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Geographies of governance across La Amistad International Park

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Geographies of Governance across La Amistad International Park

by
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MASTER'S THESIS

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Geographies of Governance across La Amistad International Park

A Thesis
Presented to
The Faculty of Western Washington University

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ABSTRACT

This research focused on levels of trust, participation levels, and the emergence of polycentric governance among buffer zone community stakeholders in a case study of La Amistad International Park in Costa Rica and Panama. In this investigation, I combined a human geography of regions perspective with Common Pool Resource (CPR) theory to analyze the management structure of a bi-national park (a UNESCO Biosphere and World Heritage Site) and its progress toward the UNESCO Biosphere goals. These goals focus on socio-economic development for human well-being and educational and research opportunities addressing global to local issues related to integrated conservation and development. I analyzed the trust factor from Elinor Ostrom's resource user conditions and two of Ostrom's eight institutional arrangements for CPR success: (1) collective-choice arrangements and (2) multiple layers of governance. These elements lead to a clearer understanding of the current institutional arrangements in the park. I conducted an exploratory case study using a qualitative, mixed-methods approach consisting of semi-structured interviews, questionnaires, and observation. This project showed how the global and local forces have produced the present structure of management with fortress conservation practices at varying degrees in the four regions. Additionally, this research demonstrated how the community member's trust in stakeholder and governmental conservation efforts drops with lower levels of collective action. There have been many international measures such as the Park in Perils Program and the UNESCO Biosphere with the idea of greater stakeholder involvement; however the efforts and results of these efforts vary greatly across the four regions with some success on the Pacific side of the park and little to none on the Atlantic side.

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CHAPTER 1: INTRODUCTION TO A CASE STUDY ON LA AMISTAD INTERNATIONAL PARK

Translated as the "International Friendship Park" in English, Parque Internacional La Amistad (PILA) is a transboundary-protected area spanning the border of Costa Rica and Panama. The Park's name obscures more than it reveals. This park is the largest nature reserve in Central America and protects a biogeography of 1,403,176 acres and some of Mesoamerica's most iconic megafauna, the Jaguar, Tapir, and Harpy Eagle. Beyond the veneer of friendship, lies conflict. Like most protected areas in developing countries, PILA is also home to many conflicts and tensions. Tensions exist among stakeholders from the local to the global, conflict and tension also populates this park's human and political geography levels because of the diverse interests involved. Tensions have arisen because of the different goals of forest conservation, hydroelectric development, and the local communities. The pursuit of diverse agendas is leading to distrust among stakeholders in the buffer zone communities of La Amistad. Studies have demonstrated that the loss of ecosystem services, which can result from hydroelectric development, can disproportionately burden poor communities dependent on these ecosystem services. Conversely, conservation measures such as the creation of protected areas to prevent further land conversion to agriculture or extraction activities have often led to unfavorable outcomes for poorer communities (Brandon et al., 2005). Expansion in local stakeholder involvement and improvements in protected area management practices are recommended to reconcile these diverse interests.

Thesis Goals and Objectives

This is a research investigation for a Master's Thesis in Geography that navigates the intersection of biogeography and the political strain of human geography. In this research, I start with the human geography concept that regions are not static (Thrift, 1994), but are a constructive process with continuous reconstruction by anthropogenic forces. Humans play a significant role in the success or failure of conservation of eco-regions. By looking at regions of conservation from a biogeography perspective, the dominant narrative of scientists and ecologists is that single large areas support more biodiversity than several small areas (MacArthur &Wilson, 1967). However, the idea of SLOSS (the dilemma of single large or several small) focused solely on the biodiversity component. My research went further and investigated the political side of the conservation practices of a region. I extend the perspective presented by Abel et al. (2011) in a transboundary conservation and management study that examined the parallels between the conservation dilemma of SLOSS in island biogeography and the debate about a centralized management approach versus the polycentric approach introduced by Elinor Ostrom is her Common Pool Resource Theory (CPR).

My research brings together the theories of Thrift, MacArthur & Wilson and Ostrom, allowing for the spatialization of Common Pool Resource Theory to help reveal some of the complications when dealing with large geographic scales and a broad range of interested parties. By integrating these three perspectives, I collected a unique combination of data to examine the conservation geography dilemmas surrounding the management of La Amistad. The methodological approach that bridges these theories involved a case study analysis of:

(1) levels of trust; (2) collective-choice arrangements; and (3) multiple layers of governance (polycentric) in a bi-national park. The importance of trust in dealing with collective-action dilemmas is becoming a focus in recent theoretical research (Ostrom, 2009). For instance, according to Poteet, Janssen and Ostrom (2010) "…at the core of an evolving theoretical explanation of successful or unsuccessful collective action is the internal link between trust among participants in a common pool setting…and the increased probability that all participants will use reciprocity norms".

Poteet, Janssen and Ostrom (2010), define a case study as having multiple levels of analysis with separate units of analysis. The principle units of analysis for a commons is defined as the participants involved in collective action or the "central objects" of the collective action. The specific types of cases can be defined as cases of a natural resource system, a policy unit, or a social group (Poteet, Janssen and Ostrom, 2010). My research explores these three multiple layers of analysis.

The latter two analysis techniques are institutional guidelines in Ostrom's CPR Theory and are found in the guidelines of UNESCO Biosphere Reserves. By comparing the levels of trust, collective-choice arrangements, and polycentric governance across the four provincial regions that form La Amistad International Park, my research identified significant tensions and complications that arise among resource users and outside interests relative to the conservation of a large-scale natural resource.

Politicized Biogeography

Arriving in the community of Guadalupe on the Pacific side of La Amistad International Park in Panama in January 2011, I encountered a community meeting to rally residents against the installation of multiple hydroelectric projects in the region. In the following quote, I do not identify my interviewee and instead use an abbreviation for a Panamanian Pacific resident (PaP). From personal interviews and observations, tension between the foreign hydroelectric company pursuits in the area and the interests of the local community members became evident:

> "…All of the hydroelectrics are from Spain. Someone sold them to a Panamanian electricity company and now they are making money and now they want to make more and it's foolish because now the river is going to die sooner or later… You are on top of a bomb right now." (PaP, 42)

As asserted by a long-time resident of Guadalupe, a community bordering La Amistad International Park and located within the La Amistad Biosphere (which includes critical areas adjacent to the park), this "bomb" symbolizes the growing tension in the Chiriqui and Bocas del Toro Provinces of Panama concerning the numerous hydroelectric plants proposed for these areas. Because of the agrarian-based economy of the Chiriqui Province, which produces a large portion of the food for the Republic of Panama, numerous residents of the La Amistad buffer zone communities of Guadalupe, Cerro Punta and Las Nubes have expressed concern over water rights, flooding, deforestation, and the government's favoring international economic interests over local interests.

The hydroelectric issue has led to community rallies by the Panamanian NGO, FUNDICCEP, Fundación para el desarrollo integral, comunitario y conservación de los ecosistemas en Panama (Foundation for the Integral Development, Community and Conservation of Ecosystems in Panama), participation in the Inter-American Human Rights Commission in Washington DC in 2008 by members of the Naso and Ngobe indigenous groups, and tension among Naso community members regarding the installation of hydroelectric facilities. This dilemma has two sets of tensions in play; (1) the hydroelectric development with its economic benefits versus the interests of residents who will be adversely affected in areas like agriculture, and (2) and the disconnect between conception and implementation of conservation measures in La Amistad International Park.

This hydroelectric dilemma reflects some of the tensions that exist specifically in the region of La Amistad and also sheds light on the international conservation debate. It is not simply about the environment per se, as there are social and political processes that underlie the different conservation approached embraced across the park. There is an ongoing conservation debate between the protectionist paradigm, which focuses on the protection of biodiversity through a centralized authoritarian regime, versus the more participatory, integrated approach with community involvement (Wilshusen et al., 2002). Many parks were created with the island biogeography idea of biologically "single large" fused with politically "single large" (centralized management). However, according to studies conducted by Elinor Ostrom, polycentric governance can lead to more successful outcomes in commons management. This conservation debate is even more complicated in a park such as La Amistad due to the enormous spatial extent of the Park. Owing to the bi-national and bi-

regional governance, the political geography of the park drastically changes throughout the four geographic regions.

To better understand the political biogeography of La Amistad International Park, l investigated the different governing assemblages, stakeholder perceptions of them, how they interact, and how these relationships plays out practically in the management of the park. As Nigel Thrift explains, a decent regional geographic approach can be found if we understand that regions are not bound, but constructed (Thrift, 1994). My analysis of the governing, cross-scale assemblages elucidates the governance structure of the park and the intricacies of governing a commons with a large spatial extent.

Management and planning of specific regions, such as La Amistad International Park, are not always situated in the same geographic location nor in the park itself. Many times the decisions are made or influenced from elsewhere and by a variety of actors. As John Allen and Allan Cochrane discuss, regions can be seen as a relational construct or an assemblage of political actors rather than a fixed geographic place (Allen & Cochrane, 2007). Using these ideas, the present approach attempts to identity the various stakeholders and decision-makers, whether located at the particular geographic site or in the capital of each nation.

The observations I make about park management incorporate perceptions and experiences of community members, their knowledge of the park, and the level of participation of buffer zone community members in forest management. Financial encouragement for sustainable economic alternatives in the buffer region comes from powerful NGOs and multi-national companies, which have influence on certain buffer zone regions. Restrictions on the activities of buffer zone communities emerge from authoritative

rule and corresponding low levels of participation. These limitations are analyzed by considering cross-scale assemblages studying who is included and excluded in park activities. Is decision-making power in park management wielded by local communities or local researchers due to their knowledge of the area? Or does power in park decision-making rest in the hands of international conservation groups? Or do the governments of one or both countries maintain power? Another controlling factor is the geographic region that was designated park territory, with the rules and regulations that were implemented in the region and rationale behind these rules and regulations. These questions are overlooked in the dominant boundary making of conservation regions through the field of biogeography.

Significance in Biogeography

When discussing island biogeography, the focus is on the biological isolation that confronts species in an insulated geographic region (Quammen, 1996). The geographic island is tangible and visible. Whether we view it as synthetic barriers such as fences, roads, farms, or as natural limits such as oceans and rivers, we observe the abrupt transition from densely forested terrain to other forms of land use. The biology that defines an island is only one factor as many times these biological islands are human constructs. These constructs can be both a social and political act, thus the politics are a consideration in this research. According to Donaldson and Murakami (2007) "biogeography has traditionally focused on the distribution of organisms over space and time, political biogeography should concentrate on the mutual interference of human and on human systems in this distribution." The political management of the region impacts and alters the landscape. I examine the unique and diverse

political management schemes throughout La Amistad International Park through the intersection of spatial implications from island biogeography and the management components of Common Pool Resource Theory.

In addition to the political management, I analyze perceptions and experiences of park conservation by local community members and NGO workers in various communities in the buffer zone. This research demonstrates the community's horizontal collaborations and interconnections with the traditional vertical management regime and examines the levels of trust among the stakeholders.

La Amistad International Park

Spanning the Talamanca Mountain Ranges in southern Costa Rica and northern Panama, the unique geographical and biological landscape is part of the Mesoamerican Biological Corridor and contains one of the largest and most biodiverse tracts of undisturbed forest remaining in Central America. With the goal of conserving the exceptional biodiversity in this region, Costa Rica and Panama created a bi-national park in 1990, La Amistad International Park. The initial management approach of both countries followed the conventional "fences-and-fines" structure for protected area management, which assigns park authority to the central government of each country. The creation of La Amistad occurred before the 1995 restructuring and decentralization of the park system in Costa Rica, moving from the centralized National Park Service to the distributed National System of Conservation Areas (Evans, 1999).

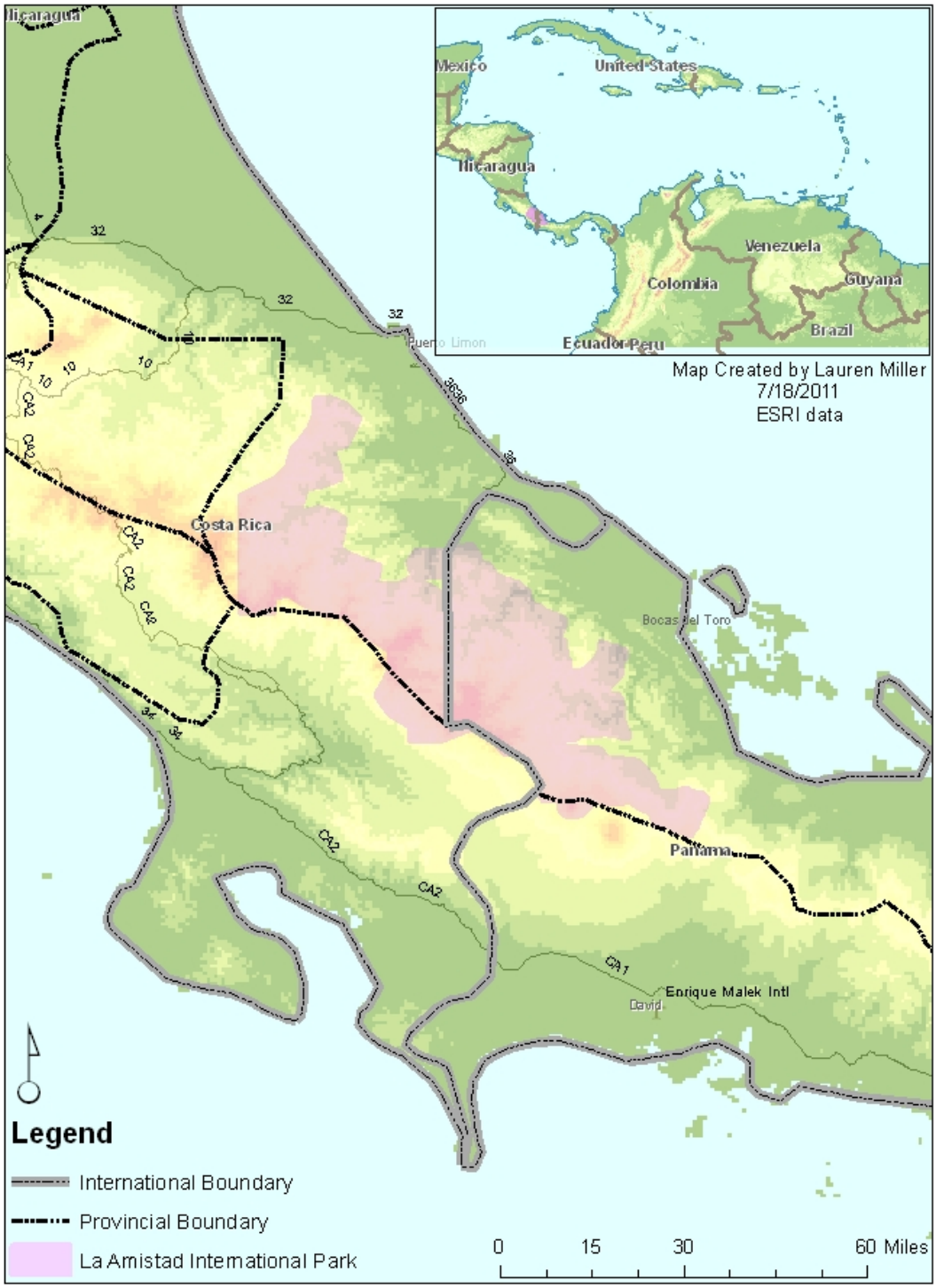


Figure I: La Amistad International Park Boundaries

Following this decentralization in protected areas management to eleven regional ministries in Costa Rica in 1995 (Evans, 1999) and, building on the creation of La Amistad National Park in 1982 and the UNESCO World Heritage Site designation in 1983, the management of the park moved toward a more decentralized and inclusive form of management. With the union of this transborder ecological region under joint management, the Panamanian and Costa Rican governments created an international park, which received the UNESCO World Heritage designation in 1990 (UNESCO 1990). La Amistad International Park was designated a UNESCO Biosphere Reserve in 2000 (UNESCO, 2000). On the Costa Rican side of the Park, the Biosphere designation, combined with the decentralization to conservation areas in 1995, was a step toward a more localized approach. Global involvement simultaneously increased with the addition of the Biosphere objectives of community involvement and a jointly managed international park. On the Panamanian side, in 1998 the management of protected areas was structured into a similar system of protected areas with a centralized government authority, the National Environment Authority (ANAM).

The creation of La Amistad on both sides of the international border embodied = Garrett Hardin's (1968) recommendation of privatization or state control to prevent the demise of the *commons;* in the case of La Amistad the form of management originated with state control. Common pool resources (CPRs) are shared commodities that can be either a natural resource such as forest, fishery, and pasture or human-made such as an irrigation system. It is costly, but not impossible, to exclude beneficiaries from common pool resources. CPRs can be diminished due to problems of overuse with a lack of regulation, as

with the situation with open access (Ostrom et al, 2002). Forests, as a common pool resource, may be owned and managed by numerous institutional entities such as various levels of government (local, regional, national), communal groups, private goods of individuals or corporations, or left unmanaged with open access to anyone. La Amistad involves a mixed institutional approach, with differences due to the division of La Amistad into four separate management zones with further divisions for indigenous reserves. While Table I below, adapted from Balloffet and Martin (2007) shows clear among four management types, the management of La Amistad is a mixture of these various types.

While much of the forest area includes governmentally purchased land, there is indigenous territory on the Caribbean side of the park in Panama and Costa Rica that is private land. There is not currently "recognition of full private or traditional rights". The indigenous territories carry out the conservation laws set by the Costa Rican and Panamanian governmental authorities. In the Pacific regions of the park in both Costa Rica and Panama there is some sense of "co-responsibility". In the Pacific region of Costa Rica local associations take part in some formal participatory measures, though co-responsibility does not equate to shared governance or co-management as defined in Type II. According to Singleton (1998) co-management is "the term given to governance systems that combine state control with local, decentralized decision making and accountability and which, ideally, combine the strengths and mitigate the weaknesses of each."

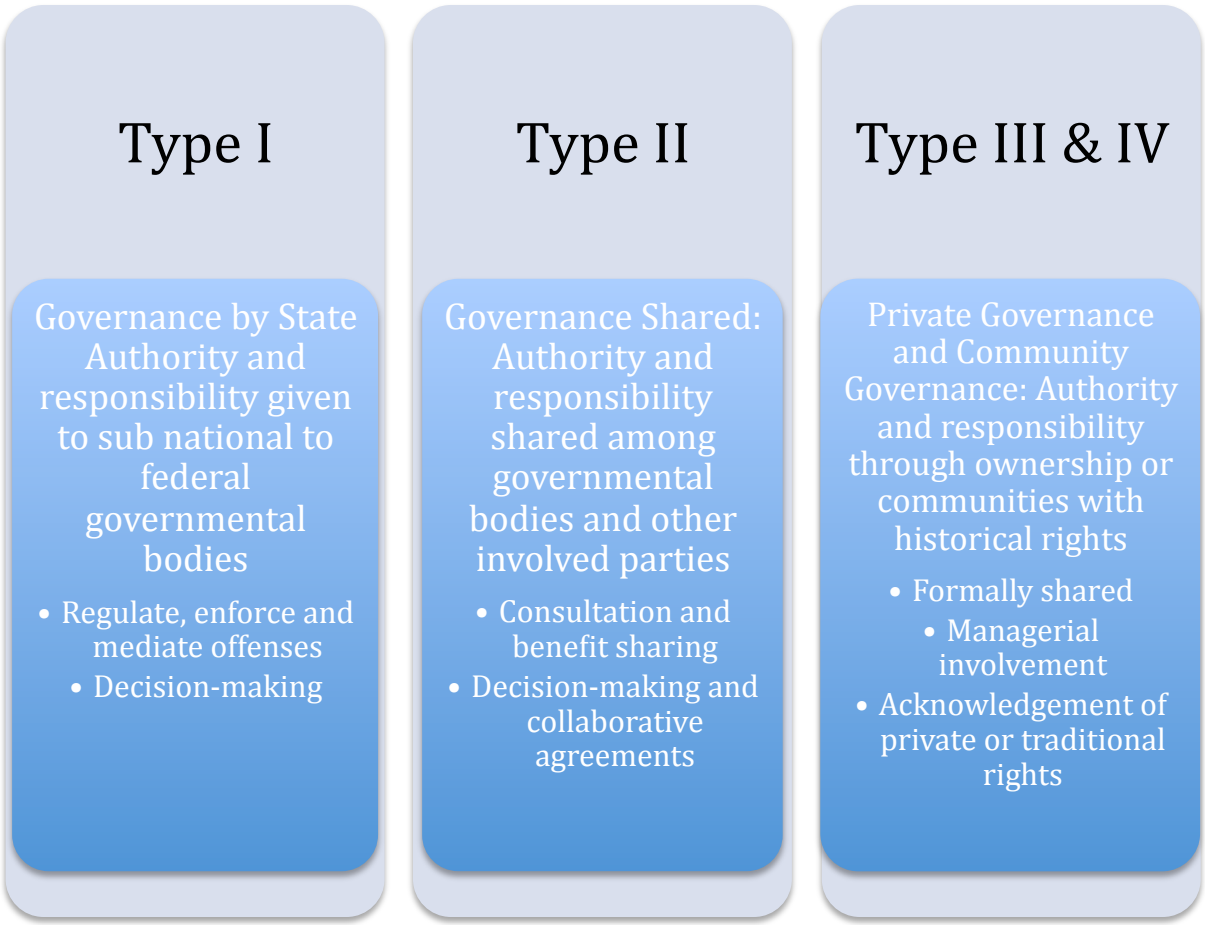


Table I: Governance Types for Protected Areas (Adapted from Balloffet and Martin, 2007)

Within CPR Theory, trust in management outcomes would most likely increase moving from Type I to Type IV, as these conditions are thought to foster more effective CPR management. In the case of La Amistad, the management outcomes are not as straightforward as the chart above indicates. Additionally, the levels of trust in the indigenous reserves, in particular, do not follow the predictions of CPR Theory.

Even a decade after the establishment of La Amistad, the forest remained vulnerable to illegal occupation, cattle ranching, timber extraction, slashing and burning and

development (UNESCO, 1990). Some of these activities extend beyond designated areas due to encroachment of cattle ranchers from buffer zones. The outcome is deforestation in La Amistad Park territory stemming from inadequate management and governance. As described by Hardin, a common pool resource left unregulated results in the total depletion of that resource because stakeholders are locked into a competition for the resource with no incentives to conserve. Furthermore, Hardin states, "we must soon cease to treat the parks as commons or they will be of no value to anyone." (Hardin, 1968)

More recent studies have revealed that common pool resources are not always subject to total destruction if community norms, rules and enforcement through adequate governmental regulation are present (Schlager, 2004). In the case of La Amistad, clearly defined objectives for management, as well as the establishment of collaborative efforts from the local to global scale have started to emerge in recent years. The extent of these collaborative efforts varies across the four regions of the park as shown in Table II below. While there are formal methods of assessment with selective stakeholder participation on the Pacific of Costa Rica and Panama, co-management has not emerged. However, there is an ongoing process to create co-management in the Caribbean region of Costa Rica between the indigenous groups and MINAE, Ministerio de Ambiente y Energía (Ministry of the Environment and Energy).

No Co-Management	Co-Assessment	Co-Responsibility	Co-Management
Panama, Caribbean Costa Rica, Caribbean	Panama, Pacific	Costa Rica, Pacific	

Table II: Extent of Collaboration Across La Amistad

Research Questions

The creation of this transborder arrangement emerged to ensure improved collaborative management of the transboundary eco-region shared by both Panama and Costa Rica. This is a study of tensions in transborder collaborative park management that addresses how are diverse, local-to-global scale pressures reshaping the management of La Amistad International Park and how does this affect levels of trust, participation and the emergence of polycentric governance between the local communities and the park? This involves an examination of institutional structures and governance. Who is involved in managing which space in and around the park, from where, and to what extent? Which stakeholders are included in this governance regime and which are excluded? Is there a uniform management structure throughout the four regions of the park? And how do the perceptions and experiences in the buffer zone communities of La Amistad differ bi-regionally and bi-nationally?

UNESCO and La Amistad

With a United Nation's Educational Scientific and Cultural Organization's (UNESCO) Biosphere and World Heritage Site designation, the contentious issue surrounding the construction of hydroelectric facilities within the La Amistad Biosphere draws attention to the management regime and where the decision-making resides in La Amistad International Park. This issue further spurs questions regarding community perceptions, levels of stakeholder participation, collaboration and meaningful involvement of community stakeholders in the governing scheme, levels of trust between stakeholders in the buffer zone of La Amistad International Park and the similar and different perceptions among stakeholders throughout the four geographical regions of this bi-national park.

In accordance with the UNESCO World Heritage Site designation as a "natural" site, there are specific criteria and implications for the preservation of the unique biodiversity that is found in La Amistad. In this research, I focus my attention on the objectives set forth by the UNESCO Biosphere designation that relate directly to achieving the interrelated goals of conservation, sustainable development, and logistical support. Is the goal of sustainable development being cultivated locally with community member involvement in participative governance systems and how does it vary across the four regions of park management? Or, as observed by Weber, Lovrich and Gaffney (2005), how much collaborative capacity do communities and NGOs in the buffer zone of La Amistad have to actively integrate and partake in the policy and decision-making arena of traditional, vertical governing institutions? Additionally, my research investigates whether there is development toward a

multi-stakeholder approach with community member involvement in management as set forth in the Biosphere Reserve guidelines. I approach this through an analysis of whether the park management subscribes to two of Elinor Ostrom's eight institutional prescriptions for common rool resource management: (1) collective-choice arrangements and (2) multiple layers of governance.

By focusing my research on an analysis of governing assemblages involved in ecosystem management in a case study of conservation and management efforts in La Amistad International Park in Costa Rica and Panama, this project will demonstrate how global and local forces have produced the present structure of governance at various sociopolitical and geographic scales and also will reveal some of the differences that have formed bi-regionally and bi-nationally. The unique balance between the incorporation of outside knowledge, support and investment versus local customs, traditions and economic vitality has created a diverse political landscape and different sets of challenges for park officials, NGOs and community stakeholders.

Resource Conservation and Management Implications

La Amistad has been involved in the Parks in Peril Program (PiP) since 1995 through the Nature Conservancy, which is closely associated and shares common objectives with the UNESCO Biosphere Reserve designation. As stated by the Parks in Peril Program, "protected areas governance incorporates both biodiversity and social concerns by addressing the what, why, how and by whom of protected areas management." One communal focus in

the published literature of these two programs involves the idea of "governance, participation, equity and benefit sharing" through involvement of indigenous and local communities (Balloffet and Martin, 2007). Therefore, the level of local participation and the extent of the emergence of a co-management regime confirm whether these UNESCO and the Nature Conservancy goals are being carried out. This is similar to Weber's (2005) approach to collaborative capacity that looks at the integration of horizontal, vertical and partnership linkages.

By looking at levels of trust, local participation and polycentrism, my research critically analyzes the efforts of the Parks in Peril Program in the Talamanca Range and their conservation approach of *consolidation*. PiP (2008) states that they are "working with local stakeholders to consolidate the Amistad International Park/Bocas del Toro area by identifying critical targets and stresses through Conservation Area Planning." Brandon, Redford and Sanderson (1998) provide nine case studies of National Parks in Latin American concluding that, "burdening the parks with an overwhelming set of social goals has become all too commonplace." In contrast, Wilshusen et al. (2002) favors community development projects and the promotion for community participation in the decision-making process, and criticizes the necessity of fortress conservation for the protection of biodiversity. Their critique is multi-faceted, including the ideas that fortress conservation ignores the social and political processes involved in conservation, and fails to recognize pre-existing land rights as well as indigenous and traditional approaches to conservation.

Community-Based Natural Resource Management (CBNRNM) has had successes and challenges as a method to achieve sustainability where communities and protected

ecosystems converge. As demonstrated in many case studies by Elinor Ostrom, there have been documented success stories that contrast with the top-down, command-and-control, centralized management of natural resources around the world. Costa Rica's record on CBNRNM is a mixed story of successes and struggles, but in cases such as Cahuita National Park, located in the La Amistad Biosphere, progress toward more community involvement with a co-management system has emerged, (CRC, 77).

My research on La Amistad joins a growing body of work on transboundary policy challenges. Two nations managing a conservation area jointly requires a balance of international influences (financial, scientific knowledge) combined with consideration of local rights and local autonomy within the integrated development approach of the UNESCO Biosphere Reserve Program. This project demonstrates how global and local (glocal) forces have produced the present management structure at multiple sociopolitical and geographic scales in La Amistad International Park. This variance comes in the form of management diversity that has emerged bi-regionally and bi-nationally to govern this immense eco-region.

