some pozas, and the permit allows exotic species to be introduced.

Conservation actions taken to protect private lands.

This protected area was initially comprised 100 percent of private lands. The federal government still owns no lands, and up to now has shown no intention of purchasing any lands for federal ownership, as is typical in Mexico's public parks system. However, three properties have been purchased by nonprofit conservation organizations within the protected area to protect its environmental values.

1) *Interpretation center.* The first land purchased for conservation purposes was a 200 ha lot centrally located next to the main road, which now houses a small interpretive center. This land was purchased by a local conservation group called Desuvalle, A.C., with funding help from The Nature Conservancy, to counter the threat of a housing development. This NGO consists of 10 local leaders, including the head of the local cattle-raisers association, the reserve director, and the municipal president. They have one staff person who is supported by members' fees. Apart from the land purchases, the group also arranges for a volunteer to be present at the visitor station on most days.

2) *Gypsum dunes*. Desuvalle A.C. also purchased a second property, consisting of the most important gypsum dune area of 800 ha, which stopped the mining of the gypsum sands by the Proyeso mining company. Desuvalle A.C. is purchasing the area from the ejido Seis de Enero with funds donated by PEMEX, the Mexican oil company. This land purchase is a complicated transaction, as first the ejido has to act by assembly to divide its lands between communal areas and areas that can be held as private property. They can then sell the latter, under the new authority established in the 1994 reform of the Agrarian Reform Law. This transaction is still in process in 2002, although the land sale contract has been signed.

3) The *Pozas Azules* property was bought in 2001 by Pronatura Noreste, A.C., an affiliate of Pronatura, A.C., when it was put up for sale by its owner in November 2000. This property is 2,721 ha and contains 146 of the important pozas. The Nature Conservancy provided most of the funding, and the land purchase arrangement involved three different parties: The Nature Conservancy as donor, Pronatura Noreste as the owner and manager of the land, and Pronatura as the guardian of the conditions of the arrangements. As part of the process, an endowment was established for the maintenance of the property, a conservation deed restriction was established on the Pozas Azules property, and an easement covers 83 ha of an adjoining landowner, for conservation purposes and to control cattle stocking levels.

Pronatura Noreste now manages the land for conservation, investigation, and education purposes. It hires a full-time rancher at the property and a biologist as site leader based in Cuatro Cienegas. It is building a small education and research center, has eliminated grazing by cattle and horses on its lands, and is pursuing further scientific research on the dynamics of the aquatic ecosystem and its endemic species.

Conclusion

This study shows the importance of developing additional private lands conservation measures within Mexico's protected areas to achieve conservation goals for fragile lands. Protected areas such as national parks tend to be a line drawn around private lands holdings, which includes both individual land owners and communal groups such as ejidos. The use of land purchases by NGOs and other private lands conservation tools has the potential to significantly enhance the conservation of these public protected areas. The conservation task is made more difficult, however, by the limit on the amount of lands conservation NGOs can own, and the lack of private reserve and conservation easement legislation.

CASE STUDY 2: LAS CAÑADAS, VERACRUZ, MEXICO[201]

Description of Area and Current Land Uses

Las Cañadas is a privately owned ranch of 600 ha located in central Veracruz. The present owner, Ricardo Romero, has dedicated the ranch to ecotourism and the production of organic milk and agricultural products, which are sold in the nearby town of Huatusco. He dramatically changed the land use system of the ranch, which had previously been used for extensive cattle raising, when he and his brother inherited the ranch in 1995. The new management of Las Cañadas was inspired by the preservation and recovery of the remnant cloud forest on the ranch, and the quest for balance between productive activities and the conservation of nature.

Productive activities are designed to have a minimal impact: ecotourism is limited to a few guests every other weekend the organic agriculture is carried out on only 3 ha, and the energy required to fuel productive activities derives mainly from solar panels. Waters from ecotourism facilities are purified through biotic drainage systems, and a compost system treats organic wastes which are then used as fertilizer. In addition, Las Cañadas offers free environmental education workshops for local peasants and schoolchildren on organic agriculture and the environment.

Biological and ecosystem values:

An important biological objective of Las Cañadas is the preservation and regeneration of cloud forest, a vanishing ecosystem of very high biodiversity

value. Cloud forests used to cover the middle elevation slopes of Veracruz, but despite their importance as a source of fresh water and for biodiversity, they have been systematically felled during the last decades to clear spaces for coffee and cattle ranching. Only a few areas of cloud forest remain in the entire region, mainly in patches of less than 200 ha in the hands of private owners, many of whom who lack knowledge of its ecological importance. Indeed, a neighbor of Los Cañadas recently felled all remnant cloud forests on his 1000 ha ranch to plant sun coffee in 2000.

The owners of Las Cañadas hope to create a model for the conservation of this rare ecosystem, and to educate and train neighboring landowners and communities about its importance. An original 40 ha of almost primary cloud forest remain on the ranch, together with another 60 ha of secondary forest. The owner is preserving these and attempting to reforest another 176 ha through replanting and natural regeneration in order to expand forest cover to 276 ha in all, almost half of the ranch area.

Establishment and Defense of Mexico's First Conservation Easement

Towards the end of 1997, the landowners of Las Cañadas and Pronatura realized they had common goals in the conservation of private lands. Pronatura proceeded to develop the first conservation easement ever developed in Mexico to protect Las Cañadas in 1998. An important benefit identified by the owner of the site has been the psychological assurance that derives from its partnership with Pronatura and its legal team, as he knows he can count on legal support in the protection of the cloud forest.

At this time, Las Cañadas was divided into two parts, each owned separately by two brothers. Because the civil code requires that easements be held by adjoining landowners, two reciprocal easements were created, such that each brother owned an easement restricting the rights of the other, and naming Pronatura as a guardian. Subsequently the two properties were joined under the single ownership of Ricardo Romero, thus extinguishing the easements, and a new reciprocal easement was made in August of 2002 between Las Cañadas and an adjacent property of one ha called Tania de Alba. The easement's objectives is to create in perpetuity a natural reserve for native species of flora and fauna, to guarantee the conservation of natural resources, to preserve scenic values and existing habitats, to support the implementation of eco-tourism and environmental education projects, and to protect water sources found within the protection area.

To achieve these objectives, the easement defined discrete land-use areas: ranching, recovery, and forest conservation. Within these differentiated areas, which are marked in an annexed map, the easement established detailed limitations on use. One area of 25 ha. with minimal slopes was designated for

grazing with a limit of 50 cattle to be grazed on a rotation basis. Another area was established for recovery with the following strict limitations:

- prohibiting cutting of trees or plants;
- prohibiting hunting, fishing, or killing animals, except for non-native animals (rats, insects, etc.) or for educational or scientific purposes on the condition that such purposes do not endanger the fauna or flora species within the reserve;
- prohibiting further sub-division;
- prohibiting any type of construction, except paths and observation platforms;
- prohibiting any activity that may cause pollution to waters, soils, air, vegetation, and in particular burning grass, using non-natural agro-chemicals, and mining;
- prohibiting introduction of any non-native species of fauna or flora; and,
- a commitment to continue introducing native species of flora.

Perhaps the most important area identified in the easement is the cloud forest, which is limited by the above restrictions and additional ones that:

- prohibit the extraction of more than 50 percent of seeds every year;
- prohibit camping;
- prohibit use of vehicles, including non-engine vehicles;
- allow investigation and environmental education activities as long as they do not place the well-being of any species at risk, according to a management plan; and,
- allow paths only when they do not substantially affect the natural environment.

The easement assigns Pronatura several roles including monitoring compliance with the terms of the easement, the production of annual reports on the state of the site, and the design of a recovery program in the event of unforeseeable environmental harm. In cases of non-compliance, Pronatura will inform the owner of the servient property in order to ensure necessary remedial measures. If the situation is not remedied in 15 days, PRONATURA will formally notify the parties of a conciliation meeting. If the parties were not to agree on remedial measures, Pronatura may initiate judicial action to ensure the repair of environmental harm and the collection of damages if appropriate.

Soon after the first easement was constituted, it came under intensive threat due to a government road-building project. In 1999, a feasibility study team contracted by the government went into the property and, without

telling the landowner cut, about 7 ha of vegetation to evaluate the path for the construction of a highway linking two major cities in Veracruz. This highway would have cut through the primary forest protected under the conservation easement. Pronatura and the owner vigorously objected to the road project's route through Las Cañadas, creating press releases in local newspapers and taking judicial action to defend the conservation easement.

Essential to the defense of the easement in court was a letter signed by the Governor of Veracruz in 1998 that declared the easement was of public utility, fulfilled a social function, and was good for economic development. The court took note of this letter and ruled that the protected lands were therefore of public benefit, and that the highway department had to pass through further processes before harming them.

In a major success for conservation, the contractors were forced to leave the property and the highway project was withdrawn, although the reasons for withdrawing the highway project included a lack of budget to construct the road by the state government. This represents the first defense of a conservation easement in Latin America.

Note that article 94 of the new Ley de Proteccion Ambiente of Veracruz provides a specific process for state approval of conservation easements, which additionally makes the area part of the state protected areas system. This law, as well as the defense of this case, shows an easement in Latin America may even be stronger in some respects than common law easements, as state approval creates a public character to the land that may prevent other government actions that would degrade it.

PARAGUAY *(COUNTRY SUMMARY)*[202]

Protecting private lands is of great importance in a conservation strategy for Paraguay, where over 96 percent of land is privately owned. Recent advances are being made in the protection of private lands through NGO land purchase, creation of private protected areas, and initial use of land rights such as appurtenant easements, comodato, and usufructo. A review of such conservation actions has been recently published by USAID and Fundacion Moises Bertoni.[203]

Some biologically rich natural ecosystems in Paraguay have suffered greatly from the lack of protection of private lands, the most important of which is the Alto Parana/Atlantic Forest that formerly covered over 8 million ha in eastern Paraguay, or almost 25 percent of the country. Today, this forest covers less than 1 million ha, with the deforestation driven in part by landowners perception of the need to clear their land in order to prove their socio-economic use and so prevent land invasions. Fortunately, the passage of reforms to the Ley Agraria in 2001 established that forests and wetlands are now a legitimate socio-economic use of land.

I. MANDATORY PROVISIONS AFFECTING THE CONSERVATION OF PRIVATE LANDS

A. Administrative reserves on private lands created by law

As with other Latin American countries, Paraguay's Forest Law No. 43 imposes significant conservation requirements on all rural lands. Landowners are required to protect vegetation on steep slopes and for 100 meters along watercourses, and all rural lands of over 50 ha cannot modify or use their forests without a forest management plan that conforms to state requirements. Another significant requirement is that all rural lands must conserve over 25 percent of their lands as a natural sanctuary, similar to the requirement in Brazil. However, these requirements are rarely enforced.

B. Public protected areas intended to include and regulate private properties

A category of protected area within the national System of Natural Protected Areas (SINASP) is the Managed Resources Reserve, which is intended to include private lands. The law allows productive activities to continue on such lands, but in accordance with the protected areas management

plan. This category has only recently been implemented in the San Rafael and Yvyturuzu areas. San Rafael was recently changed from National Park status to this category, precisely because it comprised 100 percent of private lands, and there was no expectation that the government could pay the cost of expropriating the land and converting it to state ownership.

C. Land designated for potential inclusion in Paraguay's protected areas system

A large amount of private lands important for conservation are subject to land use restrictions because they have been identified as potential areas to be included in the country's protected area system. Paraguay's Protected Areas Law provides that all land designated as a Potential Wild Protected Area, whether public or private, are subject to significant land use restrictions.[204] The Park System master plan, published in 1993, designated millions of hectares as potential protected areas, mostly on private lands; as of 2000, 2,662,000 ha were still subject to this designation, on which land use restrictions theoretically apply. This amount is 6 percent of the country, and greater than the 1,710,075 ha currently included in Paraguay's protected area system.[205] However, there is no enforcement of this law nor apparent political willingness to do so.

II. PRIVATE RESERVES CREATED UNDER THE PROTECTED AREAS LAW

Paraguay's Protected Areas Law of 1994 provides for the creation of private reserves, and regulations implementing this section were finally passed in 2000.[206] These areas are voluntarily nominated by landowners, who must provide a technical report justifying the importance of the area and proof of valid title and boundaries of the area. The government authority has 60 days to approve the designation, and once approved, the property is inscribed in the public register and the owner has six months to develop a management plan for the property. The designation can only be revoked by a similar public decree or law, and cannot be revoked until five years after the declaration.[207]

Private reserves created under these provisions are considered to be a part of the national SINASP.[208] A technical problem in the drafting of this statue, however, has made some landowners reportedly reluctant to use this mechanisms for creating private reserves. The law defines private inholdings within publicly declared areas as subject to future expropriation of protected areas by the state (arts. 10, 24b), and although private reserves are not identified as Reserved Areas in the law, some landowners believe this article may apply to private reserves, subjecting them to potential expropriation.

There are four privately managed protected areas today in Paraguay totaling 103,464 ha. Of more than 25 properties that were candidates in 1994 to be declared private nature reserves under this law, many were withdrawn by landowners who felt threatened by the lack of clarity in the law; only two of them remain in the system today, Arroyo Blanco (5,714 ha) and Morombi (25,000 ha). These were legally recognized in 2002 after passing through nine bureaucratic procedures, and, together with the Yacyreta reserve managed by the hydroelectric company (8,345 ha) and the Mbaracayu Reserve, are the only formal reserves created under this law to date.[209]

A special reserve is the Reserva Natural del Bosque Mbaracayú (64,405 ha), the nation's largest private reserve created in 1991 with funds raised by The Nature Conservancy, and established pursuant to a cooperative agreement between Fundacion Moises Bertoni, TNC, the United Nations, and the Paraguay government. This area was created as a private reserve and is owned by the Fundación Mbaracayú and managed by the private NGO Fundacion Moisés Bertoni, but has been officially recognized as a protected area through a special decree, Law 112 of 1991. It has subsequently been named Paraguay's first UNESCO Biosphere Reserve.[210]

III. PRIVATE RESERVES OWNED BY HYDROELECTRIC COMPANIES

The Protected Areas Law specifically recognizes a subset of private reserves owned by the Itaipu Binational Hydroelectric Entity, a parastatal entity. These reserves were established as mitigation measures for the forested area inundated by the Itaipu dam, one of the world's largest. There are currently five such reserves, called Biological Reserves or Refuges: Itabo, Limoy, Tati Yupi, and Mbaracayú, totaling 36,360 ha; the fifth, the Yacyreta private reserve (8,345 ha) was recently created and is managed by the Yacyreta Binational Hydroelectric Entity for similar purposes.[211] These are reportedly fairly well managed due to the availability of revenues from the hydroelectric works, although most employees work only on weekdays, which allows for illegal hunting on weekends.

IV. NGO PURCHASE OF CONSERVATION LANDS

NGOs in Paraguay have purchased some significant conservation lands. In 1991, the Fundacion Moises Bertoni purchased the Reserva Natural del Bosque Mbaracayú, originally 57,000 ha and now 64,605 ha, with funds raised by The Nature Conservancy. In 2002, Guyra Paraguay purchased 2,270 ha from the Sudameris Bank to create the first private purchase in the San Rafael Managed Resources Reserve with funds provided largely by the Garfield Foundation.

Another area of NGO focus has been San Rafael, a 70,000 ha public protected area in which all lands are privately owned, and the government lacks the funds needed to expropriate these lands. In 2000, several NGOs formed the San Rafael Conservation Alliance to purchase key lands and to develop conservation measures to protect private lands. In a public-private collaboration, the consortium have persuaded the National Development Bank to cede a property it owned within San Rafael to the government park service, and are working to implement land purchases, conservation easements, and other devices to protect priority private lands within the reserve.

