Forest Food Harvesting in the Talamanca Bribri Indigenous Territory, Costa Rica: Ethnoecology, Gender, and Resource Access

by

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Abstract

Although forest foods are important for health and cultural continuity for millions of Indigenous people, information regarding how people use and access these foods is lacking. Using a qualitative methodology informed by Bribri teachings, this thesis examined the ethnoecology of food harvesting in the Talamanca Bribri Indigenous Territory, Costa Rica. This project illustrates how access to forest food requires: access to multiple land patches, unique landscaping practices, and fostering relationships with non-human beings. By examining wild food consumption by household and generation in one community (Bajo Coen), this research shows how: wild food harvesting is widespread, the majority of youth consume wild food, sharing is fundamental to access wild food, and people consume wild food for many reasons including identity and dietary variety. By examining gender across multiple harvesting stages, this study demonstrates that no single harvesting stage was exclusive to members of one gender and that mixed gender harvesting groups were common; these findings challenge generalizations that women and men engage in different harvesting tasks and highlight the importance of gendered collaboration. This thesis makes applied contributions to ethnobiology and forest management. By analyzing how protected area (PA) regulations shape access to forest food, this thesis highlights how PAs can have negative impacts on: health, nutrition, teaching youth, quality of life, cultural identity, and on the land; these findings are important because they show why Biosphere Reserves need to do more work to ensure their managers support people’s rights to access traditional food. To better understand the macro-level factors that shape food access beyond PAs, this thesis evaluates the political ecology of land access. Findings illustrate how Bribri people’s history of engagement in an inequitable market economy, in concert with discriminatory state policies of land reorganization and management, has created significant hurdles for some people to access forest resources and to grow their own food. This thesis has generated its findings using methods based on Bribri teachings; as such, it: 1) increases awareness of Indigenous methodologies in ethnobiology and 2) generates information about harvesting that accurately represents Bribri people and how they understand the world.
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Chapter 1: Introduction

PERSONAL INTRODUCTION AND RESEARCH MOTIVES

Teachings from both feminist and Indigenous research have taught me the importance of being explicit about who I am and why I am doing research; thus, I wish to open this chapter by doing so.

I am Olivia Sylvester and I was born and raised in Calgary, Canada; my ancestry is Irish. I have always been interested in how people use plants; this interest was cultivated by my grandmother who believed strongly in healing with food and natural medicine. And, since I can remember, I have felt a connection to Latin America. These interests were the impetus for me to move to Costa Rica in 2006 to do a Master’s degree in biology. Many people have since asked me why I moved to Costa Rica for graduate school. In response, I explain how it is important for me to live in the country where I do research; it is important to have a good understanding of the social context of that place. This is why it was important to me that prior to my Ph.D. research in Costa Rica, I had lived there for four years.

As a non-Indigenous researcher working with Indigenous people, I have asked myself many questions about my research motives. Why am I doing this research? What purpose, and who specifically will this research serve? First and foremost, the main goal of this Ph.D. has been to serve my personal and professional development. At the same time, it has always been my goal to do research that can support positive social transformation. My original intention was that my research would inform Costa Rican forest management regarding people’s access to food. This intention continues to
motivate my work; however, I have gained new intentions along the way. I now hope that
my research can be used by ethnobiologists who want to use Indigenous teachings in their
research approaches. Specifically, I hope this project is useful for people, who like me,
want to do research designed using Indigenous teachings, but who are lacking literature
on how to do so.

Despite the positive motives that drive this project, there are areas of this thesis
that make me uncomfortable. For instance, information gathering and publishing of this
work was done in English and Spanish with minimal use of the Bribri language. While
living in Bajo Coen, I learned a basic level of Bribri and I spoke Bribri whenever I could.
Still, this only meant I spoke Bribri in day-to-day conversations and in small talk before
more in-depth conversations took place in Spanish. Throughout this thesis, I have done
my best to use Bribri concepts and words as much as I could, based on my understanding
of them. But, I know that conversing in Bribri would have greatly enhanced my
colleagues’ ability to feel comfortable accurately sharing their teachings; this would have
enriched this thesis on many levels.

I am also uncomfortable having a disproportionately high power and voice in this
project. Although I have chosen methods to flatten power differences, I have only made a
small dent in these gaps. I continually reflect on the power of my words as I write, and I
have gone to my colleagues on many occasions when I am unsure or feel uncomfortable
about something I said or wrote; I hope this awareness has helped me minimize
misrepresentation in this project. Still, I encourage the reader to see this thesis as my
representation of what was explained to me by my Bribri colleagues as well as my lived
experience in the Talamanca Bribri Indigenous Territory. Any errors that result in
misrepresentation of my colleagues’ voices, experiences, and/or ways of life, are my own.

**MY VIEW ON RESEARCH**

I believe that academic research should have implications for the real world, particularly those that relate to social justice and inequity. When choosing research projects and questions, contributing information to support social justice and inequity is my main goal. I worked to balance this desire with making a contribution to academic theory. At first, finding this balance was a challenge, partly because of my naïveté regarding research methodologies. In my Ph.D. journey, I have learned that having a goal to produce knowledge for social transformation can be compatible with contributing to theory; one of the ways to do so is adopting what scholars call a critical qualitative methodology.

A critical qualitative methodology can mean many things and there are many forms of critical methodologies; examples of critical methodologies include feminist, indigenous, and decolonizing. Because there is a diversity of critical approaches, I have opted not to provide one universal definition for a critical methodology; instead, I have summarized the commonalities and general principles found within critical scholarship (Table 1). Principles of critical scholarship are not well developed in ethnobiology; however, scholars have urged that research in our field move in this direction (e.g., Nabhan et al. 2011, Hunn 2007).
Table 1: General principles of critical scholarship.

<table>
<thead>
<tr>
<th>Principles</th>
<th>Reference (s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adopt flexibility for participants to shape the design and implementation of research</td>
<td>Tuhiwai Smith 2012[1999], Naples 2003</td>
</tr>
<tr>
<td>Include of ordinary people and everyday life in western science</td>
<td>Howard 2003, Haraway 1988</td>
</tr>
<tr>
<td>Treat gender as a critical variable in shaping resource access</td>
<td>Howard 2003, Rocheleau et al. 1996</td>
</tr>
</tbody>
</table>

All of the principles in Table 1 have shaped my Ph.D. project. These principles have influenced how I view the process of academic knowledge production, they have helped me think about data collection, interpretation, and representation, and these principles have guided my understanding of research partnerships. It is my hope that the reader identifies my commitment to these principles in this thesis. I highlight specific examples of how I applied some of these principles when I discuss my research partnerships, research questions and design, and my information gathering procedures (e.g., adopt flexibility for participants to influence the research, treating gender as a critical variable, producing knowledge for social transformation). And, my application of other principles will be evident in the way this thesis is written (e.g., reflective practice and writing myself into this research).
When designing and implementing this research, I was most influenced by feminist scholarship. Later in my Ph.D. research process however, I learned more about Indigenous methodologies, (Tuhiwai Smith 2012[1999], Kovach 2009). Despite my late start learning about Indigenous methodologies, this literature has provided me with importance guidance. Specifically, it has helped me describe how I applied Bribri teachings to my methodology using decolonizing principles that are lacking within ethnobiology literature. Ethnobiology methods texts commonly describe research tools and techniques rooted in Western philosophical research traditions (e.g., Martin 2004, Etkin et al. 2011, McCune and Kuhnlein 2011). By describing a Ph.D. methodology that was based on Bribri teachings, this thesis increases awareness of how to use Indigenous teaching to design ethnobiological research, an awareness important so that this form of scholarship will become more accepted in academia (Kovach 2009).

Overall, I chose this critical research approach because I believe that producing knowledge for social transformation in ethnobiology is long-overdue. Ethnobiologists have called for this critical focus (Nabhan et al. 2011, Hunn 2007), but in my review of the ethnobiology literature, I found few tools to guide me in this direction. The principles I have compiled from Indigenous and feminist scholarship have provided me with this guidance.

**OVERALL THESIS THEME, OBJECTIVES, AND RESEARCH CONTEXT**

The purpose of this thesis is to better understand the factors that shape the harvesting of, and access to forest foods in the Talamanca Bribri Indigenous Territory, Costa Rica. My approach was ethnoecological; this meant I worked with Bribri people to
understand the relationships these colleagues described as important to access forest food. Examples of the relationships that were important to access forest food were relationships with the land (and the non-human beings with whom people share the land) as well as relationships with people. My ethnoecological approach was also political; in part this meant that I analyzed the translocal relationships that were important to access forest food. Examples of these translocal relationships included regulations related to land use and management that have shaped Bribri people’s access to food (e.g., protected area regulations). My ethnoecological approach was also political because it analyzed the power relationships, at different levels, that shape people’s access to food.

This thesis has three specific research objectives. My first objective was to describe the landscape ethnoecology of Bribri forest food harvesting and this objective was addressed in chapter 3. My second objective, met in chapters 4 and 5, was to understand how forest food use and access by household, gender, and generation. My third and final objective was to investigate how forest food harvesting is shaped by access to and rights over land and resources; findings corresponding to this objective are found in chapters 6 and 7.

This project emerged from a collaboration with Mr. Alí García; this collaboration started in San José, Costa Rica in 2009 before I started my Ph.D. For over five years I have been working with Mr. García on many aspects of this project including: defining the project’s objectives, developing its methodology, and collecting, analyzing, interpreting, and presenting information. In 2012, García facilitated my collaboration with members of the Bajo Coen community to further develop this project (e.g., objectives, research approach, and information gathering methods).
Bajo Coen is a community of approximately 45 households located in the forests of the Talamanca Bribri Indigenous Territory. Like other Bribri forest-dwelling communities in Talamanca, Bajo Coen residents use forests for all aspects of their food systems and forests provide fuel and water for all food preparation. The Bribri Talamanca Indigenous Territory (hereafter Talamanca Bribri Territory, 43,690 ha) is located in the Talamanca county and the Limón province in the southeast region of Costa Rica. There are 7,772 Bribri people living here, according to the 2011 census (INEC 2013) and Bribri people have lived in the Talamanca region since time immemorial. The Talamanca Bribri territory borders and overlaps with Costa Rica’s largest national park: La Amistad International Park (200,000 ha, hereafter La Amistad Park; SINAC 2012). Along with La Amistad Park, and 13 other Indigenous Territories and 16 other protected areas, the Talamanca Bribri Territory forms part of the larger La Amistad Biosphere Reserve (570,045 ha; UNEP 2013). This Biosphere received United Nations Environmental, Scientific, and Cultural Organization (UNESCO) World Heritage status in 1982.

**THE CHAPTERS AND THEIR INTERCONNECTIONS**

The introduction (Chapter 1) provides the intention, purpose and organization of this project as well as the research context. Chapter 2 describes the methodology; specifically, it describes how Bribri teachings were applied to an ethnobiology research project. Starting with this chapter helps to illustrate how information was gathered, interpreted, and presented. I address my research objectives in Chapters 3 through 7. Chapter 3 responds to my first research objective: to understand the landscape ethnoecology of Bribri forest food harvesting. To do so, I described the species people
harvest from the forest, the patches within which they are harvested, and the relationships
Bribri relationships with the land and non-human beings that are part and parcel of food
use and access. Chapters 4 and 5 respond to my second research objective: to understand
forest food use and access by household, gender, and generation. Chapter 4 analyzes the
mechanisms by which households obtain food from forests and describes household
consumption of these foods by generation; this chapter is important to understand: 1) the
different ways people can access food (e.g., harvesting, sharing) and 2) which members
of a household are consuming these foods. Chapter 4 is also important to provide the
reader an idea of the extent of forest food use within the community. Chapter 5 examines
the gendered dimensions of forest food use; specifically, it unpacks gender across
multiple harvesting stages (e.g., from pre-harvest to food sharing), to illustrate the
multiple ways that different women and men contribute to forest food harvesting.
Chapters 6 and 7 respond to my third thesis objective: to investigate how forest food
harvesting is shaped by access to and rights over land and resources. Chapter 6 evaluates
food access from a political perspective. Specifically, it examines if and how Bribri rights
to food access have been respected in La Amistad Biosphere Reserve, Costa Rica, a
protected area that overlaps with Bribri land. Chapter 7 analyzes the wider landscape of
access to and control over land in the Talamanca Bribri Territory; this chapter introduces
some bigger picture issues related to Bribri access to forests (e.g., the influence of land
reorganization and the market economy on forest access). Examining these issues is
important to demonstrate how access to forest food is linked to people’s access to land.

The thesis chapters build upon each other to generate information relevant to
better understand the factors that shape the harvesting of, and access to forest food. I
purposefully start with a rich ethnobiological analysis of Bribri food harvesting (chapter 3); specifically, I describe the different worlds and non-human beings that shape people’s access to food, I outline the different activities that contribute to forest food access (e.g., shifting agriculture and wild harvesting), and I ensure my description accurately reflected the way Bribri people understand harvesting. Starting with this ethnobiology analysis is important to introduce the harvesting system and to foreground Bribri interpretations of harvesting, interpretations that inform my analyses in the subsequent chapters. Chapter 4 builds upon my ethnobiological analysis to illustrate the importance of forest foods at the community level, i.e., through a household-level analysis. A household analysis is important to illustrate how many household use and benefit from forest food; this information was important for me to discuss later in the thesis (chapter 6) how the impacts of PA restrictions on forest food use affects not only a few harvesters but the majority of households in Bajo Coen. Until this point in the thesis, my analyses are gender neutral; however, a gender perspective is central to my thesis goal, i.e., understanding the factors that shape the harvesting of, and access to forest foods. I thus incorporate this gendered analysis (chapter 5) to foreground how different women and men contribute to people’s access to forest food. The information in chapters 3 and 4 is then revisited in the next thesis chapter (chapter 6) where I analyze how PA regulations can affect people’s access to food. Without an understanding of people’s relationships with (and benefits derived from) forest food, it is hard to understand how PA regulations support or hinder these relationships. Thus, the information generated in chapters 3 and 4 strongly influences my discussion in chapter 6. Chapter 7 contributes to my overall thesis goal and it serves to contextualize my analysis in chapter 6. Specifically, chapter 7 is
important to illustrate how access to food is not limited to Bribri relationships with food (chapter 3), to people’s harvesting and food sharing (chapter 4), or to PA regulations that limit access to forest resources (chapter 6); instead, access to food is directly related to access to land, access that is mediated by a long history of land reorganization, a strong influence of international agricultural markets, and local inequities in land access.

**Contributions to Critical Scholarship**

Many thesis chapters generate information relevant to people’s access to land and food; this information is important to meet the social justice goals of my thesis. Chapters 3-5 provide ethnobiological information critical to understanding Bribri food harvesting systems. This ethnobiological data informed my political analysis in chapters 6 and 7; specifically, a deep understanding of the harvesting system allowed me to talk about how PA management regulations (chapter 6) and how the politics regarding land ownership and use (chapter 7) shape people’s access to food and land. In chapter 6, I was able to make three key recommendations for PA managers and people working in conservation and development to better respect people’s access to foods harvested from forests. In chapter 7, I discussed land access inequity however I did not provide recommendations on how to improve this reality. I did not feel comfortable making such recommendations because I have only scratched the surface of the complexities around this topic. Thus, chapter 7 serves as a descriptive analysis that illustrates why food access issues in PAs are shaped by more than inequitable PA regulations. Specifically, chapter 7 highlights why people’s long term access to forest food needs to be understood in terms of species access as well as people’s access to land, a phenomena shaped by agricultural markets, protected area land-use regulations, land reorganization, and uneven land tenure within communities.
CONTRIBUTIONS OF AUTHORS

As this thesis is written as a sandwich thesis (a collection of manuscripts), my results chapters are multi-authored (Chapters 2-7); for this reason I use the pronoun “we” in the writing of these chapters. The status of publication of these chapters is also indicated in this thesis. My contribution to each chapter is the same. I participated in designing the project, gathering information, and analyzing and interpreting this information. And, I wrote the first drafts of all chapters. At each of these steps, I worked with people in this process (co-authors and Bribri colleagues living in Talamanca). Chapters two through seven were translated into Spanish so that Mr. Alí Garía could read, edit, and contribute as a co-author to these chapters.
REFERENCES


INTERCONNECTIONS AMONG CHAPTERS

Chapter 2 is about my methodology; this chapter illustrates the epistemological foundations that shaped the choice of my research methods, and thus, the information gathered in this thesis. It is important that my thesis starts with this chapter to illustrate why I selected a qualitative approach and the specific methods I used to gather information. I chose a qualitative approach because I was interested in the hows and whys of Bribri forest food harvesting; the hows and whys are greatly lacking in the published literature despite the fact this information is critical to understand people’s access to food. Instead the published literature on forest food harvesting has focused mainly on documenting species harvested as well as the nutritional values of these food species.

It is also important that my thesis starts with a chapter on methodology to illustrate how my Bribri colleagues helped me modify conventional ethnobiology methods to ensure I was 1) collecting information in a way respectful of Bribri values and 2) accurately representing Bribri harvesting systems. Overall, chapter two illustrates why certain qualitative methods were chosen strategically to best respond to my thesis goal and objectives and to engage with Bribri research methodologies.
Chapter 2: Ulàpeitök: Applying Bribri Indigenous teachings to an Ethnobiology Ph.D. Methodology

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**ABSTRACT**

Ethnobiology is the study of Indigenous peoples relationships with their environments. Despite the centrality of Indigenous people to ethnobiology, there is little guidance in this field on how to engage Indigenous research methodologies. To address this knowledge gap, we describe how we applied Bribri Indigenous teachings to a Ph.D. project on food harvesting. Our research approach was based on a Bribri concept related to sharing work, ulàpeitök; this concept guided how we built our research partnership, how we defined the outcomes of our work, and how we shared the work needed to achieve these outcomes. We used two information-gathering methods that were proposed by our Bribri colleagues (i.e., participation, conversation interviews). Household surveys, reviewed and modified by Elders and other colleagues, were also used; we ensured Bribri protocol informed survey implementation. We identified three considerations that may be useful for other scholars applying Indigenous teachings to ethnobiology research: 1) build flexibility into the entire research program and into the use of funding, 2) ensure people on the ground are willing to play multiple roles beyond those associated with conventional research, and 3) proceed with an ethic of friendship. Overall, using an approach based on Bribri values supported our desire to gather accurate information about Bribri harvesting in a respectful way.

**Keywords:** Ethics, Costa Rica, Indigenous methodologies, qualitative research, methods
INTRODUCTION

“Creating and sharing knowledge that authentically represents who you are and how you understand the world is integral to the survival of people’s identity.”

Marlene Brant Castellano (2004: 109)

This opening quote by Marlene Brant Castellano eloquently sums up what motivates our work. In 2009, authors Alí García and Olivia Sylvester met to talk about creating a partnership as part of Sylvester’s Ph.D. research. During our initial meetings García made it clear that his goal was to do something different; he explained that for many years Bribri people have been part of academic research designed and interpreted through outsider research frameworks. Doing something different for García, meant designing research using Bribri teachings and methods; and, it was our hope these methods would help us generate information about Bribri harvesting that accurately represented Bribri people and how they understand the world.

As Marlene Brant Castellano said, methodology has implications for Indigenous people’s rights to construct accurate knowledge about themselves (Brant Castellano 2004). Indigenous methodologies can be important frameworks to do so. Scholars have been hesitant to provide a definition of Indigenous methodology because there is no universal approach to doing research based on Indigenous teachings (Tuhiwai Smith 2012[1999], Kovach 2009, Wilson 2009, 2001). To acknowledge this diversity,
Indigenous methodologies have been described as both the theory and method that originate in an Indigenous epistemology (Kovach 2009).

Although academic institutions are gaining awareness of Indigenous methodologies, these approaches are still not widely recognized (Kovach 2009). Ethnobiology, for instance, is defined as a field that seeks to understand local and Indigenous peoples relationships with their environments (Anderson 2011). Despite the centrality of Indigenous people to the existence of ethnobiology, there is little guidance in this field on Indigenous methodologies. Instead, ethnobiology methods texts mainly describe research tools and techniques rooted in Western philosophical research traditions (e.g., Martin 2004, Stepp 2005, Etkin et al. 2011, McCune and Kuhnlein 2011). The lack of recognition of Indigenous methodologies in ethnobiology is concerning; it can result in what Margaret Kovach calls methodological discrimination, a discrimination that “...can only be countered by increasing awareness of Indigenous inquiry” (2009:228).

Our goal is to contribute to this need to increase awareness of Indigenous inquiry. To do so, we describe how we applied Bribri Indigenous teachings to a Ph.D. project in ethnobiology. The main goals of this project were to 1) understand the continuity of forest food harvesting in the Talamanca Bribri Indigenous Territory, Costa Rica and 2) to apply Bribri teaching to our research approach and information gathering methods.

**PROJECT ORIGINS**

This project began by getting to know each other. In 2009 Sylvester approached Garcia about working on a project around resource use and access in the Talamanca Bribri Territory as part of her Ph.D. project. Garcia expressed interest in hearing her ideas and suggested that they begin to have regular meetings to discuss our backgrounds,
biases, and interests. Our initial meetings were held in 2009 and early 2010 in San José, Costa Rica, where Sylvester and García both lived; Sylvester moved back to Canada in early 2010 after which our meetings took place via Skype until Sylvester returned to Costa Rica in 2012.

Our meetings helped us reach a level of common ground before we defined the objectives of the project. These meetings helped Sylvester understand the type of research that has conventionally taken place with Indigenous people in Costa Rica, research that has not been well received by the people with whom García collaborates. Being that Sylvester had no experience working with Indigenous people in Costa Rica, these meetings were important to ensure she did not intentionally repeat any research practices that have not been well received.

These meetings were further important for Sylvester to start to learn Bribri teachings, including those related to worldviews. Additionally, these meetings helped García understand Sylvester’s research interests and the interests of her Ph.D. advisor; this was important to ensure that García could decide whether this ethnobiology study could be useful either to a Bribri organization and/or to his research program.

PLANNING

Our project planning process took place during in-person meetings and meetings via Skype. In 2009 and early 2010 we met for coffee at least two times per month; while Sylvester was in Canada, we used Skype to meet with the same frequency. During these meetings, García guided Sylvester as she worked to develop a Ph.D. proposal at her university: The University of Manitoba. García’s guidance helped ensure that Sylvester’s Ph.D. research objectives were informed by the Talamanca Bribri context and that these
objectives would generate data to support people’s access to forest resources.

Specifically, one of the objectives of the project was to better understand the factors that influence the continuity of forest food harvesting of Bribri people in Talamanca, Costa Rica.

During the planning phase, a high level flexibility was worked into our proposal for two main reasons. First, we did not invite a local organization to work with us before our proposal was developed and approved by Sylvester’s university. Second, we required a high level of flexibility to ensure that our eventual community-level collaborators could work with us to modify and/or refine our objectives and methodology.

**WORKING WITH THE SÉBLIWAK WOMEN’S GROUP IN BAJOR COEN**

In 2012, we partnered with a community-level organization to continue our work. We waited until 2012 to invite a community-level organization to participate in our project because, García explained, a lot can change in a Ph.D. project; specifically he wanted to ensure 1) the objectives were feasible within Sylvester’s university program and 2) the funding was in place to accomplish our goals before we made plans with a community organization.

García guided the process of inviting a community-level organization. Specifically, García recommended we work with the Sébliwak women’s group (hereafter the Sébliwak group) in his home community Bajo Coen for two main reasons: 1) he had extensive experience working with this group and 2) he thought members of this group would be interested in our project on forest food harvesting. Our partnership was facilitated because of García’s relationships and role in the Bajo Coen community. Garcia has been selected by community leaders and Elders to guide Bribri research and he has
done so for over 20 years. Specifically, one highly respected community leader, the late Awá Don Francisco García, requested that García engage in Bribri research using Bribri teachings and ethics. García has worked with the Sëblïwak group since it was formed 15 years ago and the president of this group, Ms. Sebastiana Segura, is García’s sister. García also shares the same clan as members of this group: the Sëblïwak clan. Belonging to the same clan as our colleagues was important because a Bribri person’s responsibility is first to their clan and then to their community. Thus, for this project, García sought guidance and approval first from Elders within his clan and then from other participants.

García met with members of the women’s group and community Elders in Bajo Coen to discuss this project before Sylvester became involved. There were three important outcomes of these meetings. First, all members of the Sëblïwak group expressed interest in collaborating and working with us on how to best do so. Second, Sylvester was invited to meet with the group. Third, members of the Sëblïwak group self-selected their roles in the project and some of their desired outcomes. These roles and outcomes are discussed further in the section “Using ulâpeitök to guide our research approach and methodology”.

Although Sylvester initially felt it important to attend these initial planning meetings, she later learned why her absence was important. Specifically, she learned from the women within the Sëblïwak group how researchers have imposed their research ideas and approaches on community members in the past. Even when women have requested changes to methodologies, researchers have said it is not possible for a number of reasons. Because of this history, our colleagues explained how they do not always feel

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1 An Awá is a person trained in Bribri healing, counseling, and other traditional practices.
completely comfortable asking outsiders to modify research to account for their group’s, and their community’s needs. Reflecting on this history, Sylvester now feels it was important that she was not present at these initial meetings because it could have limited people’s ability to share their needs, and their desired outcomes for a project.

García informed Sylvester about the outcomes of his meetings. Specifically, the main guiding principle that was proposed by Garcia and the Sébliwak group was to develop a research approach based on a Bribri concept called ulàpeitök. Sylvester met with the Sébliwak group in March and April 2012 to build on these earlier conversations and to learn how to apply ulàpeitök to the project.

**Using Ulàpeitök to Guide our Research Approach and Methodology**

We developed our research partnership based on the Bribri concept *ulàpeitök*. This concept translates to lend (*peitök*) a hand (*ulà*) and is a Bribri concept related to sharing work. This concept guided how we built our research partnership, how we defined the outcomes of our work, and how we shared the work needed to achieve these outcomes.

*Ulàpeitök* means many things. *Ulàpeitök* is a traditional way of sharing work. For instance, when a person is cultivating corn using shifting agriculture, people can ask their friends or relatives for *ulàpeitök*; this means you are asking someone to help with this agricultural project. Sharing labour is not limited to agriculture, however, it can apply to other tasks (e.g., to cut a tree or to clear an agricultural field). When someone asks others for *ulàpeitök* there is an understanding that the person requesting help will provide a meal
and blo’ (chicha)\textsuperscript{2} to the people working. Furthermore, there is an understanding that if someone has asked you for ulàpeitök, you can ask the same of that person in the future, for a project of your desired interest. In other words, I may ask someone for help with shifting agriculture and on another occasion they may ask me for help with timber harvesting. Because ulàpeitök concept is a traditional teaching on how to share work, our colleagues suggested we apply this to our project as a way to work together.

Ulàpeitök informed how we defined the project outcomes. Specifically we developed this research so it would result in benefits of self-determined value for all collaborators. Sylvester would gain teachings and information necessary for her to complete her thesis. García would gain experience applying Bribri teachings to a research methodology; and, would co-author the products of this research. Members of the Sëbliwak group would receive funding and other forms of support with one of their pending food harvesting projects. Members of the women’s group also wanted to ensure this project would assist more than the nine families of the women’s group; this was because, as Ms. Sebastiana Segura the Sëbliwak president explained, it is important that benefits reached as many community members as possible. For this reason, Sëbliwak women requested that Sylvester impart English classes to Bajo Coen residents.

Ulàpeitök informed how we shared the work needed to achieve the above outcomes. Based on this teaching, we agreed that if members of the women’s group assisted Sylvester in acquiring Bribri teachings, Sylvester would assist the women’s group with one of their harvesting projects and assist community members with English.

\textsuperscript{2} Meals may be large or small but blo’ (chicha in Spanish), a traditional fermented drink made from corn or other fruits or vegetables, was described by our colleagues as always traditionally given for ulàpeitök.
Specifically, this meant that Sylvester worked with women to develop their agricultural project proposal and that she would provide funding for the materials needed for this project; these funds came from her Ph.D. research grants. This also meant that Sylvester would teach English three times per week (on Wednesdays she taught twice daily at Bajo Coen community school and on Saturdays she taught twice daily at Ms. Sebastiana Segura’s house to youth and to adults). In practice, we achieved these outcomes. Women were able to complete their project on shifting corn agriculture and chicken farming (Figure 1). English classes were imparted; and Sylvester edited a book for young students based on their work during classes (Figure 2). And, there were other unanticipated outcomes that emerged from these original goals. For instance, Sylvester held workshops with members of this and other groups in Bajo Coen regarding writing project proposals. And, Sylvester and the Séliwak group worked together to find funding for another harvesting project to grow organic coffee (Figure 3).
Figure 1: Shifting corn agriculture project (left) to grow corn to feed chicken being raised in the structure on the right called tól.

Figure 2: Sample pages of a book created by Bajo Coen community school students; names beside illustrations and top left illustration by Edder Díaz Segura.
Figure 3: Organic coffee project; seeds purchased from Elders in Bajo Coen (left) and seedlings grown by members of the Sébliwak group before planting.

 USING BRIBRI TEACHINGS TO GUIDE LEARNING ABOUT HARVESTING

Participation

In addition to using Bribri teachings to guide our partnership, we used Bribri teachings to guide Sylvester’s learning and our information gathering process. Sylvester had researched multiple ethnobiology information gathering procedures that could be used for this research (e.g., participation, interviews, household surveys, photo-elicitation; Creswell 2014, Martin 2004). Members of the Sébliwak group suggested Sylvester start with using participation for information gathering because participation is a traditional Bribri way of teaching. Specifically, two Elder guides Sylvester was asked to work with, explained that it is through participation in Bribri work, harvesting, and other daily activities that youth learn about the land. On July 14th, 2012 Mr. Hernan García explained this form of teaching:
La manera de que Sebas [Ms. Sebastiana Segura] te esta enseñando, llevándote con ella a trabajar, dándote pollos para cuidar, esto es la forma que nosotros enseñamos a los hijos.

The way Sebas [Ms. Sebastiana Segura] is teaching you, taking you with her to work, giving you chickens to take care of, that is the way that we teach our children.

As Mr. Hernan García alluded to, to learn about harvesting requires more than participation in select harvesting activities, i.e., those activities of primary interest to researchers. Learning about harvesting also requires learning about other daily life; this included work (e.g., agriculture, harvesting water, cooking, cleaning), periodic visits to family and friends, accompanying people during other activities (e.g., doctor visits, purchasing food, travel outside of Bajo Coen for other activities). Scholars have described this form of non-selective participation as fundamental to taking research colleagues seriously (Wilson 2009, Nadasdy 2007).

Using participation has multiple benefits. Sylvester’s participation in our colleagues lives helped us build friendships; and these friendships were important for women to feel comfortable participating in this research. Our female colleagues expressed how they appreciated that Sylvester attempted to adapt in many ways to their day-to-day life; examples women mentioned was that Sylvester worked with people in banana agriculture, went to Bribri doctors to be treated for illness, ate the same food as her colleagues, and maintained the same daily schedule as our colleagues (i.e., rising at 3-4am and sleeping at 6-7pm). Colleagues contrasted these actions with those of other researchers; specifically, our female colleagues explained how past researchers have been reluctant to participate in Bribri work and elements of daily life. Our colleagues explained that although researchers would ask many questions about Bribri knowledge
and practices; they would not engage in these practices themselves. For instance, Ms. Sebastiana Segura explained that after interviews she has participated in people would retreat to their rooms and some people would not even eat with Bribri people. Ms. Segura often tells the story about how people have brought in processed and packaged food to eat alone in their rooms. Our colleagues interpreted these practices to mean that people either had an aversion to Bribri food and/or were disinterested in Bribri life and culture. Members of the Sêbliwak group often told Sylvester that a lack of interest in Bribri women’s lives, work, and culture caused them to feel reluctant to share Bribri teachings with researchers.

A second benefit of participation was that it helped Sylvester understand women’s unique barriers to participation in research. Scholars have described how women can experience a triple workload (e.g., work outside of the household, household maintenance, and childcare); this high workload can be a barrier to women’s participation in research (Pfeiffer & Butz 2005). And, as a consequence, women’s full contributions to harvesting have not been adequately represented in the published literature (Pfeiffer & Butz 2005, Howard 2003, Brightman 1996). Our female colleagues reported triple workloads in addition to other barriers including: volunteering in community, schools, attending to visitors, and increased responsibilities to attend to researchers (e.g., washing their clothes, cooking for them). Understanding this suite of barriers female colleagues experienced was important to modify our research approach to ensure that 1) women who wished to participate in research could and 2) Sylvester’s demands on women’s time did not add to their workload. To ensure we met these two goals, participation was critical. For instance, Sylvester worked with women in banana fields, in community schools, and
in households. Her work with women either freed up time for them to help her with her research and/or it allowed Sylvester and colleagues to converse while they were doing other daily activities.

A third benefit of participation is that it helped ensure our project progressed at the pace of people’s daily life. This was important to our female colleagues because, as they explained, if this pace is not a priority, projects can have negative impacts on women. Female colleagues explained how many past researchers only start to wake up around eight or nine in the morning; in these cases Bribri women have to stay around the house to make sure researchers have breakfast and have what they need for the day. Ms. Sebastiana Segura told Sylvester how her attending to researchers has affected her work in the past; she explained how although she would normally be out of the house by six in the morning working in agricultural fields, when researchers have stayed with her she has been held back from work. She explained how she was pleased with using participation as a research method because it allowed her to teach Sylvester about Bribri harvesting while keeping on top of her work (interview 14/12/13).

Visiting friends and interview conversations

In her book on Indigenous Methodologies, Margaret Kovach (2009: 2323) talks about the importance of finding a way back “to core values of what is responsible, respectful, and kind, to that which is ours not someone else’s”. This point resonates with how we did interviews; specifically, our approach was shaped from the teachings of Ms. Sebastiana Segura, Sylvester’s main teacher, who felt a few protocols were necessary to ensure interviews were done in respectful way, based on Bribri teachings, so that people felt comfortable sharing their insights.
Early on in her stay in Bajo Coen, Sylvester discussed her interest in interviewing people. Ms. Segura, a person with experience interviewing and being interviewed herself, explained that it was important that Sylvester get to know each person in a Bribri way before requesting interviews. This meant, Sylvester would either travel with Ms. Segura (or with one of her family members) to visit people; visits were with people Sylvester wished to invite to be interviewed or that Ms. Segura thought Sylvester should meet. At times Ms. Segura would send Sylvester on her own to share food with people because this is also an important part of daily life and maintaining relationships.

After living in Bajo Coen for a few months, Sylvester learned how important visiting is in Bribri daily life. During visits people check in with each other about their family’s health, people share food, and they discuss important community issues, such as those related to the land and its health. By engaging in visits prior to interviews, Sylvester learned important Bribri protocol and information relevant to contextualizing the research.

It was only after many visits and many conversations that Sylvester invited people to be interviewed. When Sylvester asked if she could talk to people about an issue or topic, our colleagues would unanimously respond by referring to an interview as a conversation. When Sylvester first attempted to write up this work, she would refer to these conversations as semi-structured interviews, the terminology from the ethnobiology literature that best represented our approach (e.g., Martin 2004). However, something did not sit right with her when using this language. When Sylvester read Margaret Kovach’s (2009) work on Indigenous Methodologies, however, she found a more appropriate language to describe our interviews, i.e., conversation interviews. Kovach (2009: 2212)
describes this method as a way to provide “…space, time, and an environment for participants to share their story in a manner that they can direct without the periodic disruptions involved in adhering to a structured approach, as in an interview format”.

**Household surveys**

Household surveys were an information gathering method proposed by Sylvester and her advisory committee at the University of Manitoba. Ms. Sebastian Segura expressed interest in assisting Sylvester with this process; however, she was clear that surveys would need to be done with caution. This is because household surveys resembled state census tools (e.g., both tools require filling out questionnaires and a door-to-door approach). Census tools have been used for unauthorized surveillance and to reinforce negative stereotypes of Indigenous peoples (Brant Castellano 2004); these were concerns our Bribri colleagues also expressed.

To ensure surveys were done in a respectful way, surveys were reviewed and modified with the input of Elders and other community members. Sylvester created drafts of surveys before moving to Bajo Coen; after living for six months in Bajo Coen, Sylvester refined these surveys with the help of four Bribri colleagues (Elder Mr. Ancelmo Díaz, Elder Mr. Hernan García, Ms. Sebastiana Segura, Mr. Juradir Villanueva). This modified survey was then reviewed again in detail again by Ms. Sebastiana Segura, Elder Mr. Ancelmo Díaz, and Mr. Juradir Villanueva.

Ms. Segura recommended that she and Sylvester work together to implement surveys because of their similarities to census tools. When Sylvester and Ms. Segura approached households, Ms. Segura engaged in detailed conversations with people about the surveys to ensure any concerns were discussed in detail with a person before they
were invited to complete a survey. We did not take a conventional survey or census approach, i.e., one that aimed to maximize household visits per workday. Instead we attempted to complete surveys as part of household visits that would occur organically as part of Ms. Segura’s daily life. In some cases this was not possible, we planned visits when Ms. Segura had something to do in the area of a household and ensured our visits occurred when families would most likely not be busy or working. Lastly, because sharing food is part of Bribri daily life, we brought food such as coffee and rice to households when we arrived to each household; and, as is customary in Bajo Coen, we were always invited in to talk and have something to eat and drink with each household. These conversations and food sharing always took place before we invited a member of a household to participate. Engaging in conversation and food sharing was important to ensure this method was done in a way respectful of Bribri values.

The series of modifications we applied to household survey methods meant this information gathering process occurred at the pace of daily life. This schedule was not however, anticipated by Sylvester. For instance, Sylvester designed the original surveys to take 30 to 45 minutes and based on this calculation Sylvester anticipated doing multiple surveys in one day. Because we completed surveys as part of Ms. Segura’s daily activities, and because conservations and food sharing were part of the process, we would usually only complete one survey per day. There were days that we were able to complete more than one survey if we received visitors to our household that agreed to participate in a survey during these visits.

Our experiences illustrate how modifications to household surveys may be required to be respectful of Indigenous people’s history and values; however, such
modifications have not been discussed in the ethnobiology literature. Instead, sampling is often suggested as a process to be guided by an outside researcher using Western techniques and values (e.g., random door-to-door sampling); and, in this literature there is no guidance on pre-survey protocol (i.e., survey review by Elders and community colleagues and visiting households in ways compatible with Indigenous people’s daily life; Etkin et al. 2011, Martin 2004).

**Research Participants**

A total of 26 people participated in this research (16 males and 10 females; Table 1). When Sylvester worked with these 26 people she also had the opportunity to participate in harvesting with these colleagues’ relatives. The process of inviting these colleagues to participate in our work is described in chapters 4-7.
Table 1: Consolidated list of people who participated in this research. Life-stages refer to the following age ranges: 1) Youth (12-20), 2) Early adulthood (21-35), 3) Adulthood (36-55), Elder (55+).

<table>
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<tr>
<th>Name</th>
<th>Sex</th>
<th>Life-stage</th>
<th>Affiliation</th>
</tr>
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<td>Ms. Ana Grisel Díaz</td>
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<td>Early adulthood</td>
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<td>Mr. Ancelmo Díaz</td>
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<td>Elder</td>
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</tr>
<tr>
<td>Mr. Sabino Díaz</td>
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<td>Mr. Sebastian Díaz</td>
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<td>Mr. Elias Escalante</td>
<td>Male</td>
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<td>2012 President of the Bajo Coen community council</td>
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<td>Mr. Adenil García</td>
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<td>Mr. Euterio Mayorga</td>
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<td>Administrator of the La Amistad Park, Caribbean Sector (MINAE)</td>
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<td>Adulthood</td>
<td>Sébliwak women’s group</td>
</tr>
</tbody>
</table>
Mr. Bernardo Sánchez  Male  Early adulthood  *Sëbliwak* women’s group

Mr. Rudy Sánchez  Male  Early adulthood

Ms. Anastasia Segura  Female  Elder  *Sëbliwak* women’s group

Ms. Sebastiana Segura  Female  Adulthood

Mr. Juradir Villanueva  Male  Early adulthood  Resource guard, member of the Bajo Coen community council

**PROJECT TIMELINE**

We provide a timeline to increase awareness of what it can take to negotiate and transform conventional research frameworks, even in a modest way (Table 2). In this table, we outline activities that occurred before the writing and dissemination process of our findings. Because we are working together on writing, editing, interpretation, and dissemination, our timeline will extend beyond what we have outlined here.
Table 2: Timeline of the key activities regarding our research partnership.

