Experiences from Ecuador and Mexico with the Implementation of Conservation Easements:
A Case Study

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The information gathered in this study is presented as a contribution to the conservation community. We suggest wide circulation of this document so that the experiences of the SEPA team can contribute to the conservation efforts in private lands.

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Acronyms

ASANA	Asociación Amigos de la Naturaleza Pacífico Central y Sur (Association of Friends of Central and Southern Pacific Nature)
CBO	Cerro Osa Biological Corridor
TCBC	Talamanca-Caribe Biological Corridor
CEDA	Centro Ecuatoriano de Derecho Ambiental (Ecuadorian Center of Environmental Law)
CEDARENA	Centro de Derecho Ambiental y de los Recursos Naturales (Costa Rica) (Center of Environmental and Natural Resources Law)
CLT	CEDARENA Land Trust
MINAE	Ministry of the Environment and Energy (Costa Rica)
NGO	Non-governmental organization
PNCT	Programa Nacional de Conservación de Tierras (Pronatura Mexico) (National Land Conservation Program)
TRA	Threat reduction assessment

Executive Summary

In this case study, we share our experiences in a collaborative learning effort to better understand the conditions under which conservation easements can promote biodiversity conservation in Latin America. This learning initiative entitled, "Conservation Easements: Progress through Learning" (SEPA, its acronym in Spanish), is the result of the combined effort of several Latin-American conservation organizations and conservation easement practitioners. Operating under the principle of adaptive management, we attempted to systematically test the assumptions behind the conservation easement tool and to understand how conservation easements were being implemented and monitored in Latin America.

The assumptions tested were derived from existing knowledge regarding the design, management, and monitoring of conservation easements in each country participating in the project. The members of SEPA assigned priority to 15 assumptions for an in-depth investigation. Our goal is to share our conclusions with and encourage reflection and debate from those who on a daily basis work to promote and implement conservation easements. We believe that there is a lot more to learn and that this work is only an initial step in this learning process.

In order to test our assumptions, we carried out interviews with landowners that had established conservation easements on their properties and with the NGOs involved in easement creation, management, and monitoring. During our investigation, we realized that conservation easements were implemented differently from one country to the other. The Costa Rican model, in most cases, differed greatly from the models from Mexico and Ecuador; therefore we decided to prepare two separate reports. This study focuses on Mexico and Ecuador, although we refer to the experience in Costa Rica on several occasions.

In general, it was difficult to analyze with objectivity and certainty the success of the conservation easements and the possible causes for success, due, in part, to the limitations in our methodology and as well as the lack of baseline and monitoring data. For this reason, we were unable to observe much difference in the level of success of the easements and therefore, it was difficult for us to extract the possible causes and effects. Despite these difficulties, we feel this report sheds some light on many of the advantages and limitations associated with this tool.

This study is a first step toward trying to understand the conditions under which conservation easements are successful and under which conditions they are not. There are considerable data that reveal that conservation easements have had a positive impact in the conservation of land and biodiversity. Easements seem to be an important tool, but their potential varies from one country to the other. Table 1, summarizes the main findings for each assumption tested in this study. We also offer a series of conclusions (below) which we explain in more detail in the conclusion section of this study.

General Conclusions

- Different models were applied to introduce conservation easements in Latin America. Each had its advantages and disadvantages and responded, to a certain degree, to the particular situation of each country.

- The models in reality differed substantially from the theoretical model. This implies a need to adapt the theoretical model to include the knowledge gained from the practical experience of applying conservation easements.
- To further understand the success of conservation easements in Latin America, we need more in-depth studies.

Contribution to Conservation

- Conservation easements seemed to efficiently reduce threats to the properties where they have been implemented.
- In most cases, conservation easements were not an adequate tool to address threats outside the properties. Generally, they did not help mitigate or prevent large scale threats that were beyond the control of the landowner.
- There was a link between a conservation easement and the increase in conservation practices among neighboring landowners. This was more evident when the owner of the servient estate lived on the property, and therefore, interacted with and could possibly influence his neighbors.
- The proximity of an easement to a natural area did not seem to affect the success of the conservation easement in reducing threats to the site. However, a conservation easement can increase the area under conservation if it is adjacent to a protected area. In this way, easements may contribute to the effectiveness of the natural protected area.

Creating a Conservation Easement

- There was a common profile for the type of landowner that decided to establish a conservation easement. They tended to be middle-aged people, already established in their careers, who did not rely fully on their property for their income.
- Environmental awareness may have been an important characteristic to identify the landowners willing to establish a conservation easement, but it was often not enough to convince a landowner to sign an easement. Thus, we recommend offering other benefits to encourage landowners to sign an easement.
- The lack of tax exoneration did not appear to be an insuperable obstacle for the creation of the easements.
- However, the cost and the number of steps needed to establish a conservation easement should be reduced, as these were among the main reasons for not signing a contract.
- Systematic planning has helped obtain funding for conservation easements.
- A good baseline can be used to strategically select the site to establish a conservation easement. It can also provide information to measure changes and determine the effectiveness of a conservation easement.
- It was not clear if the landowner's knowledge about the contract affected the level of compliance with or the success of an easement. Landowners generally tended to know their contracts very well. Therefore, it could be important, but we did not have enough data to conclude this with certainty.
- It was also unclear if there was a relationship between the quality of a contract and the success of an easement. There might be a relationship, but it was still too soon to determine because many conservation easements were only a few years old and had not been assessed yet.

Management and Monitoring of a Conservation Easement

- It is important determine how to ensure that all easements (including those in perpetuity) obtain enough funding for their management and legal defense. The situation among the easements examined was tenuous, and it was unclear what would happen if a problem arose or the easement were not in compliance.
- Easements need more systematic monitoring methodology with concrete indicators for measuring their success. Monitoring was a common weak point in all the countries, and it reduced our ability in this study to measure the success of the easements or their progress towards success.
- Monitoring should involve the landowners so that it can positively influence the functioning of the easements.
- There is a need for a monitoring methodology that is not too costly or complicated so that organizations would be apt to apply it.

Table 1. Summary of the Main Assumptions and Findings of the SEPA Project

Assumption	Main Findings
1. The closer to a protected area, the greater the effectiveness of a conservation easement.	• The proximity to a protected area *per se* was not a common denominator among successful easements. • It would be interesting to analyze the greater context to understand if the presence of an easement contributes to the success of a protected area.
2. The presence of an easement encourages conservation practices among neighboring private landowners.	• In Costa Rica there was no increase in the conservation practices among the neighbors, while in Mexico and Ecuador there was an increase. • This difference is probably due to the way the tool was applied in the different countries. • Perhaps because the landowner physically resided on the property (in Mexico and Ecuador), there was greater opportunity to share experiences with the neighbors and influence their practices.
3. The higher the quality of the contract, the more successful the conservation easement.	• A high quality contract was good in terms of decreasing or addressing the possible incidents that might occur on a property under an easement, but it was likely not the only determining factor for the success of the easement. • The easement contracts reviewed varied widely. • In Mexico, each contract was tailored to the needs and characteristics of the site and the landowner, taking into account social, economic, and biological factors. • In Costa Rica, the contracts were fairly broad and, in the case of the Talamanca-Carribe Biological Corridor, they were completely identical from one easement to the next. • The three contracts from Ecuador were all different, but at least one met the requirements for high quality identified in this study.

Assumption	Main Findings
4. The effectiveness of an easement increases when the landowner is aware of the implications and scope of the conservation easement contract.	• The landowners interviewed were aware of the implications and scope of their contract, including cases where the contracts were more complex (i.e. multiple use). • There was not a clear relationship between knowledge about the contract and the effectiveness of an easement. All landowners were complying with the contracts, but there were two cases in Ecuador where the threats had not been considerably reduced. • It is possible that knowledge about the contract affects the level of compliance but we are not certain.
5. The greater a landowner's environmental commitment, the higher the probability that he/she will sign the contract; and once signed, it is more likely that he/she will comply with it.	• There was a high level of environmental commitment among the landowners. • Environmental commitment might be an important factor in establishing an easement, but the landowners were motivated by other incentives also (i.e. tax exoneration, avoidance of tourism or infrastructure developments). • The high cost of setting up an easement might be an important factor in deciding not to sign a contract.
6. The signing and implementation of an easement generate benefits for the landowner.	• All the landowners thought that the easements had been beneficial to them and they would establish an easement all over again. • Benefits cited included resource conservation, financial and technical support, and protection against development projects. • Many expressed pride in being a conservation leader and among the first ones to use this new tool.
7. The effectiveness of an easement is greater when the property belongs to only one owner, as opposed to collective owners.	• We did not observe any difference between the easements with only one owner and those with collective owners, which would lead us to reject this assumption. Nevertheless, with such a small sample size, we could not reject this assumption with certainty.
8. The effectiveness of an easement is greater when an NGO analyzes and sets priorities as to how it will address its obligation to manage, monitor, and defend (legally) the conservation easement.	• Again, we could not confirm this assumption because the sample was too small. However, there seemed to be no difference in the level of success of easements with or without formal plans. • Progress had been made to address these obligations, but in many cases there were no formal plans or the funding was not sufficient to address the obligations. • Conservation easements with formal plans tended to be short-term.
9. Protection of the land through an easement is more effective when: a) It is carried out by an NGO with clearly identified	• All the easements evaluated responded to conservation priorities established by the NGOs. • It was not possible to test this assumption probably because the method used was not the most appropriate.

Assumption	Main Findings
conservation priorities. b) The conservation target of the conservation easement coincides with the conservation priorities identified by the NGO.	• In Mexico, the existence of a methodology to identify priorities and select sites, allowed for the successful protection of a greater number of hectares (through conservation easements).
10. Conservation easements are more effective when the NGO responsible for monitoring and enforcement is also the owner of the dominant estate, in contrast with cases where an NGO is not the owner of the dominant estate.	• Considering the cases from Costa Rica, Mexico, and Ecuador, the effectiveness of the easement does not seem to be related to the ownership of the dominant estate. In all three countries the easements have been successful, regardless of the wide variance in ownership of the dominant estate.
11. The effectiveness of an easement is greater when an NGO is involved in the technical work, negotiation, creation, management, and monitoring, in contrast with cases where there is no NGO participation.	• We could not properly test this assumption because NGOs have been involved in most of these activities and because there is not much difference in the degree of reported success of the easements.
12. The effectiveness of an easement is greater when the landowner is involved in all the steps: technical work, negotiation, creation, management, and legal and biological monitoring.	• Generally, landowners felt highly involved in all the steps except monitoring. • Monitoring tended to be sporadic and not very systematic. • Proving this assumption was difficult because there was very little variation; the owners felt involved with most of the steps. Considering only their involvement with monitoring, we did not observe a relationship between owner involvement and the degree of success of an easement.
13. Conservation easements are more successful when they include the gathering of baseline data.	• There might be a relationship between the success of an easement and the existence of a baseline. In fact, easements tended to be more successful when they had complex and complete baselines that addressed biological, social, economic, cultural, and legal aspects. • The more comprehensive baselines were found in Mexico. Costa Rica's baselines were of medium quality, while in Ecuador they were either absent or incipient. • Even though Mexico had extensive baselines, there were no data on monitoring; therefore we were unable to measure more objectively the success of the easements
14. Conservation easements are more successful when there is a methodology for monitoring and enforcement of the contract.	• In all the three countries (Costa Rica, Mexico, and Ecuador) monitoring was sporadic and not very systematic. • We could not determine if the existence of a monitoring methodology directly affected the success of the easements.
15. The greater the quality of the monitoring, the greater the success of the conservation	• All countries had a monitoring methodology; but the quality differed greatly among the easements.

Assumption	Main Findings
easements.	• Since all the easements were successful and there were no conflicts, it was not clear how important monitoring had been to date. • If there had been better monitoring in all the countries, it would have been easier for us to estimate the success of the easements.
Other Variables	• The individuals that establish easements tended to be middle-aged or older people with high levels of education. People with these characteristics were possibly in a better position to establish an easement without worrying about the economic development restrictions associated with them. • In the case of Costa Rica, all the owners of the dominant estates were United States citizens.

1. Introduction

In this case study we share our experience in a collaborative learning effort to better understand the conditions under which conservation easements can promote biodiversity conservation in Latin America. This learning initiative entitled, "Conservation Easements: Progress through Learning" (SEPA, by its Spanish acronym) is the result of the combined effort of several Latin-American conservation organizations and conservation easement practitioners. Operating under the principles of adaptive management, we attempted to systematically test the assumptions behind the conservation easement tool and to understand how conservation easements were being implemented and monitored in Latin America. We would like to share our conclusions and encourage further reflection and debate among people who on a daily basis are working to promote and implement conservation easements. We believe that there is a lot more to learn; this work is only an initial step in the learning process.

1.1. Description of the SEPA Project

Members. SEPA brought together six Latin American NGOs interested in expanding and improving conservation easements as tools for the protection, conservation, management, and use of biodiversity. The active members included CEDARENA (Costa Rica), Pronatura, A.C. (Mexico), CEDA (Ecuador), Fundación Neuquén (Argentina), and Prometa (Bolivia). Observer members included CODEFF (Chile), IDEA (Paraguay), La Red Colombiana de las Reservas Naturales de la Sociedad Civil (Colombia), and The Nature Conservancy (USA and Ecuador). Likewise, Foundations of Success (USA) and the Monterey Institute of International Studies in Monterey (USA) helped in the coordination of the SEPA project and the technical aspects of the group work.

SEPA's Mission. Encourage cooperative work among the conservation community to consolidate efforts, share learning experiences, and avoid isolation. Encourage viable sustainable development alternatives and adequate natural resources management to protect the natural heritage of Latin American countries and present conservation on private lands as an attractive conservation alternative.

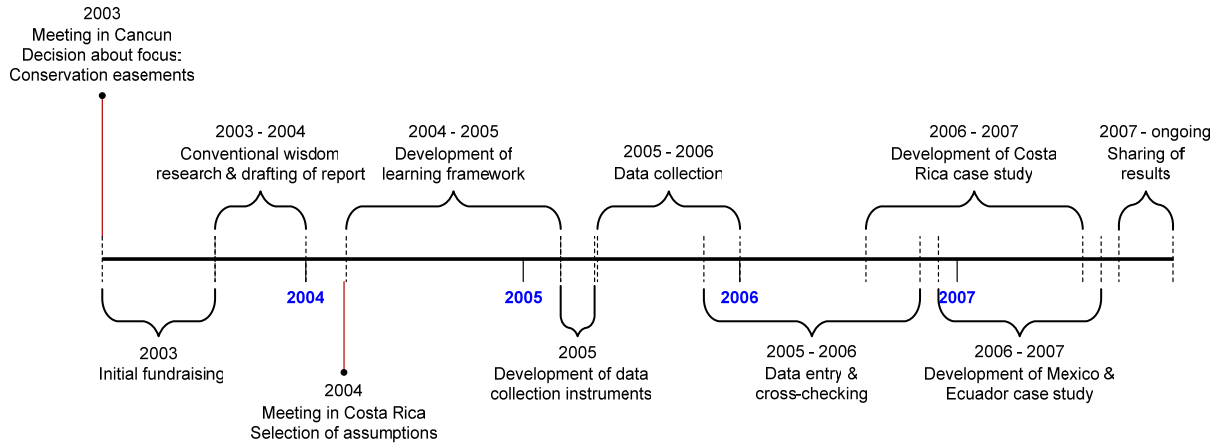
SEPA's Goals.

1) Inform and influence the development of conservation policies for private lands;
2) Learn about conservation easements (i.e. the conditions under which they are successful, how they can be improved) to enhance their implementation; and
3) Encourage local and global learning about the use of conservation easements.

2. What We Did and How We Did It

Our methodology was based on identifying assumptions about the use and success of conservation easements in Latin America and testing those assumptions. We interviewed the landowners that established easements in their properties as well as the NGOs involved in their creation, management, and monitoring. Below is a more detailed description of the methodology. Figure 1 shows the timeline for the SEPA project.

Figure 1. SEPA's Project Timeline



2.1 How We Selected the Assumptions

To test if the conservation easements were functioning as planned, first we identified the assumptions held by the entities promoting easements. This step involved the preparation of a document explaining, according to the opinion of Latin American private conservation experts, the key elements that would presumably guarantee the success of the easements. This document, (*Conventional Wisdom on Conservation Easements in Latin America* – also available in Spanish) presents 39 assumptions that were suggested as determining factors for the success of easements. We also developed a results chain to show the key elements for easement implementation and success (See Figure 2).

Of the 39 assumptions listed, we selected 15 that were considered of higher priority. To select the assumptions, we used the following criteria: 1) Institutional priority or importance according to the SEPA members and 2) Ease of testing the assumption. The last criterion was a determining factor: 3) Number of cases where we could collect data.

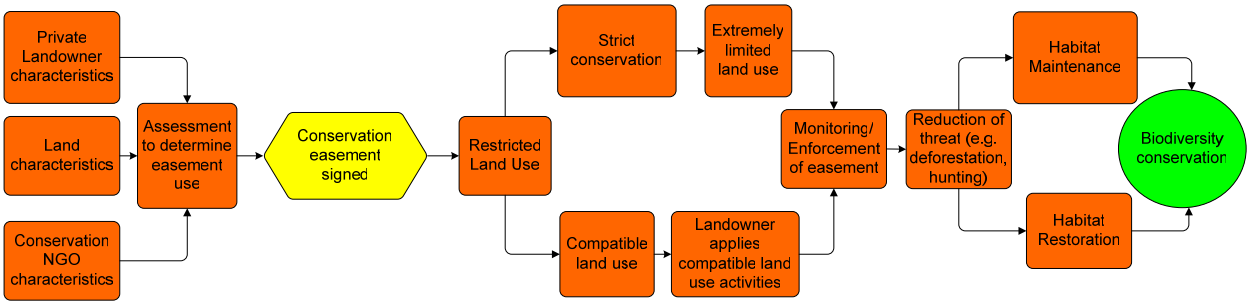
2.2 The Learning Framework

For the 15 assumptions, we developed a learning framework (only available in Spanish) containing the causal (independent) and impact (dependent) indicators and the method for collecting the data. Using this framework, we carried out field work in Costa Rica, Mexico, and Ecuador (the SEPA countries with the largest number of easements) to collect the data needed to test the assumptions.