In the northern Chaco, the NGO IDEA purchased a 4,500 ha area across the border from PROMETA's El Corbalan reserve in Bolivia, to create the first private trans-frontier peace park in the Southern Cone. The two NGOs will agree on a common management plan for the area.

V. USE OF APPURTENANT EASEMENTS

The use of easement to protect private lands was initiated in Paraguay in 2000, and led to the creation of the NGO Natural Lands Trust to use and promote this conservation method. Today, NLT has created approximately 10 easements, several of which are in the San Rafael area. However, as in other countries, there are some traditional drawbacks to use of easements: first, Paraguay law only allows the use of traditional appurtenant easements, so easements can only be created between neighboring properties; second, because easements can only be used for lands with a valid title, many rural lands of high conservation value in Paraguay cannot have an easement as they are owned by rural farmers with rights of possession only, and who lack formal title. In addition to the appurtenant easement, there has been some limited use by conservation NGOs of other civil law instruments such as comodato and usufructo.

The first easements created in Paraguay for conservation purposes were reciprocal easements created by the conservation NGO, Natural Land Trust, in 2000 between two adjacent lands, the Estancia San Pedro-mi and the Estancia San Isidro in San Rafael Managed Resources Reserve. Both easements cover areas of respectively 1,032 and 1,507 ha-approximately half of each ranch-and establish zones for habitat protection and for natural resources use.[212] The easements grant to Natural Land Trust the right to review and approve any action that may be contrary to the easement contract before the activity begins, and grant it standing to monitor and act in the judicial defense of the land; although it is not clear if a court would recognize the latter rights.

VI. INFORMAL PRIVATE PROTECTED AREAS

Since 1989, the Fundacion Moises Bertoni, with support from The Nature Conservancy, has actively promoted a system of informal private protected areas in Paraguay, covering areas selected because of their conservation priority. Owners sign a "contract of conservation" with the Foundation and must develop and implement a management plan. Thirty- four properties totaling 664,480 ha were identified under this program, but only 12 have finished the process and have implemented voluntary private reserve area, as shown in the figure below. A review of the program notes that, due in part to "constant legal insecurity and lack of any institutional response to land invasions, many of the identified reserves remain in a proposal stage."[213]

FIGURE 20. VOLUNTARY PRIVATE PROTECTED AREAS IN PARAGUAY IN FUNDACION MOISES BERTONI PROGRAM

Property	Total area (ha)	Reserve area (ha)
RNB Mbaracayú	64,405	64,405
RNP Morombi	55,000	25,000
RNP Taypta	12,311	4,085
RNP Yacyreta	8,345	8,345
RNP Ypeti	24,077	10,000
Estancia Campo Maria	9,155	4,000
Estancia Fortin Patria	60,000	60,000
Estancia Laguna Salada	2,500	2,500
Estancia San Isidro*	3,233	1,507
Estancia San Pedro-mi*	3,621	1,032
Estancia Santa Asuncion	5,950	3,334
Estancia Sombrero	28,143	18,000
Total	276,740	200,952

Source: Fundacion Moises Bertoni & United States Agency for International Development USAID-Paraguay, *Programa de Apoyo a Iniciativas Privadas de Conservacion - Una Revision de 10 Anos de Experiencias* (Program of Support to Private Conservation Initiatives - A Review of 10 Years of Experience) (Asuncion, Paraguay, 2000).
* Reserve area of these two properties are being covered by reciprocal easements.

VII. INCENTIVES

According to the protected areas law, areas designated as private reserves under that law benefit from an exemption from rural taxes. However, land taxes are so low and infrequently paid that this exemption from taxation reportedly creates more of a problem to landowners than an incentive. This is

because landowners must bring property tax payments up to date before registering the Natural Private Reserve or easement, whereas normally property taxes are not paid until a property is sold, and are then paid by the buyer.

The Protected Areas Law also provides that formally designated private reserves are inexpropriable while the designation is in place—a provision that appears to be unique in Latin American law.[214]

PERU

COUNTRY PARTNER: SOCIEDAD PERUANA DE DERECHO AMBIENTAL

I. INTRODUCTION AND OVERVIEW

Peru is unique in Latin America in that approximately 80 percent of the country's territory is public land. Consequently, the potential scope and impact of private property conservation initiatives are limited. To accommodate the predominance of public lands in Peru, private initiatives to conserve lands have focused on private management of public areas, through mechanisms such as conservation concessions or contracts of administration authorized under new regulations described below. However, the conservation of private lands protection is important in parts of the country with a long history of human settlement and private ownership, such as the Tumbesian and Maranon dry forest ecosystems in northwestern Peru and the remaining natural habitats along the Pacific coast.

The opportunity for private lands protection in Peru increased greatly in June 2001 when the government promulgated the new regulation for the Law on National Protected Areas, which authorizes for the first time the formal creation of private reserves and conservation concessions. The first two areas have been recently declared under this law and are the subject of the case studies. One is the 34,000 ha Private Conservation Area declared by the Chongoyape campesino community that protects endangered Tumbesian forest ecosystems, and the other is the 132,832 ha conservation concession for the Los Amigos watershed in the Peruvian Amazon. The non-profit group Sociedad Peruana de Derecho Ambiental provided significant legal assistance in drafting the new regulation, and the legal instruments protecting these two areas.

II. PRIVATE LANDS AFFECTED BY PUBLIC PROTECTED AREA DESIGNATIONS

Peru's governmental protected areas system does not have a category of protected area that is intended to include and regulate private lands, instead of being composed of public lands. Due to the large amount of public lands in Peru, almost all the land within public protected areas is owned by the government. However, the 1997 Protected Areas law states that any private lands

within public protected areas will not necessarily be expropriated, but may remain private subject to appropriate regulation.[215] In addition, the law requires that buffer zones be delimited around all public protected areas, and private lands within them are required not to undertake any activities that "place at risk the attainment of the purposes of the Natural Protected Area."[216]

III. PRIVATE LANDS CONSERVATION MECHANISMS

Peru has recently created two formal methods of private land conservation —the Private Conservation Area and the conservation concession. In addition, a small but growing number of informal private reserves have been established, primarily located in the wilderness areas of the Amazon basin of southeastern Peru, in many cases related to ecotourism operations. Many of these owners intend to use the new legal instruments to establish private reserves or obtain ecotourism or conservation concessions around their lands.

A. Private Conservation Areas

Authority to create private reserves was established by the regulation of the Law on National Protected Areas promulgated in June 2001.[217] Chapter IX authorizes individuals or communities who own land to create Private Conservation Areas that form part of the national protected areas system (SINANPE) and complement its protection. These private conservation areas are restricted to areas with significant biological resources, and are in effect treated as "mini-parks," with the owner required to adopt a management plan and report annually to the government.

To create such a private protected area, the landowner must apply to the Institute of Natural Resources (INRENA) for official recognition and provide a technical description of the area. Priority is given in the approval process to areas located within the buffer zones of public protected areas. If INRENA determines that the proposed area has the appropriate biological characteristics, they are to declare the area an Private Conservation Area by Ministerial Resolution. This status allows the property owner to access any technical assistance or other incentives offered by the government. The owner is then obliged to create a management plan within 90 days, to update the plan at least every five years, and to present an annual report of activities to the government. Once declared, the property owner must conserve the biodiversity and natural values of the area for the period during the declaration is in effect. This period cannot be less than 10 years, and is renewable. INRENA may revoke the designation if the owner fails to comply with these requirements.

The first private conservation area, the Private Conservation Area of Chapparri, was declared in December of 2001, and was requested by the

campesino community of Chongoyape over their lands. This area comprises 34,000 ha in the dry forest of the Andean foothills of Lambayeque province in the northwest, and is further described in the case study below.

There are currently several other initiatives by both private individuals and community groups to create Private Conservation Areas, especially on lands used for ecotourism operations. However, some landowners are reportedly reluctant to request this designation for the fear that it may allow the government to strictly regulate their activities, similar to the strict regulation of private ecotourism activities and lodges within national parks. This fear may be legitimate, or it may be dispelled once the designation becomes more commonly used. However, the government will need to find an appropriate balance between the need to ensure that the objectives of the designation are complied with, and creating overly restrictive bureaucratic processes that discourage private conservation initiatives undertaken on private lands.

B. Conservation concessions

The regulation of the Forestry and Wildlife Law also created the legal figure of conservation concessions on public forest land.[218] In general, the law authorizes two kinds of concessions over public forest land: timber concessions, which permit ecologically sustainable timber harvesting, and non-timber concessions, which permit the use of other resources of these forest lands. Within the latter category are concessions for non-timber forest products (roots, rubbers, resins, fruits, seeds, leaves, *etc.*), and for ecotourism, conservation, and environmental services.

The opportunity for a conservation concession allows for a significant expansion of private conservation management of land in Peru. In a conservation concession, INRENA grants to a private entity the exclusive right to manage a specific area for a period of up to 40 years, which term can be renewed by the concessions holder. There is a preference in the regulations for granting concessions in forest areas with soil classified as unproductive or "protection" soils, which includes most of the Peruvian Amazon basin. The concession is without charge,[219] and the holder is to engage in activities to protect, investigate, and sustainably use the natural resources in a way that maintains and protects the biodiversity. More specific restrictions or obligations may be placed in the management plan.

C. Informal private protected areas

There have been relatively few informal private reserves created in Peru, due in part to the predominance of public lands in most of the country. Most have been created in connection with the roughly 60 commercial ecotourism

lodges in the southeast Amazonian part of Peru, an area with major wilderness parks and internationally known to have the world's greatest diversity of birds, butterflies, and certain insect families.[220] Some of these enterprises simply own and protect the lands around them, but a few have a custodian relationship granted by the government over adjoining official protected areas. These reserves combine the private reserve concept with early forms of the conservation concession, and are discussed in this section.

The first privately managed protected reserves in Peru were initiated by ecotourism companies that obtained small pieces of land to build an ecotourism lodge, as well as custodianship of government-declared protected areas around their lodges. These include the owners of the Cusco Amazónico lodge on the Madre de Dios River, where a private reserve of 10,000 ha was declared by the government in 1976,[221] and the Explorers Inn, named custodian of the initial 5,500 ha Tambopata Reserved Zone created in 1977.[222] Later in 1992, a private reserve of 1,362 ha was declared around the Manu Cloud Forest Lodge, which manages this reserve.[223] Starting in the late 1980s, additional land was directly purchased and protected by non-profit groups in this region, and several groups have protected land in the Quosnipata Valley that protects the southern boundary of the Manu National Park, including the Asociación para la Conservación de la Selva Sur,[224] Asociación para la Conservación de la Cuenca Amazónica, and ProNaturaleza.

There has been a particularly strong relationship between these commercial private reserves with scientific research and conservation initiatives in this region. The vast 1,478,943 ha Tambopata-Candamo Reserved Zone created in 1990 had its origin in the privately-managed Tambopata Reserved Zone of 5,500 ha initially created around Explorers Inn. The scientific research on this land and surrounding areas conducted by the owners of that lodge and by visiting scientists from the Smithsonian and many other institutions, provided critical support for the environmental initiative to create the larger area.[225]

Another aspect of private-public partnership is the association Ecotur Manu, formed by the ecotourism enterprises and owners of the private reserves operating in the Manu Reserved Zone adjacent to Manu National Park. This association serves to ensure quality of tourism and limit entry into sensitive areas. The fees they pay to INRENA exceed the park management budget, and the operators also charge a per-person fee to clients that is contributed directly for park operations and provides important supplemental support for the park's management.

Although one should not exaggerate the contribution of these commercial operations, there is no question that they were among the most significant early actors in the conservation movement that has now protected over 2 million ha in this region, and remain a strong underpinning of the political support for conservation in the region.

The connection between ecotourism and conservation is being explicitly promoted by the non-profit organization Tropical Nature, which coordinates a network of six lodges in Peru's Amazon forests. At these sites, Tropical Nature develops community-based ecotourism programs that are designed to work with landowning communities to safeguard ecosystems threatened by logging, mining, or oil exploration, while providing communities with sustainable livelihoods. While some projects include lodges adjacent to national reserves, most are on community owned land.

D. Community Accords to Protect Private Lands

Given the extent of public lands in Peru, many communal and indigenous land issues concern public protected areas, and not private lands. However, community accords to protect private lands are being carried out by Tropical Nature, which works with local communities to develop site-specific ecotourism and management plans in a number of areas. Tropical Nature usually provides the start-up capital and tourism expertise; in return for which the community agrees to protect their forests from unsustainable resource use, such as logging, over-hunting, or hunting of threatened species. In some cases communities have designated areas of forest to be left intact. Profits from these projects are shared between communities and conservation organizations in an equitable fashion and used to protect the local environment. Tropical Nature estimates this program includes over 75,000 ha of forest lands protected by community groups in Peru, and has expanded this system to now include at least one lodge in Brazil, Ecuador, and Bolivia.[226]

IV. FUTURE GOALS

1. **Increase governmental capacity to support private lands conservation.** A number of new legal tools for private lands conservation were created in the regulation of the Forestry law adopted in 2001. In order for these tools to be successfully implemented, the government will need to develop adequate capacity and procedures to create and monitor the conservation concessions and private reserves. These processes must be sufficiently detailed to allow for effective oversight, but not be so burdensome that they discourage the private initiative that underlies private lands conservation efforts.

2. **Create a law authorizing conservation easements.** Peru still lacks a law or regulation authorizing conservation easements, either through the civil law processes or a new form of independent or "in gross" easement that

can be directly made with organizations, avoiding the need for a dominant estate.

3. **Create incentives for private lands conservation**. Incentives could promote private lands conservation either though government actions to increase the juridical security of private conservation lands, or the provisions of economic and tax benefits if private conservation areas are created in priority areas.

CASE STUDY 1—RÍO LOS AMIGOS CONSERVATION CONCESSION

The conservation concession for the Río Los Amigos watershed is the first conservation concession created in Peru under the new regulations of the Forest and Wildlife Law,[227] and one of the first concessions created for conservation purposes in all Latin America.[228] Under Peruvian law concessions over public land had previously only been authorized for timber exploitation, but now can be authorized for the purposes of conservation, ecotourism or use of non-timber forest products.

This concession was created to protect an Amazon river basin in its natural state. It is located in the Río Los Amigos river basin in the Department of Madre de Dios, in Peru's southeastern Amazonian lowlands, and covers an area of 132,832 ha. This area is characterized by terraces and hills, and includes 10 separate ecosystems that support a great diversity of fauna and flora. The region has one of the highest levels of biodiversity in the world, and it is estimated that the basin could harbor 2,000 to 2,500 plant species. Its size is large enough to conserve species with extensive home ranges, such as the larger mammals and birds.

The benefits of conserving the basin include the preservation of a habitat important for biodiversity, the opportunity for scientific research in a healthy ecosystem, and the ability to control access to the lands of uncontacted indigenous communities that live in remote areas beyond the Los Amigos watershed.

The concession contract was entered into between the Peruvian State and the NGO Amazon Conservation Association (ACA).[229] The concession was formally created for conservation purposes by a departmental resolution in August 2001, for a period of 40 years, and is renewable at the request of the ACA. The concession grants exclusive rights to manage the area to ACA; the authorities cannot grant other concessions, permissions or authorizations to third parties for the same land during the period of the contract. Although the concession is free of charge as required under the law, in the concession

contract ACA agrees to make an initial investment of $5 million over the first five years, and to reinvest any additional income generated from research and capacity-building activities.

Conclusions

The granting of the first conservation concession in Peru greatly expands the concept of concessions over state lands, which previously could only be granted for commercial timber harvest. It allows long-term conservation uses for land to compete with short-term commercial exploitation, and hopefully will lead the way to increased conservation of biologically important lands. This historic concession also makes Peru a world leader in promoting conservation throughout its forestry legislation and in promoting private investment in conservation.

