Experiences from Costa Rica 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 conservation efforts on private lands around the world.

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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)
TNC	The Nature Conservancy
TRA	Threat reduction assessment

Executive Summary

Conservation easements have been used in Costa Rica since 1992 as a tool to protect biodiversity on private lands. Although this tool was developed more than fifteen years ago, we know very little about how successful conservation easements have been in terms of threat reduction and biodiversity conservation, not just in Costa Rica, but in all of Latin America.

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 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.

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, which we carried out in Costa Rica, Mexico, and Ecuador – the three Latin American countries that, at the time, had the greatest number of easements. 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. We encourage readers to review the companion report on Mexico and Ecuador: *Experiences from Mexico and Ecuador with the Implementation of Conservation Easements: A Case Study*.[1]

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, 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, which made it 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 or not. There is considerable data that reveals that conservation

[1] Available through www.fosonline.org, under the Collaborative Learning page.

easements have had a positive impact on private land and biodiversity conservation. Easements seem to be an important tool, but their potential varies from one country to the other, and certain aspects of their application should be strengthened.

In Costa Rica, we analyzed 16 signed and registered easements. In most cases, the servient estates belonged to a conservation NGO and were created on land donated to an NGO. This arrangement was particular to the Costa Rican easements. Table 1, at the end of the executive summary, 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 report.

General Conclusions

- The experience with conservation easements in Costa Rica has been a dynamic process with the easement model evolving over time.
- Costa Rica has advanced from absolute conservation easements, where both the servient and dominant estates belonged to an NGO, to working with private landowners. We were unable to measure the impact of easements signed with private landowners because of the short time that they had been in effect.

Contribution to Conservation

- Conservation easements seemed to reduce threats in the properties where they were implemented.
- In most cases, conservation easements were not an adequate tool to address threats beyond the properties. Generally, they did not help mitigate or prevent large scale threats that were beyond the control of the landowner (e.g., home development).
- In Costa Rica, we did not observe an association between a easement and the increase of conservation practices among neighboring landowners; conservation practices increased in some areas and decreased in others. In contrast, in Mexico and Ecuador, we saw an association between the establishment of a conservation easement and the increase in conservation practices among neighboring landowners.
- 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.
- We need to further understand the effect of public conservation on easements. Although this was beyond the scope of the SEPA project it may constitute an important factor in determining the impact of easements on conservation efforts.

Creating a Conservation Easement

- In Costa Rica, environmental awareness was not sufficient motivation for a landowner to sign a contract. Although the landowners were environmentally committed, some were not willing to sign an easement contract mainly because it involved high costs and did not generate enough benefits. These landowners were already protecting their properties, but their reservations prevented them from signing an easement contract.
- Thus, we recommend offering other benefits to encourage landowners to sign an easement. If this tool is to continue being promoted in the country, benefits such as

property tax exoneration or compensation for environmental services should be offered to landowners, especially to Costa Rican (as opposed to foreign) property owners.

- There was a common profile of the type of landowner in Costa Rica that was interested in and/or decided to establish a conservation easement. They tended to be middle-aged people from the US who were already established in their careers. The professions were often directly related to the environment (e.g., ecotourism).
- Possibly, Costa Rican nationals did not consider this tool beneficial enough or perhaps environmentally aware Americans residing in Costa Rica decided to use the tool because they were more familiar with it
- In Costa Rica, there has been a fair amount of funding for conservation and, as a result, funding for conservation 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.
- It was not clear if the landowner's knowledge about the contract affected the level of success of an easement in Costa Rica. Landowners generally tended to know their contracts very well, and all easements were successful. Therefore, it could be important, but we did not have the data to conclude this with certainty.
- Although we could not establish an association between the quality of a contract and the success of an easement in Costa Rica, it seemed that the quality of the contracts needed to be improved in several aspects, including the clear definition of conservation targets and the health of each target.

Management and Monitoring of a Conservation Easement

- The fact that most servient estates in Costa Rica belonged to conservation NGOs could have been a factor influencing the compliance with the contracts. The NGOs were created to improve the conditions of the ecosystems in the area, and therefore presumably would not do anything that would harm the site.
- It is possible that situations of lack of compliance were not detected because the distance and the difficult access to these properties did not allow for frequent monitoring.
- Baseline data need to be improved in order to measure changes and determine the effectiveness of the easements.
- 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.
- There is a need for a monitoring methodology that is not too costly or complicated so that organizations would be apt to apply it.
- It is important to determine how to ensure that all easements (including those in perpetuity) obtain enough funding for their management and legal defense. The situation was tenuous, and it was unclear what would happen if a problem arose or the easements were not in compliance.

Table 1. Summary of the Main Assumptions and Findings

Assumption	Main Findings
1. The closer to a protected area, the greater the effectiveness of a conservation easement.	• Most of the easements were located near protected areas. Since we did not have any opposing cases, we were unable to prove this assumption. • The proximity of the easements to protected areas responds to CEDARENA's guidelines to work along biological corridors. CEDARENA feels that easements near a protected area have greater impact in terms of conservation because they help consolidate those corridors.
2. The presence of an easement encourages conservation practices among neighboring private landowners.	• The presence of an easement did not seem to encourage conservation practices among neighbors. This might be because most of the easements have been established for absolute conservation.
3. The higher the quality of the contract, the more successful the conservation easement.	• There does not seem to be a direct association between the quality of a contract and the success of an easement, in the case of conservation easements established for absolute conservation; the fact that the contracts established the minimum requirements appeared to be sufficient for the conservation of the property. • The quality of the contract seemed more relevant for properties with a zoning plan that allowed development activities. For these easements, the contracts need to be supported by management plans. • This assumption was difficult to prove because most easements belonged to a conservation NGO, and so it was reasonable to expect contract compliance regardless of the contract quality.
4. The effectiveness of an easement increases when the landowner is aware of the implications and scope of the easement contract.	• The level of knowledge of the servient estate owner about the implications and scope of the contract may possibly influence the success of an easement. • In Costa Rica it was easy to be familiar with the content of the contract because most of the easements were established for absolute conservation and were managed by a conservation NGO; therefore the lack of conflicts was not surprising.
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.	• Environmental awareness did not seem to be a major influencing factor for a landowner to sign an easement contract. • The high costs associated were a key determinant in the decision not to sign a contract. • Environmental commitment seemed to be important for complying with the contract.
6. The signing and implementation of an easement generate benefits for the landowner.	• The landowners were satisfied with their easements. • The major benefit landowners cited was the long-term protection of the natural resources that easements provide.

Assumption	Main Findings
7. The effectiveness of an easement is greater when the property belongs to only one owner, as opposed to collective owners.	• This assumption could not be tested in Costa Rica because there were no properties belonging to collective owners.
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.	• There were not enough experience and data to determine how prior analysis of the obligations can influence the effectiveness of an easement.
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.	• All the NGOs involved had clearly defined conservation priorities. Nevertheless, their definitions of conservation targets and priorities were too general. • The lack of specific definition, together with the fact that the conservation easements were successful, suggests that perhaps it might not be so important for the NGO to have clearly defined priorities that coincide with the easement's conservation targets. • This contradiction could be due to the fact that we did not do an independent analysis to determine if the priorities of the NGO were clear, and if they coincided with the easement's conservation targets. We simply trusted what the NGOs were reporting. In retrospect, it would have been better to have tried to obtain this information in a more objective manner.
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.	• We could not prove this assumption in Costa Rica because all the dominant estates belonged to an NGO that was in charge of monitoring and enforcement; therefore, we did not have any opposing cases.
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.	• This assumption could not be tested in Costa Rica because all the established easements had an NGO involved with their negotiation, creation, and monitoring.
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.	• The owners of the servient estates stated that they were sufficiently involved in all the steps to establish an easement. There were also no reports of lack of compliance. Thus, the assumption may be true, but since there were no contrary cases for comparison, we cannot determine this with certainty. • However, based on the data in Costa Rica, we can speculate that it is more likely that the contract is followed when the two parties- the owner and the NGO- have established a consensus.

Assumption	Main Findings
13. Conservation easements are more successful when they include the gathering of baseline data.	• All the easements in Costa Rica had baseline studies. • However, in Costa Rica, the baselines did not document the status of the natural resources or the social and economic sources of stress affecting the resources. This hindered our efforts to determine if the easements had been effective in reducing threats and conserving biodiversity. • This assumption would have been more appropriate if it had referred to the quality of the baselines.
14. Conservation easements are more successful when there is a methodology for monitoring and enforcement of the contract.	• We could not be certain about this assumption because all the easements were applying a methodology for monitoring and enforcement of the contract, and all were successful. • However, the monitoring methodology applied was very basic- they simply verified compliance with the contract.
15. The greater the quality of the monitoring, the greater the success of the conservation easements.	• In Costa Rica, monitoring was very basic and infrequent; therefore, it was difficult to determine how the quality of monitoring affects the success of the easements. • The fact that no cases of lack of compliance were reported suggested that the quality of monitoring may not be so important; however it was possible that the low frequency of monitoring was the reason for the absence of cases of noncompliance. • There is a need to identify ways to measure biodiversity indirectly in order to improve the quality of the monitoring and determine more precisely how easements are contributing to biodiversity conservation.
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 servient estates were United States citizens.

1. Introduction

In this case study we share our experience from 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 – and, for this case study, Costa Rica in particular. 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.