<table>
<thead>
<tr>
<th>Activities</th>
<th>Dates</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial process of getting to know each other and brainstorming</td>
<td>September 2009-April 2010</td>
<td>San José, Costa Rica</td>
</tr>
<tr>
<td>Sylvester’s first visit with Garcia to Talamanca Bribri Territory</td>
<td>March 2010</td>
<td>Bajo Coen</td>
</tr>
<tr>
<td>Working on funding proposals and Sylvester’s Ph.D. proposal</td>
<td>September 2010 – November 2011</td>
<td>Skype meetings</td>
</tr>
<tr>
<td>Discussions about developing a local-level partnership</td>
<td>December-February 2012</td>
<td>San José, Costa Rica</td>
</tr>
<tr>
<td>Garcia’s meetings with the Sêbliwak women’s group</td>
<td>February –March 2012</td>
<td>Meetings in Bajo Coen and telephone meetings</td>
</tr>
<tr>
<td>Sylvester’s invitation to meet with the Sêbliwak group</td>
<td>March 2012</td>
<td>Bajo Coen</td>
</tr>
<tr>
<td>Initial planning meetings with the Sêbliwak group</td>
<td>March – April 2012</td>
<td>Bajo Coen</td>
</tr>
<tr>
<td>Regular group discussions with Sêbliwak group to continually evaluate methodology and work on mutual projects</td>
<td>March –December 2012 (7 total)</td>
<td>Bajo Coen</td>
</tr>
<tr>
<td>Meetings with Ms. Sebastiana Segura to discuss project and to interpret Bribri teachings</td>
<td>April –December 2012 (approximately once/week)</td>
<td>Bajo Coen</td>
</tr>
<tr>
<td>Drafting proposal for Sêbliwak traditional corn and chicken project</td>
<td>April 2012</td>
<td>Bajo Coen</td>
</tr>
<tr>
<td>Drafting proposal for organic coffee project</td>
<td>May 2012</td>
<td>Bajo Coen</td>
</tr>
<tr>
<td>Workshop on proposal writing</td>
<td>November 2012</td>
<td>Bajo Coen and Coroma</td>
</tr>
<tr>
<td>Follow-up visits</td>
<td>May, December 2013; May 2015</td>
<td>Bajo Coen</td>
</tr>
<tr>
<td>Follow-up discussions with research colleagues and the Sêbliwak group</td>
<td>May, December 2013</td>
<td>Bajo Coen, Coroma, telephone conversations</td>
</tr>
</tbody>
</table>
FEEDBACK FROM RESEARCH COLLEAGUES AND BAJO COEN RESIDENTS

We received positive feedback from our Sêbliwak group collaborators. Over a period of nine months, Sylvester met with the Sêbliwak group during their monthly group meetings to check in about our methodology and research collaboration; these meetings gave us space to discuss our successes and challenges and to modify any needed elements of the project as it evolved. And, Sylvester traveled to meet with the Sêbliwak group on three other occasions (May, December of 2013 and May of 2015). These follow-up meetings were important because it allowed people to share their insights after they had time to reflect on the impacts of our work. On December 16th, 2013, Ms. Sebastiana Segura shared one of her reflections:

Eso es el primer proyecto de tesis que nos tomó a nosotros en serio. Yo en el pasado he pedido que los proyectos tesis nos ayuda de alguna manera, pero siempre nos dicen que no es posible…entonces yo pensé que era de verdad, que no nos podía ayudar con cosas que necesitamos como ayudar a nuestro grupo [de mujeres] o dar clases de inglés a los niños; eso [las clases de inglés] es algo que no hay aquí pero se necesita. Eso [nuestra colaboración] ha sido un gran bendición para nosotros, un gran ayuda…

This is the first thesis project that took us seriously. In the past I have asked that thesis projects help us out in some way, but people always tell us that it is not possible…so I thought that it was true, that people were not able to help us with things that we need like helping our [women’s] group or giving English classes to our children; that [English classes] are something that we do not have here but they are needed. This [our collaboration] has been a great blessing for us, a great help…

We also received positive feedback from other Bajo Coen residents not part of the Sêbliwak group. This feedback came from research participants and people who were not directly involved in the project. Specifically, people expressed feedback related to: 1) Sylvester’s engagement in Bribri daily life and 2) English classes. People talked to both
Sylvester and Ms. Sebastiana Segura about how it was important that Sylvester engaged with Bribri language, people’s work and that Sylvester cooked, shared, and ate locally harvested and traditional food. One of our colleagues and participants in this project, Mr. Ancelmo Díaz, described his impression of the project design. On October 24th, 2012 he explained first how he felt it was important that youth observed Sylvester’s engagement in many of the activities that are central to Bribri culture. He explained this was important because he feels that some youth place higher value on outsider customs than on Bribri customs. Having an outsider engage in and value Bribri harvesting, work, and food, can be important, he explained, to help youth see the value of their cultural practices.

Sylvester felt a level of discomfort discussing praise for something that should be second nature for researchers, i.e., valuing the customs of people we work with. However, we included Mr. Díaz’s insight because it was something that many of our colleagues voiced; and, his comment illustrates one of the challenging realities of colonization and social inequality many Bribri people live. This context reinforces the importance of using Indigenous approaches in research in this region of the Bribri Territory.

We also received constructive feedback, feedback we hope continues to be shared as people reflect upon the outcomes of this work. A few of our colleagues explained how teaching Sylvester was at times challenging because of language barriers. Although Sylvester spoke Bribri in conversations that did not require elaborate explanations; teachings related to our research were shared mainly in Spanish. There were times when Ms. Sebastiana Segura would tell Sylvester that it was very challenging to explain a concept to her in Spanish that had a unique meaning in Bribri; and, she also described how it was challenging because Spanish was both Sylvester’s and her second language.
Scholars have stressed how the use of Indigenous language in Indigenous research can be fundamental to understand concepts not easily translated (Wilson 2001) and to decolonize research (McLeod 2009); the use of Bribri in information gathering is something we aim to strengthen in our future research.

Another point was raised that should be mentioned. On the evening of March 24th, 2012, the first night with her host family, Sylvester was conversing with Ms. Sebastiana Segura’s and other family members. During this early conversation, Ms. Segura asked an important question. Specifically, Ms. Segura asked Sylvester why she and other sikua (outsiders) have the opportunity to come to Ms. Segura’s community and learn from Bribri people but these same opportunities do not exist for Bribri youth. Although this comment does not apply directly to our methodology, it is an important reminder. It is a reminder of the inequity associated with academic research that goes beyond methodology; and, it is also a reminder that there is more to be done within education systems to support equity in opportunity.

**Reflections on Working Ethnographically**

In this research, Sylvester mainly worked ethnographically with a small group of Bribri guides; this was the approach recommended by her collaborators because working with a few key teachers is a traditional way of learning about harvesting. When Sylvester started this work, she was initially concerned that her information gathered may only reflect the points of view of this small group of guides. She discussed this concern with Ms. Sebastiana Segura who agreed it was important she also work with people from different clans and outside of the Sêblïwak women’s group; however, she requested that Sylvester allow sufficient time for members of the Bajo Coen community to get to know
her and her intentions before she invited them to work with her. Ms. Segura facilitated
the process of getting to know other collaborators by bringing Sylvester along on her
errands and to regular visits to family and friends in Bajo Coen. When community
members began to invite Sylvester to talk with them, Sylvester went alone to build these
relationships.

That Sylvester worked with people from different clans and with people from
different socio-economic backgrounds was important to ensure a diversity of perspectives
on resource harvesting were presented in her thesis. At times it was important that
Sylvester learn from key guides or experts on either hunting or wild plant use. At the
same time, each individual experiences resource access differently. Thus, it was
especially important that Sylvester invited people from a diversity of backgrouds to
participate in her thesis.

Sylvester was asked by a reviewer of this thesis if there was any opposition by her
Sébliwak guides that she wanted to work with other Bajo Coen community members. At
times, some of her Sébliwak colleagues would offer their opinions as to who would be
better to talk to about a specific story or skill; for instance, the Sébliwak clan was
described as experts in medicinal plant knowledge and thus it was recommended that
Sylvester talk to healers in this clan for questions related to medicinal plant knowledge.
At the same time, there was no opposition to Sylvester’s work with a diversity of
participants from different life-stages, clans, and socio-economic backgrounds. And
although her work was ethnographic, seeking out work with a diversity of participants,
she feels, was critical to ensure her representation of Bribri people in her thesis was not
limited to the perspectives of a few people, from the same family and clan.
CONSIDERATIONS

We identified three considerations that were instrumental to our project development. These lessons were taken from both our experience and by listening to our colleagues’ feedback during conversations and group discussions. Although these considerations have been mentioned in the published literature (e.g., Tuhiwai Smith 2012[1999], Tillmann-Healy 2003), descriptions of how people apply these considerations in different contexts is lacking in the published literature.

Build flexibility into the entire research program

We all go into a research project with our own ideas of how a project should be run. And, Ph.D. students are often asked to provide details regarding: research plans, research tools, timelines, and use of funding early on in the research process, even before developing a relationship with community-level collaborators. For these reasons it is easy to get attached to a given data collection tool, schedule, and/or ways to use funding. In our experience, we were required to be flexible on all of these elements.

One key example of this flexibility relates to our allocation of funding. In our project we had not allocated funding to support a local-level agricultural project. We had however, allocated funding to other aspects of the project. Because the support for this agricultural project was a priority for the Sébliwak group, we had to modify our budget to ensure this project was funded. At first, Sylvester was not fully comfortable with this level of flexibility; this discomfort was due to her lack of experience sharing power to this extent with her research colleagues. And, in hindsight, Sylvester reflects how this is a good example of how being flexible and sharing power is something that is often easier
said than done. Sylvester wrote flexibility into all of her research and funding proposals. In these proposals, she wrote about how this flexibility was fundamental to ensure her Bribri colleagues could “*take ownership of the research project*” (Sylvester’s International Development Research Centre funding proposal, 2011). However, when her colleagues suggested that research funding be used for an agricultural project, Sylvester felt a degree of resistance to this idea. This initial resistance is now overshadowed with the overwhelming positive outcomes of this approach.

**Be prepared to play multiple roles in a project**

In Linda Tuhiwai Smith’s (2012[1999]) book Decolonizing Methodologies, she explains how one person must often perform many roles in collaborative research; examples of these roles include activist, researcher, family member, community leader, which are additional to a person’s day job. Playing multiple roles was critical for the completion of our project. Ms. Sebastiana Segura, for instance, took on the role of Sylvester’s primary teacher; this required her to balance this role with her other roles such as Sébliwak president, healer, family member, and her day job in agriculture. She worked hard to carve out time to work with Sylvester to visit research participants, carry out household surveys, to make time for our research discussions, and to review and help Sylvester interpret information gathered. Ms. Segura often told Sylvester how she would love to have unlimited time to sit and teach her all about Bribri life and history; however, this was often challenging considering her other multiple tasks.

Although Sylvester did not have as many responsibilities as Ms. Segura, Sylvester experienced some challenges balancing her role as a researcher with other roles in this
project. Specifically, in any given day Sylvester was a researcher, an English teacher, and a member of the Sëgliwak group. Some of these tasks required a lot of energy she did not anticipate. For instance, to work mornings with the Sëgliwak group, Sylvester woke at 4am to help around the house to be ready to leave for banana fields at 6am; work in the banana fields required being in near full sun and clearing thick grass with a machete. Upon return to her host household, Sylvester then helped women get food ready for the day. This process left her with little energy in the evenings to take notes on the lessons and teachings she learned that day.

Early on in the project, Sylvester was concerned that these extra commitments would not leave her time to complete the academic objectives of her Ph.D. Upon reflection, Sylvester now feels her concern about not having time to collect the academic data was rooted in her narrow understanding of data and the learning process. In the two years after Sylvester has moved out of Bajo Coen, Sylvester has reflected multiple times on the fact that the richest teachings and information came from what she learned while participating in daily life. She learned that important lessons and teachings were shared just as much in day-to-day tasks, such as accompanying people to the doctor or to the bank, as when harvesting wild food with people. This reflection resonates with what Tim Ingold and Lee Vergunst’s (2008: 3) explain, i.e., that it is easy for researchers to dismiss the aspects of the day-to-day in favour of reporting on “what really matters” or what is on the researcher’s radar; by doing so researcher’s can overlook important context that is central to their understanding of people’s lives. In our case, playing multiple roles, exposed Sylvester to many aspects of the day-to-day that helped rather than hindered her understanding of her colleagues teachings.
Adopt a research ethic of friendship

In 2003, Jennifer Tillmann-Healy proposed friendship as a research method as a way for researchers to ensure high ethical standards in research. She explained that friendship and fieldwork are similar in many ways. First, for instance, to do both friendship and fieldwork colleagues need to gain acceptance and trust. Second, to do both friendship and fieldwork, colleagues learn need to learn new codes for behaviour and we experience challenges, conflicts, and loss. Third, to do friendship and fieldwork, people should not be rushed and should approach these processes with the ebb and flow of everyday life. Tillmann-Healy’s (2003) concept of an ethic of friendship resonates with our approach; without a strong ethic of friendship our collaboration would not have been possible. As Tillmann-Healy did, we invested in an ongoing process of acceptance and trust in a way that was compatible with Bribri teachings. We learned new codes for behaviour, such as approaching a research partnership from a Bribri concept of sharing (ulâpeitõk). And, we did not rush data collection; instead this process occurred at the pace of everyday life.

One critical element of an ethic of friendship is keeping in touch. And, despite that keeping in touch is central to collaborative work, few scholars mention if or how this is done in their methodologies (Enslin 1994). Sylvester had innumerable discussions with research colleagues and other community members about coming back to visit and keeping in touch. Sylvester imagined these discussions happening near the end of the project; instead these were some of the first discussions she had with people. That discussions about keeping in touch were some of the first conversations Sylvester had with colleagues illustrates its importance in collaboration. Sylvester also learned how
keeping in touch was important for her. Sylvester reflects often on how keeping in touch has been important for the quality of our work but most importantly for her well-being. Sylvester reflects upon the contrast she experienced when she returned to the University of Manitoba after living in Bajo Coen. She went from a life where she received updates on banana prices, moon cycles, corn fields, people’s health, children’s school grades on a day-today basis, to a life where she woke up and went to sleep staring at a computer screen alone. Being far from her teachers, guides, and friends was both lonely and challenging. It was especially challenging to write about people and their teachings without having them to turn to when she needed guidance on how to communicate teachings authentically and in a good way.

To counter the impacts of leaving Bajo Coen, Sylvester has returned to Bajo Coen three times since December 2012. These return visits have been important to reconnect with people, teachings, and the way of life Sylvester has been given the privilege to write about. In addition, Sylvester has kept in touch via phone with a group of her colleagues; these colleagues relay her greetings to others without phone access. In cases where Sylvester has not made the time to call, she has communicated her greetings to García who has relayed greetings to our colleagues.

CONCLUSIONS

The goal of this chapter was to provide details of how we applied Bribri teachings to a Ph.D. project. Describing the details of our methodology was important because these details are lacking in the ethnobiology literature, despite the centrality of Indigenous people to this field. Such methodological discrimination, Kovach explains (2009), can only be challenged by increasing awareness of Indigenous inquiry. Although
not all ethnobiology Ph.D. students build new partnerships as part of their research, many do; thus, it was important for us to share our process so that emerging scholars have guidance to draw upon.

Specifically, our research approach was based on a Bribri principle of sharing work, *ulàpeitök*. This concept guided how we built our research partnership, how we defined the outcomes of our work, and how we shared the work needed to achieve these outcomes. We used our funding to support the following projects: 1) Sylvester’s Ph.D. work, 2) Garcia’s research program, 3) a *Sëbliwak* group agricultural project, 4) English classes for the Bajo Coen community. *Ulàpeitök* also shaped how we shared the work to complete our proposed outcomes. Specifically, Sylvester assisted women in their agricultural project and assisted them with skills they wished to strengthen (e.g., proposal writing); and Sylvester imparted English. Self-selected guides in the *Sëbliwak* group assisted Sylvester with her learning process and information gathering.

We experimented with developing methods that were based on Bribri teachings to flatten power differences that arise with the use of Western research methods. Specifically, we used two information gathering methods suggested by Bribri colleagues: participation and conversation interviews. Although these methods have similarities with methods described in ethnobiology (e.g., participant observation and semi-structured interviews; Martin 2004), our interpretation of these methods was unique because Bribri protocol informed their implementation. Participation was especially important to build friendships, understand women’s unique barriers to engage in research, ensure our project progressed at the pace of people’s daily life. We also applied household surveys, a method suggested by Sylvester and modified with guidance from our colleagues. Our
modifications to conventional survey methods were: 1) requesting that Elders and community members reviewed and modified surveys, 2) doing surveys as part of our colleagues’ regular household visits to ensure this process was not rushed, and 3) making time for conversations and food sharing before surveys to ensure survey implementation was respectful of Bribri values.

We identified three key considerations fundamental to our project development. First, we built flexibility into the entire research program including the use of research funding, the design of the project, and the definition of project outcomes. Being flexible also meant letting timelines guide but not impede the process of working together.

Second, we found it important that people on the ground be willing to play multiple roles in this work; this meant Sylvester balanced the roles of Ph.D. researcher, member of the women’s agricultural group, and English teacher. This also meant Ms. Sebastian Segura balanced roles of teaching Sylvester, gathering information, translating and interpreting data with other roles such as women’s group president, family member, and farmer.

Third, we found it important to proceed with an ethic of friendship. In our case, using an ethic of friendship required learning new codes for behaviour, not rushing information gathering, and making commitments to keep in touch.

Negotiating and transforming research frameworks requires time, institutional and economic support, and a desire to do things respectfully (Tuhiwai Smith 2012[1999] 2012, Cuerrier 2012, Kovach 2009, Czaykowska-Higgins 2009). We were fortunate to have institutional and economic support and Bribri collaborators that helped us understand how to proceed in a good way. And, although our approach was not without challenges, overall, we achieved our goal, i.e., to apply Bribri teachings to an
ethnobiology methodology with the goal challenging, if only slightly, the conventional way of doing research with Indigenous people. When this project began García told Sylvester it has taken over 500 years to attempt to colonize Bribri people; and, reversing this process may take a similar period of time. In this context García asserts how every attempt to decolonize research with Indigenous people, no matter how small, is important because it is contributing to an ongoing, lengthy process of decolonization. Our hope is that this project has made one small contribution to this process.
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INTERCONNECTIONS AMONG CHAPTERS

Chapters 3-7 represent the results sections of my thesis. I introduce this section with an ethnoecological description of the Bribri food harvesting system. I feel this ethnoecological approach is important to provide rich detail about people’s use of forest foods, detail important to provide context for chapters 4-7. For instance, it would be hard to understand access to food (chapters 4,5) or the impacts of protected area regulations on food access (chapter 6) without first understanding what foods people harvest and where people harvest food from. There are also unique relationships Bribri people have with non-human beings that afford them access to forest food; understanding these relationships is important to interpreting the results in upcoming chapters (e.g., results on how protected areas shape access to food in chapter 6).
Chapter 3: Landscape Ethnoecology of Forest Food Harvesting in the Talamanca Bribri Indigenous Territory, Costa Rica

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ABSTRACT

The literature on Bribri people’s forest food harvesting has widely overlooked Bribri interpretations of harvesting. Using a landscape ethnoecology approach, we worked with Bribri colleagues to describe forest harvesting in one community (Bajo Coen) within the Talamanca Bribri Indigenous Territory in Costa Rica. To do so, we used participation as a research method. Our study revealed why forest food harvesting requires fostering relationships with the land and with non-human beings. The landscape focus of our research illustrated how people are continually planting and moving species to enrich the landscape and how people care for wild species in a diversity of spaces (e.g., farms, forests, roadsides, pathways, and river edges); these landscaping practices, rooted in teachings and land ethics, are important for food access, to encourage animals to spaces near dwellings, and to reinforce cultural identity. Our landscape focus further revealed spatial and temporal relationships among the following groups of activities: 1) market agriculture and wild species harvesting, 2) shifting agriculture, hunting, and harvesting wild edible greens, and 3) hunting and harvesting wild edible greens; understanding these spatial and temporal links is important to illustrate how agriculture and wild harvesting are interrelated in forests. Our use of participation as a research method is relevant to ethnoecology research because this method allowed for a holistic description of harvesting. Our holistic description of harvesting can be used by forest managers in Costa Rica who have committed to supporting Bribri harvesting but have lacked required information to do so.

Key words: Costa Rica, hunting, La Amistad Biosphere Reserve, polyculture, shifting agriculture, wild food
INTRODUCTION

Forest food harvesting may comprise many activities including gathering forest products, hunting, and agriculture (Posey et al. 1984). For many forest-dwelling people, these harvesting activities can be intrinsically linked to ethics, values, and identity (Powell et al. 2013, Borge 2011, Beaucage and Taller de Tradición Oral del CEPEC 1997, Posey et al. 1984, Conklin 1954). And, for many people, forest harvesting happens at the level of the landscape; this means that people make use of a diversity of land patches to access species. Examples of these land patches include agricultural and forestland patches as well as other land patches that receive less attention, called “in-between-spaces”, i.e., roadsides, ditches, the margins of fields and forests, degraded areas, and/or walking paths (Price and Ogle 2008, Nazarea 2005, Rocheleau and Edmunds 1997; 1355).

Ethnoecology is one field that is well suited to help researchers understand the complexity of forest food systems. Ethnoecology is a field that emphasizes understanding the harvesting system holistically (e.g., through the study of cosmology, knowledge, and harvesting practices; Toledo 2002, 1992, Posey 1984, Conklin 1954). And, ethnoecologists emphasize research on the relationships people have with their homelands at the scale of the land and/or landscape (Johnson and Hunn 2010). It is through a landscape level analysis that the importance of different harvesting spaces can become more understood; and, it is through a landscape level analysis that we can begin to understand basic teachings that people derive from the land and non-human beings that shape harvesting (Johnson and Hunn 2010, Toledo 2002, 192) Holistically representing
people’s use of the land matters because in the published literature, the main focus has been on documenting species and not on describing harvesting systems as they are understood by the people who identify with them.

Understanding the landscape ethnoecology of forest food harvesting is important for land management for two key reasons. First, forest managers are increasingly shifting their focus to the management of landscapes, despite a long history of managing forests in isolation from other land patches (e.g., Frost et al. 2006). This landscape focus has encouraged the development of policies that attempt to protect land for people, food, and nature; however, our ability to construct effective policies requires additional information on how forests, along with other land patches, contribute to people’s food systems (LPFN 2014, Sunderland et al. 2013, Frost et al. 2006). The second reason ethnoecology is important for land management is that it has the potential to generate research that upholds the integrity of people’s land-based knowledge. Maintaining this integrity is critical if Indigenous people are to be taken seriously in land management (Nadasdy 2007, Houde 2007, Notzke 1994). Real world resource management cases have shown that all too often the integrity of people’s land-based knowledge can get lost in land management discussions; this is because these discussions focus too much on factual or utilitarian knowledge, this type of knowledge is attractive to state managers and enhances scientific knowledge about the land, e.g., knowledge about species at risk (Houde 2007). However, focusing on this type of knowledge overlooks the suite of values, ethics, practices, and history associated with Indigenous environmental knowledge (ibid). A landscape ethnoecological focus has the potential to generate research about food harvesting that considers the multiple land patches people use while maintaining the
integrity of Indigenous harvesting systems.

To better understand forest food harvesting landscapes, we worked with people from the Talamanca Bribri Indigenous Territory, Costa Rica. Bribri people of Talamanca have lived in tropical forests since time immemorial, and thus, working with Bribri people provides a unique opportunity to understand 1) people’s relationships with their harvesting lands and 2) how these relationships are related to the use of and management of food species. Although Bribri harvesting activities in farm and forest land patches has been described (e.g., Borge 2011, García-Serrano and del Monte 2004), our study is unique in that it discusses how species harvesting at the landscape-level is shaped by a suite of factors identified as important to Indigenous resource harvesting systems, including Bribri creation history, relationships among human and non-human beings, factual observations, land ethics and values, people’s relationships to culture and identity (Johnson and Hunn 2010, McGregor 2008, Houde 2007, Cajete 2000, Davidson-Hunt and Berkes 2003). With the guidance of our Bribri colleagues, we specifically described four elements of their forest food harvesting systems: 1) the relationships people form with forest species and the land, 2) the ethics and values that inform food harvesting, 3) the forest food species people harvest, and 4) where people harvest these foods across the landscape.

The landscape ethnoecology of Bribri forest food harvesting is relevant to land management in Costa Rica. The Talamanca Bribri Territory is part of La Amistad

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3 In the Bribri landscape, forests cannot be separated from water and waterways; the land is a connected whole. And, waterways are critical sites for food harvesting (e.g., aquatic species and terrestrial species collected in river islands). In this chapter, however, focused on forest food harvesting as waterways and river islands were outside of the scope of this project.
Biosphere Reserve, a protected area designed to be managed for multiple lands uses including the human use of forest resources (UNESCO 2014, SINAC 2012). La Amistad managers have made a commitment to support Bribri access to the natural resources traditionally harvested from forests, but have lacked required information to do so (SINAC 2012). Our research can be used to create directives to manage forests in La Amistad Biosphere that explicitly respect Bribri rights to access food and to continue food harvesting.

**METHODS**

**The Talamanca Bribri Indigenous Territory**

The Bribri Talamanca Indigenous Territory (hereafter Talamanca Bribri Territory, 43,690 ha) is located in the Talamanca county and the Limón province in the southeast region of Costa Rica. There are 7,772 Bribri people living here, according to the 2011 census (INEC 2013) and Bribri people have lived in the Talamanca region since time immemorial (an estimated 10,000 years from both archeological and genetic analyses; Barrantes et al. 1990). The Talamanca Bribri territory borders and overlaps with Costa Rica’s largest national park: La Amistad International Park (200,000 ha, hereafter La Amistad Park; SINAC 2012). Along with La Amistad Park, and 13 other Indigenous Territories and 16 other protected areas, The Talamanca Bribri Territory forms part of the larger La Amistad Biosphere Reserve (570,045 ha; UNEP 2013). This Biosphere received United Nations Environmental, Scientific, and Cultural Organization (UNESCO) World Heritage status in 1982.
Research partnership, the Bajo Coen community, and the Sëbliwak women’s group

The objectives of this research emerged from a collaboration between Sylvester and García; this collaboration started in San José, Costa Rica in 2009. Over five years these authors worked together on many aspects of this project including: defining the project’s objectives, developing its methodology, and collecting, analyzing and interpreting data. In 2012, García facilitated Sylvester’s collaboration with the Bajo Coen community to engage in a project on forest food harvesting. Bajo Coen is a community of approximately 45 households located in Alto Talamanca. Like other communities in Alto Talamanca, Bajo Coen residents use forests for all aspects of their food systems and forests provide fuel and water for all food preparation. Forests are also sites of shifting agriculture and other farming that occurs in the margins of forests. The majority of Bajo Coen residents work in export agriculture (bananas, plantains, cacao) and a handful earn income as teachers and or labourers (Sylvester’s household survey data from 2012).

In Bajo Coen, Sylvester collaborated with a women’s group called Grupo de Mujeres Sëbliwak. This group is composed of nine females (including their male partners and families) and one male. To work with this women’s group we developed a research partnership based on the Bribri principle, ulàpeitök. In sum, ulàpeitök is a Bribri word that translates to lend (peitök) a hand (ulà) and is a Bribri concept related to sharing. This Bribri concept was the guiding concept for our development of a collaborative partnership with the Sëbliwak group and it informed the sharing that took place in terms of the needed work to complete the project as well as the sharing of teachings and information.
**Information gathering procedures and research colleagues**

Sylvester’s participation in Bribri in daily life in Bajo Coen was the principle data collection method used in this research (also called participant observation; Yin 2014). García and members of the Sébliwak felt strongly that participation be used as a research method for different reasons. First, participation is a traditional Bribri way of teaching about the land, i.e., teaching through experience. Second, participation was described as the best way to fully appreciate the Bribri landscape of harvesting. For García and members of the Sébliwak group understanding the landscape of harvesting meant more than understanding the spatial dimensions of species use; it meant having a holistic appreciation of day to day life and how harvesting is part of a lifestyle on the land. As García says, it is hard to understand, let alone talk about Bribri harvesting, if you have never carried a basket full of bananas on your head like people do in Talamanca. This simple yet profound statement matters because it illustrates the importance of researching and describing forest food harvesting in the context of people’s daily lives.

Our use of participation as a research method involved two main elements. First, Sylvester lived in the Bajo Coen community with a Bribri family for a consecutive period of nine months in 2012 (March-December) and a total of two weeks in 2013 (in May and December). Living with a Bribri family allowed Sylvester to experience forest food harvesting as it took place at the pace of her colleagues daily life and to experience the tacit, less visible dimensions of harvesting. While living with this family, Sylvester was assigned one primary teacher Ms. Sebastiana Segura; having one primary guide a traditional Bribri protocol to learn about the land.
The second element of using participation as a method was working with Bajo Coen community members in their daily harvesting activities. Specifically, Sylvester worked with 16 community members, 12 of which were members of the Sébliwak women’s group (Table 1). Although these 16 people formally volunteered to participate in this research, these were not the only people with whom she worked. While harvesting, Sylvester also worked with these people’s families and friends in a diversity of spaces (farms, home gardens, forests, shifting fields, and kitchens). Overall, the food harvesting activities in which Sylvester was invited to participate included: market agriculture, agriculture for local food consumption, wild food harvesting, shifting agriculture, and hunting. When Sylvester worked with the women’s group (at least 3-4 times per week), she also participated in a variety of activities that were part of these women’s daily lives including: rising before sunrise to start the fire and prepare for the day, joining people on visits to friends and family, accompanying people to the doctor, working in community schools preparing food for children, and working at home feeding animals, cleaning the house, and preparing food in the evening. Because Sylvester was not often invited to go hunting, she went on the land with three hunters and visited some of their hunting routes. Lastly, Sylvester was invited to participate in other traditional activities that involve harvesting and cultivating wild plants including: 1) cleaning the cemetery, and 2) healing with the community Awá (Bribri doctor). To gather information during participation in food harvesting, Sylvester recorded field notes daily by hand; the themes and concepts found in Sylvester field notes were reviewed along with her research colleagues and with García to verify her understanding of Bribri harvesting.
Table 1: List of people who participated in this research.

<table>
<thead>
<tr>
<th>Name</th>
<th>Affiliation</th>
<th>Interviews</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ms. Ana Grisel Díaz</td>
<td>Së bliwak women’s group</td>
<td>12/07/12</td>
</tr>
<tr>
<td>Mr. Ancelmo Díaz</td>
<td>Elder</td>
<td>29/06/12 and follow up interview on 15/08/12</td>
</tr>
<tr>
<td>Mr. Sabino Díaz</td>
<td>Së bliwak women’s group</td>
<td>Group interviews on 26/03/12 and 07/08/12</td>
</tr>
<tr>
<td>Mr. Adenil García</td>
<td>Së bliwak women’s group</td>
<td></td>
</tr>
<tr>
<td>Mr. Hernan García</td>
<td>Së bliwak women’s group and Elder</td>
<td></td>
</tr>
<tr>
<td>Ms. Alejandra Hernández</td>
<td>Së bliwak women’s group</td>
<td></td>
</tr>
<tr>
<td>Ms. Karen Hernández</td>
<td>Së bliwak women’s group</td>
<td></td>
</tr>
<tr>
<td>Ms. Nimfa Hernández</td>
<td>Së bliwak women’s group</td>
<td>29/05/13</td>
</tr>
<tr>
<td>Mr. Saul Lek</td>
<td>Së bliwak women’s group</td>
<td></td>
</tr>
<tr>
<td>Ms. Ana Yorleni Morales</td>
<td>Së bliwak women’s group</td>
<td></td>
</tr>
<tr>
<td>Ms. Vicenta Morales</td>
<td>Së bliwak women’s group</td>
<td></td>
</tr>
<tr>
<td>Mr. Bernardo Sánchez</td>
<td>Së bliwak women’s group</td>
<td>06/05/12 and group interview 20/06/12</td>
</tr>
<tr>
<td>Mr. Rudy Sánchez</td>
<td>-</td>
<td>28/08/12</td>
</tr>
<tr>
<td>Ms. Anastasia Segura</td>
<td>Elder</td>
<td>29/04/12, 21/06/12, a follow-up interview on 14/12/13, and group interviews on 26/03/12, 14/07/12, 07/08/12, and 31/08/12</td>
</tr>
<tr>
<td>Ms. Sebastiana Segura</td>
<td>Së bliwak women’s group</td>
<td></td>
</tr>
<tr>
<td>Mr. Juradír Villanueva</td>
<td>Resource guard, member of the Bajo Coen community council</td>
<td>24/06/12, 01/11/12</td>
</tr>
</tbody>
</table>

In addition to participation, Sylvester carried out interviews and focus groups.

Our interviews were semi-structured and done in using a conversation method, a method that shows respect for story and respects participant’s right to control what they wish to share with respect to the research (Kovach 2009). Eleven semi-structured interviews were completed with seven community members (Table 1). Sylvester carried out interviews in participants’ homes or in locations of their choosing and followed an interview guide;
questions on this interview guide related to: 1) people’s engagement in wild plant harvesting, hunting, polyculture, and shifting agriculture, 2) the physical spaces people harvest in, and 3) the practices, ethics, and values associated with harvesting. Six group interviews on these topics were also completed; four group interviews were completed during family harvesting trips to the forest, one during a visit to and one during shifting agriculture (Table 1). Lastly, seven focus group discussions were held with members of the Sébliwak group. One of these discussions (on 07/11/2012) was dedicated to getting a deeper understanding of the ethics and values associated with food harvesting; the other discussions presented opportunities to verify understanding of the information presented in this chapter.

Information review and analysis

Mr. Alí García and/or Ms. Sebastiana Segura reviewed the Bribri words and concepts presented in this chapter; García verified the spelling of the Bribri words used here. Qualitative coding was used to analyze data (Creswell 2014). All data (i.e., notes and interview transcripts) were compiled and analyzed by hand. To start coding, the following codes were selected because of their relevance to the research topic: 1) “cosmology”, 2) “polyculture”, 3) “shifting agriculture”, 4) “hunting”, and 5) “wild plant harvesting”; these codes were assigned to relevant sections of text. After this initial coding process, more in-depth coding was undertaken on these same data. Specifically, the data were analyzed for repetitions (i.e., recurring topics), similarities and differences among and within topics, and for in vivo codes (i.e., codes that emerge from the data that are often specific to local language or local practices; Ryan & Bernard 2003). This latter process was important to flesh out the original a priori codes into new codes that reflected
the nuances of the data; these new codes were used to organize the results section of this chapter.

**Research ethics**

The *Sëbliwak* women’s group, Elders in the Bajo Coen community, and the University of Manitoba Joint-Faculty Research Ethics Board approved this study. The Bajo Coen local government (*Consejo de Vecinos*) and the regional Bribri government (ADITIBRI) were informed of the Bajo Coen community representatives’ decisions to participate in this research. All research colleagues provided their ongoing, informed consent and chose to have their names beside the insights they shared.

**Findings**

**The land and all of its beings**

To understand Bribri harvesting, you have to understand the different Bribri worlds. The land was created by *Sibô*\(^4\) as four connected worlds: 1) *Mikâ Kô bákiâ tsétsè*, when the world was dark or the dark world, 2) *Kô niketchê*, the world where the things were becoming light, 3) *Mikâ Kô ñiné e ’râ*, the light world, and 4) *Sula’ kôska*, the world where souls go. The light world is what human beings experience in their day-to-day life, i.e., what you would see if we walk out on the land to harvest a plant. The other worlds are connected to the light world but are not visible to the naked eye.

Connections among different Bribri worlds are critical to understand harvesting. Most relevant to our discussion are the connections between the light and dark worlds (Figure 1). Specifically, every being that you see in the light world is connected to a

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\(^4\) *Sibô* is the name for the Bribri creator.
being in the dark world. For instance, a yucca plant (*Manihot esculenta* Crantz) found in a farmer’s field is actually a fish in the Bribri dark world. Or, to give another example, when you see a peach palm fruit (*Bactris gasipaes* Kunth) in the light world it is actually a sloth in the other world.

Figure 1: Connections among non-human beings in Bribri light and dark worlds; names written in Bribri (left) and in English (right).

Because of the connections among worlds, harvesting must be done in a way that is respectful to all the beings within these worlds. On June 21\(^{\text{th}}\), 2012 Ms. Sebastiana Segura explained it this way: all plants and animals in the light world are beings in the dark world, and these beings have purposes in the dark world. She said, just like she has pigs and chickens that she cares for and uses to feed her family, beings in the other world have their animals. If she or anyone harvested more plants or animals than they need this
would take away the food and resources that beings in the other world need.

Hunting is a one example that exemplifies how relationships with beings in other worlds are formed and respected during harvesting. When hunting, people interact with one being who is the protector of all the animals; this protector is *Dualök*. Respect for *Dualök* has many levels. Hunters must ask *Dualök* permission to hunt, hunters must not be boastful about what, when, and where they hunt, and hunters must only take what is needed. Over coffee, on August 15th 2012, Elder and hunter Mr. Ancelmo Díaz explained this concept of respect:

Hay que ir con mucho cuidado al bosque y no hay que decir donde nos vamos o decir que vamos a cazar…también hay que cuidar porque todo animal tiene dueño y si cazamos diez tepezcuintles lo ponemos en un saco el dueño se enoje y peor si lo vendemos… nosotros podemos cazar uno pero tiene que ser con respeto para su dueño.

We have to go into the forest with a lot of care, we should not say where we are going or say what we will hunt…we have to be careful too because every animal has its owner or protector and if we hunt ten paca and we put them in a sack then the owner will get mad, and it would be worse if we sold this meat…we can hunt one animal but it has to be done with respect for its owner.

While Sylvester was interacting with hunters, she experienced this respectful behavior towards *Dualök* first hand. Initially, when she saw hunters get ready to go to the forest, she would ask where people were going to hunt or what species they would hunt. Her colleagues always responded in similar ways. For instance, when Sylvester asked where they were going, they told her “*ye’ mià kòbatà wëblök*” (I am going to look at the mountain). Or, when she asked what they would hunt, they said, “*voy a ver lo que hay*” (I am going to see what’s there). An experienced hunter in his early 30s, Mr. Juradir Villanueva, later explained why people responded in this way. He said, if you are going
to hunt, hunters will not say the name of this animal, but they may use the name of the animal in the way Dualōk sees it:

Si ud. va a cazar ud. dice que va a buscar como tu' o ud. va a buscar frijol o ud. si, o si no a la gente que no lo entiende dice voy a ir a la montaña y ya voy a andar ya ellos saben que voy a ir a montear…a un mayor o una persona que sabe ud. le dice así Ye’ miā ē wēikōk ātu, voy a ver si hallo frijol, es decir tepezuintle. Es q todo tiene su regla y uno tiene que ir con esta respeto…es como un costumbre que se debe guardar.

If you are going to hunt you should say that you are going to look for something like tu’ [a root vegetable] or beans or if someone does not understand this you say I am going to the mountain or I am going to walk and then they know that you are going to hunt…To an Elder or someone who knows you can say something like this Ye’ miā ē’ wēikōk ātu, I am going to look for beans but you are really talking about a paca. Everything has its rules and you have to go out on the land with this respect…it is like a tradition that we have to keep (interview 01/11/2012).