2.3 How We Defined Success

One of the greatest challenges faced by the group was how to define the success of an easement. The difficulty was largely due to a lack of information and baseline data for most of the easements. Also, even though some areas had data, we were unable to make comparisons because of the significant differences among easements. Therefore, we had to look for alternative ways to define success. With this in mind, we used a results chain to define how we think easements are achieving biodiversity conservation and, specifically, what are the steps and results needed to achieve conservation. "Success" varies depending upon where you are along this chain. For example, the SEPA team identified some assumptions related to the characteristics of the landowners that influence the signing of an easement. In this case, the success of the easement would reside on the landowner finally signing the easement.

Figure 2. Results Chain for a Conservation Easement



Dependent Variables (Impact Indicators):[1] To measure the impact of an established easement, it was important to determine if the expected results for the easement were achieved. Since there were no consistent data to measure the changes in biodiversity status (the final expected impact), we proposed to measure this impact using proxy variables: Threat Reduction at the easement site and level of compliance with the contract. For two assumptions, the dependent variable ("success") was the presence of conflicts during the preliminary negotiations and execution of the contract (see Annex A: Summary of Assumptions and Indicators). Finally, for one assumption, the dependent variable was the level of satisfaction of the landowner with the easement.

To determine threat reduction, we used a Threat Reduction Assessment Index and questions with the landowner questionnaire (see section 2.4 Research Methods). To measure the other indicators of success (i.e. signing of the contract or level of compliance with the contract), we developed a series of specific questions and analyzed the results by topic (see Annex B for more detail).

In summary, the indicator used to measure success depended on the assumption being tested. Indicators included: signing of the contract, satisfaction of the landowner with the easement, presence of conflicts during the preliminary negotiations and execution of the contract, level of compliance with the contract, and threat reduction at the site.

[1] We use the terms "dependent variable" and "impact indicators" synonymously. These are the indicators we used to measure the "success" of an easement.

2.4 Research Methods

The main method used was surveys with open- and close-ended questions, administered to people and organizations involved with the easements. Among them were landowners (in Costa Rica most landowners were conservation NGOs) and the NGOs managing or facilitating the process to establish the easement. Therefore, each easement had information obtained from a: 1) landowner survey, 2) survey with the NGO involved in the establishment, management, and monitoring of the easement, and 3) in some cases, an assessment of the threat reduction at the site. When the landowner did not live on the property and did not know what was happening on it, we also interviewed the person responsible for managing the property.

To assess threat reduction at a site, we used the Threat Reduction Assessment (TRA) method, adapted from Margoluis and Salafsky (2001).[2] This method helps users calculate a Threat Reduction Assessment Index. This index is the result of identifying threats and ranking them according to specific criteria and assessing progress in reducing each one since the establishment of the easement. The criteria applied in the SEPA project were: 1) Extent of the area affected; 2) Physical damage to the affected area; and 3) Fragility of the affected area. The resulting index helps to estimate the degree of threat reduction measured against a clear definition of complete threat reduction or elimination.

For easements that had been established for only a short period of time, it was not realistic to expect changes in the threat level. Therefore, we applied the TRA methodology only to the easements that had been established more than three years prior to the start of the data collection. Nevertheless, each landowner survey (regardless of how long the easement had been in existence) included a section about threats to the property and how they changed with the establishment of the easement. This data, combined with the information from the TRAs, helped us to better understand the degree to which easements had contributed to threat reduction and biodiversity conservation.

Annex B offers a detailed description of how we measured the factors and tested the assumptions in this study. For each assumption, the measures of success and the independent variables (causal factors) are indicated.

2.5 The Analysis

We created a database to store and process the data. With this database, we were able to test the assumptions examining the independent variables against the dependent variable associated with success of an easement. We grouped the data from Mexico and Ecuador for a combined analysis and we also did individual country analyses.

In terms of Costa Rica, the analysis was different. When we started the SEPA project, we assumed that we were dealing with easements established by individual landowners interested in

[2] Margoluis, Richard and Nick Salafsky. 2001. Is Our Project Succeeding: A Guide to Threat Reduction Assessment. Biodiversity Support Program. Washington, DC.

conservation. As we learned more about the situation of each country, we realized that the Costa Rican model was very different from the other easements established in Latin America. Greater than 80% of the easements in Costa Rica had been established solely by NGOs – that is, both the servient estate and the dominant estate belonged to an NGO. Also, all the servient estates under easement in Costa Rica, located within a certain region, were considered a system of conservation easements, and therefore, the sample size was not large enough for comparison[3]. These circumstances compelled us to analyze the data separately and write a separate report for Costa Rica.

During data analysis, we also realized that not all the members of SEPA had applied the TRA methodology uniformly; therefore we had to analyze the results of the TRA more qualitatively. Nevertheless, the data collected with the TRAs provided interesting and important information for the study.

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In terms of process, we carried out the analysis in teams conformed of SEPA members from the different countries. This arrangement enriched the process because people from outside, with other experience and knowledge, were able to comment and contribute to the data analysis. This also helped us achieve two of the SEPA objectives: 1) Learn about conservation easements, the conditions under which they are successful, and how to improve them and 2) Promote local and global learning about the use of conservation easements.

2.6 Limitations of the Study

This study is an initial effort to understand conservation easements - a relatively new tool in Latin America. The fact that easements have been used in the region for only 15 years resulted in some complications for our study. Although the first easement was established in 1992 in Costa Rica, most of the easements have been established since 2000. This is a relatively short time period to assess conservation impact. Likewise, there was not sufficient variation among the cases to appropriately test the assumptions. For example, in Mexico, there were no cases of easements that were not successful in reducing the threats, so we did not have opposing cases for comparison. Consequently, we could not adequately test many of our assumptions. Nevertheless, we feel we can still learn from the results.

We also encountered difficulties with some of the cases analyzed. For example, in several of them the baseline data were not adequate enough to assess the changes in the property or the threat to that property. In addition, some of the easements had never been monitored either

[3] When we speak of a "system of easements", we mean the conservation easements that had their own contract, belonged to the same NGO, and were registered in the Public Property Registry; but from the point of view of management and monitoring, they were considered a single unit of conservation. In addition, their contracts were identical as well as the goals and the parties involved.

because they were too recent or because the NGOs in charge of monitoring had not done so yet. Moreover, in many cases, there was no in-depth knowledge about the property, which made the Threat Reduction Assessment very difficult.

Finally, this study involved the members of SEPA according to their availability and interest in participating in the study. They collected the data and helped perform the analyses which enriched the learning experience, although it also presented disadvantages such as having people from different countries and under different conditions administering surveys and conducting threat reduction assessments. This situation made it difficult to be consistent in terms of data gathering and interpretation. Nevertheless, we think that involving the SEPA members in the process was more important, from the point of view of learning, than having a perfectly standardized study.

2.7 The Conservation Easements Analyzed

A conservation easement is an agreement between two or more owners in which at least one owner voluntarily agrees to plan the future use of the property to protect the existing natural resources (see Box 1). In Latin America, most of the easements are established using two properties – a servient estate that provides the environmental services and a dominant estate that benefits from those services. In practical terms, a conservation easement implies limiting resource use and development within the servient estate, in order to protect its biodiversity

A total of 13 conservation easements were analyzed in this study, ten from Mexico and three from Ecuador. Out of the ten easements from Mexico, five servient estates belonged to private landowners, two belonged to *ejidos* (communally-held land), and three to a foundation. In the case of Ecuador, the three servient estates belonged to private landowners (See Table 1 for a list of easements in the study).

View from Bosqueterno (Monteverde, Costa Rica)
Lucia Morales / CEDARENA

The models used in Costa Rica, Mexico, and Ecuador were actually quite different. The Mexican model had a particularly unique aspect – even though Mexico required a servient estate and a dominant estate to establish the real right for the easement, it was not necessary for the owner of the dominant estate to agree with the establishment of this right. In practice, this made this type of easement similar to what is known in the United States as an easement in gross. The lack of need for a signature from the owner of the dominant estate allowed for any area to be conserved by simply identifying the property that could act as the dominant estate. Many times, the dominant estate is nearby, but, in some countries, it can be a distant property that receives a benefit or environmental service from the servient estate. Once the dominant estate has been identified, the easement can be established in its favor. The proper

name for this type of easement is "easement by unilateral declaration of will." Some of the Mexican easements established by unilateral declaration had several dominant estates. Since the owners of these dominant estates were not always aware of the easement, those promoting the easements had to consider the possibility that an owner of a dominant estate could purchase the servient estate and terminate the easement through consolidation - one of the ways to terminate this real right.

Box 1. General Characteristics of Conservation Easements

What is a conservation easement? It is an agreement between two or more owners in which at least one owner voluntarily agrees to plan the future use of the property to protect the existing natural resources. The contract is legally registered, and subsequent owners must comply with its provisions.

Components of an easement:

a) **Servient Estate-** property on which the conservation easement has been placed. Its role is to provide environmental services to the dominant estate; therefore its use is limited. The servient estates can belong to private individuals or entities, including conservation NGOs.
b) **Dominant Estate-** property that receives the benefits established in the easement. The services or attributes provided by the servient estate include improved pollination processes, connectivity of forest cover, and aquifer maintenance, among others. In Latin America it is common for the dominant estate to belong to an NGO.

Duration of the easement: It can be established in perpetuity or for a fixed period of time. If both parties agree the contract can be terminated.

Benefits of an easement

- Generally, this is a less expensive legal tool than land purchases.
- Flexibility allows the owner to set certain areas for strict conservation and others for production activities, provided that the conservation target is not affected.
- The owner continues to hold all the property rights and obligations and can continue living on it.
- There is a possibility for economic incentives.
- It does not require decisions at the political level because it is a contract between private parties.
- It is a versatile tool that can be used not only to protect the natural resources but also archeological and aesthetic or scenic resources, as well as recreational or agricultural areas.
- There is a possibility to establish reciprocal easements between neighboring owners.

Limitations of an easement

- It can be difficult to identify servient estates. In contrast to the US, owners usually do not receive direct economic benefits, such as property tax exoneration.
- Generally, the negotiation of a contract is a lengthy process.
- It is costly to develop management plans, set zoning, and establish monitoring funds.
- There is no standardization for the zoning process.
- The high cost of environmental assessments limits the number of baseline studies, which in turn, limits the ability to adequately define the conservation targets or establish monitoring plans.
- In some areas the financial value of the property may decrease, even if other forested areas have higher value.

The easements in Ecuador were the most similar to the well-known model found in the Latin American bibliography related to this topic[4], with the particularity that the dominant estate had

[4] See: a) Atmella Cruz, Chaves Quesada *"Manual de Servidumbres Ecológicas (mainly for attorneys and public notaries)*" CEDARENA, TNC COMBOS, Costa Rica 1997; b) Solano, Cerda, *"Manual de Instrumentos legales para la conservación privada en el Perú"*, SPDA, Perú 2004; c) CODEFF *"Las Áreas Silvestres Protegidas Privadas en Chile"*, 1999; d) IDEA, TNC, *"Instrumentos jurídicos para la protección, regeneración y manejo*

to be a neighboring property. The term "neighboring" was not specifically defined as adjacent, but all the cases in Ecuador involved adjacent properties.

In the case of Costa Rica, the easements analyzed were established with the servient and dominant estates belonging to an NGO (except in one case). We decided to prepare two separate reports – one for Costa Rica and another for Mexico and Ecuador because the fact that the majority of the owners of the servient estates in Costa Rica were conservation NGOs complicated the data analysis. Moreover, a group of easements within Costa Rica had been treated as one management unit, an arrangement which would have further complicated comparisons with Mexico and Ecuador.

sostenible de tierras privadas en Paraguay", Paraguay 2000; e) Castelli, *"Conservación de la naturaleza en Tierras de Propiedad Privada"*, FARN, Argentina, 2001; f) Hidalgo, Morillo, *"Manual de Incentivos privados para la Conservación*, *Servidumbres Ecológicas en el Ecuador*", CEDA, Ecuador; among others.

Table 1. Conservation Easements Established and Included in the Sample*

Name of Easement (for this study)	Owner of Servient Estate	Owner of Dominant Estate	Type of Easement	Country and State	Size (has.)	NGO/Institution Involved^	Year Created
Península de Lucenilla	Joaquín Redo Martínez del Río	"Islas del Golfo" Flora and Fauna Protection Area	Unilateral	Mexico, Sinaloa	6,980	Pronatura A.C.	2004
Ejido el Palmito	Ejido El Palmito	Platanar de Los Ontiveros- *Ejido*	Unilateral	Mexico, Sinaloa	5,000	Pronatura A.C.	2004
Rancho Cuchuma	Fundación La Puerta A.C	Bureau of Land Management, Interior Dept. USA	Unilateral Binational	Mexico, Baja California North San Diego California, USA.	819	Pronatura A.C.	2000
Ejido 20 Casas	Ejido 20 Casas	El Ocote Biosphere Reserve	Unilateral	Mexico, Chiapas	2,041	Pronatura A.C.	2001
El Carricito	Bosque Antiguo Asociación Civil	"Huichola de Tuxpan de Bolaños" Indigenous Community	Unilateral	Mexico, Jalisco	819	Pronatura A.C.	1999
Pozas Azules	Sr. Villa Sánchez y Sra. Álvarez Alvarado	Rancho San Pablo	Unilateral	Mexico, Coahuila	83	Pronatura A.C.	2000
Las Cañadas	Ricardo Romero	Tania de Alba Rodríguez	Reciprocal	Mexico, Veracruz	305	Pronatura A.C.	1998
Moxviquil	Pronatura Chiapas	Guadalupe Cancino	Unilateral	Mexico, Chiapas	22	Pronatura A.C.	2003
El Paval	Eric Antonio Guadarrama M.	"El Triunfo" Biosphere Reserve manager by CONANP	Unilateral	Mexico, Chiapas	87	Pronatura A.C.	2001
La Única	Fermin Smith	Eduardo Smith	Unilateral	Mexico,	43.84	Pronatura A.C.	2004

Name of Easement (for this study)	Owner of Servient Estate	Owner of Dominant Estate	Type of Easement	Country and State	Size (has.)	NGO/Institution Involved^	Year Created
	Valdez	Guerra		Baja California			
Lima	René Lima	CEIBA Foundation	Unilateral	Ecuador Pichincha	650	Fundacion CEIBA	2000
Aguirre	César Aguirre	Ministry of the Environment - Ecuador	Unilateral	Ecuador Loja	70	Ministerio del Ambiente de Ecuador	2004
Health & Habitat	Health & Habitat	Jatun Sacha	Unilateral	Ecuador Napo	100	CEDA	1999
Talamanca-Caribe (CBTC) (10 easements)	CBTC	Sixaola	Unilateral	Costa Rica, Limón	441	CEDARENA	1994-2004
Emily	Emily Yozell	Sixaola	Unilateral	Costa Rica, Limón	16	CEDARENA	2000
Osa (CBO) (3 easements)	Cerro Osa	Aguirre	Unilateral	Costa Rica Puntarenas	655	CEDARENA	2005
ASANA	ASANA	Aguirre	Unilateral	Costa Rica Puntarenas	108	CEDARENA	2001
Pitzer College	Pitzer College	Aguirre	Unilateral	Costa Rica Puntarenas	48	CEDARENA	2005

***** This study also included an analysis of the easement experience in Costa Rica. A separate report was prepared for Costa Rica, but some of its findings are also included in this study. For more detail, see: Proyecto SEPA 2007. Experiencias de Costa Rica en la Implementación de las Servidumbres Ecológicas: Un Estudio de Caso. Lucia Morales (CEDARENA) and Agnès Sibileau (Fundación Neuquén).

+ In Mexico, the system does not require the dominant estate to be aware that it is a dominant estate. To avoid termination of the easement, frequently there are several dominant estates for a single servient estate.

^ NGO Involved: an NGO in charge of enforcing the contract or an NGO that helped prepare the contract by providing legal advice

3. Background – Private Conservation in Mexico

Nature conservation in Mexico has evolved parallel to the cultural and socioeconomic dynamics of the country and international trends. Natural Protected Areas began formally in Mexico in 1876 with the protection of the Los Leones Desert[5] whose original goal was to guarantee the conservation of 14 springs that supplied water to the city of Mexico. In the early 1900s, the concept of property as a social function was established as well as regulations and limitations for the use of natural resources susceptible to appropriation.

In the 1970s, it became increasingly evident that the future of the Natural Protected Areas (NPAs) required a compromise that guaranteed a dignified level of life for the local residents on whom the NPAs relied to continue offering conservation services such as ecotourism.[6]

For many years, the System of Natural Protected Areas in Mexico has been the only legal and regulated instrument that has effectively protected large priority areas in the country. However, this mechanism protects only about 8% of the national territory, much of which is effectively a series of conservation islands isolated from one another. Even though NPAs constitute an important effort, it is imperative to increase the areas set aside for natural resource conservation and establish biological corridors to facilitate the exchange of genetic material, the evolutionary dynamics of species, and the conservation of larger ecosystems. The Mexican government, however, does not have the financial and human capacity to address all conservation and resource management needs. In addition, there are many biologically important areas under private ownership that have no legal protection. Thus, there is a need for private land conservation mechanisms.

Recently, Private Nature Reserves, have become a more popular tool for increasing land under conservation and connectivity among conserved tracts. Under this tool, landowners keep all property rights but commit to sound management according to the regulations established in the management plan. In Mexico, many individual and collective landowners have established conservation areas that could be considered Private Nature Reserves. However, they function independently without any real communication or support among them. Private reserves are seen as an important conservation tool to contribute to the effective conservation of biodiversity instead of investing in isolated efforts. To encourage the establishment of such reserves, it has been important to generate a series of incentives and prepare a legal platform to make the reserves viable and effective, and to provide the assurance needed by the landowners to set aside their lands for conservation.