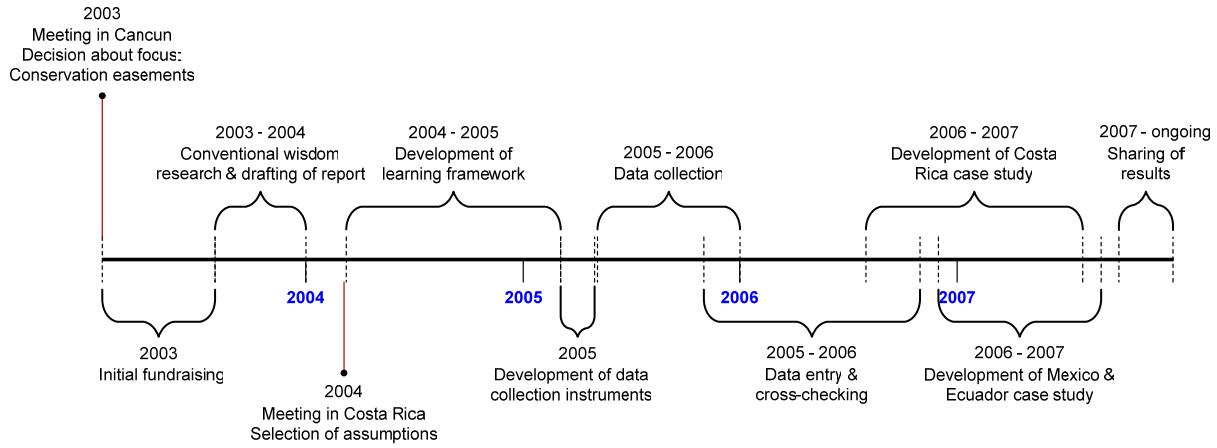
SEPA's Goals.

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.

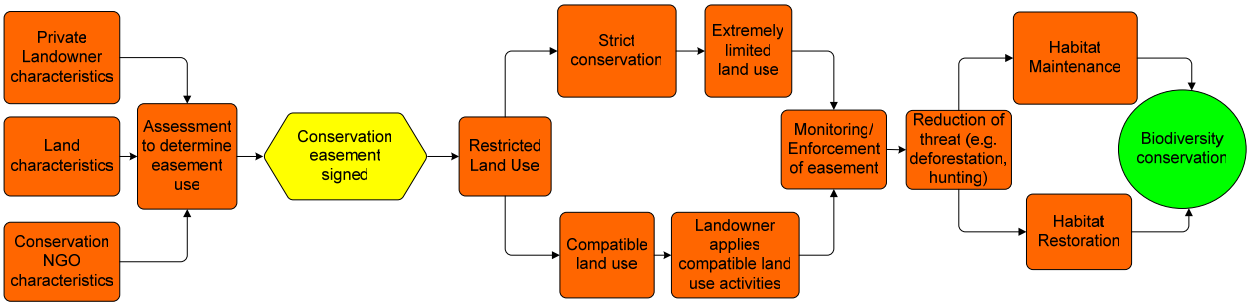
2.2 The Learning Framework

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):[2] To measure the impact of an established conservation 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.

[2] 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).[3] 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.

Finally, in the case of Costa Rica, there were many landowners who wanted to establish an easement but, for one reason or the other, they had not signed the contracts yet. In these cases, we applied specific questionnaires to understand their motivations to establish an easement and the obstacles that have prevented them for doing it. We also spoke with some landowners who decided not to sign an easement to learn about the reasons behind their decision.

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.

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

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 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 conservation 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[4]. 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. In view of the fact that Costa Rica did not have reliable initial indicators to apply the Threat Reduction Assessment (TRA), we were not able to apply this tool in every case. The information about threat reduction was obtained from the surveys with the landowners, who in general agreed that threats had been reduced by the establishing of easements.

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

[4] 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.

cases to appropriately test the assumptions. For example, by the methods we used, all easements appeared to be successful in reducing the threats. Consequently, we could not adequately test many of our assumptions. Nevertheless, we feel we can still learn from the results.

In the case of Costa Rica, the fact that most of the owners of the servient estate were conservation NGOs complicated the interpretation of the data. Other variables also may have affected the analysis - such as the fact that these properties belong to organizations whose mission goals coincide with the goal of this legal tool. The absence of conflicts, compliance with the contracts, and threat reduction might be interpreted as proof that these properties were being protected adequately and therefore that easements were being successful. However, the reasons behind this success cannot be clearly linked to any of those variables because the goal of the NGO itself is conservation and therefore they must conserve their properties regardless of the existence of an easement.

Overall, existing monitoring data was limited and of poor quality, which impeded our ability to more decisively assess easement success. For example, in several of them the baseline data were not adequate to assess the changes in the property or the threats to that property. In Costa Rica, the baselines describe what was found on the property but they did not include more detailed information about the status of the resources, which made it difficult to conduct a Threat Reduction Assessment.

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

3. Background – Private Conservation in Costa Rica

With almost 25% of its national territory under some type of forest protection management category, Costa Rica has been considered at the forefront of biodiversity conservation in Latin America.

Historically, the Costa Rican government has been in charge of designating and managing the protected areas, but recently the limitations of the national system have become evident. For example, many private landowners whose properties were included in a protected area have not received their corresponding compensation because of national budget constraints; this situation could take decades to resolve. In addition, a large portion of the national biodiversity that should be protected is currently under private ownership, and the government is unable to acquire it. This situation is compounded by the lack of resources to adequately manage these areas.

This scenario gave rise to the idea of promoting conservation that was not exclusively under the control of the government. The private conservation options that can be currently applied in Costa Rica follow:

Private reserves consist of the voluntary decision of the owner to protect and manage his/her property. In the case of the **Forestry Regime,** the owner decides to register his/her property under this category, agreeing to comply with the Forestry Law. There is a network of reserves that landowners under the Forestry Regime can join.

Compensation for environmental services (CES) consists of a temporary contract established between the owner and the government in which the owner agrees to protect the forest in exchange for a compensation fee paid by the government. The spirit of the CES is that people living in rural areas, who generally depend on forest products and agriculture, can gain economic benefits for protecting natural resources, instead of disturbing them to make a living. Currently this is the conservation category with the highest growth rate in the country.

Private Wildlife Refuges are agreements negotiated between the government and the landowners and established by means of executive decrees. They include obligations to protect the area and the resources found within it, as well as a justification for refuge creation. A management plan is designed and implemented for each site and is supported by both the government and the private owners. These refuges are established for a minimum of 15 years with the option to renew the agreement.

Finally, the only private conservation tool that creates an obligation on the property and is registered in the Public Registry is the **conservation easement**. A conservation easement is a contract between two or more landowners in which at least one owner voluntarily agrees to plan the future use of the property to protect the existing natural resources

These private conservation efforts are expected to have more impact when they take place near a protected area by consolidating biological corridors and buffer zones and contributing to the effective long-term conservation of biodiversity. Private conservation, however, should be viewed as a complement to the conservation efforts being done at the national protected areas and as an opportunity for the rational and sustainable use of the properties that result in a better quality of life for the people of Costa Rica.

View from Talamanca-Caribe Biological Corridor
Edwin Alpizar / CEDARENA

Even though Costa Rica has made considerable achievements in terms of conservation, there are still several major challenges remaining. Plans are needed to guarantee the long-term economic and biological sustainability of protected areas. Private conservation is crucial in this sense because it contributes to the conservation of biodiversity without drawing funds from the public system.

3.1. Conservation Easements in Costa Rica

Background

Conservation easements are among the new private conservation options used alongside the conservation efforts of the government. Perhaps the interest in conservation easements is associated with the successful experience of private conservation in the country.

The problems that the public system was experiencing in the early 1990s, plus the success of conservation easements in the United States, were the perfect combination to encourage the application of conservation easements in Costa Rica.

CEDARENA (Center of Environmental and Natural Resources Law) became interested in developing the idea with support from The Nature Conservancy (TNC) through its Latin America Private Land Conservation Program. CEDARENA analyzed the possibility of applying easements under Costa Rican Law and based on a 1992 feasibility study, concluded that it was feasible to create property easement real rights in Costa Rica for conservation purposes. This new legal tool – based on real easement law established in the Civil Code – was called a "conservation easement," even though this classification does not exist as such in the national legislation. The next step was to apply the tool. That same year, the first conservation easement was established and registered in the public property registry.

CEDARENA continues to work with easements under the CEDARENA Land Trust Program (CLT). In mid-2006, when we began drafting this document, there were 16 conservation easements registered in the Costa Rican public property registry. While experience and economic support have helped improve this tool and adapt it to Costa Rica's current conservation needs, there are still several lessons to be learned about easements.

Characteristics of Conservation Easements in Costa Rica

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.

Conservation easements have been in use in Latin America for fewer than 15 years. Many countries have established contracts for a fixed period of time, hoping to renew their term. At the time of this study, all easements in Costa Rica had been established in perpetuity, meaning that the easement was permanent. If the original owner were to sell the property, the new owner would have to comply with the easement obligations.

In Costa Rica, all the dominant estates in the existing easements belong to CEDARENA. This fact is relevant because of the role of this NGO. CEDARENA not only prepares the environmental and legal documents to establish an easement, but as the dominant estate owner, it is also responsible for overseeing compliance with the contract. Likewise, most of the servient estates are administered and managed by local conservation NGOs.

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 role of CEDARENA-CLT

In Costa Rica, CEDARENA has been leading the conservation easement process as an innovative way to solve conservation problems at the private level. To establish an easement, CEDARENA prepares the required environmental and legal assessments. The CEDARENA Land Trust (CLT) was established for this purpose with the help of TNC and other donors. TNC's donations have contributed to the creation of many easements, the implementation of easement awareness campaigns, and the training of personnel to promote new easements and other aspects of private conservation in general.

Over time, CLT has identified work sites to focus its conservation efforts. The selection of the work sites has been based on a land use and zoning plan prepared by the Ministry of the

Environment and Energy with support from other organizations. This plan defined certain areas for the creation of biological corridors. Within those areas, CEDARENA selected five strategic biological corridors (see Table 3 and Figure 3). CEDARENA decided to implement conservation easements in these areas because of their belief that conservation efforts have a greater impact on biodiversity if they are located near a protected area. By placing the easements in the biological corridors, they expected the private conservation efforts to complement public conservation. Because easements imply the need for a dominant estate, CEDARENA has tried to have at least one property on each corridor to act as dominant estates.