The principles of respect demonstrated during hunting apply to other wild resources. Sylvester learned this while out harvesting medicines with Ms. Sebastiana Segura on June 21st 2012. Specifically, while Sylvester and Ms. Segura were on their way to work in the banana fields, Ms. Segura was searching for a specific medicine for a sick family member; this medicine was Bicha’ (Lycianthes sp., Solanaceae). To find this plant, they stopped by Ms. Sebastiana Segura’s mother’s house to ask her where to find this plant. Ms. Segura’s mother answered that they knew where to find it and she did not tell them the location of this plant. As they continued on their route, Ms. Sebastiana Segura explained to Sylvester that she knew her mother would respond in that way. She said if we talked about where we were going to harvest this medicine its owner could hide it or render it not suitable for harvest.

These examples of hunting and harvesting demonstrate a strong sense of
connectivity among the land and the non-human beings with whom Bribri share the land. These examples show how finding foods and medicines is more than factual knowledge about what species to harvest and where to harvest them. Harvesting is about building relationships that invoke all of creation (i.e., the natural and spiritual worlds; McGregor 2008: 145). To harvest, you do not simply remember teachings and use knowledge about an animal or a plant to find it. When you harvest you engage non-human beings in different Bribri worlds and your relationships with these beings affects how you track and harvest plants and animals.

**Bribri harvesting and landscaping**

The way people harvest plants has similarities to the western process of landscaping. Bribri people do not merely walk to harvesting sites and gather plants or animals; instead they continually shape, modify and enrich the landscape to care for foods and medicines and to ensure continued access to these species. In this section, we present some of the specific principles of Bribri landscaping that relate to: polyculture, shifting agriculture, hunting and wild plant harvesting. Dividing harvesting into these activities was Sylvester’s decision and does not always reflect how Bribri people described these activities; in the text, we reference the Bribri words and concepts that are used to describe harvesting.

**Polyculture**

Polyculture is a term scholars have used to describe the Bribri system of multi-cropping across the landscape (Borge 2011, Posas 2013). Polyculture is all too often analyzed using only biodiversity metrics, e.g., by reporting how many species can be
found in a given area of a person’s farm. For Bribri people, polyculture is more than planting species to increase crop diversity, it is a way of life and respect for the land. Specifically, polyculture is a way of caring for wild and cultivated species linked to Bribri values and teachings from *Sibö* (Borge 2011).

In Bajo Coen, polyculture is practiced across the landscape. For the nine months Sylvester cultivated the land with the *Sëblìwak* women’s group, she worked in nine different plots owned by members of this group; these plots were found in the lowlands as well as in forest margins and forest edges. Table 2 illustrates a fraction of the diversity of wild and agricultural species that we identified while working in nine plots. In these plots wild and cultivated species intermix because women and men: 1) plant and care for both wild and cultivated species, 2) transplant forest species into their plots, 3) transplant species acquired through exchange into plots, and 4) plant species to sell for export to national and international agricultural markets.
Table 2: Plant species cultivated in fields used for banana export agriculture. This is not an exhaustive list but rather it comes from working with a group of 12 members of the Sëbliwak women’s group in one hectare banana plots (a total of 9 hectares of land); these are the species that my colleagues pointed out as edible during a period of eight months of research in 2012.

<table>
<thead>
<tr>
<th>Bribri name</th>
<th>Scientific name (Family)</th>
<th>English common name</th>
<th>Cultivated</th>
<th>Cared for</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Root vegetables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Tu’</em></td>
<td>Diocorea sp. (Disocoreaceae)</td>
<td>-</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td><em>Ali</em></td>
<td>Manihot esculenta Cranz (Euphorbiaceae)</td>
<td>Manioc</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td><em>Tu’</em></td>
<td>Xanthosoma sp. (Araceae)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fruit</strong></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><em>Pruta</em></td>
<td>Artocarpus altilis (Parkinson) Fosberg (Moraceae)</td>
<td>Breadfruit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>Averrhoa carambola L. (Oxalidaceae)</td>
<td>Star fruit</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Diko’</em></td>
<td>Bactris gasipaes Kunth Carica papaya L. (Caricaceae)</td>
<td>Peach palm</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>-</td>
<td>Papaya</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Dapa’</em></td>
<td>Capsicum sp. (Solanaceae)</td>
<td>Chili pepper</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Dapa’ blóblo</em></td>
<td>Capsicum sp. (Solanaceae)</td>
<td>Sweet pepper</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Yawö</em></td>
<td>Chamaedorea tepejilote Liebm. (Areacaceae)</td>
<td>Orange</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td><em>Āsh</em></td>
<td>Citrus sp. (Rutaceae)</td>
<td>Orange</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td><em>Āsh blóblo</em></td>
<td>Citrus limmeta Risso (Rutaceae)</td>
<td>Sweet lemon</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Āsh shköshkö</em></td>
<td>Citrus sp. (Rutaceae)</td>
<td>Lime</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>Cocos nucifera L. (Areacaceae)</td>
<td>Coconut</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Kàpi</em></td>
<td>Coffea arabica L. (Rubiaceae)</td>
<td>Coffee</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Kàpi</td>
<td>Coffea sp. (Rubiaceae)</td>
<td>Coffee</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Bòkôn</td>
<td>Couroupita sp. (Lecythidaceae)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-</td>
<td><em>Eugenia stipitata</em> McVaugh (Myrtaceae)</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skô tsuru’</td>
<td><em>Herrania purpurea</em> (Pittier) R. E. Schult. (Sterculiaceae)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-</td>
<td><em>Inga edulis</em> Mart. (Fabaceae)</td>
<td>Ice cream bean</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kã’</td>
<td><em>Iriartea deltoidea</em> Ruiz &amp; Pav. (Areaceae)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skôkichô</td>
<td><em>Jacaratia dolichaula</em> (Donn. Sm.) Woodson (Caricaceae)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tsála</td>
<td><em>Musa sp.</em> (Musaceae)</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Châmù Tsrulu</td>
<td><em>Musa acuminata</em> Colla (Musaceae)</td>
<td>Gros Michel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Châmù</td>
<td><em>Musa acuminata</em> Colla (Musaceae)</td>
<td>Cavendish</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Pilipita</td>
<td><em>Musa acuminata</em> Colla (Musaceae)</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Cuadrado</td>
<td><em>Musa acuminata</em> Colla (Musaceae)</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>(Spanish name)</td>
<td><em>Musa acuminata</em> Colla (Musaceae)</td>
<td>Congo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mána</td>
<td><em>Musa acuminata</em> Colla (Musaceae)</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Congo (Spanish name)</td>
<td><em>Musa acuminata</em> Colla (Musaceae)</td>
<td>Congo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chopo morado (Spanish name)</td>
<td><em>Musa acuminata</em> Colla (Musaceae)</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Chopo (Spanish name)</td>
<td><em>Musa acuminata</em> Colla (Musaceae)</td>
<td></td>
<td>X</td>
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<tr>
<td></td>
<td><em>Nephelium lappaceum</em> L. (Sapindaceae)</td>
<td>Rambutan</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Jamo’</td>
<td><em>Persea americana</em> Mill. (Lauraceae)</td>
<td>Avocado</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Shûlê</td>
<td><em>Psidium guajava</em> L. (Myrtaceae)</td>
<td>Guava</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kalóm</td>
<td><em>Pouteria sapota</em> (Jacq.) H. E. Moore &amp; Stearn (Sapotaceae)</td>
<td>Mamey sapote</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-</td>
<td><em>Quararibea cordata</em></td>
<td>Southamerican</td>
<td></td>
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</tr>
</tbody>
</table>
Our colleagues did not describe polyculture as associated with a given land patch as it has been described in the literature (e.g., as associated with Bribri farms and/or gardens). Instead, people described polyculture or multi-cropping as the basis of Bribri landscaping, in farms, along pathways, in spaces designated for shifting cultivation, in forest margins, and in forests. Polyculture is ever-present because it is a result of one Bribri principle, i.e., respecting the land.

Our colleagues described how respecting the land meant many things. First, it meant keeping the land healthy. Ms. Sebastiana Segura explained how this meant not applying agrochemicals or poison to the soil and also by providing the land nutrients via cultivation. In other words, respect meant using the land in a healthy way. There was
another teaching Ms. Segura shared that is important to respect the land, i.e., that continued cultivation is a way to show respect for the land. Ms. Sebastiana Segura explained how cultivating the land is a way of giving back to Iríria (the non-human being that is the land) for all that she gives people in the form of food: *cuando sembramos algo y la tierra nos produce el alimento o la comida volvemos otra vez a sembrar para darle a ella [Iríria] también* (when we plant something and the land gives us this food we plant again to give something back to her; interview 15/12/ 2013).

Polyculture was not only described as a way to harvest but it was also described as fundamental to Bribri identity. When Sylvester asked the members of the Sébliwak group why it was so important to do polyculture, they all responded in a similar way, i.e., polyculture was said to be part of their identity as a Bribri person. Ms. Vicenta Morales García, a women in her early 40s told me that polyculture is “…algo muy propio del Indígena es algo que no se puede abandonar nunca, hay que mantenerlo todo una vida (something very characteristic of an Indigenous person, it is something we can not abandon ever and we need to maintain this practice for our whole lives; group interview 7/11/2012).” Another female colleague, Ms. Sebastian Segura, told Sylvester how polyculture is one of the fundamental differences between outsiders (sikua) and Bribri farmers. She explained that outsiders farm to make the most profit out of a patch of land whereas Bribri farmers base farming on the teachings of Sibó. Bribri farmers, she said, will always choose multi-cropping even if it comes at an economic cost. On April 29th, 2012, Sebastiana Segura took Sylvester to her banana fields to explain these differences:

*Sibó nos hizo a los Indígenas diferentes a ustedes los blancos, nosotros nos hizo pobres en cuestiones económicos pero ricos en terrenos y comida…Por ejemplo este terreno si los blancos lo trabajan en poco tiempo sería muy ricos*
"en plata pero nosotros no. Sibō nos enseño trabajar la tierra así cultivando banano, dikórpó, guanabana, cedro, laurel, limón. Y gracias a Sibō nosotros casi no pasamos con hambre puede ser si no hay carne uno se busca dikóli, o dikórpó o otra cosa.

Sibō made us Indigenous people different from you white people, he made us poor in economic terms but rich in land and food...take for example this land, if white people worked it in a very short period of time they would be rich in money but for us this is not the case. Sibō taught us to work the land like this, growing banana, peach palm, guanabana, cedar, laurel, and limes. And, thanks to Sibō it is rare that we are hungry, even when there is no meat one can come here and harvest peach palm or heart of palm or something else.

Të

Të is the Bribri word that refers to spaces where shifting cultivation is practiced. When doing shifting agriculture, it requires clearing a patch of land and burning the land before crops are planted there (Figure 2). Corn, beans, and rice are the primary crops cultivated in these spaces, crops grown for both household consumption and for sale within the community. There are descriptions of Të in the published literature; these descriptions include lists of the species diversity found in these land patches as well as the durations of burning, planting, and fallow periods (e.g., García-Serrano and del Monte 2004). However, we still lack a discussion of where these spaces occur across the landscape and of the extensive cultural practices associated agriculture in these spaces.
In Bajo Coen, Tê are not spaces limited to one specific geographic location or
habitat; instead people make use of their private lands for shifting agriculture in locations
commonly distant from dwellings; this distance has the function, García explains, of
keeping domestic animals away from these crops. Specifically, while Sylvester lived in
Bajo Coen, shifting agriculture was practiced in forest margins and in fields in the
lowlands that have been historically used for this practice (e.g., an area of land called La
Isla, which is one of many naturally formed river islands). Colleagues explained that
Shifting agriculture does not occur in forest interiors because Sibö did not leave these forests for this purpose.

Shifting agriculture is much more than burning to grow crops, it is a process closely linked to Bribri identity. Ms. Sebastiana Segura described shifting agriculture as a way of life and an Indigenous right, i.e., “... es un derecho que Sibö nos había hecho a los Indígenas; es como una cultura para nosotros” (...it is a right that Sibö made for Indigenous people; for us it is like a culture; interview 15/12/2013). Shifting agriculture requires cultivating relationships with the land and non-human beings; these relationships are important to respecting Sibö’s teachings. While on a trip to do shifting cultivation, on August 7th, 2012, Ms. Sebastiana Segura and Mr. Sabino Díaz explained some of these teachings. For instance, people can show respect for the land and the beings associated with these space by clearing the land before burning. Another way of respecting the land and the beings associated with shifting agriculture is to leave fields a rest period in between cultivation. This rest period is required in both the short and long term. For instance, my colleagues explained the need to give the land a break between burning and planting corn seeds (at least two days). Our colleagues also explained the need to give the land a break (at least two years) before burning it again. And, if people do not follow these and other teachings it can cause an upset in the balance of the land. In one instance, Sylvester upset the balance of shifting agriculture because of her frequent travels in and out of the community while her Bribri hosts were growing corn. These travels in and out of the community resulted in a scenario where the protector of the animals (Dualök) sent animals to eat the corn people planted for human consumption.
Wild harvesting across the landscape

Earlier in this chapter, we introduced the relationships with non-human beings that are important during hunting and harvesting wild plans. Here, we describe the sites of Bribri wild harvesting and/or the landscaping practices used to access wild species. In Bajo Coen, hunting took place across the landscape in land patches both close to and far from dwellings and in land-use areas that were both minimally to highly modified (e.g., agricultural fields or forests; Table 3). The active hunters Sylvester worked with described hunting within their community on private land (e.g., in homegardens, shifting fields, and forest margins) and on community land (e.g., forests, river islands). Some hunters explained that they still traverse old trading and harvesting routes and hunt along these paths; the longest of these harvesting routes extends from the Caribbean side of the Talamanca mountain range to the Pacific coast on the other side of the Talamanca mountain range, a path that can take weeks to complete.\(^5\)

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\(^5\) These long distance harvesting paths are the same paths Bribri people used to travel to harvest salt from the Pacific coast; in addition these were important trade and exchange groups with other Indigenous peoples (e.g., Cabécar, Teribe people).
Table 3: A list of mammals, reptiles and birds harvested in Bajo Coen; this list is not exhaustive but it is a reflection of the species hunted by the people we worked with in Bajo Coen. Other hunters in this community and in other Bribri communities may specialize in hunting different species.

<table>
<thead>
<tr>
<th>Bribri name</th>
<th>Scientific name (Family)</th>
<th>Common name</th>
<th>Food</th>
<th>Healing</th>
<th>Forest</th>
<th>Forest Margin</th>
<th>Agriculture</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mammals</strong></td>
<td></td>
<td></td>
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<tr>
<td>Káno’</td>
<td><em>Cuniculus paca</em> L. (Cuniculidae)</td>
<td>Paca</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sar</td>
<td><em>Allouatta palliata</em> Gray (Atelidae)</td>
<td>Mantled howler monkey</td>
<td>X</td>
<td></td>
<td>X</td>
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<td></td>
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<tr>
<td>Sinà sarùrù</td>
<td><em>Bradypus variegates</em> Schinz (Bradypodidae)</td>
<td>Brown-throated three-toed sloth</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td>Blùr</td>
<td><em>Cabassous centralis</em> Miller (Dasypodidae)</td>
<td>Northern naked-tailed armadillo</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sinà tsikiríi</td>
<td><em>Choloepus hoffmanni</em> Peters (Megalonychidae)</td>
<td>Hoffmann’s two-toed sloth</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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</tr>
<tr>
<td>Tsawi</td>
<td><em>Dasypus novemcinctus</em> L. (Dasypodinae)</td>
<td>Nine-banded armadillo</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
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</tr>
<tr>
<td>Shùlë</td>
<td><em>Dasyprocta punctata</em> Gray (Dasyproctidae)</td>
<td>Agouti</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
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<tr>
<td>Namù dalòlò</td>
<td><em>Herpailurus yagouroundi</em> Geoffroy Saint-Hilaire (Felidae)</td>
<td>Jaguarundi</td>
<td>X</td>
<td></td>
<td>X</td>
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<tr>
<td>Skula’</td>
<td><em>Hoplomys gymnurus</em> Thomas (Echimyidae)</td>
<td>Armored rat</td>
<td>X</td>
<td></td>
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<tr>
<td>Namù</td>
<td><em>Leopardus pardalis</em> L. (Felidae)</td>
<td>Ocelot</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
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<tr>
<td>Sùlì màt</td>
<td><em>Mazama Americana</em> Erxleben (Cervidae)</td>
<td>Red brocket</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
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<tr>
<td>Tsi</td>
<td><em>Nasua narica</em> L. (Procyonidae)</td>
<td>Whitened nosed coati</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
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</tr>
<tr>
<td>Sùlì</td>
<td><em>Odocileus virginianus</em></td>
<td>Whitetail deer</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>River islands</td>
<td></td>
</tr>
<tr>
<td>Scientific Name</td>
<td>Common Name</td>
<td>Notation</td>
<td></td>
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<tr>
<td>Zimmermann (Cervidae) Potos flavus</td>
<td>Kinkajou</td>
<td>X X X X X</td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Schreber (Procyonidae) Proechimys</td>
<td>Tome’s spiny rat</td>
<td>X X</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>semispinosus Tome (Echimyidae)</td>
<td>Variegated squirrel</td>
<td>X X X X X</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Sciurus variegatoides Ogilby (Sciuridae)</td>
<td>Forest rabbit, Tapeti</td>
<td>X X X X X</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Sylvilagus brasiliensis L. (Leporidae)</td>
<td>Northern Tamanudu</td>
<td>X X X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Tamandua Mexicana Saussure (Myrmecophagidae)</td>
<td>Baird’s tapir, Collard peccary</td>
<td>X X X X</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Tapirus bairdii Gill (Tapiridae)</td>
<td>Boa constrictor</td>
<td>X X X</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tayassu tajacu L. (Tayassuidae)</td>
<td>Central American snapping turtle</td>
<td>X X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boa constrictor L. (Boidae)</td>
<td>Green iguana</td>
<td>X X</td>
<td></td>
<td></td>
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<tr>
<td>Chelydra rossignonii Bocourt</td>
<td>Neotropical cormorant</td>
<td>X</td>
<td></td>
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<tr>
<td>Chelydridae)</td>
<td>Green iguana</td>
<td>X</td>
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<tr>
<td>Iguana iguana L. (Iguanidae)</td>
<td>Neotropical cormorant</td>
<td>X</td>
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<tr>
<td>Crax rubra L. (Cracidae)</td>
<td>Great curassow</td>
<td>X X X</td>
<td></td>
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<tr>
<td>Ortalis cinereiceps J. E. Gray (Cracidae)</td>
<td>Gray-headed chachalaca</td>
<td>X</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Penelope purpurascens Wagler (Cracidae)</td>
<td>Crested guan</td>
<td>X</td>
<td></td>
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<tr>
<td>Phalacrocorax brasiliamus Gmelin (Phalacrocoracidae)</td>
<td>Neotropical cormorant</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Pionus menstruus L. (Psittacidae)</td>
<td>Blue headed parrot</td>
<td>X X X X X</td>
<td></td>
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<tr>
<td>Pionus senilis Spix</td>
<td>White-crowned</td>
<td>X X X X</td>
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</tr>
<tr>
<td>Tsíö</td>
<td>Pteroglossus torquatus</td>
<td>(Psittacidae)</td>
<td>parrot</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Tsíö</td>
<td>Ramphastos sulfuratus</td>
<td>(Ramphastidae)</td>
<td>Collard Aracari</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Tsíö</td>
<td>Ramphastos swainsonii</td>
<td>(Ramphastidae)</td>
<td>Keel-billed Toucan</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Tsíö</td>
<td>Selenidera spectabilis</td>
<td>(Ramphastidae)</td>
<td>Chestnut-mandibled Toucan</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Tsíö</td>
<td>Tinamus major</td>
<td>(Tinamidae)</td>
<td>Yellow-eared toucanet</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
Our colleagues explained how hunting can depend on the landscaping practices people use to attract animals. Growing crops such as corn at forest margins and planting fruit trees across the landscape are two examples of how wild animals are drawn into spaces near dwellings where hunting can occur. Scholars described this Bribri practice as a form of “enriching” the land to attract wild animals (Posas 2013:9). The peach palm is one example of a fruit tree cultivated across the land in Bajo Coen specifically to attract animals for hunting. When walking through Bajo Coen, you can find peach palms in all land patches from forest interiors to field margins. When peach palms are fruiting (starting July and August and lasting until around October), mammals frequent areas near these trees to feast on their fatty and calorie rich fruits; this is a period of the year when animals can be seen close to people’s dwellings. Other fruit trees people planted to attract animals included: a diversity of banana species (Musa acuminata), cacao (Theobroma cacao L., Theobroma simiarum Donn. and/or Theobroma bicolor Humb.), avocado (Persea Americana Mill.) and zapote (Pouteria sapota (Jacq.) H. E. Moore & Stearn). Land used for shifting agriculture was important for hunting because animals could be found there eating planted crops.

While hunters described land patches or routes where hunting has taken place, hunters did not describe specific hunting localities. The lack of specific hunting localities was because hunting depended on many factors that may not be the same on each hunting trip. For instance, hunting depends on an animal’s movements that can be related to the seasonal cycles of certain fruit trees animals consume. Hunting also depends on the protector of the animals; and a hunter’s relationship with this protector can shape whether or not the protector will provide an animal for them. Lastly, our colleagues explained that
to respect the protector of the animals it is important not to boast about hunting and thus, they explained, you rarely hear people talking in detail about the hunt.

Like hunting, the act of harvesting wild plants is difficult to describe spatially. Bribri wild plant harvesting in Bajo Coen can happen in almost any space across the landscape (Table 4). Wild harvesting can occur in less-modified land patches (e.g., forests, river islands), in more modified land patches (e.g., fields), and in-between spaces⁶, i.e., forest or field margins, river edges, roadsides, or degraded areas, and pathways between houses. That all these spaces all afford access to wild plant foods speaks to the fact that these species have been cared for using Bribri polyculture practices. Whenever Sylvester would take a walk with my colleagues, be it to the river, to visit a friend, to go to work, or to walk to the doctor, people would always show me the importance of clearing spaces around wild plants so they could flourish and/or cleaning plants of dead plant material.

⁶ Sensu Rocheleau and Edmunds 1997; 1355.
Table 4: Examples of wild Bribri edible plant species and their landscape associations. These plants together are called Ár, a Bribri term that can be translated to edible tender plant parts and that is often used to refer to edible wild plants.

<table>
<thead>
<tr>
<th>Bribri name</th>
<th>Plant part consumed</th>
<th>Scientific name</th>
<th>Landscape association</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tchámawö</td>
<td>Inflorescence</td>
<td>Carludovica sp. (Cyclanthaceae)</td>
<td>Encouraged near dwellings and in forests</td>
</tr>
<tr>
<td>Yawö</td>
<td>Inflorescence</td>
<td>Chamaedorea tepejilote Liebm. (Areceaceae)</td>
<td>Planted and encouraged near dwellings and in forests</td>
</tr>
<tr>
<td>Túslak</td>
<td>Inflorescence</td>
<td>Cryosophila warscewiczii (H. Wendl.) Bartlett (Areceaceae)</td>
<td>Encouraged near dwellings and in forests</td>
</tr>
<tr>
<td>Rpö</td>
<td>Fiddlehead</td>
<td>Cyathea sp. (Cyatheaceae)</td>
<td>Growth associated with shifting agriculture, timber harvest, and disturbance</td>
</tr>
<tr>
<td>Pó</td>
<td>Inner Stem</td>
<td>Heliconia mariae L. (Heliconeaceae)</td>
<td>Encouraged in forest margins</td>
</tr>
<tr>
<td>Skókichö</td>
<td>Fruit</td>
<td>Jacaratta dolichaula (Donn Sm.) Woodson (Caricaceae)</td>
<td>Encouraged near dwellings and in forests</td>
</tr>
<tr>
<td>Balòkò</td>
<td>leaves</td>
<td>Phytolacca rivinoides L. (Phytolaccaceae)</td>
<td>Growth associated with shifting agriculture, timber harvest, and disturbance</td>
</tr>
<tr>
<td>Mo’wö</td>
<td>Fruits/seeds</td>
<td>Renealmia alpinia Rottb. Maas (Zingiberaceae)</td>
<td>Encouraged near dwellings and in polyculture planting</td>
</tr>
<tr>
<td>Sànalwö</td>
<td>Flowers</td>
<td>Urera baccifera (L.) Gaudich. ex Wedd. (Urticaceae)</td>
<td>Encouraged near dwellings and in polyculture planting</td>
</tr>
</tbody>
</table>
Shifting agricultural fields were unique sites of wild food harvesting. Specifically two species of wild edible greens (*Rpô* (*Cyathea* sp.) and *Balôko* (*Phytolacca rivinoides* Kunth & C.D. Bouché; Figure 3) thrive with disturbance; and thus, after a shifting agricultural field is cleared and/or burned, these edible greens will grow alongside corn or other agricultural species planted. Our colleagues described how these are two popular species of edible plants because they represent some of the few sources of greens in Bribri diets, greens that our colleagues stressed were sources of key nutrients.

Figure 3: *Âr*, young edible plant parts that grow on land that had been recently worked or disturbed; *Rpô* (*Cyathea* sp., *Cyatheaceae*; left) were harvested while hunting and *Balôko* (*Phytolacca rivinoides*, *Phytolaccaceae*; right), were harvested in shifting agricultural fields.
Lastly, hunting animals and harvesting wild plants are two practices that can be complementary. While hunters are on the land they frequently wear special bags called skùla that are specifically designed to carry wild plant foods and medicines when people are out on hunting ventures; and harvesting wild plants while hunting is something that dates far back in Bribri history (Morales et al. 2009). Because hunting and harvesting activities are complementary, Bribri traditional recipes often used a combination of wild meat and wild greens in the same dish; these recipes generally involved boiling wild meat with root vegetables and wild greens that people have collected while out on the land (Figure 4). Interestingly, the same wild species that are commonly found in shifting agricultural fields are harvested on hunting journeys. In part, this is because these species are popular and can be abundant after a disturbance (e.g., a landslide, harvesting timber, burning a land patch); this is also in part because these species are more commonly found in spaces people frequent while hunting rather than in spaces adjacent to dwellings.
Figure 4: A meal prepared by Ms. Sebastiana Segura and Sylvester of peccary meat (Kásir or Tayassu tajacu), wild edible flowers (Sánalwō or Úrera baccifera) an edible wild green, or peach palm fruits (Dikóri or Bactris gasipaes), and boiled plantain (Kalóm or Musa acuminata). This meal is one example of how wild edible greens are prepared together with wild meat in Bribri cuisine.

**DISCUSSION & CONCLUSIONS**

A large part of the published literature on Bribri food harvesting has focused on a limited subset of topics useful to enhance scientific research on conservation and ecosystem resilience; and in these studies, Bribri interpretations of food harvesting are greatly lacking (e.g., Posas 2013, Altrichter 2011, Harvey et al. 2006, Ocherton 2005, García-Serrano and del Monte 2004, Ocampo 1994). Furthermore, the published literature on Bribri harvesting, hunting, wild harvesting, and polyculture typically discuss these topics as separate entities, leaving an exploration of landscape ethnoecology largely
overlooked (e.g., Altrichter 2011, Harvey et al. 2006, Ocampo 1994). Our work demonstrates how a landscape ethnoecological perspective, coupled with using participation as a method, can help to comprehensively represent Bribri food harvesting systems.

Our research contributes to an understanding of the multiple worlds, values, and unique land ethics that influence Bribri harvesting (Borge 2011, Murillo and García Segura) and describes Bribri harvesting at the landscape level. Our work emphasizes connections between farm and forest harvesting activities that are often described in isolation from one another (e.g., Bharucha and Pretty 2010, Altrichter 2011, Harvey et al. 2006). By examining connections among farm and forest harvesting we illustrate how polyculture, shifting agriculture, and wild harvesting can happen in overlapping spaces and within the same harvesting journey. Specifically, we reveal important spatial and temporal links among the following activities: 1) polyculture and wild harvesting (of both plants and animals), 2) shifting agriculture and harvesting wild greens, and 3) hunting and harvesting wild plants, including edible wild greens. Our research also illustrates how Bribri values, ethics, histories, and practices come together to create their food harvesting system. One key finding is that Bribri landscaping (rooted in Bribri land ethics of polyculture and teachings from the Creator) is at the core of food harvesting and access; Bribri landscaping involved caring for the land and soil, helping plants grow by clearing space around them and pruning them, transplanting plants from farm to forest and vice versa, and cultivating the land to give back to the non-human being Iriria. Because these landscaping practices are rooted in Bribri teachings, it is not surprising these practices occur in many spaces across the landscape (e.g., pathways, riversides, field margins,
roadsides) and not only the spaces commonly discussed in the literature (e.g., farm or forest patches).

Our research is further important because it provides a unique cultural perspective on forest food harvesting; this cultural perspective is important to understand why harvesting forest foods can be important for people to form relationships with non-human-beings and for people to experience and express their cultural identity. In the published literature, forest foods are most commonly described in terms of their potential to provide key nutrients (Powell et al. 2013a, Golden et al. 2011, Fa et al. 2003, Grivetti and Ogle 2000) and/or to serve as economic safety-nets when other resources are lacking (Delang 2006, Senaratne et al. 2003, Zinyama et al. 1990, Annegers 1973). Little is published on the cultural dimensions of Indigenous food harvesting in forests (but see Posey et al. 1984). Our work highlights how forest food harvesting is important for people to: 1) connect with non-human beings (e.g., during wild plant harvesting and hunting people interact with the protector(s) of wild species), 2) respect the teachings of Sibō, the Creator (e.g., one of these teachings is that people need to continue to cultivate the land to respect Iríria), and 3) reinforce cultural identity. Our findings are relevant both to accurately represent of Bribri harvesting systems and to inform forest management directives. Specifically, forest managers report lacking information on the cultural dimensions associated with forest food harvesting (SINAC 2012); our research contributes to this knowledge gap (SINAC 2012).

Participation as a research approach was fundamental to our collection of data on Bribri landscape ethnoecology, surveys and rapid assessments are commonly used tools in ethnobiology research when documenting the diversity of species used by people;
however, these tools can limit one’s ability to understand the spatial dynamics of the harvesting system as well as the knowledges, values, and ethics that are embodied and practiced while harvesting (Johnson and Hunn 2010, Martin 2004, Raffles 2002, Toledo 2002). Walking with people was central to Bribri teaching the author about harvesting and walking did not mean just following people on paths, it meant Sylvester learned new ways of trekking, hearing, smelling, and feeling her surroundings (e.g., Pink 2009). Walking with people allowed the author to slow down and pay attention to the less visible day–to-day activities that take place during harvesting; examples of these activities include caring for wild plants as she walked to a friend’s house or using unique language when talking to people before hunting to ensure respect for Sibō and other non-human beings. Tim Ingold and Lee Vergunst (2008: 3) explained how it is easy for researchers to dismiss the aspects of the day-to-day in favour of reporting on “what really matters” or what is on the researcher’s radar. In Sylvester’s case, what was on her radar at the beginning of her research was documenting what species people used and where people harvested them. As Sylvester began to walk at the pace of her colleagues, she learned about the rich teachings that are shared before harvesting and/or en route to harvesting an animal or a plant; these types of teachings can be easily overlooked without walking with our colleagues and participating in their day to day lives (Johnson 2010, Davidson-Hunt and Berkes 2010, Pink 2009, Hunn 2007, Toledo 2002).

Finally, our findings are important for forest management in Costa Rica. The Bribri Indigenous Territory is part of La Amistad Biosphere Reserve, a protected area designed to be managed for multiple lands uses including the human use of forest resources (UNESCO 2014, SINAC 2012). Although La Amistad managers have made a
commitment to support Bribri access natural resources that are traditionally harvested from forests, they lack required information to do so (SINAC 2012). We provide specific information on some of the species people harvest, some of the activities that support food access, and on where these activities occur across the landscape. Specifically, Bribri access to food in forests depends upon their ability to continue: 1) polyculture, both in lowlands and in forest land patches with different levels of disturbance (e.g., paths, forest margins, and forest interiors), 2) shifting agriculture (in lowlands, forest margins, and other forest patches), and 3) hunting (near dwellings, in agricultural land patches, and in forests). Our findings are particularly relevant because two important harvesting activities, hunting and shifting agriculture, are heavily restricted in forest management in the Talamanca Bribri Territory (SINAC 2012).

**ACKNOWLEDGEMENTS**

*Wëste wëste*, thank you to our Bribri colleagues of Bajo Coen and surrounding communities that shared their teachings and provided guidance on how to present our research. Thank you to Iain Davidson-Hunt and David Steen for their insightful comments that improved this manuscript. This work was carried out with the aid of a grant from the International Development Research Centre, Ottawa, Canada Information on the Centre is available on the web at www.idrc.ca. This work was also supported by a Social Sciences and Humanities Research Council (SSHRC) Doctoral Fellowship awarded to Sylvester and a SSHRC Grant awarded to Iain Davidson-Hunt.
REFERENCES


Chapter 4 provides an overview of the mechanisms people use to access food as well as the rational behind wild food use. This Chapter contributes critical information to my overall thesis goal, i.e., to understand the factors that shape access to forest foods. It illustrates what foods people harvest and what foods people access through sharing and/or purchase. I revisit the information presented in this chapter again in Chapter 6 when I elaborate on how people’s ability to engage in food sharing is challenged by protected area regulations.

In Chapter 4 I also present data on how many people use and benefit from forest foods in the Bajo Coen community. Understanding the extent of forest food use allows me to discuss the relevance of my ethnographic research at the level of the Bajo Coen community and speculate as to the relevance in similar forest-dwelling communities. Understanding the extent of forest food use also strengthens my discussion on the impacts of protected area regulations on people’s access to food in chapter 6.
Chapter 4: Wild Food Harvesting, Consumption and Sharing by Household and Generation

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Reviewed by Human Ecology and invited to resubmit with revisions
ABSTRACT

Although wild foods are important for health and cultural continuity for millions of Indigenous people, we lack basic information regarding wild food harvesting systems in forests. Using qualitative methods (e.g., household surveys, interviews, and participation) we examined 1) why people consume wild food, 2) the extent and frequency of wild food harvesting and consumption, 3) generational consumption patterns, and 4) the mechanisms by which households access wild foods. To do so, we worked in one community, Bajo Coen, located in the forests of the Talamanca Bribri Indigenous Territory, Costa Rica. Wild food consumption was linked to a suite of factors including identity, dietary variety, and people’s relationships with, and appreciation for, Bribri culture. All households consumed wild plants and wild meat. The majority of households consumed and harvested wild food when it was available; and, availability depended upon people’s opportunities to harvest food as well as their access to sharing networks. All households reported that youth consume wild plants and the majority reported that youth consume wild meat (only two reported some youth did not eat wild meat); working with youth individually corroborated that the majority of youth consume wild plants and meat. Households accessed wild food through harvesting and/or sharing. All households harvested their own wild plants but not all households harvested their own wild meat; and consequently, sharing was relatively more common for wild meat than wild plants. Elders, women, and youth relied on sharing when they had limited opportunities to harvest wild food due to time, school, and work constraints. Our findings indicate that 1) wild food are important for reasons beyond economic security and caloric
intake, 2) all households use wild meat and plants species, and that 3) sharing ensures widespread access to wild food are relevant to forest management; specifically, these findings may be used to create directives that support people’s continued access to wild foods harvested from forests.

Keywords: forest food, hunting, La Amistad Biosphere Reserve, youth, wild plants

**INTRODUCTION**

Wild foods are an important part of many people’s food systems (Bharucha and Pretty 2010, Pimentel et al. 1997). The Food and Agriculture Organization (FAO) estimates that around one billion people use wild foods in their diet (cited in Bharucha and Pretty 2010). What sets wild foods apart from agricultural species is that they are, for the most part, uncultivated. Some important examples of wild foods include: fruits, nuts, sap, roots, leaves, fungi, insects, fish, and game (Pimentel et al. 1997).

There are a number of reasons why wild foods are important to people’s food systems. Wild foods provide immense dietary diversity to the people who use them. For instance, over 50 percent of the world’s food security comes from three crops but there are thousands of wild species suitable for human consumption (Grivetti and Ogle 2000). Another reason wild foods are important for food systems is because they can mitigate seasonal hunger during resource shortages or pre-harvest seasons (Delang 2006).

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7 It is important to note that farmers often actively manage wild species thus there is often a false dichotomy among cultivated and wild species (Bharucha & Pretty 2010); this active management of wild species is also the case for Bribri people. However, to be consistent with the terms used in the literature, we use the term wild food while also highlighting the Bribri terms and concepts that people use to describe their foods.
Wild foods are further important because they contain important nutrients not often available in commonly consumed foods. Researchers doing nutritional work have found that wild plants and meats from forests can provide key micronutrients and key sources of protein that can be lacking in the foods people consume on a regular basis (Powell et al. 2013a, Golden et al. 2011, Fa et al. 2003, Grivetti and Ogle 2000). The nutritional importance of wild foods is becoming increasingly important to food systems because peoples diets are changing. Rural and agricultural peoples rely more and more on imported processed foods that are higher in fat and refined sugar and lower in fiber and micronutrients as compared to wild foods (Powell et al. 2013b, Damman et al. 2008).

In addition to providing people with key nutrients and calories, wild foods can have important cultural and social significance (CCA 2014, Power 2008). In the previous chapter, we illustrated the cultural importance of wild foods for some Bribri people; specifically, wild plant and animal foods are not just sources of nutrition or economic value, but these foods are also spiritual beings with whom people form relationships throughout their lives. The symbolic and spiritual relationships people build with plant and animal food sources has been noted as important for the continuity of Indigenous cultures (Power 2008). Wild foods are also socially significant because their harvesting and sharing can foster social cohesion and bonding among families and kin networks (Kehoe 2014, Power 2008, Collings et al. 1998, Aspelin 1979). Hunting, for example, is one wild food harvesting activity that can bring groups of people together both for the
tracking of wild animals and for the processing and preparation of wild meat (e.g., Rodríguez et al. 2012, Tuck-Po 2008, Ohmagari & Berkes 1997).

Despite broad consensus that many people use wild species, and that wild species can be critical for health and cultural continuity, contemporary case studies of the role wild foods play within specific societies are lacking. This lack of research is a phenomenon in many habitats, but it is particularly pronounced in forested landscapes (CIFOR 2014, FAO 2014, IUFRO 2014, IUCN 2011). The lack of research on forest food harvesting is concerning for a number of reasons. It is concerning because so many people rely on forest foods for subsistence; specifically an estimated 350 million people rely to some extent on forests for food procurement (Powell et al. 2013b, Dieterle 2009, Pimentel et al. 1997). The lack of research on forest foods is also concerning because this knowledge gap has led to the implementation of forest management plans that are not informed by credible directives on how to support people’s access to wild foods (IUCN 2011, IUCN 2004, Hitchcock et al. 2011). Finally when forests are not managed explicitly for people’s access to wild species, scholars have demonstrated that people’s health and cultural activities can be negatively affected (Hitchcock et al. 2011, Ibarra et al. 2011).

Using a case study from the Bribri Indigenous Territory in Costa Rica, we addressed key knowledge gaps about wild food harvesting in forests. Specifically, we examined 1) the frequency of wild food harvesting and consumption, 2) generational consumption patterns of wild food, and 3) the mechanisms by which households access wild foods (e.g., harvesting, sharing). In addition to addressing important knowledge gaps about forest food procurement, this case study generated information relevant to forest
management and conservation in Costa Rica. The Bribri Indigenous Territory was recently included in the large state protected area called La Amistad Biosphere Reserve. With the inclusion of their lands into this protected area, Bribri people have experienced restrictions on their access to forest resources (SINAC 2012). Forest managers have expressed interest in ensuring Bribri people maintain access to cultural resources in forests, but these managers reported lacking information on harvesting systems in order to do so (SINAC 2012).

**Methodology**

**Research site**

This research took place in the Talamanca Bribri Indigenous Territory. There are 7,772 Bribri people living in the Talamanca Bribri Indigenous Territory (INEC 2013) and, Bribri people have lived in the Talamanca region since time immemorial. In 1977, the government legally recognized 43,690 hectares of Talamanca Bribri lands and called this region La Reserva Indígena Talamanca Bribri, hereafter referred to as the Talamanca Bribri Territory. In 1982, the state incorporated the Bribri Territory into a state managed protected area called La Amistad Biosphere Reserve (Morales et al. 1984). La Amistad Biosphere Reserve (hereafter La Amistad Biosphere) is Costa Rica’s largest protected area, containing its largest area of protected forests and some of the highest levels of biological diversity in the country (UNEP 2013, UNESCO 2014, SINAC 2012).