3.1. Description of the Land Conservation Program (Pronatura A.C)

Beginning in 1996, Pronatura, A.C., proposed an innovative strategy to increase the natural protected areas within priority zones. Pronatura's proposal was based on discontinuing the system of decrees. Even though the decrees do not expropriate the land, they impose land use

[5] The Los Leones Desert, is a forested area located south of Mexico City, it has 1529 hectares.
[6] 2001-2006 Work Program. National Commission for Natural Protected Areas, Mexico.

modifications including almost absolute limitations to the property rights within the core area and do not offer economic retribution to private or communal (*ejido*) landowners.

In 1997, Pronatura created the National Land Conservation Program (known as PNCT, its acronym in Spanish) whose mission is the protection and sustainable use of biologically important areas belonging to *ejidos*, communities, and small landowners. PNCT's goal is to offer the legitimate owners of biologically important areas a series of 14 legal, financial, and implementation tools to ensure private land conservation while providing viable income options to the landowners. The tools are: private individual land declaration, private land conservation contract, **conservation easement**, usufruct, lease, private conservation reserves, urbanization rights transfer, land trusts, conditional donations, legacies, civil and commercial associations, participatory association contract, use limitations, and land purchase.

The Pronatura Land Conservation Program has three important components to its private lands work:

1) **Site selection.** The large ecosystem diversity found in Mexico and the increasing demand from the owners and communities for land conservation required PNCT to establish a series of priority setting criteria to select the sites and adopt support systems and tools for ranking potential sites. Annex C presents a detailed description in Spanish of this process.

2) **Baseline.** The baseline is the basic diagnostic, evaluation, zoning, and monitoring document for all areas expected to apply a private lands conservation tool. It provides information about the physical condition of the area, identifies the current level of importance, and defines the best land-use capacity to later define the best conservation mechanism according to the specific needs. The baseline is an initial instrument that not only helps define the areas to be protected, but also sets the base for the negotiations with the landowners to select the conservation mechanism that best meets their needs and situation.

3) **Management and monitoring plans.** When a private conservation tool is established at a site, Pronatura prepares management and monitoring plans. The management plan is the guiding instrument for the planning and regulation. It defines the basic activities, actions, and instruments for conservation, protection, and management of the areas. See Annex C for a detailed description of the Land Conservation Program.

3.2. History of private conservation and conservation easements in Mexico

In Mexico, conservation easements are used with different goals depending on the strategies for each priority region. Conservation easements are not considered the final goal but rather a versatile and powerful tool to complement and strengthen other conservation efforts. For example, in the case of state protected areas, the corresponding decrees limit development rights on neighboring properties. In such cases, easements negotiated with the landowners can formalize those limitations in exchange for private compensations and government support.

In Mexico, conservation easements were created out of several needs and opportunities. First, there was the need to prove that this type of private conservation tool could be legally established

and to determine its effectiveness and scope. Before establishing easements in Mexico, Pronatura undertook an extensive legal analysis of different private conservation tools. Easements were found to be the tool that best adapted to the present conditions in Mexico. In Pronatura, easements have been used with different goals, such as the protection of areas with unique value, priority species, bird nesting areas and sanctuaries; the establishment of buffer areas and corridors; and/or the linking of protected areas to complement protection efforts in biologically important areas. For example, coastal easement chains have been established to complement conservation efforts that use other strategies such as federal natural protected areas, community capacity building for resource use and management, and the promotion of development alternatives such as ecotourism.

The most relevant dates and achievements related to the establishment and use of easements are as follows:

1988. The first conservation land trust in Mexico was created in San Cristóbal de las Casas, Chiapas.

1995. The North American Environmental Cooperation Committee hired Pronatura A.C. to prepare a study that identified private conservation actions in natural protected areas and their area of influence. It identified the land trust movement in the USA and conservation easements as a conservation tool for private landowners.

1996. The department of environmental policy from Pronatura A.C. visited CEDARENA, a social organization in Costa Rica, to share experiences about private conservation.

1997. Pronatura's National Land Conservation Program was formally created in Monterrey, Nuevo Leon.

1998. The first conservation easement in Mexico, Rancho Las Cañadas, was established in Huatusco, Veracruz.

2000. The first law in Mexico that included a special chapter on private conservation instruments was issued in Veracruz. State Environmental Protection Law.

2001. The Global Environmental Facility (GEF) financially supported Pronatura's conservation efforts on private and communal lands. The easements analyzed in this study were created under this project.

2001. First successful legal defense of an easement for damages caused by a third party, Las Cañadas, Huatusco, Veracruz.

2003. The first Bi-national (Mexico-USA) Conservation Easement in the world was signed in Tecate, Baja California.

2003. Signing of the first coastal easement chain – located on individual plots from the Tierra y Libertad *Ejido*, Bahia de Los Angeles, Baja California.

2004. Signing of an easement in Peninsula de Lucenilla, El Dorado, Sinaloa. This 6,980 ha. plot was formed by a peninsula covered with more than 40 km of sandy beaches, deciduous low forest, and mangrove forest.

2005. Signing of Mexico's largest coastal easement (57,000 has.) located in commonly held lands from the Luis Echeverria Alvares *Ejido*, in Laguna San Ignacio, Baja California.

4. Background: Private Conservation in Ecuador

Ecuador is one of the most mega-diverse countries in the world. As such, it is vital to take the necessary measures to protect its natural richness. With this in mind, the Ecuadorian government has established management categories for biodiversity conservation classifying the areas under the National Forestry Heritage and the National Natural Heritage. The National Forestry Heritage includes all the national forests listed under the different management categories included in the Law, while the National Natural Areas Heritage includes protected areas declared by the Ministry of the Environment and listed under legal management categories.

View from El Pahuma (Ecuador)
Daniel Barragán / Archivo CEDA

In spite of the Ministry of the Environment's efforts to implement environmental policies under the law, there has not been a lot of progress in biodiversity conservation under the public system. For this reason, the support of private landowners is vital. In addition, it is critical to support private land conservation efforts because most of Ecuador's land is held by private or communal owners. Many biologically important species are found in these areas but are outside direct government management.

One of the advantages of conservation on private lands is that it does not depend on the government; rather it depends on the will of the parties involved and it offers a collective benefit. Conservation-minded landowners have explored the application of different legal figures, under private law, to protect their properties.[7] These include, for example:

a) **Conservation contract or agreement**: Ruled by the conservation easement norms with a few exceptions such as the lack of need for a dominant estate;
b) **Conservation easement**: In Ecuador, two properties are needed, one to act as the dominant and the other as the servient estate;
c) **Conservation land trust**: Based on the commercial trust figure, it allows a person to transfer, temporarily and irrevocably to another the management of personal property or under the condition to comply with the objectives established in the constitutional contract;
d) **Sale-Purchase:** An ecological conservation clause is incorporated in a land sale to establish the obligation of the buyer to conserve the natural resources in the area being purchased;
e) **Leasing:** Obligations are established for the lessee for what to do or what not to do. In case of non-compliance a compensation penalty can be imposed or even the termination of the lease;
f) **Gratuitous loan with a conservation clause:** Consists of a gratuitous loan for the use of the traditional rights in which the owner can impose a condition to whomever is borrowing the property;
g) **Legacies with a conservation clause:** According to the Civil Code, a condition precedent can be included in a legacy so that the beneficiary can use, enjoy, and dispose of it;

[7] For more information see: Falconí, E. 2006. La Conservación Privada en Ecuador. Herramientas Legales y Marco Jurídico Aplicable. Quito.

h) **Usufruct with conservation clause:** Grants the use rights to another person under the mutually-agreed condition of complying with ecological goals; and
i) **Protective forests and vegetation and private reserves:** Consist of spaces that because of their natural formations and location conserve water, soil, wild flora and fauna.

The first steps have been taken towards the application of some of these tools at the private level, beginning in 1999 with the first easement created in the country. Currently, there are few formal incentives to promote conservation in private lands. A couple of examples include rural property tax exoneration applied in areas covered with forest or protective vegetation and recently-developed mechanisms to pay for environmental services.

4.1. History of Conservation Easements in Ecuador

Drawing on the experience in Costa Rica and following the organization's mission and goals, the Ecuadorian Center of Environmental Law (CEDA), introduced conservation easements in Ecuador in the late 1990s. In September of 1998, CEDA identified key participants and promoted, with support from CEDARENA, the first consultation and presentation workshop about the experience of easements in other countries, mainly Costa Rica.

Later, CEDA issued a manual for conservation easements in Ecuador (*Manual de Servidumbres Ecológicas en el Ecuador)*, that was followed by a document on legal instruments for conservation on private lands (*Instrumentos legales para la conservación de tierras privadas),* detailing not only conservation easements, but other private legal tools that can be applied for conservation.

In order to consolidate the first easement, there was a scoping phase to search for the organization or person willing to implement this tool. The process lasted one year, after which Jatun Sacha Foundation and the Health and Habitat Corporation established the first easement in 1999.

After this first milestone, CEDA has continued to promote a variety of activities geared toward consolidating and promoting conservation easements - organizing meetings, conducting national and international seminaries, producing publications, facilitating training workshops, developing initiatives to reform the law, and above all, assisting the organizations and people that request legal advice for the creation of easements.

The first conservation easement (1999): The Health & Habitat case

It took many steps to create the first easement in Ecuador. Even with the promotion, training, and awareness campaigns, no one expressed interest, perhaps because the tool was not well known in Ecuador. After a year of negotiations, the Jatun Sacha Foundation and Health & Habitat established the first easement on July 27th 1999.

Jatun Sacha's goal is to carry out research in the Amazon region on its three plots (162 hectares). The easement was created in favor of the Jatun Sacha Foundation (dominant estate) along the entire length of its property. Health & Habitat Corp. agreed to set aside 60 hectares of land for conservation. The ecological clause states that "the trees in the property should not be cut

down…. it should help protect the springs, streams, and rivers in the adjacent forested areas and the habitats of the flora and fauna, especially endangered species; there should be no pollution; native wild animals should not be killed or hunted…"

The second conservation easement (2000): The Lima case

In 2000, the CEIBA Foundation for Tropical Conservation and Mr. Efrain Lima established the second easement in the "El Pahuma" Orchid Reserve northwest of the Pichincha province. This easement has gone further and established a baseline map. CEIBA Foundation helped with the baseline and zoning efforts. The easement covers 650 hectares and has three zoning areas: intensive use, minimum impact area, and protected area.

El Pahuma (Ecuador) – Visitors' Center
Daniel Solano / Archivo CEDA

The goal of the easement's ecological clause is to "maintain the present extension and integrity of the primary and secondary forests…protect and conserve the native populations and plants… and all the endangered species…protect, maintain, and improve the historical characteristics and cultural vestiges of the Reserve… prevent contamination of the soil, air, vegetation, and water and/or alteration or diversion of the natural course of water, in order to protect the scenic beauty of the waterfalls, rivers, and streams within the servient estate."

The third conservation easement (2004): The Aguirre case

The Ministry of the Environment established this 70 hectare easement in the southern part of the country, in the Loja province. We were unable to obtain more detailed information from the Ministry about this easement.

5. Assumptions Tested:

In general, the assumptions we tested in this study try to determine if certain factors affect the success of an easement. For most of the assumptions, we used the dependent variables Threat Reduction and Level of Compliance with the Contract as indicators of success. The reader can see Annex B to understand each assumption, how we measured success, and the independent variables associated with each assumption.

We would like to emphasize that although this report is based primarily upon experiences from Mexico and Ecuador, for some assumptions we found it interesting to compare the results with experiences from Costa Rica. The SEPA project initially meant to compare the experiences from all three countries, but, as explained earlier, this was not possible because of the difference between the Costa Rican model and the one from Mexico and Ecuador.

5.1. Global Analysis of the Success of the Easements

In this section we provide a general overview of how successful conservation easements have been in terms of threat reduction and level of compliance with the contracts. However, it is important to mention that although easements represent a type of legal protection for conservation purposes, they are not the only solution to all environmental problems. They constitute an important element in comprehensive conservation initiatives that include, for example, environmental education, community development, and/or ecosystem management actions.

Threat Reduction

According to the results of this study, most of the easements in this sample were successful or were on their way to being successful. In general, most of them were reducing the threats at their sites and the landowners were complying with their contracts. However, in some cases certain threats had remained the same or only been partially reduced. For example, in the case of Cuchuma, trash was still being thrown by immigrants on their way to the United States. In El Carricito, large-scale illegal logging had not been completely eradicated and in the 20 Casas *Ejido* there had been only a slight reduction in terms of fires, fruit extraction, and poaching.

Likewise, in El Palmito, the owners admitted that poaching, capture of birds, and the screwworm infestation were reduced but not eradicated. Finally, in Pozas Azules, the water level in the pools had improved but had not reached the desired level; in El Paval, according to the owners, cattle were still entering the property but not as they were before establishing the easement.

We observed that the goal of some easements was to reduce threats that could not be under the control of this type of contract. For example:

a) Lucenilla: the easement was unable to reduce drug trafficking and had not completely eradicated hunting and river fishing;
b) Las Cañadas: the easement was unable to slow down the growth of nearby towns or completely stop the construction of a highway (the project was stopped for political reasons and the highway will no longer cut through the easement). Management in the adjacent properties was reported as being worse.

c) Cuchuma: the easement was unable to stop the construction of an automobile plant near the site.

Nevertheless, because these threats were not realistically within the control of individual landowners, we believe that the lack of reduction in these particular threats was not a reflection of the success (or lack thereof) of the easements.

In Ecuador, conservation easements had more problems with threat reduction. In the Lima easement, the threats had been reduced but not completely. Hunting of birds and deer, for example, had decreased but was still occurring. In the Aguirre, rehabilitation activities on roads crossing the area were done now more carefully but still could have been improved. Here also, mining and firewood extraction had not been eradicated. In the case of Health & Habitat, the easement had not been able to stop human encroachment and the presence of cattle.

Compliance with Contract

The success of the easements was also compared with the level of compliance with the contract. In only two cases (20 Casas and Moxviquil, both in Mexico) were there problems with contract compliance. The lack of compliance in these cases was due to the lack of monitoring by the institution managing the easement, not the landowner. Therefore, we can say that considering only the landowners, there was 100% compliance with the contract.

5.2. Characteristics of the Property

In this section we analyze the assumptions related to the characteristics of the property that could affect the success of an easement.

Assumption 1: The closer to a protected area, the greater the effectiveness of a conservation easement.

Results

In Mexico, the success of an easement did not seem to be directly related to the proximity to a natural protected area (NPA). There were many easements that were not near a NPA; nevertheless all the easements established were successful. Moreover, even though some easements were near a NPA, they did not vary in terms of level of success.

In Ecuador, only one of the three easements in the study was near a NPA (within a radius of 5 km). This easement (Lima) had been able to greatly reduce the existing threats. The other two easements that were not near a NPA had not been able to reduce the threats; one of them was invaded by a herd of cattle, and the other had not been able to reduce firewood extraction and mining. Although this implies the assumption is true, it is important to recall that we only had three easements from Ecuador – a very small sample from which to make any conclusions.

In Costa Rica, CEDARENAS' institutional policy holds that easements should be near NPAs in order to create biological corridors. Here, all the easements were successful according to our indicators.

Finally, we found some interesting cases related to this assumption but outside of what we were trying to test. For example, when an NPA was declared, the property for the Peninsula de Lucenilla (Mexico) easement fell within its boundaries. The owner, afraid of the limitations to the future use that the government could impose on his land, decided to set limits himself and establish an easement to maintain control over his property. Another case is the 20 Casas *Ejido* in the state of Chiapas, Mexico. Here, the nearby NPA "El Ocote" promoted the creation of an easement. The management of the NPA saw the opportunity to conserve the forests near the buffer zone and suggested to the *ejido* that an easement could be established in the area. The NPA was able to obtain property tax exoneration as an incentive for the community.

Conclusions

Considering the cases from all three countries, and Mexico in particular, the proximity to a NPA did not seem to be a major factor determining the level of success of an easement. In Mexico, there were differences between the easements in terms of proximity to NPAs but all of them were successful. Therefore we cannot state that these differences were related to the distance from a NPA. Assuming the experiences in Mexico were not unusual, we conclude that proximity to natural protected areas is not a significant determinant of an easement's success. This was a surprising result for us, as this assumption seemed obvious in theory.

If we think more broadly about conservation of an area or region, however, it might be interesting to reconsider the assumption to test if conservation easements contribute to conservation in a more global context. For example, do conservation easements contribute to the success of a natural protected area and if so, how? It is also interesting to consider whether the influence of the NPAs over the easements might reside in the selection of the sites where easements are established.

Assumption 2: The presence of an easement encourages the conservation practices among neighboring private landowners.

Results

In Costa Rica, conservation practices did not seem to increase in the Talamanca Caribe Biological Corridor (TCBC) where several easements had been established. In some cases, the NGOs working in the area received fewer requests about easements. Some landowners were willing to sell their properties when they found out that The Nature Conservancy was buying lands for conservation through local NGOs. In Costa Rica, the early model required that an NGO be in charge of the protected land in order to receive the donations needed to establish the easement. Perhaps this model (servient and dominant estates under an NGO) worked against the tool because landowners did not perceive any incentive to conserve their property if they had the option to sell it. At the time of this study. the model in Costa Rica was changing. The advantage of this initial model, however, was that properties that might seem unimportant to their owners - but that are biologically important to maintain or establish corridors - may be acquired for this purpose.

Another interesting and contrasting case in Costa Rica was the Asanan easement where the easement influenced the owner to establish another easement in another of his properties. Moreover, a Wildlife Refuge was being established, in cooperation with the government, near the Asanan easement, and there was great interest in this area for establishing additional wildlife refuges.

In the sample from Mexico there was evidence that the establishment of an easement had increased the interest in conservation among the neighbors. In one case, the easement had encouraged the neighbors to seek the creation of an NPA (Moxviquil in Chiapas) and had encouraged the creation of another easement in the vicinity. Landowners reported changes in the behavior of their neighbors, such as switching from agricultural and cattle ranching activities to ecotourism (Pozas Azules, Coahuila and El Paval, Chiapas) or switching from sun-coffee to shade-coffee in nearby coffee plantations (Las Cañadas). Other examples of increased conservation practices were the creation of recycling programs in adjacent properties (Rancho Cuchuma, Baja California North) or the improvement in the effective control of the areas near the easement (Las Cañadas, Veracruz).