Table 2. Biological Corridors where CEDARENA-CLT Is Working and Has Established Conservation Easements

Biological Corridor	Servient Estate	# of Easements	Type of Owner of Servient Estate	Year(s) Established	Size (Ha)	Dominant Estate
1) Talamanca-Caribe (TCBC)	TCBC	10	Conservation NGO	1999-2004	441	Sixaola, Limón
	Emily Yozell	1	Foreign private Individual	2000	16	Sixaola, Limón
2) Osa (OBC)	Cerro Osa	3	Foreign investors	2005	655	Aguirre, Puntarenas
3) Paso de La Danta	ASANA	1	Conservation NGO	2001	108	Aguirre, Puntarenas
	Pitzer College	1	Foreign university	2005	48	Aguirre, Puntarenas
4) San Juan La Selva	N/A	N/A	N/A	N/A	N/A	There are no easements yet - the process to create one has not begun
5) Monteverde	N/A	N/A	N/A	N/A	N/A	There is no easement yet, but in 2006 initial steps were taken to establish the first easement in the area.
Total		**16**			**1.268**	

Figure 3. Location of the Biological Corridors Where CEDARENA-CLT Was Working (2006)

CEDARENA-CLT is involved in different stages of the easement process. It participates in the creation and constitution of easements. CEDARENA-CLT also owns the dominant estates; therefore it is responsible for enforcing the compliance of the easement contract. To follow-up on the different aspects of an easement, CEDARENA-CLT has a multidisciplinary team in charge of all the activities associated with the constitution and monitoring of an easement.

3.2. Description of the Conservation Easements in the Sample

Easements Signed and Registered

As of August 2006, Costa Rica had 16 conservation easements[5] signed and registered in the public property registry, for a total of approximately 1300 hectares under conservation (Table 2).

Talamanca – Caribe Biological Corridor:
Most of the easements in Costa Rica are in the Talamanca-Caribe Biological Corridor (Table 2). This area is not only rich in biodiversity, but it is also culturally diverse. In fact, this region has the country's largest concentration of indigenous groups, African-Caribbenas, and other Oriental and Latino-mestizo groups.

The biological importance of this area is invaluable. This region is home to both North and South American species and contains a large number of endemic species, particularly plants. There are

[5] In four of the 16 properties used in the study, the dominant estate belonged to TNC but would be transferred to CEDARENA.

90 species of reptiles and amphibians, 185 species of mammals, and 360 species of birds, including migratory birds. The area has substantial altitudinal diversity and extreme temperature ranges that have favored the development of a large number of habitats. These characteristics were considered in the decision to conserve the area many decades ago.

Several protected areas are part of the biological corridor; among them are Hitoy Cereré Biological Reserve, Cahuita National Park, La Amistad International Park, Gandoca Manzanillo National Wildlife Refuge, and three indigenous territories (Cabecar, Bribri and Kekoldi). The easements established in this area are close to the Gandoca Manzanillo National Wildlife Refuge and serve to link it to other protected areas.

Pacific Coast (Paso de la Danta and Osa Biological Corridors):
There are five easements located along the biologically-rich Pacific coast: two in the central area (Paso de la Danta) and the rest in the Southern Pacific area (Cerro Osa). The Pacific coast of Costa Rica has important populations of threatened mammal and bird species, as well as nesting beaches for marine turtles. The easements located in this area are designed to protect the lowland tropical rain forest and its biodiversity, especially felines, monkeys, tapirs, and other threatened forest species.

Paso de la Danta:
The easements located in the Central Pacific region form the Paso de la Danta Biological Corridor. One of these easements belongs to ASANA, a local NGO. The other one belongs to Pitzer College, an American university. Both properties were donated by an American landowner that lived in the area and recognized the biological and cultural value of the properties. The ASANA easement was established in 2001, while the Pitzer College was signed in July 2005. It was difficult to measure the success of this last easement because, when we were collecting our data, the easement had just been established.

View from Cerro Osa Biological Corridor
Lucia Morales / CEDARENA

Cerro Osa:
The easements in the Southern Pacific area, known as Cerro Osa, were signed in August of 2005. These three adjacent properties belonged to an American landowner who wanted to sell them and as a condition for the sale he stipulated that an easement had to be established on each property. They were bought by a group of foreign investors interested in sustainable development.

Easements Signed but Not Registered

In addition to the easements previously described, there were nine other properties that covered a total of 190 hectares and had signed easements. These easements were not included in the study

because they had legal issues and had not been registered in the public registry because either they were established on properties that had not been registered or there was a problem with the property title. The contract was valid for both parties but not objectionable by third parties because it had not been registered.

All these properties were located on the Talamanca-Caribe area and were managed by the Talamanca-Caribe Biological Corridor (TCBC). Hopefully, the properties can be registered in the future and the legal problems resolved. Regardless of the fact that they had not been registered in the public registry, CEDARENA had been monitoring these easements. Because these properties belonged to the TCBC, CEDARENA was confident they would not be transferred to third parties, and would continue being protected regardless of the fact that they were not registered.

Easements under Negotiation

In two particular cases, even though the required assessments to establish several easements were completed, the contracts had not been signed yet.

The first case was Lapa Ríos, an ecolodge located in the Southern Pacific area, near the Cerro Osa conservation easement. The proposal had been under negotiation since 2001; a technical assessment and several draft contracts had been completed. The contract had not been signed yet because the owner wanted to sell the property and was waiting for the right buyer that would agree to the easement. Whoever buys the property would need to sign the contract so that the seller could rest assured that the property would be preserved over time. This ecolodge had a high property value so it may be difficult to find the ideal buyer willing to pay a high price for the property. As such, there was the risk that an environmentally conscious buyer would not be found and the contract for the easement would not be signed.

The second case was Hacienda Barú, another ecolodge, located in the Central Pacific region held under condominium by two owners. Ten easements had been planned for this area since 2003. At the time of our research, the technical study and several drafts of the contracts had been completed but the contracts had not been signed because Hacienda Barú was part of a Combined Wildlife Refuge; therefore the signing of the easement was subject to the approval of the management plan by MINAE (Costa Rica's Ministry of Environment and Energy). In addition, during the process, the owners had requested small adjustments to the zoning maps, which delayed the signing of the easement.

In these two cases, the process to establish the easement was still valid, and CEDARENA remained hopeful that the contracts would be signed and registered in the future.

Lastly in the Talamanca-Caribe area, there was interest in establishing conservation easements in 10 other properties totaling 448 hectares located within the TCBC. The process to do so, however, had not advanced probably because of lack of funds and because some of the properties had not been registered. CEDARENA hoped that in the future, these properties could be protected under a conservation easement. At the time of our research though, we could not consider these easements to actually be under negotiation.

Landowners Who Decided Not to Sign

Tres Cepas, was the only easement negotiated with a Costa Rican national. This was a large property whose owner wanted to segregate part of it to his son under the condition that he signed an easement. This process began in 2004 but in 2006 the owner' son decided not to sign the easement. Several draft contracts had been prepared as well as the technical assessments required to establish an easement. The decision not to sign the contract resulted from differences of opinion between CEDARENA and the owner' son regarding the zoning plan and the baseline studies. CEDARENA felt that what the owner wanted was not beneficial to resource conservation on the property, and because of the unwillingness of the owner to accept CEDARENA's proposal, the contract was not signed. In this case, since the easement was an imposed condition, there was no real interest on the part of the owner' son to use this conservation tool, and this may have been why the easement was not established.

In addition to the case described above, CEDARENA had other experiences with people interested in the tool. Conversations had taken place and visits had been made to areas where there was interest in establishing easements, but the formal process had not begun. There were 25 cases in this group, most of them in the Monteverde region. In Monteverde, the idea was promoted by a local conservation organization. In this region, people in general were highly committed to the environment. The high cost of the tool compared to the benefits offered, however, made it less attractive to the landowners; they probably concluded that they did not need contracts that restricted their actions if they were already voluntarily practicing conservation.

4. The Assumptions Tested

In the following pages, we describe the assumptions tested and our results. In general, the assumptions we tested in this study tried to determine if certain factors affected 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.

In addition, we would like to emphasize again that this report applies only to Costa Rica. The SEPA project initially meant to compare together the experiences of Costa Rica, Mexico, and Ecuador. This was not possible because of the differences between the Costa Rican easement model and the one used in Mexico and Ecuador. Nevertheless, we were able to make interesting observations about the three cases. We refer the reader to the SEPA report for Mexico and Ecuador[6] for more detail about these observations.

4.1. Global Analysis of the Success of the Easements

Overall, easements appeared to have been successful in Costa Rica. The land under easements had not been modified, and the forest cover was preserved. Moreover, the easement contracts

[6] **SEPA Project, 2007.** Experiences from Mexico and Ecuador with the Implementation of Conservation Easements: A Case Study.

specified absolute protection, and there were no reports of lack of compliance with the easements contracts. Thus, we assumed that the easements were contributing to the conservation of biodiversity, especially in the tropical forests which were the main conservation target. Limited existing monitoring data, however, restricted our ability to more decisively conclude this.

Most of the conservation easements were located on properties that belonged to conservation NGOs, and it also seemed logical to expect these properties to contribute to biodiversity protection in the areas where they were located. Moreover, these properties were also part of biological corridors important for biodiversity conservation and, as such, expanded the reach of the corridors. We assumed that this meant they would contribute to the genetic flow among natural populations and the connectivity between forest areas.

Regardless of their apparent success, easements in Costa Rica were not effective in reducing certain threats. For example, in the area around the Talamanca-Caribe Biological Corridor, where 10 corridor easements and the Emily Yozell easement were located, fast-paced and poorly-planned development continued to be threats. Likewise, the easement on the ASANA property had not had an impact on local real estate development and had only partially eliminated hunting in the area.

In terms of the easements within the TCBC, even though the threats to the properties had been reduced, they had not been eliminated completely – wood extraction and encroachment continued to be possibilities. In general, however, the easements were respected and neighbors usually reported any irregular event to the Corridor staff.

In conclusion, easements in Costa Rica were successful in complying with their conservation contracts, especially in terms of avoiding modifications to the land use on the properties. They also were effective at reducing most threats to the properties. They, however, had not been effective in reducing external threats such as hunting or construction on neighboring properties. In such cases, other tools – in addition to or instead of – easements are likely more appropriate.