**Research partnerships and the Bajo Coen community**

The objectives of this research were developed collaboratively among the authors.
The idea for this project was proposed in 2009 and the authors worked together to define the research objectives the methodology from 2010 to 2012. To gather rich information on access and use of wild species harvested from forests, we worked with one Bribri community called Bajo Coen. Bajo Coen is a community of approximately 45 households located in Alto Talamanca. Like other communities in Alto Talamanca, Bajo Coen is a hunter-gatherer and agricultural community whose residents use forests for all aspects of their food systems (e.g., forests provide species, fuel and water for food preparation). Forests are also sites of shifting agriculture and other farming that occurs at the margins of forests. The majority of Bajo Coen residents work in Bajo Coen doing agriculture for export (bananas, plantains, cacao) and a handful earn cash income as teachers and or labourers. Household surveys revealed that migration was mentioned in 11 households (31%) and the majority of people that migrate out of this community move to the closest commercial centre, Suretka, because of school, work, and/or a union with a life-partner.

In Bajo Coen, the primary author (hereafter Sylvester) collaborated with a women’s group called Grupo de Mujeres Sébliwak; this group is composed of nine females (including their male partners and families) and one male. To work with this women’s group we developed a research partnership based on the Bribri concept ulàpeitök. This concept translates to lend (peitök) a hand (ulà) and is a Bribri concept related to sharing. This Bribri concept was the guiding concept for our development of a collaborative partnership with the Sébliwak group and it informed the sharing regarding: 1) the work needed to complete the project, 2) teachings and information, 3) the benefits from this project.
Information gathering procedures and research colleagues

Multiple information gathering procedures were used to understand Bribri wild food harvesting. Household surveys were used to understand community-level patterns in wild harvesting. Sylvester created drafts of these surveys before moving to Bajo Coen. After living for six months in Bajo Coen, Sylvester refined these surveys with the help of four Bribri colleagues (Mr. Ancelmo Díaz, Mr. Hernan García, Ms. Sebastiana Segura, Mr. Juradir Villanueva). Once a final draft of household surveys was completed, these surveys were reviewed in detail by two community Elders (Ms. Sebastiana Segura and Mr. Ancelmo Díaz) and one member of the local government (Mr. Juradir Villanueva).

Sylvester worked with Ms. Sebastiana Segura to approach households and invite them to participate in surveys. It is important to note that there were unique challenges with household survey approach compared to other data collection tools; this was because household surveys resembled state census tools (e.g., both tools require filling out questionnaires and a door to door approach). Census tools have been used for unauthorized surveillance and to reinforce negative stereotypes of Indigenous peoples (Brant Castellano 2004); these were concerns our Bribri colleagues expressed. Sylvester and Ms. Segura worked to understand these concerns in detail with people before people were invited to complete surveys.

Ms. Sebastiana Segura and Sylvester approached all accessible households (39 of 45 in the community). Ms. Segura provided her discretion as to which households were accessible (both physically and in terms of receptiveness); only 3 of households that we approached declined participation. Households decided who would respond to survey questions and these people ranged from 18 to over 70 years old. A total of 18 women and
18 men were interviewed. Surveys were completed during the months of October and November 2012.

In the surveys, people were asked questions related to the following areas: 1) hunting and consuming wild meat, 2) harvesting and consuming wild plant foods, 3) wild resource sharing, and 4) gendered and generational harvesting; we also recorded descriptive variables about household members (e.g., demographic factors, employment, migration). When households were asked about wild plant harvesting, we asked specifically about five representative wild food species (Figure 1). Households were asked to recall all the animal species that were harvested within the last three months; this recall technique was used because it is easier for people to recall over short versus longer periods (Angelsen & Lund 2011). Asking about the last three months of harvesting was also important because this time period corresponded to a slight marked seasonality in hunting, i.e., a time when the peach palms are fruiting in the lowlands which means animals can be more easily found because they are feasting on these trees. Therefore, by asking about this three-month period we were able to document, as accurately as possible, the range of species people harvested. A group interview with four participants was carried out to verify Sylvester’s identification of the species reported as hunted (14/11/12). All household surveys were kept anonymous.

To provide context to, and corroborate the information compiled in the household surveys, information was collected through participation (Urry 1999). Specifically, Sylvester lived in the Bajo Coen community with a Bribri family and was involved in her colleagues harvesting activities over a consecutive period of nine months (March-December 2012) and for a total of two weeks in 2013 in May and December. Living with
a Bribri family allowed Sylvester to experience a suite of activities related to food harvesting, i.e., going out on the land, food preparation, and food sharing. Participation also entailed engaging in harvesting with a suite of community members. Specifically, Sylvester worked with 12 participants (Table 1) ranging from the ages of 18 to 68 and she participated in the following activities: market agriculture, agriculture for local food consumption, wild food harvesting in lowlands and in forests, shifting agriculture, and hunting. When Sylvester worked with the women’s group (at least 3-4 times per week), she also participated in a variety of activities that were part of these women’s daily lives including: joining people on visits to friends and family, working in community schools preparing food for children, and working at home feeding animals, cleaning the house, and preparing food in the evening. Because Sylvester was not often invited to go hunting, she went on the land with three hunters and walked their hunting routes to better understand both hunting and wild meat sharing. To collect information during participation in food harvesting, field notes were recorded by hand daily; the themes and concepts found in these field notes were reviewed along with research colleagues to verify Sylvester’s understanding of Bribri harvesting.
Table 1: List of people who participated in this research.

<table>
<thead>
<tr>
<th>Name</th>
<th>Affiliation</th>
<th>Interviews</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. Miguel Angel</td>
<td></td>
<td>20/10/12</td>
</tr>
<tr>
<td>Ms. Ana Grisel Díaz</td>
<td>Sëbliwak women’s group</td>
<td>05/11/12, and group interview 14/11/12</td>
</tr>
<tr>
<td>Mr. Ancelmo Díaz</td>
<td></td>
<td>23/06/12 and follow up interviews on 29/06/12 and 15/08/12</td>
</tr>
<tr>
<td>Mr. Gabriel Díaz</td>
<td></td>
<td>07/08/12</td>
</tr>
<tr>
<td>Mr. Sabino Díaz</td>
<td>Sëbliwak women’s group</td>
<td>Group interviews on 26/03/12, 14/11/12</td>
</tr>
<tr>
<td>Mr. Adenil García</td>
<td>Sëbliwak women’s group</td>
<td>-</td>
</tr>
<tr>
<td>Mr. Hernan García</td>
<td>Sëbliwak women’s group</td>
<td>Group interviews on 14/07/12 and 31/08/12, and 14/11/12</td>
</tr>
<tr>
<td>Ms. Alejandra Hernández</td>
<td>Sëbliwak women’s group</td>
<td>-</td>
</tr>
<tr>
<td>Ms. Karen Hernández</td>
<td>Sëbliwak women’s group</td>
<td>20/7/12</td>
</tr>
<tr>
<td>Ms. Nimfa Hernández</td>
<td>Sëbliwak women’s group</td>
<td>21/04/2012</td>
</tr>
<tr>
<td>Mr. Saul Lek</td>
<td>Sëbliwak women’s group</td>
<td>-</td>
</tr>
<tr>
<td>Mr. Euterio Mayorga</td>
<td></td>
<td>09/08/2012</td>
</tr>
<tr>
<td>Ms. Ana Yorleni Morales</td>
<td>Sëbliwak women’s group</td>
<td>09/11/2012</td>
</tr>
<tr>
<td>Ms. Vicenta Morales</td>
<td>Sëbliwak women’s group</td>
<td>-</td>
</tr>
<tr>
<td>Mr. Bernardo Sánchez</td>
<td>Sëbliwak women’s group</td>
<td>-</td>
</tr>
<tr>
<td>Mr. Rudy Sánchez</td>
<td></td>
<td>28/08/2012</td>
</tr>
<tr>
<td>Ms. Anastasia Segura</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Ms. Sebastiana Segura</td>
<td>Sëbliwak women’s group</td>
<td>29/04/2012, and group interviews on 26/03/12, 14/07/12, and 31/08/12, 14/11/12</td>
</tr>
<tr>
<td>Mr. Juradir Villanueva</td>
<td>Resource guard, member of the Bajo Coen community council (consejo de vecinos)</td>
<td>01/11/2012</td>
</tr>
</tbody>
</table>
In addition to participation, 16 interviews were completed with 12 community members (Table 1). Our interviews were semi-structured and done in using a conversation method, a method that shows respect for story and respects participant’s right to control what they wish to share with respect to the research (Kovach 2009). Interviews took place in participants’ homes, during harvesting trips, or in locations of their choosing. For the interviews, an interview guide was used and questions were asked about people’s engagement in wild food harvesting, consumption, and food sharing.

Lastly, to deepen our understanding of youth’s consumption of wild food, Sylvester partnered with local youth leader, Mr. Diego Morales, and community Elder, Mr. Ancelmo Díaz, to organize a traditional food workshop. The workshop took place on October 26th, 2012 at the Coroma High school and 26 people attended. This workshop began with interactive activities related to Bribri food; these activities included story telling by Elders, a show and tell about wild food, and photography exposition. And, the workshop provided a space for youth to discuss Bribri food harvesting.

**Information analysis**

Qualitative coding was used to analyze information (Creswell 2014). All information (i.e., notes from participation in community activities, interview transcripts, and household survey data) were compiled and analyzed by hand. Qualitative codes were selected before reviewing data (i.e., a priori coding by topic); these codes were the same as the sub-themes from the household surveys (i.e., harvesting and consuming wild plants, harvesting and consuming wild meat, harvesting groups, and sharing wild food). To code, data were reviewed and codes were assigned to relevant sections of text. Next, a
more in-depth coding process took place on these same data to reveal themes not identified by the original codes. Specifically, data were analyzed for repetitions (i.e., recurring topics), similarities and differences among and within topics, and for in vivo codes (i.e., codes that emerge from the data and that are often specific to local language or local practices; Ryan & Bernard 2003). The new codes that emerged were used to organize the results section of this chapter.

There was one open-ended section of the household surveys that allowed participants to expand on the reasons they consume wild foods. The responses given to these questions were analyzed separately from the other information (using in vivo codes). These in vivo codes were organized according to the major themes.

Research ethics

Elders in the Bajo Coen community, the local government (Consejo de Vecinos), and the University of Manitoba Joint-Faculty Research Ethics Board approved of this study. The regional Bribri government (ADITIBRI) was informed of the Bajo Coen community representatives’ decisions to participate in this research. All research colleagues provided their ongoing, informed consent and chose to have their names beside the insights they shared.

Findings

Harvesting and consuming wild food

Hunting was an important activity for households to acquire wild meat. Sixty one percent of households reported having someone in their household that was skilled at hunting; and 53 percent of households reported hunting (Figure 1). For those households
that hunted, hunting was described as a subsistence activity for household consumption. Households described different reasons for eating forest meat including: flavour, nutritional value, association with traditions and Bribri identity, and, these reasons were not mutually exclusive (Table 2). The majority of households reported males as the primary hunter (58%); other households described going hunting in the following groups only or some of the time: 1) an Elder male with a male youth (42%), 2) a female and male together (11%), 3) among family (mixed gendered groups; 5%).

Figure 1: How households access wild food (N=36 households).
Table 2: Why people consume wild food; this information was collected and analyzed from open-ended questions in household surveys.

<table>
<thead>
<tr>
<th>Reasons people eat wild plants or meat</th>
<th>Representative quotes from participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nutrition and health</td>
<td>Comiendo ñr [plantas silvestres comestibles], los mayores llegan a ser viejos con dentadura fuerte.</td>
</tr>
<tr>
<td></td>
<td>When Elders eat ñr [edible wild plants] they live long and maintain good dental health (Household 1, male, 60 years old).</td>
</tr>
<tr>
<td></td>
<td>La carne del monte es natural y no hace ningún daño al cuerpo porque los animales comen todo natural, no comen concentrado.</td>
</tr>
<tr>
<td></td>
<td>Wild meat is natural and doesn’t do any damage to your body because the animals eat only natural things and do not eat animal feed (Household 6, female, 23 years old)</td>
</tr>
<tr>
<td>Tradition and teachings from the Creator</td>
<td>Sibö [el Creador] nos dejo ñr y carne de monte porque el sabe que es bueno para la salud.</td>
</tr>
<tr>
<td></td>
<td>Sibö [the Creator] left us ñr and wild meat because he knows it is good for our health (Household 11, male, 50 years old)</td>
</tr>
<tr>
<td></td>
<td>Mis abuelos siempre desde joven nos enseñaba comer así, me acostumbre así</td>
</tr>
<tr>
<td></td>
<td>Since I was young my grandparents taught us to eat this way, I became accustomed to it (Household 31, male, 29 years old)</td>
</tr>
<tr>
<td>Identity</td>
<td>La comida de la montaña es algo muy propio del Indígena.</td>
</tr>
<tr>
<td></td>
<td>Forest food is something that is intrinsically linked to being Indigenous (Household 35, female, 40 years old)</td>
</tr>
<tr>
<td>Flavour and variety</td>
<td>La carne de monte es delicioso y nos da algo diferente que solo comer pollo y chancho.</td>
</tr>
<tr>
<td></td>
<td>Wild meat is delicious and it gives us something different to eat other than just chicken or pig (Household 23, female, 29 years old).</td>
</tr>
<tr>
<td>Lack of other resources or resource safety net</td>
<td>Cuando no hay otra carne se puede buscar en la montaña y nos ayuda cuando hace falta carne.</td>
</tr>
<tr>
<td>---</td>
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</tr>
<tr>
<td></td>
<td>When there is no other meat we can go to the forest and it helps us when there is a meat shortage (Household 10, female 47 years old).</td>
</tr>
<tr>
<td></td>
<td>Aquí nunca pasamos con hambre, si no hay carne vamos al monte y conseguimos dikórpó [palmito] o àr de cualquier tipo.</td>
</tr>
<tr>
<td></td>
<td>Here we never go hungry, if there is no meat we go to the forest and we get heart of palm or any edible wild plants (Household 3, female, 47 years old).</td>
</tr>
</tbody>
</table>
Households reported 32 species of birds and mammals in total that are hunted in the community\textsuperscript{8} for food and participants recalled hunting 15 of those species in the three months preceding the surveys (Table 3). Because hunting depends on availability of species as well as on the skills of hunters and their dogs, what people most commonly hunted reflected a combination of these factors. For those households that did not hunt (47%), their reasons for not doing so included: 1) a lack of rifle or hunting dogs, 2) an observation of protected area hunting regulations, often referred to as the hunting law (\textit{la ley de la cazeria}), 3) a lack of time/ability to get out on the land, and/or 4) having no trained hunters in the house.

\textsuperscript{8} This number is an underrepresentation of the total number of species harvested. For instance, there are many species of small birds that were described as hunted but that were not hunted during the period of research; thus, these species were not identified. Furthermore, other bird and animal species were hunted for healing but were outside the scope of this study.
Table 3: Bird and animal species hunted in Bajo Coen.

<table>
<thead>
<tr>
<th>Bribri name</th>
<th>Scientific name (family)</th>
<th>Common name</th>
<th>% Households that consumed this species over last 3 months (August – October 2012)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mammals</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Káño’</td>
<td><em>Cuniculus paca</em> L. (Cuniculidae)</td>
<td>Paca</td>
<td>25</td>
</tr>
<tr>
<td>Sar</td>
<td><em>Allouata palliata</em> Gray (Atelidae)</td>
<td>Mantled howler monkey</td>
<td></td>
</tr>
<tr>
<td>Sinà sarùrù</td>
<td><em>Bradyurus variegates</em> Schinz (Bradyopodidae)</td>
<td>Brown-throated three-toed sloth</td>
<td>8</td>
</tr>
<tr>
<td>Sinà tsikiriri</td>
<td><em>Choloepus hoffmanni</em> Peters (Megalonychidae)</td>
<td>Hoffmann’s two-toed sloth</td>
<td>8</td>
</tr>
<tr>
<td>Tsawi</td>
<td><em>Dasypus novemcinctus</em> L. (Dasypodinae)</td>
<td>Nine-banded armadillo</td>
<td>14</td>
</tr>
<tr>
<td>Shùlè</td>
<td><em>Dasyprocta punctata</em> Gray (Dasyproctidae)</td>
<td>Agouti</td>
<td>14</td>
</tr>
<tr>
<td>Namù dalòlò</td>
<td><em>Herpailurus yaguaroundi</em> Geoffroy Saint-Hilaire (Felidae)</td>
<td>Jaguarundi</td>
<td>3</td>
</tr>
<tr>
<td>Skula’</td>
<td><em>Hoplomys gymnurus</em> Thomas (Echimyidae)</td>
<td>Armored rat</td>
<td></td>
</tr>
<tr>
<td>Namù</td>
<td><em>Leopardus pardalis</em> L. (Felidae)</td>
<td>Ocelot</td>
<td></td>
</tr>
<tr>
<td>Sűli mät</td>
<td><em>Mazama Americana</em> Erxleben (Cervidae)</td>
<td>Red brocket</td>
<td>6</td>
</tr>
<tr>
<td>Tsìi</td>
<td><em>Nasua narica</em> L. (Procyonidae)</td>
<td>White-nosed coati</td>
<td>8</td>
</tr>
<tr>
<td>Sűlı</td>
<td><em>Odocileus virginianus</em> Zimmermann (Cervidae)</td>
<td>Whitetail deer</td>
<td></td>
</tr>
<tr>
<td>Káchu’</td>
<td><em>Potos flavus</em> Schreber</td>
<td>Kinkajou</td>
<td>3</td>
</tr>
<tr>
<td>Animal</td>
<td>Scientific Name</td>
<td>Common Name</td>
<td>Page</td>
</tr>
<tr>
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<td>------</td>
</tr>
<tr>
<td>Skula'</td>
<td><em>Proechimys</em></td>
<td>Tome’s Spiny Rat</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><em>semispinosus</em></td>
<td>Tome</td>
<td></td>
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<tr>
<td></td>
<td><em>Tome</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Echimyidae)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skò batè</td>
<td><em>Sciurus</em></td>
<td>Variegated Squirrel</td>
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</tr>
<tr>
<td></td>
<td><em>variegatoides</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ogilby (Sciuridae)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sawë</td>
<td><em>Sylvilagus</em></td>
<td>Forest Rabbit, Tapeti</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>brasiliensis</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>L.</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Leporidae)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urrì</td>
<td><em>Tamandua</em></td>
<td>Northern Tamandua</td>
<td></td>
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<tr>
<td></td>
<td><em>Mexicana</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Saussure (Myrmecophagidae)</td>
<td></td>
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<td></td>
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<tr>
<td></td>
<td><em>Tapirus bairdii</em></td>
<td>Baird’s Tapir</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gill (Tapiridae)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kásir</td>
<td><em>Tayassu tajacu</em></td>
<td>Collard Peccary</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td><em>L.</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Tayassuidae)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reptiles</td>
<td><em>Boa constrictor</em></td>
<td>Boa Constrictor</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>L.</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Boidae)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Talók kuè</td>
<td><em>Chelydra</em></td>
<td>Central American Snapping Turtle</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>rossignonii</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bocourt (Chelyridae)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buà</td>
<td><em>Iguana iguana</em></td>
<td>Green Iguana</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>L.</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Iguanidae)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Birds</td>
<td><em>Crax rubra</em></td>
<td>Great Curassow</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>L.</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Cracidae)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manósh</td>
<td><em>Ortalis cinereiceps</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>J. E. Gray</td>
<td>Gray-headed Chachalaca</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Cracidae)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kaë</td>
<td><em>Penelope</em></td>
<td>Crested Guan</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>purpurascens</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wagler (Cracidae)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kayò</td>
<td><em>Pionus menstruus</em></td>
<td>Blue Headed Parrot</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>L.</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Psittacidae)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kayò</td>
<td><em>Pionus senilis</em></td>
<td>White-Crowned Parrot</td>
<td></td>
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<tr>
<td></td>
<td><em>Spix</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Psittacidae)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bitsík</td>
<td><em>Pteroglossus</em></td>
<td>Collard Aracari</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>torquatus</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gmelin (Ramphastidae)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tsiò</td>
<td><em>Ramphastos</em></td>
<td>Keel-Billed Toucan</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>sulfuratus</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lesson</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Species</td>
<td>Common Name</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------</td>
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<td></td>
<td></td>
</tr>
<tr>
<td><em>Ramphastos</em></td>
<td>Chestnut-mandibled toucan</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Selenidera</em></td>
<td>Yellow-eared toucanet</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Tinamus</em></td>
<td>Great tinamou</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All households reported eating wild meat; however, the frequency of consuming wild meat was difficult to quantify (Figure 2). This difficulty arose because people’s access to these meats depended upon many external factors; these factors included having access to the means to hunt, having interactions with people who share meat, and/or having the time to get out on the land. The unpredictability of eating wild meat was reflected in people’s responses to how often they ate forest meat. The majority of households (67%) responded they ate wild meat whenever there was meat available. Other households described eating meat as once every two weeks (8%), once a month (8%), and once every three months (11%), and/or that they were unsure (6%). Sylvester lived in a household with experienced and active hunters and ate wild meat on average two times per month over a period of nine months (from animals her household hunted or animal meat that was shared).
Figure 2: Frequency of wild food consumption (N=36 households).
All households reported harvesting and consuming wild plant foods and all households reported eating a variety of species of wild edible plants (Table 4). Specifically, household heads described eating wild plants because of their flavour, nutritional value, association with traditions and Bribri identity, medicinal value, as well as their availability when other foods are lacking; and, these reasons were not mutually exclusive (Table 2). The majority of households reported going in family groups (58%); other households reported going with their life partner (14%), or alone (either males harvesting alone 20% or females harvesting alone 8%). While Sylvester harvested plants with her colleagues, she found it most common to go out on the land in family groups of different sizes.
Table 4: Frequencing of wild plant (àr) consumption.

<table>
<thead>
<tr>
<th>Bribri name</th>
<th>Common name</th>
<th>Scientific name (family)</th>
<th>Plant part consumed</th>
<th>% Households that consumed this species</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dikórpo</td>
<td>Heart of palm</td>
<td><em>Bactris gasipaes</em> Kunth (Arecaceae)</td>
<td>Heart of palm</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Yawō</td>
<td></td>
<td><em>Chamaedorea tepejilote</em> Liebm. (Arecaceae)</td>
<td>Inflorescence</td>
<td>92</td>
<td>This species is bitter and households reported consumption on by members that enjoy bitter taste</td>
</tr>
<tr>
<td>Rpó</td>
<td>Fiddleheads</td>
<td><em>Cyathea sp.</em> (Cyatheaceae)</td>
<td>Fiddleheads</td>
<td>100</td>
<td>All household reported that youth eat this species</td>
</tr>
<tr>
<td>Balòkò</td>
<td></td>
<td><em>Phytolacca rivinoides</em> L. (Phytolaccaceae)</td>
<td>Leaves</td>
<td>97</td>
<td></td>
</tr>
<tr>
<td>Sànalwō</td>
<td></td>
<td><em>Urera baccifera</em> (L.) Gaudich. ex Wedd. (Urticaceae)</td>
<td>Flowers</td>
<td>86</td>
<td></td>
</tr>
</tbody>
</table>

Wild plant foods were harvested and consumed as a complement to Bribri diets in Bajo Coen; and, harvesting frequency commonly depended on the frequency people got out on the land or when these plants were available via food sharing. Some Elders described changes in the frequency of eating wild plants and provided examples of wild plants that are no longer commonly harvested (e.g., interviews with Ms. Anastasia Segura, Mr. Euterio Mayorga, and Mr. Ancelmo Díaz). However, despite changes in food
consumption, all households described how wild foods continue to be important (e.g., *Cyathea* sp.; Table 4).

**Wild food consumption and life-stage**

For the majority of households (94%), forest meat was described as something that everyone in the household eats, when it is available. Of these households, all of them described living with youth between the ages of 0-19 years. And, only two households explained that youth do not eat forest meat. In all but two households, household heads reported that people of all life-stages eat wild plants. Some Elders and parents who responded to household surveys mentioned that bitter plants were consumed only by those people who had acquired a taste for them or that youth rarely ate bitter wild plants. One example of such a bitter plant is Yawö (*Chamaedorea tepejilote*, Figure 3, Table 4).
Figure 3: The list of wild plants (ár) we asked if households consumed in surveys: A) Rpô or Cyathea sp. fiddleheads, B) Balôkô or Phytolacca rivinoides leaves, C) Yawô or Chamaedorea tepejilote inflorescence, D) Dikô or Bactris gasipaes heart of palm and inflorescence, and E) Sânalwô or flowers of Urera baccifera. All of these plants are harvested from the wild except Bactris gasipaes (D), a species that is widely cultivated. All of these photos are of plants harvested by Ms. Sebastiana Segura and/or Mr. Sabino Díaz.
During a traditional food workshop at the Coroma high school (26/10/12), youth shared more about their relationships with wild food. All 26 youth that attended the workshop described consuming wild plants and all but one youth described an example of wild meat they consume. Some youth described how they may not eat wild food at home but they do at their Elder’s or their relative’s homes.

Youth confirmed the finding revealed in household surveys that personal preferences shape what wild foods they choose to eat. Foods that were commonly mentioned as preferred wild food among youth included but were not limited to: 1) fiddlehead ferns (Cyathea sp.; Table 4), 2) collard peccary meat (Tayassu tajacu; Table 3), and 3) paca meat (Agouti paca; Table 3).

When Sylvester talked with youth about wild food consumption it often generated wider discussions about people’s relationship with, and appreciation of, Bribri culture. Mr. Gabriel Díaz, for instance, described how his pride in consuming Bribri food is associated with being proud to be Bribri. When Sylvester asked Mr. Díaz if he consumes àr (wild plant foods), he responded:

Yo pienso que mantener todo eso es importante la comida como àr, nuestras tradiciones, el idioma, porque de eso somos, somos Indígenas y de eso venimos. La comida para mi es importante porque no conocimos lo que es frijol en lata o atún de la pulperia; lo que conocemos es viene de aquí y me da gusto comerlo por eso. Otros jóvenes les da vergüenza o ya no les gusta comer la comida de aquí, la comida de la montaña, y ni siquiera quieren que la gente sabe que son Indígena; solo quieren asociarse con las cosas de afuera.

I think continuing all of that is important, food, like àr, our traditions, the language because we are made up of all these things, we are Indigenous people and that is where we come from. Food for me is important because we do not know what canned beans or tuna from the corner store are; what we know comes from here and because of that I am proud to eat it. Other youth are embarrassed or do not like to eat food form here, food from the forest, and
they do not even want people to know they are Indigenous; they only want to associate themselves with outsider things (interview on 07/08/12).

Despite the presence of youth ages 0-19 within the majority of households who consume wild meat and plants, and that youth discussed with Sylvester how wild food consumption is linked to their pride and appreciation of Bribri culture, youth also shared reasons why wild food consumption may be discouraged. In the passage above, Mr. Gabriel Díaz alludes to one of these reasons, i.e., that some youth do not value Bribri culture and as a result do not like to eat Bribri food. Other youth expressed concerns that members of their community are shifting towards a diet dominated by outsider (sikua) foods, foods that are highly processed and/or purchased from imported sources. A number of young colleagues suggested these dietary shifts were the result of a belief that outsider lifestyles are superior to Bribri lifestyles.

Sharing and purchasing wild food

The majority of households reported engaging in sharing as a way to access wild foods; however sharing was a relatively more common way to access meat than edible plants (Figure 2). Sharing took place among people within the same community as well as among people from neighbouring communities. For instance, a number of the families with whom Sylvester worked would share meat among neighbouring communities (either prepared or unprepared form). In some instances, family members would bring wild plant foods to Bajo Coen from other communities; however, sharing of wild food was most common within the community.

Sharing is not just part of wild food harvesting, but sharing food is inseparable from Bribri daily life in Bajo Coen (Sylvester shares an example of this in Box 1).
Sharing food, whether wild or cultivated, is part of daily visits with friends, neighbours, and family. And although sharing is important for all types of foods and recipes, sharing is critical for some people to access wild species because some of these species are not as easily accessible as cultivated species.
Box 1: Sharing food as a part of daily life

When I moved in with my host family in Bajo Coen, I spent most of time with this family doing everyday tasks. Soon after moving in, I started to wonder how I would meet other people to start building a network of research colleagues. Sharing food was one of the most important activities that allowed me to meet people and tell them about our project.

Although sharing food is a pastime of my own, the idea to bring food to people’s houses was not mine it was Ms. Sebastiana Segura’s (my host and my principal collaborator in Bajo Coen). While living with Ms. Segura I often helped her in the kitchen processing and preparing food. When a member of our household would hunt or harvest wild greens, we would prepare a number of Bribri recipes with these ingredients and Ms. Segura would often suggest we shared these Bribri recipes with her Elders. On April 13th 2012, soon after I moved to Bajo Coen, Ms. Segura was cooking stew with fiddlehead ferns or Rpó (Cyathea sp.) and paca or káno’ (Cuniculus paca) and she suggest I share some of this meal with her mother. So, before eating, I walked over to share a serving of this meal with her mother, Ms. Anastasia Segura.

April 13th, 2012 was the first time I went out to share food but it was not the last. Sharing became part of my daily routine. When I harvested any wild plants I would always remember to save some for my friends. I would often give wild plant foods to Elders or households that I knew loved these foods but who did not have time to get out into the forest. And, as people reading this may know, sharing is reciprocal. Almost every time I visited my friends’ homes, I would not leave empty handed. I would leave carrying root vegetables, bananas, or any seasonal harvest. And, frequently, people would send their kids to bring me a prepared traditional meal if they had recently hunted or harvested wild food.

Later in my stay in Bajo Coen, Ms. Sebastiana Segura explained that it was purposeful that she sent me off to share food with her family and friends; one of the reasons she did this was to help me build meaningful relationships. Ms. Segura explained that sharing food is an important part of Bribri life; it is part of a fundamental Bribri teaching about being generous (i.e., I tchábë tòk) and it is accompanied by important visits, visits that allow people to keep in touch and to check in with the health and well-being of others. All of these components of sharing food are central to Bribri daily life and were central to my process of building meaningful relationships with my colleagues.
Wild species may be hard to access for a few reasons. Some wild species require extensive knowledge to track. Finding many animal species can require tracking them for extended periods of time and/or know-how on how to find their whereabouts; thus only those with such expertise can access these species. Some wild species are hard to access because finding them requires frequent trips out on the land. Fiddlehead ferns, for example, grow where there have been recent land disturbances; only those people that frequently visit the diversity of land patches where these plants grow (e.g., forests, shifting fields) will know their whereabouts.

Some wild species are reported to be locally rare and colleagues explained how such species are rarely harvested or they are only harvested in small quantities; in cases where wild species are locally rare, sharing can be critical for some households to access these species.

Sharing wild foods can be important for user groups that have impediments to their access. In Bajo Coen, some of our female colleagues described limited opportunities to harvest wild species. Women can have constraints on their opportunities to travel to harvest food because they are limited for time due to household and work responsibilities. Our female colleagues reported that the following responsibilities limited their time and thus opportunities to get on the land to harvest wild species: working in agricultural fields (for household consumption and for export), tending to animals, cooking (both within households and within community schools), caring for young children, and attending to visitors. When working with women, Sylvester quickly realized that on a given day a female household head might be responsible for all of these activities.
Elders also reported limited opportunities to access wild food. Some Elders explained how their physical health could limit their ability to get out onto the land to harvest (e.g., interviews with Mr. Euterio Mayorga and with Ms. Anastasia Segura; Table 1). And, in these cases, sharing can be critical for Elders to access wild food. A young hunter, Mr. Rudy Sánchez, described how sharing meat affords access to Elders who may not have the ability to hunt. Specifically, he explained that when people in his family hunt they make sure to bring meat to his grandmother to ensure her access to this hard to obtain food (interview on 28/08/12). Ms. Sebastiana Segura provided another reason sharing was important for Elders. She explained how some community Elders do not eat imported meat, such as factory farmed chicken brought into her community for sale; thus, wild meat provides Elders both dietary variety and unique nutrients they may not access otherwise or only on occasion when people butcher farmed animals locally (interview on 29/04/12).

Lastly, some youth reported challenges to accessing wild foods and described how sharing was critical to secure this access; these challenges included: 1) a lack of opportunities to get on the land to harvest (due to work or school responsibilities) and 2) observation of protected area regulations, and 3) a lack opportunities to learn how to harvest wild species. One youth colleague, Mr. Gabriel Díaz Morales, recounted that if it were not for his grandmother sharing Bribri meals with him, he would not have learned to eat wild food. He also explained that he goes to school outside of Bajo Coen and does not have access to wild food where he goes to school. Furthermore, he explained, how his time to harvest is limited when he comes home on the weekends and so he likes to visit
his grandmother because she shares traditional Bribri meals with him, such as those prepared from wild plants and animals (interview on 07/08/12).

Three of the female household heads explained that they appreciate when wild foods are shared because it increases the opportunities for youth to be exposed to these foods; this exposure was reported to be especially important for foods that are either locally rare or rarely harvested (interviews with Ms. Sebastiana Segura, Ms. Nimfa Hernández, and Ms. Karen Hernández; Table 1). For example, on August 24th, 2012 Ms. Sebastian Segura and Sylvester visited a friend and this friend shared some freshly harvested wild palm flowers with them (flowers from Úshkalô or Cryosophila warsecwiczii). At home Sylvester and Ms. Segura prepared these flowers for lunch by roasting them and wrapping them in banana leaves. Ms. Segura was eager to have her young family members try this recipe because it was an example of a food that not many youth have the opportunity to eat.

The sale of wild food was not an activity observed in Bajo Coen during the nine months Sylvester lived there; nor did people mention the purchase of wild food as a way to access it in the household surveys. Near the end of Sylvester’s stay in Bajo Coen, however, one colleague mentioned purchasing wild meat (Sylvester field notes 06/10/12 and 09/11/12). The wild meat purchased was hunted locally and what was purchased was described as a small piece of an animal to prepare for family consumption. No one reported the sale of wild edible plants.

Although wild food markets were not common in Bajo Coen, colleagues described how outsiders come to harvest species from Bajo Coen and sell them in nearby towns. Colleagues explained how wild meat from Bajo Coen was sold in the town of
Bribri, the largest commercial center in the Talamanca Bribri region. Specifically, at the time of this research, there was a reported demand for tepezctuntle meat (*Agouti paca*) and fiddlehead ferns (*Cyathea sp.*).

**DISCUSSION**

Wild foods are important for millions of forest-dwelling people (Kuhnlein et al. 2013, Powell et al. 2013b, Arnold et al. 2011, Bharucha and Pretty 2010, Dieterle 2009, FAO 1999, Pimentel et al. 1997). Despite our knowledge that many people use wild species, and that wild species can be critical for health and cultural continuity, research is still greatly lacking on contemporary wild food harvesting systems. In the handful of studies on wild food use in forests, scholars have both taken inventories of these foods (e.g., Altrichter 2011) and analyzed their nutritional values (e.g., Powell et al. 2013a). We have very little information about how people access wild foods in forests (i.e., through harvesting, sharing, and/or purchase), how frequently people use wild food, and about youth’s relationships with wild food. This chapter was an attempt to understand these topics through a case-study in Bajo Coen, a Bribri forest dwelling-community.

**Wild food harvesting and consumption**

Our work in Bajo Coen confirms that although wild foods are important to people living in and around forests, they may not be consumed often (Powell et al. 2013a, Altrichter 2011, Sylvester & Avalos 2009). Because people do not eat wild foods frequently, scholars have concluded that these foods are mainly important as resource safety nets when other food is not available. The association of wild foods with resource shortages has given them the name famine foods (e.g., Grivetti and Ogle 2000). And, the strong association of wild foods with famine has resulted in scholarly discourses that
suggest wild foods are commonly used by the economically marginalized and/or those who experience seasonal famines that use wild foods (Delang 2006, Senaratne et al. 2003, Zinyama et al. 1990, Annegers 1973).

Our research illustrates that although wild foods harvested from forests are important economic safety nets, they are consumed for many reasons beyond famine or economic marginality. Our colleagues explained how consuming wild food is closely linked to: 1) people’s relationship with and appreciation of Bribri culture and Sibö, the Creator, 2) health, 3) a need for dietary variety, and 4) identity. These findings are important because they help illustrate why we need a broader perspective on wild food use; obtaining this broader perspective will require working with Indigenous people to understand the nuances of their relationships with wild foods.

Researchers have reported that Indigenous peoples are undergoing nutritional transitions; this means that traditional foods are rapidly being replaced with imported processed foods (Kuhnlein et al. 2013, Damman et al. 2008). Nutritional transitions are underway in Bajo Coen and this was a concern of many community members including the youth and Elders. Bajo Coen Elders explained how drastic increases in the availability of imported foods in the Bribri Territory have occurred in the recent past (around the past 50 years). Items that were once purchased only from remote stores (e.g., sugar, salt) are now more readily available in Bajo Coen. Even meat and industrially produced grains, items that in the past were all produced locally, are imported on a regular basis. All of

9 Households in Bajo Coen have opened up small grocery stores; to stock their stores they travel to places like Suretka to purchase food including meat from factory farms that is imported from other parts of the country (e.g., Pipasa or Pollo Rey). Furthermore, there are mobile meat vendors that travel, often by horse, into Bajo Coen selling both factory farmed and locally raised meat.
these imported foods are available at all the small community stores in Bajo Coen; and these imported foods are also shipped into the community to be cooked and served at the community schools through state-sponsored school food programs.

Despite the increased availability of imported foods, our findings illustrate that for households in Bajo Coen wild foods are highly valued and their consumption is widespread (across households and generations). The continued use of wild food, despite nutritional transitions, is due in part to 1) people’s special relationships with wild food (e.g., Table 2) and 2) the fact that wild food harvesting is central to many aspects of daily life (e.g., social bonding and cohesion, connecting with the land and non-human beings) beyond their role in caloric intake and economic security.

**Wild food consumption and life-stage**

Scholars have suggested that Indigenous youth lack interest in wild or traditional foods for a number of reasons, including: changing food preferences, loss of knowledge about traditional foods, or stigmas associated with traditional foods (e.g., Dweba & Mearns 2011, Shava 2000). Although our research illustrated how some youth have preferences for outsider food, many youth consume and harvest wild food (all but two households reported that youth consume wild meat and plants). Working with youth individually revealed how some young people’s choices to enjoy wild food were due, in part, to their appreciation and valuation of Bribri culture. Other youth explained how some members of their generation place higher value on outsider food, food that is processed and/or part of a typical western diet; scholars have described similar trends in other Indigenous communities across the globe (e.g., Damman et al. 2008, Kuhnlein et al. 2004).
Sharing and purchasing wild food

Sharing food is often part and parcel of many people’s daily lives (Collings et al. 1998); however, the importance of food sharing is often overlooked in research on Indigenous food systems. Scholars have said this oversight is due, in part, to researchers focusing on quantifying what people harvest and not paying attention to the social dimensions of food harvesting systems (Collings et al. 1998). Our work demonstrates how sharing was an important pathway for many households to access wild food. Sharing was especially important for households to access wild meat; this is because not all households hunt but all households reported consuming wild meat (when available). Our work also revealed how sharing can be important for unique reasons for some Elders, women, and youth. Elders, for instance, reported limited opportunities to get out on the land due to physical limitations. Women reported how high levels of work near dwellings can limit their opportunities to harvest in forests. And, youth explained how school and work commitments, and a lack of opportunities to get out on the land with skilled harvesters can challenge their opportunities to access wild food.