Even though there was evidence of an increased interest in conservation among the neighboring private landowners, in many cases they also requested monetary or in-kind incentives. For example, in La Unica (Bahia de Los Angeles, Baja California), Pronatura prepared a baseline and regional planning that resulted in a portfolio of priority sites whose land tenure conditions required intervention. In this context and considering that easements were a relatively new tool, a package of incentives was offered (including economic remuneration and the creation of a social fund for one of the landowners) to obtain the signature for the first easements at the site. This generated a domino effect and more landowners became interested in negotiating easements, in exchange for similar remunerations. Pronatura provided this remuneration because it considered that the conservation of the entire area was important.

It Ecuador, all three easements seemed to increase the level of conservation practices among the neighboring landowners. The neighbors showed an increased interest in the conservation easement tool. There was also more control in the adjacent properties in terms of protection and slash-and-burn agriculture has positively decreased (Lima and Health & Habitat). There was an increased awareness over the profitability of conservation among the neighbors, as well as increased training on conservation issues involving the neighbors (Lima). In one instance, one owner admitted that the pride for being “recognized” for establishing an easement was a benefit. One can infer that the satisfaction of having established an easement is conveyed among neighbors and is a factor that in time could have a multiplying effect.

Conclusions

It seems that there was an association between the presence of a conservation easement and an increase in conservation practices among neighbors. In particular, the connection was evident when the easement owners were individuals (as in the case of Mexico and Ecuador). When the landowner was an NGO (as in most of the Costa Rican cases), there was no apparent association. It is possible that this has to do with the fact that private landowners who live on the property have more in common with and interact more directly with their neighbors than do NGO landowners.

The association may also be aided by situations like some cases in Mexico where NGOs promoting easements can deliberately motivate the interest of the neighbors by offering incentives (i.e. monetary remuneration) to achieve their conservation objectives.

5.3. Characteristics of the Contract

Assumption 3: The higher the quality of the contract, the more successful the conservation easement.

Results

Here, we measured the quality of the contract using a series of components that the SEPA members believed should be included in a sound easement contract (see Annex 2 for more detail).

All the contracts in Mexico included every one of the clauses that this study considered indispensable. That is, there was a clear and direct relation between the conservation targets and the limitations in the contract; the duration of each contract was stipulated very precisely; the party obligations were specific; the contracts contained clauses contemplating alternatives for conflict resolution; and most contracts included sound zoning. In addition, there were almost no conflicts in the easements and the obligations established in the contracts were being followed.

In Ecuador, two of the three easements had not been able to reduce the threats at the site (Aguirre and Health & Habitat). In the case of Health & Habitat, there was no direct relationship between the threats to the property and the limitations that should have been established in the contract. Even though cattle were a threat and were actually introduced at the site, their use was not prohibited or limited in the contract. Likewise, the Aguirre conservation easement did not include a clause for alternative conflict resolution. None of the easements stipulated management plans for the properties nor did they grant power to the NGOs to defend the easement when necessary. Of the three Ecuadorian easements in this study, the easement with the highest quality contract was the one that had been successful (Lima-Ceiba Foundation).

Conclusions

In brief, there might be a connection between the quality of a contract and the success of an easement. Nevertheless, because we did not have enough cases of unsuccessful easements, we cannot be certain. However, we observed that the contracts that were not carefully designed had experienced difficulties. This is the case with contracts that generalized concrete environmental problems using phrases such as "biodiversity protection," without specifying what was really expected from the easement. Even though we were only able to review a few easements, the comparisons indicated that the quality of the contract may be a determining factor in the success of an easement.

5.4. Characteristics of the Owner of the Servient Estate

Assumption 4: The effectiveness of an easement increases when the landowner is aware of the implications and scope of the conservation easement contract.

Results

With this assumption we were trying to test: what the relationship was between the success of an easement and the level of awareness of the landowner about the implications and scope of the contract.

From the surveys, we determined that in contrast with Costa Rica, the contracts in Mexico were not set for absolute conservation. A conservation easement in Mexico could include multiple use zones (i.e. absolute conservation, agriculture, home building) but was regulated to promote conservation and beauty. This type of easement tried to achieve not only the conservation and improvement of biodiversity, but it also tried to be attractive to the owners. The contract and the zoning and management plan were designed according to the needs and requirements of the landowners and according to the land use capacity. Even though this implies more complex contracts, this fact had not affected the landowners' knowledge or understanding of the contract. All landowners we interviewed knew, at least generally, the conservation targets established, the self-imposed limitations, and the relationship between these and the threats to the property. They were aware of the consequences linked to the change in ownership, the steps to register the easement in the public registry, and the implications of establishing, or not, a duration in the contract.

Another important detail was that in Costa Rica the owners of the servient estates were generally conservation NGOs. In contrast, in Mexico, the servient estates belonged to private owners, either individually or collectively, except in two cases (La Unica in Baja California North and Moxviquil in Chiapas) where they belonged to an NGO. This difference is worth emphasizing here in view of the fact that the assumption could truly be tested because those supporting the contract and its limitations were not the same individuals who drafted it.

In the case of collective properties, we were only able to interview community or *ejido* representatives, as opposed to all members. Nevertheless, we were able to determine that the general knowledge about the contract was good because those interviewed were able to explain, for example, how the succession rights applied to the easement on this type of property.

In Ecuador, landowners also were well aware of the implications and scope of the contract. Given that there was no difference in the knowledge levels among the Ecuadorian easements, yet there were differences in the success levels, it seems that at least in this country, there was no connection between the level of knowledge of the landowner about the contract and the success of the easement.

Conclusions

In general terms, we could not conclude that this assumption was valid. If there is a connection, it does not seem to be strong because the contracts were well known by the landowners in general, regardless of the success of the easement.

Assumption 5: The greater a landowner's environmental commitment, the higher the probability that he/she will sign the contract; and once signed, it is more likely that he/she will comply with it..

Results

We could not fully test this assumption because it seemed that all landowners were environmentally aware – they were interested in conservation and had taken concrete action to show their interest (i.e. participating in ecological committees, donating time to ecological causes, providing political support for environmental issues). It was difficult to objectively determine if one was more committed than the other in this regard. Therefore, there were no opposing cases to make valid comparisons. Still, we were able to develop some understanding of what motivated landowners to sign or not to sign an easement.

To do this, we also tried to interview landowners who had been interested in signing an easement but, for some reason, did not do so. There, however, were very few cases of such individuals. In Ecuador, Mr. Gortaire supported the establishment of an easement but decided against it because his property was too large and preparing the legal documents to establish the easement was too expensive for such a property. We found similar cases in Costa Rica, where some landowners in the Monteverde area decided not to establish the easement because of the cost and the number of steps. They decided they could protect the area without the formal application of the tool.

Based on our interviews with landowners who did sign an easement, there were several factors that motivated them, including that they wished to: a) avoid possible tourism developments, which indirectly could be considered a conservation motivation (El Paval-Mexico); b) avoid paying the property tax (*Ejido* 20 Casas-Mexico); c) receive direct economic benefits provided by the NGO (La Unica-Mexico); d) receive economic support from the ministry (Lima-Ecuador); e) fight against a mining concession (Lima-Ecuador).

In both Mexico and Ecuador, we noticed that the owners that signed easements were committed with the environment, but, as implied above, they often had additional motivations for signing an easement. For example, in Lima (Ecuador), the owners established an easement to receive economic support from the ministry (through infrastructure) for their conservation and ecotourism businesses. Even though the landowner was already environmentally committed, it seems that he established the easement, in part, for the economic incentive it generated.

Conclusions

In brief, we did not have any opposing cases to make a more objective analysis, but we observed a generally high level of landowner commitment to the environment. We can conclude that it is possible, at least, that environmental commitment, might be important in the decision to establish an easement. Nevertheless, some owners mentioned other incentives that motivated them to sign the contract, so it may not be sufficient to rely only on environmental commitment as a motivating factor.

Assumption 6: The signing and implementation of an easement generate benefits for the landowner.

Results

All the landowners of the easements in Mexico and Ecuador thought that signing and implementing an easement had generated different benefits for them.

In both countries, the landowners were happy with their easements. In fact, one owner (Lucenilla-Mexico) said that he planned to modify the contract to establish the easement in perpetuity. Among the reasons given by the landowners for their satisfaction were: a) greater biodiversity conservation at the site (20 Casas, El Carricito, Pozos Azules, and Moxviquil in Mexico and Health & Habitat in Ecuador); b) legal safety (Las Cañadas, El Paval, La Única in Mexico); and c) more profitability for ecotourism activities (El Palmito, Mexico). Conservation easements were also mentioned as a tool that helped stop the construction of a road (El Carricito). Most landowners said that they received common benefits associated with the easement, such as: a) protection against encroachment; b) protection against government actions that could affect their ownership rights; c) protection against development projects – mentioned in most of our cases; d) access to national and foreign sources of financing; and e) institutional assistance to develop ecological management plans. In three cases, the landowners mentioned that obtaining the title of their properties was one of the benefits received. Tax exoneration was usually not a benefit offered through easements established in Latin America. Only one of the easements (20 Casas, Mexico) received this benefit, but even then, the landowner did not mention it as a benefit. It is important to emphasize this fact because those promoting conservation easements in Latin America have often highlighted the possibility of property tax exoneration as an incentive. This results from having imported the tool from the United States where tax exoneration is the main incentive.

To date, tax reduction has not been possible in Latin America. However, from the interviews it was not clear the degree to which this has been an obstacle to establishing the easements. All the landowners said that they would create the easements all over again and they would be willing to establish an easement in another one of their properties. They felt that they received more benefits than initially expected. In the case of El Palmito, for example, the tool had encouraged young people to learn English because they saw the easement as a way to attract tourists and find new sources of employment. Something similar was happening in Lima (Ecuador) where the tool had encouraged the community to seek training to find sources of employment through conservation. Still, while those who established an easement did not seem to be motivated by tax

exoneration, we do not know how many have not established easements because this benefit was not available or how many would have become interested in easements had this benefit been available.

Finally, when the landowners referred to additional benefits, we observed that indirectly the "recognition" of establishing an easement and its implications was seen as an added benefit. One example is Rancho Cuchuma, the first binational easement established in Mexico. This case has been used as a model case in many international forums. In the case of Limain Ecuador, this pride and recognition were implied in several comments throughout the interview.

Conclusions

In conclusion, signing and implementing the easement generated benefits to the landowners. These benefits spanned a wide range, including biodiversity conservation, property protection, and economic or technical incentives. It is up to the conservation practitioners working with private lands to begin identifying these benefits in order to better promote private land conservation (through easements or other appropriate instruments). Therefore, it is important to carry out considerable previous work to identify the real interests of the landowners and the best conservation tool for them.

Assumption 7: The effectiveness of an easement is greater when the property belongs to only one owner as opposed to conservation easements on properties that belong to collective owners.

Results and Conclusions

In the sample from Ecuador and Mexico, there were four cases of properties with collective owners. Two of these properties belonged to *ejidos* and the other two were held in condominium between private individuals. All four easements were successful, as were the other easements held by single individuals. In brief, we cannot accept this assumption because we did not see any difference between the easement with only one owner and those held by collective owners. We cannot necessarily reject the assumption either because the sample size was too small to make an informed analysis.

5.5. Administration and Management of a Conservation Easement:

Assumption 8: The effectiveness of an easement is greater when an NGO analyzes and sets priorities as to how it will address its obligation to manage, monitor, and defend (legally) the conservation easement.

Results

From the analysis of the sample we observed that the limited-term conservation easements in Mexico and Ecuador had a formal plan to address their obligations to manage, monitor, and

legally defend the easements. In contrast, more than half of the easements in perpetuity lacked formal plans even though the managing NGOs had been able to begin raising funds to comply with their obligations. In Mexico, for example, the easements for El Palmito *ejido* (30 years), Rancho Cuchuma (20 years), Pozas Azules (10 years), and *ejido* 20 Casas (5 years) had funding for management, monitoring, and legal defense for the term of the easement. In the case of Peninsula de Lucenilla (5 years), they had funding for monitoring and managing for that term, and they also had a business plan to address other obligations.

In contrast, most easements in perpetuity did not have formal plans. Nevertheless, they had taken some measures to raise the necessary funds. For example, El Carricito – a site protecting thousands of hectares of pristine forests that are possibly the oldest forests in the Western Sierra Madre – had a concession contract for an antenna with a cell phone company that made monthly payments for the monitoring and management of the site. While this arrangement seemed to be working for now, there did not appear to be an alternative plan to obtain resources if the cell phone company were to rescind the contract. In the case of Moxviquil, the property protected belonged to Pronatura Chiapas, but there was no mention of a formal plan to address ongoing obligations to manage, monitor, and defend the conservation easement. Las Cañadas, another easement in perpetuity, did appear to have more formal plans. The property had received payments for environmental services since 2004 and also had a business plan that was in operation, and those interviewed felt the easement was financially sustainable.

It is important to mention that none of these easements were established for absolute conservation. Therefore, it is necessary to have the resources to manage them. Even though the obligation to manage the area is not always strictly under an NGO, they are usually committed to assisting the landowners to find funds to address all the obligations stipulated in the contract. Even though they seemed to be working on this, it was unclear why there were no formal plans, including a plan for how they would address the financial obligations associated with long-term easements.

It is also important to recognize that easements are new tools and it is not easy to obtain funds to create a trust to monitor and manage a property for which one has not acquired any rights (until the contract is signed). And if the contract is signed, it is difficult to justify to the donors the need for funds to manage it. It is possible that these fundraising efforts are viewed as an opportunity for the NGO to appropriate permanent funding. However, in the cases reviewed, some progress had been made. For example, in the case of La Unica, the creation of a fund for monitoring was imminent and in La Laguna San Ignacio, Baja California South, a monitoring fund had already been created. They convinced the donors by signing the contracts before a notary public, specifying the use of the funds, and placing the main fund in an institution in the United States.

In Ecuador, only the Liman easement had contemplated funding to cover the stipulated obligations. Neither Jatun Sacha nor the Ministry of the Environment had considered how they were going to fund the management and monitoring of the easements. In terms of legal defense, the Ministry of the Environment emphasized that their legal department would be able to address this obligation if needed.

In contrast with the Costa Rican cases, the cases from Mexico and Ecuador did not consider establishing trust funds to obtain the funds to meet their obligations. The question remains of what will happen to the easements when the NGOs run out of funds to address the obligations they assumed.

Conclusions

In Mexico in particular, shorter-term easements tended to be the ones with formal plans for fulfilling management and monitoring obligations, while those in perpetuity tended not to have such plans. Although it was not clear why this was the case, one reason could be that the easements with limited terms had been accepted under the perception that the term could be extended. In order to encourage the landowner to continue protecting the land with this tool, perhaps it was necessary to show the landowner that sufficient resources existed to address the obligations. It is also possible that we saw this difference in preparation for short versus long-term easements because it may be more manageable to raise funds for an easement established for a limited and relatively shorter term, as opposed to ones in perpetuity.

Considering the data from Mexico and Ecuador, we cannot conclude if the effectiveness of an easement is greater when an NGO sets priorities and analyses how it is going to address its obligations. It seems logical, but we do not have the data to prove it. In Mexico, easements had been successful in general – some that seemed to be among the most successful (i.e. Paval) did not have any official plans, and it was not clear how they were going to address their obligations in the future even though those interviewed indicated that there was funding for 99 years. In Ecuador, the most successful easement was also the one that considered funding to address its obligations. This implies that this might be an important conditioning factor for the success of an easement. Nevertheless, the sample was too small, and this could just be a coincidence.

Assumption 9: Protection of the land through an easement is more effective when: a) It is carried out by an NGO with clearly identified conservation priorities. b) The conservation target of the conservation easement coincides with the conservation priorities identified by the NGO.

Results

According to our interviews, all easements reviewed responded to conservation priorities established by the NGOs that had helped to create them. In reality, however, we were not able to prove this assumption fully probably because the method we used was not the most adequate. We asked the NGO in charge of the easement if they had identified their priorities and if the priorities for the easement coincided with their own priorities. In retrospect, we should have involved more people from outside to make this determination and be more objective. Despite this shortfall, we were able to make some general observations regarding this issue.

In Mexico, Pronatura used a systematic process to identify where it worked. Most of the easements were located in areas chosen using a methodology that entered data from the site into a matrix that included social, biological, legal, economic, and opportunity factors (see Annex C). They interviewed the landowners and carried out a physical reconnaissance of the site. Using this process, they were able to be strategic about where they established conservation easements and

where they did not. For example, Pronatura did not establish easements on properties with highly complicated legal problems (even if the site was worth conserving), or when the property was not biologically attractive.

We cannot say for certain that the success of an easement is directly related to the level of coincidence between the easement targets and the conservation priorities of the NGO. But we can observe that in the case of Mexico, the work of identifying priorities was crucial to obtaining the financial support needed to create these easements. Note that all the easements were established after the site portfolio was prepared, and in approximately five years Pronatura was able to create ten easements, and in the last two years, establish another 30 easements.[8]

In the case of Ecuador, the three easements were created with institutions that reported having clear conservation priorities. For the easement created in favor of the Ministry of the Environment,[9] we noticed that there was no state policy to support the easement as a private conservation tool. This was an isolated case where the easement was created as a result of an initiative from a landowner interested in state protection against an illegal mining operation in his area. The easement was not created thinking of how to link its conservation target with the Ministry's conservation priorities.

Conclusions

In the case of Mexico, the fact that there was a specific methodology to set the priorities allowed them to raise sufficient funding to protect a greater number of hectares. In general, it seems logical that an easement would be more effective when it is established by an NGO with clearly identified priorities and when what the easement strives to protect directly coincides with those priorities. Nevertheless, we cannot be certain because we did not have opposing cases – all the organizations said they had clear priorities that coincided with the priorities for the easements and most of the easements have been successful.