CASE STUDY 2—CHAPARRI PRIVATE CONSERVATION AREA

Chaparri is Peru's first Private Conservation Area established under the new regulation of the Law on National Protected Areas. This 34,000 hectare reserve was created in December 2001 for a term of 20 years,[230] and was proposed by the Communidad Campesina de Santa Catalina de Chongoyape, a community of 1,500 persons that owns 40,000 ha of mountainous land in Lambayeque Department in northern Peru.

Ecological Importance

The Chaparri private conservation area protects coastal dry forest in the Tumbesian ecoregion, a critically endangered ecosystem that has lost over 90 percent of its original extent. The Chapparri area supports a significant number of endangered species, including the Spectacled Bear[231] and the White-Winged Guan,[232] which is endemic to the dry forests of this part of Peru.

History

The concept of a private reserve in this area was initiated and championed by Heinz Plenge, a renowned nature photographer whose family originally came from this area. On his return to the area in 1998, Plenge suggested to the local community that they create a conservation project to improve the quality of their life. He changed his career to help the community create a private reserve for their remaining land, to preserve its beauty, and also benefit the community.

Plenge met many times with the community over three years to persuade them of the benefits of starting a private reserve. Some members resisted, as there was no tradition of any land management activities other than extensive cattle grazing and farming. Others suspected he was really interested in pro-

moting mining or other economic activities on the land. Eventually, however, they became convinced of the benefits of the private reserve, and in December 1999 the community made the decision to submit a request and proposed management plan to INRENA to create a private reserve of 34,412 ha (85 percent of the community's land). This was the first time a campesino community had made such a request. In December 2001, INRENA accepted the proposal and declared the reserve.

Proposed Land Use and Benefits to the Community

One of the basis of the community's decision to create a private reserve was a study they conducted of the potential uses of their 40,000 ha of land, in which they determined that they were only using only 650 ha for intensive agriculture; this area, plus enough for agricultural expansion, was excluded from the reserve. They also found that they were receiving very low benefits from the remaining land, which was used extensively for cattle ranching. Not only were the economic returns from cattle ranching were low, but most of the cattle being grazed were not even owned by community members. The land was also being used by outsiders for hunting, again with no benefits to the community. Some years before the land had also been harvested for wood for crates, but this activity also produced low economic returns and had been abandoned.

The reserve's management plan promotes habitat conservation and species restoration and provides for two principle economic uses: ecotourism in half the reserve and limited hunting in the other. An area of 17,000 ha is dedicated to nature tourism, on which a small house with three double rooms for visitors has been built. Potential plans include a lodge on nearby community land that has easy access to the highway. To restore habitat and species, the trees and native vegetation are protected, allowing the regeneration of the trees previously cut for fruit crates (which takes 50 years in dry forest). Current projects also include the reintroduction of endangered fauna species, such as the white-winged guan and guanaco.

The other half (17,000 ha) of the reserve is devoted to a hunting reserve for white-tailed deer, and will be only the third hunting reserve in Peru.[233] The private reserve legal framework will help to regulate hunting, which had previously been uncontrolled. Community members and local hunters who had traditionally used this site will be allowed access to the area free of charge, whereas visiting hunters will have to pay a fee.

The community's principal reasons for creating the private reserve were to improve their economic status and the security of their land holdings. The community's first priorities are jobs and income, which will come mostly from tourism, serving as park guards and guides, provision of lodging and food services, and entry fees for the proposed hunting reserve. These activities

are likely to produce more jobs and incomes than the previous land uses, which had been principally extensive cattle ranching.

The community also perceived that the reserve designation "made the land more important" and will afford some added protection against invasion by third parties and against mining claims (there are currently 24 mining claims on the community land). One interesting and immediate result of the reserve's creation was that an international mining company voluntarily returned 3,000 ha to the community to be added to the reserve that they had previously bought from the community as a possible mining site. Finally, the reserve designation, together with the access restrictions, allows greater regulation of hunting, which benefits the community.

Conclusion

For a private conservation area to be attractive to community groups, there must be concrete benefits in terms of employment or increased income. There are significant opportunities for a win-win situation in converting lands to sustainable uses where current activities provide low economic benefits. Ecotourism, hunting rights, and extractive uses can each help to provide sustainable economic benefits in connection with conservation management.

This study also shows how typically a "champion" is needed to create a private protected area—someone who is willing to make a major commitment in time and effort may be needed in order to surmount all the practical and administrative obstacles to creating a private reserve. It also shows that government capacity to process and support private conservation methods is important, especially in approving applications to create private reserves, which have a number of bureaucratic steps.

UNITED STATES *(COUNTRY SUMMARY)*[234]

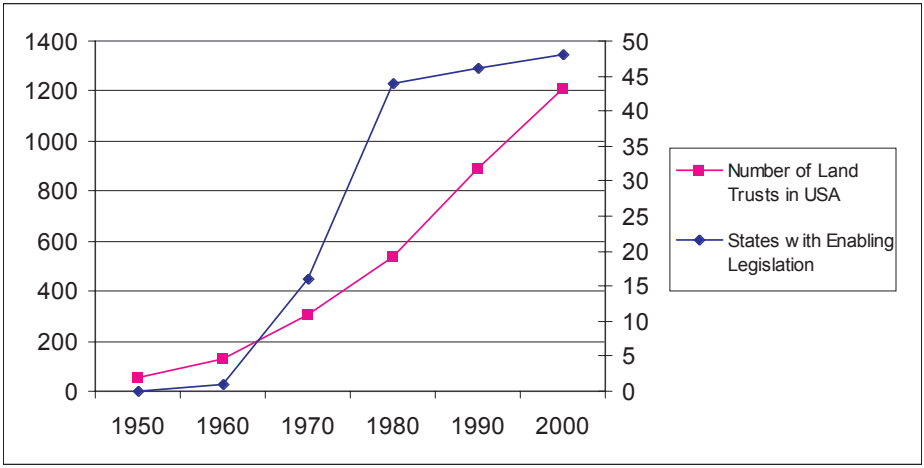
I. INTRODUCTION

Private land conservation in the United States dates to the end of the 19th century when Charles Eliot proposed "an incorporated association [that] would be empowered by the state to hold small well-distributed parcels of land free of taxes, just as the public library holds books and the art museum pictures—for the use and enjoyment of the public." This led to the creation of The Trustees of Reservations in Massachusetts in1892,[235] which became the first land trust in the United States, a term used for NGOs that are dedicated to acquiring and holding land or easements for conservation purposes.

By 1960, over 130 additional land trusts had been formed, which operated principally by buying and preserving land. By the late 1960s, the idea of easements gained interest, and appurtenant easements began to be used for land conservation. Subsequently, The Nature Conservancy and other groups worked through the 1970s to create legislation in each state to enable the use of "in gross" conservation easements, and by 1980 such legislation was established in most states. In this same year a law was enacted authorizing a federal income tax deduction for qualified gifts of conservation easements. In addition, in 1982 the Land Trust Alliance was formed to help build the institutional and financial capacity of local land trusts, advocate federal laws and policies for land conservation, and establish common practices and mechanisms for sharing information and expertise. Together, these events launched the land trust "movement," and the number of land trusts, which had grown to approximately 400 in 1980, has grown to over 1200 today.

In the United States, the use of private lands conservation tools such as conservation easements was not widespread until enabling legislation created a sound legal basis for their use. In 1960, only one state had a law authorizing conservation easements, the basic land conservation tool used in the United States. However, by 1980, such laws had been passed in 44 of the 50 states, and by 2002 this figure had risen to 48.[236] The following figure shows how development of the legal framework for private lands conservation from 1960-1980 led to explosive growth in the use of private land conservation and organizational capacity.

FIGURE 21. CREATION OF LEGISLATION ENABLING CONSERVATION EASEMENTS AND GROWTH OF LAND TRUSTS IN THE UNITED STATES (1950-2000)



II. ABSENCE OF CERTAIN LEGAL TOOLS USED IN LATIN AMERICA

Although there is significant activity in private lands conservation in the country, the United States lacks a number of the legal tools commonly used in Latin America for the conservation of private lands:

a) the United States generally lacks the mandatory restrictions on land use imposed along water sources, in watersheds, and on steep slopes that are imposed, but rarely enforced, in Latin American countries. Some state and local jurisdictions have taken such actions, such as Maryland regulations that restrict development along the Chesapeake Bay.

b) the United States also lacks the public/private protected areas that are declared by government and restrict private lands uses, but are not intended to acquire the private lands for government ownership. The only U.S. areas that approach this model are certain state-designated areas on which land uses are restricted, such as the Adirondacks State Park in New York;[237]

c) the United States does not have formal private reserves designated by governments. The only somewhat similar process is that for designating historic properties in a national or state registry. Federal historic registration however does not restrict private use of the land or property, but does provide some limited economic incentives;[238] some states and municipalities however do restrict the use of the registered private property for preservation purposes.

The above legal instruments reflect the traditionally greater role of government regulation in Latin American countries with their civil law background. The use of state approval of private land conservation tools, such as private reserves, also reflects the need in Latin America for government certification, in light of private owners' needs to demonstrate socio-economic use of their property, a requirement that is not an element of property law in the United States.

III. CONSERVATION EASEMENTS

In the United States, conservation easements are widely used by private landowners for land conservation purposes. The use of easements was popularized in 1968 by William Whyte in his book *The Last Landscape*, and appurtenant easements began to be used for land conservation by groups such as the Open Space Institute and The Nature Conservancy, with the view that their use could make land conservation cheaper and easier. Subsequently, with much NGO promotion, states began to pass legislation that expressly authorized conservation easements that could be held directly by qualified government agencies and NGOs.

In response to diverse state laws, the National Conference of Commissioners on Uniform State Laws issued in 1981 the *Uniform Conservation Easement Act*,[239] which has served as an impetus and cornerstone for much modern state legislation. This act dealt with six main aspects of conservation easements: their definition, qualified holders, acceptance, duration, modification, and enforcement. This law defines a conservation easement as "a non-possessory interest of a holder in real property imposing limitations or affirmative obligations [to] protect natural, scenic, or open-space values of real property…."[240] It defines qualified easement holders as government bodies and non-profit entities whose missions are related to conservation; and provides that easements are created for perpetuity unless otherwise stated.[241] It also allows third parties that meet certain holding qualifications, but are not the easement holder, to accept rights to enforce the easement.

Overall, the use of conservation easements by land trusts has been an effective land conservation tool in the United States. The early promotion of easements was led by The Nature Conservancy and some local land trusts. Then in 1982, the Land Trust Alliance was created to improve the effectiveness of local and regional land trusts, and from its inception stressed the effective and responsible use of conservation easements. Currently, the more than 1,200 local, regional, and national land trusts hold tens of thousands of conservation easements.

Federal and state government agencies also hold conservations easements over private land. The largest holder is the U.S. Fish and Wildlife Service,

which holds more than 21,000 easements covering over 3.5 million acres of habitats.[242] The largest portion of their holdings are easements covering 2 million acres of wetlands in the north-central states. The easement is a particularly useful tool to conserve these "prairie potholes," as they allow productive farming of the land to continue, while creating agreements with farmers to preserve the wetland or flooded areas that are important for duck nesting habitat.[243]

Although the use of conservation easements has been a success in the United States, with a fairly good record of compliance, the reliability of judicial enforcement has been an important factor. Also, it is now widely recognized that acceptance of an easement implies a perpetual duty on the easement holder to monitor the land and enforce the easement provisions, and that in the long-term, such costs can be equivalent to the cost of outright purchase of the land for conservation purposes. Therefore, a growing number of land trusts will only accept easements today if they can also raise adequate endowment funds to support the future costs of monitoring and enforcement.

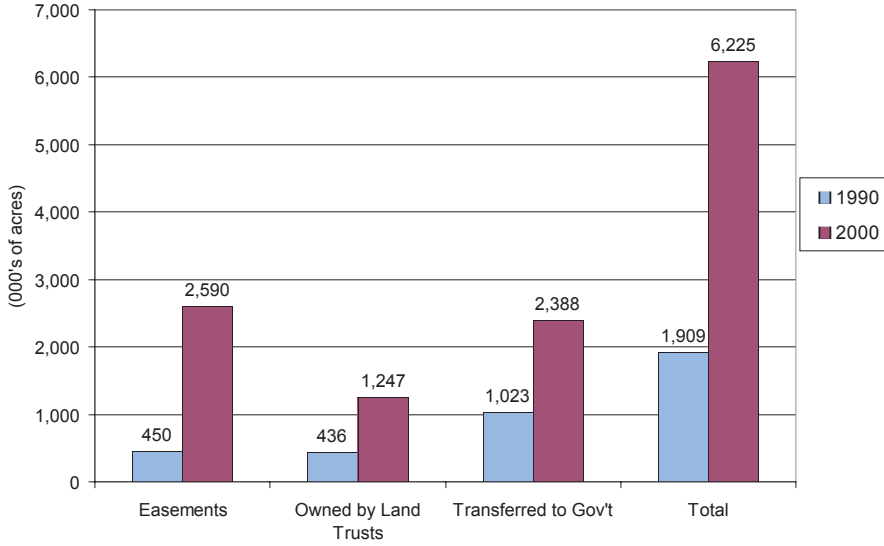
IV. NGO PURCHASE AND OWNERSHIP OF PRIVATE PROTECTED AREAS

Another principal tool for the conservation of private land in the United States is the purchase of conservation lands by NGOs; prior to the advent of conservation easements, this was the principal method available to do so. Typically, land trusts and similar organizations purchase property and either manage it themselves, or donate or sell it to a government entity for conservation purposes.

As of December 2000, there are over 1,200 local and regional land trusts in the United States, that protect over 6 million acres (2.4 million ha) of private land. Of those, 2.5 million acres are protected by over 10,000 conservation easements, 1.2 million acres are owned by land trusts and 2.4 million acres were bought and transferred to the public domain. This activity is not evenly spread throughout the nation; the Northeast region of the country has the most land trusts, which have protected almost 3 million acres, and activity is also high in California. On the other hand, local land trusts have only protected about half a million acres in both the Southeast and Midwest, where most land trusts have only recently been established.[244]

In addition to these local land trust efforts, The Nature Conservancy is now the largest national land trust and has helped protect 14 million acres in the U.S. and an additional 80 million acres worldwide. Although much of the U.S. land protected is transferred to government agencies, TNC continues to manage 7.3 million acres in the U.S., 2.3 million acres in ownership, and 5

FIGURE 22. U.S. LOCAL LAND TRUST CONSERVATION ACTIONS AND DISPOSITION (1990 AND 2000).[245]



million acres managed through conservation easements, management agreements, and leases.[246]

The following chart compares land ownership by land trusts with that owned by federal conservation agencies, noting that each agency may protect land for different purposes: local land trusts emphasize open space and natural values; The Nature Conservancy biodiversity values; the U.S. Fish & Wildlife Service wildlife habitat, especially wetlands; and the Park Service scenic and recreational values.

FIGURE 23. COMPARISON OF U.S. CONSERVATION LAND OWNERSHIP AND EASEMENTS (MILLION ACRES)[247]

	Land ownership	Land in easement or lease
Local and Regional Land Trusts	1.2	2.6
The Nature Conservancy	2.3	5
US Fish & Wildlife Service	91.8	3.5
US National Park Service	84.5	2.6

V. INCENTIVES FOR PRIVATE LAND CONSERVATION

There are major economic incentives for private lands conservation in the United States, including federal income and estate tax deductions, municipal

property tax reductions, and state income and property tax deductions. In addition, there are federal and state funds for land purchase and conservation, often financed by public bond issues, that amount to several billion dollars a year.