In the context of the current market economy, sharing becomes increasingly important for people to access wild food. The majority of Bajo Coen residents work in agriculture for their primary cash income (92% of households surveyed) and all households in Bajo Coen earn a portion of their cash income from agriculture. Working in agriculture and other jobs has implications for where people spend their time and to what foods they commonly have access. For instance, the majority of households in Bajo Coen work in banana and plantain agriculture for their primary cash income (92% of households); these crops are grown in the lowlands meaning people spend time in these
land patches for work. That Bribri agriculture patches are often polycultures means people have access to many wild plants even in their agricultural plots; despite this, market agriculture can limit the time people can spend in forests. Although many of our colleagues made time to go to the forest despite heavy workloads, this was not the case for everyone. Thus, in cases where people may have high workloads near dwellings (e.g., women), school and other responsibilities (e.g., youth and other adults completing high school), sharing food can be critical to access the wild species found only in distant land patches (e.g., forest interiors).

In Bajo Coen, it was not common for people to purchase wild food. But, the forests of Bajo Coen do supply an outsider market for wild species, a trend reported in Costa Rica and elsewhere for wild species (e.g., Sylvester & Avalos 2009, Suarez et al. 2009). Understanding the impacts of these outsider markets on Bribri people’s harvesting and food access merits further investigation, especially because the impacts of these markets on wild species are unknown.

**Limitations of this research**

There were a few limitations of the data collection tools used in this chapter. It was difficult to document the frequency of wild food consumption through household surveys. People most commonly reported consuming wild plants and animals when they were available. These responses were reflective of the many factors that shape access and availability of wild food (e.g., the non-human protectors of the animals, people’s opportunities to get on the land, people’s access to rifles or dogs for hunting). Sylvester’s lived experience in the community provided a metric to corroborate the approximations people provided in the households surveys; however, this was only for the households she
lived in. More nuanced consumption frequency data would be best gathered through techniques that allow each household to document their own wild species consumption over an extended period of time.

It was also challenging to collect accurate data on youth’s consumption of wild food using household surveys. When household surveys respondents were Elders, it meant these Elders responded on behalf of youth. Having other people respond for youth runs the risk of misrepresenting youth’s consumption patterns (similar problems have been reported when men respond for women during data collection; Pfeiffer & Butz 2005). Fortunately, in some cases youth volunteered to respond to survey questions (26 % of the time) and some youth were present when we carried out surveys; both of these scenarios facilitated data collection about youth’s food consumption. We found that surveys gave us a general understanding of consumption but that comprehending youth’s relationships with wild food required using other methods (e.g., individual interviews and discussion during a workshop).

Household surveys may also have underestimated the number of youth that take part in hunting. In the surveys we asked who in the house hunts but failed to ask about all the people in the house that go on hunting trips. The hunters Sylvester worked with explained how youth will travel out on the land during hunting trips often before they even learn how to hold a rifle. On these trips, youth learn many skills about the forest and about tracking animals before they are invited to harvest an animal themselves; these are steps that researchers should consider when documenting the frequency of hunting via household surveys. To correct for this oversight in future research, it is important to
understand hunting as a process rather than an event such as the tracking or harvesting of an animal; and, to ensure these nuances are reflected in surveys.

Lastly, it was challenging to record the gendered composition of harvesting groups using household surveys. Drafts of our household surveys were created before Sylvester lived in Bajo Coen. And, although she reviewed these surveys with community members and Elders, the surveys were designed mainly based on her narrow understanding of food harvesting. For instance, the surveys were designed to ask people “who harvests wild plants?” and “who hunts?”. These questions were often interpreted as who goes on the land to track and harvest a species. In the surveys we did not ask, however, who prepared wild plants or who prepared wild meat, activities that are often done by females (e.g., Peers 1996, Dahlberg 1981). To ensure we did not overlook key contributions women make to household food access, we examined gender and wild food harvesting in more detail elsewhere (see the following chapter of this thesis).

CONCLUSIONS

In this chapter, we examined 1) why people consume wild food, 2) the frequency of wild food harvesting and consumption, 3) generational consumption patterns of wild food, and 4) the mechanisms by which households access wild foods. Our results confirm the results of past research that wild foods harvested from forests are not consumed often (e.g., Powell et al. 2013). At the same time our findings provide new information on the following topics: 1) the extent of wild food consumption by household and by life-stage and 2) the frequency of, and rational for, wild food sharing. Specifically, our findings reveal that all households (and members of all generations) consume both wild plants and wild meat (variation in species consumption was reported to depend on personal
preference for certain species). That all households, and members of all generations, consume wild food is an important finding, especially in light of the nutritional transitions that are ongoing in the Talamancan Bribri Territory and the widespread availability of imported food in this region. Our findings illustrate that, in part, the continued use of wild plants has to do with many reasons beyond caloric need or economic necessity; wild food use is intrinsically linked to identity, people’s health, flavour preferences, dietary variety, and people’s relationships with Sibó the Bribri Creator. Our findings further revealed how sharing was an important pathway to access wild food, especially wild meat because not all households hunt. More specifically, sharing was described as important for Elders, women, and youth to access wild food because members of these groups can have unique barriers to wild food (e.g., health constraints, high workloads and responsibilities near dwellings). Our findings on the species people use, the extent households use these species, the generational and social groups that benefit from wild food, and the reasons people consume wild food are all relevant to creating forest management and conservation directives that support Bribri people’s continued access to wild food.

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INTERCONNECTIONS AMONG CHAPTERS

Chapter 5 examines how gender shapes access to wild food harvested from forests. The analysis I present in this chapter builds upon the analysis in chapter 4, i.e., household access to wild food. In chapter 4 my analysis was limited to the resource appropriate stage of harvesting (e.g., capturing an animal and/or picking a plant). Because access to food involves multiple stages (i.e., from preparation for harvesting to food sharing), I outline these stages and describe their gender dimensions in Chapter 5.
Chapter 5: Complex Relationshis among Gender and Forest Food Harvesting:

Insights from the Bribri Indigenous Territory, Costa Rica

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ABSTRACT

To contribute to ethnobiology theory and to inform forest management, we analyzed gender and wild food harvesting in forests. Working with Bribri women and men, we examined gender across multiple harvesting stages (e.g., from pre-harvest to food sharing). We found that no single harvesting stage was exclusive to members of one gender and mixed gender harvesting groups were common; these findings challenge generalizations that women and men engage in different harvesting tasks and bring attention to the importance of gendered collaboration. We highlight overlooked contributions that women and men make to wild food harvesting systems (e.g., women’s participation in all harvesting stages and men’s wild plant harvesting). Finally, to understand the nuances of gender, we needed to understand how other variables interact with gender to shape who engages in a given harvesting activity; these factors included: health, opportunities to harvest, personal relationships, work responsibilities, knowledge, and motivation to harvest.

Keywords: ethnobiology, forest-dwelling people, forest foods, hunting, wild plants

INTRODUCTION

Women and men can be associated with different harvesting activities (Stloukal et al. 2013, Mai et al. 2011, Camou-Guerrero 2008, Pfeiffer and Butz 2005, Howard 2003, Dahlberg 1981, Draper 1975, Murdock & Provost 1973). Some of the most commonly discussed differences are those associated with hunting and gathering. Specifically,

Although women and men can engage in different harvesting activities, these differences are not consistent across or within cultural groups (Shackleton et al. 2011, Pfeiffer & Butz 2005, Neumann & Hirsch 2000). Despite this lack of consistency, there are widespread generalizations in the ethnobiology, forestry, and related literatures about women’s and men’s wild harvesting roles (e.g., Stloukal et al. 2013); often, these generalizations are rooted in simplistic and erroneous sex-based stereotypes (Pfeiffer & Butz 2005, Brightman 1996). Scholars have critiqued the simplistic generalizations about gendered harvesting because these generalizations are not universal across cultures or within cultures (Pfeiffer & Butz 2005, Brightman 1996, Goodman et al. 1985). For instance, although women are associated with gathering in some cultural groups, in others men have been associated with this activity (Dahlberg 1981, Draper 1975). Similarly, although men are commonly associated with hunting, fishing, and gathering animal products, women also engage in these activities (e.g., Shackleton et al. 2011, Noss & Hewlett 2001, Goodman et al. 1985).

The complexities of gendered harvesting may go unnoticed for different reasons. One reason the complexities of gendered harvesting may go unnoticed is because of researchers biases about gender. Scholars have explained how researchers may fail to inquire about an individual’s participation in a harvesting activity because of their preconceived notions about what activities men and women do (Kothari 2003). For
example, the extent of a woman’s plant harvesting skills may be overlooked when researchers assume women’s activities are limited to the household or domestic sphere (Howard 2003, Turner 2003). Another reason the complexities of gendered harvesting may go unnoticed is because there is a history of undervaluing women’s contributions to food harvesting (Pfeiffer & Butz 2005, Howard 2003, Peers 1996). Laura Peers describes how the early literature about Salteaux food systems focuses mainly on hunting and fishing; as a result, a suite of foods harvested by women are erroneous presented as “being supplemental or incidental to the diet” (1996: 42). Peers explains how a history of outsider descriptions of Salteaux food systems give readers the impression that the food’s women harvest are of little value, when in fact the food women harvested was consumed year round, with high frequency, and was critical during meat shortages. As this example illustrates, the undervaluation of women’s harvesting can perpetuates erroneous stereotypes about women’s contributions to harvesting; furthermore it can result in inaccurate portrayals of the integrity of Indigenous food systems.

A history of gender bias and misrepresentation of women’s harvesting activities necessitates new conceptual approaches to understand gender and food harvesting (Pfeiffer & Butz 2005). In developing our conceptual approach, we were guided by two themes. First, we did not make a priori assumptions about gendered differences based on sex-based stereotypes prevalent in the food harvesting literature. Instead, Bribri teachers guided our understanding of gender to ensure our research accurately represented Bribri harvesting; this helped to ensure our work was influenced minimally by outsider assumptions about gender and wild harvesting. Second, we examined gendered participation in wild harvesting across different harvesting stages (e.g., from pre-harvest
to food sharing) a framework used in food systems analyses (e.g., Friedland 2001). In the ethnobiology and forestry literature, research has conventionally focused on the gendered dimensions of the resource appropriation, i.e., the stage where people pick a plant, gather a product, or capture an animal (e.g., Camou-Guerrero 2008) or the gendered knowledges regarding species use (e.g., Hanazaki et al. 2000). In a small body of literature, however, scholars have illustrated how an analysis of multiple harvesting activities is critical to understand the full gendered contributions to a food harvesting system; we have identified examples of these harvesting activities as: preparing to harvest, tracking, gathering, capturing species, processing, preserving, cooking, sharing, marketing, and sale (Lowassa et al. 2012, Shackleton et al. 2011, Ohmagari & Berkes 1997, Peers 1996). Examining different harvesting stages was important to ensure we: 1) captured the diversity of ways women and men contribute to wild food harvesting and 2) described Bribri harvesting accurately as an integral system.

We applied this conceptual approach while working with wild food harvesting in forests. Although forests are widely recognized as key sites of wild food harvesting, there are few contemporary case studies that have examined this in relation to gender (FAO 2014, Gurung, 2011, Mai et al. 2011). Despite this lack of research, patterns about gender and wild food harvesting have been drawn from a small number of contemporary case studies from select regions in the world (e.g., Stloukal et al. 2013). As gender scholars have clearly illustrated, conclusions about gender cannot always be transferred from one cultural group to the next or even from one community to the next (Pfeiffer & Butz 2005, Mukhopadhyay & Higgins 1988, Myers 1988, Goodman et al. 1985, Dahlberg 1981).
Thus, it is our goal to provide information to better inform the patterns being generated about wild food harvesting in forests, using a nuanced analysis in one region.

To achieve our goal, we worked with members of the Bajo Coen Bribri community in the Talamanca Bribri Indigenous Territory, Costa Rica. Bajo Coen is an interesting site to examine gender and wild food harvesting for different reasons. First, Bajo Coen is one of many forest-dwelling communities in the Talamanca Bribri Territory where wild food is central to food systems. Second, gender and forest food harvesting has not been examined in detail in the published literature for Talamanca Bribri people. Our main objective was to examine the diversity of women’s and men’s wild food harvesting activities and we did so by examining resource harvesting across multiple stages. Additionally, we made note of any gendered barriers to participation in wild food harvesting. Working in one community allowed us to take time to explore the nuances of gender with the goal of accurately representing the integrity of Bribri food harvesting systems.

**Methodology**

**Talamanca Bribri Indigenous Territory and Bajo Coen community**

Our work took place in the Talamanca Bribri Indigenous Territory (hereafter the Talamanca Bribri Territory). There are 7,772 Bribri people living in the Talamanca Bribri Territory (INEC 2013) and, Bribri people have lived in the Talamanca region since time immemorial. Within this Territory, we worked with members of the Bajo Coen community. Bajo Coen is a community of approximately 45 households located in Alto

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10 We applied a binary view of gender to this research, i.e., one that focuses on two sexes (female and male); however, we acknowledge the multiple and non-dichotomous genders.
Talamanca. Like other communities in Alto Talamanca, Bajo Coen’s residents work in agriculture and these residents use forests for all aspects of their food systems (e.g., fuel, water, food).

**Research partnership and the Sëbliwak women’s group**

The objectives of this research were developed collaboratively among authors and emerged out of a partnership formed between García and Sylvester in 2009. In 2012, Mr. Alí García facilitated Sylvester’s collaboration with members of Grupo de Mujeres Sëbliwak (The Sëbliwak Women’s Group, herein The Sëbliwak Group). This group is composed of nine females (including their male partners and families) and one male. As a group we developed a research partnership based on the Bribri principle, Ulàpeitök, a Bribri concept related to sharing. This Bribri concept was the guiding concept for sharing regarding: 1) how to work together in a good way and 2) the work needed to complete the project.

**Information gathering procedures and research colleagues**

Participation was our primary information gathering method. García and our Bribri colleagues requested we use participation because 1) it is a traditional Bribri way of teaching about harvesting and 2) it ensured Sylvester experienced harvesting in a sensory way, a way necessary for her to write about these Bribri practices. Using participation as a method involved two main elements. First, Sylvester lived in the Bajo Coen community with a Bribri family for a consecutive period of nine months in 2012 (March-December) and a total of two weeks in 2013 (in May and December). Living with a Bribri family allowed Sylvester to experience the elements of food harvesting that
take place before and after people go out on the land to hunt or gather plants (e.g., harvesting preparation or food processing) and the harvesting activities that take place when work on the land is over (e.g., cooking, food sharing). The second element of using participation as a method was harvesting with Bajo Coen community members. Specifically, Sylvester worked with 16 community members (Table 1) in export and local agriculture, wild food harvesting, and hunting. When Sylvester worked with the Sébliwak group (at least 3-4 times per week), she also: joined people on visits to friends and family, accompanied people to the doctor, worked in community schools preparing food for children, and worked at home feeding animals, cleaning the house, and preparing food in the evening. Because Sylvester was not often invited to go hunting, she went on the land with three hunters and visited some of their hunting routes. To learn during participation, Sylvester recorded field notes daily by hand; the themes and concepts found in field notes were reviewed with research colleagues to verify Sylvester’s understanding of Bribri harvesting.

In addition to participation, interviews and group discussions were used. Our interviews were semi-structured and done in using a conversation method, a method that shows respect for story and respects participant’s right to control what they wish to share with respect to the research (Kovach 2009). Fifteen conversation type interviews were completed with ten community members (5 females, 5 males; Table 1) in participants’ homes, during field walks, during work on the land, or in locations of our colleagues’ choosing. Four of these interviews took place during family harvesting trips. It should be noted that many visits are associated with these interviews (prior to and after conversations). These visits were part of the methodology we developed using Bribri
teachings. Thus, it is important to understand these interviews do not stand alone instead, but are part of frequent visits Sylvester made to each of our colleagues households to: 1) ensure colleagues had the chance to follow up on research themes and 2) Sylvester could review and verify her understanding of people’s teachings throughout this project.

Lastly, Sylvester held group discussions during regular Sébliwak group meetings (Table 1) to discuss our project and during these meetings Sylvester was given space to follow up with participants’ about some of the themes discussed in this chapter.
Table 1: List of people who participated in this research.

<table>
<thead>
<tr>
<th>Name</th>
<th>Affiliation</th>
<th>Interviews</th>
<th>Participation in group discussions (frequency and dates)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ms. Ana Grisel Díaz</td>
<td>Sëbliwak women’s group</td>
<td>05/11/12</td>
<td>5 occasions (25/03/12, 16/04/12, 01/05/12, 07/11/12, 29/05/13)</td>
</tr>
<tr>
<td>Mr. Gabriel Díaz</td>
<td></td>
<td>07/08/12</td>
<td></td>
</tr>
<tr>
<td>Mr. Sabino Díaz</td>
<td>Sëbliwak women’s group</td>
<td></td>
<td>5 occasions (25/03/12, 16/04/12, 01/05/12, 01/08/12, 07/11/12)</td>
</tr>
<tr>
<td>Mr. Adenil García</td>
<td>Sëbliwak women’s group</td>
<td></td>
<td>4 occasions (25/03/12, 16/04/12, 01/05/12, 07/11/12)</td>
</tr>
<tr>
<td>Mr. Hernan García</td>
<td>Sëbliwak women’s group</td>
<td></td>
<td>5 occasions (25/03/12, 16/04/12, 01/05/12, 01/08/12, 07/11/12)</td>
</tr>
<tr>
<td>Ms. Alejandra Hernández</td>
<td>Sëbliwak women’s group</td>
<td></td>
<td>4 occasions (25/03/2012, 16/04/2012, 01/05/2012, 07/11/2012)</td>
</tr>
<tr>
<td>Ms. Karen Hernández</td>
<td>Sëbliwak women’s group</td>
<td>20/7/12</td>
<td>3 occasions (25/03/2012, 16/04/2012, 01/05/2012)</td>
</tr>
<tr>
<td>Ms. Nimfa Hernández</td>
<td>Sëbliwak women’s group</td>
<td>21/04/2012</td>
<td>6 occasions (25/03/2012, 16/04/2012, 01/05/2012, 07/11/2012, 29/05/13, 16/12/13)</td>
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<tr>
<td>Mr. Saul Lek</td>
<td>Sëbliwak women’s group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ms. Ana Yorleni Morales</td>
<td>Sëbliwak women’s group</td>
<td>09/11/12 and group interview 20/06/12</td>
<td>4 occasions (25/03/2012, 16/04/2012, 07/11/2012, 29/05/2013)</td>
</tr>
<tr>
<td>Ms. Vicenta Morales</td>
<td>Sëbliwak women’s group</td>
<td></td>
<td>4 occasions (25/03/2012, 16/04/2012, 07/11/2012, 29/05/2013)</td>
</tr>
<tr>
<td>Name</td>
<td>Organization</td>
<td>Date of Interview</td>
<td>Notes</td>
</tr>
<tr>
<td>-----------------------------</td>
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<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>Mr. Bernardo Sánchez</td>
<td>Sëbliwak women’s group</td>
<td>06/05/12 and group interview 20/06/12</td>
<td>2 occasions (25/03/2012, 01/05/2012)</td>
</tr>
<tr>
<td>Mr. Rudy Sánchez</td>
<td></td>
<td>28/08/12</td>
<td></td>
</tr>
<tr>
<td>Ms. Anastasia Segura</td>
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<td>-</td>
<td></td>
</tr>
<tr>
<td>Ms. Sebastiana Segura</td>
<td>Sëbliwak women’s group</td>
<td>29/04/12, 03/05/12, 31/08/12, a follow-up interview on 14/12/13, and group interviews on 26/03/12, 01/05/12, 14/07/12, 07/08/12, and 31/08/12</td>
<td>7 occasions (25/03/12, 16/04/12, 01/05/12, 01/08/12, 07/11/12, 29/05/13, 16/12/13)</td>
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<tr>
<td>Mr. Juradir Villanueva</td>
<td>Resource guard, member of the Bajo Coen community council</td>
<td>01/11/12</td>
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</tbody>
</table>

**Gender sensitive methodology**

We took important steps to ensure our methodology was gender-balanced and gender sensitive; this meant Sylvester worked with both men and women and was sensitive to both genders’ social and economic realities (Pfeiffer & Butz 2005). The women Sylvester worked with explained how they were limited for time to participate in my research. These women asked Sylvester to help with their workloads which gave them either more free time to participate in this project and/or gave people a chance to complete interviews while doing other work.

**Information analysis**

Information and patterns emerging from Sylvester’s field notes were reviewed and analyzed first with Ms. Sebastiana Segura, Sylvester’s main teacher. When Sylvester left Bajo Coen, information (field notes, interview transcripts) was further analyzed using
qualitative coding using codes that were selected after leaving Bajo Coen (i.e., a priori coding by topic; Creswell 2014; Ryan & Bernard 2003). These codes were each of the wild food harvesting stages Sylvester was taught: 1) “pre-harvest”, 2) “gathering”, 3) “tracking and capturing animals”, 4) “processing and preparing”, and 5) “sharing”. These codes were used to organize the results section of this chapter.

Research ethics

Elders in the Bajo Coen community, the local government (Consejo de Vecinos), and the University of Manitoba Joint-Faculty Research Ethics Board approved of this study. The regional Bribri government (ADITIBRI) was informed of the Bajo Coen community representatives’ decisions to participate in this research. All research colleagues provided their ongoing, informed consent and chose to have their names beside the insights they shared. Ms. Sebastiana Segura and her son Mr. Edder Díaz provided their consent to include the story in Box 1 in this chapter.

Findings

We used the following stages to organize our discussion about wild food harvesting 1) pre-harvest, 2) hunting and gathering, 3) transformation, and 4) sharing. While we were mindful of making links to existing work on Indigenous food systems, we used categories that best reflected Bribri harvesting stages. Within these stages, we described the activities our colleagues engaged in and that were taught to Sylvester (Table 2). We occasionally refer to the terms near and far spaces\textsuperscript{11}; these are distinctions expressed by our Bribri colleagues. Near spaces are those close to people’s dwellings and

\textsuperscript{11} García-Serrano and del Monte (2004) also refer to near and far spaces when describing Bribri harvesting.
can include home gardens, fields, forest margins. Far spaces are those that take the greater part of the day to travel to and back; these spaces can include some forest and agricultural land patches.
Table 2: The gendered dimensions of wild food harvesting.

<table>
<thead>
<tr>
<th>Harvesting stages</th>
<th>Specific activities</th>
<th>Trends observed in gendered participation</th>
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</thead>
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<tr>
<td><strong>Pre-harvest</strong></td>
<td></td>
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<tr>
<td>Encourage people to harvest wild food</td>
<td>Women and men</td>
<td></td>
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<tr>
<td>Preparation for harvest trip</td>
<td>Women and men</td>
<td></td>
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<tr>
<td><strong>Yëblök or looking for food</strong></td>
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<tr>
<td>Harvesting wild plants in near spaces</td>
<td>Women and men</td>
<td></td>
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<tr>
<td>Harvesting wild plants in far spaces</td>
<td>Women and men</td>
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<tr>
<td>Tracking and capturing wild animals in near spaces</td>
<td>Women and men; men’s participation more common</td>
<td></td>
</tr>
<tr>
<td>Tracking and capturing wild animals in far spaces</td>
<td>Women and men; men’s participation more common</td>
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</tr>
<tr>
<td><strong>Transformation</strong></td>
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<tr>
<td>Processing</td>
<td>Peeling fruits, processing leaves and other plant parts</td>
<td>Women and men; women’s participation more common</td>
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<tr>
<td>Skinning and butchering animals</td>
<td>Women and men; women’s participation more common</td>
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<tr>
<td><strong>Cooking</strong></td>
<td>Smoking and/or cooking meat</td>
<td>Women and men; women’s participation more common</td>
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<tr>
<td>Cooking wild plants</td>
<td>Women and men; women’s participation more common</td>
<td></td>
</tr>
<tr>
<td><strong>Sharing</strong></td>
<td>Sharing unprocessed meat</td>
<td>Commonly men</td>
</tr>
<tr>
<td>Sharing unprocessed wild plants</td>
<td>Women and men</td>
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<tr>
<td>Sharing prepared wild recipes</td>
<td>Commonly women</td>
<td></td>
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</tbody>
</table>
**Pre-harvest**

There are a few activities that can occur before a person sets out to harvest a wild species; these activities include: communicating with non-human beings, reading the weather and/or the moon, preparing machetes, acquiring a rifle, and preparing food for a harvesting trip. Members of either gender carry out many of these activities. There were a few activities that were predominantly done by members of one gender. For instance, men would often acquire or prepare rifles and women would often prepare the food for a harvesting trip. Overall, however, preparatory activities for a harvesting trip are cooperative among family groups and/or groups of harvesters.

One aspect of the pre-harvest that does not receive much attention is the conversations that take place to motivate people to harvest wild species; and scholars have illustrated how women’s participation in these conversations can be important to ensure household access to wild meat (Lowassa et al. 2012). In Bajo Coen Sylvester was more often privy to women’s pre-harvest conversations. Specifically, four of the women she worked with described motivating their male partners or relatives to hunt and/or harvest forest foods; in all of these cases, these women described either not hunting themselves or having limited time to hunt or join a hunting trip. Other women described asking male partners or male relatives to gather wild plant foods for them when their time was limited; examples of these wild plant foods were either those harvested either from near spaces (e.g., peach palm, Bactris gasipaes, fruits harvested from home gardens) or far spaces (e.g., wild greens harvested from forests or swidden fields). For instance, colleague Ms. Sebastiana Segura explained how she enjoys preparing wild meat and
plants for her children because these foods nutritious and important for young people to learn about their culture. To ensure she has access to wild species, Ms. Segura explained how she encourages her male partner to hunt and, while hunting, to search for wild greens. She told Sylvester that it is not always necessary for her partner to bring her a lot of meat, but rather to bring her something Bribri that she could share with her family (interview 29/04/12).

Some of the men Sylvester worked with confirmed women’s participation in motivating wild harvesting. One hunter, Mr. Rudy Sanchez, explained how his grandmother encourages him to hunt wild animals when she wants to prepare a Bribri recipe or when other meat was scarce (interview 28/08/12). Even the young male children that were learning to hunt in spaces near dwellings told Sylvester they were motivated to hunt to bring Bribri food to their mothers or grandmothers. For instance, people from ages seven to 18 years old described attempting to catch wild animals such as small fish or mammals (e.g., squirrels or small birds) to make their mothers and/or grandmothers happy.

_Yéblö́k or looking for food_

_Yéblö́k_ is a Bribri word that refers to looking for something that is not near someone. Often _yéblö́k_ is translated to hunting; however, it can refer to looking for other things such as plant foods and medicines. We have focused on two wild food procurement activities that are part of this stage of harvesting: gathering plant food and hunting.

_Gathering plants_
In the published literature, gathering wild plants is primarily associated with women and occasionally with children (Wan et al. 2011, Neumann & Hirsch 2000, Dahlberg 1981). Our findings illustrate, however, that gathering is a mixed gender and cooperative activity. Sylvester’s experience harvesting with women and men corroborates these trends revealed in our household surveys. Most commonly, when she was invited to go out on the land, it was in family groups (either male and female partners and/or these partners with their children).

Although collaborative harvesting was common, it was not always the case. Some women explained how they would harvest some wild food alone. This was the case, for instance, for two single mothers Sylvester worked with. Some women also explained how they would occasionally ask their male partners or relatives to gather wild plants for them. Two female colleagues discussed scenarios when they requested their male partners to gather wild plants for them:

Ya voy a buscar ár pero a veces no puedo ir y pregunto a [mi compañero] que me traes…si el va a la montaña o va a trabajar yo le pido que busca rpó o balôko para que lo comemos aquí.

I gather wild plants but sometimes I can not go and I ask my partner to bring me some…if he goes to the forest or he goes to work I ask him to look for fiddle heads or balôko [leaves] so that we can eat them here (interview with Ms. Sebastiana Segura 03/05/12).

Tengo que ir a sembrar frijol maíz, cuidar a mis chanchos, buscar leña para cocinar y yo lo hago...pero como puedo dejar a los hijos o a mis animales, no tengo tiempo siempre a andar en la montaña; por eso pregunto a uno de mi familia, como mi tío, que me busca comida o medicinas en la montaña.

I have to go and plant beans or corn, take care of my pigs, and look for firewood to cook and I do it all…but how can I leave my kids or my animals, I do not always have time to go to the forest; therefore, I ask one of my family members, like my uncle, to go to the forest for me to look for food or medicines (Ms. Nimfà Hernández, interview 21/04/2012)
Because of the strong associations between women and gathering in the published literature, Sylvester was curious if men had always participated in gathering or if men’s gathering was something more recent in Bajo Coen. She thought that men’s gathering could be related to a women’s lack of time due to their participation in wage labour agriculture (Budowski & Borge Carvajal 1998), an activity that women reported is more common for women to engage in now as compared to the past. When Sylvester brought up this topic with her colleagues, they explained that although wage labour does further limit women’s time, men have always gathered wild plants either alone or cooperatively with women.

In the literature, gendered gathering has been differentiated by space. Women’s gathering is often described in spaces close to dwellings such as home gardens (e.g., Price 2008, Howard 2003, Wilson 2003). And, harvesting in far spaces, such as forests can be more strongly associated with men (Goebel 2003, Howard 2003). In Bajo Coen, although some women described harvesting plants closer to dwellings more frequently because of barriers to travel to far spaces (e.g., responsibilities near dwellings; Table 2), other women, described how they find time to travel to far spaces despite responsibilities. When Ms. Sebastiana Segura would travel to the forest with Sylvester to harvest, for example, she would occasionally request that someone come to her house to look after her responsibilities such as attending to any visitors and to prepare food for the family. Ms. Ana Yorleni Morales explained that although she has to balance childcare, work in banana agriculture, her high school studies, and other household responsibilities, she enjoys making time to harvest in forests. Ms. Morales explained how she enjoys going to
the forest, to harvest food, for work tasks such as palm leaf harvesting (i.e., *cargar bultos*), and for leisure (interview 09/11/12).

Who gathers food plants can also depend upon a person’s knowledge on how to harvest a plant species. Three of our young colleagues (Mr. Gabriel Díaz, Ms. Ana Grisel Díaz, Ms. Ana Yorleni Morales) explained to Sylvester how they gather some, but not all, wild plant foods. On August 3rd, 2012, Ms. Ana Grisel Díaz brought Sylvester an inflorescence of *Tchämâwö* (*Carludovicá sp.*, Cyclanthaceae) so she could try this species; this sharing of food led to a conversation about the different wild species Ms. Díaz harvests. Ms. Díaz described how her male partner harvested the *tchämâwö* inflorescence while out working clearing the walking path (*limpiando camino*) that connects communities. She explained this is one example of wild food that she does not have experience finding, harvesting, and preparing; and, she told Sylvester how there are other species like *tchämâwö* that she has not learned to harvest.

*Tracking and capturing animals*

In the published literature, scholars have described how tracking and capturing animals are activities that are often associated with men (Pfeiffer & Butz 2005, Brightman 1996, Myers 1988, Dahlberg 1981). In Bajo Coen, our colleagues described tracking and catching animals as mainly male activities, activities that can be done alone or in small groups (e.g., with another hunter or with a younger male learning to hunt). Although males were mainly associated with tracking and capturing, women were also involved in these activities. For instance, all the Bribri women Sylvester worked with
described joining hunting trips in an activity they called *acompañar*, a term that translates as walking with or accompanying.

The term *acompañar*, however, does not adequately describe women’s contribution to tracking animals. When Sylvester joined hunters along with other Bribri women, she observed women scrutinizing animal tracks to predict an animals path based on these tracks. And, she listened as women talked about what animals had been through an area based on which vegetation these women observed had been eaten. On July 14th, 2012, Sylvester traveled with a mixed gendered harvesting group to the forest. On this trip, Ms. Sebastiana Segura called the group’s attention to the marks on young wild ferns (*köchi är* or *Cyathea* sp.) that looked like they were recently disturbed; she explained this was an area recently visited by a group of *kásir* (collard peccaries or *Pecari tajacu*). While talking to Sylvester and her son, she explained:

*Mira, mira aquí como tiene *kásir* el monte, aquí en *arroz ttö* [huella de arroz] donde los mayores tenían para sembrar arroz. Ellos [*kásir*] pasaron por aquí recién porque mira cómo tienen las partes tiernos de estos quelites, los tiene comido…los mayores le dice *köchi är* a esta planta porque *kásir* le gusta comerlo*

*Look, look over here how peccaries have left the vegetation, here in *arroz ttö* [the footprint of rice] where Elders cultivated rice. They [the peccaries] were here recently because look at the young parts of these fiddleheads, they have been eaten…Elders call this plant *köchi är* because peccaries like to eat it.*

Women tracked animals and/or accompanied a male relative on hunting trips to different extents. The extent to which different women reported participating in this activity depended upon a series of factors including: their health, opportunities get out on the land, where the tracking animals occurred (e.g., near or far spaces), the species people were tracking, and a person’s interest in hunting. For instance, two colleagues, Ms.
Anastasia Segura and Ms. Ana Grisel Díaz, explained how they cannot travel to forests to join hunting trips because of health conditions but that they do enjoy this activity and have done it in the past. Other women, such as Ms. Sebastiana Segura and Ms. Nimfa Hernández, described going on hunting trips when their schedules permitted. Other women, such as Ms. Ana Grisel Díaz and Ms. Ana Yorleni Morales, described making time for tracking and capturing animals with their male partners if it were a specific hunting activity they enjoyed; for instance, Ms. Díaz described preferences for fishing whereas Ms. Morales explained how she does not fish but she enjoys tracking some forest mammals. Furthermore, Ms. Ana Yorleni Morales described that her involvement in hunting depended upon the species hunted. She explained how she has more experience tracking some mammals (e.g., tsawî, armadillo, Dasypus novemcinctus) versus others; this depends, she explained, on her experience as well as the experience of her hunting dog.

Transformation

Processing

Food transformation refers to the suite of activities done to wild species after they are procured (i.e., after a plant is picked or animal is captured). For most wild food plants harvested in Bajo Coen, there is little processing before cooking. Examples of these activities are removing leaves from a plant stem (e.g., balòkò, Phytolacca rivinoides, Phytolaccaceae) or removing casings and/or hairs of an inflorescence (e.g., tchâmàwô, Carludovica sp., Cyclanthaceae). These processing activities occur both at the site of harvesting and in and around dwellings by people of both genders.
Wild meat requires more laborious processing as compared to wild plants; this includes skinning and butchering animals to prepare animal parts both for food and for Stë, a part of an animal used for healing (e.g., the underside of a turtle shell). Wild animal processing can occur en route during a hunting trip and/or it may occur near dwellings after a hunting journey. Sylvester only worked with people that reported going on short hunting trips (one day or less) and thus, did not analyze food processing on extended hunting trips. While living in Bajo Coen, Sylvester observed wild animal processing done mainly near dwellings after a hunting trip, both for wild meat and for Stë; and it was mainly females that guided animal processing. Often, females processed wild animals with the help of other females and/or with young children in a diversity of spaces including: kitchens (indoor and outdoor), river edges, and forest margins (Box 1).
Box 1: Processing wild meat

In Bajo Coen, I lived in a household with active hunters and while living there I was invited to participate in the diversity of activities associated with hunting including processing and cooking wild animal meat. Every time an animal was killed and brought home – be it a squirrel hunted by a young boy or a peccary hunted by an experienced hunter - the women I lived with would process and prepare the meat. When preparing meat, often women would invite youth to participate and during this process women shared important teachings about food preparation, nutrition, health, history, and culture. I narrated one of my experiences processing wild meat to illustrate women’s contributions to food processing and to highlight the teachings some women shared with young people in the process.

It was six in the evening on August 28th 2012. The sun had set and the only lights we used to get ready for bed were those of our candles. Ms. Sebastiana Segura and I were laying in hammocks talking and Ms. Segura’s son was on the floor beneath us reading the newspaper. It was then we were greeted by Ms. Segura’s partner, Mr. Sabino Díaz, who had just returned from the forest. He brought with him an animal called shülë in Bribi, also known as an agouti in English or *Dasyprocta punctata* in Latin. Despite it being late – especially for us because we were scheduled to wake around three in the morning to get the fire started the next day – Ms. Segura got ready to processes and prepare this *shülë* and she invited Edder, her nine year old son and myself along with her. We all walked enthusiastically with our flashlights to the river to clean and process the *shülë*.

As we skinned and washed the animal, we admired the red sky. Edder Díaz asked his mom to tell us the story about why the sky was red again, about how when the sky is red you know that somewhere along the Siõõl river small red fish are being created and are falling from the sky. As Ms. Segura told us this story, we all had one hand pulling on different parts of the Shülë to create enough tension in the animal’s limbs so that Ms. Segura could remove them with her knife. As we stood together butchering the *shülë*, Ms. Segura talked about the ways Elders prepare different parts of the animal. And, she told us stories her Elders told her about how Elders used to eat. Ms. Segura explained how:

> Ellos [los mayores] comían muy simple…a veces [comían] solo su banano y su pedacito de carne con sal. Si no había carne tal vez comían palmito y si no había sal lo comían así, simple.

> They [Elders] ate very simply…some times [they ate] only banana and their small piece of meat with salt. If there was no meat may be they would eat heart of palm and if there was no salt, they would eat just what they had, like it was, simple.

Ms. Segura also told us about how the head is delicious if slow cooked in stew and that this is how she wanted to cook it this time. Her son asked her many questions, questions about where Agouti can be found, what these animals eat, and how they are tracked and
hunted; he also asked what shùlê parts can be used as fish bait so he could use them to fish the next day. After we skinned, cleaned, and cut the animal into parts, we walked back home. Her son went back to his newspaper and Ms. Segura started to blow at the few remaining embers on her wood stove to start cooking. I stayed up and helped her. We talked about how to prepare the meat, what parts would be smoked and what parts would be boiled in stew. And, we talked about what parts we would share with her Elders the next day.

Pictured above: Shùlê meat (Dasyprocta punctata) slow cooked overnight with green bananas (meal prepared by Ms. Sebastiana Segura).

_Cooking_

Cooking is another technique of food transformation used to get foods ready for storage and consumption. Although kitchenspaces (Christie 2008) are important sites of gathering of people of all genders, female household heads mainly guided this activity often with the help of others in the household. Although our colleagues described females as those who led and engaged in cooking, participants reported exceptions to this. Ms. Sebastiana Segura described, for instance, how she knew and continues to know some male Elders that cook and prepare wild food. Specifically, when Ms. Segura was teaching Sylvester how to prepare skôkichô (Jacaratia dolichaula, Caricaceae), a form of wild
papaya, she explained how she learned to cook this food from a male Elder Don Francisco García, a highly respected *awá* (Bribri doctor).

Similar to food appropriation, a person’s involvement in transformation can depend upon a person’s experience or know-how about a given food species. Two young women, Ms. Ana Yorleni Morales and Ms. Ana Grisel Díaz explained how they know how to prepare some wild plant species (e.g., *rpò*, fiddlehead ferns, *Cyathea* sp., *Cyatheaceae*) but not others. While conversing with Ms. Ana Yorleni Morales over a meal of wild palm inflorescence, (*túslák*, *Cryosophila warscewiczii*, Arecaceae), she explained to Sylvester how this is an example of a wild plant that her Elders cook but that she does not know how to prepare.

**Sharing**

Sharing is an important concept for Bribri people; in the literature, Indigenous people’s resource sharing is often referred to as part of the act of exchange (e.g., market and non-market interactions). García explains, however, that the term exchange does not adequately convey the Bribri principle related to food sharing because for Bribri people food sharing is 1) done with no expectation of receiving anything in return and 2) part of a large Bribri concept, *i tchabé tôk*, not related to exchange. *I tchabê tôk* translates to: “to kill the snake of”; and for Bribri people a snake is one being that can do harm, thus, this concept loosely means to avoid harm. To avoid harm, this teaching says people need to ensure they are generous and not stingy with any resource; this is, as García explains one of the most important teachings for Bribri people. By being generous harm is avoided to 1) the person doing the sharing, 2) to the food being shared, and 3) to the beings in the other world associated with the person and the food. Thus, regarding wild and other food,
sharing is always central to harvesting because it ensures a person will not experience harm. For this reasons, for instance, food is always shared, and importantly should always be accepted.