Assumption 10: Conservation Easements are more effective when the NGO responsible for monitoring and enforcement is also the owner of the dominant estate, in contrast with cases where an NGO is not the owner of the dominant estate.

Results

This assumption was based on the idea that if the NGO responsible for monitoring and enforcing the easements also held the title to the dominant estate (the property benefited by the restrictions imposed by the easement), it would be more interested in the success of the easement. Latin American legislation requires two properties to establish an easement: a dominant and a servient estate. An often-cited obstacle to establishing an easement is that in order to protect a property (servient estate); one needs another property (dominant estate). It is difficult to obtain dominant

[8] These new easements were not included in the sample because they were established after we had gathered our data.

[9] Here we fall somewhat outside our assumption because this is the government and not an NGO. However logic dictates that it should be valid for any type of implementing organization.

estates because it is not easy to explain to the landowners the benefits they will receive from the contract, among other things. In many cases, this problem is solved using a property whose title is held by the NGO negotiating the contract. For this reason, the SEPA members tried to test if the easement was more effective when the property receiving the benefits belonged to the NGO that was also responsible for monitoring and enforcement.

In only three easements from Ecuador and Mexico was the dominant estate held by an NGO that was also in charge of its monitoring and enforcement. In Costa Rica, the situation was completely different (see the case study for Costa Rica). All Costa Rican easements had dominant estates held under the NGOs responsible for their monitoring and enforcement. Considering that this is a small country and the fact that the properties do not need to be adjacent to each other, the NGOs involved had small properties on each biological corridor to act as dominant estates. Three dominant estates had been sufficient to cover a large portion of the territory.

We observed in the case of Mexico that even though the conservation easement needed a dominant estate in order to be established, it was not necessary to get the consent of the dominant estate owner to formalize the contract. This was because Mexican legislation considers intangible the benefit provided by a conservation easement in favor of another property. Therefore, it does not need the signature of the individual receiving the benefit. Those establishing the easement only need to be certain that the easement is not terminated by means of consolidation – that is, that the owner of the dominant estate does not acquire the servient estate and extinguish the easement. For this reason, the easements were usually created in favor of several properties including properties belonging to the state. Thus, in many cases, we were told that the owners of the dominant estates were not aware that they were receiving benefits from an easement.

Conclusions

Because the sample included a wide range of types of dominant estate owners and in all three countries, most easements were successful, we can be more certain that the effectiveness of an easement does not seem to be related to the ownership of the dominant estate.

Nevertheless, it is worth analyzing why this assumption was considered in the first place. In retrospect, we could ask this question in relation to several of the assumptions in this study. At the beginning of the field work we realized that the concept of conservation easement was different among the SEPA countries and that some of our assumptions were not really relevant in reality. In this particular case, it could be that there was an assumption that in order to conserve a property under the easement model, a second property was needed to act as the dominant estate. Therefore, it was believed that to address the difficulty of finding this other property, the most practical and simple solution was that it belonged to an NGO.

Assumption 11: The effectiveness of an easement is greater when an NGO is involved in the technical work, negotiation, creation, management, and monitoring in contrast with cases where there is no NGO participation.

Results

We could not adequately test this assumption because the NGOs had been involved in most of these activities and because there was very little variation in terms of the success of the easements. There was only one case (Aguirre, Ecuador) in which the responsible entity had not been involved in one of the activities (monitoring), but in this case, the institution was not an NGO, it was the Ministry of the Environment. At any rate, the goal of the assumption was to determine if there was a relationship between the level of involvement of the entity supporting the easement throughout the different steps and the effectiveness of the easement. Therefore it should not matter if the entity was a governmental institution, non-governmental, or another type.

In Mexico, the 20 Casas *ejido* functioned in a combined way. Monitoring was done by the staff from the NPA "El Ocote Biosphere Reserve," it was managed by the *ejido*, and it was established by Pronatura. This conservation easement was experimental because it was the first easement created within an *ejido* and within the buffer zone of a NPA. Pronatura also provided legal advice. In this case, the Natural History and Ecology Institute of Chiapas had failed to comply with the monitoring; but with only one case, it is not feasible to accept the assumption.

Conclusions

Because our sample effectively did not include any contrary cases, we could not determine whether the effectiveness of an easement was greater in cases where the NGO was involved in the technical work, negotiation, creation, management, and monitoring – in contrast to cases in which there was no participation.

Assumption 12: The effectiveness of an easement is greater when the landowner is involved in all the steps: technical work, negotiation, creation, management, and legal and biological monitoring.

Results

To validate the assessments of a landowner's involvement, we asked the same question to the owners and the NGOs responsible for managing the easements. In general, the answers coincided with one another for all phases, with monitoring being the area in which most landowners felt they had not been involved. NGOs were also less certain about whether landowners felt involved in this phase.

With respect to Mexico, Pronatura said that the landowner involvement was based on the belief that there was no better monitoring than feedback from the owner that lived on the property. That was why the NGO considered that the landowner was involved in this phase even if the landowner was expecting some other type of activity from the NGO. Pronatura used informal monitoring (i.e., what the owner said about how the easement was evolving) but did not generally inform the owner that they were actually monitoring. This type of monitoring could have advantages in terms of costs, but it would be worthwhile to formalize and standardize it more, even if through a simple questionnaire that the owner could fill out every once in a while.

Based on responses, it seems important to clarify the meaning of *monitoring*, because it was one of the weakest points in this entire process. There were cases where there was no monitoring or it was not carried out according to our definition of monitoring. For example, in several cases in both countries, monitoring was a casual process, consisting of a tour of the property to observe current conditions. We would question if this type of informal monitoring is sufficient. Perhaps, under certain conditions, it is, but it was clear from the reports we reviewed and the interviews conducted that easement monitoring could benefit from more systematic methodologies and comparisons over time.

Conclusions

In conclusion, it is difficult to prove this assumption because, excluding monitoring, there was a high level of landowner involvement and most of the easements have been able to reduce the threats to the property. Therefore there was no variance in the cases. Nevertheless, if we only look at monitoring, we did not see an association between the level of involvement of the landowner with this step and the level of success of the easement. Therefore, we can consider that it is possible that the landowner involvement with monitoring, at least, is not as important to guarantee the success of the easement.

Anecdotally, it is worth mentioning that a number of landowners in Mexico offered additional comments when questioned about their involvement. In fact, most of them expressed considerable knowledge about the easement tool and talked of the pride it gave them to be part of a conservation project.

Reflecting over the assumption, each landowner had different interests in terms of the different phases – there were cases where landowners gave more importance to the legal part in order to protect their land from encroachment by third parties. In other cases, landowners were more interested in the technical work to determine the biological richness of their property. Therefore, it might not be relevant that everyone feels involved in every phase but that they feel involved in the phases that are important to them.

5.6. Monitoring and Enforcement

Assumption 13: Conservation easements are more successful when they include the gathering of baseline data.

Results

In general, we observed a difference in the level of completeness of the baselines. The most complete and complex were found in Mexico. Costa Rica had medium level baselines, while in Ecuador they did not exist or were incipient.

All the easements in Mexico had ample baseline data. Most had information about the biological resources, the threats or source of stress existing in the property, and the opportunities for conservation. From the comments obtained in the interviews, it appeared that much of the information needed for the baselines existed prior to the establishment of the easement. For

example, in the case of Peninsula de Lucenilla, prior to signing the easement there was a thesis study about the mangrove forests in the area and a fairly complete description of the vegetation at the site. Another example was the 20 Casas *ejido* where, by being located within a NPA, they had access to substantial technical, social, and economic data.

Despite the importance of baseline studies for legal and biological monitoring, only one of the easements in Ecuador had baseline data. The two easements that had not been able to reduce the threats and had problems with compliance were the ones lacking baseline data.

Good baseline data are critical for adequately assessing the success of an easement. Problems like the ones incurred in this study are generated by the lack of good baseline studies. For example, to evaluate the degree to which easements had conserved biodiversity, we had to use subjective assessments and opinions about threat reduction and level of compliance with the contract. If we had had access to better data we could have used that information to conduct a more objective analysis.

As an aside, in the process of assessing the quality of baseline data and monitoring methodologies, the NGOs participating in this study were able to identify shortcomings in their own processes and learn from one another. For example, CEDARENA in Costa Rica learned about how Pronatura in Mexico was conducting the baselines. CEDARENA used the Mexican baselines to determine the type of additional information they should be including in their baselines.

Conclusions

In conclusion, it is possible that there is a relationship between the success of a conservation easement and the existence of a baseline. In fact, the most successful easements in this study tended to be the ones with baseline data. Regardless of whether this assumption holds, we recognize that baseline data are critical to be able to provide more objective assessments over time as to how easements are performing.

Assumption 14: Conservation easements are more successful when there is a methodology for monitoring and enforcement of the contract.

Results

According to the answers from the organizations and the landowners, in Ecuador, there was no methodology to determine systematically if the landowners were correctly complying with the contract or if the easement itself had been effective. Each organization did its own monitoring to determine if the contract was being followed. Yet, in the case of the Aguirre easement, when we carried out our survey, there had been no monitoring.

In Mexico, they had a monitoring methodology, and some landowners said they were familiar with it and had received information about it at the time of the contract negotiation (Peninsula de Lucenilla). In the surveys, however, the landowners did not mention the methodology. In the case of 20 Casas *ejido* the biological monitoring was done by the reserve's administration. The

Natural History and Ecology Institute was responsible for the legal monitoring but had not done it. The *ejido* said that there was no monitoring methodology even though the NGOs said they had one. El Carricito was another case in which the NGO indicated it was impossible to carry out ongoing monitoring because of the high costs of transportation to the site. The owner of Las Cañadas said that after the first three years of having established the easement, monitoring had not been constant. As in Ecuador, there were still some easements where no monitoring had been done yet.

Conclusions

We cannot determine if the existence of a monitoring methodology directly affects the success of easements because most of the easements have been successful, despite the existence and/or the quality of the monitoring. Also, if we examine the easements in Ecuador that had some problems with compliance, we could not state that the presence of a monitoring methodology had caused them. Moreover, in all cases in both Ecuador and Mexico, the landowners did not seem very interested or involved in the monitoring methodology. In all the countries (Costa Rica, Mexico, and Ecuador) it seems that the monitoring done has been informal and not systematic. From the comments made by the landowners, we observed that they were more interested in the visits made to the property than the way in which the monitoring was done.

Assumption 15: The greater the quality of the monitoring, the greater the success of the conservation easement.

Results

In terms of the quality of the monitoring, we reviewed whether a monitoring methodology existed, the number of times per year that the visits were made, and the aspects monitored (i.e. legal and/or biological). In general, formal monitoring was not occurring at the easement sites reviewed. Typically, the easements were visited sporadically, there was no pre-established number of visits per year, and there were differences in the number of visits to each easements, depending on the agreed-upon activities. Therefore, there were easements that were continually visited because a project, such as ecotourism or harvesting of non-wood products, had been established. Even though NGOs generally did not conduct exclusive visits for monitoring, they maintained that the easements were not abandoned. In many cases, the core base for the monitoring of an easement was the trust and the relationship established with each of the landowners.

In Mexico, it seemed that not all the landowners were aware of what was being monitored. In some cases what the NGO described did not coincide with what the landowner said (Las Cañadas). Also, in some easements the legal aspects were not being monitored (e.g., 20 Casas *ejido* and Moxquivil). Monitoring and reports were done only for La Unica, because it was the only site surveyed that had a social fund for the landowner, and in which Pronatura agreed to conduct the monitoring.

Cost and distance were mentioned as obstacles, but it seemed that one way Pronatura had worked

to resolve this was through its decentralized structure. This structure ensured representation and autonomy in each local regions and was of great help to carry out the monitoring.

In Ecuador there was no agreement between the NGOs and the landowners over which aspects should be monitored. In the case of Lima, the owner said that he did not know exactly what was being monitored during the visits. In the case of Health & Habitat, the NGO said that they were not monitoring the legal aspects while the owner thought that they were doing so.

Probably, as analyzed in assumption 14, the owners may have associated the quality of the monitoring with the visits made by the NGO to the site. The owners seemed to trust these institutions, and their presence was fundamental.

Conclusions

It seems that, for most easements, there was a monitoring methodology but the quality varied greatly among easements and countries. Since all the easements have been successful and there have been no conflicts, it is unclear how important monitoring has been to date. If a compliance failure were to occur, perhaps at that moment, we could determine how important the quality of monitoring is. It is worth reemphasizing, however, that if there had been better monitoring in all the countries, it would have been easier to estimate the level of success of the easement for this study – as well as for general management purposes.

5.7. Personal and Socio-Economic Variables

There might be other factors or variables affecting the success of a conservation easement that were not directly included in the assumptions tested in this study. In order to consider this possibility, we analyzed how these other factors could affect the signing of the contract, the level of compliance with the contract, and the reduction in threat level. The results of this analysis are presented in this section. We did not include data from the *ejidos* and the NGOs because this information is not relevant for this type of owner. Our sample included eight landowners from Mexico and Ecuador, and one from Costa Rica.

Landowner Age

In general, we did not find a strong relationship between the age of a landowner and the success of an easement even though there might be a connection in terms of easement establishment. The age range in the three countries was 33-72 with a mean of 51. Most of the owners were more than 40 years old.

In countries like Ecuador, Mexico, and Costa Rica these are ages in which people's careers are well established, they have bank accounts, and their children are grown. It is possible that, given this situation, they felt comfortable taking the risk trying something new, such as an easement. In this regard, age might be a determinant factor for the establishment of an easement. Also it might affect success, but since our sample size was so small and we did not have any cases of unsuccessful easements, we could not determine if this connection exists.

Landowner Profession

The owners tended to be persons with lucrative careers – for example, businessmen, coffee growers, local guides, and attorneys. As mentioned in the previous section, it is possible that they

felt well established and comfortable in their professions and, as such, were more inclined to take the risk of signing a conservation easement. Therefore it is possible that the profession of the landowner – or at least the profitability associated with the profession – is a determinant factor in the establishment of a conservation easement. Likewise, it might influence the level of success. Unfortunately because we did not have cases of unsuccessful easements, it was difficult to establish this connection.

Landowner Education

Most landowners had high levels of education. The range was 6-27 years of schooling with an average of 16. This is a relatively high level of education, especially for the rural areas where the easements are located. It is well-known that in many societies there is a relationship between the level of education and the level of environmental awareness. Perhaps, through their schooling, these landowners have had the opportunity to learn about environmental issues and understand the importance of conservation and rational use of natural resources. There is also a relationship between the type of profession and the years of schooling, therefore the connection we observed might be due in part to the association with the type of profession. Again, the number of years of schooling could be a determinant factor in the establishment of a conservation easement, but we must take into consideration that two landowners had fewer years of education (6 and 8); this implies that this variable is not the only major influencing factor.

Landowner Nationality

In Mexico and Ecuador, almost all the landowners were citizens from these countries (except for Health & Habitat - a North American NGO). Therefore it does not seem that this variable has an effect. Nevertheless, it's worth examining the case of Costa Rica, where the one individual landowner with an easement was a US citizen and the two other landowners in the process of signing easements were also US citizens. The way the 11 easements were established along the Biological Corridor Talamanca-Caribe involved funding from The Nature Conservancy (TNC) in the US to purchase the land, establish the easements, and donate the land to a Costa Rican NGO. Therefore, in Costa Rica, it seems that nationality has been an important variable. It might be because foreigners have more economic means to purchase land and many of them are looking for a place to escape the hectic lifestyle and/or retire. Those still employed tended to have careers in ecotourism. In general they came to enjoy nature and it would be understandable that they were interested in conservation easements.

6. Conclusions

During the last 10 years, conservation easements have become popular as private conservation tools in Latin America. Conservation easements are seen as a conservation alternative in which private landowners, not government agencies, manage and protect resources through management plans designed to meet landowners' current and future needs and to ensure the sustainable use of the natural richness found on the property.

To date, it has not been clear under what conditions conservation easements are successful and under what conditions they are not. This study was a first attempt to fill this gap in information. In fact, a lot of the data shows that easements have had a positive impact in the conservation of some areas and the biodiversity found in them. While easements may become an important tool

in Latin America, we observed that its potential varies depending on the situation. Therefore we suggest that individuals and entities interested in this tool should take into consideration the conclusions offered here. Some of these conclusions summarize the situation in the participating countries, while others offer general lessons that we hope will be useful to other countries.

6.1. General Conclusions and Recommendations

The conservation easements tool has been introduced in Latin American countries through several models, presenting different advantages and disadvantages in each country.
Although the purpose behind the conservation easement in the three countries has been similar, each country has used a different model to generate landowner interest in conservation easements. In Costa Rica, the first easements were established in order to use funds available through TNC to buy biologically important areas and establish easements that would later be transferred to an environmental conservation NGO. In this case, the model is, in practice, one of purchasing and donating land for conservation purposes. Recently, as the tool has evolved and become more established, Costa Ricans are working more closely with individual landowners to establish more conventional easements.

In Mexico, conservation easements have been welcomed by different sectors of society and have been used as a complementary strategy to protect priority areas in and outside of NPAs. In the case of NPAs whose corresponding decrees do not include the expropriation of land, but only limit development rights, conservation easements have helped landowners to formalize these limitations in exchange for private compensations and governmental support. In general, easements arose from several needs and opportunities. First, it was important to prove that this private conservation tool could be legally established and to determine its effectiveness and scope. It was believed that the Mexican government lacked the financial and human resource capability to address all conservation and natural resources management needs. Simultaneously, many biologically important properties were at the hands of private owners but had no legal protection. Thus, easements seemed to fill an important niche.

Finally, in the case of Ecuador, the advantages of the conservation easements were promoted to open the way for other easements to be established and to convince a few landowners to establish easements as model cases. More generally, easements were used to influence the way landowners and authorities viewed conservation on private lands.