4.2. Characteristics of the Property

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

Results

As mentioned before, CEDARENA-CLT worked in biological corridors that act as bridges between natural protected areas. As such, all easements in Costa Rica were located near a private or national protected area. The goal of establishing easements along biological corridors was to maximize biodiversity conservation – the assumption being that in the fragmented landscape between two or more protected areas, easements could act as connectors to reduce geographic isolation and improve species survival. Based on this concept, conservation easements established close to a protected area were expected to have greater impact on biodiversity

conservation. For this same reason, SEPA members also assumed easements near protected areas would be more successful.

In this study, proximity to a natural protected area was defined as a distance with a 5 kilometer radius from the protected area. The easements in the TCBC are all located within a radius of 5 km of a national protected area. However, the ASANA easement is more than 5 km from a national protected area but is close to several private reserves and a wildlife refuge; people in this area are interested in conservation and in establishing a biological corridor. As in the case of the ASANA easement, the Cerro Osa easements are located along a biological corridor and near private reserves and wildlife refuges, but are more than 5 km from a national protected area. Thus, all 16 easements were located less than 5 km from a protected area (national or private).

Conclusions

Because threats to properties had generally declined and there were no cases of conflicts or lack of compliance with the contract, we might conclude that the proximity to a protected area had a positive influence. However, this assumption is difficult to prove because we did not have any opposing cases of easements that were not successful or were not near a natural protected area. Moreover, in the case study of Mexico and Ecuador, many easements were not located near protected areas, yet they were still considered effective.

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

Results

In terms of the second assumption, we cannot accept or deny that there was a direct association between the presence of an easement and the encouragement of conservation practices among neighboring landowners.

In the case of the Talamanca-Caribe Biological Corridor, even though there were several properties bordering the easements, the neighbors never showed real interest in establishing an easement. The owners of the servient estate (the TCBC Association of Organizations) said they had had fewer requests for information about conservation options in the area since the easements were established. Regardless of the presence of several easements, the TCBC Association of Organizations reported that the neighbors had not changed the way they manage their properties and had not shown any interest in conservation tools. Nevertheless, it is important to recall that these properties were acquired by The Nature Conservancy to be donated to the TCBC Association of Organizations. One of the conditions for this donation was the establishment of an easement. The neighboring landowners were actually interested in selling their properties, not in establishing an easement. As such, they would not have had a reason to speak with neighbors about conservation. In addition, it is possible that the neighbors were unfamiliar with the tool and had not been motivated about conservation practices because they had no direct contact with the current owners of the servient estate. These owners were NGOs

that had less presence on the properties than a private resident and likely did not interact with neighbors the same way individuals do.

In contrast with the case of the TCBC, the local residents near Paso de la Danta were interested in other conservation tools such as wildlife refuges. In Cerro Osa, the neighbors were interested in easements and were waiting to see if the easement helped to bridge conservation and ecotourism development. Also, in the area of Cerro Osa, CEDARENA began a project in 2005 to promote easements and expects to place approximately 1000 hectares more under easements.

In the case of the ASANA easement, a new easement was established near it in 2005 by Diane Firestone, who then donated the property and easement to Pitzer College. It is difficult to determine if the establishment of the ASANA easement influenced that of the Pitzer College easement, because both properties initially belonged to Diane Firestone. In this case, we have an owner who was environmentally committed and knew the tool would help her protect the properties.

Conclusions

In Costa Rica, the areas under conservation tended to coincide with the areas where the residents were more environmentally committed. People who purchased properties in these areas acquired them because they wanted to enjoy nature and were interested in conservation in general. One way for them to enjoy and conserve nature was through an easement. A possible explanation for the fact that the neighboring owners were not interested in establishing an easement resides in the lack of incentives to motivate those who could potentially be interested in establishing an easement. As expressed by one of the owners of Hacienda Barú, "The neighbors that are interested in protecting the environment are doing it already and will continue doing it; those that are not interested are not doing it, and it will be difficult to change this situation."

In brief, we were not able to detect a clear association between the presence of a conservation easement and an increase in the conservation practices among neighboring landowners. In the case of the TCBC, we did not observe any increase, while in the case of the Paso de la Danta and Cerro Osa Biological Corridors, there was an increase in interest about private conservation tools. It was not clear to what degree neighbors were influenced by the easements established in the area or if they were simply responding to their own interest in conservation.

4.3. Characteristics of the Contract

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

Results

We measured the quality of the contract by several variables, including clearly defined conservation targets (and/or goals) and limitations, a direct relationship between those targets and limitations, property zoning, and development of a management plan (see Annex 2 for a full description). Because easements in Costa Rica are for strict protection, many of these variables

are not relevant (e.g., there is no need for a management plan because the property should have no other use aside from conservation). Thus, what was most relevant for Costa Rica was the extent to which the conservation targets and limitations were clearly defined and whether there was a direct relationship between the targets and limitations.

In this regard, the contracts prepared by CEDARENA-CLT show direct links between the conservation targets and the restrictions imposed upon landowners. However, it is important to point out that the conservation targets in these contracts were not well defined. In fact, the contracts identify the main conservation target very generally as "forest."

This lack of detail was evident in the first contracts prepared for the TCBC. They were replicas of each other and were not case-specific. This was partly because the contracts were set for absolute conservation, the properties were located close to each other, and they had similar biophysical characteristics. In general, the same contract model was used for all the properties under strict or absolute conservation. From the group of conservation easements along the TCBC, only one included a variation in the contract – a zoning plan and clauses describing the activities allowed, restricted, and prohibited in each zone.

Regardless of the lack of detail in the contracts, there had been no damage to the natural attributes of the property or the conservation targets. For this reason, we can conclude that these initial contracts, however rudimentary, met the minimum requirements to support conservation efforts on these properties. In particular, they seemed to have been effective for simple and clear cases dealing with easements set for absolute conservation, but we cannot be sure if they would be adequate for more complex situations that included zoning plans and multiple uses.

In addition, we should emphasize, that as CEDARENA-CLT has gained more experience establishing easements, it has tried to improve the quality of the contracts. Currently, and partly because of the SEPA project, CEDARENA is trying to adapt to the requirements of each situation and is trying to integrate what is actually happening in the field to what is established in the contract. Likewise, it has recognized the need to be more punctual in their contracts, trying to include in the contracts a wide range of possible situations that might occur in the future. Among the improvements to the contracts is the addition of clauses that allow for modifications in cases of technological and scientific advances and clauses related to alternative methods for conflict resolution. Also, in the case of properties with zoning plans, other aspects added are better delimitation of the different zones and complete lists of the activities allowed in each zone.

These new more specific contracts were only recently signed at the time of this study. However, we observed that in cases where there was some degree of development on the property, the contract itself was not enough. The contract needed to be accompanied by a more detailed and technical management plan that described the studies needed to evaluate the environmental impact and a mitigation plan for addressing negative impacts. Generally, the management plan should guide any development within the property and the contract should establish the general guidelines to develop the plan.

Conclusions

The quality of the contracts in Costa Rica was lacking, according to the measures we used. Yet, the easements were successful. This would imply that the quality of the contract was not important to easement success. This, however, is a narrow analysis of the situation. In reality, it was difficult to assess the degree to which the success of an easement was affected by the quality of the contract because most easements were so simple in nature that they did not appear to require complex, high-quality contracts. Since the start of the SEPA study, some of Costa Rica's new easements have become more complex and now permit property zoning and some management. With these new easements, it may become more important to determine clearly what is expected from the conservation contract, in order to avoid problems with the contract execution and ensure that the subscribing parties are clear about their rights and obligations.

4.4 Characteristics of the Owner of the Servient Estate

The servient estates in Costa Rica can be classified into two major groups:

a) Local NGOs – NGOs that acquired the properties through donations. This group included the TCBC Association of Organizations, located on the Caribbean Coast and ASANA, part of the Paso de la Danta Biological Corridor, on the Central Pacific region.

1. The CBTC had 10 conservation easements properly signed and registered and was working on 9 other easement that, because of different legal problems, had not been registered yet. Most of these properties were set aside for absolute conservation; no one lived on them, and they were managed by the TCBC Association of Organizations.
2. ASANA had only one easement – a property donated by a foreign landowner (Diane Firestone), who decided to create an easement and donate it to preserve its attributes.

b) Private entities or individuals – Foreign landowners, each with different characteristics:

1. Emily Yozell: This landowner lived most of the time on her property, which was part of the CBTC and within the Gandoca Manzanillo Wildlife Refuge.
2. Cerro Osa: These are three adjacent properties originally owned by an American who sold them under the condition that an easement be created on each. They were bought by a foreign group interested in sustainable development.
3. Pitzer College: This property was donated by Diane Firestone to Pitzer College (USA), because of its natural attributes and cultural values. The owner donated the property to the college so that it could carry out research and guarantee its conservation through an easement. This case was similar to the easements established between conservation NGOs because the goals of Pitzer College coincided with those of the easement.

There were two distinguishing characteristics of the landowners. First, all the private owners were environmentally committed foreign nationals from the United States. This includes cases where the individuals put an easement on their property and donated them to another group or organization. Second, none of the owners depended economically on their properties; all were professionals dedicated to other activities. This means there was no competition between

conservation and production. The owners were not dependent on the actual productivity of the land and therefore were able to consider conservation as a long-term investment.

One of the assumptions related to the characteristics of the owner was:

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

Results

In general, owners were familiar with the scope and restrictions of their contracts. They correctly identified restrictions such as no changes to land use, no hunting or timber extraction, and no introduction of exotic species. Those interviewed were aware of who was responsible for monitoring the easements, the duration of the contracts (perpetuity), and the fate of the easement in case of a change in ownership or dissolution of the organization (its continuation and compliance).

In the case of the Talamanca-Caribe Biological Corridor, most of the easements were for absolute conservation, so the terms were straightforward, and it was easy for the landowners to be familiar with them. This situation made it difficult to determine if the landowners truly knew what was in the contract. Moreover, most of the contracts were identical and held by one owner – a conservation NGO. Thus, it was not surprising that it was aware of the terms of its contracts and was complying with them.

On the other hand, the Emily Yozell property – also found in the Talamanca-Caribe Corridor – was different. Even though the owner was familiar with and respected the contract and the zoning plan for her property, the easement was not effective in reducing the threat of tourism development. Nevertheless, there were no direct transgressions on her property, so the easement appears to have been effective for her property but did not influence development beyond the property.