Income Tax Deduction

Donations of land to an NGO or government agency qualify for a federal, and typically also state, income tax deduction of the full appraised value. The combined income tax deduction can be worth up to 49 percent of the land's value, depending on the tax bracket of the individual taxpayer.[248] This deduction drove many of the early donations of significant lands to land trusts, and is still very important today.

A milestone in the private lands conservation movement occurred in 1980, when legislation was passed that made permanent a federal income tax deduction for donations of conservation easements, provided they were perpetual, donated to a qualified entity, and met other requirements.[249] The Nature Conservancy was the chief promoter of this new law, although after its passage the Land Trust Alliance and local land trusts helped ensure that good regulations were written. Many states also provide deductions from state income taxes for donations that qualify under federal law, so that donations of land or easements will qualify both for federal and state income tax deduction.

Property tax deduction

One of the most basic economic incentives for donations of easements is that the donation lowers the assessed value of the protected property, which results in lower property taxes being owed. Most municipalities in the United States lower property tax assessment value after the donation of an easement, and some states provide additional benefits, such as Maryland, which provides a 10-year tax holiday for donations of easements to a state agency. In the United States, this property tax reduction can be a very significant tax incentive, especially in rural areas that are subject to rapid urban growth.

Federal estate tax deduction

The federal estate tax now provides a significant additional deduction for land protected by a conservation easement. The Farm and Ranch Protection Act of 1997 allows the deduction of 40 percent of the value of the land (up to $500,000) for federal estate tax purposes if qualified land is protected by a conservation easement.[250]

VI. LIMITED DEVELOPMENT INITIATIVES

A number of NGOs pursue limited development initiatives, in which land is purchased, a large portion is set aside for conservation purposes, and a smaller portion is used or sold for real estate development or resource use purposes. These organizations are typically involved in large-scale landscape and open space initiatives, and include the Trust for Public Land, Conservation Fund, Open Space Institute and regional groups. Together, they have protected several million acres of land, most of which has been transferred to government agencies for management.[251]

VII. PUBLIC-PRIVATE PARTNERSHIPS

NGO purchase of land for resale or transfer to government

NGOs serve an important function by using their ability to move more quickly and flexibly than government agencies in purchasing lands that are or will be within the acquisition boundaries of public protected areas, and then reselling or transferring them to government agencies. As can be seen in the figure above, more land purchased by local conservation NGOs is transferred to government than is kept and managed by the NGOs themselves.

Public Involvement in Private Lands Conservation

Public agencies in the United States are heavily involved in private land conservation. Many state environmental agencies act just like land trusts in purchasing and holding easement over private lands, and some states, such as Maryland and Virginia, have set up quasi-statal entities specifically for this purpose. Federal agencies also hold easements: the U.S. Fish and Wildlife Service holds easements over 3.5 million acres (1.4 million ha), especially wetlands serving as duck nesting grounds, and the National Park Service holds easements over 2.6 million acres.[252]

Assisting such government efforts are major public funding programs for the acquisition of both lands and easements over land. Revenues from the sales of duck stamps (the federal license to hunt migratory birds) and a tax on purchases of ammunition is placed into a special Migratory Bird Conservation Fund that has funded government purchases of easements over 2 million acres since 1934.[253] Revenues from federal offshore oil and gas leases flow into the Land and Water Conservation Fund to purchase open space, and typically amount to several hundred million dollars a year.[254] Also, states and local jurisdictions have enacted special bond issues and taxes for open space preservation, and The Nature Conservancy estimates that $7 billion of such bond

issues were passed in 2002. Other funding mechanisms are pursued at the municipal level, such as in Nantucket, Massachusetts where a 2 percent tax is imposed at all sales of property to fund open space land purchase and conservation.

Public-private collaboration

There are many concrete instances of public-private collaboration, especially at the local level to preserve open space, landscapes, and rural lands. Popular mechanisms include land ordinances, tax laws, state bond issues, property tax forgiveness, and bond initiatives to purchase open space. One major public-private initiative is to save the northern boreal forest that stretches from Maine to upstate New York. Timber companies are selling many large forest holdings in this region, which has prompted state agencies and conservation NGOs to work together to fund the creation of easements and buy land for conservation ownership by NGOs and state agencies.

APPENDIX ON MODEL LAWS

A. MODEL LAW TO ESTABLISH CONSERVATION EASEMENTS

Chapter I Conservation easements

Article 1 Objectives

a) The legislature declares that that the preservation of land in its natural, forested, or open-space condition is an important environmental value. It is declared of public interest to promote the voluntary establishment of conservation easements in favor of a qualified conservation entity.

b) Private conservation areas referred to in this Chapter are declared to be of the public interest, and are to be protected by all agencies of the State government.

Article 2 Definition of Conservation Easement

A conservation easement means any limitation in a deed, will or other instrument in the form of an easement, restriction or condition, which is or has been executed by or on behalf of the owner of the land subject to such easement, and is binding upon successive owners of such land, and the purpose of which is to retain land primarily in its natural, forested or open-space condition.

Article 3 Effect of a Conservation Easement

A conservation easement shall be considered a real property right, and shall bind future owners of the property. To establish a conservation easement it will not be necessary for the conservation entity to own land, adjacent or otherwise. The conservation easement shall be freely transferable in whole or in part for the purposes defined, and by any lawful method for the transfer of interests in real property.

Article 4 Duration of the Conservation Easement

The parties may establish the duration of the easement for a term of years, or for perpetuity. If not stated in the document, the easement is construed to be created for perpetuity.

Article 5 Requirements to Establish a Conservation Easement

The following are required to establish a conservation easement:

a) *Purpose of the conservation easement.* The conservation easement is voluntary, and must have an environmental purpose, i.e. the protection of the natural habitat of fish, wildlife, and plants, and the protection or conservation of natural areas and ecosystems of biological richness. Nevertheless, the easement may also fulfill other complementary purposes, such as recreation, ecological tourism, public education, the preservation of open space, and the preservation of governmentally recognized historic places.

b) *Characteristics.* The particular characteristics of each conservation easement will be established in the instrument creating the easement..

c) *Registration.* The instrument creating a conservation easement must be duly registered as a real property right in the corresponding office of public registry of real property.

Article 6 Supervising Organization

A conservation easement document may name a supervising organization to monitor compliance with the easement requirements, and that has the right to take legal action in case of non-compliance. Only qualified conservation entities may be named as supervising organizations..

Article 7 Types of conservation easements

Two types of conservation easements are recognized:

a) Appurtenant easements between private property owners, in the form dictated by title __ of the Civil Code.

b) Independent easements between a private property owner and a conservation entity. In this case, the conservation entity does not have to own land, but has rights to enforce compliance with the instrument.

Article 8 Conservation Entity Defined

A conservation easement can only be acquired or held by a qualified conservation entity, defined as:
a) a federal, state or municipal governmental body; or
b) a legally recognized non-profit organization whose objectives include the conservation, preservation and restoration of the natural environment.

Article 9. Rights and Obligations of the Property Owner

Owners of property subject to a conservation easement must exercise their property rights in accordance with the terms of easement. However, the rights of disposition of the property are not affected by the constitution of a conservation easement.

All property rights not transferred in the easement remain for the property owner, including the right to use the property in ways not affected by the easement, nor prohibited by law.

Article 10. Rights and Obligations of the Conservation Entity

The conservation entity is empowered to organize the recovery, protection and conservation of the land subject to the easement, and to carry out the judicial or administrative actions necessary to protect the environmental purpose of the conservation easement.

Also, the conservation entity has the obligation to ensure that the property owner exercises his property rights within the terms and conditions set forth in the conservation easement.

Article 11. Enforceability

a) The holder of a conservation easement shall be entitled to recover money damages for any injury to such easement or to the interest being protected thereby, or for violation of the terms of such easement. In assessing such damages there may be taken into account the costs of restoration of the land to its former state, and the loss of scenic, aesthetic, or environmental value to the

property subject to the easement. Actual or threatened injury or impairment to the easement may also be prohibited or restrained by injunctive relief.

b) In the case of a conservation easement held by a conservation entity, the easement can be fully enforced by the conservation entity regardless of whether it holds any property.

Article 12. Dissolution of the conservation entity

If the conservation entity ceases to exist, or ceases to have environmental conservation as an objective a judge of the civil court will name another conservation entity to take its place.

Article 13. Supplementary norms

A conservation easement granted pursuant to this chapter constitutes an enforceable restriction, for purposes of the [income tax code] and the [property tax code].

Chapter II. Economic Incentives

Option A: [**more general**]

Article 1. State and Local government should:

a) Promote public and private actions to establish and manage natural protected areas;
b) Establish or promote the use of mechanisms to provide resources for and financing to help manage natural protected areas;
c) Establish economic and fiscal incentives to those who destine their lands for conservation protection and restoration of ecosystems and their biodiversity.

Option B: [**more specific**]

Article 1. Income tax

In order for the creation of a conservation easement under this section to be considered a donation and, as a consequence, subject to deduction form income taxes, the conservation easements must have the following characteristics:

a) be registered in the appropriate registry of public lands;
b) be created for perpetuity;
c) be held by an authorized conservation entity recognized by the state;
d) have an exclusively environmental purpose.

Article 2. Property tax

Lands subject to conservation easements that fulfill the conditions set forth in the previous section will be subject to a reduction in property tax, as well as other taxes of federal, state or local character.

B. MODEL LAW FOR PRIVATE RESERVES

General Provisions

Article 1. Definition and terms.

Private reserves are privately owned lands that, due to their environmental, biological, topographical or other characteristics, are of significance for the conservation of biological diversity and natural resources, or offer environmental services that support the conservation of biological diversity on other properties.

Private reserves may also provide the opportunity for scientific investigation, natural resource management and education, and appropriately designed tourism.

Article 2. Priority areas to be recognized as private reserves.

Priority for recognition as a private reserve is given to:

a. Lands situated in buffer zones of protected areas.
b. Lands situated in areas qualified as priorities for the conservation of the nation's biological diversity.
c. Lands situated in areas that guarantee the provision of environmental services to population centers or productive activities.

Article 3. Solicitation to Create a Private Reserve.

The property owner seeking recognition of land as a private reserve should present to the governmental authority responsible for protected natural areas [the authority] a solicitation that contains at least the following:

1. Deed of the property and a sworn declaration that the estate has no liens, mortgages, or other burdens, and is not the subject of any pending litigation.
2. Statement as to whether the private reserve will cover all or part of the owner's property. If there is no indication, it will be presumed that status is sought for the whole property.
3. Statement whether the private reserve will be for a term of years or be permanent. In the case that there is no indication, it will be presumed that a permanent status is sought.
4. Brief resume (2-5 pages) that states the significance of the land for conservation purposes, and describes the conservation program and any complementary activities, economic or otherwise, that the applicant wishes to devel-

op in the area; this description should cover activities taking place in the remainder of the property, if only part is sought to be placed in private reserve status.
5. Sworn Declaration that the applicant will promise to comply with the all regulatory directives issued by the authority with respect to private reserves.
6. If the landowner so decides, a declaration that the reserve will be managed for strict conservation purposes, in which case the restrictions in paragraph 7(c) will apply.

Article 4. Joint presentation of adjacent properties.

A joint solicitation may be presented covering adjacent properties pertaining to one or more property owners, provided that:

a) Each property owner presents a valid title, and all property owners sign the request.
b) A single management plan is presented, and a single management entity is identified that is authorized to deal with the authority and present reports for all the properties.
c) It is accepted that the breach of obligations on one property can cause the loss of recognition for all the properties.
d) A renewal solicitation, if the original solicitation was for a term of years, must be solicited by all the property owners.

Article 5. Legal recognition.

Private preserves will be officially recognized by a Resolution of the highest level of the authority. The recognition can create reserves with perpetual character, or for a term of not less than ten years, which is renewable upon request of the property owner.

Article 6. Obligations of the property owner

The owner of an area declared as a private reserve assumes the following obligations:

a) To use the property for the conservation purpose for which it has been recognized;
b) Unless the reserve is declared to be for strict conservation purposes, to present for the approval of the authority a management plan within six months following the Resolution that grants recognition to the private reserve;

c) To comply with the approved Management Plan;
d) To allow the authority, or whomever the authority designates, to supervise and monitor the reserve area; and
e) To present annually a sworn declaration of compliance with the Management Plan.

Article 7. Juridical effect of recognition.

a) Recognition of a private reserve applies to the property, not the property owner. In the case of transfer of the property, the property's status as a private reserve remains in full force and effect.

b) Recognition as a private reserve and the corresponding restrictions on land uses will be binding on the property owner who requested the reserve, and all subsequent owners of the estate, whatever the method by which they acquire rights over the estate.

c) If the reserve is declared to be for strict conservation purposes, use of the area for scientific investigation, natural resource management and education, recreation and tourism is permitted, but the following land uses are prohibited:
– cutting of natural vegetation;
– hunting or fishing;
– agricultural or grazing use of the land;
– any type of construction, except paths and observation platforms; and
– any contamination of the soil, water or air.

d) If the reserve is not declared to be for strict conservation purposes, limitations on uses of the land will be inscribed in the public land registry:
– by the authority in accordance with the management plan; and
– any additional use restrictions declared by the property owner. If these restrictions are declared by the landowner to be permanent, they shall continue to apply to the land even if it loses the status of a private reserve. If they are not permanent, they shall apply only during the period the land has the status of a private reserve.

e) The authority will give priority to private reserves declared to be for perpetuity.

f) Declaration of a private reserve constitutes an official recognition that the lands are fulfilling a valid social land use.

Article 8. Management Plan

a) The Management Plan should have a renewable term of five years, and contain:

– information that outlines the biological conditions of the property, especially its biological diversity and other natural and ecological values;
– cartographic and photographic information of the property;
– proposed land and resource use, economic or otherwise;
– proposed zoning of the property;
– other activities and uses that will be made in the private reserve.

b) The Management Plan, once approved by the authority, is the fundamental instrument governing management of the private reserve.

Article 9. Administrator of the Area.

The owner of the Private Reserve shall be considered the administrator of the reserve, unless the owner designates a third person or institution to be administrator of the area; the administrator is the responsible party for coordination with the authority.

Article 10. Registry and Catalogue.

The authority shall keep an Official Registry and Catalogue of Recognized Private Reserves, where it is noted:

a) Location and characteristics of the property.
b) Name of the owner and administrator.
c) Special conditions of use in the Public Registries of Real Property.
d) Resolution of recognition of the Private Reserve.
e) Date of approval of the Management Plan.
f) Term for which the Private Reserve is created.
g) Registry of infractions that occur in the Private Reserve.

CHANGE AND LOSS OF RECOGNITION.

Article 11. Change of recognition.

The property owner will be able to solicit to the authority a renewal recognition until 30 days before the close of the initial term.

To renew the reserves status, the property owner must remit a solicitation to the authority stating the desire to renew the recognition, and indicating the term of years solicited. In the case that there is no indication of the period, it will be presumed that the request is for the same term of years as originally approved, and will not be less than ten years.

The renewal must be granted by the same level of regulatory decree that originally gave recognition to the property.

Article 12. Loss of recognition.

Causes for the loss of private reserve status are:

a) Repeated or serious breach of the conditions for the conservation of the area as agreed to in the approved Management Plan.
b) Non-compliance with recommended changes to the Management Plan by the authority.
c) Implementation of activities not approved in the Management Plan, without authorization by or justification to the authority.
d) Failure to present the Management Plan to the authority for approval within the specified period.
e) Failure to present the Annual Sworn Declaration for two consecutive periods.
f) The completion of the term of years for which the reserve was approved, without presentation of a renewal solicitation.

Article 13. Incentives for the establishment and protection of private reserves.