Thesis Overview

Chapter 2 (Political Geographies and Conservation Regions) includes a historical overview of the park systems in both Costa Rica and Panama, followed by a literature review addressing various conservation approaches. The political side of conservation is discussed through the theoretical approach of Common Pool Resource Theory. The complexities of the resource system in this study are also touched upon through a discussion of "glocalization", as there are many layers of influence, from global to local, in the management of La

Amistad. Chapter 3 (Research Methods) discusses the chosen research methods of a case study approach and the rationale behind these methods. Specific implementations of both qualitative and quantitative approaches are used in this research. Chapter 4 (Historical Background and Public Perceptions of La Amistad) looks at the creation of La Amistad and the current challenges in the park. Trust, a characteristic of resource users, discussed by Elinor Ostrom, is analyzed across the four regions of La Amistad. In Chapter 5 (Interview and Survey Results), both collective-choice arrangements and polycentric governance are assessed for four regions of the park. Finally, Chapter 6 (Conclusions) discusses the conclusions regarding trust, collective-choice arrangements, and polycentric governance. Research limitations and potential for future research are included.

CHAPTER 2: POLITICAL GEOGRAPHIES AND CONSERVATION REGIONS

MesoAmerica is a not only a geographic and cultural region, but is recognized by the Organisation for Economic Co-operation and Development (OECD) as an economic region. MesoAmerica consists of seven Central American countries (Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama) and southeastern portions of Mexico. Other regional concepts include the creation of parks like La Amistad, which is a constructed eco-region. There are also strategies such as the Mesoamerican Biological Corridor used to create links between eco-regions such as La Amistad International Park to form continuous landscapes through which wildlife can migrate freely. These various ideas of regions are all human-made constructs, which is important in understanding the complex and dynamic nature of an eco-region like La Amistad.

Construction of Regions

According to Ghimire and Pimbert (1997) the creation of parks is not solely for the purpose of the protection of nature, rather parks act as "social spaces". This follows Nigel Thrift's (1994) assertion that regions are not bound, but constructed, and "actors and organizations involved in the territorialization of space may act both inside and outside regions" (Paasi, 2002). According to former Costa Rican President Carazo (1978-82) the parks of Costa Rica are "splendid natural laboratories which we offer to the international scientific community, and also to children, young people and adults who should not be

denied the joy of direct contact with nature in its pristine state" (cited in Campbell, 2002). La Amistad International Park was not solely created as a conservation strategy, but also a social and political creation, an imposition of a natural protected area by both the Panamanian and Costa Rican governments without the full consent of many of the communities that lived in the regions and adjacent communities.

The sociopolitical and geographic scales are of great relevance for this particular commons research. As Paasi (2002) asserted, "Regions, their boundaries, symbols and institutions are hence not results of autonomous and evolutionary processes but expressions of a perpetual struggle over the meaning associated with space, representation, democracy and welfare." This project demonstrates the importance of geographic spatial implications and how global and local (glocal) forces have produced the present structure of management at various sociopolitical and geographic scales in La Amistad International Park. The single large or several small (SLOSS) debate was the first dominating geographic construction that greatly influenced the creation of conservation regions.

SLOSS and Island Biogeography

In addition to managerial and regulatory oversight of natural resources (e.g., forests), for an ecosystem to flourish and maintain biodiversity, it is necessary to consider the dangers of fragmenting an ecosystem and the importance of a clearly designated eco-region. Defining and/or regulating conservation boundaries through natural eco-regions rather than political boundaries can accomplish this goal. The park area that now extends across the Costa Rican-Panama border, La Amistad International Park, encompasses a greater eco-region than the

original La Amistad National Park in Costa Rica, with some 1.2 million hectares total, more than doubling the size of the original national park of 584,000 hectares (Carbonell, 2007). This expansion conserves a larger area, allowing for biodiversity to thrive and transcend political borders.

The major ecological importance of expansion of park conservation areas, rather than fragmentation of the park, is demonstrated through island biogeography studies conducted by MacArthur and Wilson. They showed the negative implications of "an island surrounded by a "sea" of open country in which forest species cannot live" (Quammen, 1996). MacArthur and Wilson's 1967 publication, "Theory of Island Biogeography" included the ideas that (1) larger biological habitats can support more biodiversity and (2) greater levels of habitat isolation lead to less biodiversity. Further research by Jared Diamond (1975) presented findings regarding the emerging SLOSS debate, which questions whether ecosystem habitat could thrive better as single large or several small. Diamond found that larger stretches of protected areas were able to support more biodiversity. Wilcox and Murphy go beyond the SLOSS debate and the islands, whether small or large. They focus on the process of habitat fragmentation and how the two aspects, loss of habitat and isolation, lead to deterioration of biodiversity (Wilcox & Murphy, 1985). These researchers were influential in the construction, both socially and physically, of conservation regions.

My research does not examine the biological isolation addressed by island biogeography. Another angle from which to examine the SLOSS debate is through social science research by looking at the resource management dilemma of single large or several small. As addressed by Abel et al. (2011), Elinor Ostrom's theory of Common Pool Resource

paralleled the biogeography SLOSS debate in the 1960s. In looking at two case studies, the public administration of water delivery and the police force in California, Ostrom found that multiple axes of governance, termed polycentric forms of governance, were more effective than centralized governance. Following this study Ostrom identified many successful alternatives to centralized governance regimes. The idea of multiple layers of governance, both polycentric and participatory, in a bi-national park is found in the guidelines of UNESCO Biosphere Reserves, a designation La Amistad International Park currently holds.

The studies conducted by MacArthur, Wilson, Diamond, Wilcox and Murphy, among others, illustrate the biological importance of avoiding fragmentation. The biological region that straddles the Costa Rica-Panama international border is established, but much depends on the successful collaboration of not only governmental institutions, but local community stakeholders and local NGOs for successful conservation management of this transborder eco-region (part of an even greater eco-region project, the Mesoamerican Biological Corridor Project). My research attempts to illuminate the complex governance networks and power structures involved in the management of such an extensive international territory. By analyzing the complexities of these governing networks, I identify the limits on the involvement and impact of the participating stakeholders due to the large scale of La Amistad. To promote biodiversity, larger territories are very beneficial. Governing larger conservation areas, especially with political borders, creates an elaborate, multi-directional and multi-dimensional power structure, spanning the scales from local knowledge to international financial influences.

Tragedy of the Commons and Emergence of CPR Theory

There are various theories to understand common pool resource dilemmas. Forests, for example, are a common resource. As Hardin observed in his herder example, when a common resource is left unregulated, this locks the resource users into a competition for the resource, leaving no incentives to conserve and eventually leading to the total depletion of the resource. "Cooperative behavior with other participants exposes oneself to terrible exploitation, but the choice and the outcome are incontrovertible; act narrowly self-interested and achieve an outcome in which all are made worse off," which represent Hardin's concept of "Tragedy of the Commons"(Hardin, 1968). Garrett Hardin's tragedy of the commons emerged following the publication of Mancur Olson's theory of collective action in which "unless the number of individuals in a group is quite small, or unless there is coercion or some other special device to make individuals act in their common interests, rational self-interested individuals will not act to achieve the common or group interest"(Schlagar, 2004).

Recent studies have shown that common pool resources do not always end in the total destruction of the resource when community norms, rules and enforcement through government regulation are brought to bear. The Common Pool Resource Theory developed by Elinor Ostrom shows that there are three related issues that need to be worked through: supply, credible commitment, and mutual monitoring. If dealt with in the correct manner, it is possible to find a resolution to many environmental problems that arise from poor resource governance (Ostrom, 1990).

Some of the characteristics of the resource environment that Ostrom describes for the success of common resource governance include feasible improvements; resources not

already overly deteriorated; the need for reliable, frequent economic indicators; predictability – the ability to predict resource flow; and spatial extent, with boundaries that are not too extensive and difficult to monitor (Dietz, Ostrom & Stern, 2003).

Referring to the characteristics of the parties involved, also known as group or individual characteristics, collective action will most likely emerge when there exists salience- the appropriator's livelihood depends on the resource; common understanding and knowledge of the resource system; a low discount relating to future benefits; trust that others will maintain promises; autonomy, or the ability to determine the rules the appropriators will adhere to without need of external intervention; and organizational and local leadership experience (Ostrom, 1990).

Of these group and individual characteristics, my research identifies trust as one of the key foci of this investigation. Trust has become increasingly relevant in recent research in Common Pool Resource Theory. According to Ostrom (2009), collective-action theory has focused more on payoffs in social dilemmas, rather than trust. Empirical studies have indicated that trust has a central role in overcoming social dilemmas and that a favorable outcome in a social dilemma relies mostly on the likelihood that appropriators will reciprocate in a trustworthy manner.

As Schlager stated, "increasing dissatisfaction has emerged with the state-centered policy programs pursued. In many instances in which national governments and centralized bureaucratic agencies intervened, claimed ownership….or imposed regime, results have been disappointing…government-owned or managed forests are degraded." Ostrom addresses possible solutions with the characteristics listed above as well as the need for a change in the

governmental relations with the public and approaches to community-based management. Schlager (2004), like Fiorino (2006), believes that the governmental "rules need flexibility and varied approaches to inclusivity". There needs to be easier access to information and lower enforcement costs, therefore making management more capable. Schlager also states that there should be more investment in the governing capabilities of the appropriator versus command-and-control, which is strongly supported by the Bradshaw work mentioned earlier. Schlager (2004) concludes that, "It is to the topic of reconnecting citizens and stakeholders with environmental governance that this volume turns next".

Along with Ostrom's approaches to common pool resource management, an innovative idea emerged with the Oscar Arias (1986-1990) administration in Costa Rica. The commencement of a more integrative, sustainable approach involved the notion of ecological citizenship. This concept has been an emerging idea internationally. As Rodrigo Gamez, the Director and President of the National Biodiversity Institute of Costa Rica (INBio) stated,

> "We need to change people's attitudes to nature toward a greater level of complexity. To change attitudes, we need to know what we have, because one doesn't value what once doesn't know, and the tragedy of tropical forests has been that they have had no value more than the wood in them and the land they grow on…[L]et's prove that we should conserve the biodiversity of the country because we know it and use it." (quoted in David Rains Wallace, 1992, p.151)

A way to facilitate this task is including community participation in the national parks system and in the revenue generated from the national parks. The mixed management approach that allows local economies to prevail is one option. Training and employing local tour guides and maintaining locally run businesses is another, but admittedly difficult when

many of the communities are marginalized since foreign resorts and tourism businesses hold much of the revenue-share generated through this business sector.

Regarding Common Pool Resource Theory, specific institutional arrangements that act to guide collective action in successful common pool resource management regimes have been recommended. Elinor Ostrom (1990) defines eight institutional arrangements and techniques for a sustainable common pool resource management plan: (1) clearly defined boundaries; (2) congruence between appropriation and provision rules and local conditions; (3) collective-choice arrangements that allow for the participation of most appropriators in the decision making process (4) effective monitoring by those who are involved, or held accountable to the appropriators; (5) graduated sanctions for appropriators who fail to respect community rules (6) conflict-resolution mechanisms which are direct, inexpensive and easy to access; (7) minimal recognition of rights to organize (e.g., by the government) (8) organization in the form of adaptive governance at multiple levels (nesting).

While there has been a plethora of studies revealing the utility of these eight principles in common resource management, La Amistad is a unique case due to its expansive territory and bi-national nature. The diversity of the terrain and the limited resources on either side of the border contributes to differing management approaches and results. La Amistad is so extensive that the park management is divided bi-nationally and regionally with a designated Caribbean and Pacific side of the park on each side of the border. Costa Rica tends to focus its efforts on the highland and Pacific ecosystems, while fewer resources are evident on the Caribbean side. Panama focuses its management on the medium elevation and highland areas (Carbonell, 2005).

Focusing on collective-choice arrangements that allow for the participation of most appropriators in the decision-making process and organization in the form of adaptive governance at multiple levels (nesting) will be especially relevant to understanding global and regional problems (Dietz et al, 2003). My project explores the extent to which the governance of La Amistad International Park involves diverse, collaborative efforts within the local communities in Costa Rica and Panama and the financial support and scientific investments of international NGOs.

The Geography of the Commons

Much of the commons research focuses on smaller scale resources, but due to the extensive size of La Amistad, scale is a relevant consideration for any management solution. From a geographic perspective, according to Giordano (2003) many resource problems emerge when there is a given sociopolitical scale and the resource users with exclusive rights do not coincide with the resource domain, thus creating problems with efficiency and equity of the resource. With all spatial scales (local, national and global) having vested interests in La Amistad for a variety of reasons, including economic, environmental and political, there is mismatch between resource users and the resource domain.

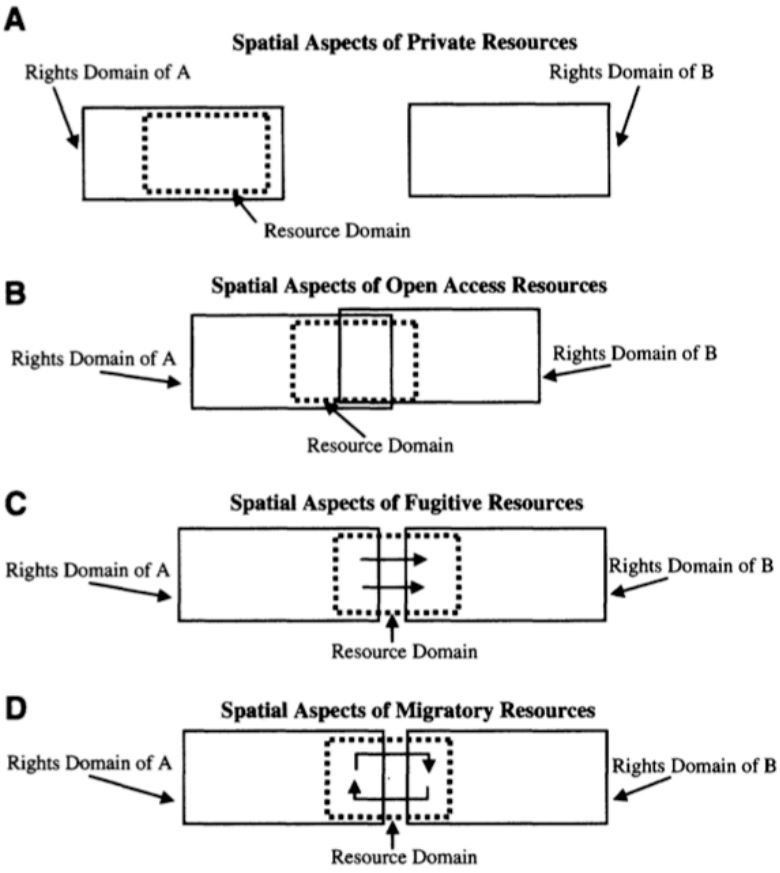


Figure 4. Spatial aspects of (A) private, (B) open access, (C) fugitive and (D) migratory resources.

Figure II: Spatial Perspective on Common Pool Resources (Giordano, 2003)

While La Amistad International Park has fixed boundaries, there are four administrative regions managing the park and migratory, terrestrial and aquatic species crossing boundaries throughout. From a geographic perspective, La Amistad has migratory spatial implications. There are agricultural frontier issues in Panama in which park boundaries have been neglected, so there is spatial conflict between the resource and rights domain. Giordano's (2003) states, "one of the conditions for the existence of commons

problems is the lack of well-defined property rights." Clear spatial boundaries with clearly defined property rights are of great importance from a geographic perspective of resource management. The fluidity of the boundaries of La Amistad, arising from local to international pressures, supports the assertion by Paasi (1986) that, "a region is comprehended as a concrete dynamic manifestation of social (natural, cultural, economic, political, etc.) processes that affect and are affected by changes in spatial structures over time."

Other large-scale and transboundary spatial considerations for common pool resource management have been considered in the 2003 Science article entitled "The Struggle to Govern the Commons" by Dietz, Ostrom and Stern. Three principles are deemed relevant for the large-scale resources: analytical deliberation, nesting, and institutional variety. Analytical deliberation involves dialogue between the resource users and scientists and can help build trust or social capital. Nesting or institutional arrangements means that there are many layers of governance, rather than simply centralized management. Institutional variety is when there are a variety of institutional rules and forms, such as community self-governance, markets, and hierarchies within the system (Dietz, Ostrom & Stern, 2003).

"Glocalization"

With the movement of people, goods and ideas continually expanding across national borders, communities across the globe are becoming more connected. This idea is known as globalization. Some of the benefits of globalization include the rapid rate of information dissemination worldwide, international financial support by NGOs and intergovernmental organizations in the developing world for various causes, collaborative efforts between various governments and organizations to reach similar goals, and the spread and advancement of innovative technology. However, globalization does come with its drawbacks, such as the possible loss of unique culture due to the melding of cultures internationally, international pressures (whether through politics or financing for certain agenda setting), and "highly uneven geographical and social outcomes" (Dickens, 2003).

While the movement toward globalization increases, humans act as free agents maintaining the power to oppose, accept or adapt to these global forces on a local, more personal level. This form of response to globalization on a community level is a concept known as "glocalization." In many circumstances, by connecting to global resources and knowledge and strategically balancing local conditions and needs, glocalization has brought positive results. As Thomas Friedman (2004) observed, some global forces enhance and modernize local communities without overpowering them.

Some of these international influences are the direct result of combating international commons problems. An example is the installation of international hydroelectric projects on rivers running through La Amistad with the goal of receiving funds through carbon credits under the Kyoto Protocol's Clean Development Mechanism project. Other international

influences involve the UNESCO Biosphere Reserve and World Heritage designation, with the goal of biologically and culturally conservation. The results in the buffer zone regions vary greatly as the hydroelectric projects are on the Panamanian side, but with implications for the international park. International influences are constructing, deconstructing and reconstructing local regions or even eco-regions in the case of La Amistad as "The institutionalization of regions may take place on all spatial scales, not only between the local level and the state" (Paasi, 1991). My research project integrates concepts from regional geography and biogeography to spatialize common pool research in La Amistad. Additionally, my research also addresses how two competing narratives emerged attempting to reshape the management as well as the geography of conservation.

Forest Conservation Narratives

Introduction to Forest Conservation

Throughout the past half-century, national governments worldwide have increasingly converted land to protected areas, with forest reserves, game reserves, national monuments, and national parks constituting 5% of the earth's terrestrial surface and receiving some form of protection (Pfeffer, Schelhas & Day 2001). The SLOSS debate was at the beginning of the construction process and until the 1980s traditional forms of centralized, top-down management of protected areas, paralleling the single large conservation area, prevailed as the model in numerous developing countries. During the 1970s Costa Rica was referenced as a "model on how to preserve natural areas" by the U.N Food and Agricultural Organization

in its adoption of the traditional top-down approach (Evans, 1999). By the early 1980s the effectiveness of top-down management in these protected areas was beginning to be questioned by conservationists and policymakers due to alleged ineffectiveness and corruption. An alternative proposal, community-based conservation, (Barret, Brandon, & Gibson 2001) emerged with Ostrom becoming a prominent figure in this field. A challenge inherent in the transition to an integrated management system is the inclusion of traditional top-down vertical management systems and personnel with horizontal systems and new partners (Kettle, 2002). This alternative type of integration is a goal that La Amistad International Park is pursuing at different rates and with different approaches across its regional and international borders.

"Fences-and-Fines" Approach

"The crown jewels" (Dilsaver, 1994) of America, also documented by Ken Burns (2009) as "America's Best Idea", are the National Parks in the United States. The National Park System is based on the "fences-and-fines" approach of top-down management through coercion and enforcement. The system is set up to manage behavior through a set of homogeneous standards that cover an assortment of conditions (Fiorino, 2006). This traditional approach of park management by national government authority has been a model for forest conservation internationally (Schelhas & Pfeffer, 2009). Costa Rica utilized this approach and by 1976 the U.N. Food and Agricultural Organization published *A Manual for National Parks Planned*, for which characterized Costa Rica as an archetype for planning and implementation of protected areas (Evans, 1999).

The conservation model of "fences-and-fines" was a political move by the Costa Rican government and was the start of government environmental protection programs. Regardless of local or traditional conservation practices, in the case of La Amistad, the creation of the park created new boundaries and laws to be enforced by a central government. In fact, during interviews at the BriBri (Costa Rica) and Naso (Panama) indigenous territories, multiple participants mentioned their dedication to the protection of the forests over centuries. "Traditionally, culturally we have been working well protecting the mountain for thousands of years, our ancestors. And they [MINAE] say they need to come and regulate or that we don't know something. I am not in agreement with this" (CRC, 72).

In the early conservation years in Costa Rica, land was expropriated and boundaries created for the "preservation" and "protection" of the park. Prior to the economic boom with eco-tourism and the adoption of the integrative approach that incorporated local economies and mixed management, many squatters and farmers whose livelihood was based on cattle grazing and farming were relocated for the protection of the park. Daniel Fiorino's views on the United States "old" environmental regulation are relevant since Costa Rica modeled its park system after the U.S. system. Some of the applicable assumptions of the "old" environmental regulation Fiorino (2006) discusses, "deterrence is the best strategy [because] only rules backed by sanctions affect behavior…goals are best achieved through a top-down strategy of bureaucratic control …conformity with a set of rules is the desired outcome" (Fiorino, 2006).

Some of the governance problems that arise in a traditional system include adaptation, capacity, and scale. According to Ostrom (1998), "national governments are too

small to govern the global commons and too big to handle smaller scale problems." Adaptation of a traditional system involves flexibility and the ability to accommodate new horizontal systems and manage the dynamic nature of globalization. Capacity refers to having the resources to manage efficiently and effectively. Scale involves the mismatch between centralized government control and local requirements and the need for decentralization to address more localized issues (Kettl, 2002). Additionally Dietz, Ostrom and Stern (2003) state that, "if sufficient resources are made available for monitoring and enforcement, such approaches are effective…but when governments lack the will or resources to protect 'protected areas' command and control approaches are less effective. One of the biggest issues in the conservation of La Amistad from the perspective of park functionaries and NGO workers was the lack of financial resources.

By the 1980s these problems were addressed by policymakers, conservationists and scholars and support of bottom-up conservation approaches emerged. Designating park territory was the first step but, according to Abel, et al (2010), "Wildlife conservation in Cascadia begins inside of our protected areas, governments, and non-governmental organizations but will be finished, for the good or the bad, outside of them in the places and spaces between the region's parks and sanctuaries."

Characteristics of the Wildlife Conservation Narratives	
Traditional Narrative	**Emerging Narrative**
Exclusion	Inclusion
Protected areas	Land use patterns
Prohibited	Sustainable development
Managed by state	Managed by the community
Modern	Postmodern
Top down	Bottom up

Table III: Traditional vs. Emerging Conservation Techniques (Campbell, 2000)

Community-Based Natural Resource Management

The controversies and criticisms of top-down resource management led to an alternative bottom-up strategy known as Community-Based Natural Resource Management (CBNRM), as illustrated by the "Counter-Narrative" elements in the table above (Campbell 2000). Historically, central authorities in natural resource management excercised micro-management of local communities, but the community-based concept aimed to empower and cede decision-making to local communities (Barrett et al., 2001). CBNRM is an alternative that ideally would help communities achieve both conservation and development goals concurrently (Berkes, 2007). Studies have documented numerous successes that contrast the command-and-control centralized management of natural resources worldwide in achieving sustainability with the successful union of communities and protected ecosystems. There

have also been failures under certain circumstances of CBNRM approaches (Ostrom, 1990). With successes and failures in community-based resource research, Ostrom and colleagues have determined the institutional norms common to successful management of common pool resources.

The belief that the communities might more efficiently and effectively manage local natural resources is derived from some assumptions about these communities. Foremost, planning that occurs in the same geographic location as the natural resource immediately subjects the planners to the ramifications of their management practices. This creates a system in which the local managers are involved directly with the outcomes of the system and, therefore, have incentives to sustainably use and manage the resource (Agrawal & Gibson, 1999; MaCay & Jentoff, 1996). Second, the proximity of the managers to the natural resource promotes a rapid diagnosis of problems and responses to site-specific needs (MaCay & Jentoff, 1996). Finally, local knowledge of a specific place is passed from generation to generation and this provides local communities with enhanced ecological experience, knowledge, and vested interests in the local natural resources (Agrawal & Gibson, 1999; Bradshaw, 2003).

Some of the failures that can occur in CBNRM are due to assumptions about the communities themselves. One common assumption is that a community is a homogeneous group with shared goals in a natural resource management scenario (Barret et al., 2001). Communities are dynamic, changing over time and encompassing diversity among socio-economic, gender and generational divisions (Berkes, 2004). Due to this variability in social and economic factors, the creation of community-based institutions in conservation

management can be challenging (Ostrom, 1990). Another concern is a greater focus on the community itself and the community's participation, rather than focusing on the conservation goals (Berkes, 2004). Bradshaw (2003) demonstrates that there is a tendency to assume that local management will engender better decision- making and sustain long-term goals and incentives. Along the same lines, there also is the notion that sustainability is inherently imbedded in community-based management, as well as there existing an adequate knowledge base of the resource to be managed and an integrated system of social, economic and environmental systems. These are problems of credibility and capacity.

The first case study presented by Bradshaw involves a pilot project of ten community-based forestry management projects in British Columbia that were given a five-year probationary period to prove effective forestry management. After five years, the projects were reviewed and only four of the ten community-based projects were able to start harvesting. Six of the projects failed due to lack of initial funds, unaffordable regulatory costs, and land issues with native land claims. These issues fall under the category of capability. The second case study involves the siting of a privately-run hazardous waste treatment site near the community of Swan Hills, Alberta. Due to the desire for jobs and the provision of tax incentives within a community somewhat disconnected to the local area because of the presence of temporary migrants, the community accepted the siting near its town. Within 30 kilometers of the waste site, wildlife was contaminated after several major accidents. This community-based management failed due to a lack of credibility. The town was not interested in long-term goals but, rather, a quick economic payoff. When initiating

community-based projects and decentralizing power, it is important to assess credibility and capability.

Bradshaw examines the issue of credibility by looking at the connection between successful community-based resource management and the community maintaining a sincere interest in the security of the resource overtime. Regarding capacity, the community has to have the ability and means to achieve this goal (Bradshaw, 2003).

It is difficult to understand local-level processes or community-level resource management without looking at the larger social, political, and economic forces that influence these processes and their outcomes. This is especially difficult when transitioning from a centralized managed system to community-based management in which the central authority "bestows" decision-making power on communities. Agrawal and Gibson (1999) stress the importance of analyzing linkages between local-level processes and external groups, whether state, NGOs or other entities, when dealing with community-based resource management, as well as the need for local-level institutions to have diversity among institutional representatives.

One program that presents itself as a transition from top-down governmental management to community-based initiatives around La Amistad International Park is the Parks-in-Perils (PiP) program led by the Nature Conservancy. This initiative started in 1995 with the idea that strengthening local community organizations and expanding their capacity would encourage more conservation in the areas surrounding the park. By identifying serious stressors, PiP states that they work with a variety of stakeholders. These attempts at greater stakeholder participation still remain very exclusive in La Amistad, as this research

demonstrates. PiP also helps in the coordination of the bi-national commission with the four regional governmental agencies that manage La Amistad, part of their consolidation program ("Parks in Peril", 2007).

In researching La Amistad International Park, I focused on collective-choice arrangements that permit the participation of most stakeholders in the decision-making process and on organization in the form of adaptive governance at multiple levels (nesting). These elements are pertinent for understanding the different global and regional problems that exist and how they vary across the four regions of the park.

Co-Management and Integrated Conservation and Development

Co-management has had its successes and failures throughout Costa Rican conservation history. Co-management usually entails shared responsibility and management between the community and the government. Adaptive co-management is a term that incorporates more of the complexities that emerge when combining horizontal and vertical linkages, with NGOs as partners, on local, regional, national and international levels (Berkes, 2004). Currently there is one co-management project running successfully at Cahuita National Park, located in the La Amistad Biosphere. One section of Cahuita National Park is managed by eight community park functionaries paid by park entrance donations and the other section is run by nine MINAE park functionaries. The rangers collaborate in the management of the park daily and have a joint council that meets in the park for decision-making (CRCa, 76).

Stemming from the "participatory" approach of community resource management within which local community stakeholders maintain some form of involvement in protected area management (in contrast to the "fences-and-fines" approach), there emerged the idea of an integrated conservation and development approach (Kubo & Supriyanto, 2010). This approach is one form of "co-management" that has emerged due to (1) low levels of governmental spending on natural resource management, (2) growing awareness of deforestation worldwide and (3) increasing local pressure for greater participation in resource governance (Agrawal, Chhatre & Hardin, 2008).