The purpose of this study was not to analyze the introduction of this tool in the different countries. Nevertheless, we were able to observe that these three models have specific advantages and disadvantages. In the case of Costa Rica, the model of purchasing the land seemed to be effective in protecting the properties, but it did not motivate the original owners to protect the land – they simply sold their land and probably moved somewhere else to develop another property.

In the case of Mexico, the impetus to establish easements varied widely and included direct visits to landowners to tell them about the tool, as well as landowners approaching Pronatura to express interest in establishing an easement. In both cases the landowners were motivated by and convinced of the benefits obtained through conservation and rational use and management of the

natural resources. More broadly, Pronatura does not consider a conservation easement a goal, but rather a tool to complement and strengthen conservation efforts.

In Ecuador, after a long marketing process, they were able to make the tool well known and establish three initial easements, one of which seems to be quite successful. To date, this model has focused on convincing the landowner to establish an easement and, as such, may not fully respond to the needs or interests of the landowners.

The practical experience applying conservation easements should be incorporated in the theoretical models. We observed that there is a major gap between theory and practice in terms of the application of conservation easements. In theory, the characteristics of this legal tool are based on the "original" model imported from the United States – a model that has been heavily adapted by each country. On the one hand, this difference should not be so surprising because there is always a need to adapt a model to the local situation. However, in this study, it meant that there was a disconnect between the assumptions we set out to test and the on-the-ground reality. Several of the assumptions were based on the theory and the "original" model, but in practice and according to the laws of each country, these assumptions were not applicable. What we learned is that we must stop thinking about easements based on the Costa Rican or American models and incorporate to the theory existing knowledge about easement application in other countries.

To better understand the success of the easements in Latin America, we need more in-depth studies. Ideally, we would have measured the success of conservation easement in this study by measuring the changes in the status of the biodiversity or natural resources that the easements were trying to protect. We also would have examined in more depth how or if the easements were complementing other conservation strategies. Finally, we would have measured expected changes over several stages of easement implementation (using a results chain or similar tool) to determine if there had been progress towards conservation.

In our study, we did not have the resources for this type of assessment. There was not enough information about the properties to analyze how natural resource status had changed since the establishment of the easement. Moreover, in most of the easements in Latin America, it was still too early to determine if any changes in the status of biodiversity could be attributed to the easements. Therefore, we had to use proxy indicators of success: mainly, threat reduction and the level of compliance with the contract. Even with these indicators, we had to use subjective methods to gather the data (e.g., landowner surveys and perception-based questions). If the conservation community in Latin America wants to continue using this tool, it needs to understand under what conditions they are successful and under which conditions they are not. This study offers a starting point, but to truly understand how successful conservation easements in Latin America have been, better baseline and ongoing monitoring data are needed.

6.2. Contribution to Conservation

Conservation easements in the three countries seem to have been effective in reducing threats in the properties. According to the results of this study, most of the easements in Costa Rica, Mexico, and Ecuador had been successful or were on the road to being successful. Most of

them were reducing the threats at the site, and landowners were complying with their contracts. If we consider only the immediate properties where the easements were located, it seems those properties were being conserved.

Conservation easements are not the right tool to stop threats outside the properties. In general, the landowners and the NGOs implementing the easements said that the owners of the easements have complied with the terms of the contracts and have seen a reduction in the threats to the site. However, there were instances in which the easements were unable to reduce some threats. These threats were usually major threats to the area in general and/or threats that were beyond the control of the landowner. For example, in El Carricito (Mexico) they had not been able to stop large scale illegal logging. Likewise, in the case of Emily Yozell (Costa Rica), tourism development was a major threat in the region, but no changes were seen towards reducing this threat since establishing the easement. The lesson for those interested in easements is that they should not expect the easements to solve larger scale problems or reduce threats occurring outside the property. To deal with these types of threats, other conservation tools – private or public – are needed.

Conservation easements are an innovative tool that provides legal protection for the conservation of private properties, but they should not be used as the only solution to environmental problems. Ideally, they should act as a major component within more comprehensive conservation initiatives that might include several different strategies, such as environmental education, community development, and ecosystem management actions.

There is an association between an easement and an increase in conservation practices among neighboring landowners. This connection was most apparent when the owners of an easement were individual owners (like most cases in Mexico and Ecuador). We also observed in Mexico, that the possibility of other incentives, such as those offered by Pronatura, may be an additional way to generate interest to protect an area. On the other hand, as observed in Costa Rica, the association between an easement and conservation practices of neighboring landowners did not exist when the owner was an NGO. It might be that a private individual interacts more with their neighbors than an NGO. As such, a private owner would be more likely to influence the attitudes and practices of the neighbors.

The proximity to a natural protected area does not seem to influence the ability of an easement to reduce the threats to the easement property. This result surprised us very much because it seems obvious that by establishing an easement near a natural protected area, one would strengthen the protection of the site and generate mutual benefits. However, the results of the study did not support this. We had cases near a natural protected area and cases far from any protected area, but according to our methods, all the easements were successful. Therefore, the proximity to a natural protected area *per se* was not a common denominator among the easements that were successful under the parameters of this study.

However, we did not analyze if the easements were contributing to conservation within a greater context –for example, if having an easement near a natural protected area contributes to the overall protection of the entire area (not only the success in the small area with the easement). If

we had included this aspect, we might have found that the easements were contributing to the success of the natural protected areas.

6.3. Creating a Conservation Easement

There is a fairly common profile for the type of landowner that decides to establish a conservation easement. Many factors can influence the decision to establish a conservation easement and the degree of success of the easement. This study tried to examine several assumptions aimed at linking the signing of a contract and the level of success with a determining factor or set of factors. However, we recognize that the signing of the contract and the level of success of the easement also might depend on personal and socio-economic factors. In fact, we observed a common profile among the landowners who did sign an easement. They tended to be middle-aged or older people with established careers. Generally they did not depend on their land to make a living. Perhaps, for this reason, they felt comfortable taking the risk to use a tool that restricted economic activities on their property. Also, they tended to be people with a high level of formal education. Consequently, they might have had the opportunity to learn about environmental issues and understand the importance of conservation through their studies.

Finally, in the case of Costa Rica, all landowners aside from the CBTC, a conservation NGO, were from the United States. This was probably because of recent trends for people from other countries to move to Costa Rica to retire and/or enjoy its peaceful environment and natural beauty. Generally, these people had profiles similar to the above – they were well-established and had enough resources to feel comfortable limiting the activities on their properties without affecting their income. Perhaps many of them had learned about easements in the United States. Some of them also had ecotourism businesses that benefit from an undisturbed landscape.

Environmental awareness might be a major characteristic of landowners willing to establish a conservation easement, but we recommend offering other benefits to motivate the landowners. All the landowners seemed to have a high level of environmental awareness but they said that other benefits also motivated them to establish the easement. These benefits included avoiding tourism or infrastructural developments and economic or financial benefits. These additional benefits seem to be crucial to the decision to sign the contract. For example, Mr. Alfonso Gortaire from Ecuador was an individual who was highly committed to the environment, but ultimately he refused to sign a contract because of the high costs associated with the process. Therefore, it seems important to guarantee that the landowner is aware of the benefits offered by the easement. Likewise, it is important to understand each landowner's motivations and try to offer concrete benefits to respond to those motivations. These benefits could include something as tangible as financial or technical support or maybe something more esoteric such as being recognized by the community as a leader in conservation.

The lack of tax exoneration may not be an insuperable obstacle for the creation of an easement. The model for easements used in Latin America comes from the United States, but with a big difference – in the USA, owners can reduce their taxes by establishing a conservation easement. However, in the cases reviewed, the lack of tax exoneration did not seem to be an obstacle for the establishment of easements in Latin America. Regardless of the absence of this

incentive, all the landowners said that they would constitute their easements all over again and that they would establish new ones in their other properties. In regards to this conclusion, we need to mention that we were unable to interview many of the landowners that were interested in establishing an easement but did not establish one. If tax exoneration had been an option, these individuals may have been more interested in establishing an easement. Moreover, there may be some people who did not even express interest in an easement but who might do so if they knew that this benefit existed.

The costs and steps associated with establishing a conservation easement need to be reduced. We observed some cases where people were interested in the tool but ultimately decided not to establish an easement because the costs were too high. We mentioned earlier the case of Mr. Gortaire in Ecuador. A similar thing happened in Costa Rica, where many landowners in the Monteverde area decided that they could continue protecting their land without incurring the costs associated with an easement. Also, in Costa Rica, there was the case of Hacienda Barú, where the owner was ready to establish an easement, but because his property was part of a wildlife refuge, he had to wait for the Ministry of the Environment and Energy to approve his management plan. These cases imply that the costs and steps have been obstacles for establishing a conservation easement. It is important to find ways to avoid these obstacles. Possible options could be to obtain funding from donors to help the process of signing and registering the contracts, work with the government to reduce the required steps, and ask the NGO promoting the easements to become more involved in the process and transfer part of the load from the landowner to the NGO.

Systematic planning has helped obtain funding for conservation and helped implementing agencies be more strategic about where to establish easements. We could not conclude that the identification of conservation priorities by the NGO and the coincidence of these priorities with the conservation targets in the easement contracts were determining factors for the success of an easement. However, we observed in the case of Mexico that Pronatura used a systematic methodology to identify the sites where easement should be established. This system helped them obtain funding to protect the sites and establish the easements. We also found that Mexico was able to protect larger areas under easements. This system probably helped them be more strategic in site selection and therefore, protect larger extensions of land with higher biological priority.

A good baseline can support the strategic selection of sites for conservation easements. Considering the three countries, the baselines from Mexico are the most advanced, while those from Costa Rica are of medium quality, and those from Ecuador are non-existent or incipient. In the case of Mexico, the easements answered a need for conservation stated in previous studies and in the baseline. Pronatura invested time and resources to select the sites for the easements and understand which resources should be protected at the sites. Even though each country must adapt to its own circumstances, it is important to work towards improving the quality of the baselines in general, because they justify the creation of an easement and facilitate measuring the effectiveness of the conservation efforts. With a good baseline one can see the results, positive and negative, of the implementation and management of an easement. In terms of the quality of the baseline data, efforts should go beyond just simple descriptions of the site.

It is unclear if the knowledge about the contract on the part of the landowner affects the level of compliance or the success of the conservation easement. Regardless of the complexity of some of the contracts, all the landowners had good knowledge of the content of the contracts, the limitations imposed, and the repercussions. In most of the easements, the owners had complied with their contracts and had seen a reduction in the threats to the site. We must take into consideration that the threats in many of the properties cannot always be solved through an easement (i.e. mining or poaching). However, it is generally good practice to ensure that the owners are familiar with their contracts and how the easements function, regardless of its effect on the overall success of the easement.

It is unclear if there is a relationship between the quality of a contract and the success of the easement. The quality of the contracts varied among countries and easements. Nevertheless, all the easements were successful, which implies that there is no clear relationship between the quality of the contract and the success of the easement. In reality it was difficult and artificial to try to compare the quality of the contracts because the conditions under which they operate were different in each country. Also, the legislation in each country was different, the needs for conservation, protection, and management of natural resources had different priorities, and each easement had it own particular problems. What was evident is that each contract needs to include all the topics considered in this study to define a high quality contract – not necessarily to guarantee the success of an easement, but to strengthen it.

6.4. Managing and Monitoring a Conservation Easement

It is important to find ways to ensure that every easement (including easements in perpetuity) has sufficient funds for management and legal defense. In all the cases reviewed, the NGOs facilitating the easements had tried to find ways to address their contractual obligations. However, with the exception of Costa Rica, only the short-term easements had concrete plans. One reason for this is that it may be easier to obtain funding for management and legal defense of a short-term easement, compared to one in perpetuity. Likewise, if one wants to motivate a landowner to renew a short-term contract, one needs resources to address all the obligations. Even though we cannot specify with certainty the reasons for the lack of funding for easements in perpetuity, it is worth having this in mind when selecting and designing a conservation tool. It is also important to understand the importance of securing these resources.

A more systematic monitoring methodology (with specific indicators) is needed to measure success. In most cases monitoring has been done in an informal and non-systematic way. It is therefore difficult or impossible to determine the degree of success of the easements. In this project, in order to evaluate the degree of biodiversity conservation we had to use subjective criteria, such as threat reduction assessment and level of compliance with the contracts, because we did not have good baseline data. Also, we did not have monitoring data about the status of the biodiversity targets or natural resources and the changes that have occurred since easement establishment. There were no data on the intermediate results expected either, which made it impossible to determine if they were on track. Even though these problems complicated our study, there are more important implications because the organizations promoting and implementing the easements cannot adequately evaluate the level of success with the information they currently have.

Improving the quality of monitoring methods and involving landowners more in easement management (including monitoring) could positively influence the functioning of the easements. The Mexican easements seem to be more effective than those in Ecuador possibly in part because Pronatura has a monitoring system, a stronger presence in the area and has worked more closely with landowners. Although it may not be clear that any one of these alone has a strong influence on easement success, they are all generally considered good practices. In particular, having a strong monitoring system and working with landowners to implement it would, at a minimum, provide better data for evaluating easement success. They may also help landowners learn more about the status of the resources on their property and how to use them in a sustainable way.

It is important to identify monitoring methods and indicators that are not too costly or complicated in order to ensure that organizations will use them. A main reason given for the lack of frequent and systematic monitoring was the cost. It is crucial to identify alternative methods for monitoring that reduce costs and generate useful information to evaluate the status of the natural resources. Joint activities with the local organizations and landowners could be crucial to reduce costs and improve the quality of monitoring. Also, simple and cost effective monitoring plans can be constructed by explicitly specifying the changes expected as a result of a conservation easement (for example, see Conservation Measures Partnership).[10] One could then use this framework to focus monitoring efforts and ensure that only the absolutely essential information is collected.

6.5. Final Words

Even though we were not able to obtain the precision and depth we originally intended for this study, this effort has helped increase our understanding of how conservation easements are being applied in Latin America, their advantages, their challenges, and limitations. Conservations easements are an important tool for private conservation in many countries. Nevertheless, it is important to consider what one is trying to conserve and decide if a conservation easement is the right tool within that context. We hope this study is useful to those individuals and institutions that are considering using this tool. We also hope that there are other similar efforts that question in an open, self-critical, and constructive way which are the best strategies and tools – be it conservation easements or other tools – for the conservation of our natural resources and biodiversity.

[10] The Conservation Measures Partnership (www.conservationmeasures.org) is a consortium of conservation NGOs that have prepared a common process for strategic planning (including monitoring plans) for conservation projects. See: *Open Standards for the Practice of Conservation,* available in English, Spanish, and French, available at their web site.

Annex A: Summary of the Assumptions and Indicators

Factor	**Assumption**	**Impact Indicators (Dependent Variables)**	**Causal Indicators (Independent Variables)**
Biodiversity Conservation (Success of the Conservation Easement)	----does not apply---	• Threat reduction • Level of compliance with the contract • Signing of the contract • Presence/absence of conflicts • Level of satisfaction of the landowner with the conservation easement • Presence of conservation practices among the neighboring landowners	---- does not apply ---
Characteristics of the Property	1. The closer to a protected area, the greater the effectiveness of a conservation easement	• Threat reduction • Level of compliance with the contract	• Distance (in kilometers) from the easement to the protected area
	2. The presence of an easement encourages the number of conservation practices among neighboring private landowners	• Presence of conservation practices among the neighboring landowners	• Existence of the easement
Characteristics of the contract	3. The higher the quality of the contract, the more successful the conservation easement	• Threat reduction • Level of compliance with the contract	• Quality of the contract
Characteristics of the Owner of the Servient Estate	4. The effectiveness of an easement increases when the landowner is aware of the implications and scope of the conservation easement contract	• Threat reduction • Level of compliance with the contract	• Degree of knowledge and understanding of the contract by the landowner
	5. The greater a landowner's environmental commitment, the higher the probability that he/she will sign the contract; and once signed, it is more likely that he/she will comply with it.	• Signing of the contract • Compliance with all the clauses in the contract	• Level of landowner compromise with the environment

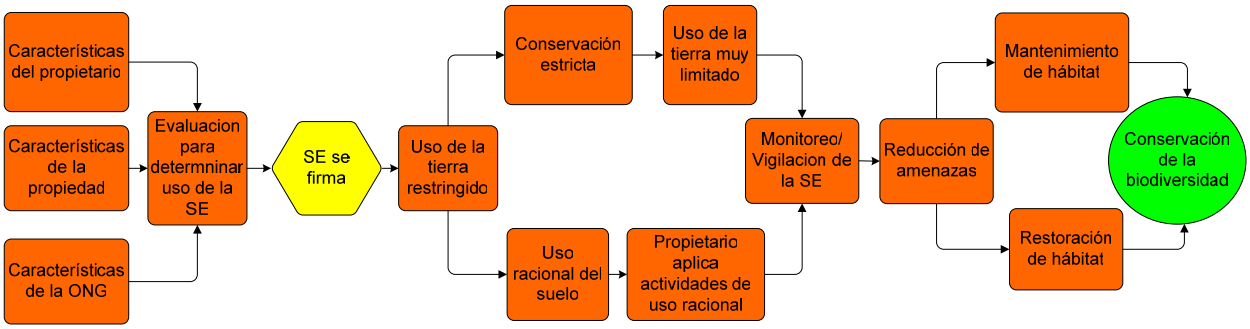
Factor	Assumption	Impact Indicators (Dependent Variables)	Causal Indicators (Independent Variables)
	6. The signing and implementation of an easement generate benefits for the landowners.	• Level of satisfaction of the landowner with the conservation easement	• Signing of the contract • Implementation of an easement
	7. The effectiveness of an easement is greater when the property belongs to only one owner as opposed to conservation easements on properties that belong to collective owners	• Threat reduction • Level of compliance with the contract	• Number of landowners listed in the property title • Type of landowner
Administration and Management of an easement	8. The effectiveness of an easement is greater when an NGO analyzes and sets priorities as to how it will address its obligation to manage, monitor, and defend (legally) the conservation easement.	• Threat reduction • Level of compliance with the contract	• Existence of a plan describing how the NGO is going to address their obligations • Existence of sufficient resources to manage the easement • Existence of sufficient resources to monitor easement • Existence of sufficient resources to legally defend the easement
	9. The protection of the land through an easement is more effective when: a) It is carried out by an NGO with clearly identified conservation priorities. b) The conservation target of the conservation easement coincides with the conservation priorities identified by the NGO.	• Threat reduction • Level of compliance with the contract	• Level of coincidence between the conservation target of the easement and the conservation priorities identified by the NGO

Factor	Assumption	Impact Indicators (Dependent Variables)	Causal Indicators (Independent Variables)
	10. Conservation easements are more effective when the NGO responsible for monitoring and enforcement is also the owner of the dominant estate, in contrast with cases where an NGO is not the owner of the dominant estate	• Threat reduction • Level of compliance with the contract	• Owner of the dominant estate
	11. The effectiveness of an easement is greater when an NGO is involved in the technical work, negotiation, creation, management, and monitoring in contrast with cases where there is no NGO participation	• Threat reduction • Level of compliance with the contract	• Involvement of an NGO with the technical work, negotiation, creation, management, and monitoring of an easement
	12. The effectiveness of an easement is greater when the landowner is involved in all the steps: technical work, negotiation, creation, management, and legal and biological monitoring	• Threat reduction • Level of compliance with the contract • Absence of conflicts in the preliminary negotiations and execution of the contract.	• Degree of involvement of the landowner with all the steps: technical work, negotiation, creation, management, and legal and biological monitoring of an easement
Monitoring and Enforcement	13. Conservation easements are more successful when they include the gathering of baseline data	• Threat reduction • Level of compliance with the contract	• Presence of baseline data for the easement
	14. Conservation easements are more successful when there is a methodology for monitoring and enforcement of the contract	• Threat reduction • Level of compliance with the contract	• Application of monitoring and enforcement methodology
	15. The greater the quality of the monitoring, the greater the success of the conservation easement	• Threat reduction • Level of compliance with the contract	• Quality of monitoring

Annex B: How We Measured the Factors in this Study

As explained in Section 2 (What We Did and How We Did It), we developed a results chain to show graphically, what the members involved in this study considered to be key elements for the implementation and success of conservation easements (see Figure 3). Several assumptions resulted from this chain, 15 of which were included in this study. In this Annex, we describe how we measured the dependent variables (impact indicators) and the independent variables (causal indicators) for each assumption. We organized this explanation according to the factors in the chain and the assumptions corresponding to each factor.