Wild food sharing can involve unprocessed food and/or sharing of a meal prepared from wild foods. In Sylvester’s experience living in Bajo Coen, both females and males shared wild foods; this is not surprising because, as we illustrated in the previous chapter, for many people sharing food is part and parcel of their identity as Bribri. Although all women and men Sylvester worked with engaged in wild food sharing, she observed that women were more commonly those who shared wild food. Mr. Rudy Sánchez explained how in his family hunters will bring wild meat to his grandmother and she takes care of preparing and sharing this meat with the family:

“...here we always share meat, especially when someone goes to hunt then they bring it to my grandmother and she is in charge of distributing it.” (aquí siempre compartimos la carne, sobre todo si alguien va a cazar le traen a mi abuela y ella se encarga de distribuir, interview on 28/08/12). Sylvester learned that women often shared wild food in its prepared form. And, if women were not free to travel to share a wild food recipe, they would often send youth to do it on their behalf. Our male colleagues also shared wild plants and meat; Sylvester observed this when these foods were in their unprocessed forms (e.g, part of an animal after hunting such as the leg of kásir or collard peccary, *Tayassu tajacu*). For instance, both Mr. Juradir Villanueva and Mr. Rudy Sánchez two hunters we worked with, explained how when they borrow a rifle from another hunter, they will share part of unprocessed meat with the owner of the rifle if they came home with an animal.
**DISCUSSION**

There are few contemporary case studies that have examined how gender shapes access to wild foods harvested from forests (FAO 2014, Mai et al. 2011). And, within this small body of literature, scholars have not examined gender across the full suite of harvesting stages. A narrow focus on one or few harvesting stages in a limited number of case studies has led to the premature generalization about the gendered dimensions of wild harvesting in the ethnobiology, forestry and related literatures (e.g., Stloukal et al. 2013, Camou-Guerrero 2008). Generalizing about the gendered dimensions about wild harvesting should be done with caution because gendered harvesting can change depending upon a suite of: 1) biological variables (e.g., the species harvested or the time or season of harvest), 2) variables related to a person’s cultural context (e.g., clan, cultural teachings), and/or 3) variables related to an individual (e.g., their life-stage, and/or personal motivation to harvest; Pfeiffer & Butz 2005, Rocheleau & Edwards 1997, Brightman 1996, Rocheleau et al. 1996, Mukhopadhyay & Higgins 1988, Myers 1988, Goodman et al. 1985, Dahlberg 1981).

Our analysis illustrates that no harvesting stage was gender exclusive. Our approach was fundamental to our findings; specifically, when we analyzed harvesting from start to finish (i.e., pre-harvest to food sharing), we found that generalizations about gendered harvesting roles prevalent in the literature did not always hold true. Although some harvesting activities were done more commonly by members of one gender (e.g., cooking, tracking animals), participation in activities depended upon more than gender, but rather on a series of variables related to the species harvested, Bribri culture, and
individual context (e.g., the importance of collaboration in Bribri harvesting, a person’s knowledge about a food, and/or personal interest in harvesting).

In ethnobiology, the unit of analysis is generally either the knowledge about a plant or wild species (Toledo 2002). Less commonly the unit of analysis will be a harvesting practice, but even then, scholars have tended to focus only on one harvesting stage, i.e., resource appropriation (picking a plant or capturing an animal; e.g., Camou-Guerrero 2008). This limited focus on knowledge about a species and/or on one resource harvesting stage can lead to oversimplifications about women’s and men’s participation in harvesting (e.g., Peers 1996); and, unfortunately, these generalizations have informed how scholars describe gender and forest food harvesting (e.g., Stloukal et al. 2013). Our research illustrates that a more nuanced analysis of the harvesting system, one that examines each harvesting stage and ideally through scholars participation in all harvesting stages, can highlight the integrity of some women and men’s activities and help to counter oversimplifications about Indigenous harvesting systems.

Mixed gender harvesting groups were the norm rather than the exception in Bajo Coen; this was a teaching that García explained to Sylvester before she moved to Bajo Coen and it was corroborated both in our household surveys (Results Chapter 2) and in Sylvester’s participation in harvesting. Our work corroborates the description of gender and food harvesting provided by Monica Budowski and Carlos Borge (1998); these scholars described how there are no labor distinctions in the Bribri traditional food production system and how many food harvesting activities are collaborative. Specifically, these authors describe how swidden agriculture is a collaborative project
and how hunting groups can be mixed, i.e., women round up animals, men kills animals, men divide up wild meat, and women butcher, and prepare animals.

Because mixed gender harvesting groups exist, we need to better understand cooperative harvesting among people of different genders in forests. Although there is a small body of literature that illustrates how women and men work together to track animals (Bieseie & Barcaly 2011, Hurtado et al. 1985, Romanoff 1983) and harvest some wild foods (Shackleton et al. 2011, Parlee et al. 2006), gendered cooperation in wild harvesting is not widely reported on in the published literature. Instead, the bulk of the literature on this topic has focused on the differences between women and men; and, these differences often reflect narrow and erroneous sex-based stereotypes about what women and men do in forest-dwelling societies (Lowassa et al. 2012, Pfeiffer & Butz 2005, Brightman 1996 Dahlberg 1981).

Understanding cooperation in forest food harvesting is critical to design programs that support rather than hinder women. The Food and Agriculture Organization of the United Nations has declared that by 2015 women will be specifically targeted in all their forestry programs and interventions (FAO 2014). Often, forest management interventions are designed to work with women and men in different groups because of widespread generalizations about gendered harvesting differences and because women have described feeling more comfortable to express themselves in all women groups (Shackleton et al. 2011, Rocheleau et al. 2001). However, without considering that mixed gender harvesting groups may be the norm for some people, forest managers could run the risk of designing interventions that either do not work or, that can increase women’s workloads. Shackleton et al. (2011) described how a forest management program in
Zambia that targeted all women groups ignored the dynamics of cooperative harvesting in bee keeping. As a consequence, this intervention was predicted to restrict women’s success of marketing and selling honey; this was because if women were to work alone, as suggested by the project, it could increase their workloads and eliminate assistance men provided women for activities such as heavy labour. In Bajo Coen our colleagues reported problems with forestry interventions targeted only at women groups, intervention reported as common. Our colleagues explained that women’s groups are not something organic in their community or in Bribri culture. Colleagues explained how food harvesting has always been done cooperatively within mixed gender groups. As a result programs that are proposed for all women’s groups have created challenges for our colleagues. Specifically, women reported challenges attending project meetings, something that some male partners do on women’s behalf when women’s responsibilities are high; however, intervention leaders were reported to only support projects if women were present at project meetings.

By challenging prevalent biases about what women do and by prioritizing working with women in their daily activities, we can begin to accurately portray the diversity of ways women contribute to forest food harvesting. Our work demonstrates that women participated in all harvesting stages. Specifically, some women can be involved in: motivating others to hunt and harvest, gathering wild foods and tracking animals in near and far spaces, processing and cooking products derived from wild species, teaching youth about wild food harvesting, and sharing wild food. These findings are important considering women’s contributions to wild food systems are widely underrepresented and oversimplified (Momsen 2007, Pfeiffer & Butz 2005, Brightman
Women are often associated with gathering but many of women’s other wild harvesting activities can be invisible to outside researchers; this is due, in part, to erroneous preconceived notions about what women do which can result in a failure to ask women about their involvement in these activities (Shackleton et al. 2011, Pfeiffer & Butz 2005, Brightman 1996, Peers 1996). Women’s invisibility is also due to the failure of researchers to incorporate domestic spaces in their harvesting research (Christie 2008).

Men’s involvement in plant harvesting is an activity underrepresented in the published literature. There are only a handful of studies that report on men’s contributions to wild food gathering (Dahlberg 1981, Draper 1975). Consequently, the benefits of plant gathering, such as the contributions gathering makes to household diets and nutrition, are commonly associated with women (e.g., Powell et al. 2012, Mai et al. 2011). In Bajo Coen men are highly involved in plant harvesting; men harvest cooperatively with women; and, men harvest plants on their own both because of their own interest and to assist females that do not have the opportunity to harvest. Our findings suggest we need to better examine men’s roles in plant gathering to ensure we do not ignore their key contributions to plant access and to household nutrition.

Finally, our work illustrates intra-gender diversity in harvesting. When women’s harvesting is discussed in the literature, women are often described as quasi-homogenous groups. We demonstrate, however, that all members of a gendered group did not necessarily experience harvesting in the same way. Instead, other factors were important to understand who engages in a harvesting activity. For instance, the harvesting activities a woman engages in, and what wild plant or animal species a woman harvests, depends upon their personal context related to: health, motivation to harvest, opportunities to get
out on the land, knowledge about a wild species, personal relationships (e.g., engaging in multi versus single parenting), and work responsibilities.

Understanding intra-gender diversity is important to challenge generalizations that simplify our understanding about women’s space. Based on the published literature and on scholarly discourses in ethnobiology, Sylvester went into this research with the bias that women’s spaces are mainly in and around dwellings. Before Sylvester moved to Bajo Coen, she was told by scholars in her field that she would likely spend most of her time in home gardens because she was going to be working with women. These generalizations come from an ethnobiology literature that is ripe with generalizations about women’s space being that near dwellings (e.g., home gardens) because of their work responsibilities, childcare, and because of the danger forests can present for some women (Shackleton et al. 2011, Goebel 2003, Howard 2003). When Sylvester learned that her female Bribri colleagues travel to forests for leisure, to hunt, and to harvest plants, her biases were challenged. Still slightly tied to the idea that forests were not women’s spaces, Sylvester sought Ms. Sebastiana Segura guidance on this topic. Ms. Segura explained things to her in a simple and profound way. She said, there are no rules on who can travel to forests and where or what a person harvests varies from person to person; some people like going to the forest, she explained, others do not, and others have health or personal impediments to doing so.

In their feminist political ecology framework, Dianne Rocheleau and others (1996) highlight the importance of intra-gender diversity regarding people’s relationship with the environment; these authors explain how gender interacts with other variables such as an individual’s life-stage, clan, socio-economic status to shape environmental
processes. Although in the ethnobiology literature scholars have made the case that women and men’s roles are not fixed across cultural groups (e.g., Pfeiffer & Butz 2005), intra-gender harvesting diversity has been poorly examined. Obtaining a better understanding of intra-gender diversity in the ethnobiology and forestry literatures would benefit from a dialogue with feminist scholars such as those working in feminist political ecology (e.g., Rocheleau et al. 1996). This cross-fertilization could ensure ethnobiology and forestry researchers benefit from detailed studies on gender that illustrates its complexities. This cross-fertilization could also help counter generalizations about sex-based roles in harvesting, generalizations that may hold true in some, but not all cases.

Limitations of this research

Although we worked and harvested with women and men, Sylvester spent more time with women. Spending more time with women gave Sylvester more opportunities to observe the diversity of their harvesting activities. Spending more time with women also meant she was more privy to their conversations about harvesting. This reality results in a chapter that has more detail regarding women’s versus men’s experiences. At the same time, because Sylvester also worked and harvested with men, we were able to report on men’s experiences as well, only with not as much detail.

Conclusions

Our research responds to the need to generate a more nuanced understanding of gender and wild food harvesting (Pfeiffer & Butz 2005). Our work is unique because it examined how gender shapes wild plant and animal food harvesting across a number of harvesting stages (i.e., from pre-harvest to food sharing). Breaking down gendered contributions by stage is important because wild harvesting research has focused mainly
on one stage, i.e., resource appropriation (e.g., Camou-Guerrero 2008). This narrow focus has resulted in: 1) the underrepresentation and oversimplification of women’s contributions to wild food systems (Pfeiffer & Butz 2005, Brightman 1996, Peers 1996) and 2) the failure to report on the integrity of Indigenous food systems (Peers 1996).

Our work illustrates how there are not clear-cut divisions in Bribri women and men’s harvesting activities in Bajo Coen; furthermore, our work demonstrates the importance of cooperative harvesting among women and men. These findings challenge widespread generalizations that women and men engage in different harvesting tasks. By examining the full suite of harvesting stages, we highlight overlooked contributions some women and men make to wild food harvesting systems (e.g., women’s participation in all harvesting stages and men’s wild plant harvesting). Lastly, we highlight the importance of understanding intra-gender diversity in wild harvesting; specifically we found it important to considering other variables that interact with gender to shape an individual’s contribution to harvesting; these factors included: health, motivation to harvest, opportunities to harvest, knowledge about a species, personal relationships, and work responsibilities. Intra-gender analyses are important to move beyond simplistic interpretations of how harvesting tasks are organized; and, bringing intra-gender analyses into ethnobiology will be facilitated through greater engagement with the feminist political ecology literature (e.g. Rocheleau et al. 1996).

Lastly, our findings have implications for forest management. Internationally, the Food and Agriculture Organization of the United Nations has prioritized gender equality as a 2015 target for their forest management interventions (FAO 2014). Similarly, the International Union for the Conservation of Nature has prioritized gender as a key
component of their forest management programs, and one of these programs involves Bribri people (IUCN 2013). Our research provides a framework to examine gender across multiple stages in a forest food system; this framework can be useful for forest managers interested in understanding the integrity of Indigenous people’s food systems and the diverse contributions of women and men within these systems.

ACKNOWLEDGEMENTS

Wëste wëste, thank you to our Bribri colleagues that shared their teachings and provided guidance on how to present our research. Thank you to David Steen for his insightful comments that improved this manuscript. This work was carried out with the aid of a grant from the International Development Research Centre, Ottawa, Canada. Information on the Centre is available on the web at www.idrc.ca. This work was also supported by a Social Sciences and Humanities Research Council (SSHRC) Doctoral Fellowship awarded to Sylvester and a SSHRC Grant awarded to Iain Davidson-Hunt.
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INTERCONNECTIONS AMONG CHAPTERS

Chapter 6 is an analysis of how protected area regulations shape people's access to forest food; and, the previous chapters provide important context for this analysis. Specifically, in chapter 6 I review regulations on hunting and harvesting plants and examine how people experience these regulations. My descriptions of: 1) the harvesting activities that are important for food access (chapter 3), 2) how people benefit from wild food use (chapter 4), and 3) which social groups use wild food (chapter 4) all provide important context to understand the implications of regulations that restrict forest harvesting.

Chapter 6 also builds on the work outlined thus far in my thesis. This chapter adds a political and applied dimension to my ethnoecological work. This political analysis responds to a call by ethnobiologists to use our work to generate information relevant to Indigenous peoples’ resource rights.
Chapter 6: The Protection of Rainforest Biodiversity can Conflict with Food Access for Indigenous People

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ABSTRACT

International protected area management policies recognize the importance of respecting Indigenous rights. However, little work has been conducted to evaluate how these policies are being enforced. In this study we evaluated whether Indigenous right to food access was being respected in La Amistad Biosphere Reserve, Costa Rica, an area that overlaps with Bribri people’s land and that is intended to be managed for people’s access to cultural resources. We conducted two qualitative analyses. First, we interviewed protected area managers and examined current regulations to better understand how land management respects Indigenous people’s food access. Second, we worked with Bribri people (using interviews and participation) to evaluate how land management has affected their harvesting systems. We found that regulations contained within two documents (a national park management plan and a community manual) have the potential to restrict cultural food access because these regulations ban shifting agriculture and heavily restrict hunting, two important practices to the Bribri. On the other hand, we found no regulations regarding the harvest of edible plants. Working with Bribri people was necessary to understand how these regulations influenced actual access to food. We documented negative impacts of protected area regulations on health, nutrition, teaching youth, quality of life, cultural identity, social cohesion and bonding, as well as on relationships with other people, the land, and non-human beings. We propose three steps to better support Bribri food access in La Amistad Biosphere, steps that are applicable to Biospheres and protected areas elsewhere. First, to respect the integrity of Indigenous food systems, a broad human rights framework should be applied to protected area
management. Second, to ensure people have access to food, they need more opportunities to define what harvesting activities must be allowed. Finally, to ensure people have the information they need to exercise their right to access food, harvesting regulations need to be clearly communicated by land managers to resource users. The framework we outline here can help ensure access to food is better respected for Bribri people and for people elsewhere.

Keywords: La Amistad International Park, protected area, traditional food, hunting, forest-dwelling people, human rights

**Introduction**

Over 10 years ago members of the biodiversity conservation community recommended including human rights on the conservation agenda (e.g., outcome 5, Durban Action Plan; IUCN 2004). This was recommended because many protected areas (PAs) have been established without adequate attention to, and respect for, Indigenous peoples’ rights to natural resources (IUCN 2004). Indigenous peoples’ have been displaced from PAs that have been created on their territories (Jonas et al. 2014, FFP 2012, Agrawal and Redford 2009, Adams and Hutton 2007, IUCN 2004, Dowie 2011, Igoe and Brockington 2007, Brockington et al. 2006, West et al. 2006, McLean & Straede 2003, Neumann 1997). Even when PAs have not displaced human populations, they have restricted Indigenous peoples’ ability to access natural resources (Jonas et al. 2014, Hitchcock et al. 2011, Ibarra et al. 2011, Ghimire 1994). In response to the multiple
human rights violations associated with PAs, a goal was set to manage all PAs in full compliance of Indigenous peoples’ rights by 2014 (main target 8, IUCN 2004).

To support peoples’ rights in PAs, people need to retain access to traditional foods (Alcorn 2011, Damman et al. 2008, UNDRIP 2008). Traditional foods have been defined as resources obtained from the local and natural environment (Damman et al. 2008). Some examples of traditional foods include: wild plants and meats, species cultivated using Indigenous teachings, and foods prepared using Indigenous recipes (Damman et al. 2008, Power 2008, Watson 2007). International human rights conventions support people’s right to access traditional foods (Jonas et al. 2014, Damman et al. 2008). For instance, international human right to food law states that every man women and child should have physical access at all times to adequate food or means for its procurement, where adequate refers to food and food procurement techniques that are culturally acceptable (CESCR 1999). Other international conventions that support Indigenous rights to harvest traditional food include: 1) the International Covenant on Civil and Political Rights (ICCPR) that supports Indigenous rights to enjoy their own culture (ICCPR 1966, Article 27), 2) the Convention on the Rights of the Child (CRC) that supports Indigenous children’s rights to enjoy their culture (CRC 1990, Article 30), and 3) the Indigenous and Tribal Peoples Convention 169 that supports Indigenous rights to enjoy social and cultural practices on their lands (ILO 1989, Article 14).

Access to traditional food is supported by human rights conventions because this food is important for people’s health and nutrition (Damman et al. 2008, FAO 2008, CESC R 1999). There are a number of studies that demonstrate how traditional foods can provide people access to nutrients and sources of protein not available in their other
dietary items (Powell et al. 2013 Golden et al. 2011, Fa et al. 2003, Grivetti and Ogle 2000). For example, while working six villages in the East Usambara Mountains in Tanzania, Powell et al. (2013) found that traditional foods harvested from wild species were key sources of vitamin A, vitamin C, and Iron. The nutritional value of traditional foods is especially important to rural people who are increasingly relying on processed foods that are less nutritious and less nutrient dense than traditional food (Damman et al. 2008, Kuhnlein & Receveur 1996).

Access to traditional food is also supported by human rights conventions because people enjoy many social and cultural benefits from traditional food (Damman et al. 2008, FAO 2008, CESC 1999). Harvesting traditional foods can help people develop special relationships with the land, relationships that are a fundamental part of cultural identity (Power 2008). Harvesting traditional food can also contribute to social cohesion among members of a community (Kehoe 2014, Christie 2008, Power 2008, Collings et al. 1998, Aspelin 1979). Furthermore, harvesting traditional foods can be instrumental in the continuity of culture. Harvesting traditional food is a means to share many teachings including those associated with skills, ethics, values and spirituality (Ibarra et al. 2011, Power 2008). Collectively, this suite of social and cultural benefits people can derive from traditional food is referred to as the non-nutrient values of food (Damman et al. 2008, CESC 1999).

Despite the numerous nutrient and non-nutrient benefits people derive from traditional food harvesting, there is little published research on people’s ability to continue such harvesting when PAs are created on their lands. A review of the literature revealed only two scholarly studies that addressed PA impacts on access to traditional
food. In the first study, Indigenous peoples’ access to food is mentioned as part of a study on human rights in the Central Kalahari Game Reserve in Botswana (Hitchcock et al. 2011). Within this Game Reserve, the Botswana state created hunting prohibitions that restricted the San and Bakgalagadi Indigenous peoples’ rights to access wild meat (ibid.). In a second study, the creation of a state certified PA in Oaxaca Mexico resulted in restrictions on Chinantec people’s access to traditional food (Ibarra et al. 2011). In this Oaxacan PA, hunting regulations resulted in Chinantec people hunting less and in turn having less access to wild meat and other wild foods collected while hunting; hunting regulations also resulted in multiple negative impacts to the non-nutritional benefits people derive from traditional food harvesting (e.g., food sharing, recreation, bonding, and teaching youth; Ibarra et al. 2011).

Despite the lack of research on PAs and people’s access to food the amount of land being managed as PAs has increased over the last decade (Jenkins & Joppa 2009). In addition, international actors working on the Convention on Biological Diversity have set a goal to expand the global area of protected habitats by 2020 (Aichi Biodiversity Target number 10; CBD 2014). Given that many Indigenous peoples’ lands overlap with protected and/or resource rich habitats (Jonas et al. 2014, Finer et al. 2008, IUCN 2004, Neumann 1997), the creation and expansion of PAs is likely to affect Indigenous peoples access to food (Jonas et al. 2014). While land managers may consider access to food in PAs an important topic, we lack evaluations of whether this access has been respected.
In this chapter, we examine Bribri people’s access\textsuperscript{12} to traditional foods harvested from forests in La Amistad Biosphere Reserve, Costa Rica. La Amistad Biosphere Reserve was an ideal site to research Indigenous peoples’ access to food for three reasons. First, this PA overlaps with Bribri people’s traditional lands, lands that Bribri people have lived on since time immemorial. Second, Bribri people use the forest for all aspects of their food procurement, including harvesting wild foods, cultivating food in forest margins, and harvesting timber and water for cooking. Third, Costa Rica has set goals to respect Indigenous rights in PA management and has ratified multiple conventions that support these goals (SINAC 2012, Cajiao Jiménez 2002). For these reasons, this is an important case study to both examine Indigenous peoples access to food and to evaluate state attempts to respect this access within PAs.

The paper begins with an analysis of the Costa Rican PA regulatory documents to understand how regulations support and/or hinder Bribri food access in forests. This is followed by reporting the perspectives of Bribri people from one community, Bajo Coen, to understand how these regulations have affected their access to food.

**Methodology**

**Case study context: Talamanca Bribri Indigenous Territory and La Amistad Biosphere Reserve**

Currently, there are 7,772 Bribri people living in the Talamanca Bribri Indigenous Territory (INEC 2013). Bribri people have lived in the Talamanca region since time

\textsuperscript{12} Access is defined as people’s ability to benefit from a resource; this definition allows for the analysis of not only what resources people have legal access to but also to examine the nuances of people’s ability to benefit from something in people’s harvesting context (Ribot & Peluso 2003).
immemorial (for approximately 10,000 years, based on both archeological and genetic analyses (Barrantes et al. 1990). In 1977, the government legally recognized 43,690 hectares of Bribri lands and designated it as the Talamanca Bribri Indigenous Reserve (hereafter the Talamanca Bribri Territory).

In 1982, the Talamanca Bribri Territory was included within a large PA: La Amistad Biosphere Reserve (hereafter La Amistad Biosphere; Morales et al. 1984). This Biosphere is Costa Rica’s largest PA and it also contains Costa Rica’s largest National Park: La Amistad International Park (200,000 Ha, hereafter La Amistad Park; SINAC 2012). In total La Amistad Biosphere includes 11 Indigenous territories and nine PAs (SINAC 2012).

The creation of La Amistad Biosphere has affected how land is organized. For instance, land within the biosphere is sub-divided into different land-management categories; these categories are based on a model of land management developed by the UNESCO’s Man and Biosphere Program (Figure 1; UNESCO 2014a, German MAB National Committee 2005, Batisse 1982). Specifically, this model stipulates that areas of high biodiversity should be designated as core areas that are managed as zones of absolute protection; this means that human activity in these core areas is prohibited. Land around the core areas are designated as either 1) buffer zones and 2) zones of transition. In La Amistad Biosphere, the core area is La Amistad Park and Bribri lands are part of the Biosphere buffer zone.

**Research collaborations**

The objectives of this research emerged from a collaboration between Sylvester and García; this collaboration started in San José, Costa Rica in 2010. Over five years
these authors worked together on many aspects of this project including: defining the project’s objectives, developing its methodology, and collecting, analyzing and interpreting data. In 2012, García facilitated Sylvester’s collaboration with the Bajo Coen community to engage in a project on forest food harvesting. Bajo Coen is a community of approximately 45 households located in Alto Talamanca. Like other communities in Alto Talamanca, Bajo Coen residents use forests for all aspects of their food systems and forests provide fuel and water for all food preparation. Forests are also sites of shifting agriculture and other farming that occurs in the margins of forests. The majority of Bajo Coen residents work in export agriculture (bananas, plantains, cacao) and a handful earn income as teachers and or labourers (Sylvester’s household survey data from 2012).

In Bajo Coen, Sylvester collaborated with a women’s group called Grupo de Mujeres Sêbliwak. This group is composed of nine females (including their male partners and families) and one male. To work with this women’s group we developed a research partnership based on the Bribri principle, ulàpeitök. In sum, ulàpeitök is a Bribri word that translates to lend (peitök) a hand (ulà) and is a Bribri concept related to sharing. This Bribri concept was the guiding concept for our development of a collaborative partnership with the Sêbliwak group and it informed the sharing that took place in terms of the needed work to complete the project as well as the sharing of teachings and information.

Working in the Bajo Coen community was ideal to studying how PAs affect peoples food harvesting for a few reasons. First, this community is one of many communities located in La Amistad Park buffer zone; this means Bajo Coen residents food harvesting is affected by PA legislation. Second, Bajo Coen community residents’
use protected forests for many elements of their food harvesting such as fuel and water. Third, all households use forests to harvest wild food (Sylvester household surveys 2012).

**Scope of this case study**

Some of the findings on how PA regulations affect people’s food harvesting may be site specific to Bajo Coen. However, conversations with people in neighbouring communities as well as an interview with the regional Bribri government president suggest that the patterns reported on here are relevant to other forest-dwelling Bribri communities. Thus, although we caution the reader against generalizing findings to all communities in La Amistad Biosphere, this study can shed light on how PA regulations have affected some peoples food harvesting in Bajo Coen and other Bribri communities that border La Amistad protected forests

**Information gathering procedures and research colleagues**

A suite of qualitative methods were used to understand how PA regulations have influenced forest food harvesting. Document analysis provided a systematic method for reviewing and evaluating documents (Bowen 2009). Document analysis is useful for case studies because it allows a researcher to gather data from documents that are important for understanding the context of a case and/or participants’ lives; examples of relevant documents may be non-technical documents such as reports, meeting minutes, and public records (Mills et al. 2006). Document analysis was used in this chapter to 1) analyze how

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13 There is a section of La Amistad Park called **PILA Isla** where there are Bribri communities living inside of the forest included in the park boundaries. This area is managed differently than communities within the park buffer zone (SINAC 2012) and patterns discussed in this chapter should not be generalized to this **PILA Isla** area.
forest food harvesting is described in government regulations and 2) understand the Costa Rican legal context around Indigenous peoples’ rights to access forest and other cultural foods.

Seven documents relevant to understanding Indigenous peoples’ food access in PAs and the management of protected forests on Indigenous lands were reviewed (Table 1). Some documents were obtained in Bajo Coen others from outside of the community (e.g., from state and Bribri government representatives, and/or from members of regional Indigenous organizations). Within these seven documents, the selections of text that were relevant to food access and food harvesting were analyzed (Table 1).
Table 1: Documents selected and data analyzed regarding Indigenous land and resource use regulations.

<table>
<thead>
<tr>
<th>Document selected</th>
<th>Data analyzed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Costa Rican Indigenous Law (<em>Ley Indígena N° 6172 1977</em>)</td>
<td>How forested land can be used on Indigenous lands (Article 7)</td>
</tr>
<tr>
<td>The Wildlife Law (<em>Ley de Conservación de Vida Silvestre 7317, 1992</em>)</td>
<td>National hunting regulations and relevance for Indigenous people</td>
</tr>
<tr>
<td>La Amistad International Park Management Plan (<em>Plan de Manejo Parque Internacional La Amistad Talamanca, SINAC 2012</em>)</td>
<td>PA regulations about food harvesting in La Amistad Park and the park buffer zone</td>
</tr>
<tr>
<td>Bribri community management manual (<em>Manual de funciones de la ADITIBRI y de los Consejo de Vecinos</em>)</td>
<td>Regulations for resource use in the Bajo Coen community</td>
</tr>
<tr>
<td>A legal guide to respect Indigenous peoples rights to use and manage natural resources in Indigenous Territories in Costa Rica (<em>Guía Legal para reconocer el derecho de los Pueblos Indígenas al aprovechamiento y manejo de los recursos naturales en los territorios Indígenas de Costa Rica, Cajiao Jiménez 2002</em>)</td>
<td>The Costa Rican legal context regarding Indigenous peoples’ rights to resource use</td>
</tr>
<tr>
<td>The Convention on Indigenous and Tribal Peoples 169 (ILO 1989)</td>
<td>Articles 8, 13, 14, 15 that were applied to La Amistad Park management plan</td>
</tr>
</tbody>
</table>

Some of the documents reviewed provided inconsistent information. For instance, the regulations around hunting were qualified differently depending upon the document. These inconsistencies were one key reason triangulation was used to compare the results of document review with other methods, such as interviews with forest managers and other stakeholders (Bowen 2009). Nonetheless, document analysis was a critical step to understand how both PA regulations enable or hinder access to food.

To interpret how PA regulations were applied in the Talamanca Bribri Territory,
it was important to interview people working for the multiple land management institutions that operate in Bajo Coen and in the Bribri Indigenous Territory (Table 2). To work with this suite of participants that oversee land management and food access, people both in and outside of Bajo Coen were interviewed for a total of five interviews with five people (Table 3).

Table 2: Organizations that oversee aspects of protected areas (PA) management in Bajo Coen and the Talamanca Bribri Indigenous Territory.

<table>
<thead>
<tr>
<th>Organization name</th>
<th>Description of organization</th>
<th>Land and PA management activities</th>
<th>Geographic headquarters</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Consejo de Mayores</strong> (Elders council)</td>
<td>A group of Elders from Bajo Coen and neighbouring communities</td>
<td>Provide counsel on community and territorial issues</td>
<td>Bajo Coen and neighbouring communities</td>
<td>This is the original form of Bribri governance, i.e., before states created Indigenous lands and PAs</td>
</tr>
<tr>
<td><strong>Consejo de Vecinos</strong> (community council)</td>
<td>Community governing body created by the state and run by Bribri people</td>
<td>Apply the community management regulations created by ADITIBRI, the Bribri regional government</td>
<td>Bajo Coen</td>
<td>Decentralized governing body to assist the regional government in land management issues</td>
</tr>
<tr>
<td>ADITIBRI - Asociación de desarrollo integral del Territorio Indígena Bribri de Talamanca (Integral development association of the Bribri Talamanca Indigenous Territory)</td>
<td>Regional governing body created by the Costa Rican government and run by Bribri people</td>
<td>Legally recognized by the state as the government to oversee Bribri land management</td>
<td>Suretka</td>
<td></td>
</tr>
<tr>
<td><strong>MINAE</strong></td>
<td>National</td>
<td>National resource</td>
<td>Multiple</td>
<td></td>
</tr>
</tbody>
</table>

211
<table>
<thead>
<tr>
<th><strong>Ministerio de Ambiente, Energías y Mares</strong>, (Ministry of the Environment, Energy, and Oceans)</th>
<th>governing body for environmental and energy related issues</th>
<th>management organization; works with SINAC in the management of PAs</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SINAC - Sistema Nacional de Áreas de Conservación</strong> (National System of Conservation)</td>
<td>A branch of the environment ministry (MINAE) that specializes in PA management</td>
<td>Participates in the management of La Amistad Biosphere and International Park</td>
<td>Multiple</td>
</tr>
</tbody>
</table>
Table 3: List of people who were interviewed regarding food access in La Amistad Biosphere.

<table>
<thead>
<tr>
<th>Name</th>
<th>Affiliation</th>
<th>Interview location</th>
<th>Date(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr. Sabino Díaz</td>
<td>Sëbliwak women’s group</td>
<td>Bajo Coen</td>
<td>21/04/2012</td>
</tr>
<tr>
<td>Mr. Sebastian Díaz</td>
<td>Leader of Indigenous rights organization Aiiko</td>
<td>Suretka</td>
<td>19/08/2012</td>
</tr>
<tr>
<td>Mr. Elias Escalante</td>
<td>2012 President of the Bri bri government (ADITIBRI)</td>
<td>Sibö’di</td>
<td>30/10/2012</td>
</tr>
<tr>
<td>Mr. Hernan García</td>
<td>Sëbliwak women’s group</td>
<td>Bajo Coen</td>
<td>01/05/2012, and a follow-up interview on 14/12/2013</td>
</tr>
<tr>
<td>Ms. Karen Hernández</td>
<td>Sëbliwak women’s group</td>
<td>Bajo Coen</td>
<td>20/07/2012</td>
</tr>
<tr>
<td>Ms. Nimfa Hernández</td>
<td>Sëbliwak women’s group</td>
<td>Bajo Coen</td>
<td>03/11/12,</td>
</tr>
<tr>
<td>Ms. Teonila Hernández</td>
<td>2012 President of Bajo Coen community council</td>
<td>Bajo Coen</td>
<td>28/08/2012</td>
</tr>
<tr>
<td>Mr. Euterio Mayorga</td>
<td>Community Elder</td>
<td>Bajo Coen</td>
<td>03/10/2012</td>
</tr>
<tr>
<td>Mr. Olman Morales</td>
<td>Administrator of the La Amistad Park, Caribbean Sector (MINAE)</td>
<td>Bribri</td>
<td>19/11/2012</td>
</tr>
<tr>
<td>Mr. Porfirio Paez</td>
<td>Community member</td>
<td>Bajo Coen</td>
<td>14/11/2014</td>
</tr>
<tr>
<td>Ms. Sebastiana Segura</td>
<td>Sëbliwak women’s group</td>
<td>Bajo Coen</td>
<td>29/04/2012, 03/05/2012, 29/08/2012, and a follow-up interview on 14/12/2013</td>
</tr>
<tr>
<td>Mr. Juradir Villanueva</td>
<td>Resource guard, member of the Bajo Coen community council</td>
<td>Bajo Coen</td>
<td>03/05/2012, 01/11/2012</td>
</tr>
</tbody>
</table>

To understand how PA regulations have shaped resource harvesting at the community-level, we worked with people who use the forest in Bajo Coen. When working with Bajo Coen residents, Sylvester used a few different qualitative methods.
including: participation, semi-structured interviews, and a focus group discussion (Creswell 2014). All interviews were done in Spanish and Bribri words were used to describe concepts that did not have a Spanish translation. For this research, Bribri colleagues chose whether or not they wished to remain anonymous; no research participants chose to do so.

Participant (Urry 1999) was a key component of data collection and it was undertaken by Sylvester who lived in Bajo Coen for a period of nine months (March to December 2012); Sylvester’s participation included food harvesting with colleagues as well as many other community activities (e.g., cooking, attending community meetings, working in the school, and doing community labour). To collect data during participation, Sylvester recorded field notes daily by hand. In addition to participation, twelve semi-structured interviews with eight community members (five males, three females; Table 3) were completed. Interviews were carried out in participants’ homes or in locations of their choosing following the use of an interview guide; questions on this interview guide related to people’s understanding of PA regulations and any impacts these regulations have had on their access to wild and traditional food. With the help Ms. Sebastiana Segura and Mr. Hernan García, a focus group interview was held with two adults and one Elder participant (two males, one female) on August 12th, 2012; the goal of the focus group interview was to discuss in detail how PA regulations are implemented at the community level as well as the impacts of these regulations. During this focus group interview we reviewed state PA regulations as a group and discussed how these regulations are applied in Bajo Coen; this focus group was audio-recorded.

Lastly, Sylvester participated in one regional meeting regarding La Amistad
protected forest management on October 5th 2012. This was a meeting held to share information among Indigenous resource guards and state PA managers (MINAE officials). During this meeting, a wider understanding about PA management regulations are applied in La Amistad Park was gained; this meeting was audio-recorded.

**Information analysis**

Qualitative coding was used to analyze information (Creswell 2014). All data were compiled (i.e., notes from my participation in community activities, all interview and focus group transcripts, and data generated from document review) and analyzed by hand. Thematic coding, using the following codes identified prior to reviewing data (i.e., a priori coding by topic): 1) “protected areas”, 2) “harvesting regulations”, and 3) “forest food access”. Data was reviewed and assigned these codes to relevant sections of text. Next, a more in-depth coding process on these same data revealed themes that were not identified during the first stage of thematic coding. Specifically, data were examined looking for repetitions (i.e., recurring topics), similarities and differences among and within topics, and for in vivo codes (i.e., codes that emerge from the data that are often specific to local language or local practices; Ryan & Bernard 2003). This latter process allowed for the fleshing out of original a priori codes into new codes that reflected the nuances of the data; these new codes were used to organize the results section of this chapter.

**Research ethics**

Elders in the Bajo Coen community, the local government (*Consejo de Vecinos*), and the University of Manitoba Joint-Faculty Research Ethics Board approved of this study. Mr. Elias Escalante, the president of the regional Bribri government, and Mr.
Olman Morales, the administrator for La Amistad Park (Caribbean sector), were informed of and respected the Bajo Coen community representatives’ decisions to participate in this research. All research colleagues provided their ongoing, informed consent and chose to have their names beside the insights they shared.

**Findings**

In this section forest and land management documents that describe Bribri food access are described and followed by interview data from interviews with Bribri colleagues on how PA regulations have shaped food harvesting practices.

**Protected forest management regulations and access to food**

Forest and wildlife protection regulations are found in two main documents that affect Indigenous peoples’ food harvesting in La Amistad Biosphere. The first document is the La Amistad Park management plan (SINAC 2012). The La Amistad Park management plan is administered by two state environmental organizations, i.e., MINAE and SINAC (Table 2). The regulations outlined in this park management plan apply to all of La Amistad Park as well as to the communities that live in the park’s buffer zone; this includes all of the communities in the Talamanca Bribri Indigenous Territory. The second document that contains food harvesting regulations is a community management manual (*Manuel de Funciones de la ADITIBRI y los Consejos de Vecinos*). This manual was created by the regional Bribri government and given to every Bribri community to be used in land management (Table 2). By reviewing both of these documents and discussing these documents with land managers the guidelines relevant to Bribri food harvesting in forests are presented.
La Amistad Park management plan indicates that traditional Indigenous forest use and management will be permitted in the areas that Bribri and Cabécar people have used traditionally (Normativa General 4.8A, SINAC 2012, pg. 61). This forest management regulation is informed by human rights articles that outline Costa Rica’s obligation to recognize Indigenous peoples’ right to retain: their customs and institutions, their spiritual values, their relationships with land, their use and management of resources on their lands, and their ownership over the lands they have traditionally occupied (SINAC 2012, pg. 61 citing ILO 1989 articles 8, 13, 14, 15). Despite the strong support found within La Amistad Park guidelines regarding Bribri access to cultural resources in forests, these guidelines are qualified by many restrictions. For instance, traditional management is only permitted in a small area between the La Amistad core area (i.e., La Amistad Park) and Indigenous Territories. This small area where traditional management is permitted only includes four regions within the park buffer zone areas; and this small area does not include many forest-dwelling Bribri communities, including Bajo Coen.