The UN Millennium Ecosystem Assessment incorporates integrated conservation and development projects (ICDPs) in their objectives of sustainable forest management. Former Secretary-General Kofi Annan founded the Millennium Ecosystem Assessment in 2001 as a way to assess both environmental degradation and the impact this has on human well-being. The results incorporate research from over 1,300 experts internationally and help to establish methods for the sustainable use of ecosystems, while achieving both conservation and human well-being.

As addressed in the Millennium Ecosystem Assessment, ecosystem services are essential to human well-being and poverty reduction. The structure of many traditional national parks restricts the access of local communities to natural resources, thus confining the livelihood of these communities and limiting sources of economic development. To provide for local community needs from generation to generation, it is necessary to practice sustainable natural resource management, which is achievable through integrated conservation and development. This approach links economic development projects in these

buffer zone regions to natural resource conservation and creates a desirable closed-loop cycle that makes livelihood and conservation self-sustaining. With conservation obligations, communities receive more support from resource administrators and community workers can more easily develop a trusting relationship (Kubo & Supriyanto, 2010), a key factor in successful resource management among stakeholders.

There has been a recent critique of the integrated development approach from the editors of Parks in Peril (Brandon, Redford and Sanderson, 1998). These editors state "the trend to promote sustainable use of resources as a means to protect these resources, while politically expedient and intellectually appealing, is not well grounded in biological and ecological knowledge." However, Wilshusen et al. (2002) states that, as an approach, there is room for improvements rather than throwing out the whole concept, as the integrated approach is one that does include a comprehensive picture of natural resource protection. Other approaches tend to fall short of incorporating the intricate dynamic of social, economic, political and ecological attributes.

ICDPs have developed with the help of international and local NGOs in buffer zone communities of national parks worldwide, including projects in the buffer zone communities of La Amistad International Park in Costa Rica and Panama. Some of the more successful projects are continuing to expand bi-regionally and bi-nationally through networks of local associations in the communities on the Pacific side of La Amistad.

Buffer Zones

"Buffer zones are defined as zones peripheral to a national park or equivalent reserve, where restrictions are placed on resource use or special development measures are undertaken to enhance the conservation value of the area" (Sayer, 1991). Conservation International collaborated with McDonald's Corporation, Clemson University and, subsequently, Texas A & M University to create a buffer zone project utilizing this definition in Costa Rica on the Pacific side of La Amistad, known as the Amistad Conservation and Development program or AMISCONDE (McGray, 2003).

The creation of buffer zones was originally conceived as a conservation tactic. Buffer zones act to delineate the "core" conservation zone of the protected area from the outside land by providing a space contiguous to this "core" that helps to protect it. By organizing activities of lower impact, such as organic, shade-grown coffee or sustainable ecotourism, the buffer region helps to deter activities that could lead to degradation in the "core" conservation region (UNESCO, 2000). Activity in the core zone is limited to activities of monitoring and research as shown in Figure III below. Recreation and tourism is confined to the buffer and transition zones.

Biosphere reserves, formed by UNESCO's Man and the Biosphere Program in 1974, utilize the buffer zone structure in the reserves, such as in La Amistad International Park. The physical structure of the biosphere reserves includes three zones: (1) at least one core zone that is legally protected with clear boundaries, (2) buffer zones and (3) transition zones also known as "areas of co-operation". These biosphere reserves were created to serve three

purposes: conservation of ecosystems and biodiversity, socio-economic development for human well-being, and educational and research opportunities dealing with global to local issues related to integrated conservation and development (UNESCO, 2010). My research on La Amistad focuses on a Biosphere reserve because this is a step in the direction of participatory conservation versus the traditional type of fortress conservation.

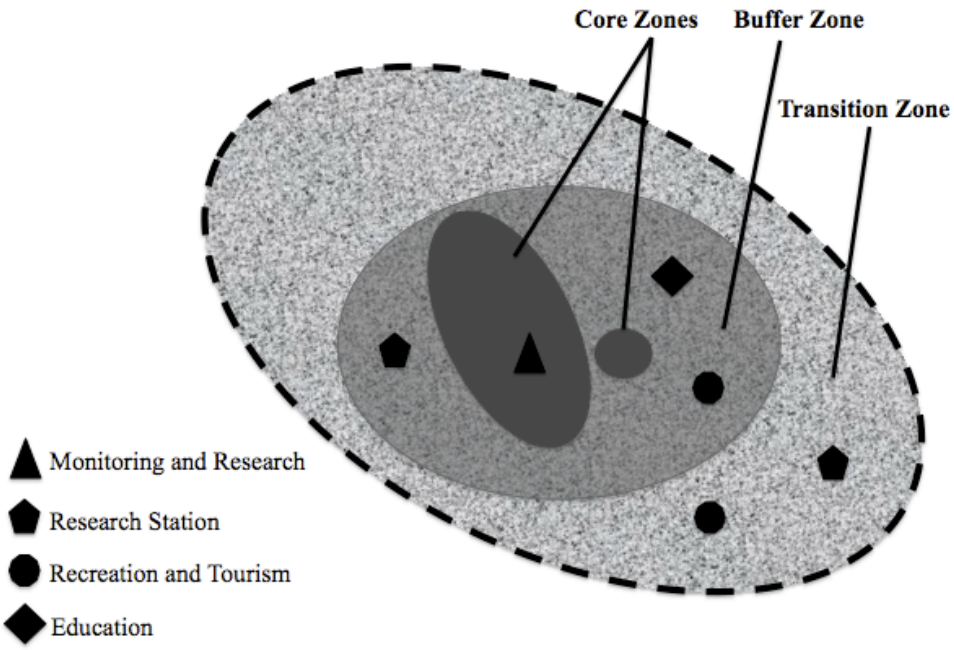


Figure III: UNESCO Biosphere Zonation (Adapted from McGary, 2003)

Through the selection of La Amistad International Park, a UNESCO Biosphere and World Heritage Site, I am able to use an interdisciplinary approach by combining ideas from human geography, biogeography, and political science to spatialize Common Pool Resource Theory. These theories guided the methods of data collection that I pursued in this research.

CHAPTER 3: RESEARCH METHODS

This is an exploratory case study using a qualitative and quantitative, mixed methods approach. This study entails content analysis, semi-structured interviews, and survey data. The research is exploratory due to the extensive geographic area that has not been sufficiently covered in previous case studies of La Amistad International Park. "Exploratory research seeks to investigate an area that has been under-researched. The data gathered is preliminary data that helps shape the direction of future research" (Hesse-Biber, 2011). Consequently, while most research conducted on La Amistad has focused on the Pacific side of Costa Rica, this project includes interviews, survey data and field observations from a representative subset of rural communities in four regions neighboring La Amistad, both the Pacific and Caribbean sides of Panama and Costa Rica.

Case Study Approach

The chosen research design method is a case study. There are inherent problems of representation, or reliability, with case studies, as a case study is a limited representation of a greater trend. As David E. Gray (2009) states on qualitative methods, "the research is so based in or confined to one context that it lacks generalizability." Although a case study may lack generalizability, the results from individual case studies, such as La Amistad International Park, may help augment working hypotheses and contribute to furthering research on a topic in subsequent case studies. According to Gray (2009), data triangulation and multiple triangulations are methods that improve the reliability of qualitative approaches. In this research data triangulation, specifically person triangulation, through data collection at

multiple levels (community stakeholders, local members of buffer zone community associations, NGO workers, park rangers and administrators) is employed. Multiple triangulation, in which the researcher utilizes a variety of data-gathering techniques, is part of the mixed methods approach. A Common Pool Resource theoretical background is the theoretical backdrop combined with interviews, a quantitative analysis of survey data, field observations of an NGO community rally, observations of a meeting with La Asociación de Mujeres de Biolley (ASOMOBI, Association of Women of Biolley), and a meeting with La Asociación de Pro Biosfera-Progreso (ASOPROBIOSFERA, Pro-Biosphere Association of Progreso).

However, following Poteet, Janssen and Ostrom (2010), I define a case study as having multiple levels of analysis with separate units of analysis. The principle units of analysis for a commons is defined as the participants involved in collective action or the "central objects" of the collective action. The specific types of cases can be defined as cases of a natural resource system, a policy unit, or a social group (Poteet, Janssen and Ostrom, 2010). My research explores multiple layers of analysis, therefore touching on all three kinds of cases.

In a case study approach, there are six different lines of evidence leading to six different data collection procedures: documentation, archival records, interviews, direct observation, participant observation, and physical artifacts (Yin, 1984). Five of the six case study methods were utilized for this research project. *Documentation* used an analysis of administrative documents, news articles, and the minutes of meetings. *Archival records* provided access to organizational records from NGOs and to maps and charts of the park and

the greater La Amistad Biosphere. *Interviews* were conducted with community stakeholders, park officials and NGO workers. *Direct observation* consisted of visits to16 communities adjacent to La Amistad. *Participant observation* included two community association meetings and one rally hosted by a local NGO and a community in the buffer zone in opposition to the installation of a hydroelectric facility within the La Amistad Biosphere.

Regarding the validity of this case study, I strived for internal validity with critical self-reflection through repetition of the researcher's understanding (Gerring, 2007). Understanding the importance of self-reflection and how the researcher can influence the outcome of the study is an important component of validity. Gray suggests repetition of interpretive analysis and transcription (Gray, 2009). In this study, a total of 77 interviews were conducted in person and were recorded. All of the recordings were listened to multiple times (minimum of two), translated, transcribed, and reviewed multiple times (minimum of three).

In part, this case study is an investigation based on qualitative research, one of two principal paradigms that currently dominate research in social sciences (Hesse-Biber 2011). According to Denzen and Lincoln (2000),

> "Qualitative research involves the studies use and collection of a variety of empirical materials-case study; personal experience; introspection; life story; interview; artifacts; cultural texts and productions; observational, historical, interactional, and visual texts-that describe routine and problematic moments and meanings in individual lives."

Lisa Campbell (2007) utilizes a similar research design to the one I have adopted. Campbell focused on sea turtle conservation on the local, national and international levels in

Costa Rica. This research design involved empirical research with wildlife narratives on these three levels, in addition to an exploration of conservation through discourse and material practices.

Data Collection

Project research includes primary and secondary data collection. The qualitative data were gathered in this case study through semi-structured interviews with a set of chosen topics. The semi-structured interview process is an iterative and flexible method. This allows respondents to elaborate on a set of questions that I have developed, when they wish to provide more detail. Comparable studies have demonstrated the appropriateness of mixed method approaches in addressing institutional questions about common pool resources. Based on numerous case studies that examined a variety of common pool resources and the institutions that govern them, the methods have included in-depth interviews and questionnaires. Examples are the work of Elinor Ostrom at Indiana University and Edella Schlager and Tanya Helikka at the University of Arizona and Columbia University, respectively.

Additional studies have been conducted in Costa Rica analyzing the governing structure of the park system. One study in 2008, which focused on varying degrees of local participation in the governing process, was Xavier Basurto's research on locally based biodiversity conservation and the ability of local stakeholders to maintain autonomy amid the strong influence of international NGOs and other influences. Basurto (2008) also analyzed the modest role the Costa Rican government played in the management of these parks. Similar to Basurto's research, in-person, in-depth interviews guided by institutional questions

from Common Pool Resource Theory were conducted with key people associated with La Amistad International Park.

Pilot Survey & Participant Selection

The initial survey involved three informal discussions in August of 2010 with La Amistad buffer zone community members from the community of Altamira, Costa Rica, located on the Pacific side of the park. Additionally, one in-depth interview with a park administrator from the Costa Rican side of La Amistad was conducted in August 2010. These initial surveys were administered to test the appropriateness and relevance of the issues I had identified, as well as a way to make initial contacts and establish working relationships. These preliminary contacts referred me to the dominant stakeholders in preparation for my return in January and February 2011. These initial contacts helped to tease out the themes addressed in the questionnaires that I administered following the majority of the interviews.

With the connections made during my first visit to La Amistad, I was able to return for 39 days of fieldwork in 2011. MINAE park administrators aided in providing names, phones numbers, and emails of park administrators in other regions, community associations in the buffer zone region, and NGO workers in the communities adjacent to La Amistad International Park. Preliminary emails to schedule community stays were sent from October to December followed by phone calls when necessary. I created a flexible itinerary starting in the regions with the most contacts, the Pacific side of Costa Rica, and was able to create more contacts while in the field.

Semi-Structured Interviews

Seventy-seven interviews throughout the buffer zone of La Amistad International Park were conducted over a six-week period. I visited fourteen different communities with five communities visited on the Pacific side of Costa Rica (Progresso, Potrero Grande, Tres Colinas, Biolley, Altamira), three on the Pacific side of Panama (Cerro Punta, Guadalupe, Las Nubes), three on the Caribbean side of Panama (Bonyick and Solon from the Naso indigenous reserve and El Silencio) and three on the Caribbean side of Costa Rica (Suretka, Alto Soki, Alto Kachabri, all within the BriBri indigenous reserve). I visited the regional administrative offices of ANAM, La Autoridad Nacional del Ambiente, (The National Authority of the Environment) in David on the Pacific and Changuinola on the Caribbean sides of Panama.

There are a total of 36 interviews on the Pacific side of Costa Rica, 17 interviews on the Pacific side of Panama, 13 interviews on the Caribbean side of Panama, and 11 interviews on the Caribbean side of Costa Rica. When possible, all of the community member interviews were randomly selected. The community size, average number of household members, and target number of interviews were determined. The total number of estimated households was divided by the goal for the number of interviews and this number was used to determine how many houses to bypass to have a randomized sample across the population of the entire community. In the indigenous territories, the houses were randomly selected, but those members of the Naso community that were hired to construct the road for the dam were excluded from the sample due to their inaccessibility over the duration of the interviews. The majority of the interviews I personally conducted in Spanish following a

semi-structured format. There are a total of two interviews in which the participants opted to speak in English and seven interviews were conducted with a Spanish-Bribri translator.

The interview questions stemmed from two themes adopted from Common Pool Resource Theory: (1) collective-choice arrangements and (2) multiple layers of governance. Interview techniques were designed after Schelhas and Pfeffer (2008) in their La Amistad (Pacific side, Costa Rica) study on forest and park values and forest-related behaviors, among other themes, and Weber, Lovrich and Gaffney's (2005) research assessing collaborative capacity around the theme of endangered species from the perspective of vertical, horizontal and partnership linkages.

The template for the semi-structured interviews aimed to elicit responses around the themes of conservation values and park significance, relationships and networking among park officials, NGOs and residents, conflict and opportunity between buffer zone residents and the park, and levels of participation in park events or community conservation initiatives.

Questions were posed on the frequency of public visits to the park, interactions and relationships with park officials, and participation in park events such as meetings, seminars, talks, and/or participation in local associations involved in conservation efforts, with the goal of analyzing the level of involvement of the participants in conservation and park-related activities. I inquired about the advantages and disadvantages, opportunities, benefits, and limitations arising from the creation of the park. This inquiry provided insight into local stakeholders views of the park. Finally, I asked questions about levels of agreement with park regulations and if there had been any conflicts with these regulations. These questions were

also geared to stimulate more in-depth conversation and introduce the topic of conservation in La Amistad International Park.

Figure IV: Route of Field Research in the Buffer Zone of La Amistad

Survey Data

Following the majority (76 of 77) of the interviews, I presented eight broader survey questions, which touched on various themes of conservation and community involvement. The survey questions took five to ten minutes depending on levels of literacy and familiarity with La Amistad International Park. The majority of participants were able to complete the survey without assistance. However, a translator was hired for 12 of the surveys and interviews in the first of the four regions visited in the buffer zone region on the Pacific side of La Amistad in Costa Rica. The translator helped to sort out any discrepancies and miscommunications in the translation of the survey questions. Once these misunderstandings were acknowledged with the help of the translator, I was able to explain the intention of the questions to future survey participants. For the participants who were unable to read the questions, the questions were presented orally and the sessions recorded.

The questionnaires touched on the same themes as the interviews, but were also utilized to elicit more specific, quantifiable answers. I used a ranking system involving five levels of significance of particular statements and themes of conservation. I used the same ranking system (five levels) to analyze familiarity with park regulations, levels of participation and frequency, and opinions on the significance, or lack of significance, of avenues for public participation.

From the survey data a quantitative analysis was performed using Microsoft Excel and SPSS software to determine associations among variables in the four different regions of La Amistad International Park. The SPSS software was used to show the distribution of

survey answers and to produce a log regression to check for significant differences among answers for Costa Rica and Panama.

Survey Data Analysis

A logistical regression is a test that is suited for modeling social phenomena because with social units many times the data is qualitative or discrete (Pampel, 2000). The purpose of the survey was to see whether there was a difference between Costa Rican and Panamanian responses. The survey data set was a small sample size with 29 from Panama and 47 from Costa Rica with ordinal data from Likert Scale responses. Because in the "Likert scale…the assumption of a normal distribution cannot possibly be justified" (Gibbons, 1993), a non-parametric test is needed.

The survey data have categorical variables (Costa Rica and Panama) and ordinal data due to the Likert scale survey responses that ranged from 1-5. If we look at the data as categorical, a contingency table can be set up. The Chi squared goodness-of-fit test determines the statistical significance of a hypothesis in a contingency table by comparing projected frequencies if the two variables are not associated with the actual observed frequencies (Dietz and Kalof, 2009). However, for this data set, the Chi squared test does not function due to the small sample size of the data when the data are not normally distributed (Kennedy, 1992). The ordinal nature of the responses would be lost, which is important in the Likert scale testing. The Fisher's Exact test could deal with the low sample issue and the Cochran-Armitage Trend test could fix the loss of the ordinal nature of the responses, but

both would have to be utilized, which creates layers of complexity and SPSS cannot handle both tests.

Rather than adding layers of complexity, I treated the categorical data (Costa Rica and Panama) as numerical, assigning them a 0 and 1. I treated the survey data as continuous, which would enable a t-test. However, due to the non-parametric distribution, a Kolmogorov-Smirnov (K-S) Test or the Mann Whitney test would have to be used, as it makes no assumptions about the distribution of the data, it is non-parametric and does not have a distribution. The K-S test is also used for determining if there is statistically significant difference between actual and theoretical frequency distributions. The K-S test allows the testing of a pair of distributions (Lee and Wong, 2001). However, with the K-S test and Mann-Whitney test multiple testing is not possible and in my survey I asked a variety of question with themes such as "trust" and "community participation" to conduct multiple testing.

The logistical regression was the test that allowed for an association between the x and y variable with data that was non-parametric, had a small sample size, maintained the ordinal nature of the responses, and allowed for multiple testing. Due to the observational nature of the data, my results are associations and alone do not reveal cause and effect relationships. The null hypothesis in this test is that there is no difference between Costa Rica and Panama. The results determine how probable the data are if the countries have the same regression line versus the probability of the data if the countries have separate, individual regression lines. If the data are significant with a p-value<0.1, then the separate regression

lines are a better fit and the null hypothesis is rejected. The significance level is set at 0.1 as the cut-off due to the exploratory nature of this study. There are no generalizations about populations from these data and therefore the 0.1 cut-off allows for more flexibility in looking at associations with these observational data.

CHAPTER 4: HISTORICAL BACKGROUND AND PUBLIC PERCEPTIONS OF LA AMISTAD

Historical Background

Creation of La Amistad International Park

On March 3, 1979 the presidents of Costa Rica and Panama jointly declared their intention to establish an international park. La Amistad National Park in Costa Rica was created in 1982 and received World Heritage recognition in 1983. On February 9, 1988 this intent to create an international park was reconfirmed with the Directive Resolution No. 021-88, creating La Amistad International Park in Costa Rica and Panama. The Panamanian side received UNESCO World Heritage recognition in 1990, and then La Amistad International Park received Biosphere recognition in 2000. Due to the geographic size of the park, spanning four provincial jurisdictions, management was divided bi-nationally and bi-regionally.

In Panama, 98% of the park in located in the Bocas del Toro region on the Caribbean side and 2% is located in the Chiriqui province on the Pacific side (Acosta, Rodriguez and Simmons, 2008). There are two administrators, one for each province on the Panamanian side of the park. In total, there are five full-time personnel in the Chiriqui Province and four in the Bocas del Toro province (PaP, 63). In Costa Rica, 88% of the park is in La Amistad-Caribbean and 12% is in La Amistad-Pacific. There are twelve park officials who cover both provinces in Costa Rica, with one administrator who oversees the entire park (CRP, 7). On

the Pacific side of Panama there have been Programs of Monitoring and Effectiveness, which have included the public perceptions and suggestions for the management of the park.

The management plan for Costa Rica was initiated in 2003 and finished in 2005. Costa Rica has its own commission for the park, which meets four times annually. The Panamanian side has its own management plan completed in 2004. There is a bi-national commission that worked unofficially before 2005, but was officially formed in 2005 and meets two times yearly. The Nature Conservancy strongly guided and supported these efforts. There is also a Local Council in each of the 11 Conservation Areas of Costa Rica. There are two Councils in the management scheme of La Amistad as the park straddles two Conservation Areas. In discussing this with the BriBri territorial government, ADITIBRI, there was no evidence of a Local Council on the Caribbean side of the park. However, there are ongoing efforts to create a co-management plan between ADITIBRI and MINAE.

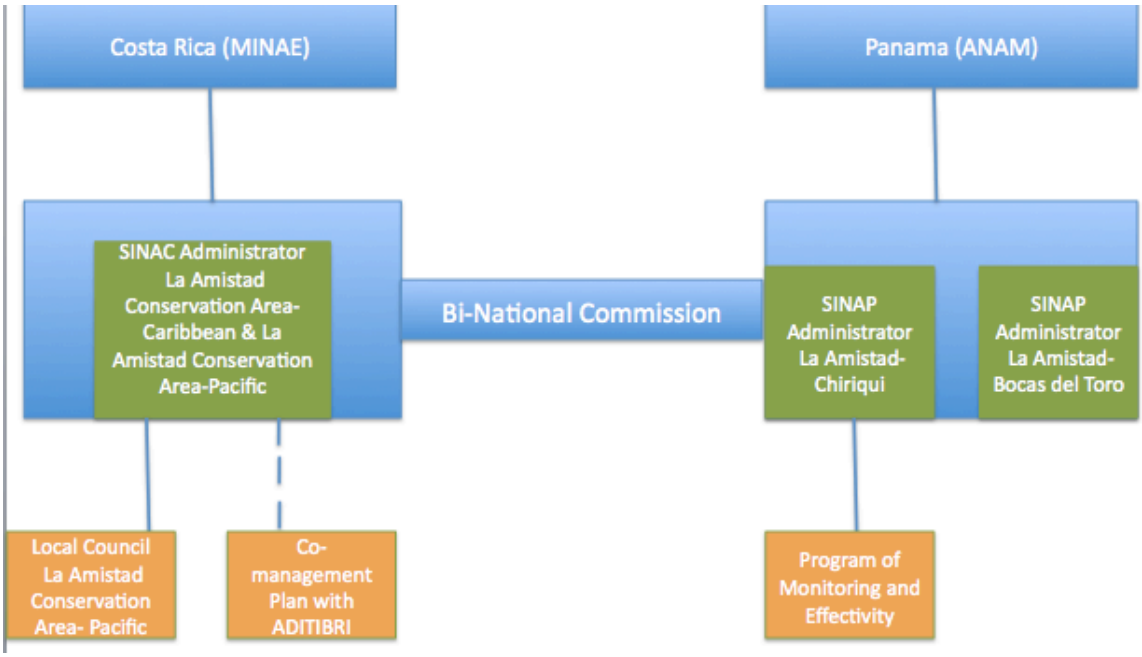


Chart I: Management Scheme of La Amistad Park

Conservation History of Costa Rica

During the 20th century, Costa Rica experienced a rise in the conversion of forests to cropland plantations and pastures to meet the growing market demand. Jointly with this increase in land conversion to cropland came a rise in ecological consciousness both in the realm of science and political activism. By the mid-twentieth century the University of Costa Rica, with a biology department, and various environmental conservation organizations had been founded and aided in increasing awareness of the need for conservation measures (Evans, 1999). The call for conservation even reached the president with President Ulate (1949-1954) declaring a national week for the conservation of natural resources in 1950. A biologist from the University of Costa Rica, Luis Fournier, participated in the drafting of the Forestry Law that was passed in 1969 (Wallace, 1992). Under this law, lands such as national parks and monuments were to be designated and administered as legally protected areas by the General Forestry Directorate. Although this initial law was highly ineffective, with 29% deforestation occurring in the following decade, this policy planted the seed for the emergence of a larger, more involved conservationist community. This budding conservation community included much more governmental intervention and involvement in the movement for forest protection and the creation of a massive national park system (Evans 1999).

The Forestry Law did not do much in the first few years and was revised in 1977. These preliminary revisions added tax incentives and offered technological investment loans for reforestation in the hope of decelerating impacts of deforestation and increasing the economic potential for sustainable wood production. The law was revised again in 1980,

1986, 1990 and 1996. Following this law in the 1980s, the Costa Rican government became more active by its first declaration of a state of emergency to combat deforestation (Evans 1999).

One of the biggest obstacles to maintaining the parks after creation was funding. To overcome this barrier and create the first national reserve, Cabo Blanco, a Swedish couple living in Costa Rica wrote to International NGOs for donations. Success came in 1965 after securing enough donations to buy the land with 51% from the British World League and other donations from organizations such as the Sierra Club, the Nature Conservancy, the Friends of Nature, and the Philadelphia Conservation League (Evans 1999).

With an estimated 60% of the world's terrestrial species in Costa Rica, the idea to create an extensive, bi-national park in the Cordillera Talamanca was proposed in 1974. President Carazo signed numerous agreements with Panama to initiate the park planning process. With frequent governmental changes, three successive governments signed the agreement. The planning process was approved and commenced in 1979 for La Amistad National Park, doubling the area of the park system. Following the creation of La Amistad, Mario Boza, one of the creators of the Costa Rican park system stated, "We are moving out of the decade of declaration and into a period of consolidation and refined management of the parks" (Wallace, 1992).

During the 1980s, deforestation remained a problem and the parks became islands of forest, vulnerable and isolated. During this period the realization grew that protecting the parks could not be accomplished solely by the park officials. Promoting the parks to the local communities through environmental education programs was necessary because according to

Mario Boza, "without the support of the people…we go nowhere" (Wallace, 1992). The idea to promote participation of the local society came in the form of the National System of Conservation Areas (SINAC). With the creation of SINAC, Costa Rica was geographically divided into eleven conservation areas in 1995 with the idea of "deconcentration, decentralization and democratization" (Evans, 1999). This remains the current system employed in Costa Rica.

Conservation History of Panama

According to Panama's National Biodiversity Policy, one of the goals is to place biological and genetic resources as "the core of a national strategy and its connections with the economic and social development process, taking into account the challenge to improve the competitiveness of the country by improving life quality, decrease of poverty; and integration of the local and indigenous people and sustainable development" (Jaliao, Young & Teran, 2010).

In Panama, the initiatives for the protection of natural heritage sites materialized in 1918 when the Municipal Forest "The Colmón Macaracas" was established in the province of Los Santos, to protect water sources and promote rational use of firewood. This protected area exists today. By the 1960s the government began to create forest reserves. With international support, especially from the United Nations Food and Agriculture Organization, a park system was proposed in 1972 and the first five official parks were established between 1976 and 1984. Parks continued to be established through the eighties and nineties, growing

from terrestrial parks to include coastal and marine parks. The National System of Protected Areas (SINAP) was created in 1992 to fortify the protected areas. SINAP was managed by the National Institute of Renewable Natural Resources, today known as the National Environmental Authority (ANAM). The legal confirmation of SINAP with ANAM as the governing body came with Law 41 on July 1, 1998 ("Normas Ambientales", 2010).

At the start of the 21st century, community participation began to rise as communities helped in the declaration of parks such as Natural Monument Cerro El Gaital. Currently 34% of the country is managed as a protected area under the System of Protected Areas, with some 89 protected areas (Munoz, 2010).

Present Obstacles Facing La Amistad

According to a park official, a major problem currently facing La Amistad in Costa Rica is the lack of personnel. Another impediment is the division of the park between two areas of conservation, i.e., the Pacific region cannot do work on the Caribbean buffer zone, "because there are other functionaries. We are protecting one forest, one national park, but we can only do work in the Pacific buffer zone…and this is a problem in the management" (CRP, 7). Another park official from the Pacific region in Costa Rica mentioned forest fires, hunting, cutting trees, extraction of minerals from the rivers, illegal tourism from Panama, and the indigenous reserves as the main problems facing La Amistad.