Private reserves will benefit from the following incentives:

a) Exoneration or reduction of property tax, to be carried out by the competent tax authority. This benefit only applies to private reserves created for perpetuity.
b) Payment for environmental services, if these exist. For the commencement of payment, a special solicitation should be presented with a technical report describing the services.
c) Technical assistance with regard to the management and conservation of the area.
d) Inscription in the Registry and Catalogue by the authority, which will help to demonstrate the lowered valuation of the property for tax purposes.

e) Inscription of special conditions of use in the land registry, that help to protect the property against incompatible or illegal uses.
f) Publication in maps produced by the state, which will benefit the promotion of the compatible economic and non-economic activities that occur in the private reserve.

Article 14. Control and monitoring

All government authorities shall cooperate fully with the property owner of an estate recognized as a private reserve, and take the actions needed to prevent damage to the land's environment values, and address criminal and administrative infractions as needed to fulfill the aims and objectives of creation of the reserve.

To carry out the above, the articles …. of the Civil Code and … of the Criminal Code, will apply to the private reserve.

Article 15. Supervision of private reserves.

The authority can inspect private reserves to monitor conditions and to ensure compliance. For this, the authority should make a previous written communication to the property owner indicating the day and hour of the inspection. In case of denunciations made indicating damages to resources situated within the private reserve that represent patrimony of the nation, the authority may intervene without previous warning.

ENDNOTES

[1] Conservation International, *Hotspots: Earth's Biologically Richest and Most Endangered Ecosystems* (Washington, D.C. 1999).

[2] *See* United States country summary in the Appendix. As of 1970, only one state had a law authorizing conservation easements--the basic land conservation tool used in the United States--but by 1984, such laws had been passed in 44 of the 50 states. Early land trusts include the Trustees of Reservation, established in Massachusetts in 1892, the Sempervirens Fund in California in 1900 and the Society for the Protection of New Hampshire Forests in 1901. By 1980, there were only 400 or so land trusts, of which 50% had budgets of less than $5,000 and most had no paid staff. Hocker, Jean. *Formation of the Land Trust Alliance in the United States. Presentation of the Land Trust Alliance* (Washington, D.C. 2002).

[3] For example, the current general rule being implemented by the Bolivian government is that a private property owner classified as a cattle rancher can only own 5 hectares for each head of cattle owned.

[4] By approving the conservation easement or other instrument, the state in effect recognizes that a valid use is being made of the land, fulfilling the requirement of socio-economic use.

[5] Usufructo and Comodato are personal rights to use and enjoy land. See discussion *infra* page 32.

[6] A testament of a deceased person may contain clauses that limit the uses of property, so that the inheritor receives the property under the obligation of conservation, and the breach of this obligation may result in the loss of inheritance rights. To ensure that the limitations introduced to the use of the property are observed, an executor may be granted standing or monitoring rights to other persons, including NGOs, to enforce the land restrictions.

[7] Conservation Land Trust, *The First Ten Years: (1992-2002)* (Sausalito, Cal. 2002).

[8] An important example of this is Hato Pinero in Venezuela, a well-protected cattle ranch of 75,000 ha. where 14,000 ha. of woodland have been placed under the care of the Pinero Foundation, composed of family members and two independent directors. Information of Don Antonio Julio Branger, President of Pinero Foundation (2001).

[9] *See* www.worldparks.org; www.tnc.org; www.worldlandtrust.org.

[10] *See* country studies in Part II; for Colombia, *Guia de Reservas Naturales de la Sociedad Civil* (Cali, Colombia, 1999). Note that Argentina and Paraguay have no formal networks, but in Argentina the Fundación Vida Silvestre has created a landowner recognition program called Programa Refugios de Vida Silvestre, and in Paraguay the Fundación Moisés Bertoni operates a Programa de Reservas Naturales Privadas.

[11] We note that an additional 70 Bosque Protectores covering 2,237,183 ha. have also been established by the government over private lands for such purposes as watershed protection. Although these use the same legal instrument, they represent government designations of managed resource use areas, and not private reserves.

[12] The conservation or "in-gross" easement has been successfully used in the U.S. for several decades. In most cases, the landowner enters into an agreement with a qualified conservation organization, which monitors the land use and enforces the easement. Conservation easements remain in effect even when the land passes to a new owner, and may be created for a period of years or be permanent. Landowners may qualify for various financial incentives, including reductions of property and income tax for entering into a conservation easement.

[13] State laws providing for conservation easements currently exist in Mexican states of Jalapa, Nuevo Leon and Quintana Roo.

[14] See generally, Jared Hardner and Richard Rice, *Rethinking Green Consumerism*, Scientific American at 89 (May, 2002)(describing conservation concessions)(www.sciam.com).

[15] Article 57° *et seq*., Decreto Ley N° 1,939 (1977), modified by art. 10°, number 3 of Ley N° 19,606 (1999).

[16] Information from Rick Klein and John Jennings of Ancient Forest International, Redway, Calif. (April 5, 2002).

[17] Ley 27308, Ley Forestal y de Fauna Silvestre, and its Regulation, Decreto Supremo 014-2001-AG; also Resolutión Ministerial 0566-2001-AG that created complementary dispositions for conservation concessions.

[18] Article 26 (3) of Ley INRA "authorize[s] concessions of state land for conservation and protection of biodiversity, investigation and ecotourism, previously certification of INRA concerning existing property rights in the area of concession, modifying these, revoking these, terminate them, and establish fees for such use."

[19] See Hardner & Rice, Scientific American, *supra* note 14 (Madidi and Guatemala projects); *see also*, Conservation International , Convenio de Compensacion: Conservacion Internacional - Empresa Maderera Berna SRL (unpublished document, re. Pilan Lajas). The Guatemalan community of 110 families plans to invest the proceeds in enhancing ecotourism opportunities, education and heath care.

[20] The Area de Conservación Guanacaste in northwestern Costa Rica has 153,000 ha of land, which includes about 70,000 ha of acquired private lands. Dr. Dan Janzen, who led the purchases of the private land, writes, "Irrespective of considerations of management logic, such a single property would have been substantially too large to be allowed by the social forces characterizing Costa Rica's contemporary democratic society to exist as one private holding in a tiny country that already has 5 times as large a populace as can be supported by its basic natural productivity."

[21] The first protected areas in Argentina were created in 1903 from a donation of lands of great scenic beauty in Patagonia by Perito F.P. Moreno to be preserved intact for future generations by the National Government. Aguilar, Soledad, *Environmental Non-government Organizations in Argentina*, Reciel 11 (2) at p.225 (Blackweel Publishers, Malden, MA, 2002).

22 "In March 1997 agreement was reached with the Provincial government of Misiones for the adoption of the reserve by the government as a Provincial Park. This relieves the charity of all responsibility for management and protection of the area although rights of access are retained and an area of 3 hectares has been designated a Private Park on which a study center and residential building can be erected. This is a very satisfactory arrangement for all concerned and represents a successful conclusion of the first phase of the Cat Survival Trust's involvement in South America" (excerpted from Cat Survival Trust report at http://members.aol.com/cattrust/MRF.htm [Sept. 25,2002]).

23 *See*, Alejandra Herranz, Argentina's First National Coastal Park Created in Patagonia. Environment News Service (June 5, 2001) (www.lycos.com/ens/june2001).

24 *See* Conservation Land Trust, *The First Ten Years (1992-2002)* (Sausalito, California 2002).

25 *See* http://www.jatunsacha.org.

26 Information from Michael McComb, Executive Director of Jatun Sacha Foundation (Nov. 2002).

27 In a federal common law jurisdiction such as the United States, such restrictive rules can be imposed by state governments, and to a limited extent have been imposed in special areas such as the Adirondacks State Park and margins of the Chesapeake Bay. *See generally*, US country summary in the Appendix.

28 Anita Sundari Akella, James B. Cannon, and Heloísa Orlando. *Enforcement Economics and the Fight Against Forest Crime: Lessons Learned from the Atlantic Forest of Brazil.* Conservation International, Center for Conservation and Government and Instituto de Estudos Socio-Ambientais do Sul da Bahia (draft, Washington, D.C. October 2002).

29 The only equivalent regulation in the United States can be imposed by State law, and the best example is the Adirondack State Park that covers 6 million acres in upstate New York, of which 57% is privately owned. The Act creating the park and its regulations subject private lands within the park to restrictions on land use, development and subdivision. (Adirondack Park Agency Act §800 *et seq.* ; New York State Regulations, Title 9, Subtitle Q, sec 572 *et seq.*) Landowners must apply for and receive an agency permit before undertaking any development projects such as buildings or roads within the park, or else have an approved land use program for their land. Land use, development, and subdivision involving a shoreline are subject to regulations regarding minimum lot width, building setbacks, and sewer setbacks In addition, no more than 30 percent of the shorefront may be cleared of vegetation. Part 575.1.e. Further rules and regulations apply to land within wild, scenic, and recreational river areas.

30 *Tenencia de la Tierra en áreas silvestres protegidas.* Mimeograph MINAE-SINAC (Costa Rica, Sept. 2001); *Herramientas Legales para la Conservación de Tierras privadas y Sociales en México* (Pronatura A.C. (México, D.F. 2002). In some countries, this situation is not so critical, as in Chile, where only 5% of the land included in the national system of protected areas is still privately owned or occupied. *Las áreas silvestres protegidas privadas en Chile: Una Herramienta para la Conservación.* CODEFF (Santiago de Chile, 1999).

31 However, it is important to point out that this situation is changing, as governments are increasing their efforts to raise their income to reduce their high public deficits. On one hand, governments, such as in Brasil and Costa Rica, are improving their tax collection systems, so tax breaks become more attractive to landowners. On the other hand, in Ecuador and Bolivia tax exemptions are being eliminated, and therefore this type of incentive no longer exists.

32 Much of the information in this country summary was provided by Luis Castelli, President, Fundación Naturaleza para el Futuro and author of *Conservacion De La Naturaleza En Tierras De Propiedad Privada* (2001) (see info@funafu.org; www.naturalezaparaelfuturo.org).

33 The book was supported by the Turner Foundation and can be found at www.naturalezaparaelfuturo.org or in www.farn.org.

34 Buenos Aires Province, Provincial Law No. 10.907 (1990), amended by Decree No. 218/94 and by Law 12.459/00

35 Chubut Provincial Law No. 4617/2000

36 Misiones Provincial Law No. 2932/92, modified under Law 3242/95 and Decree No. 944/94; these are available at http://www.misiones.gov.ar/ecologia/Todo/Normativa/leyes/modrespriv.htm.

37 Not applicable to agriculture land, grazing land or monoculture forest plantations.

38 Rio Negro Provincial Law No. 2669/93

39 Salta Provincial Law No. 7107/00

40 Sibileau, A., and E. F. Santagada. 2003. *Environmental Easement For the Perpetual Protection of Private Land in Patagonia, Argentina: Case Study "Las Lagunas de Epulauquen."* Fundacion Neuquen, San Martin de los Andes, Argentina.

41 Corrientes Provincial Law No. 3771 (15 April, 1983) (created in part for dam mitigation). This 1.3 million ha. park comprises open water, marshes and grasslands.

42 Aguilar, Soledad, *Environmental Non-government Organizations in Argentina*, Reciel 11 (2) at p.225 (Blackweel Publishers, Malden, MA, 2002).

43 *See*, Alejandra Herranz, Argentina's First National Coastal Park Created in Patagonia. Environment News Service (June 5, 2001) (www.lycos.com/ens/june2001).

44 "In March 1997 agreement was reached with the Provincial government of Misiones for the adoption of the reserve by the government as a Provincial Park. This relieves the charity of all responsibility for management and protection of the area although rights of access are retained and an area of 3 hectares has been designated a Private Park on which a study center and residential building can be erected. This is a very satisfactory arrangement for all concerned and represents a successful conclusion of the first phase of the Cat Survival Trust's involvement in South America" (excerpted from Cat Survival Trust report at http://members.aol.com/cattrust/MRF.htm [Sept. 25,2002]).

45 FVSA, Program of Wildlife Refuges: Promoting the Conservation of Private Lands in Argentina (Buenos Aires, December, 2001).

46 Dinerstein et.al. A Conservation Assessment of the Territorial Ecoregions of Latin America and the Caribbean (World Bank, 1995).

47 Ministry of Sustainable Development and Planning,Vice Ministry of Sustainable Development, Environment and National Service of Protected Areas. Park Ranger Agenda 2002.

48 PROMETA database, October of 2002.

49 The Forestry Law 1700 entered into force on June 12, 1996 and its objective is to: "Regulate the sustainable use and protection of forests and forestry lands for the benefit of present and future generations, harmonizing social, economic and ecological interest of the country." The law makes reference to protection lands, which are defined in Art. 13 as: "lands with or without vegetal covering, that due to their degree of vulnerability to degradation, the ecological services they render to the hydrographical basin, specific objectives, or to social interest or private initiative, are not susceptible of farming or forestry activities, limiting themselves to hydroenergetic, recreational, investigative, educational and any other indirect non-consuming uses."

50 Forestry Law Regulation D.S. 24453, Art. 3.

51 Tax reduction: Art. 41 (v) of the Forestry Law Regulation exempts the NHPRs and the conservation easements from the payment of rural property taxes.

52 National Service of Agrarian Reform Law 1715 (INRA Law) of October 18, 1996 (entered into force on December 21, 1996). The INRA Law establishes that all the properties, with or without title, must be subjected to the INRA title search process until the year 2006 (10 years since the law entered into force). This means that in order to certify that the property title is valid the INRA must limit the area and certify that the titles are original, properly registered, and without property conflicts or overlap with other properties. Previous laws authorized several institutions for the issuance of property titles, creating problems of false titles and overlaps. To determine boundaries, INRA must conduct a field inspection and determine the nonexistence of conflicts within neighbors.

53 The establishment of the socio-economic function is an important element that allows owners to claim their property titles. Article 169 of the Political Constitution of the State establishes that any property must fulfill the socio-economic function. Article 2 of the INRA Law defines the socio-economic function in the agrarian field, as established by Art. 169 of the Political Constitution of the State, as "the use of the land in the development of farming and forestry activities and others of productive character, as well as those of conservation and protection of the biodiversity, research and ecotourism, according to the land's capacity of greater use, in benefit of society, the collective interest and the interest of its owner."

54 Environmental Law N° 1333 (1992).

55 General Regulation of Protected Areas D.S. 24716, article 18.

56 *See generally*, Morales Guillén Carlos. Written and Agreed Civil Code. Volume I. La Paz 1991.1004.p. Mountain Servando Torrico. Environmental Law 1333. Regulation to the Environmental Law D.S. 24176. 1998. Cochabamba. 345 p.

57 Civil Code, art. 255 *et seq.*

58 Art. 602 *et seq.* of the Code of Civil Procedure.

59 *See* Bluske Ayala Rodrigo. Protected Areas of the Tarija Department. Tarija. 1998. 176 p.

60 *See generally*, Inchausty Victor Hugo. Workshop exhibition *Formulation of Policies for the Private Conservation in Bolivia*. SERNAP (Tarija, 14-15 September, 2000); PROMETA. *Departmental, Municipal and Private Protected Areas in Bolivia. Formulation of Policies for its Creation and Management.* (La Paz, 2001); Guzmán Rudy. Workshop exhibition: *Instruments of Private Conservation in Bolivia.* Forestry Superintendent (Tarija- Bolivia November 8-9, 2001).

61 The proposal elaborated by PROMETA was submitted for the consideration of competent authorities, who must make the decision to either approve it through a Supreme Decree complementing the General Regulation of Protected Areas, or insert it as a new provision in the Protected Areas Law project which is in the process of reform.