One traditional food harvesting practice that is prohibited in the La Amistad Park management plan is shifting agriculture (SINAC 2012, pg. 61). Bajo Coen forest management representatives explained that this regulation applies to all forested land (e.g., communal forests in communities and state managed forests both within La Amistad Park and its buffer zone) but not to forest on farmer’s private lands (interview with Mr. Juradir Villanueva 03/05/2012). Despite this clarification, it is important to note that the La Amistad forest management plan does not state anywhere that shifting agriculture is permitted even on private land.
There were no specific regulations regarding harvesting wild plant foods in either community or La Amistad Park management documents. Bajo Coen community members and the president of the Bajo Coen government explained that there were no PA regulations over wild plant foods; and, that Bribri people have their own unique ways of managing wild plant foods (e.g., interview with Ms. Teonila Hernández, Bajo Coen government president 28/08/2012). When I spoke to regional Bribri and state forest management officials about wild food harvesting, they explained how these activities are permitted for traditional but not commercial use (interviews with Mr. Elias Escalante 30/10/2012 and Mr. Olman Morales 19/11/2012).

Hunting regulations are found in both the community manual and La Amistad Park management plan; however, they are articulated differently in separate forest management documents. Specifically, the community management regulations state that hunting is banned. On page one of this document the regulations for hunting and fishing reads:

Por razones que ya no quedan animales en el territorio, se acuerda que no procede extender ningún permiso para extender tal actividad [cacería y pesca].

Because there are no longer domestic animals in the territory, it has been decided that no permits will be issued for this activity [hunting and fishing] (manual consulted on 16/11/2012)

On the other hand, in the most recent forest management plan for La Amistad Park, hunting is permitted in certain forest zones; this permission is not with out qualifications. For instance, hunting is only permitted if it is 1) for subsistence, 2) done using traditional (and antiquated) methods (i.e., bow and arrow) and 3) done in the day and without the use of dogs or rifles (SINAC 2012, pg. 61). These hunting guidelines are subject to
change at anytime based on any scientific research about what is considered sustainable and/or based on reports of vulnerability of any species (SINAC 2012, pg. 61).

The La Amistad and community land management documents are not the only sources of information on state hunting regulations. The local radio, Radio Cultural La Voz de Talamanca, for instance, broadcasts information about hunting. In 2012, these broadcasts explained that hunting was banned in La Amistad Biosphere and in the Talamanca Bribri Territory. These broadcasts are not consistent with La Amistad Park guidelines that support Bribri people’s right to hunt, albeit in a restricted sense. Radio broadcasts are an important way to disseminate information in Talamanca and some colleagues, both young and Elder, explained their interpretation of hunting regulations based on these broadcasts (e.g., interviews with Mr. Euterio Mayorga 03/10/2012 and interview with Ms. Sebastiana Segura 29/08/2012).

How Bribri people experience forest management regulations

Access to health and traditional food

Our Bribri colleagues mentioned that forest management regulations have negatively impacted their access to healthy and nutritious foods; my colleagues talked about this in reference to both shifting agriculture and hunting. In reference to shifting agriculture, two of my colleagues similarly described how they are in disagreement with PA regulations when these regulations restrict this important traditional form of agriculture:

No estoy de acuerdo con la ley porque ahora la ley nos prohíbe cultivar maíz en la montaña...pero es algo de nosotros, de los antepasados, los mayores, ellos siempre tenía sus lugares arriba para cultivar y cuidaban la montaña.

I do not agree with the law because now the law stops us from growing corn in the forest. Also, there is nowhere to grow corn because our ancestors, the
Elders, they had their places in the forest on flat lands where they cultivated the land and they took care of the forest but now the forest became small to us, too small (interview with Ms. Sebastiana Segura 29/04/2012)

ADITIBRI\(^{14}\) decía que están bien con el concepto de conservar porque esto [la conservación] es parte de la naturaleza del Indígena. Pero, cuando la ley perjudica las practicas del Indígena como decir ya no puedo cultivar arroz, frijol, o maíz en la montaña, estoy en contra [de la conservación]… Siempre hemos agarrado un parche de terreno, Tê para cultivar, pero luego lo dejamos y buscamos otra parte [de terreno] y cuando volvemos al lugar que donde al principio cultivamos, ya esta con árboles altos otra vez.

ADITIBRI said they accept the concept of conservation because it [conservation] is part of the nature of being Indigenous. But, when the law jeopardizes Indigenous practices such as when it says I can no longer cultivate rice, beans, or corn in the forest, then I do not support [conservation]…We have always taken a piece of land, for shifting, but after we leave that land and we look for another piece [of land] and when we return to the original patch of land where we first cultivated, it has tall trees again (interview with Mr. Porfirio Paez 14/11/2012)

Mr. Juradir Villanueva similarly mentioned how he disagrees with laws that challenge people’s access to shifting, an activity he explained is particularly important for Elders to access nutritious food:

No estoy de acuerdo a que dicen a un abuelo que no puede quemar los terrenos para sembrar maíz, arroz, o frijol porque estos son practicas de nosotros que hemos hecho por años de años…y sin eso como los abuelos se van a mantener?

I do not agree when people say to a grandfather that they cannot burn the land to grow corn, rice, or beans because those are our ancestral practices that we have done for years and years, and without those practices, how are our Elders going to support themselves? (interview 03/05/2012)

All of the people interviewed mentioned hunting bans in relation to forest food access. In an interview on August 29\(^{th}\), 2012, Ms. Sebastiana Segura, household head, mother and grandmother, shared why these hunting bans have affected her access to

\(^{14}\) ADITIBRI is the regional governing body in the Talamanca Bribri Territory created by the Costa Rican government and run by Bribri people (see Table 2).
healthy and nutritious food. She described how the law is concerning to her because it challenges her access to wild meat and this meat is nutritious and important for her family’s health.

La ley nos ha hecho mucho daño porque aquí nadie vende carne pero si lo comemos; la ley hizo que solo podemos comer pollo y chancho y es aburrido solo comer la misma cosa y ahora, es poco saludable porque el pollo que llega aquí tiene hormonas y, como se llaman, antibióticos, cosas que no nos sirve. También si no preparo carne de monte aquí, comida de nosotros, donde van a aprender mis hijos comer así, comer como nuestros antepasados…solo van a aprender las tradiciones de sikua [gente de afuera] y eso no nos sirve.

The law has done us a lot of harm because here no one sells [wild] meat but we do eat it; the law has made it so we can only eat chickens and pigs and it is boring to keep eating the same thing and it is unhealthy because the chicken that arrives here [to the community] has hormones and what do you call them…antibiotics, things that are not good for us. Also, if I do not make wild meat here, our food, where are my children going to learn to eat this way, to eat like our ancestors…they are only going to learn about sikua [outsider] traditions and that is not appropriate for us.

When Ms. Sebastiana Segura talked about wild meat she compared it to the factory farmed meat sources that are brought into her community from outside sources. She expressed a specific concern that imported meat sources were becoming too common in her community (in schools and in corner stores) and how her children are being served this meat frequently. Because of these additional factors, Ms. Sebastiana Segura explained how having access to forest meat was “mas importante que nunca” (more important than ever). Two other female household heads I worked with expressed similar concerns to those of Ms. Sebastiana Segura (interviews with Ms. Nimfa Hernández 03/11/2012, and Ms. Karen Hernández 19/06/2012).

Hunting restrictions can also limit people’s access to wild greens and medicines. When people hunt they travel to sites where other food and medicine species can be
accessed; forest greens are examples of species directly associated with hunting in the Bribri territory and elsewhere (Ibarra et al. 2010). Thus, although La Amistad forest management regulations do not restrict harvesting forest foods or medicines, the simple act of restricting hunting can affect how often hunters travel on the land and the opportunities they have to harvest other species important for Bribri health.

Sharing food

Colleagues described how banning hunting can affect people’s opportunities to share forest foods and the traditional recipes prepared from these foods. Female colleagues Ms. Nimfa Hernández, Ms. Sebastiana Segura, and Ms. Karen Hernández (interviews 03/11/2012, 29/04/2012, and 19/06/2012 respectively) all discussed this; they explained how hunting bans have discouraged many people from hunting, and thus there is rarely meat available to prepare and share with their families. And they all agreed that they would like to prepare more wild meat in their homes.

While Sylvester was preparing a recipe of wild meat with Ms. Sebastiana Segura, she told her how state laws affect her opportunities to share food with her family and with her Elders:

A veces mi compañero va y me trae un skula’ [rata acrorazada] o un pedazo de kásir [saino], y me hace sentir bien porque lo puedo compartir aquí entre familia o con mi mama. Mas que todo son los mayores que les gusta comer carne de monte; mi mama a veces dice que ella esta aburrido de comer chanco y cuando algún le trae un pedazo de kásir [saino] o káno’ [tepezcuintle] ella se poner feliz. Si la ley nos prohíbe eso como los mayores van a comer carne de monte, quien les va a regalar eso?

Sometimes my partner goes and brings me skula’ [armored rat] or a piece of peccary and it makes me feel good because I can share it here with my family or with my mother. Mostly it is Elders that like eating wild meat; sometimes my mother says she is bored of eating pork and when someone brings me a piece kásir [peccary] or káno’ [paca] she gets happy. If the law prohibits this,
how will Elders eat wild meat, who is going to bring it to them? (interview 29/04/2012).

This statement illustrates how banning hunting can affect people’s physical access to wild meat, not only for those who hunt but also for all of the people that benefit from food sharing. Ms. Segura further described how hunting prohibitions can affect a person’s ability to feel a sense of cultural pride associated with sharing traditional food; in this case Ms. Segura described this pride associated with sharing food with family members and Elders.

**Teaching Youth**

Forest food procurement cannot only be understood in terms of resource access; it must be understood as a set of skills people acquire when out on the land. One important part of forest food procurement is acquiring Bribri teachings that are shared when people are out walking to find foods or when people are preparing and cooking foods. These teachings may be about edible plants and animals themselves or these teachings may be more general and related to Bribri diet, nutrition, and history. Bribri colleagues expressed concerns that hunting regulations and exclusionary PA management practices have interfered with young people’s opportunities to acquire food procurement skills and teachings.

Specifically, people described how hunting regulations have the potential to interfere with young people’s skill building process. Mr. Sabino Díaz, an experienced hunter, explained how hunting regulations affect his ability to teach hunting practices to youth. He explained how state hunting regulations have not stopped him from hunting but have forced him to travel deep into the forest so his gun or hunting dog will not be
confiscated. Such changes in his hunting routes have made it difficult for him to teach because his new hunting routes are not suited for youth to travel (interview 21/04/2012). Ms. Nimfa Hernández similarly explained how hunting regulations can interfere with youth’s opportunities to practice hunting skills and with their overall motivation to get out on the land:

Mi hijo sabe cazar pero ahora ya no va; nos da miedo la ley [de cazaría] porque es dura…a esta altura se le quito el costumbre de cazar [a su hijo]. Es una lastima porque esta ley ya se esta malacostumbrando los muchachos.

My son knows how to hunt but he does not go any more; the [hunting] law scares us because it is strict…at this point in time, he [her son] has gotten out of the habit of hunting. It is a shame because that law has gotten youth out of the habit of hunting (interview 03/11/12).

Hunting prohibitions can also affect the teachings that take place in the household. This concern was articulated by Ms. Sebastiana Segura; if people stop hunting, she explained, young people will lose their opportunities to be exposed to traditional food processing and preparation practices and the teachings and stories that go along with them. While cooking a recent harvest of spiny rat and wild ferns, Ms. Segura explained why having wild food around the house is important to keep her children exposed to Bribri teachings and traditions:

Si nadie va a cazar no preparo comida aquí, comida de nosotros, entonces donde van a aprender mis hijos comer así, comer como nuestros antepasados? [Mis hijos] solo van a aprender las tradiciones de sikuá [gente de afuera] y eso no nos sirve.

If no one goes out to hunt, I do not make food here, Bribri food, so where are my kids going to learn to eat like this, to eat like our ancestors? [My kids] are only going to learn sikuá [outsider] traditions and that is not beneficial for us (interview 29/04/12)
In addition to hunting regulations, exclusionary management practices in La Amistad have interfered with young people’s training. Mr. Juradir Villanueva, an experienced hunter, resource guard, and someone who has travelled many Bribri food harvesting routes, explained how young people train by walking the full extent of forested lands. In his case, he trained with his father who took him to learn to hunt on many harvesting routes, including long distance, multi-day routes that traverse La Amistad Park from the Caribbean to the Pacific side of Costa Rica. Because much of La Amistad Park is managed for absolute protection, Mr. Villanueva explained, Bribri people are discouraged from using and even from walking within those zones. He explained how this was concerning because these forest patches and routes were instrumental in his training as a hunter and his training about many Bribri teachings. He further explained how walking traditional harvesting routes in his past was important to learn Bribri stories and history as well as to learn about of suite of edible and medicinal plants that are found in forests (interview 03/05/2012)

Relationships with beings in the other Bribri worlds

Our colleagues brought our attention to an impact of PA regulations on food procurement that is not easily visible; specifically, people explained how PA regulations can disrupt people’s relationships with their lands and with non-human beings with whom people share the land with. This is a complex idea that requires a deep understanding of Bribri relationships with the land.

Mr. Hernan García, a community Elder, described how PA regulations have disrupted a balance on the land that extends into the other Bribri worlds. He explained how when the forest was cared for using only Bribri traditional values and teachings there
were always opportunities for people to harvest foods, such as game animals; these animals would be given to Bribri hunters by beings in the other Bribri world, as long as hunting was done in a respectful way (i.e., following the teachings of Sibö\textsuperscript{15} and not taking more animals than needed to feed your family).

When PA regulations were created, he explained, the relationships among animals (and their protectors) and Bribri people were disrupted; they were disrupted in such a way that animals started to become scarce. Mr. García attributed these disruptions to the fact that PA regulations were not a natural way to care for and to use the forest. More specifically, he explained, PA regulations, by nature, separate people from the non-human beings they share the land with; PA regulations try to structure nature in a way that separates human from all the other life on the land. As Mr. García explained further, this divide is unnatural and inconsistent with Bribri ways of using and caring for the land; here is an excerpt of this point of view:

La ley provocó el orden de la naturaleza el orden del bosque el orden de lo que viven ahí algo que no es natural. Antes de las leyes [de conservación] todos la gente va al bosque y agarra algo, medicina o comida, pero hoy en día es diferente, la misma naturaleza se defiende, esta defendiéndose. Por ejemplo, va un cazador y no se ve mucho y es por la misma ley, como que les [los animales] asusten…las mismas animales se están escondiendo, el dueño mismo dice métase en algún lado. Entonces son cosas que nos preocupa y hay que manejarlo conforme de nuestros ancestrales como lo han manejado.

The law has imposed an order on nature, an order on the forest, an order on the beings that live there, it is something that is not natural. Before these [conservation] laws, everyone would go to the forest and take something, it could be medicine or food, but today it is different, nature is defending itself. For example, a hunter goes out and they do not see much, this is because of the law, it is like the law scares them [the animals]…the animals are hiding themselves, their owners are telling them to hide somewhere. Thus, these are things that concern us and we need to manage them in the way that our ancestors did (focus group discussion 12/08/12).

\textsuperscript{15} Sibö is the name for the Bribri creator
DISCUSSION

The goal of this paper was to evaluate how Bribri people’s access to food has been affected by PA regulations within La Amistad Biosphere. To do so, we examined PA food harvesting regulations and worked with Bribri people to understand how they experience those regulations in their daily lives. In this discussion we cover three topics. First, we illustrate how the findings contribute to better understanding food access in PAs. Second, we outline a series of steps important to better support Bribri access to food. Third, we suggest areas for future research on food access in La Amistad Biosphere.

Food access in La Amistad Biosphere

Our work is consistent with the work of other scholars that have demonstrated how PA regulations can affect access to nutritious foods harvested from the wild (Hitchcock et al. 2011, Ibarra et al. 2011) and those foods cultivated using shifting agriculture (Ibarra et al. 2011). Collectively our research illustrates how hunting regulations can decrease people’s access to wild meat; and, when people hunt less, people have fewer opportunities to harvest wild greens. These findings are concerning for Indigenous peoples’ health because both wild meat and wild greens can be important sources of protein and micronutrients not readily available in other dietary items (Powell et al. 2013 Golden et al. 2011, Fa et al. 2003, Grivetti and Ogle 2000). Bans on shifting agriculture can also have nutritional impacts. Shifting agriculture is often based on the use of saved heirloom seed varieties. The continued use of heirloom seed varieties are important to support genetic diversity in people’s farms, a diversity that can serve as a safety net when certain crop varieties are hit by disease (Nazarea 2005, Brush 1995). The
continued use of heirloom seed varieties and local cultivation is also healthier than the alternative. In Bajo Coen, seed crops grown locally are done so without the application of pesticides. When corn is not grown locally in Bajo Coen it is bought from imported sources. This corn is often animal feed corn from an unknown source and an unknown method of production.

Access to wild and locally cultivated food is especially important where rural people are undergoing nutritional transitions and a westernization of diets (Kuhnlein et al. 2013, Damman et al. 2008). A westernization of Indigenous diets means people rely less on foods accessed through fishing, hunting, gathering, and local cultivation and more on processed foods (Damman et al. 2008, Kuhnlein et al. 2004). In Bajo Coen, our colleagues are especially concerned that a decrease in access to wild meat may cause an increase in the reliance on imported meat, meat that is already prevalent in community diets (e.g., served in schools and sold in the community). Consuming imported processed meat raises health concerns in Bajo Coen; this is because imported meat is raised on hormones and antibiotics and raised on poor diets (i.e., using poor quality animal feed).

We found multiple non-nutrient aspects of traditional food harvesting that were affected by PA regulations; these included health, teaching youth, quality of life, cultural identity, social cohesion and bonding, and people’s relationships with non-human beings and the land. Some of these impacts were reported elsewhere (e.g., transmission of knowledge and skills, social bonding in a Chinantec community conserved area in Oaxaca Mexico; Ibarra et al. 2011). In addition to confirming the findings of other scholars, our research reported other impacts of PA regulations on non-nutrient values of food harvesting. For instance, harvesting regulations not only affect the bonding that takes
place on a hunting journey or the bonding that happens when sharing food (e.g., Ibarra et al. 2011), but harvesting regulations can also affect people’s opportunities to experience a sense of cultural pride when sharing wild food.

Our research expands on our understanding of how PA regulations can affect youth’s opportunities to learn skills, teachings, and values associated with traditional food harvesting. Scholars have reported that hunting regulations interfere with youth’s opportunities to learn some skills associated with hunting (e.g., tracking animals), a phenomena referred to as de-skilling (Ibarra et al. 2011). In Bajo Coen my colleagues reported similar concerns regarding de-skilling in relation to hunting skills that are practiced while walking in the forest. Our colleagues also reported unique concerns regarding de-skilling. For instance, there were concerns that PA regulations interfere with youth’s opportunities to learn to process, prepare, and eat traditional foods. The consequences of losing these opportunities extend far beyond those associated with health. When children are not exposed to Bribri food preparation and to these tastes of Bribri foods, our colleagues were concerned that their children are susceptible to adopting western diets and to creating palates only for western foods. A few of our colleagues were concerned that this process of changing dietary preferences is underway.

Furthermore, when traditional foods are not prepared in households, youth have fewer opportunities to benefit from the cultural teachings that take place while preparing these foods. When youth learn to process, prepare, and eat traditional foods they are learning more than practical skills, they are learning about Bribri language, health, history, and ethics.

While some material and social impacts of PA regulations on traditional food
systems has been reported elsewhere (e.g., Ibarra et al. 2011), PA also can affect people’s relationships with plants, animals, and other non-human beings; such impacts have not been fully explored in the literature. As an outsider it was hard for Sylvester to understand how people’s access to forest food was related to their relationships with non-human beings; her lack of understanding of this topic almost led her to omit it this point in this chapter. Sylvester’s lack of understanding of this concept reinforces the point that PAs can affect people’s traditional food harvesting systems in ways not easily anticipated by outsiders. These findings reinforce why Bribri people need have the autonomy to manage their lands to 1) secure their access to cultural food and 2) ensure PAs do not disrupt their relationships with the land and non-human beings.

Describing how Bribri people experience PA regulations through their own concepts and words is one of the most important contributions of this chapter. Bajo Coen community members told Sylvester how creating space to have these conversations is lacking. PA regulations have been created and enforced without giving Bajo Coen residents the opportunity to discuss how these regulations can affect their food harvesting. State PA managers explained how there are logistical barriers to hosting such discussions at the community level, especially in communities that are located far from PA management headquarters. The results presented in this chapter clearly illustrate the need to create space for these discussions because there are a suite of health, social, and, cultural impacts on people that are not currently addressed in La Amistad PA management.
Next steps to support Bribri food access in La Amistad Biosphere

Costa Rica has a strong legal framework to support Indigenous rights to cultural food procurement (Cajiao Jiménez 2002). International human rights law, ratified by Costa Rica, states every man, woman, and child should have physical access at all times to adequate food or means for its procurement (CESCR 1999). Adequate refers to food and food procurement techniques that are culturally acceptable. Scholars have demonstrated that culturally acceptable foods include Indigenous traditional foods, i.e., those that are from the local and natural environment, such as forest foods (Damman et al. 2008, Khunlein and Receveur 1996). In addition to human rights law, Costa Rica has ratified other international conventions that protect Indigenous rights to harvest traditional and culturally acceptable foods; these conventions explain a state’s obligation to respect Indigenous peoples’ right to: 1) enjoy their own culture (ICCPR, Article 27; CRC, Article 30), and 2) enjoy social and cultural practices on their lands (ILO 1989, Article 14). Despite this strong legal backing to support access and rights to cultural food, our research illustrates that the potential of this legal framework has not been fully realized in Costa Rica. We propose three steps important to better support food access in La Amistad Biosphere.

First, to better support Bribri food access in La Amistad Biosphere, PA managers need to fully incorporate human rights into forest management plans. Although Costa Rica has started the process of incorporating human rights into forest management, the process is incomplete. Currently La Amistad Park management plan has only used a limited number of articles from one human rights convention (i.e., ILO 1989) to inform PA management; other human rights conventions are lacking. Scholars have explained
how Indigenous rights to access traditional foods need to be understood within the full suite of Indigenous rights, because all human rights are universal, indivisible, interdependent and interrelated (Jonas et al. 2014, Damman et al. 2008, UN 1993). Thus, access to traditional food needs to be conceptualized through the full suite of Indigenous peoples’ human rights. Some of the human rights PA managers should use to inform PA regulations include rights to: 1) access culturally acceptable food (CESCR 1999), 2) enjoy a way of life that is closely associated with a territory and its resources (HRC 1994, general comment 23), 3) access all traditional forest lands (ILO 1989, Article 14), 4) enjoy one’s culture (ICCPR Article 27), and 5) ensure youth have the opportunity to enjoy their culture (CRC Article 30).

Second, resource managers should create more opportunities for Bribri people to participate in defining what harvesting activities are traditional and sustainable; although this process has started with a small number of Bribri people that are associated with La Amistad Park (e.g., resource guards), there are still many Bribri people that have not had any opportunity to provide their input on harvesting regulations. As such, non-Bribri people have defined which harvesting activities are considered sustainable and traditional, and thus permissible, on Bribri lands. If PA managers create space for a diversity of resource users to provide input on harvesting regulations, it should be done in a way that supports the participation of marginalized groups. In Bajo Coen, for instance, the women Sylvester worked with explained how they would appreciate such an opportunity but even if such an opportunity existed it would be challenging for them to travel to the Park headquarters in Bribri or elsewhere because of their high work
responsibilities. Elders also discussed constraints on travel and expressed the need for these meetings to happen in their community.

Finally, to support people’s rights to access food in La Amistad PA, people need more information about harvesting regulations and about their rights to access food. Although the La Amistad Park management plan articulates the need to support Indigenous people’s rights to continue traditional harvesting practices, the community management guidelines, and the messages broadcast to the community state that certain harvesting activities are prohibited (e.g., hunting). It is these later prohibitions that are the dominant message transmitted to Bajo Coen residents, despite the fact that these messages are counterproductive to creating a forest management plan based on human rights. To help people both understand and exercise their rights to access traditional food, resource managers should disseminate the necessary information to resource users.

**Future research on access to food in Biosphere Reserves**

In spite of more attention being paid to the negative impacts of PA on Indigenous peoples (e.g., Jonas et al. 2014), the access to food in PAs remain underreported given the current high priority of food security in international conservation policy (e.g., IUCN 2013). It is important to analyze whether the patterns revealed here are consistent with other regions within La Amistad Biosphere. La Amistad is a large Biosphere with zones managed differently and with different Indigenous groups living within it (e.g., Bribri and Cabécar peoples); thus, the impacts of PA regulations could vary among these communities. Furthermore, it is important to analyze whether the patterns revealed in this chapter are consistent with Biospheres in other regions. Our results are consistent with those reported on for one other PA in Latin America (e.g., Ibarra et al. 2011) and one in
Africa (Hitchcock et al. 2011); however, there has been a lack of case study research to understand these issues in the other 631 Biospheres found in 119 countries. More research in biospheres is important because one goal of Biosphere management is to promote and conserve cultural diversity; and traditional food is an important part of people’s cultural diversity that UNESCO Biospheres’ have set a goal to conserve (UNESCO 2014b).

**Conclusions**

In this chapter we examined how PA regulations in La Amistad Biosphere have shaped Bribri people’s access to forest foods. Our analysis revealed how PA regulations have affected people’s access to nutrition. PA regulations have the potential to restrict people’s ability to enjoy wild meat and plants; and, shifting prohibitions have the potential to discourage a traditional form of agriculture that is intrinsically liked to Bribri identity and that is important for health. Our analysis further illustrated how PA regulations have negatively affected non-nutritional aspects of Bribri people’s food systems. These non-nutritional elements of tradition food systems include: food sharing, teaching youth (both skills for food procurement as well as teachings associated with language, history, nutrition, and ethics), people’s ability to feel a sense of pride associated with sharing traditional food, people’s right to their cultural identity, and people’s relationships with the land and the non-human beings with whom they share the land. My findings are important because data is lacking on how PA regulations can affect Indigenous peoples’ access to traditional foods. For instance, this is one of only three studies that has examined food access within PAs; and this is the first study, to our knowledge, that has explored this topic in-depth within a Biosphere Reserve.
Costa Rica is a global leader on human rights and has demonstrated this by using Indigenous rights to inform PA management within La Amistad Biosphere (SINAC 2012). Our findings illustrate however, that there is still more work to do. We propose three steps to better support Bribri people’s access to food in La Amistad Biosphere. First, resource managers should revise PA management regulations to include a broader human rights framework (e.g., Jonas et al. 2014, Damman et al. 2008). Second, resource managers should create more opportunities for Bribri people to participate in defining what harvesting activities are traditional and sustainable; this should apply not only to Bribri people associated with the Biosphere (e.g., resources guards) but it should include a diversity of resource users including Elders and women. Third, resource managers should provide Bribri people more clarity regarding harvesting regulations and the necessary information for people to exercise their rights to access food.

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Thank you to our Bribri colleagues that shared their teachings and provided guidance on how to present our research. David Steen provided insightful comments that improved this manuscript. This work was carried out with the aid of a grant from the International Development Research Centre, Ottawa, Canada Information on the Centre is available on the web at www.idrc.ca. This work was also supported by a Social Sciences and Humanities Research Council (SSHRC) Doctoral Fellowship awarded to Sylvester and a SSHRC Grant awarded to Iain Davidson-Hunt.
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INTERCONNECTIONS AMONG CHAPTERS

Chapter 7 analyzes the political ecology of land access; like chapter 6, this chapter is important to illustrate how and why access to food relates to power relationships and translocal politics. My analysis in chapter 6 was limited to protected area regulations. Chapter 7 builds upon chapter 6 by analyzing other factors that shape people’s access to forestland (e.g., land reorganization associated with protected areas and the state creation of Indigenous Reserves, the market economy, and local land tenure). This political ecology analysis is important to illustrate how food access in forests relates to more than people’s relationships with the land (chapters 3), access to resources and/or sharing networks (chapter 4), gender (chapter 5), and protected area regulations (chapter 5); this analysis reveals that access to land to produce and/or harvest food has been shaped by a complex history of land-use in the Talamancan Bribri Territory, a history characterized by state regorganization and control of Bribri land and by use of Bribri land for export agriculture. The political ecology analysis in chapter 7 is also important to demonstrate that not all people experience food access in the same way. In my analysis I illustrate how uneven land tenure at the community level means some people have increased access to forest land and thus forest resources including wild food.
Chapter 7: *Ya no hay tierra*: Bribri people’s land access in the Talamanca Bribri Territory and La Amistad Biosphere Reserve, Costa Rica

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INTRODUCTION

On June 23rd, 2012, while walking with colleague Ms. Sebastiana Segura, she shared a concern with Sylvester that there was not enough land in Bajo Coen. As they followed the community path after a long morning of work in the banana fields Ms. Segura stopped to look to the forest, la montaña as she called it, and she asked rhetorically:

Me pregunto que va a pasar con nuestros bosques en el futuro; seguro lo vamos a necesitar por los jóvenes porque ya no quedan tierra aquí. Nunca hemos tenido que usarlos pero creo que si lo vamos a necesitar.

I ask myself what is going to happen to our forests in the future; I am sure we will need them for our youth because there is no land left here. We have never needed to use them but I think that we will need them.

This is a concern Sylvester heard many times in different forms while living for nine months in the Bajo Coen community. Whether in relation to a lack of land to build dwellings or to make a living through agriculture, this issue was on people’s minds. When Sylvester asked about the continuity of traditional forms of forest food harvesting, such as shifting agriculture, “ya no hay tierra” (there is no land left) was an answer Sylvester heard often.

From her outsider’s perspective, it was hard to understand how there could be land scarcity in Bajo Coen or in the Talamanca Bribri Indigenous Territory in general. While Sylvester stood with Ms. Sebastiana Segura and as she talked about youth needing Bajo Coen forests in the future, we looked out at an expansive area of forest. These vast rolling mountains lush with tropical vegetation are also the first thing that catches your eyes when you depart the commercial center of the Bribri Talamanca Territory on one of
the roads heading towards the mountains (Figure 1). It is not only this picturesque view however, that suggests land is abundant in Talamanca; Talamanca has been designated a high priority area for biodiversity conservation because the largest remaining natural forests in Central America are found in this region (UNEP 2011, SINAC 2012).

Considering the expansive forest land found in Talamanca, it is hard to believe that Bajo Coen residents report land scarcity.

The goal of this chapter is to unpack why people report land scarcity and how this land scarcity can affect some people’s ability to continue forest food harvesting; to do so, we used a political ecology approach (Biersack 2006, Rocheleau et al. 1996). Before we present our analysis, we want to define the term Talamanca, a term used throughout this paper. In Costa Rica Talamanca is a commonly used word. Talamanca was first used in the 1605 by Spanish colonists to refer to an expansive area in extreme southeast of Costa Rica (Fernández 2006); since 1605, colonists, historians, everyday people, and scholars have used Talamanca to refer to this unique region of Costa Rica despite the fact that the geopolitical boundaries of this area have changed since the Spanish colonial era (e.g. Villalobos and Borge 1998, ANCR 1913). Today, Talamanca is still used to refer to many aspects of this Southeastern region of Costa Rica. Talamanca refers to a county in the Limón province of Costa Rica. Talamanca is also used to describe the largest mountain range in Costa Rica that passes through this county. And, Talamanca is used to refer to Indigenous Territories in this region. Because the word Talamanca is central to this region’s history, its geography, and the culture of the people living there, we use this term to capture this rich context.
Political ecology and land use in Talamanca, Costa Rica

Political ecology is research that examines how global and regional political processes influence local-level environmental issues (Andersson et al. 2011, Biersack 2006, Rocheleau et al. 1996). Although political ecological research is done by scholars across multiple disciplines (e.g., feminist scholars, anthropologists, political economists), research in this field consistently addresses the following themes: 1) the history of a given environmental issue, 2) the links among societal and ecological processes, and 3) the influence of the macro-level political and economic context on a local level environmental issue (Andersson et al. 2011, Biersack 2006, Rocheleau et al. 1996, Wolf 1972, 1982). We used a political ecology perspective to analyze access\textsuperscript{16} to and control over land in one community in the Talamanca Bribri Indigenous Territory.

There are only few studies that have unpacked how macro-level politics and economics have shaped land-use in Talamanca. In one of the most comprehensive of these studies, Villalobos and Borge (1998) illustrate how land use in Talamanca has been shaped by colonization, the market economy, resource extraction, protected areas, natural disasters, and uneven local land tenure. Other studies have focused on agricultural land-use. Dahlquist et al. (2007), for example, analyzed household agricultural land use (and land transformation) within the context of the market economy in eight Bribri and Cabécar Indigenous communities in Talamanca; these authors concluded that agricultural land use was shaped by crop disease, population growth, people’s shift to a cash-based economy, the market economy, and the level of support government’s provided for agriculture.

\textsuperscript{16} We defined land access as people’s ability to benefit from land for their desired needs (Ribot & Peluso 2003).
Our research builds on the previous studies of land use and land use change in Talamanca; however, our focus was different from these previous works for two reasons. First, we used land access as a starting point for our analysis rather than land-use change. We used land access because it allowed us to analyze the factors that shape how people use their farmland as well as the wider politics that dictate how other land, such as forests, can be used. Scholars have described land access as a critical issue for Bribri people (Hofstede & Monroy Ojeda 2013, Borge 2011, Candela 2007, Whelan 2005, Villalobos & Borge 1998), but this topic has yet to be examined in depth. Second, our focus was different from previous research because it examined land access across multiple land patches; this means we analyzed land access in forests and the agricultural land patches in the margins of these forests. In previous work, land use has been mainly analyzed in agricultural land patches.

To understand how Bribri people experience land access in the face of contemporary pressures on land-use, my analysis consisted of two parts. First, we used document review to understand two key drivers of land use change in Talamanca: market agriculture and protected areas. Second, we worked at the level of one community, Bajo Coen, to understand how these drivers have shaped people’s access to land. Because uneven patterns of local land tenure can result in people experiencing land access differently, we also analyzed land tenure in the Bajo Coen community to report on these differences.
METHODOLOGY

Case study context: The Talamanca Bribri Indigenous Territory and the Bajo Coen community

This case study took place in the Talamanca Bribri Indigenous Territory, hereafter Talamanca Bribri Territory. There are 7,772 Bribri people living in the Bribri Territory in 26 communities (INEC 2013); and, Bribri people have lived in the Talamanca region since time immemorial. In this chapter we refer to the Talamanca Bribri Territory to indicate the full extent of Bribri lands, which extend further than those recognized by the government. We also refer to the Talamanca valley to indicate the region of this territory where most of market agriculture is concentrated (i.e., the lowlands and lowland forests versus highland forests that to my knowledge are not used for agriculture).

The Bribri Territory was recognized by the state in 1977 and soon after included in Costa Rica’s largest protected area (PA): La Amistad Biosphere Reserve (hereafter La Amistad Biosphere). La Amistad Biosphere was created to both preserve biodiversity and support sustainable development of human communities (this is a requirement of all Biosphere Reserves; UNESCO 2014). La Amistad Biosphere is comprised of nine PAs and 11 Indigenous Territories (SINAC 2012). The Bribri Territory is located in the buffer zone of the largest of these protected areas: La Amistad International Park (199,000ha, SINAC 2012). It should be noted that not all Bribri people recognize the state recognized borders of the Talamanca Bribri Territory. Specifically, my colleagues explained how large areas of the land included in state protected areas are Bribri lands (e.g., La Amistad International Park is Bribri land).
The majority of people in the Bribri Territory use their own land to grow agricultural products. Agricultural products are sold to vendors for resale in the national market or to transnational company (TNC) representatives for resale in the international market (INEC 2013). Currently, the agricultural economy in the Bribri Territory is based on the sale of three main products in organic and non-organic form: banana, plantain, and cacao (Whelan 2005). There is no information, to our knowledge, of the area of land used to produce each of these crops in the Talamanca Bribri Territory; however, at the county level (i.e., Talamanca), plantain and banana take up larger areas of land than cacao (3,205 ha, 2,846 ha, and 1,800 ha respectively; Aruanda 2010 cited in Leal Rodrigues 2011).

To gain a deep understanding of land access at the household and individual level, we worked in Bajo Coen, one of 26 Talamanca Bribri communities. Bajo Coen is a community of approximately 45 households located in a forested landscape. Bajo Coen is a forest-dwelling community whose residents use the land and forests for all aspects of their food systems (e.g., timber for fuel, water, food items). All of the households in Bajo Coen engage in agriculture and all of the households sell crops to outside buyers, including: organic banana, organic cacao, and organic or non-organic plantain. The majority of Bajo Coen residents earn their primary cash income from agriculture (92%) and just three households reported their primary income from teaching or another form of labour. Households surveys revealed that migration was mentioned in 11 households (31%) and the majority of people that migrate out of this community move to the closest commercial centre, Suretka, because of school, work, and/or a union with a life-partner.
Research partnerships, information gathering, and research colleagues

The objectives of this research were developed collaboratively among authors and emerged out of a partnership formed between García and Sylvester in 2009. In 2012, García facilitated Sylvester’s collaboration with members of the Sébliwak Women’s Group (hereafter the Sébliwak Group). This group is composed of nine females (including their male partners and families) and one male. As a group we developed a research partnership based on the Bribri principle, ulàpeitök, a Bribri concept related to sharing. This Bribri concept was the guiding concept for sharing regarding: 1) how to work together in a good way and 2) the work needed to complete the project.

We used multiple data collection procedures to understand the political and economic processes that shape Bribri land access. First, we used document review, a systematic method for reviewing and evaluating documents (Bowen 2009), to understand: 1) the historical roots of specific issues that have shaped Bribri people’s access to land and 2) to understand the macro-level dimensions of land access. The documents analyzed included: organizational and institutional reports, community and government documents, meeting minutes and various public records (Table 1).
We compiled a list of documents that addressed three themes: 1) state legislation regarding Indigenous lands, 2) market agriculture, and 3) protected areas. Overall, we selected 14 documents for analysis (Table 1). A few documents were made available at our research site (e.g., guidelines for community forest management, reports on banana
accounting). Other documents were mentioned by colleagues but were not available within the community (e.g., La Amistad forest park management guidelines); these and other documents were obtained from regional and national state and Bribri government representatives and members of regional Indigenous organizations either in print or electronic form. A few documents we searched for were not available or accessible. For instance, documents about the creation of protected forests in Bajo Coen that colleagues said should be stored at the National Commission of Indigenous Issues (Comisión Nacional de Asuntos Indígenas, CONAI) were not available. Regarding banana agriculture, Sylvester requested documents and interviews with transnational company representatives; however, she did not receive these documents nor did the representatives answer the phone for scheduled interviews (on three different occasions).

The documents reviewed were incomplete and selective. Mainly positive aspects of protected areas or market agriculture were reported; and, reports were biased to reporting on the ecological and economic benefits of protected areas or market agriculture, and the voices of farmers and community members were absent in all reports. To fill data gaps, reduce potential biases, corroborate findings, and to report Bribri perspectives absent in reviewed documents, we triangulated document review with other methods (Eisner 1991). These methods included: participation, interviews, and household surveys.

To use participation as a method (Urry 1999), Sylvester lived in Bajo Coen for a period of nine months (March to December 2012) and participated in community members’ food harvesting activities (Table 2). Through collaboration with the Sébliwak women’s group, Sylvester worked at least three to four times per week in banana and
plantain agriculture, often more. During this time, Sylvester not only grew crops but also sold crops to company buyers and middle vendors, collected pay for community members, and attended community meetings regarding market agriculture. Although Sylvester worked most frequently with members of the women’s group, she participated in the harvesting activities other community members. To gather information during participation in food harvesting and other activities, Sylvester recorded field notes daily by hand.
Table 2: Documents selected and data analyzed regarding land access.