On the Pacific side of the park in Panama, the largest threats are similar, with forest fires and hunting as primary threats, but there is also the threat of infrastructure development

according to an ANAM park official. “The development of infrastructure, roads, and hydroelectric; and the population is really close to the park,” (PaP, 52).

On the Caribbean side of the park in Panama, the biggest concern is that the government is focusing on economics above buffer zone community well-being and the environment. “Our government thinks first about the economy and then the social and environmental part,” (PaC, 53). This is evidenced by the development of hydroelectric projects in the Biosphere Reserve that have divided the Naso indigenous reserve on Bonyick. There were four comments from the Naso communities in the Caribbean of Panama and five comments that indigenous knowledge is ignored in the current management plan.

On the Caribbean side of the park in Costa Rica, in the Bribri indigenous reserve, five community members mentioned a feeling of government neglect regarding conservation efforts within La Amistad. There is no nearby office, personnel, or resources dedicated to conservation in this area, but the Bribri have park rangers who administer the rules and regulations set forth by MINAE. Many participants also mentioned the rejection of indigenous knowledge and lack of direct participation in natural resource conservation, but were hopeful that this situation could be remedied in the future with the co-management plan that is in development.

> "There is the government, SINAC, MINAET with the indigenous territory, BriBri and Cabecar, in the west and we are really in charge of the park. MINAET only comes with some incidence in respect to the management of the park. There aren't personnel of MINAET in this sector of Caribbean. Here the International Park is the ADITIBRI's and Cabecar's" (CRC, 68).

> "At the beginning they didn't consult, but after some assumptions they have a proposal of how they will manage the park, now to remedy the management plan. It's a process that started in 2004 to this moment" (CRC, 68).

> "There is a management plan for the government, but it lacks the point of view of how we are managing in the moment" (CRC, 68).

Hydroelectric Issue in Panama

All the park rangers and officials interviewed in the four regions of the park consistently mentioned that the threats to La Amistad have been reduced over the years. However, the issues in Panama with the construction of hydroelectric power in proximity to the park, and its effects on the buffer zone communities, is an ongoing struggle that has received much international attention. The story made headlines with stories by International Rivers, Parks in Peril, and the Center for Biological Diversity. While there has been international recognition of the local indigenous and community movements, in interviews with park officials, the hydroelectric issues were not responded to in any detail. On the other hand, most communities interviewed in the buffer zone of the park in Panama took a strong stance on the hydroelectric issue. The significance of the hydroelectric issue sheds light on the topics of trust, collective-choice arrangements, and nested enterprises, which are analyzed in the following chapter in the context of the role and influence of international pressures on the communities in the buffer zone of La Amistad.

There is a series of hydroelectric projects being proposed and already underway in both the Chiriqui and Bocas del Toro Provinces of Panama, with one official estimating, "There are more than 26 that might pass" (PaP, 36). Many projects are in progress due to the Panamanian government's involvement in the Kyoto Protocol's Clean Development Mechanism project, in which developing countries receive funds through the sale of carbon credits. There has been international support and pressure from the European Union, the World Bank, and the Central American Commission for Environment and Development, but according to Sommer (2008), there has been no credible consultation with affected communities.

One project, the Changuinola 1 (Chan 75) is being constructed within the La Amistad Biosphere in the Palo Seco Protected Forest and the Mesoamerican Biological Corridor. The headwaters of the Changuinola River are of major biological significance in La Amistad International Park. According to the Alliance for Conservation and Development (ACD), "AES [Corporation] and the National Environmental Authority (ANAM) have failed to conduct an appropriate environmental impact assessment," (Osvaldo and Galvin, 2006). According to ACD, there was a failure by the park through AES and ANAM to appropriately consult with the nearby Ngobe communities and complaints by Ngobe have been disregarded. The first approval criterion for the World Commission of Dams (WCD) is acquiring public acceptance (Osvaldo and Galvin, 2006). The WCD was established in 1998 and funded by the World Bank and the World Conservation Union to address controversies over large-scale dams by creating internationally acceptable criteria and standards (The World Commission on Dams, 2000).

In opposition to this dam, many indigenous groups attended the Inter-American Human Rights Commission meeting in October 2008 in Washington DC. The Inter-American Human Rights Commission is an autonomous part of the Organization of American States that deals with the "promotion and protection of human rights" (Inter-American Commission on Human Rights). At this hearing both Ngobe and Naso indigenous participants reported "discrimination, abuse and displacement" by Empresas Publicas de Medellin, a Colombian Company installing a dam on the Bonyick River and by AES Corporation, a Virginia-based company installing a hydroelectric plant on the Changuinola River (Sommer, 2008). While there is strong opposition to the Chan 75 project, three additional dam proposals are also threatening the La Amistad Biosphere.

To directly confront the hydroelectric projects, there is currently a petition to the World Heritage Committee requesting the inclusion of Talamanca Range-La Amistad Reserves/La Amistad National Park on the list of world heritage sites in danger. In the petition, the main concerns addressed are the dams' impacts on the species populations, deterioration of forest with human settlement and construction, encroachment on park boundaries, increase in the armed conflict between Panamanian officials and indigenous communities near the park (Naso in Bonyick), and inadequate management and failure of law enforcement in the buffer zone (Petition to the World Heritage Committee, 2007).

With much opposition to the hydroelectric dams and the petition to include La Amistad on the list of World Heritage Sites in danger, La Amistad was not given the designation of a site in danger and the conflict has continued. When interviewing the Naso

indigenous reserve population, the community members who were not working on road construction for the dam, were adamant in their opposition to the project on the Bonyick River in Bocas del Toro according to the Petition to the World Heritage Committee,

> "Armed conflict has already occurred between the government of Panama and the Naso indigenous group because the management plan allows for developing the hydroelectric potential for the Park at the expense of indigenous lands contiguous to the Park through flooding and road construction. The Naso had originally agreed to discuss the dam in exchange for the recognition of their lands as an autonomous region, know as Comarca. However the Comarca still has not been granted. This fact, couples with the failure of the Panamanian government and the owner of the hydroelectric project to adequately inform the Naso community about the impacts of the dam has ignited armed conflict. In addition, when negotiating with the Naso, the government violated the traditional political structure and decision-making process of the indigenous group."

FUNDICCEP has led community rallies in buffer zone communities, including one I witnessed in Guadalupe. This is a battle still being fought.

The hydroelectric projects being constructed in the buffer zone are a very contentious issue, with pressure added with the development of infrastructure for the dam and for the expected population increase in the buffer zone areas. There are several social and environmental implications, including distrust among stakeholders, lack of consultation or collective-choice arrangements with La Amistad stakeholders, and a different form of nested enterprises with influential foreign companies backed by the EU, World Bank, and The Central American Commission for Environment and Development.

The hydroelectric projects demonstrate how increasingly regions, such as La Amistad, cannot be isolated from globalization, as there are global and neoliberal forces constructing, deconstructing and altering regions daily. Singleton (2002) discusses the

impacts of external factors on watershed management in the Pacific Northwest. The larger the scale, linkages, and asymmetry of the resource costs and benefits, the less successful is the watershed planning. Singleton (2002) finds one significant predicament in the collaborative natural resource management processes, "is that while the process is local, many of the sources of the problems it seeks to address and the constituencies it must respond to are not."

Group Characteristics

Numerous factors contribute to success or failure in the management of a common pool resource. Ostrom et al. (2002) designate five key contributors in the assessment of a commons: Institutional Arrangements, Resource System Characteristics, Group and Individual Characteristics, External Environment, and Interaction among Factors. Through quantitative survey data and qualitative interviews, my results confront the intersection of Group and Individual Characteristics and Institutional Arrangements. A key factor related to Group and Individual Characteristics is trust, while the Institutional Arrangements address collective-choice arrangements and nested layers of governance.

Owing to the semi-structured nature of the interviews, the process was iterative, evolving from more general questions regarding the interactions between the community and park officials, levels of participation of the community with park events, and the relationship between the community and park officials, into more specific, targeted questions about particular obstacles to progress within each unique community or region in the park. For

example, on arriving at the first buffer zone community in Panama, I encountered a community meeting opposing the building of a hydroelectric dam in a river that runs directly through La Amistad International Park. This became a very important topic with the interview participants in this community.

After reviewing other studies that concentrate on environmental discourse and the perceptions of community members bordering La Amistad (Schelhas and Pfeffer, 2008), as well as eliciting opinions of community members concerning who benefits from maintaining a neighboring park, a common theme emerged in all four regions of La Amistad International Park. The levels of trust among stakeholders varied greatly and played an important role trust plays in the development of collective-choice arrangements and nested layers of governance. The next section will address the levels of trust or lack of trust.

Trust across the Buffer Zone Communities of La Amistad

Over the course of numerous interviews, trust emerged as a key topic when discussing the relationship among communities, community organizations, and the park. The community organizations or associations act as bridges connecting the buffer zone communities to the park management and are, therefore, one of the mechanisms for fostering a trusting relationship between the park officials and the neighboring communities. This became apparent during interviews with community stakeholders who revealed strong relationships with community associations and how these facilitated more frequent interaction with the park.

Trust is an important factor among resource users. Numerous studies including those by Fukuyama (1995) and Putnam (1993) revealed that trust affects the functionality of society's institutions. Trust can assist in avoiding situations of 'prisoner's dilemma' and create more cooperative environments. As levels of trust decrease, willingness to cooperate diminishes accordingly. According to Ostrom et al. (2002), trust, among other attributes such as communication and the ability to create enforceable agreements, can at times enable individuals to move beyond self-interest and lead to the formation of, and adherence to, regulations, ensuring the future of the resource. Moreover, Ostrom (2009) has determined that trust does not solely emerge with the adoption of norms, but a particular situation needs to generate ample information of other stakeholder's behavior and their probability of acting in a trustworthy and cost-sharing manner. With higher levels of trust in the reciprocation and cost-sharing commitments of other participants, the levels of cooperation increase, augmenting the net benefits and positively reinforcing the system.

The results from the surveys indicate that 74 out of 75 survey participants from all four regions of La Amistad find that "confidence and transparency among stakeholders" is *important*. Moreover, 65 of those 74 participants indicated that this is *very important*. While confidence and transparency are important to the participants, when asked if they believe that "citizens trust the government" on conservation efforts in La Amistad, there was a wide range of perceptions and levels of trust among stakeholders. Another survey question was used to identify the sense of trust or distrust among community stakeholders themselves in terms of conservation efforts in La Amistad: "people are generally trustworthy and honest".

The responses also resulted in an interesting spread as demonstrated in Chart II below, showing raw survey numbers, not percentages.

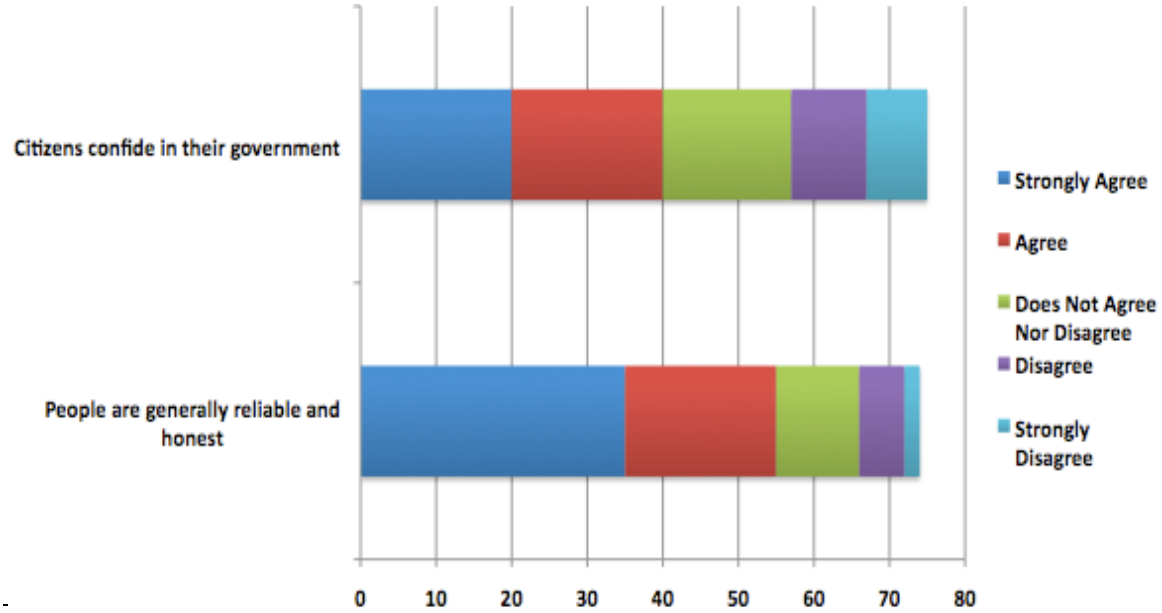


Chart II: "Trust" among Stakeholders in the Buffer Zone of La Amistad

These raw survey numbers, with 75 of 76 participants responding, are an anomaly due to the greater spread of answers compared with the other survey responses. The complete survey results demonstrate the vast majority of participants for the other survey questions leaned toward "strongly agree" and "agree" with few instances of a spread or dissonance throughout the survey. Due to the uniqueness of these responses, a comparison of the results from Costa Rica and Panama is provided below in Chart III and Chart IV with 46 Costa Rican responses and 29 Panamanian responses.

For both Costa Rica and Panama the greatest spread among responses is for the question about "citizens trust the government", with only about 50% of the responses on either side of the border agreeing at some level with this statement. For the statement "people

are generally trustworthy and honest" approximately 75% of respondents agree at some level with this statement (50% of respondents from both Costa Rica and Panama indicate "strongly agree" and about 25% "agree"). This is a leap above the levels of confidence in the government, but there is still noticeable variation among answers.

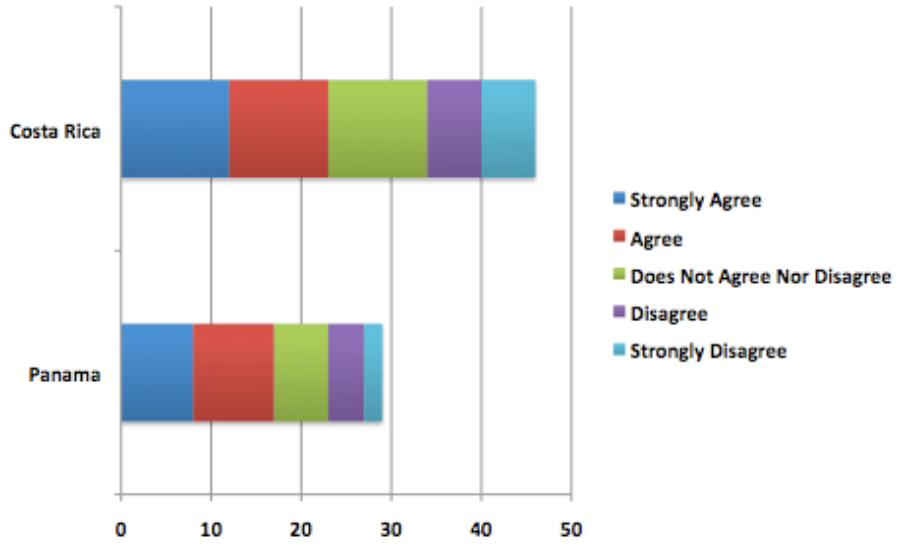


Chart III: "Citizens trust the government" on Conservation of PILA

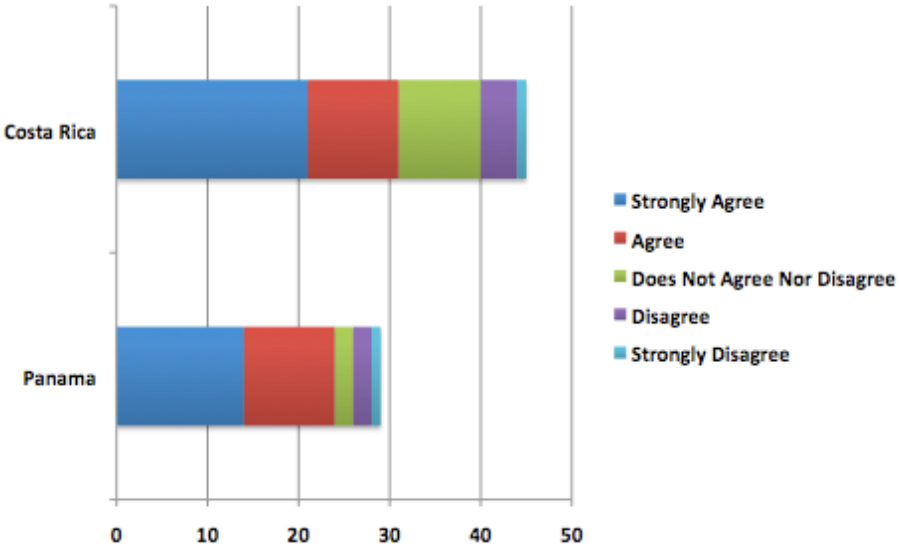


Chart IV: "People are generally trustworthy and honest" on Conservation of PILA

From field observations and semi-structured interviews my analysis aimed to better understand the status of trust among community stakeholders and their levels of confidence in the operation of the park. This was accomplished by initiating this portion of the interview with inquiries into the relationships community stakeholders have cultivated with the park officials. Do you know any park officials personally? Is there a good or bad relationship? Do you view them as friends or more as policeman? How has the relationship changed over the year? How frequent are your interactions? From these interview questions it became apparent that local associations or community organizations mediated the majority of interactions within the community. The two questions used for the survey related to conservation efforts in PILA and were chosen due to their unique spread. Those participants with higher participation or interaction with associations tended to have more frequent participation in the park operations.

On the other hand, those who did not participate with the community association were also those community members who had minimal relations, interactions, or participation with park officials. Twenty-five community members interviewed indicated they participated in any park meetings or talks. Twenty-three of those twenty-five community members participated with local associations or community organizations that worked with the park to help organize these events and encourage public participation. There were only two respondents that indicated they had participated with the park in an activity and did not indicate participation with a local association. These findings were observed across both the Pacific and Caribbean portions of La Amistad in both Costa Rica and Panama and are closely linked to the close relationship between many of the associations and the park. The result is

these local associations are leading the way in connecting the park to the neighboring communities. While the quantitative results show that the levels of trust among community stakeholders and park officials vary greatly at this time, the community associations are encouraging communication and interactions and making concrete contributions by organizing gatherings and events.

Trust Discrepancies with Indigenous Territories

The greatest difference concerning the levels of trust between the park management and the stakeholders in the various regions of La Amistad is the discrepancy between the Pacific and Caribbean sides of the park in both Costa Rica and Panama. On the Pacific side, from the interviews, there was minimal indication of distrust between the government and the stakeholders. The Caribbean side of the park in both countries is home to indigenous groups whose reserves are located adjacent to the park and in some circumstances are located within the boundaries of the park. The two indigenous communities visited during field research were a Naso indigenous reserve in Panama and a Bribri indigenous reserve in Costa Rica.

Naso Indigenous Reserve of Panama

When asked "have you been affected by decisions in the park, by laws or regulations or any changes," one respondent from the community of Bonyick on the Caribbean side of Panamanian La Amistad answered, "Yes, by the decision-making. They don't consult us," (PaC, 54). This same participant responded that he did have a conflict with the park in which, "They [ANAM] say that no one can take wood, but the companies come and destroy it. They

can come without permission and destroy the environment," (PaC, 54). Another member of this same community stated in reference to the relations between the community and the park,

> "It's not very good. They give all the rights to the company and not to us. We have been detained by the authorities, badly treated by the police at the direction of the company. For this, I don't want to listen to this company. I want them to leave from here, but the government has them here," (PaC, 55)

This same participant from Bonyick, in response to the question "If you want to change something, a decision such as this, like the dam here, who can you talk to?", answered "Well, with very few people, not with all, because the majority don't know us well and we don't know them and they don't want to know anything about us and we don't want to know anything about them," (PaC, 55).

Much of the tension that still exists in the Naso territory relates to the hydroelectric project that is being constructed in the Bonyick River by a foreign company. This company has paved a road connecting Bonyick to the town of El Silencio and has hired many local construction workers. "Before, Naso went from El Silencio in boat and walked. Now there is a difference, it's the development by the government. For me it's not development. When they say it's development, for me it's limitations that they are trying to control the territory" (PaP, 57).

Those Naso that I interviewed were not employees of the construction company and I was unable to interview those that are employed by the company. Therefore, the sentiment

expressed in the interviews is not a full picture of the perspectives of the Naso community and those interviewees admitted that the hydroelectric project has divided the community.

Bribri Indigenous Reserve of Costa Rica

On the Caribbean side of the park in Costa Rica, there are not issues with the construction of hydroelectric dams, but there is still tension that exists between MINAE and the Bribri indigenous territory. In the community of Suretka, where the Bribri government, ADITIBRI is located, one participant discussed the conflict that still exists:

> "In the park that we have, conflict exists because of MINAE, which is the institution of the state. It's supposed to care for the park, but they don't care for it and so for La Amistad International Park it's the indigenous that care for the park, but without salary. They don't pay us. We do it as volunteers because we are on the border of the limit. And the conflict we have with MINAE is also that they give permits for extraction for minerals, permits that they give for minerals within the park and within the indigenous community. For us the park isn't the park seen by the state, it's the park that for so many years the indigenous have conserved," (CRC, 67).

Another resident of the Bribri indigenous territory demonstrated some opposition to the system of management of the park when asked "Are there any regulations of the park that you are not in agreement with?" This participant responded with "Yes…traditionally, culturally we have been working well, protecting the mountain for thousands of years, our ancestors. And they say they need to come and regulate or that we don't know something. I am not in agreement with this," (CRC, 72).

Those interviews conducted with the Bribri residents reveal conflict between the Bribri territory and the regulations imposed by MINAE. The interviews were conducted with

a Spanish-Bribri translator and this translator was also an ADITIBRI (Bribri government) park ranger. Many residents had very concise answers rather than providing a more detailed description, as seen in much of the testimony by the Naso, due to the presence of the ADITIBRI park ranger. However, the interviews in both indigenous territories, the Naso from Panama and the Bribri from Costa Rica, show a much tenser relationship with the park. There is more of a disconnect than the relationships that have been formed by buffer zone communities with the help of local associations on the Pacific side of the park.

CHAPTER 5: INTERVIEW AND SURVEY RESULTS

Institutional Arrangements

Institutional arrangements for La Amistad International Park are extremely complex due to the extensive area that the park covers, the park's bi-regional and bi-national nature, and the difference in institutional norms that have developed in the diverse communities in the buffer zone communities, including indigenous reserves. Even years after the creation of the park, co-management agreements are still being created to take into account the heterogeneity of the buffer zone and help communities find alternative, sustainable economic means to replace previous activities, such as cutting trees, hunting and grazing cattle. Institutional arrangements are dynamic and constantly changing due to factors such as shifting governments, reduction or augmentation of financial resources, the state of biodiversity in the park, and outside influences altering arrangements, such as the installation of numerous hydroelectric dams by foreign companies in the Panamanian regions of the park. Collective-choice arrangements and polycentric or nested layers of governance are two of the eight institutional arrangements for sustainable common pool resource management that will be discussed and compared bi-regionally and bi-nationally in the context of institutional arrangements.

Collective -Choice Arrangements

A collective-choice arrangement signifies the capacity for participation of most appropriators in the decision-making process or "most individuals affected by the operational

rules can participate in modifying the operational rules," (Ostrom, 1990). This is a critical component in the institutional arrangements of La Amistad, as a consequence of its designation as a UNESCO World Heritage Site and the recognition of La Amistad International Park as a Biosphere Reserve. This concept allows for rules to be adapted to local conditions rather than being subject to overarching, one-size-fits-all policies. Also, according to UNESCO, some of the main characteristics of Biosphere Reserves include, "focusing on a multi-stakeholder approach with particular emphasis on the involvement of local communities in management," and "integrating cultural and biological diversity, especially the role of traditional knowledge in ecosystem management." Examining how buffer zone communities across the four different regions have been able to take part in decision-making in formal ways, or become involved in other informal activities, will demonstrate how and where the management scheme of La Amistad is fostering collective-choice arrangements.

Formal Pacific Community Participation in Costa Rica and Panama

On the Pacific side of La Amistad International Park, both Panama and Costa Rica have unique ways to encourage community participation in the decision-making process. Both countries have implemented a bi-annual assembly in which particular stakeholders are invited to express concerns and considerations about the management of the park.

In Costa Rica there is a bi-annual meeting in which the park administration, MINAE, meets with the Consejo Local (Local Council). The Consejo Local is selected at an assembly in which the community members vote on representatives to attend the meeting with the park

administration. This vote is conducted every two years and the Consejo Local meets every three months. The Consejo Local was derived from the Law of Biodiversity in which there is a requirement for civil society participation with the Consejo Local in all 11 conservation areas of Costa Rica. According to one park official, "the last wasn't very successful because the people didn't participate much, but now we are going to do another assembly that calls to all the local groups, private businesses, all members of the municipality to select again the members of the Consejo Local…and what happened in the last assembly, the members that were selected were not very responsible like others and legally there was nothing to do except to complete the duration and therefore it wasn't very successful" (CRP, 7).

Panama has a similar system set up with the Program of Monitoring and Effectiveness conducted by civilian participants bi-annually. The Program of Monitoring and Effectiveness was created with the help of the Nature Conservancy and uses Likert scale ratings and open-ended answers for evidence and observations of various aspects of the state of the park and park management. According to one local guide who participates, "every two years they do a test of how they manage the park, ANAM. They do a test to see how the management of the park is going and I think it's very important," (PaP, 42). As this participant was discussing his experience, he also mentioned, "Not everyone [is invited]. You can go if you are involved in these things," (PaP, 42).

While both countries have legally implemented some form of civil participation, randomly surveyed community members did not participate in either the assembly to nominate the Consejo Local in Costa Rica or as a volunteer on the Consejo Local. I could find only one randomly surveyed community member in the Pacific Panamanian community

of Guadalupe who had participated twice, receiving an invitation due to his participation in the National System of Civil Protection and his work as a guide in La Amistad. However, those community members that were also members of local associations, such the Red Cuercus in the buffer zone of Costa Rica or ADATA in the buffer zone of Panama stated that the organizations did participate in the assembly for the Consejo Local in Costa Rica and the Program of Monitoring and Effectiveness in Panama. The community organization is assuming an active role in civil discourse and trying to insure that the community's voice is heard in park decision-making.

Survey Results for Informal Community Participation in Costa Rica and Panama, Pacific

During the interviews with Pacific buffer zone community residents of La Amistad, those community residents that were not working with the local associations stated that they did not participate in the assembly for the Consejo Local or in the Session of Monitoring and Effectiveness. These same participants were administered a survey immediately following the interview in which they were asked to "Please indicate which organizations you collaborate with and how often." In the survey, MINAE and ANAM were listed with the options of "very often", "often", "sometimes", "not very often" and "not at all". The results for collaboration with MINAE and ANAM are shown in Chart V below.

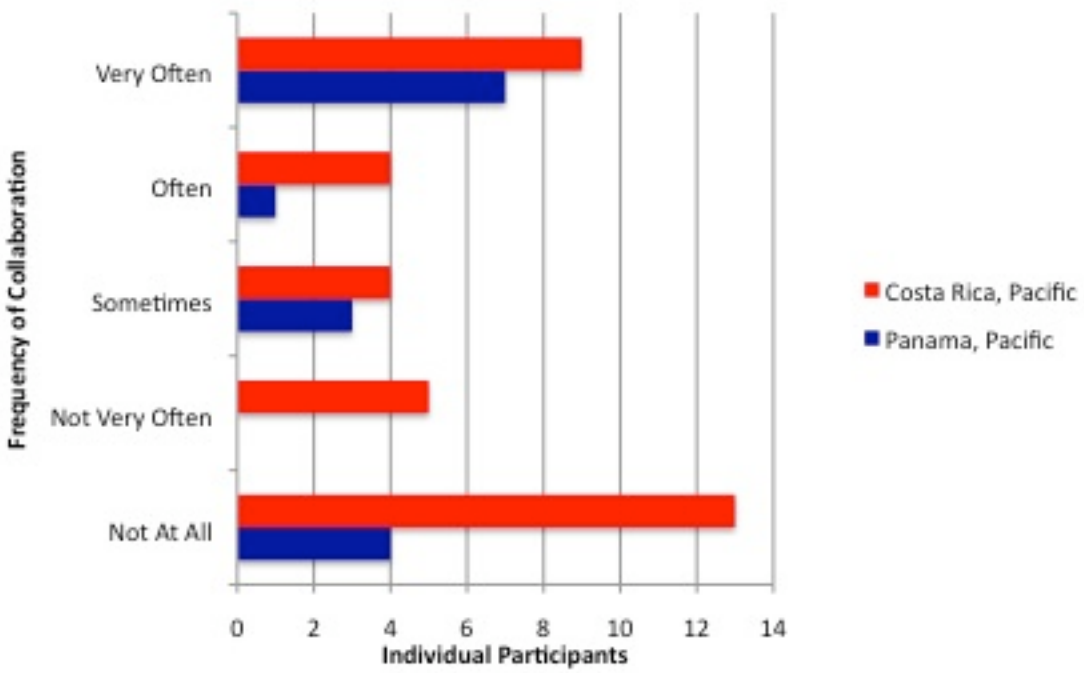


Chart V: Frequency of Collaboration of Buffer Zone Community Members with the MINAE and ANAM in the Pacific of La Amistad

These results show a definite spread of responses with polarized answers in the Pacific region of Costa Rica. There are many community residents who collaborate "very often" with the park, while there is also a significant number of residents who do "not at all" collaborate with the park. On the Pacific side of Panama a significant number of participants indicated they did participate "very often", with the remainder of the respondents spread across the other categories.