The most recent conservation easements, established in 2005 (Cerro Osa and Pitzer College), were signed by private landowners who were familiar with the terms of their contract. Because they had been established so recently, it was difficult to assess their success in terms of absence of conflicts, level of compliance, and threat reduction. Nevertheless, it is unlikely the Pitzer College easement would have conflicts because the college goals coincided with the easement's conservation goals.

In the case of Cerro Osa, the goal was to conserve the property but also use it for ecotourism development. Even though the Cerro Osa investors did not negotiate or sign the easement contract, they were familiar with it. In addition, they were constantly consulting CEDARENA to ensure that their development plans were in accordance with the agreements. Two of the properties had zoning plans, and so their contracts were very complex. For CEDARENA, the Cerro Osa easements were a new line of easements, where the owners requested assistance with the management of the properties and wanted the contracts to be specific and supported by a

management plan. In addition, this was the first case of a transfer of an easement, that is, the individual that created the easement was not the same one that needed to comply with it.

Conclusions

It was not clear if landowner knowledge about their contract was crucial to the success of an easement. All the owners had a substantial understanding of the contracts and their restrictions, and all the easements were successful (there were no conflicts or lack of compliance, and all the threats within the properties had been reduced). So, we did not have variation among cases to make any conclusions. As mentioned, it was difficult to assess how well some landowners understood their contracts because most contracts were very simple in nature and for absolute conservation. It would be interesting to monitor what has happened with the new cases of Cerro Osa and Pitzer College that had more complex contracts and contemplated different types of land use.

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

This assumption seems to be quite obvious on the surface. Indeed, the private landowners who had established an easement (either directly on their property or on a donated property) were highly committed to the environment. For example, they were involved in environmental committees, ran environmental businesses such as ecotourism, and managed their own lands in ecologically-sensitive manners. Nevertheless, we were also able to interview a couple of landowners who had decided not to establish an easement and found that these individuals were also highly committed to the environment. This implies that other factors may have had a powerful influence over the decision to establish an easement or not.

In fact, the decision to sign an easement contract may be influenced by several factors – for example, the need to sell the property, as the case of Cerro Osa and Lapa Rios, where the owners decided not to sign the conservation easement until the appropriate buyer was located. In this last case, the owner was highly committed with the environment, was recycling and composting, had an ecolodge, and had participated in environmental groups. He had not signed the easement yet though because he did not want to risk his economic interests until he located a buyer willing to accept the obligation placed on the property. The inability to modify the restrictions *a posteriori* could imply a reduction in the property price, as in the case of Cerro Osa, where the property was sold for a lower price than the appraised value for the area (although, this could have been due to various other reasons aside from the easement). It could also mean that the landowners would have a difficult time finding a buyer willing to accept the easement restrictions.

In addition to the above examples, there was the case of Hacienda Barú whose owners were environmentally conscious and whose property had a hotel that was working closely with the community and a local environmental organization. The owners' environmental commitment

was such that part of the property belonged to a Combined Wildlife Refuge (part national/part private). They also had a marine turtle rescue program and cooperated with local environmental education efforts in the area. Because Hacienda Barú was part of the Wildlife Refuge, the signing of the easement was subject to the approval of the management plan by the Costa Rican Ministry of the Environment and Energy (MINAE). Throughout this process, the owners also requested small adjustments to the zoning maps. These adjustments, combined with governmental delays, forestalled the signing of the easement, even though the landowner had a strong environmental commitment.

Another example in Costa Rica was the initiative to establish an easement in the Monteverde area. This was an area of global biological importance, and the local population was highly motivated to protect the environment. Several scientific organizations and private reserves including the Tropical Science Center and the Monteverde Institute were working with the local population. The Institute was interested in using an easement to guarantee the connectivity of the area to other protected areas and reserves. However, the idea was abandoned because the landowners decided that the tool was too expensive. Other alternatives were offered to reduce the costs, but the owners still determined that the easement tool was not sufficiently attractive; they felt that they did not need such a costly option if their properties were already protected voluntarily by them. The only problem with this reasoning is that if someone else were to purchases the land in the future they would not be obligated to protect it. If the property were under an easement, it would always be protected.

Yet another case of people interested in establishing an easement was that of the Araya family. They were interested and felt this could be an investment opportunity for a future project. As in the previous case, they were highly committed with the environment but, at the time of the study, they still had not proceeded with the idea of establishing a conservation easement.

We analyzed this assumption only in terms of private landowners, not NGO owners like the CBTC Association because it was not really possible to assess the environmental commitment of an NGO and compare it to that of an individual landowner. Moreover, it would have been artificial to do so for the case of CBTC because the signing of the easements was an obligation imposed by TNC in order to transfer the properties to the CBTC Association

Conclusions

It did not appear that the level of environmental commitment led to the signing of the easement. Certainly, all those who were interested in easements showed a high level of environmental commitment, but for many, the presence of direct and immediate benefits for the owner and/or lower transaction costs were important determining factors.

This is an important assumption, and it would be useful to test it in future studies. CEDARENA has learned that it is important to pay attention to what people expect, their basic reasoning, and the circumstances that influence easement establishment because these factors can facilitate the process or bring it to a standstill (see the case of Tres Cepas under section 3.2, Landowners Who Decided Not to Sign).

Environmental awareness could be relevant for contract compliance. In fact, it seemed natural that if people were environmentally committed, they would comply with a contract that established basic issues about respect and conservation of the natural resources on their property. Nevertheless, we did not have any opposing cases to determine with certainty if environmental awareness really affected contract compliance.

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

Results

The main benefit mentioned by the owners of the servient estate was that the easements were offering protection of the natural resources for the agreed period of time. The owners were also aware that the easement was not going to generate other benefits such as help with the title of the property, protection against encroachment, and tax reduction. This showed that they were aware of the real benefits of an easement (see Box 1). Only the Association of Organizations of the CBTC mentioned that having a conservation easement allowed them access to national and foreign funds (the easements were created using foreign donations).

Another interesting point was that everyone said they were satisfied with the easement. All confirmed they would establish one again, and they would also recommend the tool and would like more neighbors to establish easements.

In general, owners were happy with the easements because they felt they were effectively protecting the forests and the natural resources in the area, now and for the future. As expressed by one of the owners, Emily Yozell, "The conservation easement makes me happy, it gives me spiritual peace."

Lastly, since all the owners were satisfied with the easements on their properties, the degree of satisfaction might influence the absence of conflict. The satisfaction and high environmental commitment of these landowners could be crucial to the easement. However, we did not try to test this association with this assumption.

Conclusions

Conservation easements seem to generate benefits for the owners of the servient estate. In Costa Rica, the benefits came primarily in the form of resource and wildlife conservation and the aesthetic and spiritual values that accompany 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

This assumption was not tested in Costa Rica because there were no properties belonging to collective owners.

4.5. Administration and Management of a Conservation Easement:

Assumption 8: The effectiveness of a conservation 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

The logic behind this assumption was that when the NGO that administers an easement (in Costa Rica, also the owner of the dominant estate) signs an easement, the NGO acquires the responsibility of overseeing easement compliance with conservation goals. If the NGO did not carry out any previous studies or develop a budget and personnel projection, it might not be able to address all the obligations related to the easement.

In Costa Rica, we could analyze this hypothesis only in terms of monitoring because CEDARENA was not responsible for managing the property (most were of absolute conservation), and the easements had not been legally challenged so there were no cases of legal defense.

Given that CEDARENA owned the dominant estates, it had the obligation to monitor the easements to ensure compliance with the contract and the conservation goals. CEDARENA felt that the best way to do so was through a trust whose interest would generate funds for the permanent monitoring and, where needed, legal defense of the properties. This was the thinking behind the creation of the CEDARENA Conservation land Trust (CLT).

In the case of the CBTC easements that were established by buying properties with funds from The Nature Conservancy, the funds to cover the monitoring of these properties were also to be donated to CEDARENA. CEDARENA planned to create a trust, but at the time of this study, TNC was managing the monitoring funds for the CBTC properties, and the creation of the trust was still in process.

As mentioned before, CEDARENA did not participate directly in the management of the properties. However, an interesting aspect in Costa Rica was that since most of the easements were set for absolute conservation, the landowners did not request permission for special management practices, as is the case in other countries. Thus, there was no heavy investment in management by CEDARENA-CLT or the local NGOs who were in charge of most of the management actions. Given there were no problems with the easements, we inferred that the owner of the servient estate -the local NGOs- might play an important role in the functioning of an easement.

In terms of legal defense, since there were no conflicts with the contracts, we had no empirical knowledge about the effectiveness of the land trust. In addition, we did not have cases of unsuccessful easements or situations where the NGO that created or managed the easement had not met its obligations.

Conclusions

In general, we could not prove or disprove this assumption. All easements were successful, and all had funds set aside for monitoring and legal defense. All contracts were in compliance, and the easements had not been challenged. Thus, we did not have sufficient information or variation in cases to test the assumption.

Assumption 9: 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; and b) The easement's conservation target coincides with the conservation priorities identified by the NGO.

Results

All the NGOs involved – owners of servient or dominant estates alike – had identified their conservation priorities. In general, the conservation priority was the creation of biological corridors; therefore the main conservation target was forest. The easements were not implemented to protect specific conservation targets (e.g., a certain species' nesting grounds or a unique ecosystem). The NGOs left the target fairly general due to concerns about the financial costs to carry out studies to identify more specific targets, but their vague nature made it easy to make the case that the easement priorities coincided with CEDARENA's conservation priorities. By protecting the forest, other relevant conservation elements were presumed to be protected as well. However, it is possible that in some cases "empty forests"[7] were being protected, and biodiversity overall was not conserved.

All the surveys showed that there was complete agreement between the conservation priorities of CEDARENA (the administrating NGO) and those of the established easements. This was because CEDARENA focused its efforts on the creation of the biological corridors, and the NGOs that owned the servient estates wanted the same goal. However, we must recognize that the method used to determine if there was agreement was not the most adequate. We directly asked the NGO executing the easements if they felt that their priorities had been clearly identified and if the priorities coincided with those of the easements. In retrospect, we should have obtained more external feedback to make this determination more objectively.