Figure 3. Results Chain for Conservation Easements



Factor: Biodiversity Conservation (Success of the Conservation Easement)

It would be ideal to measure the success of a conservation easement through changes in the status of the biodiversity that the easement is trying to protect. In this study, however, we did not have the resources to assess biodiversity status. Moreover, in most easements in Latin America, it was still too early to observe a change in the status of biodiversity that could be linked to the easements. Finally, there were almost no baseline data on biodiversity status for the properties under easement.

Therefore, we had to use other means for measuring the success of the conservation easements (our "impact indicator" – or dependent variable). For most of the assumptions in this study, we measured the success of conservation easements using two main indicators:

- Threat reduction and
- Level of compliance with the contract.

However, there were some assumptions where the impact indicator was not the success *per se* of the easement but some other intermediate result. For example, for Assumption 5, we were interested in determining the motivations to sign an easement. In this case, it did not matter if the easement was successful or not – what mattered was if the landowner was motivated to sign the contract. Therefore, the impact indicator for this assumption was the signing of the contract.

The table below presents how we measured impact under the different indicators used. In the following pages we describe for each assumption the causal indicators (independent variables) and the impact indicators that correspond to the indicators in the table below.

Impact Indicator	**Method**	**Detail/Comments**
Threat reduction	Threat Reduction Assessment (TRA)	For the easements existing for more than 3 years, we applied a threat reduction assessment adapted from the methodology described in *Is Our Project Succeeding: A Guide to Threat Reduction Assessment* (Margoluis and Salafsky 2001). We included 3 criteria to assess threat impact: 1) Area affected in relation to the entire site; 2) Physical destruction of the affected area; and 3) Fragility of the affected area. We did not include easements less than 3 years old because it was not reasonable to expect a threat reduction due to the easement in such a short period of time.
	Survey questions directed to the landowner	We also assessed the threat reduction with more general questions included in the survey. We asked, for example, what were the threats, how each threat had changed since the start of the easement, and in their opinion, what had caused this change.
Level of compliance with the contract	Survey questions directed to the implementing NGO	We asked which contract clauses were critical to comply and what was the degree of compliance. We also asked, in general, if there had been any type of conflict with the compliance of the contract and if any activity prohibited in the contract had occurred on the property.
Signing of the contract	Verbal verification from the implementing NGO	The study also included landowners that decided not to sign an easement, but there were very few in this category (1 each in Costa Rica and Ecuador). There were probably more, but those involved in the study did not know of other cases or had no way of contacting the owners.
Presence/absence of conflicts	Survey questions directed to the landowner Survey questions directed to the NGO implementing the easement	We considered the presence/absence of conflicts during the: technical work, negotiation, creation, management, and monitoring). For each of these phases we asked it there had been any conflicts and if they had been resolved to any degree. We asked both the landowner and the implementing NGO because there could be a difference in opinion over the presence or absence of conflicts.

Impact Indicator	Method	Detail/Comments
Level of satisfaction of the landowner with the easement	Survey questions directed to the landowner	We asked if the landowner was happy with the easements and if not, why. We asked if they felt they had received benefits such as: title of the property; protection against encroachment; access to financing; tax reduction; etc. We also asked if they would recommend the use of an easement and if they would create one all over again.
Conservation practices among the neighboring private landowners	Survey questions directed to the landowner Survey questions directed to the NGO implementing the easement	Among the conservation practices, we included: • Establishment of an easement • Interest in establishing an easement • Interest in other conservation tools • Changes in how they manage and protect their land

Factor: Characteristics of the property

Assumption 1: The closer to a protected area, the greater the effectiveness of a conservation easement

Impact Indicators: [11] Threat reduction

Level of compliance with the contract

Causal Indicator[12]	Method	Details/Comments
Distance (in kilometers) from the easement to a natural protected area	Survey questions directed to the landowner Survey questions directed to the NGO implementing the easement	To cross-check responses, we asked both the owner and the NGO to answer this question. The easements located within 10 km of a natural protected area were considered to be near. This is a distance that the SEPA members considered close enough to have an influence. We also considered if the easement was located within, adjacent, or outside a natural protected area.

Assumption 2: The presence of an easement encourages the conservation practices of neighboring private landowners

Impact Indicators: [13] Presence of conservation practices among neighboring landowners

[11] For a description of the impact indicators, see the section on the success of a conservation easement.
[12] In scientific terms, this is referred to as the independent variable.

Causal Indicator	Method	Detail/Comments
Presence of a conservation easement	Verbal verification from the implementing NGO	Among the existing easements, we tried to find out if the landowners and/or the implementing NGOs had noticed an increase in conservation practices among the neighboring landowners. See the explanation about the impact indicators above in the section Success of a Conservation Easement for an explanation of how we defined "conservation practice."

Factor: Characteristics of the Contract

Assumption 3: The higher the quality of the contract, the more successful the conservation easement

Impact Indicators: [14] Threat reduction

Level of compliance with the contract

Causal Indicator	Method	Detail/Comments
Quality of the contract	Survey questions directed to the NGO implementing the easement	We evaluated the quality of the contract in terms of: • Clearly defined conservation goals • Clearly defined limitations • A direct relationship between the goals and the limitations • Consideration of technological or scientific advances • Alternative methods for conflict resolution • Zoning of the property • Development of a management plan • Provision to grant authorization to the implementing NGO to legally defend the easement

Factor: Characteristics of the Owner of the Servient Estate

Assumption 4: The effectiveness of an easement increases when the landowner is aware of the implications and scope of the conservation easement contract

Impact Indicators: [15] Threat reduction

Level of compliance with the contract

[13] For a description of the impact indicators, see the section on the success of a conservation easement
[14] Idem.
[15] Idem.

Causal Indicator	Method	Detail/Comments
Degree of knowledge and understanding of the contract by the landowner.	Survey questions directed to the landowner Survey questions directed to the NGO implementing the easement	We inquired how much the landowner knew about the contract. We considered aspects such as: did they know what was being conserved with the easement, the limitations and prohibitions of the easement, the duration of the easement, who hadthe obligation to do the monitoring, which was the dominant estate, and what would happen to the easement were the property to change ownership. We asked some of these questions to the implementing NGO to verify the answers.

Assumption 5: The greater a landowner's environmental commitment, the higher the probability that he/she will sign the contract; and once signed, it is more likely that he/she will comply with it..

Impact Indicators: [16] Signing of the contract

Level of compliance with the contract

Causal Indicator	Method	Detail/Comments
Level of commitment with the environment on the part of the landowner.	Survey questions directed to the landowner	We asked first why they signed the contract. Later we asked a series of questions (open- and close-ended) to see if the landowners tended to have a high level of commitment with the environment. We asked if they were interested or had participated in environmental conservation activities. We asked – for example- if they managed their land to improve the ecology, if they contributed with time or money to an ecological cause, and if they belonged to an ecological committee or group.

Assumption 6: The signing and implementation of an easement generate benefits for the landowners

Impact Indicators: [17] Level of satisfaction of the landowner with the easement.

Causal Indicator	Method	Detail/Comments
Signing of the contract	Verbal verification from the implementing NGO	This assumption is unusual because the causal indicators have been used as indicator of success in other assumptions. We wanted to see if the people signing and implementing easements were receiving benefits.
Implementation of an easement	Verbal verification from the implementing NGO	

[16] Idem.
[17] Idem.

Causal Indicator	Method	Detail/Comments
		As described in the section about success of the easements, we asked if the owner was or was not happy with the easement, and why. We asked if they felt they had received benefits such as: title of the property; protection against encroachment; access to financing; tax reduction; etc. We also asked if they would recommend the use of an easement and if they would create an easement again.

Assumption 7: The effectiveness of an easement is greater when the property belongs to only one owner as opposed to easements on properties that belong to collective owners.

Impact Indicators: [18] Threat reduction

Level of compliance with the contract

Causal Indicator	Method	Detail/Comments
Number of landowners listed in the titles	Survey questions directed to the landowner Survey questions directed to the NGO implementing the easement	We asked the questions to both the landowner and the NGOs to verify the answers.
Type of landowner	Survey questions directed to the landowner Survey questions directed to the NGO implementing the easement	We asked the questions to both the landowner and the NGOs to verify the answers. We asked if the landowner was an individual, *ejido*, community, indigenous community, NGO, association, or other.

Factor: Administration and Management of a Conservation Easement

Assumption 8: The effectiveness of an easement is greater when an NGO analyzes and sets priorities as to how it will address its obligation to manage, monitor, and defend (legally) the conservation easement.

Impact Indicators: [19] Threat reduction

Level of compliance with the contract

[18] Idem.
[19] Idem.

Causal Indicator	Method	Detail/Comments
Existence of a plan to show how the NGO will address their obligations	Survey questions directed to the NGO implementing the easement	We asked if there was a plan, if it was being implemented, or if they were in the process of developing it. We asked what was the duration of the easement to have an idea of how many years of financing were needed.
Existence of sufficient resources to manage the easement	Survey questions directed to the NGO implementing the easement	We asked how many years of financing they had for management.
Existence of sufficient resources to monitor the easement	Survey questions directed to the NGO implementing the easement	We asked how many years of financing they had for monitoring.
Existence of sufficient resources to legally defend the easement	Survey questions directed to the NGO implementing the easement	We asked how many years of financing they had for legal defense

Assumption 9: The protection of the land through a conservation easement is more effective when:

a) It is carried out by an NGO with clearly identified conservation priorities.

b) The conservation target of the CONSERVATION EASEMENT coincides with the conservation priorities identified by the NGO.

Impact Indicators: [20] Threat reduction

Level of compliance with the contract

Causal Indicator	Method	Detail/Comments
Level of coincidence between the conservation target for the easement and the conservation priorities identified by the NGO	Survey questions directed to the NGO implementing the easement	We asked the implementing NGO if there was coincidence between the institutional conservation priorities and the conservation target of the easement. (It was not the best way or the least subjective way to test this assumption – not surprisingly, all NGOs said there was full coincidence between the conservation goals and their organization's conservation priorities)

[20] Idem.

Assumption 10: Conservation easements are more effective when the NGO responsible for monitoring and enforcement is also the owner of the dominant estate, in contrast with cases where an NGO is not the owner of the dominant estate

Impact Indicators: [21] Threat reduction

Level of compliance with the contract

Causal Indicator	Method	Detail/Comments
Owner of the dominant estate	Survey questions directed to the NGO implementing the easement	We asked who the owner of the dominant estate was and who had the responsibility for monitoring and enforcement of the easement.

Assumption 11: The effectiveness of an easement is greater when an NGO is involved in the technical work, negotiation, creation, management, and monitoring in contrast with cases where there is no NGO participation

Impact Indicators: [22] Threat reduction

Level of compliance with the contract

Causal Indicator	Method	Detail/Comments
Involvement of the NGO with the technical work, negotiation, creation, management, and monitoring of the easement	Survey questions directed to the NGO implementing the easement	We asked the NGO if they were involved with the technical work, negotiation, creation, management, and monitoring. Each phase is described as follows: Technical work: activities such as baseline study, maximum land use capacity, zoning and limitations, etc.; Negotiation: the process involving the landowners from the first contact, training, legal and technical issues, up to the drafting of the easement contract; Creation: signing of the easement; Management: all those activities related to the administration of the easement (i.e. financing, operation, control, protection, etc.) needed for the effectiveness of the easement; Legal or Biological Monitoring: the monitoring of the compliance with the legal obligations and/or the conservation goals established in the easement

[21] Idem.
[22] Idem.

Assumption 12: The effectiveness of an easement is greater when the landowner is involved in all the steps: technical work, negotiation, creation, management, and legal and biological monitoring

Impact Indicators: [23] Threat reduction

Level of compliance with the contract

Presence/absence of conflicts

Causal Indicator	Method	Detail/Comments
Degree of involvement of the landowner in all the steps: technical work, negotiation, creation, management, and legal and biological monitoring.	Survey questions directed to the landowner Survey questions directed to the NGO implementing the easement	We asked both the landowner and the NGO to verify the answers. We asked the landowners if they had participated in the steps to establish the easement (see Assumption 11 for a description of each phase). We also asked how involved they felt in the process and if they wanted to be more involved.

Factor: Monitoring and Enforcement

Assumption 13: Conservation easements are more successful when they include the gathering of baseline data

Impact Indicators: [24] Threat reduction

Level of compliance with the contract

Causal Indicator	Method	Detail/Comments
Presence of baseline data for the easement	Survey questions directed to the NGO implementing the easement	By baseline data, we mean a document or study that gathers information and data about the status of the site (the property) before executing the conservation easement. The baseline should indicate the health status of the biological resources, the social and economic pressures that might influence the biological status, and the legal situations that could also influence the biological status. A baseline is not just a site description. It should indicate the status of the resources and the key influencing factors. With this in mind, we asked if there was information on the health of the biological resources and the level of detail. We asked also if there was information about the social and economic pressures and the level of detail.

[23] Idem.
[24] Idem.

Assumption 14: Conservation easements are more successful when there is a methodology for monitoring and enforcement of the contract

Impact Indicators: [25] Threat reduction

Causal Indicator	Method	Detail/Comments
Application of a methodology for monitoring and enforcement	Survey questions directed to the landowner Survey questions directed to the NGO implementing the easement	We asked both the landowner and the NGO to verify the answers. We asked who was responsible for monitoring and enforcement and if there was a methodology for monitoring and enforcement. To understand if the methodology was being applied, we asked if there had been any monitoring visits, what was monitored, and what actions had been taken in case of failure to comply.

Assumption 15: The greater the quality of monitoring, the greater the success of the conservation easement

Impact Indicators: [26] Threat reduction

Level of compliance with the contract

Causal Indicator	Method	Detail/Comments
Quality of monitoring	Survey questions directed to the NGO implementing the easement	Quality was defined by: • Aspects monitored (legal and/or biological) • How many times per year monitoring was done • Type of measures taken in case of failure to comply.

Other Variables

We recognize that there can be other factors or variables affecting the success of a conservation easement that were not directly considered as part of the assumptions tested. To include this possibility, we also analyzed how these factors might influence the signing of a contract, the level of compliance with the contract and the threat reduction. The independent variables analyzed that could potentially affect the level of success were:

- Age of the landowner
- Number of years of schooling of the landowner
- Nationality of the landowner
- Profession of the landowner

[25] Idem.
[26] Idem.

Also, since several of the authors of and contributors to this report were familiar with the context in which the easements were located, we were able to apply their knowledge to help analyze the success of the conservation easements.