One of the discrepancies between the survey responses and the interview responses is due to the phrasing of the questions. In the survey, in Chart V above, shown are the levels of collaboration with the park. On the other hand, the interview asks specifically about

participation as a civilian in such opportunities as the assemblies, the Consejo *Local,* and the Session of Monitoring and Effectiveness. Collaboration can include many informal events such as attending talks, meetings, the park anniversary celebration, and many other social opportunities distinct from actual involvement in the formalized decision-making. While there are greater levels of participation in informal collaborative activities, there are lower levels of formal participation by civilians in actual management in the Pacific region of La Amistad.

Informal and Formal Community Participation in Costa Rica and Panama, Caribbean

Interview Results for Community Participation, Caribbean

The Caribbean buffer zone communities of La Amistad consist of indigenous reserves in both Costa Rica and Panama. According to MINAE officials and Bribri community members, the management of the park in Costa Rica on the Caribbean side is evolving its participatory mechanisms by developing a co-management plan that includes cultural heritage and indigenous knowledge. The ANAM park rangers, officials, and administrators on the Caribbean side of La Amistad in Panama uniformly refused to answer any questions about the management of the Caribbean side of the park. Therefore, the emergence of co-management on the Caribbean side of La Amistad could not be analyzed.

Nonetheless, many residents of the Naso Reserve in Panama expressed concern about the lack of collective-choice or the current lack of a means of participation. One resident answered a question regarding their participation with ANAM, “Very little do I participate

with ANAM because they are other. We always call attention to ANAM, but they never pay attention to us, therefore I participate very little in reunions with them," (PaC, 55). According to one organizational leader who helps with sustainable development projects for indigenous communities in buffer zones of national parks on the Pacific side of La Amistad in Panama,

> "The traditional knowledge of the indigenous communities, in my opinion, not only of Kuna, but of Naso, Ngobe, is very valid. But when they do management to improve the management of natural resources this knowledge is left outside. The knowledge that is used is from outside and the indigenous don't understand this. When thinking in management of natural resources, they think of their traditional ways. In my opinion the indigenous groups know how to manage the natural resource much better than others and more if you compare it to the management of ANAM. If ANAM doesn't enter, the indigenous know how to manage the resource well. But when institutions enter…[sigh]…therefore we think in strengthening this," (PaC, 53).

Also one Naso discussed attending the 2008 InterAmerican Commission on Human rights in Washington DC to combat the hydroelectric projects around the Naso Reserve.

> "We are revising the marked limits of the park, but with 2008 with it [hydroelectric] starting, PILA, and the government are favoring the company. It has come and there are new limits much higher than before and whatever technical person validates it…they don't consult the village…Amistad says we have the right and the government has the right, and we know this," (PaC, 56).

When the La Amistad International Park was first created by Costa Rica with a centralized management system installed, these traditional forms of knowledge were ignored in favor of internationally established scientific practices. This is a tendency noted by Berkes (2002) when discussing the effects of higher level institutions on local institutions; local, traditional or indigenous knowledge; and the resulting loss of the traditional practices of knowledge. Rather than just focusing on biodiversity in the park, the co-management plan

being drawn up includes bio-cultural considerations. These will help to incorporate the voices of the indigenous communities and create a situation more consistent with collective-choice arrangements. According to a Bribri resident of Suretka,

> "The operative part here, caring for the park, it's bad. They don't have an office, they don't have people trained here… due to our culture we know that it's a treasure here. The Bribri know the importance of the minerals, the medicinal plants, the river, the water, all of the resources that exist here. It's potential for the Bribri and we care for this," (CRC, 67).

Many Bribri are waiting and ready for the co-management plan between MINAE and ADITIBRI to be implemented.

> "At the beginning they didn't consult us, but after some assumptions they have a proposal of how they will manage the park…It's a process that started in 2004 to this moment…it's difficult because the last 2 or 3 years we are planning co-management between MINAE and the indigenous territories but with the idea of cultural management because it is within the territory of Bribri and you have to see the relation of the Bribri in the case of caring for these areas. So we are planning a management plan between the state and the indigenous territory. Now we are in the process of doing this and it's a management plan in which we have direct participation and also that can give us more resources so we can have an office and have more for the park," (CRC, 68).

Currently there is a process recognized by MINAE and Bribri to include the BriBri in the management more. According to the Bribri, they already care for the park and follow the guidelines set by ANAM, but as volunteers and without the legality of "co-management". In Panama, there is much current activity and complexities in the relationship between ANAM, the Naso territory, and the foreign hydroelectric projects. Indicative of this situation is the

refusal of the ANAM officials to answer any questions regarding the management or the hydroelectric projects on the Caribbean side of the park.

Survey Results for Community Participation, Caribbean

There are some inconsistencies between the interview results and the survey results. Chart VI show some of these discrepancies with the interviews. While the majority of those interviewed said they did not collaborate with MINAE and ANAM, in the results for Panama there is a spread. In Costa Rica, once again it is very polarized. The majority of participants state that they participate "not at all", while all but one of the remainder answered with "very often". The low number of survey participants also affects these results, with only 13 participants on the Caribbean side of Costa Rica and 12 on the Caribbean of Panama. However, it is interesting that on both the Caribbean and Pacific sides, Panama had a large

spread across the answers while in Costa Rica the results remained very polarized.

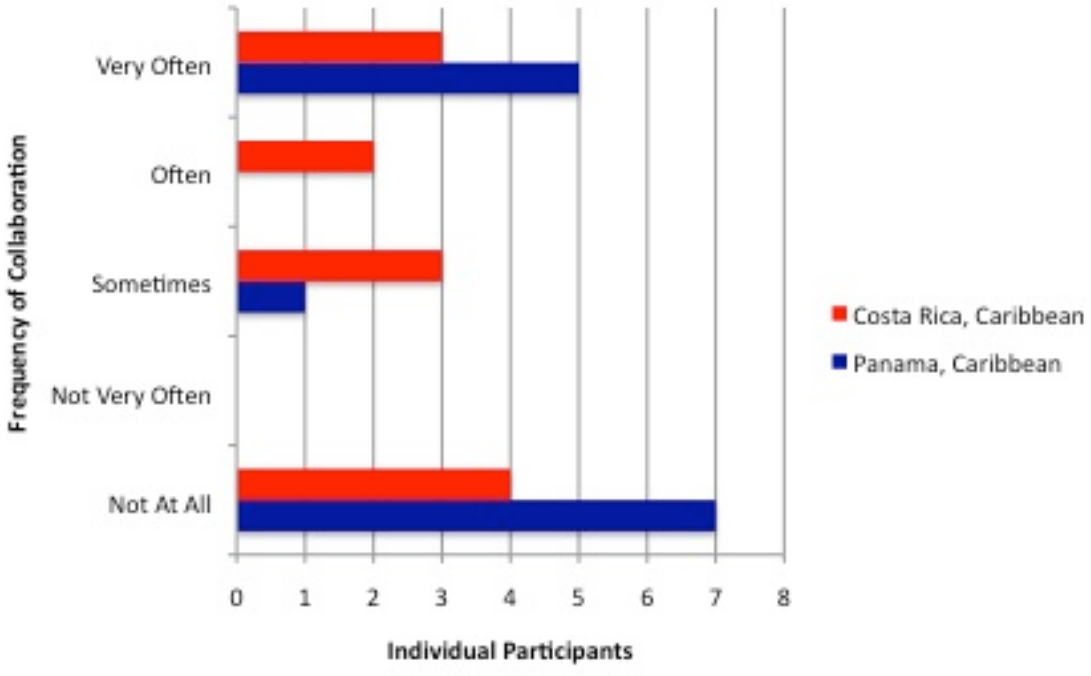


Chart VI: Frequency of Collaboration of Buffer Zone Community Members with MINAE and ANAM in the Caribbean of La Amistad

Interview Results for Stakeholder Inclusion and Exclusion

A research project conducted by West and Clark (2006) demonstrated the gaps in the Nature Conservancy's methods that are used to identify and target relevant stakeholder participation in management of La Amistad International Park. The principal participants identified in the study were grouped into NGO, Governmental, Scientific and Business categories - focusing on the larger organizations. According to Varvasovszky and Brugha (2000), "Stakeholders can be defined as actors who have an interest in the issues under

consideration, who are affected by the issue or who - because of their position - have or could have an active or passive influence on the decision-making and implementation processes."

Following this definition, I randomly selected thirty-three interview participants from five buffer zone communities (Progreso, Potrero Grande, Tres Colinas, Biolley and Altamira) on the Pacific side of La Amistad and asked them if the park had affected them, either positively or negatively. I also inquired about means of participation with the park, whether formal or informal.

	Affected by Park	**Not Affected by Park**
Participates with Park	9	5
Does Not Participate with Park	7	12

Table IV: Pacific, Costa Rica Community Perception and Participation in La Amistad

The results in Table IV show that 16 (48.5%) of participants do feel that the park has affected them either negatively or positively, while 17 (51.5%) participants feel the park has not affected them. Of those affected, 9 (56.3%) do participate with the park in some manner. This means that 7 (43.7%) of randomly surveyed buffer zone community members do not participate with the park, but are affected by the park and are considered stakeholders. Moreover, of the 16 participants affected by the park, 10 indicated this was in a positive manner, 4 stated it was in a negative manner and 2 said in the early years it was negative, but that now they view the park as beneficial.

A significant percentage of stakeholders do not participate in meetings, talks, or any activity with the park, which shows some gap in the stakeholder collaborative efforts. There

is a variety of reasons stakeholders don't participate, with one respondent stating "No, I don't participate in meetings with the park, but there are meetings of the park. They always have reunions and very few are open to the public. They have their people that work together in the reunions" (CRP, 10). Other community members mentioned participation and inclusion with the park: "we participate as a community and have a relation with the administration of the park. Before we were affected but now we benefit, not just us but others in Costa Rica. But the relation with them is good, we are included now" (CRP, 14).

Most of the people who participate in park activities do so through collaboration with local organizations such as ASOMOBI, Red Cuercus, ASOPROLA, or other community organizations that were not listed in the initial principal stakeholder list by the Nature Conservancy. One resident of Biolley stated, "Right now I don't participate with MINAE, but the community in general participates in the decision-making in the protection of the park, as a community. We have some processes with the park," (CRP, 17).

	Affected by Park	**Not Affected by Park**
Participates with Park	5	2
Does Not Participate with Park	4	4

Table V: Pacific, Panama Community Perception and Participation in La Amistad

Fifteen community members were interviewed in three buffer zones communities (Cerro Punta, Las Nubes and Guadalupe) on the Pacific side of the park in Panama. The results in Table IV show that 9 (60%) of participants do feel that the park has affected them

in some way. Seven residents (40%) stated that they have not been affected. Of those 9 participants who can be considered stakeholders, 5 (55.6%) participate in some way with the park, while 4 (44.4%) of the stakeholders do not engage in any form of participation. Of the 9 participants that were affected in some way, all 9 stated they were affected in a positive way, the park "brings tourism, many visitors come from other provinces and other countries to visit the park" (PaP, 41) and "yes the tourism yes, it has been beneficial...the tourism of PILA has been beneficial" (PaP, 48). When asking resident if they participated in any reunions or activities with ANAM or FUNDICCEP, they answered "No, because they have a group, but I am not part of that group" (PaP, 38).

The indigenous territory results differ greatly from the results on the Pacific side of the park. There were 5 of 11(45.5%) Bribri that stated the park had affected them and 6 of 13(54.6%) Naso participants that indicated the park had affected them. All of these stakeholders stated that the park negatively affected them. Futhermore, the Bribri park ranger who conducted the translation for the interviews and surveys discussed with me how the Bribri participants were presenting more positive answers than their reality. This was due to his presence and the park ranger discussed the many barriers to traditional lifestyles for the Bribri, such as the limits of cutting trees and hunting and therefore the struggles that exist in feeding their people.

Collective-Choice Survey and Interview Distinctions Across La Amistad

On the Pacific side of the park, there is a transparent system of institutionalized, formal community participation with the Consejo Local and the Session of Monitoring and Effectiveness. The success of these mechanisms was not measured, though it was difficult to find many who participated in these events during random surveys.

On the Caribbean side of the park in Costa Rica, there is a formal co-management plan still being created, while the implementation of a formal governmentally-mediated means of participation on the Caribbean side of Panama is uncertain based on this research. There is one park administrator in Costa Rica for both the Pacific and Caribbean, while in Panama there are two separate administrators for the two separate regions. On the Pacific side in both Costa Rica and Panama, the administrators, rangers and other officials discussed opening the management of the park and attempts to include more community stakeholders. On the Caribbean side of Panama, the hierarchical nature of management obstructed any attempts to gather information. Permission is necessary for any information dissemination and this is a difficult process. The community's responses on both sides of the park in Panama covered a wide range of opinions, but were more polarized on both sides of the park in Costa Rica. There were many more survey and interview participants on the Pacific side because of easier access to the communities.

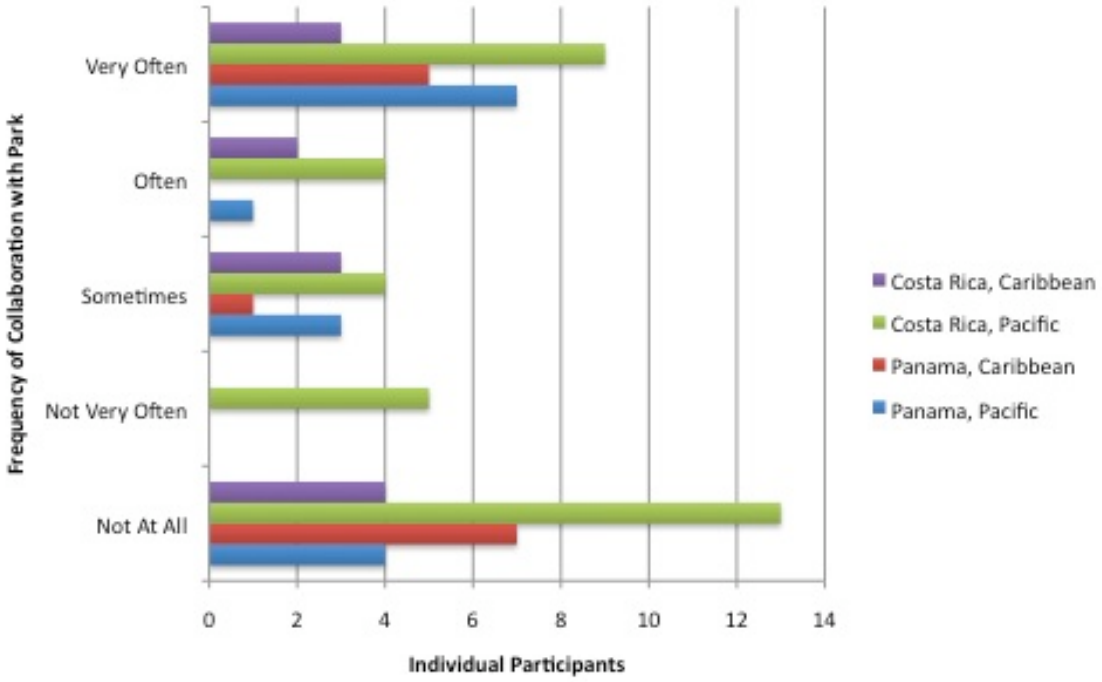


Chart VII: Frequency of Collaboration of Randomly Selected Buffer Zone Community Members with the Governmental Park Agencies of MINAE and ANAM

Polycentric or Nested Layers of Governance

A "polycentric" system, as defined by Ostrom, Tiebout and Warren (1961), "connotes many centers of decision-making which are formally independent of each other…to the extent that they take each other into account in competitive relationships, enter into various contractual and cooperative undertakings or have recourse to central mechanisms to resolve conflicts…" Elinor Ostrom (1990) views this arrangement as nested enterprises or organizations in the form of adaptive governance at multiple levels. Nested enterprises may consist of voluntary, public associations that are established to hold discussions and confront problems or private associations that may help with cost -sharing. Nested enterprises is a

principle that is frequently observed in larger, sustainable institutional regimes and according to Ostrom (2008) they involve the idea that "appropriation, provision, monitoring, enforcement, conflict resolution, and governance activities are organized in multiple layers of nest enterprises," or take on a structure of a governing network rather than a hierarchy.

Local Leadership by Local Institutions

Local leadership, in the context of nested enterprises and related to the promotion of collective-choice in park management, is apparent in the efforts of local institutions or associations that exist primarily in the Pacific regions of La Amistad in both Costa Rica and Panama. While local institutional efforts have fallen behind in the Caribbean regions of the park, there are also fewer state resources dedicated to these regions of the park, with only one park office situated in the park on the Caribbean side of Panama. Even with limited resources, there are currently efforts within organizations such as FUNDICCEP to work across the Chiriqui jurisdiction on the Pacific side of Panama and form partnerships with communities within the Bocas del Toro jurisdiction on the Caribbean side of Panama. However, as Singleton (2002) points out, "while good leadership is a *necessary* component to successful collaboration, it is obviously not enough."

The local leadership and local institutional discussion will focus on ASOMOBI, Asociación de Mujeres de Biolley (Association of Women of Biolley) and the network they take part in, Red Cuercus (Cuercus Network); ASOPROLA, Asociación de Productores La

Amistad (La Amistad Association of Producers); and a select number of organizations on the Pacific side of Costa Rica that associate with FUNDICCEP in Panama.

Local Institutional Outreach Efforts

Some of the local institutional outreach efforts and forms of informal public participation are conducted through environmental education programs that exist on the Pacific side of the park through collaborations between MINAE of Costa Rica and ANAM of Panama. Some of the success of these environmental education programs is seen in the interviews when asked, "Do you think it is important to protect the forest? Why or why not?" On the Pacific side of Costa Rica, 19 out of 30 community members, (63.3%), not including park officials or local institutional leaders, responded with answers that cited the importance of protecting the forest to promote clean water and clean air, and to provide a home for the animals. Of these 30 buffer zone community residents, 13 out of 30 (43.3%) also mentioned tourism as a benefit, with many participants also mentioning the importance of maintaining limits on the number of tourists, as excess tourism could lead to negative impacts on the park.

On the Pacific side of Panama, the buffer zone stakeholders, exclusive of park officials and local institutional leaders, were more inclined to indicate that tourism was the main benefit of protecting the park. Out of 13 community members, 9 (69.2%) responded that tourism alone was the main benefit of the park based on the economic benefits the community receives. "It's [La Amistad International Park] very good because many tourists

come to see the nature," (PaP, 39). Only 1 (7.7%) respondent mentioned that the creation of the park was good for the rivers and protecting animals. Six of 13 (46.2%) residents mentioned that the construction of dams could negatively affect the community and the park. Many of these same respondents mentioned that the dams could deter tourism and negatively affect the economy.

Benefits of La Amistad	Costa Rica, Pacific	Panama, Pacific
Clean air, clean water, or habitat for animals	63.3%	7.7%
Tourism	43.3%	69.2%

Table VI: Benefits of La Amistad International Park from the Community Perspective

Many factors play into why Costa Rican buffer zone community residents stressed certain environmental benefits of the park, while Panamanian buffer zone community residents were more inclined to discuss tourism and the economic benefits of La Amistad International Park. Local institutions and park officials in both countries discussed environmental outreach and coordinating education programs throughout the communities and many community residents discussed environmental education programs for school children. Any differential impact of the environmental education programs on the communities within the two countries is hard to discern. Another factor to consider is the numerous economic pursuits the Panamanian government and international hydroelectric companies are initiating in the La Amistad Biosphere, with a number of dam and

hydroelectric projects. One Panamanian organizational leader from the Caribbean side described it this way:

> "Our government thinks first in the economy and then the social and environmental. This is why they think in the hydroelectrics here. We have laws about the protection of this and it's not important because they only think in the economy and they just say something isn't valid and go through with it. It's dangerous because they only think in the economy, first the economy," (PaC, 53).

Eleven of the thirteen residents of the buffer zone community on the Pacific side of Panama were very opposed to and concerned about these projects. These residents saw the economic benefits of tourism as contributing most positively to the conservation of La Amistad International Park. Further research needs to be conducted to understand if the government's economic pursuits in the region, which could negatively affect the environment and communities, influence the perception of community residents about the importance of protected areas.

The hydroelectric projects have the potential to create a greater divide between the community and the governmental agencies, rather than to promote more types of collective action and participation. On the other hand, FUNDICCEP, a local NGO from the Pacific side of Panama, has considerable power and influence, independent of governmental institutions, and it demonstrates evidence of polycentric governance. FUNDICCEP will not have the final word on the hydroelectric issue facing these buffer zone communities of La Amistad, but it has organized well-attended meetings and rallies in opposition to these projects and is helping the communities apply pressure to ANAM and to ANAM's work on environment

impact assessment (EIA). This EIA will determine whether hydroelectric projects can be pursued. Nested enterprises like FUNDICCEP have a dual role, collaborating with ANAM on many environmental projects but at the same time, independently wielding influence on other issues affecting the buffer zone communities and the conservation of La Amistad Park.

Local Institutions: Pacific side of Costa Rica

The buffer zone communities located on the Pacific side of the park in Costa Rica have a network of associations known as the Red Cuercus that are "fighting for common goals… promoting the creation of tourism in the communities next to the park and trying to establish agreements of cooperation with ACLAP [La Amistad Pacific Conservation Area]-MINAE"(Villegas, 2007):

> "The purpose is to unite associations and fortify organization that the associations couldn't do alone. Also we care for the park, always and trying to find alternatives to better the life for people and the communities. For example, hunting, as a network we can offer sustainable projects so people don't have to continue hunting," (CRP, 27)

There are currently five participating organizations: The Association of Ecologic Chamber of Tourism of Santa Maria of Brunka (La Asociación Cámara Ecológica de Turismo de Santa Maria de Brunka- ACETUSAMA), The Association of Tourism of Tres Colinas, Potrero Grande (La Asociación Cámara de Turismo de Tres Colinas de Potrero Grande), The Association of Organized Women of Biolley- ASOMOBI), The Development Association of Biolley (La **Asociación de Desarrollo Integral de Biolley - ADI BIOLLEY) and The** Community Group of La Lucha, Portero Grande. The Association of Producers, La

Amistad (La Asociación de Productores La Amistad de Altamira- ASOPROLA), was previously a member of the Red Cuercus, but stated that their goals do not fully align with those of the Red Cuercus and they are an independent association.

Red Cuercus coordinates control and protection of the protected area, planning, training, and tourism. Some of the ongoing economic activities carried out by the Red Cuercus include production and processing of organic coffee, organic berry production, honey production, selling organic vegetables, and production of organic fertilizer. Other projects are reforestation, regeneration of soil, recycling, design and planning of the biological corridors, and environmental education "that stretches 130 kilometers across the boundary of PILA with 43 schools and 5 colleges," (CRP, 27). Many of these activities are informal collective action in which the park collaborates with the local community. Organizations such as the Red Cuercus have independent organizational rules and are self-governing, thus creating their own level of involvement in the nested enterprise and in their formal participation with the Consejo Local.

Sustainable tourism is another large component of the Red Cuercus, promoting adventure tourism to provide a sustainable means of income for the community, as well as educating tourists about the importance of the protected area. There are trails outside the park for visitors that have been created with help from the Nature Conservancy and small donations from the United Nations Development Programme.

The Red Cuercus supports the management of the La Amistad Pacific Conservation Area and MINAE, assisting with control and protection, visits to the park, participation in

anniversary activities at the park, environmental education, and monitoring animal species. Red Cuercus is connecting the community with the park through environmental education, sustainable development opportunities, and alternatives to cutting trees, hunting, or forms of agriculture that could harm the critical buffer areas. According to one local institutional leader "We work here in the community, but we unite and try to face projects together…we have a co-responsibility with the park… we work with SINAC doing an environmental education program for the area and we are having the community maintain trails rather than people from afar" (CRP, 27).

Local Institutions: Pacific side of Panama

One of the most powerful local leaders and local institutions is FUNDICCEP, located in the Chiriqui Province on the Pacific side of La Amistad International Park in Panama. Formed in 1998 based on a project called AMISCONDE, Amistad Conservación y Desarrollo (Conservation and Development of Amistad), FUNDICCEP works in environmental education and, specifically, sustainable production with various organizations in the region. FUNDICCEP is part of a 12-organization alliance, ADATA, La Alianza Para el Desarrollo Ambiental de Tierras Altas (The Alliance for Environmental Highlands Development). There are only seven workers at the program level but, through alliances and collaboration, FUNDICCEP has become a powerful force. FUNDICCEP has worked on numerous projects with Conservation International and the Critical Ecosystem Partnership Fund. Moreover FUNDICCEP received third place from the Ford Motor Company for their

environmental conservation efforts for their project, “Conserve Out Pride, La Amistad Biosphere Reserve” (“FUNDICCEP”). FUNDICCEP has also provided much support for communities, such as Guadalupe in their fight against the installation of hydroelectric projects in the region.

Originating with the AMISCONDE project of Conservation International and with support from the McDonald’s Corporation, the focus was to create a project that connects biodiversity and conservation to the community. The purpose is to deter harmful human activities, such as infringement on the protected areas and illegal burning, and promote forms of sustainable development. While some findings from this project (Gorman, 2003) have demonstrated community improvements, there have been reports of insufficient focus on the biota and assessment of biodiversity. Others like Miller (2003) have found barriers in communication among collaborators and inadequate utilization of local institutions in joint efforts with the AMISCONDE project.

FUNDICCEP emerged from the AMISCONDE project as a powerful local leader for the communities in the region on numerous issues. According to one ANAM official FUNDICCEP is leading the way in collaboration between the Pacific and Caribbean sides of the park, the collaboration “now doesn’t exist, about a month ago, by means of FUNDICCEP, they are trying to start this because in the Pacific it is a strong organization” (PaC, 53). Currently, FUNDICCEP is also leading the fight and rallying the community against the installation of hydroelectric dams in the La Amistad Biosphere Reserve. This issue is of dire importance to the agricultural community in this buffer zone, with concerns

about water rights and inundation, and may have unforeseen ecological impacts on the park. FUNDICCEP participates bi-regionally and bi-nationally to help strengthen the local community networks in the buffer zone of La Amistad. FUNDICCEP has worked with the Red Cuercus on the Pacific side Costa Rican buffer communities for the past three years, initiating joint activities, exchanging information, and building a stronger bi-national relationship. With the deliberate burning of the Costa Rican park office located near the Costa Rican-Panamanian border in 2010, the border collaboration at Rio Sereno between MINAE (Costa Rica) and ANAM (Panama) has become more challenging. According to a local institutional worker, "we are in the process of remodeling. It has been a lot of years and a little bit abandoned by ANAM [park office], so we are rehabilitating the building so we can establish it in the center again," (PaP, 36). The bi-national program FUNDICCEP is collaborating with the Red Cuercus on the goal of having the program center at the ANAM office in the border town of Rio Sereno.

FUNDICCEP has played an important role in bringing more public participation into park projects and influencing decision-making with its participation in the Session of Monitoring and Effectiveness. In 2008 the directors of PILA from ANAM and FUNDICCEP began to develop a strategy for environmental education together. Before this, "there were various separate entities…recently we are trying to have more coordination with the educational institution and universities" (PaP, 36).

Collaboration with the park has begun to mature 18 years after the creation of the park in 1990. A local guide from Guadalupe and a local institutional leader from Cerro

Punta, both from the Pacific side of La Amistad in Panama, agreed that the barriers and limitations to collaboration partially stem from administrative changes and the need to re-initiate the process with each administration. In this sense, local autonomy plays a secondary role to political processes. As park projects, rules, and collaborations change, approval is required from each incoming government.