Conclusions

It was difficult to determine if there was an association between the coincidence of NGO conservation priorities and easement conservation targets and the overall effectiveness of an

[7] Empty forests are areas that might appear healthy at first glance but whose wildlife populations have been depleted because of threats such as poaching.

easement. This was because the conservation targets and the conservation priorities were not identified more clearly, and because the NGOs' general conservation priorities coincided with those of the easement. Thus, we did not have any variation in cases. However, it seems reasonable to think that identifying the conservation priorities and conservation targets could help guide and focus the conservation efforts of the organization.

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 and Conclusions

In Costa Rica, CEDARENA owned all the dominant estates. Therefore, this assumption could not be tested because there were no dominant estates that did not belong to an NGO. As explained before, CEDARENA had properties in areas of Costa Rica where there was interest in establishing biological corridors. These properties were used as dominant estates when an easement was created. Even though we could not properly test this assumption, we could not deny that there may be an association, since all the easements were successful and all had an NGO responsible for monitoring and enforcement who was also the owner of the dominant estate.

Assumption 11: The effectiveness of a conservation 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 and Conclusions

As in Assumption 10, we could not prove this assumption, but we could not deny that there was an association, because all the easements were successful and all the easements had an NGO, in this case CEDARENA, who was involved with their negotiation, creation, and monitoring.

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

Results

The individual landowner or the NGO that owned the property generally was involved in most of the easement process. What varied was the level of involvement in the different stages of the process. We defined the level of involvement as the degree of interest that the owner showed during the process and his/her actual participation in the different stages.

Below is a description of the different stages of the process and the results of the surveys.

Technical Work:
In terms of the technical work, the degree of involvement in general was low because most was done by the CEDARENA staff. The owners were generally involved in the gathering of field data, while CEDARENA processed and analyzed the data. CEDARENA also provided the legal assessments for the property. Once all this work was completed, CEDARENA discussed it with the owners and incorporated relevant observations.

In this phase, CEDARENA would discuss the current attributes of the properties with the landowner in order to obtain a consensus about what was documented in the field and set the basis for negotiating and drafting the contract. The reasoning behind involving the owner was that if the owner were not aware of what was documented, it would be more difficult for him/her to recognize and respect the contract.

The surveys showed that the owners felt they had been sufficiently involved in the technical work. In the case of Cerro Osa, there was no involvement in this stage or in the negotiation stage because the current owners were not the original owners that had established the easements. Although we did not have sufficient variation among cases to make comparisons, it seems that involving the owner in the technical work might be important for the success of an easement.

Negotiation:
By nature, the owners must be involved in this stage. The duration of this stage depends on the plans the owners want to develop on their property in the future. For easements established for absolute conservation, the negotiation process is not as complex as the process for easements involving zoning plans.

In terms of the negotiation, it was interesting to analyze the case of Cerro Osa, where the owner that negotiated and signed the easement was not the current owner. This generated a constant flow of communication because the new owners wanted to know what was allowed and prohibited for each area of the property. The new owners were previously aware of the contract, but when trying to implement their ecotourism project, some aspects were beyond the scope of the contract. It became obvious to CEDARENA that a management plan for this easement was needed. Even without this management plan, however, there had not been any problems with compliance at the time of this study; this may have been due to the constant communication between CEDARENA and the owner.

Creation:
By nature, the owners also must be involved in the creation process, because they are the ones who will sign the contract to establish an easement.

Management:
The owners were also in charge of managing the property; CEDARENA was not directly involved in management matters.

Monitoring:
In terms of monitoring, the owners' involvement consisted of receiving a copy of the report about the condition of their easement. Some owners wanted to be more involved, while others felt their level of involvement was sufficient. Despite this variation in interest, it seems that it would be helpful to have owners more involved in the monitoring. In the case of absentee landowners, we felt it was important for them to keep in contact with the organizations or individuals working or living in the area to get a general idea of what was happening on their properties. Even if it were not formal monitoring, this could be a way of measuring the status of the resources on their properties. For example, in cases with areas undergoing regeneration processes, both the owner of the servient estate and the owner of the dominant estate need to be aware of the regeneration status in order to prevent the process from coming to a "standstill" for whatever reason. Monitoring can be a way for the individual or NGO that owns the property and the organization that owns the dominant estate to keep in close contact and focus on the conservation goals of the easement.

Conclusions

All the owners felt they were sufficiently involved in all the stages of the process, even though in the case of the CBTC they would have liked to have been more involved. Since all the easements had reduced the threats to the properties, there were no cases of lack of compliance, and all the owners felt they were sufficiently involved, it is possible that the participation of the landowners might influence the effectiveness of an easement. For example, the effectiveness of an easement might be greater when there is consensus about the zoning plan or the allowed uses for each zone. It seems reasonable that it would be more likely for a landowner to comply with their contract when both parties -owner and NGO- play an important role and have agreed on the content of the contract. However, we did not have any opposing cases where the easements were not successful and/or landowners did not feel involved in the steps. Therefore, we cannot accept this assumption with certainty.

4.6. Monitoring and Enforcement

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

Results

In Costa Rica, the baseline studies were used to gather information to prepare the zoning plan (where relevant) for the property and the legal monitoring. Without a baseline to describe and support the easement contract, it would not be possible to verify if there were any problems with compliance.

Baselines studies in Costa Rica described the characteristics of the property, including biophysical characteristics (e.g., type of soil, rainfall, life zones, and altitude) and biological data (e.g, most common or threatened species of plants or animals). They also provided data collected in the field about the roads, rivers or streams, boundaries, and the infrastructure found on the

property. All this data was collected as a reference to be able to later determine if there had been cases of lack of compliance with the contract, such as land use modifications or construction in prohibited areas.

However, the degree of precision of the baseline studies did not allow us to make conclusions about how effectively easements conserved biodiversity because the baselines only recorded presence or absence of the resources and did not include any assessment of resource status. The baseline studies did not identify the conservation targets for each property and did not include information about the economic and social sources of stress that threaten those conservation targets.

For the SEPA project, the limited development of the baseline studies meant that we could not feasibly determine the current or past status of the biodiversity or the main threats affecting the properties. If we had had this type of information we could have better measured the effectiveness of the easement and determined if the easement had helped reduce the economic and social sources of stress and preserve or improve the status of the conservation targets.

Conclusions

The collection of data for the baseline studies is important as a starting point and to make comparisons to help determine the success of an easement. This is because the quality and degree of exactitude of a baseline study can be major factors in accurately determining the success of a conservation easement. Nevertheless, this assumption was attempting to test only if the presence of baseline studies had an effect on the success of an easement.

We could not conclude with certainty if the mere existence of a baseline affected the success of an easement. Perhaps, it would have been better to draft the assumption differently: Conservation easements are more successful when they include high-quality baseline information about the conservation targets and the threats to the site. Or, perhaps we should have tested whether good-quality baselines support subsequent analyses of easement success.

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

Results

CEDARENA applied a monitoring methodology consisting mainly of verification of legal compliance with the contract, whose general objective was the conservation of the natural attributes of the property. As described in Assumption 13, the baselines did not define the conservation targets or biological resource status and did not provide information about the social or economic sources of stress. As such, it would be impossible to monitor these factors until such baseline information existed.

Conclusions

Regardless of quality, a monitoring methodology did exist, and there were no reports of lack of compliance. This might imply that having a monitoring methodology, at least for legal monitoring, might have a positive influence on the effectiveness of an easement. Nevertheless, we did not have enough cases in general, and no opposing cases in particular, to properly substantiate this conclusion. Moreover, analyzing the way easements were monitored in Costa Rica, it was difficult to determine whether solely monitoring for legal compliance (as opposed to conservation target status) was enough to assess the effectiveness of the easements in terms of biodiversity conservation.

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

Results

To assess the quality of monitoring, we determined if there was a monitoring methodology, how many times a year monitoring was done, and if it was legal and/or biological monitoring.

Because of budget concerns, CEDARENA had not monitored biological aspects, such as the status of specific populations of endangered species. Nevertheless, since the legal monitoring of compliance with the contract found no transgressions, one might argue that this served as an indirect measure of biodiversity status. This is not something we tested, but it would have been interesting to do so.

Another interesting aspect is how CEDARENA was adjusting its monitoring methodology for easements established for absolute conservation and those established with zoning plans. Most of the easements in Costa Rica were set for absolute conservation. Therefore, monitoring and compliance verification were fairly easy. In the case of properties with zoning plans, monitoring was more complex – especially because the different zones were not delimited due to budget constraints. The ideal would be to have a topographical survey and demarcation of the area, so that the owner, the people working on the property, and those in charge of monitoring could be clear about the limits of each zone.

It is also interesting to analyze the frequency of monitoring. Originally, monitoring was to be done four times a year, but at the time of this study, the properties were visited only once a year, due to the high monetary and personnel costs these visits incurred. Since monitoring was not done with the necessary frequency, certain types of problems related to lack of compliance may not have been identified. For example, it would be difficult to determine if there had been any hunting on the properties. Other types of problems with compliance, such as illegal logging or changes to the land use, could be more easily identified with a visit to the site once or twice a year.

The costly and difficult access to the sites for monitoring purposes raises another question. It may be that the distance of and difficult access to the sites are an important, and perhaps even the

key reason that easements have contributed to the conservation of these properties. We did not formally test this but recognize that it is a distinct possibility this is what was occurring.

Conclusions

In Costa Rica, the monitoring methodology tried to verify if there was compliance with the legal terms of the contracts. The quality of the monitoring itself was not very high – monitoring happened infrequently, and budget constraints prohibited CEDARENA staff from monitoring resource status or anything beyond legal compliance with the contract. At the time of the study, there had been no cases of lack of compliance with the contract, which suggested that the quality of the monitoring may not be so important. However, it was difficult to determine the degree of influence that the quality of monitoring had on easement success and, more specifically, the conservation or protection of resources on-site. Moreover, because most contracts were for strict conservation, it was fairly straightforward to determine if a contract had been violated. High quality monitoring in such instances may not be as important as in cases where easements allow multiple land uses.