ANNEX C: Description of the Pronatura A.C. Land Conservation Program

(in Spanish only)

En 1997, Pronatura creó el Programa Nacional de Conservación de Tierras (PNCT), cuyo misión es la protección y manejo sustentable de tierras biológicamente importantes que sean propiedad de ejidos, comunidades y pequeños propietarios. El PNCT tiene como objetivo ofrecer a los legítimos propietarios de áreas biológicamente importantes una serie de 14 herramientas legales, financieras y de implementación que aseguren la conservación de estas pero que a su vez, doten de alternativas u opciones viables de sostenimiento a los poseedores de dichas áreas. Estas herramientas son: Declaratoria de terrenos particulares, Contratos Privados de conservación de tierras, ***Servidumbre Ecológica****, Usufructos, Arrendamientos, Reservas de Conservación Privada, Transferencia de derechos de urbanización, Fideicomisos de tierras, Donaciones condicionadas, Legados, Asociaciones civiles y mercantiles, Contrato de Asociación en participaciones, Limitaciones de uso y Compra de tierras. (Ver el Anexo C para una descripción más detallada del Programa de Conservación de Tierras)*

Para la ejecución del programa se determinaron tres fases de trabajo:

1. ***Legal****. Tiene por objeto garantizar la seguridad jurídica en el uso de instrumentos legales para la protección, conservación y manejo de tierras privadas y sociales.*
2. ***Económico/Financiero****. Su objeto principal es efectuar una serie de análisis que permita identificar los instrumentos económicos y financieros que incentiven a los propietarios para conservar sus terrenos, incluyendo la posibilidad de retribuir los servicios ambientales que estos prestan.*
3. ***Implementación****. Tiene como finalidad la creación de un equipo interdisciplinario para la implementación en sitio.*

El programa ha proporcionado no sólo la información vital para el desarrollo e implementación de novedosas ideas de conservación de tierras, sino que además ha despertado el interés y la participación social, lo cual indica que la sociedad puede y quiere intervenir en la gestión ambiental en México. Asimismo, ha demostrado que es factible que promotores y organismos ambientalistas (ONG's) se incorporen a este mismo esquema para así proteger los recursos naturales ya que es evidente que la intervención de los diferentes gobiernos no resulta suficiente. Actualmente, resulta imposible concebir la aplicación de una estrategia para el desarrollo sustentable sin la intervención de la ciudadanía organizada. Para alcanzar el aprovechamiento de los recursos naturales y asegurar la base del desarrollo económico nacional presente y futuro, se requiere obligatoriamente la presencia activa y consciente de los diversos grupos de la sociedad.

Con estrategias de conservación de tierras privadas como la descrita, es decir, estrategias que se puedan aplicar legalmente en cualquier parte de México, es posible asegurar áreas de importancia biológica puesto que las herramientas se podrían aplicar a cualquier tipo de ecosistema, dando lugar a la protección de selvas, bosques, humedales, desiertos y en general, a cualquier área que proporcione las condiciones necesarias para su sostenimiento.

Fue así como Pronatura A.C. en 1997 crea el Programa Nacional de Conservación de Tierras Privadas. Para el funcionamiento de este se eligieron varios predios en distintas partes del país que, justificados en su importancia biológica, superficie, disponibilidad y voluntad de los propietarios para conservar junto con otros criterios como, oportunidad legal y jurídica, fueron sometidos al programa en donde se otorgó asesoría e incentivos principalmente de índole jurídico a sus propietarios.

¿Cómo Trabaja el Programa Nacional de Conservación de Tierras?

El PNCT trabaja en varias líneas estratégicas, como se indica en la siguiente figura.

Figure 4. Líneas Estratégicas del Programa Nacional de Conservación de Tierras de Pronatura

Selección de sitios

Un aspecto importante del trabajo de PNCT es cómo seleccionan los sitios de trabajar. La gran diversidad de ecosistemas representados en México y la demanda creciente de propietarios y comunidades por conservar sus predios obligaron a que el PNCT estableciera una serie de criterios de priorización para la selección de sitios y adoptara sistemas y herramientas de apoyo para su ordenación y visualización. El Anexo C ofrece una descripción detallada de este proceso.

Línea de base

En cualquier sitio donde trabaja Pronatura, establece una línea de base. La línea de base puede ser definida como el documento de diagnóstico, evaluación, zonificación y seguimiento básico que debe ser considerado para todos aquellos predios que se pretendan incorporar a esta forma de conservación y que, finalmente permita conocer de manera esquemática las condiciones físicas de un área en concreto, determinando su importancia actual y definiendo las mejores

aptitudes de uso, las cuales siempre son consensuadas con los propietarios, para posteriormente definir el mecanismo de conservación que mejor se adecue a sus necesidades.

La línea de base es un instrumento inicial que no sólo ayuda en la definición de las áreas que se van a proteger, sino que también permite sentar las bases para realizar negociaciones con los propietarios de los sitios, elegir el mecanismo de conservación que mejor se adapte a cada situación.

Planes de manejo y monitoreo

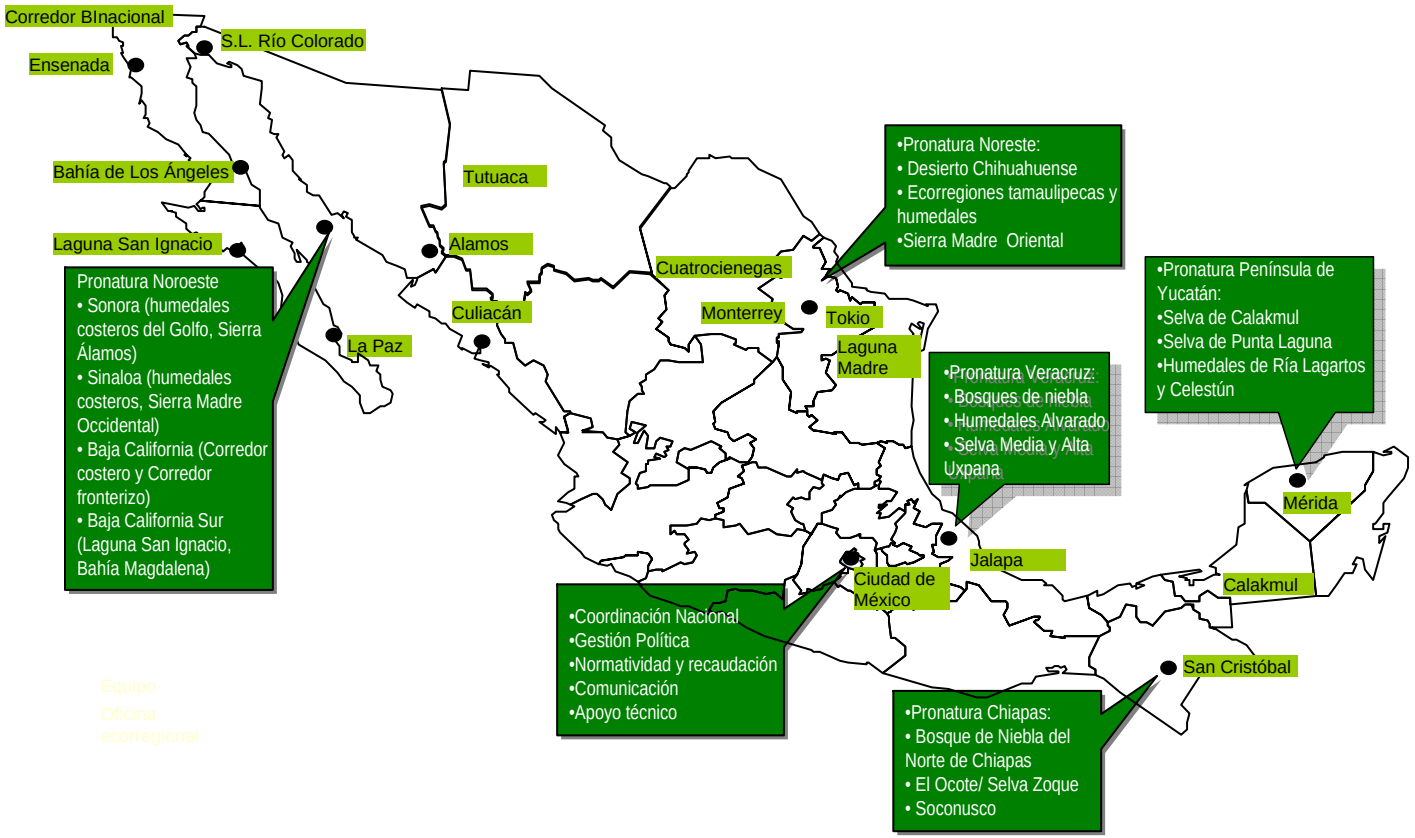
Cuando se establece alguna herramienta de conservación privada en un sitio determinado, Pronatura elabora un Programa de Manejo y un plan de monitoreo, que por un lado permite a los propietarios establecer acciones de conservación, protección y restauración de los ecosistemas, y por otro integrar actividades productivas viables y amigables con el medio natural.

El programa de manejo es el instrumento rector de planeación y regulación que define las actividades, acciones y lineamientos básicos para la conservación, protección y administración de las áreas sujetas a instrumentos desarrollados en el Programa.

Ejemplo de Cómo Pronatura México Selecciona los Sitios de Trabajo

Como se describe en el texto, Pronatura México utiliza un proceso sistemático para identificar dónde es estratégico trabajar, incluso dónde trabajar con las servidumbres ecológicas. La siguiente figura demuestra dónde trabaja Pronatura en México, mientras la tabla provee un ejemplo de una matriz llenada para la selección de sitios.

Figure 5. Ubicación de Oficinas de Pronatura México



Cuadro 2. Ejemplo de Llenado de Matriz para la Selección de Sitios

Sitio Nº	1	2	3	4	5
Nombre del Sitio/Ecosistema	**Tlalaxco/Bosque de Oyamel**	**Las Bufas /Bosque de pino encino**	**Tutuaca / Bosque Pino encino**	**Isla Espíritu Santo**	**Las Cañadas / Bosque de niebla**
Ubicación:	Municipio de Lerma, Estado de México	Las Bufas, Municipio de San Dimas, Durango	Municipio de Tutuaca, Estado de Chihuahua	Islas del Golfo, Baja California South	Huatuasco, veracruz
Propietarios:	Ejido Santa María Atarasquillo y Inmobiliaria Talaxco	Ejido El Maguey	Ejido Tutuaca, paraje Bisaloachic	Ejido Bonfil y Timoteo Means	Ricardo Romero González, José Romero González y Tanya de Alba Rodriguez
VALOR BIOLÓGICO					
1. Extensión del área proporcionalmente al bioma		10% de la extensión de bosque antiguo identificado por el CIPAMEX	8% de la extensión de bosque antiguo identificado por el CIPAMEX		Parte del 10% de los reductos de bosque de niebla del país
2. Integridad ecológica (funcional) de la región	Cercano al parque La Marquesa	Es el único bosque prístino en la región	Es el único bosque prístino en la región	Forma parte de la ANP Islas del Golfo	Paso de ser un rancho ganadero a una zona de conservación
3. Importancia como corredor biológico entre regiones	N/A	N/A	N/A	N/A	N/A
4. Diversidad de ecosistemas	Bosque de oyamel	Bosque de pino-encino	Bosque de pino-encino	Desierto Sonorense	Bosque de niebla
5. Fenómenos naturales "extraordinarios"		Cascadas, cañadas, mesetas y quebradas		Fauna marina asociada a la isla	Fuentes hidrológicas
6. Riqueza	Identificado 220 especies de aves y 32 de mamíferos	Identificado 352 especies de aves, destacando la Cotorra Serrana	Ubicación de más de 200 nidos de la Cotorra Serrana (Especie en peligro de extinción)	En las Islas se describen 235 especies de plantas, 115 especies de reptiles y 154 especies de aves terrestres.	
7. Servicios Ecológicos	Importante captador de agua de la cuenca del río Lerma	Importancia como captadora de agua para la cuenca	Importancia como generadora de agua / nacen 14 manantiales		Importancia para la cuenca y como captador de la comunidad de Huatusco

Sitio Nº	**1**	**2**	**3**	**4**	**5**
Nombre del Sitio/Ecosistema	**Tlalaxco/Bosque de Oyamel**	**Las Bufas /Bosque de pino encino**	**Tutuaca / Bosque Pino encino**	**Isla Espíritu Santo**	**Las Cañadas / Bosque de niebla**
8. Extensión	200 hectáreas de bosque de oyamel en buen estado de conservación	4,600 Hectáreas con un buen estado de conservación	2,500 hectáreas en estado originario.	10,000 hectáreas	320 hectáreas de bosque primario
9. Conectividad	Une dos manchones del Parque Nacional Miguel Hidalgo. Bosque de oyamel-pino			Forma parte del Área de Protección de Flora y Fauna Islas del Golfo de California.	
10. Endemismo	Se han ubicado 2 especies de ajolote y 6 especies más (cómo ratón dorado, ratón de los volcanes, zacatuche y conejo serrano).			Alto número de endemismos en varios grupos taxonómicos, principalmente de cactáceas, reptiles y mamíferos.	Presencia de poblaciones importantes de perdiz veracruzana
11. Especies migratorias	Aves	Aves	Aves	Aves	Aves
AMENAZAS					
12. Presencia de especies amenazadas o en peligro de extinción		Guacamaya verde, búho manchado, trogon orejón, chara pinta, cotorra serrana	34 especies de aves amenazadas, 14 en peligro		
13. Pérdida de la superficie original	La CORENA ha estimado una pérdida del 70% de la cobertura original	Uno de los últimos reductos de bosque antiguo de la Sierra Madre en Durango			
14. Fragmentación de la región					
15. Cambios en la densidad de la población	Invasiones por desplazamientos de grupos marginados de la ciudad de México			Se están vendiendo 96 hectáreas a propietarios privados	

Sitio Nº	**1**	**2**	**3**	**4**	**5**
Nombre del Sitio/Ecosistema	**Tlalaxco/Bosque de Oyamel**	**Las Bufas /Bosque de pino encino**	**Tutuaca / Bosque Pino encino**	**Isla Espíritu Santo**	**Las Cañadas / Bosque de niebla**
16. Presión sobre especies clave			Si se instrumenta el programa de aprovechamiento forestal se altera el ciclo reproductivo de la cotorra.		
17. Concentración de especies en riesgo		Identificación de 75 nidos de cotorra serrana en el predio	Se ha establecido como el sitio más importante para la conservación de cotorra serrana: 200 nidos		
18. Prácticas de manejo inadecuadas	Tala ilegal, presión por el Programa Piso para desarrollar la zona y unir Distrito Federal y Toluca	Tala ilegal	La SEMARNAP autorizó un programa intensivo de aprovechamiento forestal		
OPORTUNIDADES DE CONSERVACIÓN					
19. Áreas bajo algún tipo de manejo que propicie la conservación	Vinculación de un desarrollo habitacional con el uso de servidumbres ecológicas.			Parte de la Reserva Islas del Golfo	
20. Valores culturales/ conocimiento importantes				Hay numerosos sitios que muestran el uso que los Pericúes dieron a las islas; tales como, campamentos habitacionales en cuevas o covachas; concheros, pinturas rupestres y cuevas funerarias.	
21. Ecosistemas con potencial económico alto		Alto valor comercial por la madera.	Alto valor comercial de la madera.	Alto valor económico por la prestación de servicios turísticos.	

Sitio Nº	**1**	**2**	**3**	**4**	**5**
Nombre del Sitio/Ecosistema	**Tlalaxco/Bosque de Oyamel**	**Las Bufas /Bosque de pino encino**	**Tutuaca / Bosque Pino encino**	**Isla Espíritu Santo**	**Las Cañadas / Bosque de niebla**
22. Voluntad política	Interés del Gobierno Estatal para instrumentar medidas que armonicen desarrollo y conservación	El gobierno del Estado se encuentra apoyando el proyecto	El Gobierno Federal y Estatal han mostrado su apoyo.	Existe apoyo por parte del Gobierno Estatal y Federal.	Modelo tomado para la elaboración de la Ley Estatal de Medio Ambiente (Reconocimiento por parte del Gobernador)
23. Interés nacional		Interés del CIPAMEX por la conservación de la zona (Área CONABIO)	Área prioritaria CONABIO (interés de constituir un área natural protegida)	Área CONABIO, parte integrante del SINAP	Área CONABIO
24. Interés internacional		Identificación como AICA por la CCA	Identificada como AICA por la CCA	Reconocimiento como un sitio estratégico para la UICN	
25. Interacción con otras Organizaciones		Pronatura Noreste A.C. y Promotora de la Conservación de la Sierra Madre A.C.	Pronatura Noreste A.C.,Unidos para la Conservación A.C., The Wildlands Project, ITESM (Campus Monterrey)	Centro Mexicano de Derecho Ambiental A.C., Fundación Mexicana para la Educación Ambiental e ISLA	Pronatura Veracruz y Bosque de Niebla A.C.
TENENCIA DE TIERRA	Propiedad ejidal y propiedad privada (El bosque es propiedad de una Sociedad Ejidal), los lotes son propiedad privada.	Propiedad del Ejido "El Maguey."	Propiedad del Ejido Tutuaca	Propiedad Ejido Bonfil/Privada	Propiedad Privada
Tipo de Instrumento empleado	Servidumbres Ecológicas	Reserva de Conservación Ejidal	Contrato de compra de derechos de corte por 15 años.	Contrato de Fideicomiso y servidumbre ecológica en predios de Timoteo Means	Servidumbre Ecológica
Fecha de Constitución	Noviembre de 1999	Aprobada en Asamblea Ejidal el 15 de agosto de 1999	Formalizado en Asamblea Ejidal el 22 de enero de 2000	Continua en trámite	8 de Octubre de 1998
Temporalidad de la herramienta	A perpetuidad	Indeterminada	15 años	Fideicomiso (30años) Servidumbre: A perpetuidad	A perpetuidad

Sitio Nº	**1**	**2**	**3**	**4**	**5**
Nombre del Sitio/Ecosistema	**Tlalaxco/Bosque de Oyamel**	**Las Bufas /Bosque de pino encino**	**Tutuaca / Bosque Pino encino**	**Isla Espíritu Santo**	**Las Cañadas / Bosque de niebla**
OTROS VALORES					
Valor adicional 1	Oportunidad de probar un mecanismo de conservación innovador: La instrumentación de un instrumento que establezca limitaciones de densidad, tipo de construcción y preservación de 111 Hectáreas	Firma de un Acuerdo de conservación con el Ejido y la Organización denomina Promotora de la Conservación de la Sierra Madre A.C.	Cumplimiento de todos los requisitos establecidos por la Ley Agraria (Asambleas, Fedatarios Públicos, Modificación del Reglamento Interno e Inscripción en el Registro Agrario Nacional).	Modelo piloto para la conservación de las Islas en México	Primera servidumbre ecológica de México, segundo país en Latinoamérica.
Valor adicional 2	Oportunidad de ser un modelo replicable: Integración de desarrollo y conservación	Oportunidad de ser un modelo replicable: Conservación mediante la creación de una Reserva Ejidal	Oportunidad de ser un modelo replicable: Pago de servicios ambientales (Biodiversidad)		Modelo replicable.