Countering these impediments is the Program of Monitoring and Effectiveness conducted by civilian participants bi-annually that involves Likert scale ratings for: conditions of the park, the application of the law, the management of historic sites and, or natural resources, knowledge of cultural traditions among the community in the buffer zone, and the receipt of benefits from the park.

Another organization that forms part of ADATA, is ASAELA, La Asociación Agro-ecoturístico La Amistad, the Agro-ecotourism Association of La Amistad, formed in 2003. There are eight full-time members who collaborate in operating a restaurant at the entrance to the park at Las Nubes, work with the community in picking up trash, cleaning streets, planting trees, and doing environmental education. As a local institution like FUNDICCEP, ASAELA has received invitations to participate in reunions with park officials and participates in the Program of Monitoring and Effectiveness. Similar to FUNDICCEP, ASAELA has also transcended international borders and works with ASOMOBI from Costa Rica, but is also an independent association and has autonomous decision-making.

Governmental Influences on Local Institutions and its Effects on "Nested Enterprises"

Two different outcomes, successful cooperation between a local community and a state agency or "capture" in which the agency or even a division of the agency has interests linked closely with the interests they oversee (thereby affecting their ability to regulate in the interest of the public), may result from co-management models (Singleton, 2000). Agrawal (1998) discusses how governmentally-authorized co-management can lead to states assigning local institutions authority. Conversely, the idea of "capture" does not support the success of nested enterprises in which organizations make independent decisions. This is especially apparent when opting for co-management in a management scheme such as La Amistad in which the park was initially managed by the government, leading to the forced relocation of many community members on the Pacific side and limitations imposed on lifestyles in those indigenous communities located adjacent to and within the park boundaries.

> "Here in Panama, when they created the park, in no moment did they ask the communities, never did they do this. Therefore, when they created the parks of protected areas, the communities didn't know what happened. One day to the other they were in the park and they couldn't be and couldn't do this or that… in order to conserve resources that exist, the people in the communities first need to think in their food and improve their way of life, " (PaC, 53)

These are issues resource managers must face in La Amistad both on the community and international levels due to the transboundary nature of the resource system. There are differences among the four regions in the role of the state in the management of the park and the buffer area.

On the Pacific side of the park in both Costa Rica and Panama, after years of effort and collaboration, much more of the "co-responsibility" mentality is emerging among local associations and networks like the Red Cuercus and ADATA with the governmental agencies of MINAE and ANAM. The support for Red Cuercus and ADATA comes in the form of technical support for the associations and collaborative efforts in environmental education, park anniversary activities, and trail building. Financial support does not flow directly from the park to these community associations. As co-management is emerging with more community participation, cooperation in these communities is much more widespread than is in evidence with the "capture" model on the Pacific side of the park. There is much more of a nested enterprise scenario, with many local organizations taking charge with appropriations in the buffer zone, monitoring, and other conservation-related activities. Both the governmental organizations and local associations have transboundary efforts. When questioned about working on the Caribbean side of the park, only FUNDICCEP from Panama stated that it was working on bi-regional relations.

The Caribbean side of the park in both Costa Rica and Panama is more complex due to the indigenous reserves and the great extent of parkland, with 88% of the park situated on the Caribbean side. The monarch of the Naso and the ADITIBRI jointly set the laws for the Naso and Bribri Reserves. Once the park was created, these indigenous communities had to follow the park rules set by ANAM and MINAE. There is only one park office on the Caribbean side of Panama and there is not a nearby park office on the Caribbean side of Costa Rica. The closest MINAE office locations are in Limón, Hitoy Cerere, Cahuita and Manzanillo.

Figure V: Map Showing the Closest MINAE and ANAM Offices to La Amistad

ANAM and MINAE rely on these communities and their respective local institutions to implement and abide by park rules and regulations. One resident from the Bribri community of Suretka stated,

> "The majority of the territory next to the river is within the national park and this affects the communities that are in the forest because they can't use the materials that they had, our cultural system…it limits these things. Following the [creation] of the park it's hard to live there. But there are communities that have been in the park for thousands of years. Now they are trying to negotiate something so they can utilize the cultural norms," (CRC, 66)

The Bribri government, ADITIBRI, in a previous quote, stated that they take care of the park, without salary. I also learned that control of the park and distribution of permits is through ADITIBRI. "MINAE only comes with some incidence in respect to the management of the park. There aren't personnel of MINAE in this sector…here the International Park is the ADITIBRI and Cabecar's." This dichotomy in which many of the ADITIBRI participants and Bonyick residents feel responsible both morally and legally for the care of the park with limited resources, yet at the same time are limited in their cultural traditions and norms, is demonstrated throughout the interviews in the Bribri territory. In spite of this, there is the process that was initiated about three years ago to create a co-management plan between the indigenous territories and MINAE that will allow for more input by the indigenous people.

Currently, the Bribri do have a neighborhood council called the Junta de Vecinos, which also helps carry out the conservation laws, report violators, take action against violators, and distribute permits. On the local level there is voluntary action, but it would be an exaggeration to consider this evidence of polycentric governance. The conservation laws were imposed and, until the co-management plan is finished and implemented, the locals are

enforcing the regulations determined by a centralized system without direct or indirect influence.

Wekso is the park ranger station on the Caribbean side of Panama. It is situated across a river from the community of Bonyick. To arrange a visit to La Amistad it is necessary to go through the Naso Organization of Sustainable Development and Ecostourism (Organización de Desarrollo Sostenible y Ecoturismo Naso, ODESEN), a tourism agency run by Bonyick natives, or by contacting ANAM. The ranger I met at Wekso was of Naso heritage and Naso guides were also provided. Extensive collaboration and control over tourist visits occurs between ANAM and this community due to the proximity of the entrance to this private, indigenous community. I conducted interviews with park officials from every other region in La Amistad without a problem. Once I arrived at Wekso, I encountered a strict, top-down bureaucracy in which the park ranger refused to answer a single question. While many Naso were willing to discuss the park, the hydroelectric project, and the relationship with ANAM, the Naso park ranger was unwilling to say a word. Much tension was expressed over hunting, fishing, and cultural limitations in the park. When asked if there are regulations or rules on which there was agreement, a Bonyick, Panama resident responded, "The same hydroelectric because it's going to destroy the forest. For so much time we have cared for the forest and maintained it and they are coming to destroy it. They say it's development for the village, but it's not. It's development for them, not for us," (PaC, 55). For the Naso territory, rather than a situation of cooperation and evidence of local decision-making and polycentric governance, the dynamic appears to be one of "capture", as the monarch of the Naso territory is allowing

a foreign hydroelectric energy company to build a plant in the Bonyick River that could potentially have many negative social and environmental impacts.

National & Global Support for Local Associations

Many local associations in the buffer zone communities of La Amistad are working with the governmental agencies of MINAE and ANAM in sustainable development projects and caring for the park through trail maintenance and monitoring programs, There is much national and global financial and technical support facilitating many of these activities. Chart VIII below shows some of the most frequently mentioned financial contributors from the interviews conducted. Chart IX shows the associations that were interviewed during field research and their location.

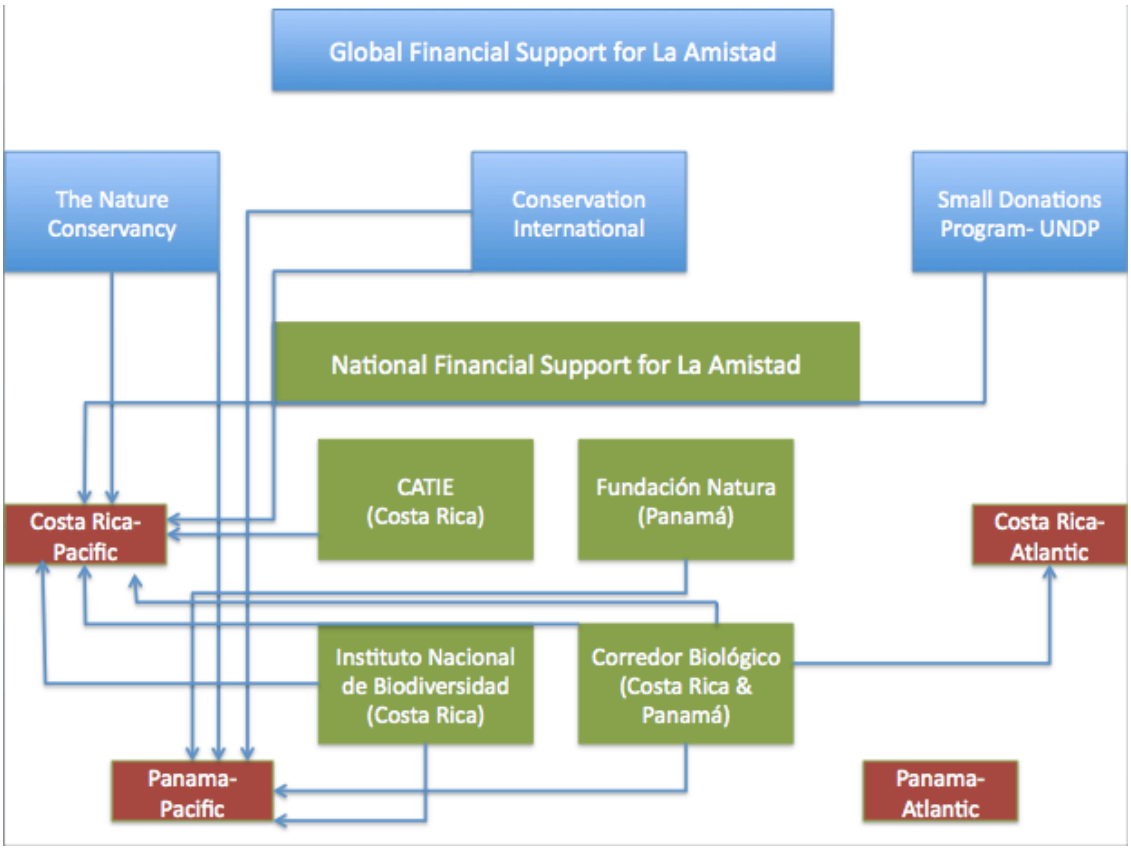


Chart VIII: Global & National Financial Support for Buffer Zone Associations

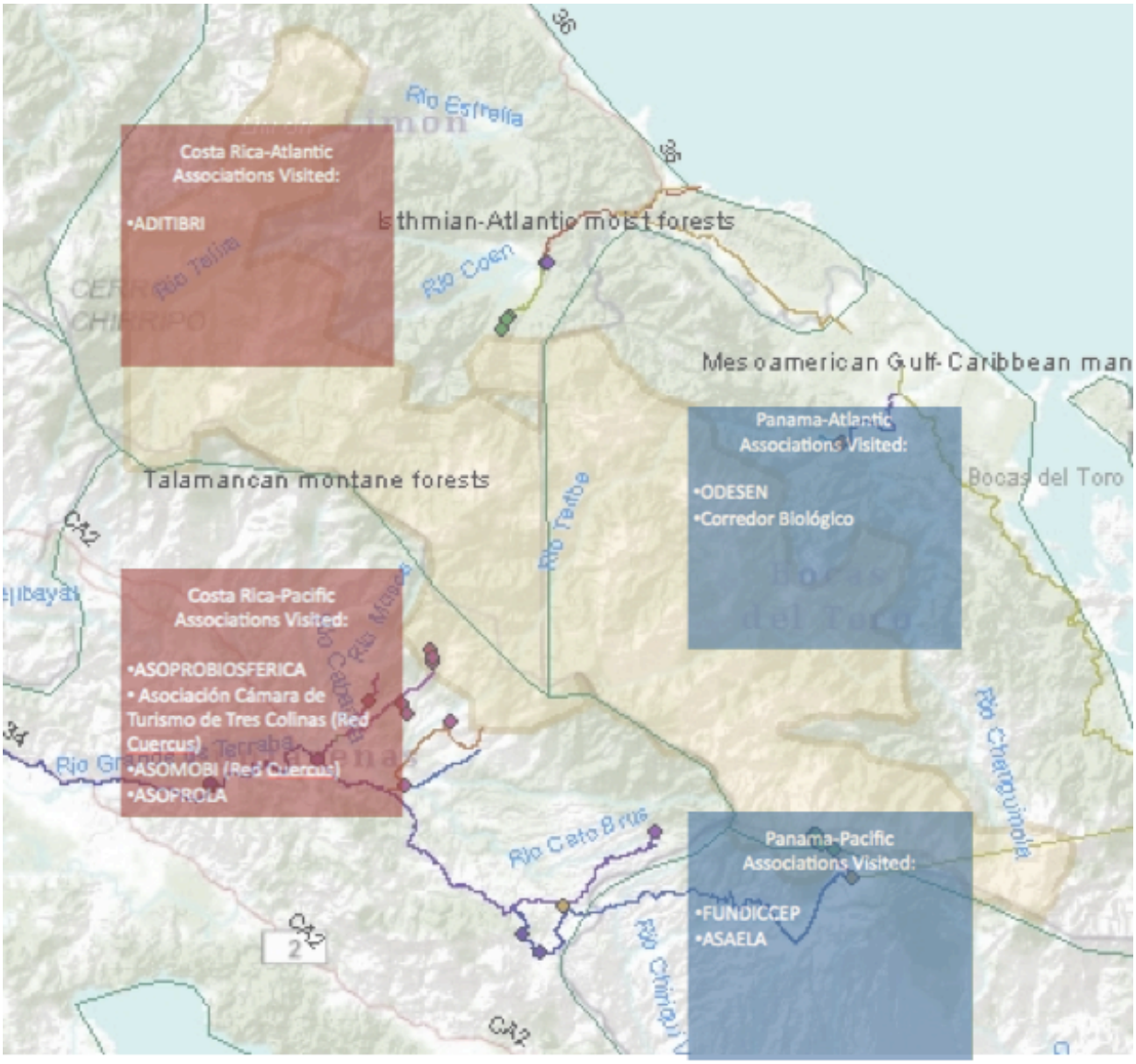


Chart IX: La Amistad Buffer Zone Associations Interviewed

As stated before, local assocations provide a bridge to connect the park with the buffer zone communities and help create common objectives and collaborative projects. Many of these projects are financed and come to fruition with the support of global contributors such as the Nature Conservancy, Conservation International, and the United

Nations Development Project,with technical support and grant-writing help from park officials. Chart VIII does not include all of the grants, donations, loans and other financial support. It is limited to those mentioned specifically by local association leaders who were interviewed, as shown in Chart IX above. There are also more sustainable development associations in the buffer zone, but the interviews were limited to the major associations and then any associations that were accessible during field research.

From Chart V, it is clear that there is asymmetrical financial support both on the naitonal and global scales. Most of the economic support for sustainable development projects are directed toward the Pacific side of La Amistad in Costa Rica and Panama, the side that appears to have more polycentric governance. Even on the Pacific side where more resources are available, financial resources are minimal and the major limitation in park management mentioned uniformly by all regions, park officials, and associations, is the lack of resources.

> "In conservation there is a problem with the lack of people. It's a problem to do conservation, not in conservation. Right now with twelve functionaries from the whole Costa Rican park, including administrators and park guards, much work that we want to do is hard because we don't have personnel…I can't do work in the buffer zone on the Caribbean side because there are other functionaries. We are protecting one forest, one national park, but we can only do work in the Pacific buffer zone…" (CRP, 7)

In addition to the lack of resources, there is a barrier that exists between the Pacific and Caribbean sides of the park regarding management. While the park official above mentioned not being able to conduct work in the buffer zones, which includes technical help

for associations and collaborative work on trail-building and environmental education, the officials from the Caribbean side state,

> "The indigenous care for the park, but without salary. They don't pay us. We do it as volunteers…and the conflict we have is MINAE gives permits for extraction for minerals…within the park and within the indigenous community" (CRC, 67).
>
> "We are really in care of the park. MINAE only comes with some incidents in respect to the management of the park…there aren't personnel of MINAE in this sector…we don't have sufficient personnel," (CRC, 68).

As seen by the flow of contributions from both global and national financial contributors, the Caribbean side of the park is still behind on sustainable development projects and supporting parties such as associations to mediate between the park and the community. There is a co-management plan emerging between MINAE and ADITIBRI, but it has been a long, tenuous process. One limitation expressed by a Bribri community member was "just feeding the people," (CRC, 66). As the co-management process is time-consuming, polycentrism with collective-choice arrangements has not emerged, but there is movement in that direction.

On the Panamanian side, there is some financial support for local Naso sustainable development initiatives through organizations like ODESEN and Corredor Biológico that are successfully facilitating tourist visits to the park at the Wekso Station and with the community of Bonyick and others. However, the community leaders did not mention any collaboration or financial support from international organizations. The level of local decision-making is hard to decipher as the strict, hierarchical style of management made it difficult to find a park official to interview and gave the impression that polycentric

governance is not being realized in the near term on the Caribbean side of La Amistad in Panama.

Statistical Differences between Costa Rica and Panama

While the interviews present some of the similarities and differences for the elements of trust, emergence of collective-choice arrangements, and existence of polycentric governance, some of the survey questions provide insight into other elements that the communities deem important when discussing conservation of La Amistad International Park. Among the survey questions, there were six that demonstrated statistical significance, or a significance difference between the respondents in Costa Rica and the participants in Panama. In some circumstances multiple questions on the same concept, such as trust, were run through the same binomial logistical regression. The results for all of the regressions are in the appendix.

The themes that came out with a significant difference between Costa Rica and Panama respondents ($P<0.1$) included the "Community Participation", "Meaningful Involvement", "Shared Conservation Goals", "Tourism", "Familiarity with Park Regulations", and "Frequency of Collaboration" with both the park and local associations.

"Community Participation"

Omnibus Tests of Model Coefficients	**Chi-square**	**df**	**Sig.**
Model	10.942	3	*.012*
Variables in the Equation	**B**	**S.E.**	**Sig.**
Community involvement plays a significant role	16.993	13777.581	.999
The public should be involved in the decision-making process	**1.311**	**.730**	***.073***
We need more avenues for public participation in decision-making	.801	.536	.135

"Community Participation"

Omnibus Tests of Model Coefficients	**Chi-square**	**df**	**Sig.**
Model	7.791	1	*.020*
Variables in the Equation	**B**	**S.E.**	**Sig.**
The public should be involved in the decision-making process	1.465	.737	*.047*

"Meaningful Involvement"

Omnibus Tests of Model Coefficients	**Chi-square**	**df**	**Sig.**
Model	11.062	1	*.001*
Variables in the Equation	**B**	**S.E.**	**Sig.**
Citizens feel that they can have meaningful Involvement in decision-making	1.489	.605	*.014*

"Shared Conservation Goals"

Omnibus Tests of Model Coefficients	**Chi-square**	**df**	**Sig.**
Model	5.653	1	*.017*
Variables in the Equation	**B**	**S.E.**	**Sig.**
Shared conservation goals among stakeholders	-.896	.427	*.036*

"Tourism"

Omnibus Tests of Model Coefficients	**Chi-square**	**df**	**Sig.**
Model	3.041	1	*.081*
Variables in the Equation	**B**	**S.E.**	**Sig.**
Tourism	.539	.363	.138

"Familiarity with Park Regulations"

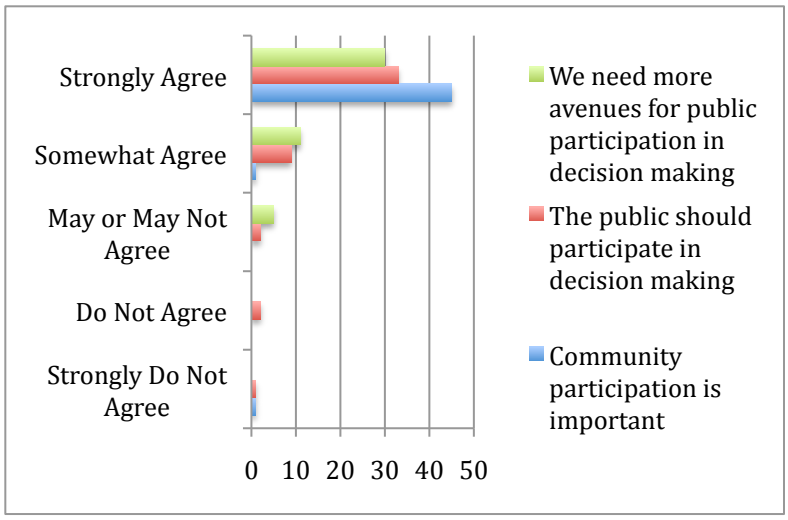
Omnibus Tests of Model Coefficients	**Chi-square**	**df**	**Sig.**
Model	3.275	1	*.070*
Variables in the Equation	**B**	**S.E.**	**Sig.**
Are you familiar with the rules and regulations of PILA?	.330	.189	*.080*

"Frequency of Collaboration"

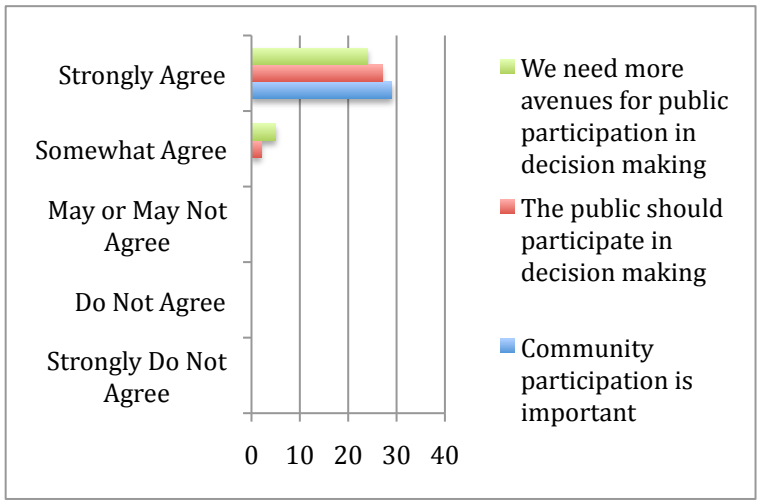
Omnibus Tests of Model Coefficients	**Chi-square**	**df**	**Sig.**
Model	3.901	2	.142
Variables in the Equation	**B**	**S.E.**	**Sig.**
How often do you collaborate with other Organizations and stakeholders in PILA?	-.519	.298	*.082*
Please indicate which organizations (MINAE, ANAM)you collaborate with and how often.	.397	.228	*.082*

For the first difference, "Community Participation", three questions were taken into account. The question asked for the participant to indicate the level of agreement with the following statements in terms of conservation efforts in PILA. The three statements were, "Community involvement plays a significant role," "The public should be involved in the decision-making processes," and "We need more avenues for public participation in decision-making." The difference, as shown in the charts below, looks minimal, though

statistically significant with a p value of 0.012. Costa Rica has a larger spread than Panama, though for all three questions the answer centers on "strongly agree". While the majority of participants demonstrate that they believe public participation, or collective- choice arrangements, is important, levels of actual participation from the public have a greater spread in Panama and are very polarized in Costa Rica.

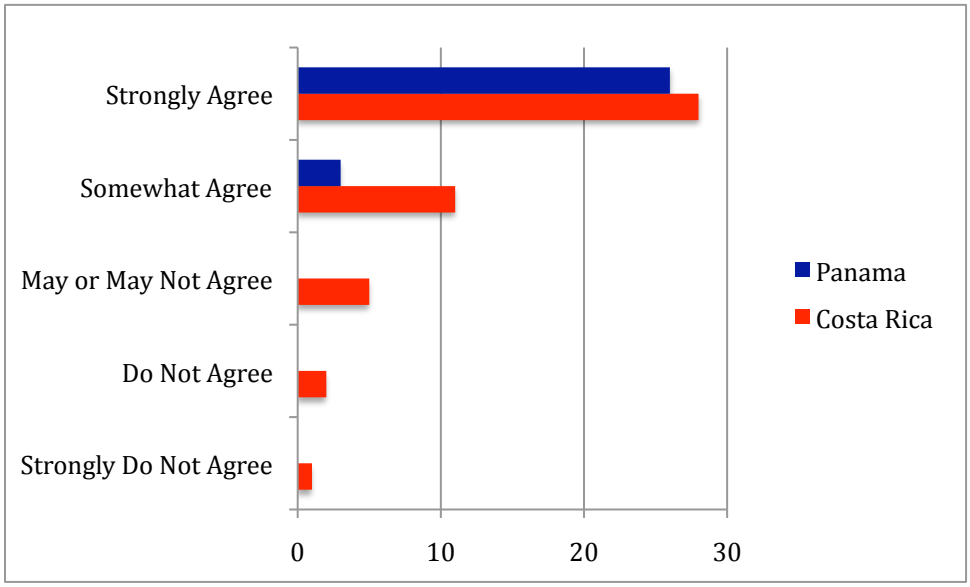


"Community Participation", Costa Rica



"Community Participation", Panama

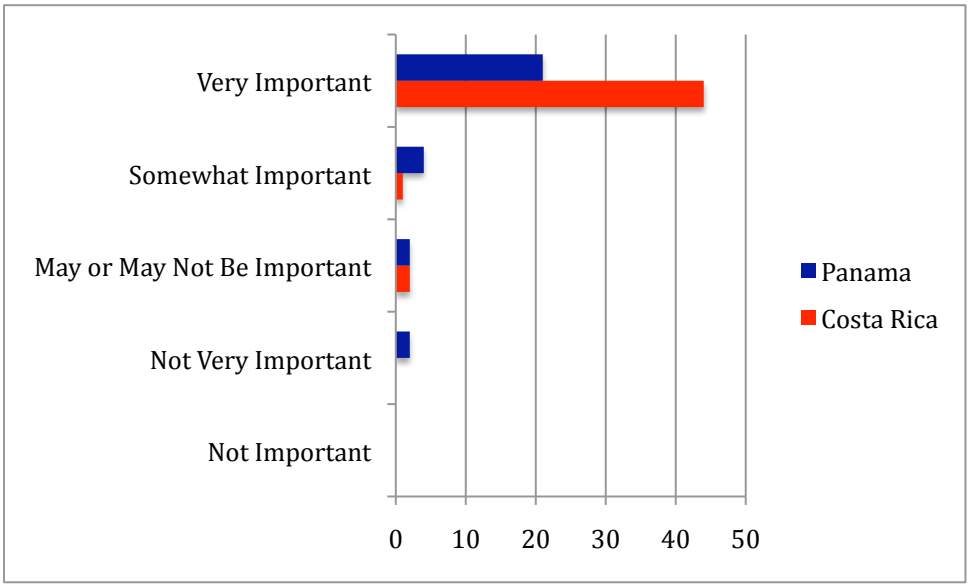
"Meaningful Involvement" is the second statistically significant theme. The statement that addressed this was, "Citizens feel that they can have meaningful involvement in decision-making." The chart below shows minor discrepancies, except Costa Rica has a larger spread than Panama. Panamanians 100% agree with the statement. The statistical significance of the model is 0.001. This question looks at whether citizens feel that it is possible to participate in a meaningful and significant manner. On the other hand, while many believe they can have meaningful involvement, especially in Panama, levels of actual participation are variable.



"Meaningful Involvement"

In response to the question, "how important is each of these issues in regards to conservation of PILA? The results of "Shared conservation goals among stakeholders" demonstrate that once again this is a very important theme to the majority of respondents

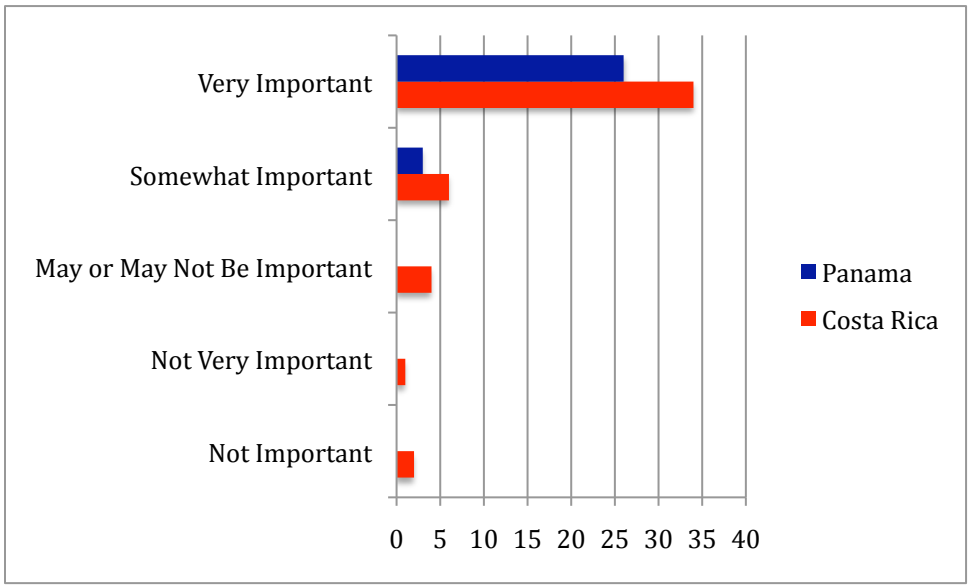
administered the survey. The statistical significance is 0.017 in the model, demonstrating a significant difference between Costa Rica and Panama. On the surface, the results seem very similar with the majority of both countries indicating that this is "very important" for conservation of La Amistad.