Although it was difficult to arrive at a clear conclusion about this assumption, there does appear to be a need for better monitoring options that provide clear information about the status of the natural resources and about the contribution to biodiversity conservation that properties under easements are making. In Section 5, we provide a few ideas to consider.

4.7. Personal and Socio-Economic Variables

Throughout the development of the SEPA project it was evident that there was a series of factors or variables that could be influencing the success of a conservation easement but that were not directly addressed with the assumptions tested.

In the case of Costa Rica there was only one private individual. Nonetheless, below we describe some common characteristics of people that are either owners of a conservation easement, donated land on which they placed an easement, or have shown interest in establishing one. In this section we did not include data from the organization landowners because it did not make sense to collect this information from this type of owner.

Age of the Landowner

In Costa Rica, the landowners that had already signed a conservation easement or were in the process of negotiating one were people between the ages of 45 and 65. This is an age in which people are already established economically and can undertake projects like an easement. For example, in the case of the Lapa Ríos and Hacienda Barú hotels, these were businesses that had been established for several years and were very lucrative, therefore their owners had sufficient resources to consider investing in conservation tools. Likewise, they probably could more easily accept a financial loss if it were to occur from establishing an easement. The following section addresses the potential economic and professional influence in more detail.

Profession of the Landowner

In Costa Rica, landowners that had implemented an easement or had been interested in one tended to have careers related to the environment. For example, Emily Yozell was an environmental attorney, while Diane Firestone (who established two easements and then donated the properties) was an ecologist. In the case of Cerro Osa, many of the investors had careers related to the environment; some were biologists and/or had worked with ecological architecture. Among the owners attracted to the easement tool was an agronomist interested in ecotourism. It is not surprising that people with these types of profession were interested in making a substantial environmental commitment and were drawn to conservation easements.

There were also a fair number of individuals or groups that were involved in ecotourism (e.g., Lapa Ríos, Hacienda Barú, and Cerro Osa). Perhaps in the future, this tool could contribute to the development of a sustainable and well-planned tourism activity.

In brief, it is possible that the profession of the owner could be a determining factor in the interest in an easement. Likewise, it could affect the level of success.

Years of Schooling of the Landowner

All the owners in Costa Rica, both for the easements signed and those under negotiation, were professionals. This indicated that education might be influencing the interest in this type of conservation tool. Perhaps the number of years of education, combined with the type of profession, exposed these people to the tool and gave them the skills to analyze if it was beneficial to them or not. For example, in the case of Emily Yozell, who was an environmental attorney, establishing an easement represented the only mechanism to effectively protect –in perpetuity- her property. Her profession likely allowed her to arrive to this type of conclusion that then motivated her to establish a conservation easement.

Nationality of the Landowner

In Costa Rica, it was interesting to analyze the fact that the private owners that had established an easement (whether they held on to it or donated the property) or were in the process of establishing one were all American citizens. On the other hand, the only easement negotiated with an individual but not established involved a Costa Rican national. The large number of American citizens interested in easements in Costa Rica responds to many factors. As opposed to Mexico and Ecuador, much of the coastal zone in Costa Rica has been purchased by foreigners. Many of these foreigners came to Costa Rica because they were interested in nature conservation, and were looking for mechanisms to protect the natural resources. This, combined with the fact that in the USA, easements have been widely used to protect natural resources, probably influenced many of them to establish conservation easements.

The establishment of ten conservation easements on the Talamanca-Caribe Biological Corridor involved funding from The Nature Conservancy (TNC) to purchase the land, establish the conservation easements, and donate the land to a Costa Rican NGO. This partnership between CEDARENA and TNC may have also influenced American citizens in Costa Rica to become interested in easements. They might have been familiar with the work of TNC and felt they could trust TNC's local partner, CEDARENA.

Therefore, in Costa Rica, it seemed that nationality was an important variable. It is likely tied, to a certain degree, to the previous factors also (age, profession, and schooling). In general, foreigners had more economic means to purchase land and many of them were looking for a place to escape the hectic lifestyle and/or retire. Some environmentally committed foreign nationals were involved in ecotourism developments, and therefore, conservation was a profitable venture for them; such is the case of Hacienda Barú and Cerro Osa.

All these factors help explain the interest of so many foreigners in easements. Costa Ricans might have found the tool less attractive because it involved costly investments (e.g., funding for monitoring, technical work, legal assessments) that some may not have had. Another point to consider is the fact that properties in Costa Rica were being sold to foreigners at high prices. As such, many Costa Ricans may not have wanted restrictions on their properties that could lower its sale value. We should also add that easements were a relatively new conservation tool and not many people in Costa Rica were familiar with it.

In brief, the large number of American landowners in the country, their economic stability, and their knowledge about the tool could be major factors influencing the establishing of an easement. It is not that Costa Ricans were not environmentally aware but that conservation easements were not appealing to them, and they have opted for other conservation tools such as compensation for environmental services or private reserves.

5. Summary of the Lessons Learned and Conclusions

As we have mentioned frequently, we could not arrive to certain conclusions in this study because we did not have enough cases to make an appropriate assessment and because there was not enough variance among the cases to allow us to compare opposing cases. Ten of the sixteen registered easements had the same owner (a conservation NGO), were treated as one management unit, and had identical contracts. Moreover, all easements were viewed as successful by those interviewed. Nonetheless, we feel that the process of carrying out this study and analyzing more deeply the Costa Rican experience with conservation easements generated several lessons and conclusions. Some of the conclusions described below were not the direct goal of our study. However, we felt it was important to include them in this section because of their relevance and possible application in the future development of private conservation.

5.1 General Conclusions

Conservation easements in Costa Rica are always evolving. The experience of conservation easements in Costa Rica has been a dynamic process, and the basic easement model has evolved over time. At the beginning, all easements were established for absolute conservation, and NGOs were the owners of the servient and dominant estates. Most of the easements were signed and registered under this model. At the time of this study, CEDARENA had recently started working with private owners with diverse interests and with funding from the private sector. This later model is more similar to the conservation model applied in other parts of the world. Consequently, the CEDARENA Land Trust Program is adapting to address new challenges and

gaps related to private conservation. Because this is a relatively new topic in the country, it has required constant adaptation.

5.2 Contribution to Conservation

Conservation easements are not appropriate tools to stop threats beyond the property. We observed that conservation easements can prevent threats directly affecting the properties (e.g., hunting and cattle raising), but they have not been effective in addressing threats beyond the property. This was the case of the Emily Yozell easement, where the major threat to the region was tourism development; establishing the easement did not change the threat level. This was not surprising because this threat was actually beyond the control of the landowner. 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.

We must understand the level of influence of the government and public conservation on the easements. Another aspect that should be investigated further is the level of control of the government and other conservation organizations in the areas where the easements are located. This aspect was not included in the scope of the SEPA project, because we only looked at the organizations directly involved with the conservation easement. Nevertheless, the influence of government institutions (e.g., MINAE) or other conservation organizations might be contributing to the lack of conflicts in the properties under easements. For example, if MINAE is doing frequent monitoring or control activities in the area, it could be contributing to reducing threats such as illegal logging or illegal infrastructure developments. More generally, we should not evaluate easement success in complete isolation of other variables that may be influencing that success.

The proximity to a protected area does not seem to influence the success of an easement in reducing the threats to the site. All the conservation easements in Costa Rica were near a protected area and along a biological corridor, and according to our measures, all the easements were successful. Looking only at Costa Rica, it would seem that it is possible that proximity to a protected area does influence easement success. However, if we compare our findings with those presented in the Mexico and Ecuador case study, proximity to a natural protected area was not a common denominator among the easements that have been successful. It is valid to say that all the easements near a natural protected area have been successful, and there have been no cases where the proximity has caused a problem for the easement. 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 contributed to

Scarlet Macaw – Cerro Osa
Lucia Morales / CEDARENA

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.

5.3 Creating a Conservation Easement

Environmental awareness itself is not enough to guarantee that a landowner will sign a contract. In Costa Rica, environmental awareness was not enough motivation for a landowner to sign a conservation easement. In cases where a landowner decided *not* to sign an easement, those landowners were environmentally aware. They chose not to sign an easement mainly because they perceived it involved high costs and not enough benefits. These owners were already protecting their properties and evidently they had reservations that prevented them from signing an easement contract. Among the more common causes for postponing the contract signing was the possible need to sell the property. In fact, the owners were afraid of not being able to sell their properties if they placed an easement on them or that the sale price would drop because of the easement. In some cases, they wanted to sell the property to an environmentally aware buyer who was willing to accept the easement and would not sign the contract until they found that buyer.

The owners need other incentives to sign a contract. Following the reasoning of the above lesson, more research is needed to make easements a more attractive tool that generates more benefits to these environmentally committed owners. Likewise, it is important to reduce the financial transaction costs for those interested in signing. These are important issues to resolve because even though the owners might be currently conserving a property, it is not certain that their children or future owners will protect it. With signed contracts and easements under implementation, the properties would be legally required to be protected in perpetuity. One benefit that seemed to be important to the owners was financial retribution. If the Monteverde group had not seen the easement as a costly option, they would have created easements on their properties, instead of assuming that the properties would continue being protected in the future. Also, financial retribution could motivate owners who are considering signing a contract but are afraid that their properties might lose value if they place them under easement.

Geographer Emilio Fallas – Cerro Osa
Lucia Morales / CEDARENA

In general, more research is needed to turn easements into a "good business," both for Costa Rican nationals as well as foreigners. As a result, environmentally conscious people who are interested in protecting their properties through an easement could enjoy direct economic benefits while practicing private conservation and sound natural resource management. In addition, more emphasis should be placed on other benefits mentioned by the

owners, such as natural resources conservation, titling of their properties, and protection against encroachment. In fact, the enthusiasm of the current owners should be used to help promote more easements.

The owners tend to be people with careers already established and/or people who do not depend exclusively on their property for their income. One of the most common characteristics derived from the systematic analysis of the SEPA project was the fact that the owners of the easements in Costa Rica did not depend on their land for their income, a fact that might have facilitated the conservation of these properties. In addition, no one actually lived on most of the properties, so there was no direct use of the natural resources and the need for management and administration of the properties was minimal. This implies that owners were more likely to establish easements when they did not depend exclusively on the property as a source of income.