62 Amboró supports approximately 3500 plant species and 1236 animal species, including many endangered and range—restricted species. Amboró is considered a critical site for the protection of a number of range—restricted plant and animal species; endemic birds include Pauxi unicornis, Ara rubrogeyns, Pseudoxenops striatus, and Mymotherula grisea. Información técnica del Sistema Nacional de Areas Protegidas de Bolivia. 2000. Servicio Nacional de Areas Protegidas (pp.37-43) (2000).

63 In general, such low intensity uses of marginal agricultural land have low economic potential—in the region—cattle take years to raise and sell for roughly Bs. 500 ($80) and oranges sell locally for Bs. 8 for 100.

64 Ley INRA, art. 4

65 Ley INRA , art. 2

66 The Bolivian Chaco contains two national protected areas: the National Park and Natural Area of Integrated Management of Kaa Iya, located in the Santa Cruz Department; the National Park and Natural Area of Integrated Management of the Mountainous area of Aguaragüe, located in the Department of Tarija. The proposed protected area of Cabo Juan is also in Tarija, and would include the Corbalán area if it were created.

67 The preliminary studies conducted in the Corbalán area contain species incorporated in Appendices I and II of CITES, such as: the Tapir and Jaguar, and threatened species of flora such as Schinosis quebrachocolorado, Aspidiosperma, Calycophyllum multiflorum and Phillostilon rhamnioides. Of a total of 149 species registered in the *Avifauna Study of the Corbalán Protected Area* by Dupret, Eudromia formosa and Aramides ypecaha constitute new records for Bolivia.

68 In the field, PROMETA has conducted several research projects on the natural resources of the protected areas, including the followings: "Vegetal research of the Corbalán Natural Heritage Private Reserve"; "Medicinal plants of the Corbalán" by Oscar Justiniano; and "Avifauna of the Corbalán Protected Area" by Francisco Dupret

69 Law No. 4.771 of 1965 was promulgated to implement the new Forest Code, and is still in force, although amended by laws No. 7.511, of 1986 and No. 7.803, of 1989.

70 *New IBAMA Chief Eyes Increased Hiring, Budget to Halt Illegal Activities in Brasil*. International Environmental Reporter, Bureau of National Affairs (Washington D.C., January 15, 2003).

71 Law No. 7.803 (Forestry Code amendment of 1989).

72 Law 9985 of July 18, 2000 (these protected area designations that are intended to cover both public and private lands).

73 The law itself does not specify appropriate land uses (Law 9985 of July 18,2000, sec. 15), and regulations have not been passed to implement this section more specifically. Certain practices such as hunting are however prohibited in APAs under CONAMA Res. No. 10 (14 Dec. 1988) which continues in force.

74 In 1990, the Federal Government published Decree No. 98.914, of January 31, 1990, designating such areas, set forth in Article 6 of the Forest Code, as RPPNs. Currently, Decree No. 1922, of June 5, 1996 regulates RPPNs.

75 Decree No. 1922, of June 5, 1996, article 1. See generally www.rppn.org.br.

76 Forest Code, Law 4771 (Sept. 15, 1965), Article 6 stated: "The owner of a non-preserved forest, pursuant to this Law, may encumber it permanently, provided that the existence of public interest is verified by the forest authority. The obligation shall be included in an instrument signed before the forest authority and shall be recorded together with the registration at the Public Registry Office."

77 In 1977, the former Brasilian Institute of Forest Development published an ordinance that authorized the creation of "Native Animal Refuges" in response to rural owners of the State of Rio Grande do Sul who wanted to prohibit the practice of hunting within their properties. Brasilian Institute of Forest Development Ordinance No. 327. Based on this Ordinance and with no kind of incentives, several dozen owners had their areas declared to be "Native Animal Refuges," not only in Rio Grande do Sul but also in São Paulo and in other states of Brasil. After 11 years of effectiveness this ordinance was replaced by IBDF Ordinance No. 217, of July 1998, creating then the "Private Flora and Fauna Reserves," under which several other properties were declared to be protected. These ordinances however are no longer in effect as they have been replaced by the RPPN law.

78 Although its use has not been defined yet; Article 7 provided that: The proper government authorities shall grant to the RPPN protection assured by the Laws in force for the conservation units of indirect use, without prejudice to the title right, which shall be exercised by its owner in the defense of the Reserve, under the orientation and with the support of the proper body.

79 Unpublished information of Fundacao O Boticário, derived from data of IBAMA (December, 2002). *See also* www.rppn.org.br.

80 State Government Decrees: State Decree No. 7251 of June 16, 1993, in Mato Grosso do Sul; State Decree No. 4262 of November 21, 1994, in Paraná; State Decree No. 19,815 of June 2, 1997, in Pernambuco; State Decree No. 39,401 of January 22, 1998, in Minas Gerais.

81 *See* Paulo Roberto Pereira De Souza, *A Proteção De Terras Privadas No Direito Brasileiro*. Unpublished document (The Nature Conservancy/Brasil, 1998).

82 *See generally*, the information about Linhares, Reserva Natural da Vale do Rio Doce, at http://www.cvrd.com.br/hot_sites/linhares/index.htm.

83 Transitory Law No.2.166-67. Transitory laws are valid for only 40 days; however, they can be renewed, and this law has been renewed over 60 times! They must ultimately be approved by a legislative process to be permanent.

84 Decree-Law N. 271 of February 28, 1967, article 7.

85 *Id.*

86 *See* complementary state law N. 8.510, of December 23, 1992.

87 State Complementary Law 147/96.

88 State law No. 9.860, of 20 April 1993; see *also* State law No. 11.038 of 14 November 1997.

89 Federal Decree No. 90883 (1985).

90 The company sells perfumes and cosmetics, with over 200 stores nationally. It provides 1 percent of its profits (approximately R3-4 million or $1 million in 2002) to social causes, principally the O Boticário Foundation. *See* www.fbpn.org.br.

91 *See* Sociedade de Pesquisa em Vida Selvagem e Educação Ambiental (SPVS), *Environmental Conservation and Carbon Sequestration* (Curitiba, Brasil, 2002); see also http://nature.org/initiatives/climatechange/work/art4254.html.

92 *See* http://nature.org/initiatives/climatechange/work/art4254.html. Funding of $5.4 million was provided by American Electric Power for the Guaracqueçaba Climate Action Project of 7,000 ha, and $10 million by General Motors' for the Atlantic Rainforest Restoration Project of 12,000 ha, in both cases through The Nature Conservancy, which has worked for over a decade to protect the ecosystems within the APA of Guaracqueçaba.

93 Extraction of palmito, sold as heart of palm, presents an potentially sustainable economic use of the land. However, the palm trees take seven years to reach harvestable age, and then are cut for 2-meter section of edible heart. Illegal cutting is a problem, and many large landowners patrol their boundaries with armed guards.

94 Anita Sundari Akella, James B. Cannon, and Heloísa Orlando. *Enforcement Economics and the Fight Against Forest Crime: Lessons Learned from the Atlantic Forest of Brasil*. Conservation International, Center for Conservation and Government and Instituto de Estudos Socio-Ambientais do Sul da Bahia (draft, Washington, D.C. October 2002)(supported by USAID's Biodiversity in Regional Development Program).

95 Sources for this Country Summary include Environment Canada (www.ec.gc.ca), Nature Conservancy of Canada (www.nature-conservancy.ca), and the Canadian Wildlife Service (www.cws-scf.ec.gc.ca).

96 Canada's first national park was Banff, established in 1885, followed by Watertown in 1895. Many provincial parks were created in the early 1900s. *See generally*, IUCN, 1992 Protected Areas of the World Prepared by the World Conservation Monitoring Centre (Gland, Switzerland & Cambridge, U.K. 1992).

97 *See, e.g.* for Quebec http://www.gouv.qc.ca; for New foundland http://www.gov.nf.ca.

98 Restrictions on foreign ownership of farmland and other lands include Alberta (20 acres); Saskatchewan (10 acres); Manitoba (40 acres) and Quebec (10 acres). *See, e.g.* Alberta, *Agricultural and Recreational Land Ownership Act; Foreign Ownership of Land Regulations* (SOR/79-416) (*see* http://laws.justice.gc.ca/en/C-29/SOR-79-416/73895.html); *see generally*, http://www.prairiecentre.com/pdf/farmland.pdf .

99 The goal for national parks would increase them from 1.8 to 3.1 percent of land. Denhez, Marc, *You Can't Give It Away: Tax Aspects of Ecologically Sensitive Lands*, Issues Paper, No. 1992-4 at p.2 (North American Wetlands Conservation Council (Canada), Ottawa, Ontario, 1992).

100 *See generally*, Thea M. Silver, Ian C. Attridge, Maria MacRae and Kenneth W. Cox, *Canadian Legislation for Conservation Covenants, Easements and Servitudes: The Current Situation,* Report No. 97-1 (North American Wetlands Conservation Council (Canada), Ottawa, Ontario, 1997).

101 12 U.L.A. 55 [Supp.1985].

102 In Quebec, only 8 percent of the land is privately owned, and the Crown owns the rest.

103 Donors receive federal tax credit of 17 percent of the first $200 of the gift and 29 percent of the remaining value. This tax credit that is deductible against a percentage the donor's annual income. Federal surtaxes may be reduced as well.

104 The annual limit for use of a tax receipt for an ecological gift (land or easement) to a charity or municipality was increased from 20 to 100 percent of income for the same six-year period. Subsequent amendments reduced the inclusion rate for (deemed) capital gains tax calculations to 25 percent of the gain. Note that, in contrast to incentives in the United States, Canadian tax benefits do not apply to donations of land intended to be resold to generate revenue to purchase other ecologically sensitive lands. Under the Ecological Gifts program, lands must be certified by Environment Canada as ecologically sensitive for the land donation or easement to be eligible for the full tax benefit. However, land can be certified as ecologically sensitive based on values that may accrue as a result of conservation efforts, which allows the tax program to apply to a wider range of lands.

105 Note that in Quebec, Newfoundland and Labrador, Nunavut and the Northwest Territories, where there is no conservation easement legislation, the Ecological Gift program is limited to donations of land.

106 *See* Canadian Wildlife Service, www.cws-scf.ec.gc.ca

107 *See* Nature Conservancy Canada, www.natureconservancy.ca

108 Chiles's National System of Protected Areas (SNASPE) has 94 protected areas covering 14,123,571 ha, or 18 percent of the national territory. However, many ecosystems in Chile are not adequately represented, as 84 percent of these protected areas (11,870,409 ha) are located in the southernmost Regions XI and XII.

109 Gajardo, R. 1995. *La Vegetación Natural de Chile: Clasificación y Distribución Geográfica.* Second edition. Santiago: Editora Universitaria.

110 CODEFF. *Las Áreas Silvestres Protegidas Privadas de Chile. Una Herramienta para la Conservación* (Santiago, 1999).

111 *See generally*, CODEFF. *Las Áreas Silvestres Protegidas Privadas de Chile. Una Herramienta para la Conservación* (Santiago, 1999); Corcuera, Elisa; Claudia Sepúlveda, and Guillermo Geisse. *Conserving Land Privately: Spontaneous Market for Land Conservation in Chile*, in SELLING FOREST ENVIRONMENTAL SERVICES, edited by Stefano Pagiola, Joshua Bishop, and Natasha Landell-Mills. Ch. 8 pp 127-149 (Earthscan Publications, London, 2002); Moreira, A., P. Villaroel, C. Sepúlveda, and D. García. Evaluación y Diseño Biogeográfico y Gestión Operacional del SNASPE en Chile." CIPMA Working Paper No.53. (Santiago, 1998).

112 Corcuera, Elisa; Claudia Sepúlveda, and Guillermo Geisse. *Conserving Land Privately: Spontaneous Market for Land Conservation in Chile*, in SELLING FOREST ENVIRONMENTAL SERVICES, edited by Stefano Pagiola, Joshua Bishop, and Natasha Landell-Mills. Ch. 8 pp 127-149 (Earthscan Publications, London, 2002).

113 Article 35 states, "[E]l Estado fomentará e incentivará la creación de areas silvestres protegidas de propiedad privada, las que estarán afectas a igual tratamiento tributario, derechos, obligaciones y cargas que las pertenecientes al Sistema Nacional de Areas Silvestres Protegidas del Estado.... La desafectación se producirá por vencimiento del plazo, por resolución de dicho organismo fundada en el incumplimiento de las obligaciones establecidas en el reglamento, o a petición anticipada del propietario. En los dos últimos casos podrá aplicar una multa, a beneficio fiscal, que no excederá del monto acumulado y actualizado de impuestos y contribuciones de los que el inmueble estuvo exento en virtud de su afectación en el período correspondiente." According to some, this article may have constitutional and legislative problems.

114 Private Property Wild Protected Areas regulations (May 27, 2003). *See generally*, *Chilean Agency OKs New Regulations to Protect Privately Held Ecosystems*, 26 International Environment Reporter 587 (June 4, 2003).

115 CODEFF, 1999.

116 Supreme Decree No 102 of November 8, 2002.

117 Pumalín Park faces annual expenses estimated at $700,000, while annual earnings are estimated at only $50,000 (*Qué Pasa*, February 3 2001).

118 *The Conservation Land Trust: The First Ten Years.* Conservation Land Trust. (Sausalito, 2002) (description of ten years of program of the Conservation Land Trust). *See* http://www.deepecology.org/clt.html.

119 Sepúlveda, C., P. Villaroel, A. Moreira, and D. García. 1998. *Catastro de Iniciativas Privadas en Conservación de la Biodiversidad Implementadas en Chile*. Working Paper No.49. Santiago: Centro de Investigación y Planificación del Medio Ambiente (CIPMA).

120 The Oasis La Campana development in Chile's Mediterranean eco-region transferred the title of its 1000 ha communal park to a foundation created specifically for that purpose (Moreno, 2001)

121 Information of Protégé; see www.protege.cl (2003).

122 See, CODEFF, Boletin No. 6 Red de Areas Protegidas Privadas. CODEFF/WWF (July, 2001).

123 Article 57 *et seq*., Decreto Ley N° 1.939 (1977), as modified by article 10°, no. 3 of Ley N° 19.606 (1999).

124 Sepúlveda, C., P. Villaroel, A. Moreira, and D. García. 1998. *Catastro de Iniciativas Privadas en Conservación de la Biodiversidad Implementadas en Chile*. CIPMA Working Paper No.49. Santiago.

125 Villarroel, P., D. García, A. Moreira, and C. Sepúlveda. 1998. *Tipología de Modalidades de Cooperación Público-Privadas para la Conservación Viables en Chile*.CIPMA Working Paper No.52. Santiago.

126 *See generally*, Corcuera, 2002; CODEFF, 1999.

127 Gajardo, 1994. Species present in the forest are *Quillaja saponaria, Lithrea caustica, Colliguaja odorifera, Cryptocarya alba, Lithrea caustica*, and in the thickets *Kageneckia angustifolia, Valenzuelia trinervis, Colliguaja integerrima, Tetraglochin alatum, Escallonia myrtoidea, Maytenus boaria, Astrocedrus chilensis* and *Schinus montanus*. Species of fauna like the Chilla and Culpeo foxes, la chinchilla (*Chinchilla lanigera*) and the Condor (*Vultur gryphus*) are vulnerable or endangered. Also the area protects the origin of several small waterfalls that join the Maipo River, providing an important water resource in the dry Mediterranean region.

128 Decree DE. N° 480 of the Ministry of Education, August 16, 1995, pursuant to Law N° 17.288 regarding the creation of National Monuments.

129 The vegetation type "bosque caducifolio de la frontera" is not represented in any public protected area, and only 2.7 percent of bosque caducifolio del Bio-bio is protected (Gajardo, 1994).

130 This case study was primarily written by Elisa Corcuera, member of the Ahuenco Conservation Community; see Corcuera, Elisa, Claudia Sepúlveda, and Guillermo Geisse. *Conserving Land Privately: Spontaneous Market for Land Conservation in Chile,* in SELLING FOREST ENVIRONMENTAL SERVICES, edited by Stefano Pagiola, et al. p.127, at 139 (Earthscan Publications, London, 2002).