"Shared Conservation Goals"

"Tourism" was another single variable logistical regression answering the same question of "how important is each of these issues in regards to conservation of PILA?" The statistical significance is 0.081, which is closer to the cut-off of 0.1 than many of the other answers. Nevertheless, coupled with the interviews, there is some difference in the perception of the benefits of the park, with Panamanians focusing on the tourism component much more frequently than their Costa Rican counterparts. In the chart below the Costa

Rican respondents focus on "very important", but also have answers across-the-board, while in Panama, tourism is at least "somewhat important" with every participant. This corroborates the interviews in Panama and the strong opinion that tourism is the main benefit of having a neighborhood park.

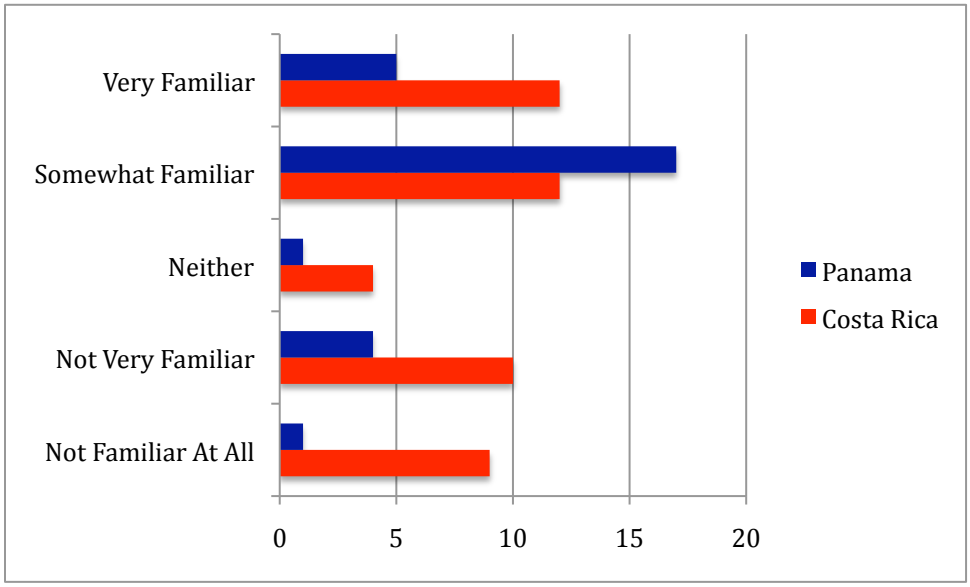


"Tourism"

"Are you familiar with the rules and regulations of PILA?" This was asked using a Likert scale similar to the other survey questions. This was one of the more unusual answers due to the great spread in Costa Rica and a moderate spread in Panama. The statistical significance is 0.07 for the logistical regression model, which is close to the cut-off chosen at 0.1, but the difference in spread is shown below. There appears to be slightly more confidence in the familiarity of park regulations in Panama. The greatest threats to the Panamanian portion of La Amistad according to an official from ANAM on the Pacific are forest fires, development, and infrastructure encroaching on the park, including the

hydroelectric projects, the agricultural frontier, and hunting. Recently, the forest fires, agricultural frontier, and hunting have been reduced with environmental education.

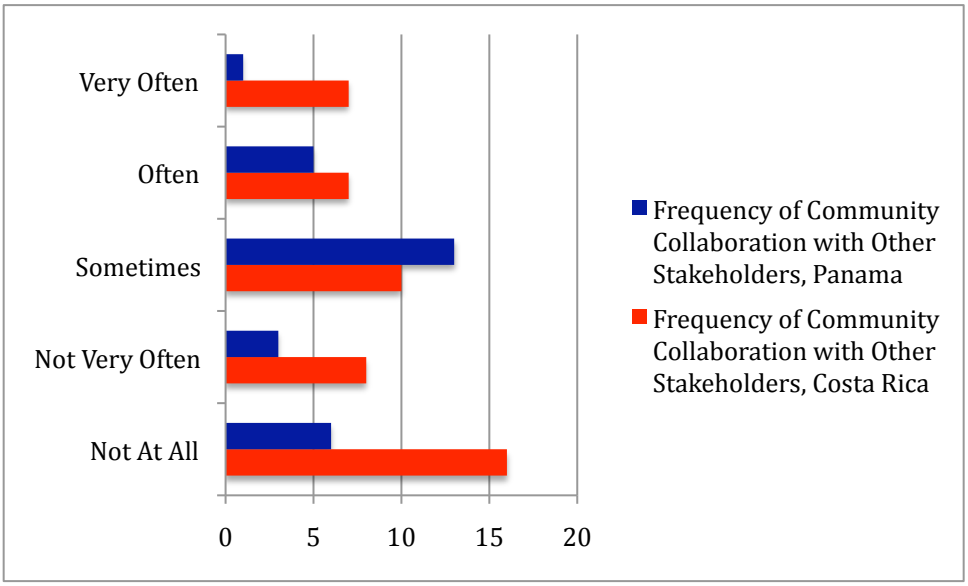
> "The development is provoking a need for more water, services, production of more trash, which has advantages and disadvantages. The development of infrastructure is a threat. They want to open another road to the Caribbean. This is a threat that is there, passive, but if someone in the government wants to do it, it will be a problem in the park," (PaP, 52).

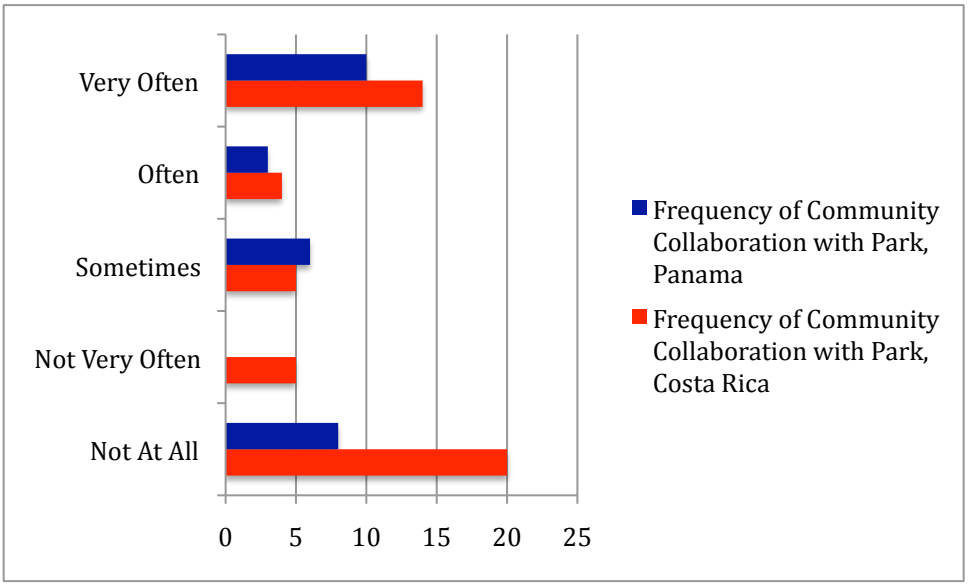


"Familiarity with Park Regulations"

"Frequency of Collaboration" comes out with a significant difference between Costa Rica and Panama when the two questions are combined: "How often do you collaborate with other organizations and stakeholders in PILA?" and "Please indicate which organizations (MINAE, ANAM) you could collaborate with and how often." The statistical difference when run in the logistical regression model is at 0.142, while each individual question received a 0.82. The questions were run separately and did not come up with a significant difference. This means that when a logistical regression is fit for both variables, there seems to be a significance difference between Costa Rica and Panama. This theme of "Frequency of

Collaboration" doesn't appear to have a significant difference between Costa Rica and Panama in separate logistical regressions when there is a better logistical fit for each individual question.





"Frequency of Collaboration"

There are many factors that could explain the similarities and differences among trust, the emergence of collective-choice arrangements, and the existence of polycentric governance. These survey questions were one method to explain some of the discrepancies in trust and collective-choice arrangements between Costa Rica and Panama. Of the six themes that demonstrated statistical significance, or a significant difference between the respondents in Costa Rica and the participants in Panama, "Tourism" stands out. In the interviews tourism received a more frequent response for park benefits in Panama than Costa Rica. However "Community Participation" and "Meaningful Involvement" are not consistent with levels of participation of community members. While the majority of respondents found these topics of great importance, actual participation levels with the park are much lower than the responses for the "Importance of Participation", which were of high priority. Lastly, the perception of frequency of collaboration between the two countries appeared on the charts above to be very different, yet the logistical regression did not find the responses very statistically different between the two countries.

CHAPTER 6: DISCUSSION AND CONCLUSION

My research examines the levels of trust, participation or collective action by stakeholders, and the development of more polycentric governance across a select number of buffer zone communities in the four regions of La Amistad International Park. With the internationally recognized UNESCO Biosphere designation and the Parks in Peril recognition, there are interrelated goals of conservation, sustainable development, and logistical support. The results of the study show how levels of trust and community member involvement in participative governance systems vary across the four regions.

These findings demonstrate how local-to-global forces have produced the present structure of management at various sociopolitical and geographic scales and reveal some of the differences bi-regionally and bi-nationally. Starting from a human geography perspective, La Amistad illustrates Thrift's (1994) idea that regions are not bound but constructed. More specifically, La Amistad is an eco-region that has been constructed and is continuously being reconstructed to address numerous agendas. In the realm of biogeography, La Amistad is the "single large" conservation solution. The management structure mirrors this "single large" approach with top-down centralized management still dominating the management of the park, though varying in its hierarchical cohesion across the four regions of the park.

The idea behind "glocalization" is that there is a unique balance between the incorporation of outside support and knowledge and the investment in local customs, traditions, and economic vitality. La Amistad does not currently achieve this balance. The

unique challenges facing the four separate regions of La Amistad International Park are severely impacted both negatively and positively by the relative strength of numerous international economic, environmental, and political entities. These accumulating pressures have led to more flexibility in the objectives and agendas pursued in the park. This flexibility in park regulations is actually creating much tension, especially in Panama with the government pursuing economic goals ostensibly under the driver of clean energy. While flexibility in regulations for stakeholders can lead to cooperation rather than burdensome enforcement, my research questions the value of extensive flexibility being exercised by the state, as there can be associated negative impacts. These impacts result in competing attempts to construct this region to serve diverse agendas, to the exclusion of conservation, on various social and geographic scales.

On the international level, there are UNESCO objectives to conserve while simultaneously promoting sustainable economic development. The concept of integrated conservation and development is one conservation narrative being promoted. Another conservation narrative being promoted by the Nature Conservancy is the concept of consolidation. On the international level, there are pressures from foreign hydroelectric companies and the World Bank to pursue hydroelectric projects. While these projects are presented with the environmental justification of "clean energy" and as a measure to combat global climate change according to the provisions of the Kyoto Protocol, they are also initiatives that can be detrimental to the ecosystem and the local communities. On the national level, the hydroelectric projects are part of an economic agenda to receive payments

for clean energy production. This case study shows the continuous struggle that regions or eco-regions have with international pressures from globalization.

The hydroelectric issue also illuminates the dynamic nature of regions or eco-regions and the importance of understanding and defining spatial extent to successfully manage a common pool resource. As Giordano (2003) points out, there are problems in resource management when the resource domain and stakeholders do not align. For a transboundary resource with local-to-international stakeholders, the understanding and clearly defined goals of the region are of great importance. Ostrom et al. (2002) demonstrates that, with a greater geographic extent such as a transboundary resource, analytical deliberation, institutional variety, and nesting are three institutional characteristics that may lead to more successful common pool resource management.

While institutional variety is important, there must be some cooperation and ability for local organizations to influence decision-making, in contrast to the situation of "capture" as explained by Singleton. The interviews I conducted with Naso community members, my analysis of the petition in opposition to the installation of four hydroelectric projects, and my participation in a community gathering led by FUNDICCEP, show there is a lack of cooperation among the Naso, the state, and the international hydroelectric companies. These observations appear to be closer to the idea of "capture" as the Naso requests in the hydroelectric agreement with the company and government remain unfulfilled.

Spatial extent is also of great importance in the management of a bi-national natural resource such as La Amistad, owing to the immense powers of globalization to continuously

redefine the regions and spaces. Giordano (2003) has shed light on the spatial implications in commons research and the need for congruence between the rights domain and the resource domain. This congruence is lacking in La Amistad as the boundaries are pushed and altered due to the pressure of the agricultural frontier and the hydroelectric development. Singleton (2002) demonstrates that, at larger scales of resource management, the federal government cannot be a major player. Ostrom (1998) indicates, "national governments are too small to govern the global commons." La Amistad is a bi-national park that is being reconstructed by international stakeholders to meet agendas beyond that of conservation. For example, the international hydroelectric companies are stakeholders pursuing hydroelectric projects that will provide 'clean energy' under the Kyoto Protocol. This is an international power redefining the region of La Amistad.

With a large spatial extent and global pressures impinging on the park, fortress conservation, driven by the state, is not a good match for the regions within La Amistad. In particular, this mismatch is evident in the indigenous territory in Panama where there is a situation similar to "capture", with hydroelectric projects in the Naso territory and a faulty agreement with the Naso monarch. While there are instances of success when resources are available in common pool resource management, "if sufficient resources are made available for monitoring and enforcement, such approaches are effective…" (Dietz, Ostrom and Stern, 2003), La Amistad does not have sufficient resources available in the Caribbean regions of the park. The Caribbean regions are also much more geographically extensive, accounting for 88% of the park area.

After following the fortress conservation model to create an immense park system, Costa Rica transitioned to reliance on international donations to maintain the park system it created. There are more resources available on the Pacific side, with more efforts to civic-like, as evidenced by the network of community organizations working with sustainable development projects in a much smaller region. This dynamic is not observed on the Caribbean side.

This study looks at the intersection of biogeography and political geography to address larger scale and transboundary common pool resources in a case study of a bi-national park. While the conservation debate of "single large or several small" has many advocates of larger eco-regions for biodiversity to flourish, the political side of this argument is not supportable. Single large, or fortress conservation, is not a good political match for this case. Those advocating a return to fortress conservation tend to dismiss the social and political realms of conservation (Wilshusen et al. 2002). The social and political realms are of great importance in the conservation of an extensive bi-national park such as La Amistad. While decoupling politics from biogeography has mostly been a necessary exercise to comprehend the pieces of the world, integrating them more fully is a necessary step to see the world we have. According to Caroline Fraser (2010), "Conservation is about managing the people. It's not about managing wildlife." However, to have a successful management regime, some level of trust among stakeholders is necessary but difficult to achieve if stakeholders perceive they are being managed. In contrast to traditional fence and fine management approaches, more collaborative efforts result when there is a history of cooperation (Lubell et al., 2002), which is more likely with higher levels of trust.

Trust

The levels of trust among buffer zone community residents and stakeholders, in the context of government and other stakeholder conservation efforts in La Amistad, show a distinctive variation based on survey and interview responses in Costa Rica and Panama. This topic had the largest spread in responses. During the interviews, many Costa Ricans from the Pacific side mentioned good relations with the park, no conflicts, and very positive sentiments. On the Panamanian side, reacting to current hydroelectric projects, many residents associated an opposition to these projects with distrust of the government officials in the area, including officials from ANAM, given ANAM's oversight responsibility for the EIA.

On the Caribbean side of both Costa Rica and Panama, levels of trust dropped dramatically. Many Naso and Bribri expressed distrust and disappointment in the management of the park. While many Bribri mentioned past disappointments with the lack of support from MINAE, there was enthusiasm for the co-management plan that is developing, because it will potentially give the indigenous territory direct involvement in park management. Repeated on the Panamanian side was the distrust incited by the hydroelectric projects in the buffer zone of the park.

The levels of trust vary greatly by region and are affected by many factors. The Red Cuercus in Costa Rica has developed a strong relationship with the park and brought the community in closer contact with the park administration. There is a sense of companionship and "co-responsibility". On the Caribbean side, the relationship is very strained due to lack of

resources and a paucity of NGOs and community associations, which can play a vital role in firming up the relationship between the park and the communities affected by the presence of the park. The role of the associations in the development of trust between the community stakeholders and the park has proven to be very successful and crucial on the Pacific side of the park. These same associations also promote collective-choice arrangements.

Collective-choice Arrangements

Collective-choice arrangements also vary greatly bi-regionally and bi-nationally. On the Pacific side of Costa Rica, 43.7% of the stakeholders interviewed (those who felt that they are positively or negatively affected by the park) do not participate in any manner with the park. In Panama, 44.4% of the stakeholders in the buffer zone communities do not participate in any substantive way. This highlights a gap in stakeholder participation and problems in entraining stakeholders in collaborative efforts. There are formal mechanisms of participation, with help from the Nature Conservancy, through the Consejo Local and the Program of Monitoring and Effectiveness. However,these organizations invite certain parties, but exclude other stakeholders. The methods of participation promoted by the Nature Conservancy are not only exclusive, rather than participatory, but are only assessment tools rather than decision-making tools. The actual influence of these assessment tools is unknown. To include more stakeholders and have more of a collective-choice arrangement, it is necessary to close this gap and find ways of including more stakeholders in the process. On paper, the assessment tools promoted by the Nature Conservancy demonstrate strides towards

collective-choice arrangements, while in reality these methods have more of the appearance of a government formality.

Based on interviews on the Caribbean side of the park, both Naso and Bribri expressed sentiments of exclusion from the management of the park and, particularly, exclusion of their indigenous knowledge and traditional forms of managing the park. Tensions still exist as the MINAE and ANAM regulations are carried out in these reserves, as there is no formal means of participation at this point. The co-management plan with the Bribri may help transform this region into a more participatory management scheme. However, the Caribbean side of Panama has a very rigid hierarchy and I am not aware of attempts directed at more stakeholder involvement, especially with the tension stemming from the hydroelectric project on the Bonyick River adjacent to the reserve.

Polycentric Governance

In introducing nested enterprises and polycentric governance, La Amistad International Park has demonstrated some form of co-assessment or co-responsibility and more inclusion of the buffer zone communities. The creation of a co-management arrangement is in the discussion phase between the Bribri and MINAE. While La Amistad is a UNESCO Biosphere with integrated development opportunities in the buffer zone, the management structure still more closely follows the traditional, fortress approach to conservation, with a very hierarchical regime that exists in all four regions of the park, especially on the Caribbean side of La Amistad. As demonstrated in Chart VIII, there are

numerous funding streams into the Pacific of Costa Rica and Panama. The Atlantic side of the park in both Costa Rica and Panama does not receive as much financial attention.

On the Pacific side of Costa Rica, there is evidence of participation and decision-making by the Red Cuercus and the associations involved in this network. One association leader described their role as "co-responsibility". The influence of the Red Cuercus is strong and they are involved in many of the conservation projects in the buffer zones. In Panama, the network of ADATA, and especially the NGO known as FUNDICCEP, is using the power and influence they have to combat hydroelectric dams and rally the communities. Both the Red Cuercus and ADATA are powerful local groups that provide another layer of governance. These organizations collaborate and work with their respective governmental agencies, MINAE and ANAM, to bring stakeholder involvement to the forefront by securing grants for conservation projects, rallying the communities to combat hydroelectric dams, promoting environmental education, and implementing monitoring programs in the park.

Global and national sources of funding are not readily available on the Caribbean side of the park and, consequently, this region lags in sustainable development projects and alternative socio-economic approaches. There are few, strong NGOs or associations to mediate and encourage collaborative interactions between the park and the community. The indigenous territories exhibit a unique form of polycentric governance. There are local groups, the Junta de Vecinos in the Bribri territory and the park rangers for the ADITIBRI government who issue timber permits, hunting permits and carry out the laws of ANAM. However, they are not involved in the decision-making. They are the enforcers of the laws that were externally imposed on their communities, in accordance with a centralized

management scheme. Additionally, major decisions affecting the park and the hydroelectric dams in the buffer zones are made in central government offices.

On the Panamanian side, there is some financial support coming for local Naso sustainable development initiatives through organizations like ODESEN and Corredor Biologico. These efforts are successfully facilitating tourist visits to the park at the Wekso Station and within the community of Bonyick. The community leaders did not mention any collaboration or financial support from international organizations. The degree of local decision-making is hard to decipher. A strict, hierarchical style of management made it difficult to find a park official willing to be interviewed and left this researcher with the strong impression that polycentric governance is not emerging on the Caribbean side of La Amistad in Panama.

Limitations

Due to time and fiscal restraints, my thesis research project consisted of one brief preliminary trip to La Amistad International Park in the summer of 2011, followed by a 39-day field expedition in January and February of 2011 covering the four provinces that constitute the park. My research certainly could be advanced with a longer field expedition with more field observations, interviews, and surveys in each community. Several communities had as few as two days dedicated to field research. Many NGO workers were unavailable for interviews and more time in the field would allow for more connections and flexibility in the interview process.

Other limitations involved the research restrictions for La Amistad in the Bocas del Toro Province. Numerous emails and phone calls were made prior to the visit to schedule a meeting with an ANAM official in La Amistad on the Caribbean side, to no avail. Through other contacts I learned of a formal process to conduct research on this side of the park. I initiated the process but never received a response. I went in person to the ANAM office in Changuinola multiple times to encourage this process, without success. Through a contact in ANAM, I was able to secure a meeting with the park administrator of La Amistad in Bocas del Toro, but at the meeting I was informed that he we would not discuss anything without the "formal procedures" being followed. I was able to conduct interviews with the two other park administrators, as well as other functionaries and park rangers on the Pacific and Caribbean sides of Costa Rica and the Pacific side of Panama.

In interviews using the audio recorder, there was a lot of hesitation from women. I always asked for consent, but many female participants gave very brief, subdued answers, several stating that they felt uncomfortable with the audio recorder. Overall, most community members whom I asked for interviews were very willing to help.

During my visit to the Bribri indigenous reserve, my translator was an ADITIBRI park ranger. I was not informed of this until after the completion of interviews and surveys. He mentioned I was receiving more positive results on attitudes toward the park due to his presence and that the lifestyle situation for many of these families is very rough with the park restrictions. My translator mentioned that some of the concepts I was describing to him in Spanish were difficult to explain in Bribri. The park ranger said he did his best to explain but

did admit some difficulty, so some of the questions in the interviews and surveys might have been misinterpreted.

Potential for Future Research

There is potential for future research in a variety of subject areas. One area to pursue is monitoring the evolution of the hydroelectric projects and observing how these projects affect the relationship between the community stakeholders and government officials, such as ANAM. Monitoring the levels of trust, the participation or collective-choice arrangements, and the dynamic of the nested enterprises will further elucidate regional dynamics and the possibilities for change. Even with the amount of public dissent on a local to international level that currently exists, La Amistad International Park has not been assigned World Heritage Sites "in danger" status, which would lead to mitigating action. It would be interesting to look at the external pressures from the World Bank and other organizations to build these hydroelectric dams and the impacts the dams are projected to have on the local communities. Is glocalization occurring with communities having the option to embrace and/or reject values and ideas, or is globalization altering the local landscapes without the support of these buffer zone communities?

A more in-depth investigation of why tourism has been identified in Panama as the most important reason for preserving La Amistad, while clean air and water have been identified as the most important reasons in Costa Rica for preserving La Amistad La Amistad would be illuminating. Both regions discussed the success of their environmental education

programs, but their perspectives on the benefits of conservation are very different. Does this lead back to environmental education? The different government programs in the area, with the example of hydroelectric projects in Panama? Differences in economic benefits of the park? Does this explain why the park limitations are much more fluid in Panama than in Costa Rica, as the agricultural frontier continues to challenge the boundaries?

The co-management plan between MINAE and ADITIBRI is being processed. Once the plan is implemented, it will be instructive to see whether indigenous knowledge and management practices are incorporated and whether there is cooperation between the two groups, or if this is a situation of "capture" in which the management will continue in the mode of "business-as-usual", with a top-down agenda and control.

Lastly, there is much survey data that were significant from a logistical regression standpoint. The themes with a significant difference between Costa Rica and Panama respondents ($P<0.1$) included "Community Participation", "Meaningful Involvement", "Shared Conservation Goals", "Tourism", "Familiarity with Park Regulations", and "Frequency of Collaboration", based on input from both the park and local associations. Further investigation into the nature of these differences and their significance should lead to additional insights. Future work would also benefit from a larger sample and a broader range of people and organizations.

Conclusion

The portrayal of La Amistad International Park by governments and international organizations (e.g., UNESCO and the Nature Conservancy), as well as in guidebooks, is that of a single, large, unified, protected "friendship" park. My research demonstrates that, instead of one geography, underlying this depiction, there is a variety of governance geographies where there is tension between the interests of communities and the government. This was especially prominent in the Panamanian provinces of the park due to the installation of hydroelectric projects. There are divisions across La Amistad, both geographically due to the presence of the Talamanca Mountains and politically because of significant variance in management approaches across the four provincial boundaries. These differences in management practices result in variations in degrees of citizen participation and levels of trust among stakeholders. While organizations, such as the Nature Conservancy, pursue initiatives of "consolidation", La Amistad's geographies of governance present many challenges associated with its large expanse and the different management approaches currently implemented throughout the park.

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APPENDIX

Acronyms

ACD- Alliance for Conservation and Development
ADATA- La Alianza Para el Desarrollo Ambiental de Tierras Altas
ADITIBRI- Asociación de Desarrollo Integral del Territorio Indígena Bribri de Talamanca
AMISCONDE- La Amistad, Conservación y Desarrollo
ANAM- La Autoridad Nacional del Ambiente
ASAELA- Asociación Agroecoturística La Amistad
ASOMOBI- Asociación de Mujeres Organizadas de Biolley
ASOPROLA- Asociación de Productores La Amistad
CATIE- Centro Agronómico Tropical de Investigación y Enseñanza
CIDH- Inter-American Commission on Human Rights
FUNDICCEP- Fundación Para el Desarrollo Integral, Comunitario y Conservación de los ecosistemas en Panamá
MINAE- Ministerio de Ambiente y Energía
ODESEN- Organización de Desarrollo Sostenible y Ecoturismo Naso
PIP- Parks in Peril
SINAC- Sistema Nacional de Áreas de Conservación
SINAP- Sistema Nacional de Áreas Protegidas
TNC- The Nature Conservancy
WCD- World Commission on Dams

Semi-Structured Interview Questions for Community Members

I am Lauren, a student from Western Washington University in the US. I am doing research on the management and governance of La Amistad International Park. I am looking for information about the management network between the organizations and local, national and international groups and their participation in the decision making of the park, the activities in the park and the influence and power of each of these groups.

1.) For how long have you been in…?

2.) What sorts of activities do you do daily?

3.) Has your day-to-day life changed with the management changes in La Amistad?
Have you maintained the same lifestyle?
If not, what kinds of changes?

4.) Have there been any limitations or constraints due the rules and regulations of La Amistad?
Have there been challenges or benefits from the park?

5.) Do you participate in park decision-making?
Attend meetings, conferences, talks?
Do you work with or have any direct contact with any local conservation organizations?
National organizations?
International organizations?

6.) What kind of relationship do you have with park rangers or other park officials?
Have you had any conflict with park regulations?
Or park rangers?
Are there any regulations you do not approve of?

7.) If you want to change something about the park who would you turn to? Or if you have any grievances, who do you go to? Who fixed any problems?

Semi-Structured Interview Questions for NGO works, Park Officials

First I ask that you start with an introduction of your role in the park, what type of work and a little about the park and the management of PILA.

1.) What types of problems exist in conservation in this region?

    Can you specify in order of importance?
    How do you confront those difficulties?
    Are there transboundary problems? Worries? If yes, How do you deal with those?

2.) Where does the majority of the funding come from for the projects you work on? Local? National? Internantional?

    Who decides where the funds go?
    Who participates in the decision?

3.) With what other group or organizations do you collaborate?

    Local? National? International?
    How frequently or how many times per year are there collaborations?
    What types of projects?

4.) How are the collaborations between Costa Rica and Panama? Between the Caribbean and the Pacific sides of the park? Between the park and the communities?