The owners tend to be foreigners. In Costa Rica, most of the owners interested in establishing easements were foreigners. This could be due to several reasons. First, a large number of foreigners have purchased land in Costa Rica in tourism areas – areas that are also important from a conservation perspective. People who decided to purchase land in these sites were generally interested in conservation and were attracted to the beauty of the area. They were looking for a beautiful place where they could escape from a fast-paced lifestyle. Generally, they had the financial stability to set use limits on their properties. Similar to the above situation, they did not depend exclusively on the property for their livelihood – or, if they did, land and resource conservation were necessary conditions for the success of their businesses.

Costa Rican owners have opted for other conservation tools instead of conservation easements. Easements were not perceived as functional tools by Costa Rican owners. As a result, they have opted for other conservation tools such as compensation for environmental services or private reserves. If easements are to continue being applied in Costa Rica, it might be necessary to modify the tool to make it more useful and attractive to Costa Rican landowners. There are several options and strategies that could be used. For example, easements could be linked the to an existing economic incentive like compensation for cnvironmental services. Alternatively, CEDARENA or other interested parties could work with tourism chambers to promote the sites that have an easement in order to generate benefits for the owners.

There is a need to improve the contracts. Over time, CEDARENA has gained more experience with easements. It has realized that the original contracts were too general and not appropriate for easements that allowed zoning and multiple uses. The contracts did not identify the specific conservation targets (they only mentioned the conservation of the "forest"), and they did not identify the threats associated with social, economic, and/or political pressures. In other words, they lacked concrete goals/objectives and means to determine if their goals/objectives had been achieved. In addition, CEDARENA could not determine if a landowner was complying with the contract. Currently, CEDARENA is adapting the contracts to make them less general and more reflective of the real conditions in the field. One adjustment has been the addition of clauses that allow for modifications in case of technological and scientific advances. Also, the properties with zoning plans can now help set the boundaries for the different zones, as well as develop detailed lists of the activities allowed for each zone. Finally, CEDARENA has stipulated the

need for a management plan to accompany the contract and serve as a guideline for any development permitted within the property. What still needs to be incorporated more formally are the conservation targets and the threats or pressures that the easement would be designed to prevent or mitigate.

5.4 Managing and Monitoring a Conservation Easement

The type of owner (NGO or individual) may influence the level of compliance with the contract. Another interesting characteristic was the fact that, for many of the easements, conservation NGOs were the owners of the servient estates. This could be one of most important influencing factors for the compliance with the contracts because they were created to improve the conditions of the ecosystems in the area; therefore, the conservation organizations presumably would not take any actions to harm the ecosystems. Also, these NGOs were interested in reducing the environmental threats in the area and shared the same goals as CEDARENA. In reality, we did not see a difference in the level of compliance, but this is something that CEDARENA should track over time to see if there is a difference and what that means for easement implementation.

Creative options for monitoring could reduce the cost of monitoring, improve monitoring, and improve easement oversight. One argument frequently cited to justify inadequate monitoring systems was the financial costs they imply. However, there are alternatives for monitoring that are effective and less costly. For example, you can use more general or indirect ("proxy") indicators that do not measure biodiversity directly but provide an indication of its probable status. Also you can monitor threats as an indication of resource status. If there are no threats or if they are being reduced, you can suppose that the status of the resources is improving. Another option to lower costs would be to incorporate colleges or universities into the monitoring activities or develop research projects on the properties under easement. These projects would not only contribute to the monitoring, but also to the protection of the properties because of the greater presence on the properties. Another benefit of incorporating the universities to the monitoring process would be the improvement of baseline studies with information on the status of natural resources. Another option could be to develop volunteer monitoring programs together with the government. Finally, as satellite imaging improves and becomes increasingly accessible, it may be possible apply this technology for monitoring in order to identify patches of deforestation on and around the properties. More work should be done along this line in order to identify viable options for monitoring the easements.

View into canopy – Cerro Osa
Lucia Morales / CEDARENA

Remote access might be a major factor influencing the success of an easement. Remote access is another aspect worth analyzing in the case of Costa Rica, in regards to the lack of conflicts and the compliance with the

contracts. The fact that the easements were located in remote areas with difficult access might be crucial for their conservation. The difficulty in accessing these properties likely helped prevent illegal logging and hunting. It is also possible that no problems with compliance were identified because the remoteness and difficult access of the area made frequent monitoring impossible. The SEPA project did not attempt to test if there was an association between remoteness and the success of an easement, but it would be interesting to study this relationship in more detail.

There is a need to improve conservation easement baselines and monitoring. Through the SEPA project, CEDARENA became aware of the need to look for options to quantify the level of biodiversity conservation in the areas protected by a conservation easement. In the first place, it was unclear what should be measured because the contracts were too general. CEDARENA realized that they could clarify what aspects to monitor by including in the contract the conservation targets and the threats the easement is designed to reduce. Another challenge CEDARENA identified was how to measure threat reduction because there were no initial (baseline) indicators against which to compare reduction over time. In fact, to carry out this study, we had to rely on speculative threat reduction measurements. At a very general level, this was adequate (thought not ideal) for the purposes of this study, but it is not sufficient for CEDARENA to know if their easements are successful over the long term.

In this regard, more in-depth research is needed to generate environmental assessments that indicate the status of the natural resources in the area, as well as the effect of social, economic, political, and cultural pressures and opportunities. Also, there should be a systematic monitoring process that specifies what is expected from the easements, as well as the indicators to measure the impact of easements on conservation. This systematic process should include a monitoring plan that indicates when and how the indicators should be measured.

6. Final Words

Despite the challenges we encountered in carrying out the SEPA project, this study has been useful in a number of respects. It provided a systematic analysis to better understand the use, success, and limitations of easements in Costa Rica. It also helped us identify ways to improve conservation easements. The conclusions and lessons coming from this work will be useful not only to those working in Costa Rica, but to any group interested in private land conservation around the globe.

In Costa Rica, there have not been problems with compliance, and no conflicts have arisen with the easements. Still, there is much work to be done in terms of the use of easements as a tool to facilitate conservation. Easements in Costa Rica have evolved under a very different model compared to other nations in the region. The use of this model has generated discussion including questions such as: a) Would it have been possible to sign and register 16 easements without the participation of international, national, and local NGOs and without the funding associated with their participation?; b) Why were the private landowners interested in signing an easement mainly foreign nationals?; and c) How and when should monitoring be done to determine easement impact on biodiversity conservation?

The time that easements have been in effect in Costa Rica has allowed for the evaluation and analysis of the circumstances in which easements can develop better. It has allowed also for the analysis of aspects that need to be improved in order to make easements more convenient and attractive so that new private owners, both foreign and national, might decide to protect their properties using this tool.

Costa Rica is a country whose main economic activity is tourism. Tourism and real estate development have considerably increased pressure on the natural resources and are threatening the biodiversity in the country. Undoubtedly, private conservation through tools such as easements might be the only way to achieve real sustainable development in Costa Rica. This is one reason that studies like the SEPA project are important. Easements need to continue evolving in order to satisfy the changing needs in the field of conservation. Because of the type of development occurring in Costa Rica, it is crucial to associate easements with tourism, where other variations of the tool could be developed. In regards to tourism, reciprocal easements could be established between neighbors to develop community tourism projects. Through these efforts, easements could continue to be an option for private conservation in the country.

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.

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	• Signing of the contract • Compliance with all the clauses in	• Level of landowner compromise with the

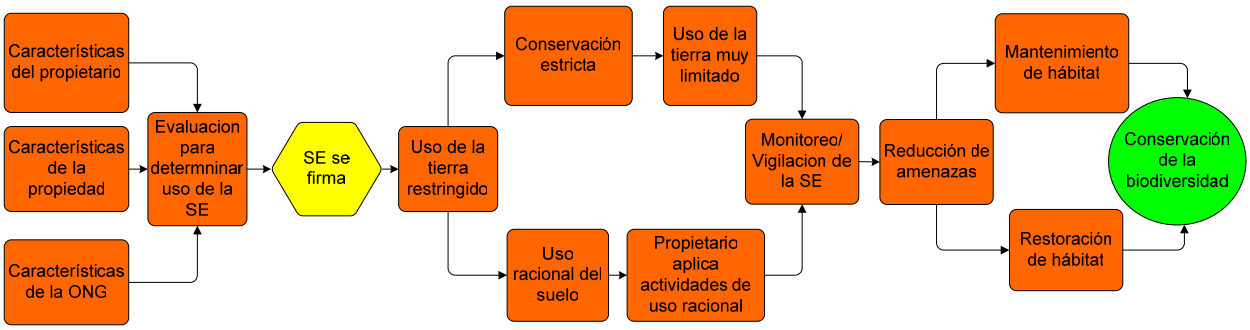
Factor	Assumption	Impact Indicators (Dependent Variables)	Causal Indicators (Independent Variables)
	signed, it is more likely that he/she will comply with it.	the contract	environment
	6. The signing and implementation of an easement generate benefits for the landowners.	• Level of satisfaction of the 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 4). 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 4. 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: [8] Threat reduction

Level of compliance with the contract

Causal Indicator[9]	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: [10] Presence of conservation practices among neighboring landowners

[8] For a description of the impact indicators, see the section on the success of a conservation easement.
[9] 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: [11] 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: [12] Threat reduction

Level of compliance with the contract

[10] For a description of the impact indicators, see the section on the success of a conservation easement
[11] Idem.
[12] 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: [13] 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: [14] 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	

[13] Idem.
[14] 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: [15] 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: [16] Threat reduction

Level of compliance with the contract

[15] Idem.
[16] 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: [17] 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)

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

[17] Idem.

Impact Indicators: [18] 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: [19] 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

[18] Idem.
[19] 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: [20] 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: [21] 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.

[20] Idem.
[21] Idem.

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

Impact Indicators: [22] 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: [23] 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

[22] Idem.
[23] 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.