131 *See generally, id*. (citing others); personal conversations with Ahuenco-Toigoi shareholders (*1993-2003*).

132 Other conservation communities have been created in Chile using similar systems. Sometimes, the shareholders have formed an agricultural society or a cooperative instead of a real estate company, but the concept is the same.

133 The Children's Rainforest movement was started in Sweden by Bern and Eda Kern and the Fegervik primary school children, and with funds raised by school children and supplemented by Swedish foreign aid, have supported tropical forest conservation around the world. Their first project was the Monteverde Cloud Forest, where the Children's Rainforest movement were primarily responsible for funding the land purchases that became the Children's Eternal rainforest. There are now Children's Rainforest Groups in Canada, England Germany, Japan, and the United States. *See* http://www.barnens-regnskog.net.

134 Nearly 300 individual parcels were negotiated and purchased between 1986 and the present, ranging from a symbolic $1 purchase of a 7,000 ha parcel to the $16 million land bill for the 15,800 ha Santa Elena expropriation case, which was paid by the government of Costa Rica while the private sector paid the legal fees. In most cases, however, each purchase was simply neighbor-to-neighbor at standard real estate values for low-grade agroscape. As each property was purchased, it was titled to an intermediate NGO (the Guanacaste Dry Forest Conservation Fund, a U.S. 501c3 charity that is tax exempt in Cost Rica) for later transfer to the government."

135 Janzen, Dan, letter to World Parks of October, 2002 (Washington, D.C.).

136 The government generally lacks the funding to purchase the inholdings within declared public protected areas, and there is growing opposition of property owners to the limitations of use imposed by such declarations when there is no compensation. This has led to a change of strategy by the government towards the creation of protected areas where expropriation and subsequent ownership and management by government is not a requirement.

137 *See* Ley de Conservación de Vida Silvestre N° 7317 (1992).

138 MINAE, Informe Nacional Sobre el Sistema de Areas Silvestres Protegidas. (San Jose, February, 2003).

139 Information presented by Carlos Chacon, CEDARENA, at the V Latin American Congress on Private Lands Conservation (Cancun, Mexico, January 29, 2003).

140 Since the exchange rate between colones and dollars is fixed as of the first year of the contract, the actual value of the payment in colones may vary over the five year life of the contract.

141 Threatened or endangered species that have been recorded on the property are: *Agamia agami* (Chestnut-bellied Heron), *Sterna elegans* (Elegant tern), *Amazilia boucardi* (Mangrove hummingbird), *Trogon bairdii* (Baird's Trogon), *Caluromys derbianus* (Wooly opossum), *Micronycteris sylvestris* (Large-eared forest bat), *Vampyrum spectrum* (False vampire bat), *Bassaricyon gabbii* (Olingo); *Brosimun utile* (Cow tree), *B. alicastrum* (Ojoche), *Caryocar costarricense* (Butternut tree), *Astronium graveolens* (Ron ron), *Dalbergia retusa* (Rosewood), and *Swietenia macrophylla* (Mahogany).

142 An important legal issue arose from the fact that the beach-front is public land. In Costa Rica, the first 50 m inland from the average tides baseline may not even form part of a public concession; the 150 m that follow are public lands that may be given in concession. The landowner with a concession over the 150 m public lands has to pay an annual fee to maintain its concession, and the income collected from these fees goes to the entity with authority over the land. This authority is traditionally the local municipality, but when a wildlife refuge is created these fees go to MINAE. This creates tension between the two levels of government, and MINAE has been hesitant to create new wildlife refuges along the coast. However, the Supreme Court recently affirmed the rights of MINAE in this situation, establishing an important precedent that has clarified this area of the law and it easier for MINAE to create Wildlife Refuges.

143 In another land invasion case in a neighboring town, it was found out that the same legal firm would get money from the squatters to assert their claims, and when successful would then collect fees from the property owners to counter the squatters claims, and then return to the squatters, etc. to pursue endless litigation.

144 This case study was drawn from material provided principally by Dr. Dan Janzen of the Guanacaste Dry Forest Conservation Fund. See citations in notes below.

145 *See generally*, http://www.acguanacaste.ac.cr; Janzen, D. H. 2002. Tropical dry forest: Area de Conservación Guanacaste, northwestern Costa Rica. In Handbook of Ecological Restoration, Volume 2, Restoration in Practice, eds. Perrow, M. R., Davy, A. J., Cambridge University Press, Cambridge, UK, pp. 559-583.

146 ACG was born in 1966 as a 1,000 ha national monument, and then in 1971 became the 33,000 ha dry forest and marine Parque Nacional Santa Rosa, a key part of Costa Rica's new Servicio de Parques Nacionales. Sources: William Allen, *The Green Phoenix: Restoring the Tropical Forests of Guanacaste, Costa Rica*. Oxford University Press. 2001; Dan Janzen, personal communication. August, 2002.

147 Fires were generally started by ranchers or farmers burning dry cover off their fields to stop the advance of forest into their pastures and by hunters to open meadows and concentrate game.

148 See Janzen, D. H. *Tropical dry forest: Area de Conservación Guanacaste, northwestern Costa Rica.* In Perrow, M. R., Davy, A. J., eds. Handbook of Ecological Restoration, Volume 2, Restoration in Practice. Cambridge University Press (Cambridge, UK, 2002); Janzen, D. H. *Guanacaste National Park: Tropical ecological and biocultural restoration. In* J. J. Cairns, ed., Rehabilitating damaged ecosystems, Vol. II, p. 143 (CRC Press, Boca Raton, Florida, 1998); Janzen, D. H. *Tropical dry forests: the most endangered major tropical ecosystem. In* Biodiversity, E. O. Wilson, ed. p.130. National Academy Press (Washington, D. C.,1998).

149 First called the "Guanacaste National Park project (GNP), it was then decreed the Unidad Regional de Conservación Guanacaste (16 August 1989), and then the Area de Conservación Guanacaste (9 July 1991).

150 The Conservancy also helped to publish *Guanacaste National Park: Tropical Ecological and Cultural Restoration*, which served as a plan for restoring the park.

151 Janzen, Dan, letter to World Parks of October, 2002 (Washington, D.C.).

152 See http://janzen.sas.upenn.edu/caterpillars/RR/rincon_rainforest.htm.

153 Management responsibility is shared between the government and the Fundacion de Parques Nacionales (FPN), a Costa Rican parastatal non-profit entity with mixed government and non-government leadership under the control of a local board of directors as well as MINAE. The ACG itself (as a collegial body of professional biodiversity administrators), the government, the FPN, and the local board approve annual budgets, work plans and the director, although power continues to be shared irregularly with the central government ministry, with better procedures needed. The endowment is held by the Fundación de Parques Nacionales. *See generally*, Janzen, D. H. *Costa Rica's Area de Conservación Guanacaste: a long march to survival through non-damaging biodevelopment*. Biodiversity 1(2) p.7 (2000).

154 *See generally*, Boza, M. A. and Mendoza, R. THE NATIONAL PARKS OF COSTA RICA. INCAFO, Madrid (1981); Janzen, Dan. *Good Fences Make Good Neighbors: the Area de Conservación Guanacaste, Costa Rica*. PARKS 11(2) at 41 (2001).

155 About 30 percent of the endowment was used to pay the legal costs of the Santa Elena expropriation case.

156 Janzen, Dan, letter to World Parks of October, 2002 (Washington, D.C.).

157 This same mechanism is available to the government to create a form of publicly protected area that typically covers both private and public lands.

158 Title I, Chapter II of the Forestry and Conservation of Natural Areas and Wildlife Law, R.O # 64, August 24, 1981. The historical antecedent of this legal designation has its foundation in the Protective Forestry Law of July 8, 1964 and published in the Official Registry # 296 of July 22 1964. The law is implemented through the Regulation of the Forestry Law, D.E. # 1529, R.O. # 965, February 22, 1983.

159 Previously, this authority was the Ministry of Agriculture, but now is the Direccion Nacinal Forestal within the Ministry of Environment. This authority may slowly be transferred to local government authorities, under the current decentralization process.

160 Art. 5, Forestry Law. The law's regulation similarly states that "the forms of vegetation that qualify as Protective Forests are those forms, natural or cultivated, arboreal, shrub-like, or herbaceous, under public or private ownership, that are located in areas of affected topography, in the headwaters of hydrological basins or in zones that due to their climatic, edaphic, or hydrological conditions, are not suited for agriculture or cattle-raising purposes. Their functions are to conserve water, soil, flora and fauna (Art. 11, Regulation).

161 The Environmental Ministry establishes by ministerial accord the declaration of an area as a *Bosque Protector* and issues the rules for its regulation and management. Art.6, Forestry Law.

162 "The declaration of Protective Forests can be made by an official or by petition of the interested party. By virtue of such declaration, the forests and vegetation involved must be principally destined to the protective functions indicated in Art. 11 and complementarily, they could be subjected to sustainable forestry management" (Art. 12, of the Regulation of the Forestry Law) (Reformed: RO. 73/ 9-05-2000).

163 Cerro Blanco protects one of the few remaining significant segments of dry tropical forest left in Ecuador, representing the highly threatened Tumbesain ecosystem, and has 211 bird species, 30 with restricted range and eight of which are globally threatened.

164 Cemento Nacional initially established the Protective Forest for 2,000 hectares of their own land in 1989, which was expanded by government decree in 1994 to 3,500 ha, in 1998 to 5,000 ha, and in 2,000 to 6,000 ha. Since its founding, additional lands have been acquired in the name of ProBosque, the non-profit group that manages the reserve.

165 The agrarian reform law of Ecuador mandates development of land, but a Protective Forest status legally counters this because it is government recognition that the land is valuable for conservation purposes. For a general discussion of this issue, see the discussion in the introductory chapter.

166 These studies include: location and boundaries; physiographic characteristics and ecological classification of the area; composition of the existing flora and fauna; physical and morphologic aspects of the hydrographic basins of influence. Art.14, Regulation of the Forestry Law.

167 INDA has authority to grant only lands that are owned by the state or by INDA. In cases where private owners assert only possessory rights to land, INDA must follow a judical process to determine if the landowner owned the land. However, corruption is frequent, and there are instances in which INDA officials grants land titles to private lands to the hightest bidder, which can only be reversed by adminstrative appeals to higher authorizes within INDA.

168 Jatun Sacha's reserves are: Bilsa–3,000 ha protecting pre-mountain tropical wet forest in Esmeraldas (96 percent cleared); Jatun Sacha–2,000 ha of tropical humid forest along the eastern flank of the Andes; Tito Santos–2,000 ha of coastal dry forest (98 percent cleared); Guandera–1,000 ha of mountain tropical forest and wetland in the central valley (99 percent cleared); and Congal–500 ha of mangrove and tropical humid forest in the northwest. Foundation Jatun Sacha raised the funds to buy each of these reserves, except the Tito Santos reserve, which is held on a long-term lease from its owner. *See* www.jatunsacha.org.

169 Nature and Culture International (formelry San Francisco Foundation) currently owns the San Francisco Scientific Station (1,000 ha.) in the cloud forest near the Park, and two reserves in the Tumbesian dry forest, La Ceiba (3,500 ha.) and Laipuna (2,000 ha.). They plan to create three or four more reserves on lands identified as priorities under the Bosques sin Fronteras program. *See* www.natureandcultureinternational.org.

170 Foundation Jocotoco's reserves are as follows, with both the current and planned size in parentheses: Tapichalaca, Loja (3,000 ha. - 10,000 ha.); Buenaventura (1,000 ha.- 5,000ha.); Yunguilla (50 ha.- 250 ha.); Utuana (500 ha.- 1,000 ha.); Yanacocha (800 ha.- 2,000 ha.); Río Canande (1,000 ha.- 10,000 ha.); plus planned reserves in Bombuscaro, Tumbesia and Ayampe. These reserves are located to conserve critical habitats for bird species that are not found in any other protected area; for example, Tapichalaca preserves all the known habitat of the Jocotoco Antpitta, Buenaventura of the El Oro Parakeet, Yunguilla of the Pale-headed Brushfinch and Yanacocha of the Black-breasted Puffleg. *See* www.jocotoco.com.

171 *See*, Cabanas San Isidro, Ecaudor, http://www.ecuadorexplorer.com/sanisidro/html/locations.html.

172 The Ecuadorian Center of Environmental Law (CEDA), supported by The Nature Conservancy, carried out the study "*Legal Instruments of Conservation - Manual of Conservation Easements*," and consequently began to seek to apply the instrument of conservation easements in the country.

173 Its mission is: "to contribute to the consolidation and organization of private forest owners initiatives in the execution of conservation activities by means of the application of productive and technical alternatives of sustainable management on their estate and area of influence that favor water production, the preservation, conservation and recovery of natural resources and biodiversity, including native species and ecosystems as well as independent genetic resources."

174 Source: Foundation Arco Iris (Loja, Ecaudor, 2001).

175 Ministerial Agreement 426 of September 29, 1970 (published in the Official Newspaper of October 14, 1970) creates the area pursuant to Art. 2 of the Supreme Decree No. 1472 of July 8, 1964.

176 Information from interview with Fundacion Arcolris (Sept. 2001).

177 Preliminary bird study carried out in March and April of 2000 by David Lauten, Kathy Castelein, Catherine Woodward, and Joe Meisel. Orchids: preliminary list of compiled data of the National Herbarium of Ecuador, by Mónica De Navarro and Philip Myers, Oct. 1999 - Feb. 2000.

178 This Country Summary was initially drafted by Federico Fahsen, director of the ARNPG, and Ximena de la Macorra (February, 2003).

179 Law for the Guatemalan System of Protected Aresa, Decree 4-89 (1989) and its reforms: Decree 18-89; Decree 110-96 and Decree 117-97 (the parks system now includes 120 protected areas).

180 CONAP resolution 137/2002 formalized the Yaxhá PRN of 407 ha.

181 The original law, Decree 4-89, provided in articles 31 and 32 land and income tax exemptions, but these were recinded through Decree 117-97.

182 The Forestry Incentive Programme (PINFOR) of the Institute provides only a modest payment per hectare (approximately $10) and only lasts for five years.

183 Mittermeier, Russel, Robles Gil, Patricio and Goettsch, C., MEGADIVESITY (Conservation International, Washington, D.C. 1997).

184 *Herramientas Legales para la Conservación de Tierras privadas y Sociales en México* at 2-3 (Pronatura A.C. México, D.F. 2002). "Ejidos" are land-owning cooperatives organized under the Agrarian Law, and "communities" are organized under the regulation of article 4 of the Constitution, and are largely, but not excludively, indigenous.

185 *Id* at 5. The determination of the carrying capacity of the land for the purposes of calculating maximum property holdings is made by the Technical Consultative Comissión for the Coefficient of Agostadero, part of the Secretary of Agriculture, Cattle-raising, Fishing and Food.

186 The first paragraph of Article 27 of the Constitution ratifies the principle taken from Independence, in which the Nation, represented by the government, subrogates all the rights of the Spanish crown over the new territory of New Spain. Article 27 also states: "In the Nation is vested the direct ownership of all natural resources of the continental shelf and the submarine shelf of the islands; of all minerals or substances; petroleum and all solid, liquid, and gaseous hydrocarbons; and the space above the national territory..."

187 *Herramientas Legales para la Conservación de Tierras privadas y Sociales en México* at 2-3 (Pronatura A.C. México, D.F. 2002).

188 Statement of Ernesto Enkerlin, President, CONANP at the V Latin American Congress of Private Conservation (Cancun Mexico, January 27-31, 2003).