    Are there barriers or limitations to collaboration? What are they?

5.) Finally, I'd like to know the level of autonomy this organization has, or how much influence on the management of PILA.

Survey Questions

1. What type of work do you do? What type of organization do you work for?

2. Where is this organization located?

3. In your opinion, how important is each of these issues in regards to conservation of PILA?

	Very Important	Somewhat Important	May or may not be Important	Not very Important	Not Important
Shared conservation goals among stakeholders					
Enforcement of governmental legislation					
Public participation with meaningful involvement					
Funding					
Collaboration among stakeholders					
Tourism					
Trust and transparency among stakeholders					

4. Please indicate your level of agreement with the following statements. In terms of conservation efforts in PILA:

	Strongly Agree	Somewhat Agree	May or May Not Agree	Do not Agree	Strongly Do Not Agree
Community involvement plays a significant role.					
The public should be involved in the decision-making processes.					
We need more avenues for public participation in decision-making.					
People are generally trustworthy and honest.					
Citizens trust the government.					
Citizens feels that they can have meaningful involvement in decision-making.					

5. Are you familiar with the rules and regulations of PILA?

Very Familiar	Somewhat Familiar	Neither	Not Very Familiar	Not Familiar At All

6. Do you support the rules and regulations of PILA?

Strongly Support	Support	Neither	Do not Support	Strongly Do Not Support

7. How often do you collaborate with other organizations and stakeholders in PILA?

Very often	Often	Sometimes	Not Very Often	Not At All

8. Please indicate which organizations you collaborate with and how often.

	Very often	Often	Sometimes	Not Very Often	Not At All
MINAE, SINAC					
ANAM					
Local NGOs					
National NGOs					
International NGOs					

Please list organizations that you collaborate with "very often" and "often".

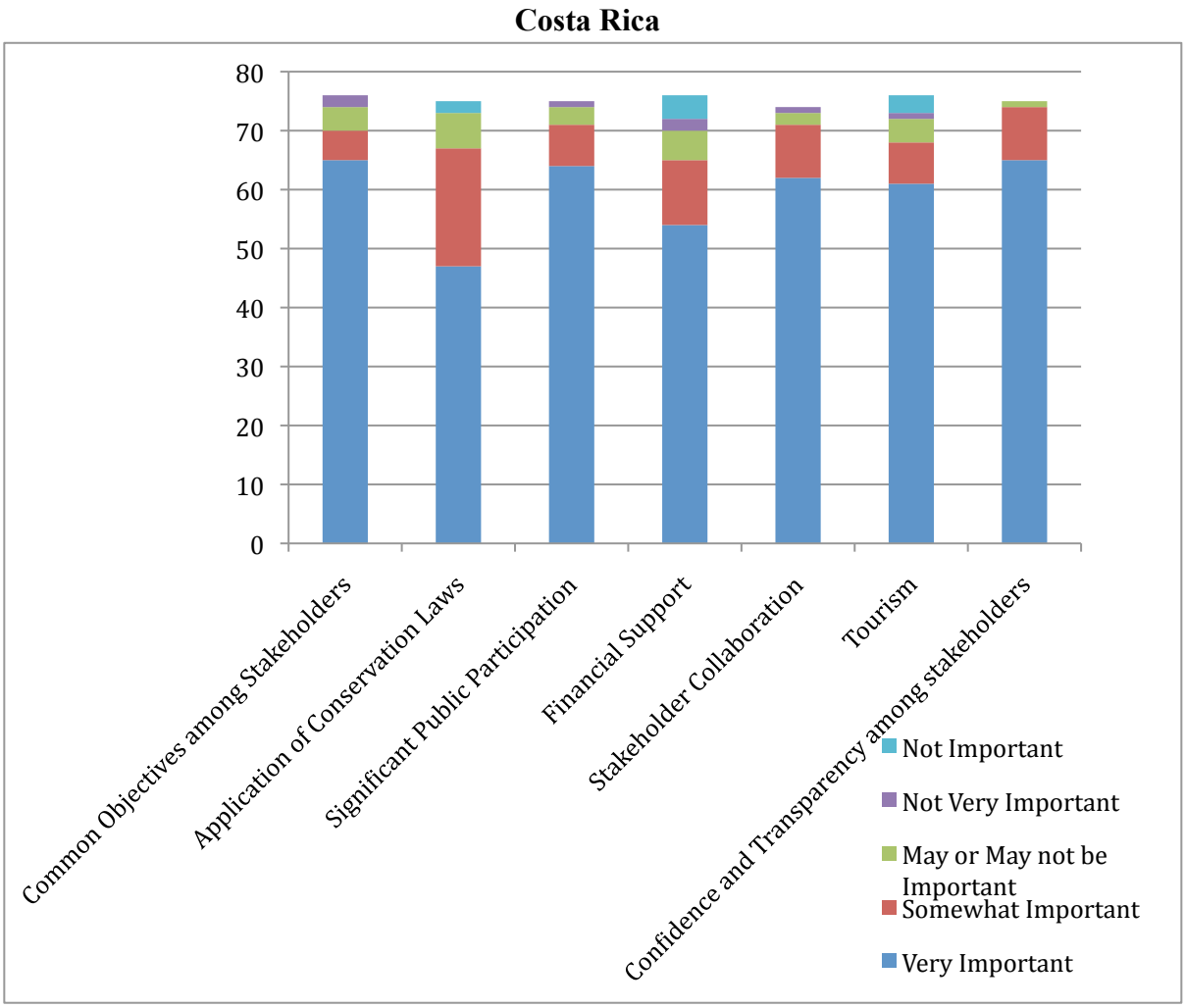
_____

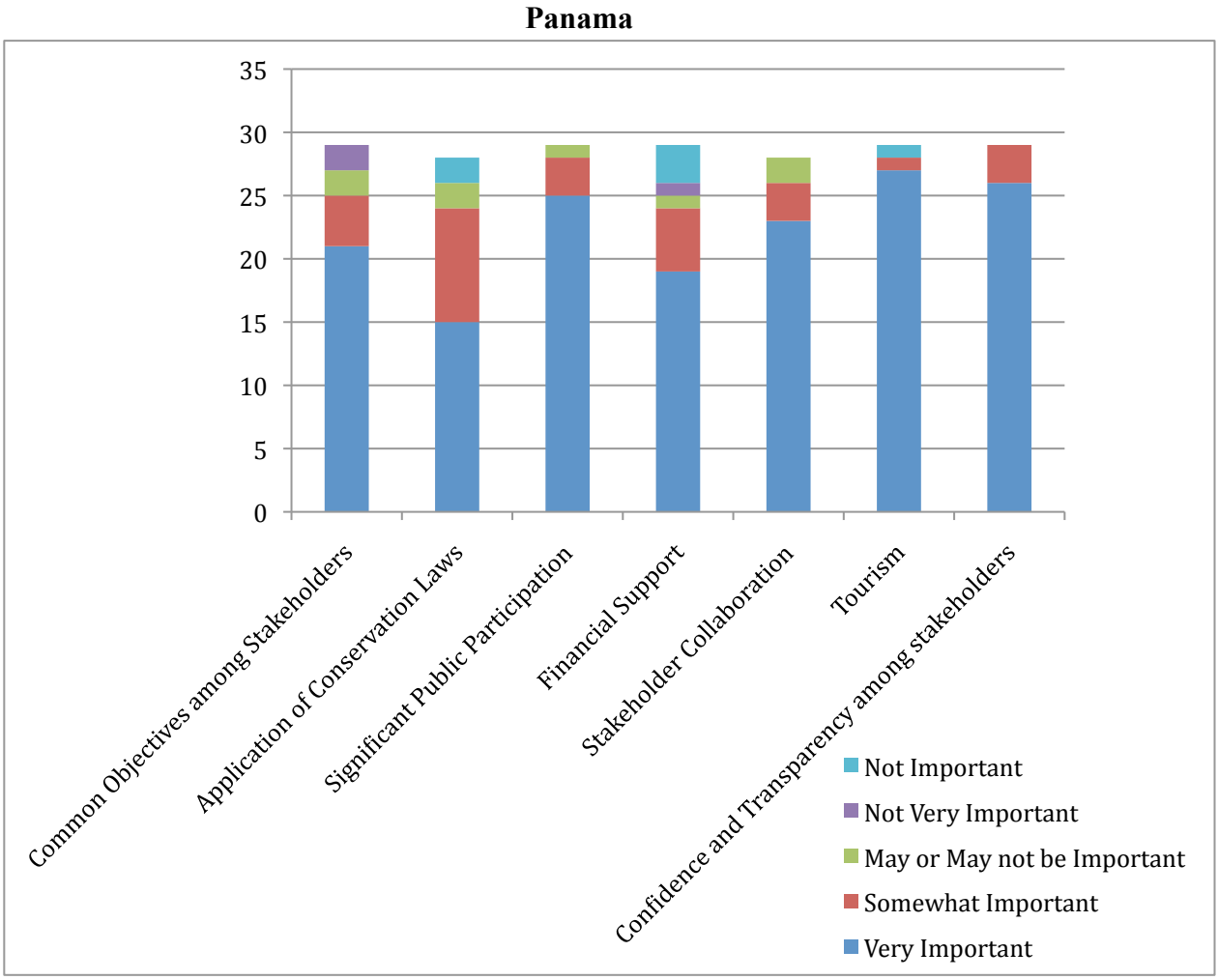
Please list organizations that fall under a separate category not listed above.

_____

Survey Results Costa Rica vs. Panama

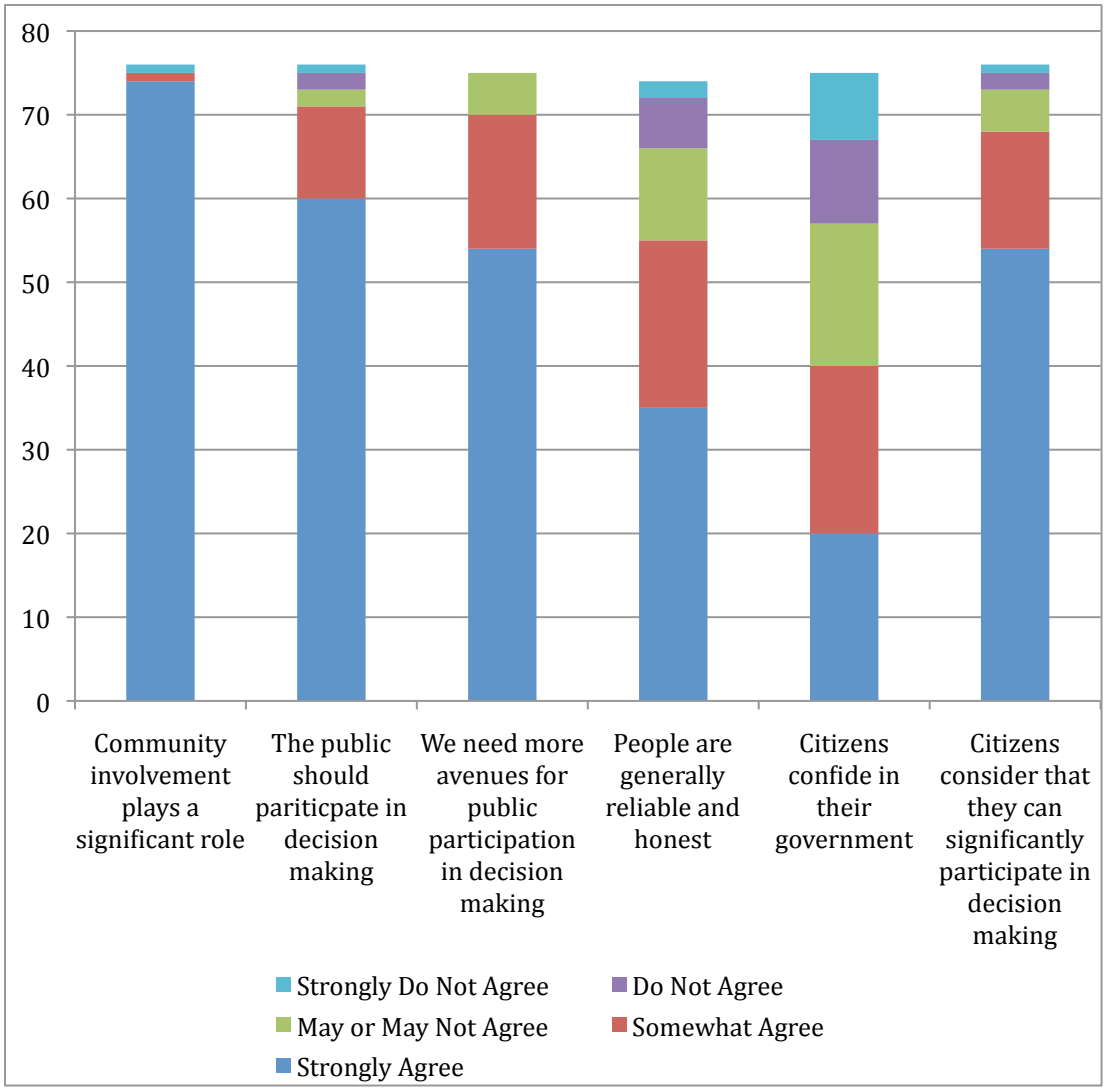
Question 3: In your opinion, how important is each of these issues in regards to conservation of PILA?



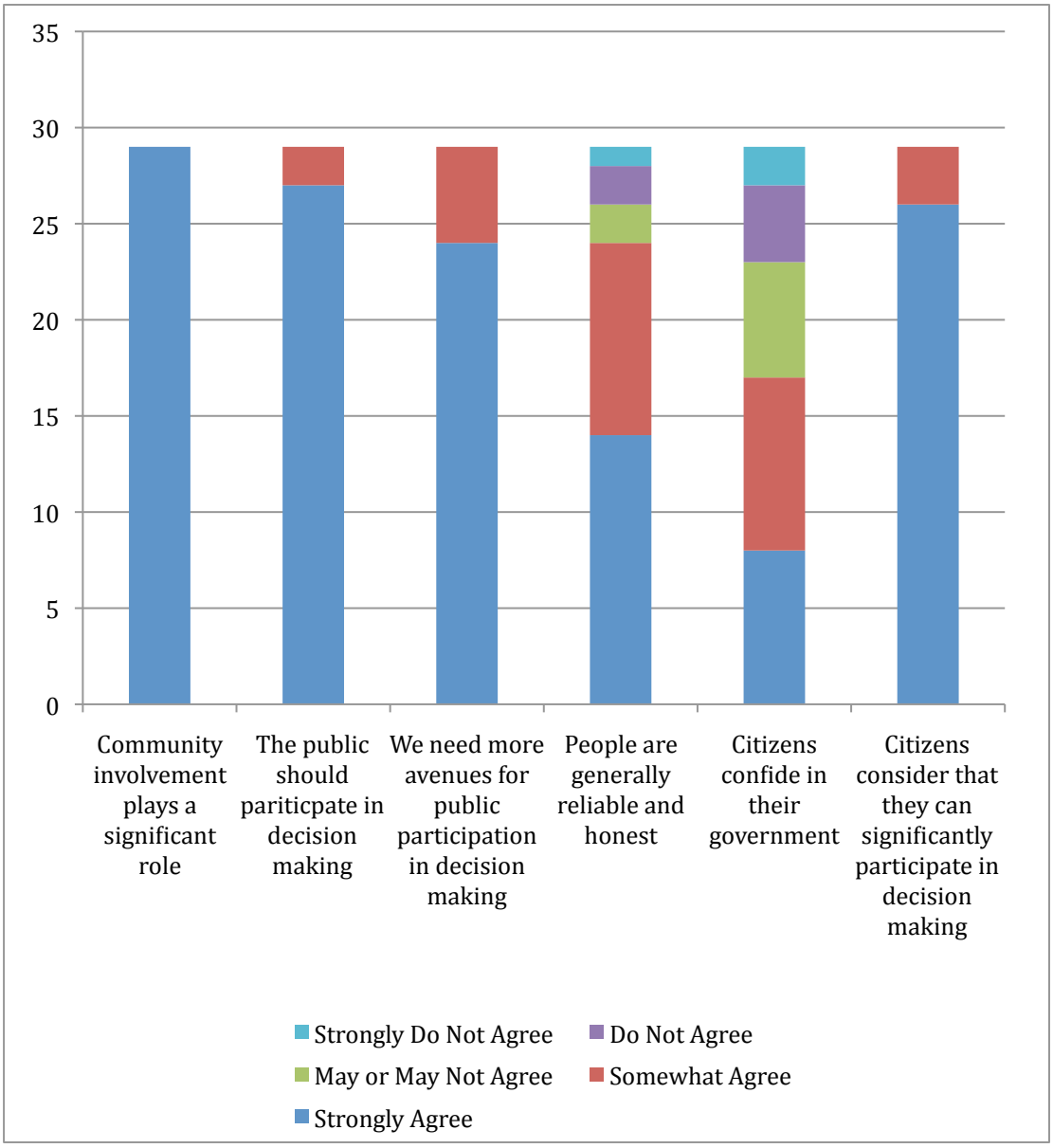


Question 4: Please indicate your level of agreement with the following statements. In terms of conversation efforts of PILA:

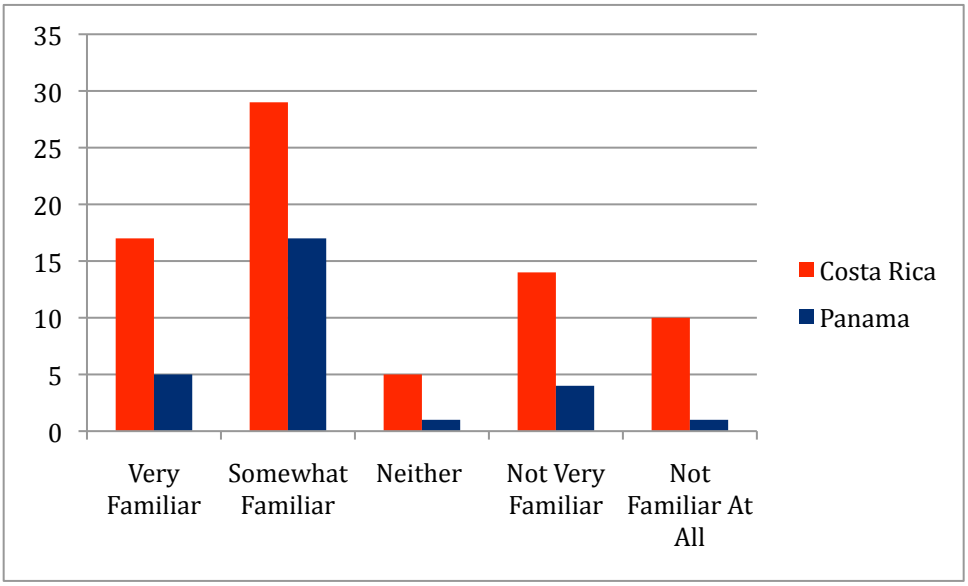
Costa Rica



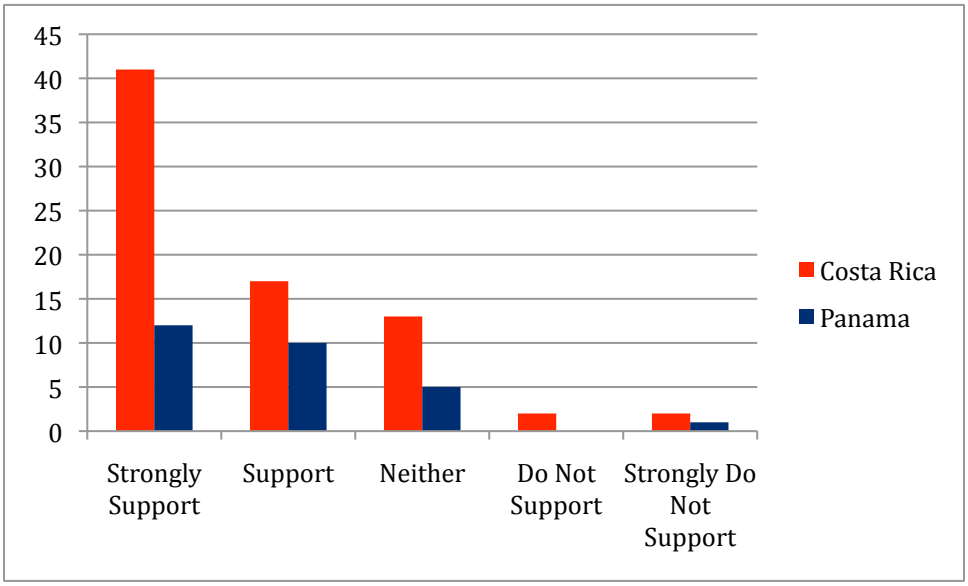
Panama



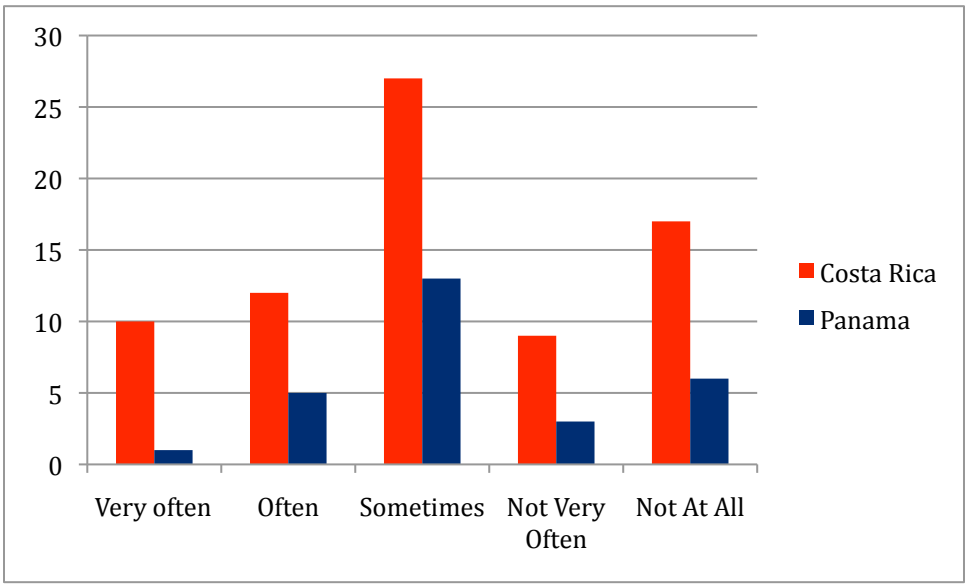
Question 5: Are you familiar with the rules and regulations of PILA?



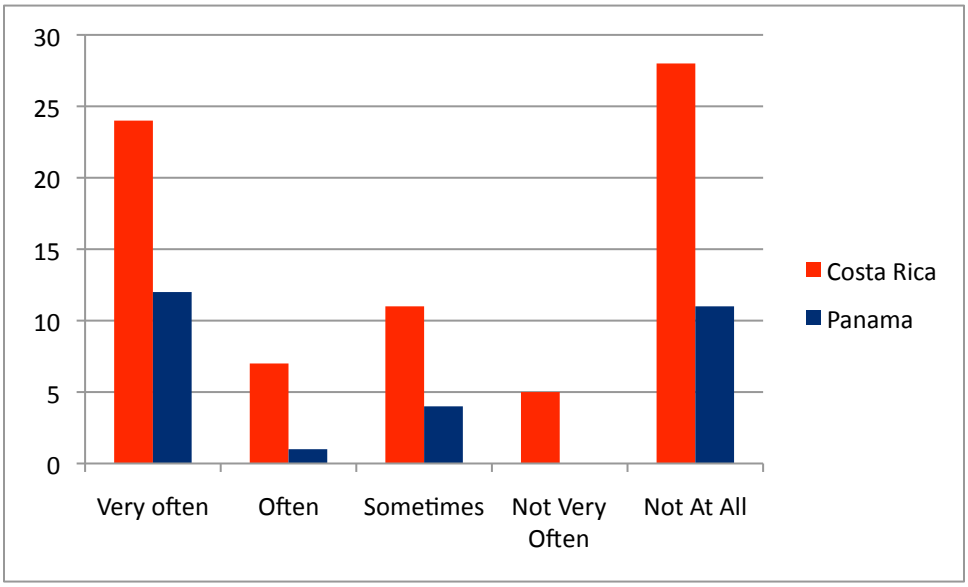
Question 6: Do you support the rules and regulations of PILA?



Question 7: How often do you collaborate with other organizations and stakeholders in PILA?



Question 8: Please indicate which organizations (MINAE, SINAC) you collaborate with and how often.



Logistical Regression Results for Survey Questions Costa Rica vs. Panama

Significant if P<0.1

"Community Participation"

Omnibus Tests of Model Coefficients	**Chi-square**	**df**	**Sig.**
Model	10.942	3	*.012*
Variables in the Equation	**B**	**S.E.**	**Sig.**
Community involvement plays a significant role	16.993	13777.581	.999
The public should be involved in the decision-making process	1.311	.730	*.073*
We need more avenues for public participation in decision-making	.801	.536	.135

"Trust"

Omnibus Tests of Model Coefficients	**Chi-square**	**df**	**Sig.**
Model	.880	2	.644
Variables in the Equation	**B**	**S.E.**	**Sig.**
People are generally trustworthy and honest	.101	.226	.655
Citizens trust the government	.139	.190	.466

"Meaningful Involvement"

Omnibus Tests of Model Coefficients	**Chi-square**	**df**	**Sig.**
Model	11.062	1	*.001*
Variables in the Equation	**B**	**S.E.**	**Sig.**
Citizens feel that they can have meaningful Involvement in decision-making	1.489	.605	*.014*

"Importance of Collaboration"

Omnibus Tests of Model Coefficients	**Chi-square**	**df**	**Sig.**
Model	1.238	2	.539
Variables in the Equation	**B**	**S.E.**	**Sig.**
Public participation with meaningful	.522	.528	.323

involvement			
Collaboration among stakeholders	-.424	.504	.400

"Importance of Trust and Transparency"

Omnibus Tests of Model Coefficients	**Chi-square**	**df**	**Sig.**
Model	.560	1	.454
Variables in the Equation	**B**	**S.E.**	**Sig.**
Trust and transparency among stakeholders	.483	.670	.471

"Support of conservation legislation"

Omnibus Tests of Model Coefficients	**Chi-square**	**df**	**Sig.**
Model	3.703	2	.157
Variables in the Equation	**B**	**S.E.**	**Sig.**
Enforcement of governmental legislation	-.505	.299	.092
Do you support the rules and regulations of PILA?	-.174	.241	.472

"Shared Conservation Goals"

Omnibus Tests of Model Coefficients	**Chi-square**	**df**	**Sig.**
Model	5.653	1	*.017*
Variables in the Equation	**B**	**S.E.**	**Sig.**
Shared conservation goals among stakeholders	-.896	.427	*.036*

"Funding"

Omnibus Tests of Model Coefficients	**Chi-square**	**df**	**Sig.**
Model	1.457	1	.227
Variables in the Equation	**B**	**S.E.**	**Sig.**
Funding	-.230	.217	.231

"Tourism"

Omnibus Tests of Model Coefficients	Chi-square	df	Sig.
Model	3.041	1	*.081*
Variables in the Equation	**B**	**S.E.**	**Sig.**
Tourism	.539	.363	.138

"Familiarity with Park Regulations"

Omnibus Tests of Model Coefficients	Chi-square	df	Sig.
Model	3.275	1	*.070*
Variables in the Equation	**B**	**S.E.**	**Sig.**
Are you familiar with the rules and regulations of PILA?	.330	.189	*.080*

"Frequency of Collaboration"

Omnibus Tests of Model Coefficients	Chi-square	df	Sig.
Model	3.901	2	.142
Variables in the Equation	**B**	**S.E.**	**Sig.**
How often do you collaborate with other Organizations and stakeholders in PILA?	-.519	.298	*.082*
Please indicate which organizations (MINAE, ANAM)you collaborate with and how often.	.397	.228	*.082*

"Frequency of Collaboration with Local Associations"

Omnibus Tests of Model Coefficients	Chi-square	df	Sig.
Model	.510	1	.475
Variables in the Equation	**B**	**S.E.**	**Sig.**
How often do you collaborate with other Organizations and stakeholders in PILA?	-.131	.185	.477

"Frequency of Collaboration with Park"

Omnibus Tests of Model Coefficients	Chi-square	df	Sig.

Model	.535	1	.464
Variables in the Equation	**B**	**S.E.**	**Sig.**
Please indicate which organizations (MINAE, ANAM)you collaborate with and how often.	.102	.140	.465