189 The General Law of Ecological Equilibrium, art. 44, states: "the property owners or possessor's of land, waters or forests included within the protected natural area are subject to the modalities which, in conformance to the present law, are established in the decrees by which these areas are constituted, as well as the other provisions contained in the management program and the corresponding programs of territorial ordering." ("…. Los propietarios, poseedores o titulares de otros derechos sobre tierras, aguas y bosques comprendidos dentro de áreas naturales protegidas deberán sujetarse a las modalidades que de conformidad con la presente Ley, establezcan los decretos por los que se constituyan dichas áreas, así como a las demás previsiones contenidas en el programa de manejo y en los programas de ordenamiento ecológico que correspondan.")

190 There are certain restrictions that apply to each specific type of protected areas (LEE art 46-55), but otherwise the legal instrument creating the protected area defines the restrictions on use (LEE art 60).

191 The certificate emitted by the Secretary must contain: I. Name of the property owner or possessor; II. Denomination of the property; III. Location, area, boundaries and delimitation of the land; IV. Time period requested; V. Biological and fisiographic characteristics and the state of conservation of the site; VI. Obligations of the owner or possessor, and VII. proposed management régime, including the actions of protection and conservation of natural resources, any proposed uses of natural resources, their frequency, and the reports to be presented to the Secretary, and, if present, the restorations of altered zones.

192 *Supra* note 187.

193 This law requires a showing that creating such an organization will benefit the members of the community, and further requires that the land-holding organization be a civil or commercial entity, and if liquidated, the shareholder's must be reimbursed with lands and not with money. Article 100.

194 *See Cementing the natural heritage*, The Economist p. 31 (July 18, 2002); www.cemex.com (2003). Part of their strategy in Maderas del Carmen was to establish a Museum of Natureal History as a joint venture with a local ejido, with the ejido lands placed in the museum trust.

195 *See Protecting the Pristine in Mexico: Conservationists Turn to Private Donors to Preserve Sea of Cortes Island.* Washington Post (August 25, 2002).

196 The Special Biosphere Reserve for the Monarch Butterfly is a federal Ecological Reserve decreed on October 9 1986. It has 16,110 ha of which only 7,378 ha are owned by the State of Mexico. A general description of legal steps and conservation actions taken in the reserve are contained in Environmental Law Institute, *Legal Aspects of Forest Management in Mexico* at 91-103 (April, 1998).

197 *See generally*, www.calakmul.org.

198 Article 11 of the Convention was previously developed by the Conference of the Parties in resolution COP/IV/10, which invites states to develop, through participative processes, laws and policies for the design and application of economic instruments. This requirement is reflected in Mexico's National Policy for Biodiversity, and the more detailed National Biodiversity Strategy and National Biodiversity Action Plan.

199 Articles 22bis and 64bis of the Ley General del Equilibrio Ecológico y la Protección al Ambiente (1996) establish that conservation of private lands should be subject to fiscal and economic incentives.

200 *See generally*, Comision Nacional de Areas Naturales Protegidas, SEMARNAT, *Area de proteccion de Flora y Fauna Cuatro Cienegas* (April 2001); National Geographic, *Cuatro Cienegas - Mexico's Desert Aquarium*. (August, 1995); Pronatura Noreste, A.C. *Fidecomiso Rancho Pozas Azules* (unpublished document, Feb. 2002).

201 Contact information: Ricardo Romero González, Apartado Postal 24, C.P. 94100, Huatusco, Veracruz, México; website: www.bosquedeniebla.com.mx.

202 Information on which this report was generously provided by Alberto Yanosky of Guyra Parguay, Sheila Abed of IDEA and Victor Vera of Natural Land Trust (2002).

203 Fundacion Moises Bertoni & United States Agency for International Development USAID-Paraguay, *Programa de Apoyo a Iniciativas Privadas de Conservacion - Una Revision de 10 Anos de Experiencias* (Program of Support to Private Conservation Initiatives - A Review of 10 Years of Experience) (Asuncion, Paraguay, 2000).

204 Article 64 of Law 352/94, referring to the use restrictions established in article 24(b).

205 *See* USAID, *supra* note 203, at p. 5, 12.

206 Law 352 of 1994, chapter V; Resolution No. 79, Establishment of Procedures for the Legal Creation of Natural Protected Areas under Private Dominion in Paraguay, Dept. of National Parks and Wildlife (May 9, 2000).

207 *Id.* art. 26-28.

208 Protected Areas Law 352/94, art. 15, 34.

209 Two new properties are now in process of legal designation, Ypetí and Ka'í Ragüe.

210 Law 112 of 1991 is an international agreement and is thus superior in legal terms to reserves created under the Protected Areas Law. As a consequence of this law, the Reserve itself and the watershed surrounding it were declared by UNESCO in 2000 as the first Biosphere Reserve in Paraguay.

211 *See* USAID, *supra* note 203, at p. 5.

212 The Natural Resources Use areas may be used for subsistence agriculture, animal husbandry, fishing, as long that these activities do not place the survival or well-being of wild species in peril; also, any recreational activities must comply with guidelines developed between Natural Land trust and the owners. It is also prohibited to: hunt or kill wild animals; contaminate the soils, air, vege-

tation, or water; construct more than one facility; and conduct any activity that would negatively impact on the objectives of the easement. The Protected Habitats areas also prohibit any industrial or commercial activities, subdivision, or changes to the surface, such as excavations, land fills, etc. These land use limitations easement are to be monitored by Natural Land Trust. Information from Natural Land Trust (2002).

213 *See* USAID, *supra* note 203, at 22.

214 Protected Areas Law no. 352/94, article 26. *See* USAID, *supra* note 203, at 17.

215 Ley No. 26834 (June 30, 1997), article 4 states: "When a Natural Protected Area is declaered that includes private properties, the retrictions on uses of the private property can be determined, and compensatory measures established." ["Cuando se declaren Areas Naturales Protegidas que incluyan predios de propiedad privada, se podrá determinar las restricciones al uso de la propiedad del predio, y en su caso, se establecerán las medidas compensatorias correspondientes."]

216 Reglamento de la Ley de Aresas Naturales Protegidas, Decreto Supremo No. 038-2001-AG, art. 61 (pub. 26 June 2001).

217 *Id.* At Chapter IX (Private Areas of Conservation).

218 Ley Forestal y de Fauna Silvestre, Law 27308, and its Regulation, Supreme Decree 014-2001-AG.

219 Conservation concessions holders must comply with the management plans, carry out the agreed investments, and pay the cost of supervision of compliance with the management plans. They must make payments only if there are secondary activities such as use of products other than timber or wildlife, or ecotourism (where the holder must pay 10 percent of the amount charged each visitor). *Id.* article 70.6.

220 *See* Unlocking the Rain Forest, Conde Nast Traveler 184, at 188 (December, 2002); *id.* 198.

221 *See* http://www.perudiscover.com/hotel/cuzco_amazonico.htm .

222 Originally, Peruvian Safaris purchased 105 ha from the Peruvian government to operate the Explorers Inn, and the government declared 5,500 ha of the surrounding undisturbed subtropical moist forest as a Reserved Zone in 1997, thereby prohibiting any hunting and lumber cutting. The government granted custody over this Tambopata Reserved Zone to Peruvian Safaris, under 3 year agreements, which were renewed periodically until the creation of the Tambopata National Reserve and the Bahuaja-Sonene National Park, which now cover approximately 1,500,000 ha. Research over the last two decades has shown that this region has the greatest diversity of wildlife yet discovered in the world, in seven major forest types. It has more species of birds (595 spp.), butterflies (over 1200 spp.) and many other animal groups than any other location of its size on earth. *See* http://peruviansafaris.com/tambopata.html (October 24, 2002); email from Max Gunther, President of Peruvian Safaris (Oct. 29, 2002).

223 Resolución Directoral # 0155-92-D-SR-A-C (May 19, 1992). *See* http://www.manuperu.com/.

224 ACSS has been buying land in the Quosnipata Valley since 1988, and currently owns 4,493 ha. They are also working to obtain another 990 ha in this area as a conservation concession under the new law. Information from Peter English, Tropical Nature (November 2002).

225 *See* http://peruviansafaris.com/tambopata.html (October 24, 2002) ("The many publications of the research made by its Resident Naturalists [at Explorers Inn] attracted the world's attention to this unique area now accepted to be the highest in biodiversity on earth. It was also due to this that the Peruvian government protected in 1977 initially only 5,500 hectares surrounding the Explorer's Inn by creating the Tambopata Reserved Zone, which was increased in 1990 to 1,480,000 hectares with the creation of the Tambopata-Candamo Reserved Zone in 1990 which core is now the Bahuaja-Sonene National Park created in 1995. It is well known that all this would have not been possible without the studies and educational work done in the area by Peruvian Safaris in its 22 years of operations.")

226 Information from interviews with Peter English, Director and Charlie Munn, President, Tropical Nature (November, 2002); *see also* www.tropicalnature.org (Nov. 15, 2002).

227 Ley 27308, Ley Forestal y de Fauna Silvestre, su Reglamento aprobado mediante Decreto Supremo 014-2001-AG, y la Resolución Ministerial 0566-2001-AG que aprueba las disposiciones complementarias para el otorgamiento de concesiones para conservación.

228 The only other examples of concessions explicitly created for conservation purposes were three concessions granted to non-profit foundations in Chile in the early '90s, including a concession of 35,000 ha of forested land on Isla Magdalena in Chile's XI region, to the non-profit group Fundacion Lahuen. All of these were subsequently withdrawn, apparently for lack of management capacity. Other instances of concessions being used for conservation purposes exist in Guyana and Bolivia, where Conservation International has purchased the rights from holders of existing timber concessions. *See generally* part V., E. *supra*.

229 ACCA is an officially recognized non-profit entity in Peru, at Calle Lord Nelson 419, Of. 303, Miraflores, Lima.

230 Resolucion Ministerial No. 134-2001-AG (Published 27 December 2001).

231 According to Bernie Payton of the IUCN Bear Specialists group, there is a healthy population of spectacled bears in the highlands of this and adjoining communities, which is the only dry forest habitat this species continues to survive in.

232 The White-winged Guan is an endangered bird species that only lives in the dry forested hills of Lambayeque and Piura in Peru. A project to reintroduce this species into the Chappari reserve is managed by the organization Sociedad Cracidae, with whom the community has signed an agreement.

233 The only functioning hunting reserve in Peru is the formally declared Coto de Caza Angolo, in Piura.

234 The author gratefully acknowledges the advice of Jean Hocker, President Emeritus of the Land Trust Alliance, and personnel from The Land Trust Alliance, The Nature Conservancy, the U.S. Fish and Wildlife Service, and others in preparing this country summary.

235 Other early land trusts include the Sempervirens Fund in California in 1900 and the Society for the Protection of New Hampshire Forests in 1901. *See*, Hocker, Jean. *Formation of the Land Trust Alliance in the United States*. Presentation of the Land Trust Alliance, Washington, D.C. (2002).

236 Only Wyoming and North Dakota are lacking, where the use of easements for private lands conservation is therefore still limited to appurtenant easements.

237 *See* note 29, *supra*.

238 *See* National Historic Preservation Act of 1966, 16 USC 470 *et seq.; see also* http://www.cr.nps.gov/nr/.

239 12 U.L.A. 55 (Supp. 1985).

240 Section 1(1) UCEA).

241 Particularly on this point, many states have created their own laws.

242 *FWS Annual Report of Lands*, 2002 U.S. Fish and Wildlife Service (2003). *See generally*, http://realty.fws.gov.

243 Information of Harvey Wittmier, Chief, Division of Realty, Region 6 USFWS (Febraury 17, 2003).

244 *National Land Trust Census 2000*. Land Trust Alliance (Washington, D.C. Sept. 12, 2001).

245 *Id.*

246 The Nature Conservancy, *Current Managed Acres* 7/2002. Unpublished document. (Arlington, Vrigina, 7/2002). *See generally*, www.tnc.org.

247 See above pargarphs for land trust figures; USFWS, Annual Report of Lands, 2002, (2003) (82.1 million acres withdrawn from public domain and 9.1 million acquired by FWS or other agencies) (see http://realty.fws.gov); USNPS, 2002 acreage summary (see http://www2.nature.nps.gov/stats/acresum02fy.pdf) (4.2 million acres out of the 84.5 million in the park system are private inholdings).

248 Internal Revenue Code 170 (h). Federal income tax rates in 2002 vary from 10 percent on income below $12,000 to 39 percent for income over $307,000. State income taxes add as much as 10 percent in addition. Therefore, wealthy taxpayers who itemize deductions face a marginal tax rate of 49 percent. This charitable deduction is generally limited to 30 percent of adjusted income, although a deduction can be averaged over five years.

249 Prior to this law, the donation of partial interests in land was generally not tax-deductible. A law was passed in 1976 that allowed limited deductibility of easement donations, but was set to expire in 1981.

250 Internal Revenue Code 2031-c. The heirs can elect to place a conservation easement on the land, even if the decedent did not, to qualify for this benefit.

251 *See* www.tpl.org (protected 1.4 million acres since 1972) and www.conservationfund.org (together with partner organizations has protected 3.4 million acres since 1985).

252 The National Park Service holds 7,418 easements covering 2,620,057 acres as of Feb. 2003, almost all of which cover private lands. Of this amount, 3,010 are scenic easements covering 274,000 acres. Information from Jerry Megenity, NPS Land Resources Division (Washington, D.C., February 24, 2003).

253 *See* 16 USC 718d. The conservation easements acquired by the USFWS for Waterfowl Production Areas using duck stamp funds fall into three categories:

(1) wetland easements: only the wetland basins (potholes) are protected from burning, draining, or filling. They can be farmed when they are dry from natural causes;

(2) grassland easements: protects grassland and wetland from conversion to tilled cropland. Both native and tame grasslands can be protected. No cutting of hay can occur prior to July 15 each year to allow the vast majority of ground nesting birds to be successful. Grazing is allowed anytime.

(3) non-development easements: protects everything mentioned above plus prevent mineral development (if minerals were owned by the seller), development of any structures, homes, buildings, etc.

These funds have also funded the purchase of 510,918 acres by the FWS. Information of Harvey Wittmier, Chief, Division of Realty, Region 6 USFWS (February 17, 2003).

254 16 USC 460l-4 *et seq*. *See* www.nps.gov/lwdf. Although the fund, created in 1964, is authorized at $900 million a year, recently Congress has only appropriated half that amount. A coalition of NGOs has formed the coalition American for our Heritage and Recreation to press Congress for full appropriations. *See* http://www.ahrinfo.org.

LEGAL TOOLS AND INCENTIVES FOR PRIVATE LANDS CONSERVATION IN LATIN AMERICA: BUILDING MODELS FOR SUCCESS

This publication describes the use of legal tools and incentives mechanisms for the conservation of private lands in Latin America, and assesses their implementation record. It reviews both mandatory provisions and the use of voluntary instruments such as easements and private reserve designations that have grown in use since the early 1990s. It ends with recommendations for an improved framework for private lands conservation, and presents model laws for the creation of private reserves and conservation easements.

This publication was developed in partnership between the conservation organizations listed below:

Environmental Law Institute

Comité Nacional pro Defensa de la Flora y de la Fauna

Centro de Derecho Ambiental y de los Recursos Naturales

Centro Ecuatoriano de Derecho Ambiental

Fundação O Boticário de Proteção a Natureza

Pronatura, A.C.

Protección del Medio Ambiente Tarija

Sociedad Peruana de Derecho Ambiental

ENVIRONMENTAL LAW • INSTITUTE®

1616 P Street, N.W., Suite 200
Washington, D.C. 20036
Telephone: (202) 939-3800
Fax: (202) 939-3868
E-mail: law@eli.org
Web site: www.eli.org