<table>
<thead>
<tr>
<th>Documents selected</th>
<th>Data analyzed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>State legislation regarding Indigenous lands</strong></td>
<td></td>
</tr>
<tr>
<td>Costa Rican Indigenous Law Nº6172 (1977)</td>
<td>How the state Indigenous Law shapes how Indigenous lands can be used</td>
</tr>
<tr>
<td><strong>Market Agriculture</strong></td>
<td></td>
</tr>
<tr>
<td>Record books of banana sales (Bajo Coen and Coroma towns)</td>
<td>Review of quantities of banana sold and market prices from Bajo Coen and Coroma towns</td>
</tr>
<tr>
<td>Report on the banana (Gros Michel) production chain in Costa Rica (Escobedo Aguilar 2010)</td>
<td>Banana market chains for bananas grown in the Talamanca Bribri Territory</td>
</tr>
<tr>
<td>Meeting minutes from a meeting among people from Coroma and Bajo Coen working in organic banana farming (11/08/12)</td>
<td>Understanding the benefits and challenges associated with organic banana farming from the perspective of Bribri farmers</td>
</tr>
<tr>
<td>Draft report prepared for the Office of Evaluation and Studies of the International Fund for Agricultural Development on organic agriculture in Costa Rica (Damiani 2001)</td>
<td>Impacts of organic cacao and banana production in Talamanca on small-scale farmers</td>
</tr>
<tr>
<td><strong>Protected areas</strong></td>
<td></td>
</tr>
<tr>
<td>Costa Rican Indigenous Law Nº6172 (1977)</td>
<td>How the state Indigenous Law shapes how forested land can be used (Article 7)</td>
</tr>
<tr>
<td>Planning document for La Amistad International Biosphere Reserve (Morales et al. 1984)</td>
<td>History of the creation of La Amistad International Biosphere Reserve; original land management framework proposed for this Biosphere Reserve</td>
</tr>
<tr>
<td>Regulations for forest resource use in Indigenous territories (MINAE 1997 in Candela 2007)</td>
<td>How the state Forest Law is applied in Indigenous Territories</td>
</tr>
<tr>
<td>La Amistad National Park Management Plan (SINAC 2012)</td>
<td>Land partitioning and how the state defines acceptable resource use within national park buffer zones</td>
</tr>
</tbody>
</table>
We used semi-structured interviews to understand 1) land history and 2) how individual people experience land access. Specifically, a total of 19 interviews with 13 people ages 23 to age 65+ were completed (Table 1). We interviewed people knowledgeable about land history related to either: market agriculture, land reorganization, and/or the history of land tenure in Bajo Coen. The questions asked during these interviews depended upon a person’s area of expertise. To understand how individual people experience land access, Bajo Coen community residents were interviewed. Interview questions were asked regarding the following themes: 1) market agriculture, 2) and opportunities/barriers to land acquisition.

To understand land access patterns at the community level, we used household surveys. Household surveys were designed to evaluate multiple themes regarding land and resource use (e.g., size of household landholdings, the use of land, and whether or not households experience land scarcity). Sylvester worked with Ms. Sebastiana Segura to complete 36 surveys. The people who responded to surveys ranged from 18 to over 70 years old and we interviewed 18 women and 18 men. Surveys were completed during the
months of October and November 2012.

Information analysis and research ethics

We compiled all data (i.e., documents, notes from participation in community activities, interview transcripts) and analyzed these data using qualitative coding (Creswell 2014). We used the following codes that were selected before data were reviewed: 1) “market agriculture”, 2) “land reorganization associated with protected areas”, and 3) “household land tenure”. Lastly, household survey data on land tenure was summarized and presented in Tables 3, 4, and 5.

Elders in the Bajo Coen community, the local government (Consejo de Vecinos), and the University of Manitoba Joint-Faculty Research Ethics Board approved of this study. The regional Bribri government (ADITIBRI) was informed of the Bajo Coen community representatives’ decisions to participate in this research. Information gathering procedures were approved with modifications made by Elders and Ms. Sebastiana Segura from the Sëbliwak women’s group. All research colleagues provided their ongoing informed consent and chose to have their names appear besides the insights they shared.

Findings and discussion

Market agriculture and forests in the Talamanca Bribri Territory

Early influence of colonization and agriculture on forests: 1821 - mid 20th century

Since Costa Rican independence, state colonial policies have promoted the use of frontier land. When Costa Rica acquired independence from Spain (1821), the state took over an extensive area of land that was not cultivated and that was considered common
land; these lands were called *tierras baldias*, a term that literally translates to wasted lands (Salas Víquez 1987). During the colonial era the remote forests of the Bribri Territory were prime examples of what the state understood as common and/or wasted land because they were lacking development in the form of roads, colonial settlements, and large-scale agriculture (Salas Víquez 1987, interview with Mr. Sebastian Díaz, 19/08/12). The state policy regarding these *tierras baldias* was to occupy and develop them, primarily by building roads, infrastructure, engaging in agriculture and promoting emigration into these lands (Salas Víquez 1987).

The state had a particular interest in developing the forested land of Talamanca. After Costa Rica acquired independence, the state felt the need to colonize Talamanca to ensure effective control over the national territory “*un dominio efectivo del territorio nacional*” (Salas Víquez 1987; 5). The need to use Talamanca to ensure an effective control over the Costa Rican territory was due, in part, to the fact that England and Nueva Granada had land claims over them when Costa Rica became an independent state (Salas Víquez 1987). Other reasons the state wanted to secure control over Talamanca included: furthering the progress of the colony, civilizing Indigenous people, exploiting the virgin forests for resource extraction, and accessing the resource rich Talamanca soil for agriculture (ANCR 1913).

The rationales used to populate, control and develop Talamanca are well documented in letters written by people serving the interests of the state in the later half of the 19th century (ANCR 1913). On Sept 30th 1886, San Bernardo wrote to the governor of the district of Limón that he saw “the need for emigration of families from the interior, not only for the rapid progress of the Colony but in order to utilize the beautiful and
virgin lands [of the colony of Talamanca] (ANCR 1913; 246). On October 28th 1890, Blavanero Vargas, the governor of Limón later wrote to the Secretary of State in the capital city (San José) about the importance of promoting agriculture in Talamanca (ibid; 264).

The fertility of the soil of Talamanca, its abundant fluvial waters, which make it so beautiful and the other natural riches which it possess, are stimulating agricultural undertakings, which are really the foundation of the prosperity and growth of countries...To formally establish the Colony, therefore, should be the principal object, and for this purpose I beg to present to the high consideration of the Minister the following idea; it is this. The occasion seems to me most opportune for attracting colonists to Talamanca.

For some colonists, developing resource rich Talamanca lands into sources of agricultural wealth required using Bribri people for labour. Indigenous people were described as a national wealth for their labor and colonists described their preservation and multiplication as desirable (ANCR 1913). However, to benefit from the labour of Indigenous people, colonists explained the need to civilize them by showing them how to work like colonists (ANCR 1913). Colonists described some of the first steps to ensuring Indigenous people could be trained to work in market agriculture was to discourage their cultural practices and beliefs. On May 12th 1883 P. Semper, a servant of the governor of Limón, wrote to his governor:

To bring out the Indians from the ignorance in which they live and start them upon the road to a civilized life, should be the constant care of the government...It is an arduous task to uproot in Talamanca in a moment its way of life, which it has followed generation after generation; to destroy its sincere although erroneous beliefs represented in its Usécara and its Sukias, stimulating the noble ideas of labor and concerning a reasonable ambition concerning the advantages offered to man by a civilized life (ANCR 1913; 228).
Here, notice how it is assumed that ambition and capacity to engage in labour is thought incompatible with Indigenous ways of life.

In the late 19th century it was not only the state that had its eye on Talamanca for agriculture, international powers were also interested in the development of these lands. The Costa Rican state encouraged foreign investment in the development of Talamanca because foreign investment was key to creating the necessary infrastructure to transport food produced in Talamanca out of the country to fulfill international market demands. The most noteworthy foreign investment in agricultural development in Talamanca was that associated with banana agriculture and financed by the United Fruit Company (UFC). Specifically, the enormous project to build an Inter-Atlantic railroad was financed by United Fruit Company (UFC) representative Minor Keith.

In exchange for the financing of this railroad, Minor Keith was granted a substantial area of land for banana agriculture (Jones & Morrison 1952) This permission granted to the UFC to engage in banana agriculture in Talamanca resulted in the invasion of Bribri lands by the UFC and the imposition of cash-crop banana farming on Bribri lands. Because of Costa Rican state pressure, the UFC set aside a small area of Talamanca for Indigenous people that would not be occupied by banana farming; however, the UFC began to occupy this land less than a year later (Lansing 2014).

This process of occupation of Bribri lands by UFC representatives was violent and destructive toward Bribri people and toward forestland. It is estimated that 185,000 acres of forest land was cleared for bananas between 1900 and 1965 (Evans 1999). Our Bribri colleagues reported how representatives of the UFC ploughed roads through Talamanca, deforested Bribri lands and poisoned their soils, and threatened Bribri people with
violence and death if they interfered; this tumultuous period caused many Bribri people to abandon their dwellings and farms and to flee to new land at higher elevation in the Talamanca mountains to the high mountain; these people created their dwellings and in new less-desirable and/or more challenging habitats (both because these areas were not as suitable as low lands for agriculture and because people had to build new homes, gardens, etc.; Villalobos & Borge 1998, interview Ms. Sebastiana Segura 14/12/13). In the mid 20th century, after the UFC left Talamanca, Bribri people returned to lowland forest habitats; however, these lowlands were not the same as when Bribri people left them (Villalobos & Borge 1998). The UFC operations had stripped Bribri lowlands of their natural resource wealth and these landscape changes affected how Bribri people could use their lands as Victoria Villalobos & Carlos Borge (1998: 39) explained:

The banana company deforested the major part of the valley to grow banana. Also, [the company] made drainage channels and eliminated the forest cover along the rivers edges…the elimination of natural erosion control systems and new artificial drainage systems facilitated violent flooding in the [Talamanca] valley…As a consequence of the ecological destruction in the valley, hunting had to be done in distant forest locations, locations that were difficult to access. Fishing diminished because of the contamination of the waters with mud, agrochemicals, and the uncontrolled use of dynamite (my translation from Spanish).

How market agriculture continues to shape land use: mid 20th century to present

Anyone who has visited the Bribri Territory understands how it is impossible to ignore the UFC’s history in Talamanca. Bananas still flood the landscape (Figure 2); and some of the varieties of bananas grown in Talamanca were introduced by the UFC. Furthermore intricate roadways created by the UFC are still used for the majority of overland travel (Figure 3). In this section, we describe how agriculture continued to proceed in Talamanca after the UFC left these lands until present.
Throughout the 20th century agricultural markets and international demand for cash crops continued to play important roles in shaping the use of lands in Talamanca. In addition to their banana plantations, the UFC established cacao plantations in Talamanca. My colleagues in Bajo Coen explained how in the early 20th century Elders traveled out of their communities to work on these cacao plantations. And, even after the UFC withdrew their industry from the Talamanca Valley in the 1940s, people began to sell cacao on their own lands for commercial purposes to external markets; and, although cacao had been used in Bribri economy before the UFC (e.g., trade with other Indigenous peoples in Talamanca; Villalobos and Borge 1998), the sale of cacao was not, to my knowledge, to supply outside demand.

In the late 1970s cacao was no longer profitable for Bribri farmers because of a viral outbreak of Monilia that devastated cacao crops across the Limón province (the main site of cacao production in the country; Enrique and Suarez 1978 cited in Whelan 2005). During this period, Bribri farmers shifted their main crops to plantain and to a lesser extent to banana (Whelan 2005). In the 1980s, plantain quickly became the main cash crop in Talamanca to satisfy the demand of national and international markets17 (Somarriba 1993). There were a few events that led to a decrease in plantain production in Talamanca; these events included transnational decisions to stop exporting plantains and an earthquake that hit Talamanca in 1991 that disrupted the plantain economy (Somarriba 1993).

In the mid 1990s companies interested in buying organic banana arrived in

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17 The international plantain market drove two transnational companies (BANDECO-Del Monte and Standard Fruit Company) to set up their business in the Sixaola valley to purchase plantains for export to the United States in 1983-84; later, international markets grew to meet demands of international migrant communities (Somarriba 1993).
Talamanca. These companies interest in buying bananas\textsuperscript{18} was driven by a growing global demand for organic products (Whelan 2005). A combination of factors provided incentives for Bribri farmers to begin growing organic banana at a large scale; these factors include but are not limited to: a downsizing of the plantain market, banana companies assuring a stable market for organic bananas, and banana companies promising to increase payments for bananas overtime (Whelan 2005; 2012 conversations with Bribri colleagues).

\textit{How current agricultural markets shaped how people in Bajo Coen use their land}

The influence of the market economy on land use over the past century was reflected in how people use their lands in Bajo Coen. In 2012, agriculture was the primary source of cash income by the majority of households in the Bajo Coen (92% households; Table 3). The three main crops grown in Bajo Coen, and the extent of these crops, are a reflection of international market demand throughout the 20\textsuperscript{th} and 21\textsuperscript{st} centuries (Table 3). Specifically, the only crop grown by all families in Bajo Coen is organic banana.

\textsuperscript{18} Bananas were mainly commercialized as a purée product used in baby food (Hinojosa Sardán 2002). In 2012, a representative of one of the two main transnational companies in Talamanca told Sylvester that bananas are still destined to make this puréed product.
Table 3: Crops grown, purchased, and sold by Bajo Coen households.

<table>
<thead>
<tr>
<th>Crop</th>
<th>Percent Households</th>
<th>Grow</th>
<th>Purchase</th>
<th>Sell locally</th>
<th>Sell to external markets</th>
<th>Earn primary income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cacao</td>
<td>86</td>
<td>86</td>
<td>-</td>
<td>-</td>
<td>64</td>
<td>3</td>
</tr>
<tr>
<td>Plantain</td>
<td>86</td>
<td>86</td>
<td>-</td>
<td>-</td>
<td>86</td>
<td>6</td>
</tr>
<tr>
<td>Banana</td>
<td>100</td>
<td>100</td>
<td>-</td>
<td>-</td>
<td>100</td>
<td>83</td>
</tr>
<tr>
<td>Corn</td>
<td>72</td>
<td>53</td>
<td>25</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Rice</td>
<td>25</td>
<td>97</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Beans</td>
<td>36</td>
<td>91</td>
<td>6</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Yucca</td>
<td>97</td>
<td>97</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Nampi19</td>
<td>92</td>
<td>3</td>
<td>6</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Peach palm</td>
<td>100</td>
<td></td>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Coffee</td>
<td>63</td>
<td>100</td>
<td>6</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Widespread banana production relates, in part, to the lack of (or lack of consistency of) other agricultural markets in Talamanca. During my research, two transnational companies (TNC) purchasing banana were the only consistent buyers of agricultural products in Bajo Coen Talamanca (e.g. UCANEO and TROBANEX). In Bajo Coen, the majority of farmers sold their bananas to one of these companies, TROBANEX; this company would consistently buy bananas every two weeks throughout the year. The TROBANEX organic banana market can be contrasted to plantain, cacao, and other banana markets, all of which are less consistent. Plantains are sold year round

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19 Nampi is the Spanish name to refer to a species of Xanthosoma (Araceae) a root vegetable; this root is called *tu‘* in Bribri.
to intermediary buyers for national markets; however, plantains are not purchased on a regular basis and the price of plantains fluctuates greatly. Intermediary plantain (and occasionally banana) buyers, for instance, may announce they will purchase product but do not end up arriving to do so, this despite the fact that farmers have cut their fruit down and prepped them for sale. As Sylvester saw on multiple occasions, this results in a large loss of income and product for farmers.

Cacao is only purchased twice a year. And, at the time of our research, there was a lack of local infrastructure for people to sell their cacao to external markets (e.g., lack of local buyers and/or inconsistent transport options to ship cacao to buyers). In the case that buyers and/or transport are not accessible, this can also result in a loss of cash income when farmers have cut their cacao down for sale.

Despite the consistency of the banana market, selling to TNCs does not allow the majority of people to make a living wage. For example, one kilogram of organic bananas is sold for around 10 cents (57 colones or 0.11 USD) and this has been the market price for the past 10 years\(^{20}\). Selling bananas, in 2012, the people Sylvester worked with earned well-below Costa Rica's minimum monthly wage; people reported incomes ranging from 20-160 USD per month whereas 502 USD\(^{21}\) was the minimum wage at the time of our research (MTSS 2013); there are households that may come close to a living wage, as long as they have large enough land holdings. But, as we discuss in upcoming sections, it

\(^{20}\) To put this price into perspective, one kilogram of organic bananas sells for approximately two USD (Safeway grocery store price on 01/02/15); and the products made from these bananas (i.e., puréed baby food) sells for much more (e.g, 20 ounces of baby food sells for 10.25 USD; price taken from Amazon on 01/02/15)

\(^{21}\) In 2012, the minimum monthly wage for the category of unskilled worker was 252, 1919.19 Costa Rican colones which works out to approximately 502 USD using an exchange rate of 500 colones to 1USD.
is only the minority of Bajo Coen residents that have large enough land holdings that would permit such an income from banana (Table 4; Borge 2011).

Table 4: Size of land holdings reported by Bajo Coen households

<table>
<thead>
<tr>
<th>Number of Households (of 36 Total)</th>
<th>Size of household land holdings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( \leq 2 \text{ ha.} )</td>
</tr>
<tr>
<td>61</td>
<td>34.5</td>
</tr>
</tbody>
</table>

The pressure to grow bananas goes beyond the need to make a living; banana company representatives have pressured farmers to increase banana production both through training sessions and through economic ultimata. TROBANEX has maintained buying prices consistently low over the past 22 years and threatened not to raise prices until people's production increase (community banana meeting 11/08/12). Ms. Sebastiana Segura explained how companies have kept prices low, and how this, in addition to people’s limited opportunities to sell products elsewhere has left people with few options but to accept these conditions:

Ellos [la compañía] empezó a comprar a un precio bajo pero mas adelante se iba a subir el precio…esto fue unengaño porque no lo subieron. Y también pusieron muchos requisitos para vender banano y dicen es porque nosotros, los indígenas no trabajamos bien el banano…todo eso paso solo porque saben que los indígenas no tienen otra opción; por ejemplo si nos pagan como 20 colones por kilo[de banano] les decimos si porque hay que comer y preferimos esto a nada.

They [the company] started to buy at a low price but the price was supposed to go up…this was a deception because they did not raise it. And, they put a lot of conditions on selling banana and said that it was because us, Indigenous people do not work well farming banana…all of this has happened because they know that Indigenous people do not have other options; for example, if they pay us like 20 colones per kilogram [of banana] we would agree because we need to eat and we prefer that to nothing (interview 30/04/2012).
In 2012, Sylvester spoke to one company representative whose job was to provide training sessions throughout Talamanca to teach farmers to increase their banana production using more intensive farming techniques as compared to Bribri polyculture. Although training may be welcomed by some people, the people Sylvester spoke with were concerned with training based on the principles of increasing production comes at a the cost of growing other wild and traditional food species people have in their polyculture plots. Elder Mr. Ancelmo Díaz explained his concerns:

Es este modelo económico que los Bribris tienen que tener mucho cuidado…es una amenaza latente. Que significa doblar producción? Buscar mas terreno para sembrar o quitar otras plantas de nuestros terrenos…ellos [las representantes de las compañías] ven todos las plantas sembrados juntos como de repente un árbol de laurel una de naranja, plantas de pruta [fruta pan] y dikó [pejibaye] y ellos dicen que estamos perdiendo producción aquí. Ellos dicen que en vez de esta árbol cabe dos de banano pero nosotros no podemos perder el sistema de los mayores porque el modelo económico convencional nos deja dependiendo de las compañías o las personas afuera y de productos de la pulperia.

This is an economic model that Bribri people have to be careful with…it is a latent threat. What does it mean to double our production? Looking for more land to grow or eliminating other plants from our land…they [representatives of the companies] see all the plants growing like all of a sudden a laurel or an orange tree, pruta [breadfruit] and dikó [peach palm]; and, they say that we are loosing production here. They say that instead of that tree we could be growing two banana plants but we, we can not abandon the system of our Elders because the conventional economic model leaves us depending on companies or on outsiders and on the products sold at the corner stores (interview 24/08/12).

Within this market agricultural context, Elders described how some farmers – particularly youth - in the Talamanca region are moving away from polyculture. Elder Mr. Lisandro Díaz described how banana and plantain industry has transformed the landscape both in their community and in the Talamanca region. He described how using
land mainly for bananas comes at a cost, i.e., eliminating forest species traditionally present in polycultures and having to buy other foods that could be produced locally.

En Talamanca mucho se ha cambiado con el banano al monocultivo. Ya no sembramos como los mayores que el banano era solo para consumo y para el chanco [y crecía] junto con muchas árboles grandes. Algunos personas son conscientes y siguen sembrando árboles en sus parcelas y dejan otras crecer pero otros [personas] prefieren volar las árboles para sembrar más banano…No ven los jóvenes que aumentar el dinero que ganamos por banano es a costo de tener que comprar huevos, carne de cerdo, pollo….Aumentar [la producción] no termina siendo mejor.

In Talamanca a lot has changed with monoculture banana farming. We do not grow like the Elders who had banana only for their own consumption and for pigs [and it was growing] alongside many large trees. Some people are conscious and they still grow trees in their plots and they let other things grow but other [people] prefer to fell trees to grow more banana…Young people do not see that the increase in money that we earn for banana comes with the tradeoff that we have to buy eggs, pork, chicken….An increase [in production] does not mean better outcomes (interview 12/07/12).

Summary of the implications of the market economy for people’s land access

Since Costa Rican independence, Bribri lands have been used to fuel both national and international agricultural markets. Bribri land has always been valued as prosperous land ripe for agricultural undertakings. In the early 19th century, this land was valued to help grow the national economy. Currently Bribri land continues to be valued to grow the national economy; currently, this is because of it is a large land area free of agrochemicals that can be used to meet a large international demand for organic bananas.

Understanding how market agriculture affects land access is more complicated than simply reporting the products that have been grown on farmland overtime. My analysis illustrates that the use of Bribri land for market agriculture have been closely linked to the exploitation of Bribri people’s labour in a ways that has challenged their opportunities to continue polyculture. In the early 19th century, Bribri people’s cultural
beliefs and practices were described as incompatible with the noble tasks of labour; and the state described how these beliefs and practices needed to be destroyed if Bribri people were to contribute meaningfully to the market economy. Although this same language is not used today, current agricultural markets have created conditions that continue to discriminate against cultural practices, such as polyculture. Two large TNCs have negotiated control over the majority of banana production in Talamanca. These companies have kept wages extremely low, which has caused some people to feel pressure to increase banana production at the cost of maintaining a diversity of plant species on their land. Furthermore, representatives of TNCs have given Bribri people training on how to increase production, at the cost of polyculture; and, in some cases economic ultimata have used to encourage people to convert polyculture to more intensive banana farming.

**Land reorganization and forest access: La Amistad Biosphere and the Bribri Indigenous Reserve**

*Making new spaces: protected areas and buffer zones*

In the previous section, we described how Talamanca lands have long been valued to grow the national economy and to fuel international demand for food. In this section, we examine how these same lands came to be seen as sites critical for biodiversity conservation and how, in the process, were reorganized into protected forests and buffer zones. In this process of land reorganization, Bribri access to forestland diminished. Before we describe the specifics of the history of land reorganization into protected forests and Indigenous Reserves (which are in protected forest buffer zones), it is important to note the extent of Bribri traditional lands. Our colleagues described a large
area of Talamanca’s forests as part of the Bribri Traditional Territory; this area of land is larger than the land the state has recognized as Bribri land (e.g., 43,690 Ha.; Berger and Vargas 2000) and this area includes the bulk of the core protected zones of La Amistad Biosphere (199,000 Ha.).

The process of creating protected forests on Bribri land was facilitated by a shift in Costa Rica’s approach to land management. In the first half of the 20th century, forests were managed mainly as sites of resource extraction. In the second half of the 20th century a series of both national and international processes created a conservation movement in Costa Rica; as a result, forests were no longer seen only as sites of resource extraction but as important sites of biodiversity conservation (Steinberg 2001).

In the 1970s, Talamanca became a critical site for biodiversity conservation in Costa Rica and the American continent (Evans 1999, IUCN 1990). Talamancan forests have high levels of biodiversity and endemism and these forests are critical sites of watershed protection for Costa Rica and neighbouring Panama (SINAC 2012, Evans 1999, IUCN 1990, Morales et al. 1984). In the early 1970s, Talamanca was identified as the largest virgin tropical forest in Central America (Evans 1999, IUCN 1990). International conservations saw this large tract of forest as an important site of conservation in Central America because these forests, if protected, could act as a corridor between the fragmented forest patches from Mexico to Panama; this habitat corridor was called the Mesoamerican Biological Corridor (MBC; Evans 1999, IUCN 1990). The MBC was not only important in Central America but it was important for biodiversity conservation goals in the whole American continent. Specifically, the MBC was to serve as a land bridge between the forests of South and North America especially
important for migratory species. For all of the above reasons, in the late 1970s, local and international conservation organizations, such as the International Union for the Conservation of Nature (IUCN), proposed a plan to establish La Amistad Biosphere in Talamanca (Evans 1999). When later created in 1982, this Biosphere would span Costa Rica and Panama and would be Costa Rica’s largest protected forest (ibid).

The development of Talamanca into a Biosphere required ensuring this land fit specific criteria. One of these criteria was having a core area of forests that were uninhabited and undisturbed by people (IUCN 1990). Although I could not find any reports that described if Bribri people were relocated in Talamanca to create this core area of protected forests, scholars have described how the process of delimiting the boundaries of Indigenous Reserves was a precursor to creating an area of forest that was designated as free of human populations (Evans 1999). Evans (1999) explained that before protected forests could be established in the core zone of La Amistad Biosphere a research team worked with some Indigenous people to determine boundaries for these Reserves. In other words, creating Indigenous Reserves helped to prime the land into spatial categories that could be easily incorporated into a protected area land management model (e.g., core and buffer zones).

Dividing the land into spatial categories is not compatible with the way many Bribri people conceptualize and use the land. Dividing forests into core areas and buffer zones implies that these discrete, bounded spaces exist. This division is however, not compatible with the way the Bribri people we worked with understand and use land; these people do not divide the land into areas of human use (buffer zones) and area undisturbed by humans (core areas). Humans are one part of the larger landscape of
human and non-human beings that co-exist, in space and time; and, these connections among humans, plants, animals, spirit beings, and the creator do not cease to exist at arbitrary lines that delineate where buffer zones end and forests begin. Furthermore, the concept of designating forests as areas that should be undisturbed is contrary to the teachings of the Bribri creator Sibö. Specifically, land is a living being called Iríria and one of Sibö’s teachings to respect Iríria is to give back to her to thank her for all that she gives Bribri people; to thank Iríria, our colleagues’ explained, it is necessary to give her food by continuing to cultivate the land both in farms and in forests.

**Impacts of protected area and buffer zone land reorganization on land access**

At the same time that the land was divided spatially into categories that were compatible with Biosphere management, laws and guidelines were created that divorced Bribri people from forest land and forest resources; some of these guidelines were associated specifically with the Biosphere and others were created in relation to Indigenous Territories. Article seven of the Indigenous Law (*Ley Indígena* 1977), for example, states that forested land within Indigenous Reserves must remain forested:

> Los terrenos comprendidos dentro de las reservas, que sean de vocación forestal, deberán guardar ese carácter, a efecto de mantener inalterado el equilibrio hidrológico de las cuencas hidrográficas y de conservar la vida silvestre de esas regiones.

The lands within the reserves, which are suitable for forestry, should be kept as such, in order to maintain the hydrological balance of watersheds and wildlife conservation in these regions.

By working with members of the local and regional Bribri governments to understand this article, we learned that people cannot significantly alter forests, even if these forests are on their privately owned property.
In addition to the Indigenous law, other documents have been developed for the use of forest resources on Bribri lands. One of these documents is the regulations for forest resource use in Indigenous territories, a document based on the national forestry law 7575 (MINAE 1997 document in Candela 2007). In this document, it is made clear that harvesting forestry resources is only permitted on land that is not forest land, i.e., only in pastures, scrubland, and/or farmland. And, even then, there is a limit to the number of trees any person can harvest (a total of three trees per hectare per year) and a complicated process to solicit permission to harvest these trees, even when these trees were planted by a person and occur on their privately owned property (Article 4; MINAE 1997).

The other document developed to control the use of forest resources on Bribri lands is La Amistad National Park Management Plan (SINAC 2012). The La Amistad Park Management Plan further limits people’s ability to use and benefit from resources within community forests and on their private lands in the buffer zones of these forests. Specifically, these limitations relate to traditional food harvesting practices (e.g., shifting agriculture and hunting) and travel within forests that are part of Bribri people’s traditional territory (i.e., core forest areas within La Amistad Biosphere such as La Amistad Park).

There are further impacts of reorganization of forests into buffer and core areas that are not easily revealed by reviewing laws and regulations; the reorganization of space, into human use and no-use areas can result in disproportional pressure on land in the buffer zones of forests (Neumann 1997), the zones designated for Bribri people to use. Our colleagues explained how forest resources in buffer zones are under high
pressure due to a more concentrated use of the local (proximal) resources; they described how in the past there was less pressure on local resources, such as those found in community forests. Now, colleagues explained, there are more people in a concentrated area and the concentration of people in this area has put pressure on some local resources (e.g., palm leaves for thatching and some medicinal plants).

Understanding how land reorganization can result in disproportional pressure on land in the buffer zones of forests is an important and highly overlooked point. Scholars have discussed high pressure on land use in the Bribri Territory and related it mainly to population increases; however, without a wider discussion of land reorganization, it becomes easy to assume that land use pressure is a consequence of population increase in Indigenous communities alone (Borge 2011, Posas 2011, Whelan 2005). When land use pressure is analyzed within a historical context, it is clear that state land reorganization policies are complicit in creating disproportional pressure on land use in forest buffer zones, zones where the majority of Talamanca Bribri people live.

Another impact of dividing the land into forests and buffer zones is that it creates a landscape that has been primed to apply new state programs that will continue to restrict people’s access to forests in the future. One example of a new program that build upon past protected area land reorganization is payments for environmental services (PES). PES is a program where forest owners are paid to keep their forests in a some form of protected status. The state laws over forests in Talamanca have made forests in Talamanca perfect candidates for PES programs. Specifically, because the laws and guidelines associated with the management of Indigenous land in forest buffer zones states all forested land must remain forested, this law has facilitated the creation of forest
land patches throughout the Bribri territory that qualify for the PES program.

Specifically, in 2012, 3,308 hectares of Bribri forests within the Bribri Territory received PES under the category of absolute protection\(^{22}\). And, an additional 27,378 hectares in the Bribri Territory were deemed as eligible for PES, which is 60.9% of the total legally-recognized Talamanca Bribri land (FONAFIFO 2013).

At the time of this research, the majority of Bajo Coen community forest land was being managed using the PES program (Mr. Elias Escalante, interview 30/10/12). Unlike other areas of Costa Rica where PES go directly to the land owner, the situation in the Bribri Territory is more complicated. Because the entire Bribri Territory is managed by one central government (in Suretka), the PES for all community forests go to this government. My colleagues described several concerns with this situation. Some colleagues described how the premise of the program was not compatible with Bribri forest use. On December 16\(^{th}\) 2013, Mr. Ancelmo Díaz, a community Elder, described how paying for conservation was not part of a Bribri land ethic, instead caring for the land is part of what it means to be Bribri. Furthermore, Mr. Díaz explained that himself and other Elders did not agree with the notion of conserving land at the expense of Bribri people losing their rights to use forest resources. Other colleagues explained how, in addition, the PES program appears unjust for forest users. On December 15\(^{th}\), 2013, Ms. Sebastiana Segura explained how it is the people who live in the forest bear the major part of the burden of protecting the land and then it is the Bribri central government who receives the payments for this work. Ms. Segura along with other colleagues explained

\(^{22}\) In Talamanca, the majority of PES have been allocated to the category of absolute forest protection, and not designated for uses that are more compatible with continuity of cultural uses of the land (Molina Murillo et al. 2014).
how they understand that the PES funds are used for the overall betterment of the Bribri Territory, however, at the time of our research none of these benefits were ever communicated to the people we worked with.

*Summary of the implications of land reorganization for people’s land access*

Land reorganization associated with La Amistad Biosphere the Bribri Indigenous Reserve has restricted Bribri people’s access to land. Creating the Talamanca Bribri Indigenous Reserves in areas marginal to large tracks of forest helped to disconnect people from forest land. Land reorganization associated with La Amistad Biosphere the Bribri Indigenous Reserve has also restricted Bribri people’s access to forest resources. Land managers have created laws and guidelines that limiting harvesting activities within forests. And, because people are limited to using only lands within protected forest buffer zones, there has been increased pressure on the resources within these zones; as my colleague explained, this increased pressure has challenged some people’s access to forest resources. Finally, the impacts of land reorganization will continue to be experienced by Bribri people into the future. Land reorganization has created a modified landscape of protected forests and buffer zone areas and this modified landscape has facilitated the adoption of new forest management programs that can continue to restrict people’s access to forests (e.g., PES).

**Differences in land and forest access at the community level**

Understanding differences in land access among Bajo Coen community members requires understanding the history of land ownership in Bajo Coen. Mr. Alí García explains how before the UFC entered the Talamanca Bribri Territory, people used to live in the lower mountain and use the valley area (the current location of Bajo Coen) as
communal land. People also tended to live in regions associated with their clans; thus, land was acquired by association with their clan and not through purchase. After the UFC left the Bajo Coen valley, the land was left in poor condition; it was deforested, contaminated with chemicals, and resources were decimated (Villalobs and Borge 1998). When Bribri people reoccupied this valley, people began to inhabit the land. Because this period coincided with the increase of use of a cash economy (introduced by the UFC and used by teacher that worked in the region), Bribri people began to incorporate the use of this cash economy to acquire land.

When lands in the valley were acquired by Bribri people, they were acquired by only a few Elders. Ms. Sebastiana Segura explained how what is now called the Bajo Coen community was once land patches owned by approximately five Elders. Elders described how when they were young Bajo Coen houses were far apart (e.g., a 10 to 20 minute walk away); this is a stark contrast to the land occupancy today where dwellings are much closer together, i.e., some are a minute or two walk away). In the past, few people living in Bajo Coen couple with ample forest land allowed a small group of Elders to acquire large land holdings. In an interview on December 15th 2013 with Ms. Sebastiana Segura, she explained past land acquisitions (as her father explained them to her). Ms. Segura said land was widely available and it was inexpensive; and there were a few Elders that worked hard to acquire large tracts of land. Thus, it was through inheritance that these Elders passed on their land to their family members of subsequent generations. Thus, if one Elder had large land holdings, subsequent generations within this Elder’s family may also hold large land holdings.
Land ownership today in Bajo Coen reflects its history. Specifically, a minority of people in the community continue to hold large land patches whereas the majority of people have small land holdings (Table 4). The patterns revealed in household surveys were corroborated by Sylvester’s experience living in Bajo Coen and through interviews with Bajo Coen residents. For instance, a commonly reported concern was that a few families and/or a few Elders owned the majority of land in Bajo Coen. Ms. Ninfa Hernández a household head in her mid-40s explained how all of the land suitable for shifting agriculture is owned by a few Elders and these Elders are not selling the land because they are reserving it for their kids (interview 3/11/2012).

Our colleagues explained how land access if further constricted due to the high costs of land. One young family talked to Sylvester about the need to share land based on land shortages and high land prices in Bajo Coen. On July 1st 2012, Ms. Ana Grisel Segura explained how she recently moved out on her own but to do so it required borrowing family land. Ms. Segura explained how she was still lacking her own land to grow bananas for income but that she was fortunate to have borrowed a patch of her mother’s agricultural land for this purpose. She said that although her family was doing fine because they had access to family land, she worries about her young son; she explained that if land access is a serious issue for her generation she can only imagine how difficult it will be for him to acquire land to live and grow food. All of the youth Sylvester interviewed engaged in land sharing either for land to build houses or for agricultural land.

Differentiated land access can shape people’s access to forest resources. Household surveys revealed that households with large land holdings were also more
likely to own forest land than those households with smaller land holdings; this means that only a minority of people in Bajo Coen have access to private forest land (Table 5). Furthermore, the households that owned large land patches did not report issues with land scarcity and/or challenges to access forest resources whereas the majority of households that did not own large land patches described one or more concerns about forest resource access (81% of the households).
Table 5: Size of land holdings divided into how the land is used and where the land is located.

<table>
<thead>
<tr>
<th></th>
<th>Size of household land holdings</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Small (≤ 2 Ha.)</td>
<td>Large (&gt; 2 Ha. &lt; 160)</td>
</tr>
<tr>
<td>Number of households (of 36 Total)</td>
<td>61</td>
<td>39</td>
</tr>
<tr>
<td>Total Land (Ha.)</td>
<td>58</td>
<td>310.5</td>
</tr>
<tr>
<td>Percent of households with land dedicated only to agriculture</td>
<td>50</td>
<td>3</td>
</tr>
<tr>
<td>Percent of households with land dedicated to more than agriculture (other uses)</td>
<td>14</td>
<td>33</td>
</tr>
<tr>
<td>Percent of households with land in one geographic location</td>
<td>33</td>
<td>3</td>
</tr>
<tr>
<td>Percent of households with land in multiple geographic locations</td>
<td>31</td>
<td>33</td>
</tr>
</tbody>
</table>

These links among owning private forests and differentiated resource access patterns were further elaborated on during interviews. Ms. Ana Grisel Segura explained how her lack of access to private forest patches has challenged her access to resources. On July 1st, 2012 she talked about the harvest of palm leaves used to make roofs on dwellings; she explained how the palm leaves in communal areas of forests are becoming locally rare, in the sense that people have to travel further into the forest to access these leaves; and, she said, this has made it challenging for her to access the leaves needed to build her roof. Ms. Segura contrasted her experience with a fellow community member that owns a large patch of private forest; she says that he takes care of these palms on his land so that he has continual access to the leaves and does not face the same resource scarcity problems as those using community forests for leaf harvest.
The situation Ms. Segura describes is also relevant to food access. People with larger tracks of land may have greater access to areas to engage in shifting agriculture. And, as illustrated in chapter 3, the harvest of wild food (e.g., animals and wild edible greens) is associated with shifting agriculture. Thus, those people who have greater access to forest land and forest margins can have greater facility in accessing and producing traditional and wild food.

Impacts of unequal land tenure on land access at the community level

Bajo Coen’s unique history of land tenure has shaped contemporary land access. Although differential land tenure is important to understand how different people access land within one community, this point has been left out in the majority of studies and reports on land use, agriculture, and protected areas in the Talamanca Bribri Territory (e.g., SINAC 2012, Dahlquist et al. 2007, Damiani 2001). When information on individual or household land tenure is missing, it may be easy to assume that the regional and global drivers of land reorganization and land use change will affected every Bribri person in a similar way. Our work illustrates this is not the case. Land tenure is not uniform across households and this is one reason why those people with small land holdings reported experiencing land scarcity whereas those people with large land holdings did not.

Our findings are important in light of the multiple pressures on land use. Due to a suite of factors associated market agriculture, people in Bajo Coen reported experiencing pressure to intensify their farming for export at the cost of farming for their own consumption. And, as we illustrate, these pressures are felt more strongly for people with
smaller land holdings. Bajo Coen residents also described a growing pressure on forest resources in community forests due to a large number of people harvesting limited resources in the same area. These pressures on local land use are experienced more strongly for people that do not own have access to their own private forest patches and who rely solely on community forests for harvesting key forest resources (e.g., leaves for thatching, medicines).

**CONCLUSIONS**

We conclude as we began with the deceivingly simple statement: *ya no hay tierra*. Behind this statement are many factors that act in concert. As early as the 19th century, national and international actors have attempted to populate, develop, and control Bribri land for state economic growth to prevent the usurping of state claimed land; this was done through market agriculture and has resulted in deforestation and contamination of Bribri land as well as displacement. The current organic banana economy is fraught with inequalities that continue to challenge land access (e.g., discrimination against Bribri farming and pressure to intensify agriculture). In addition to the pressures on land access that can result from the current organic banana industry, the state has attempted to enclose people in a territory not representative of their traditional lands neither in area nor in quality. This process of land reorganization has resulted in two key outcomes that further restrict land access. First, it has primed the land into categories (i.e., protected forests and buffer zones) that have facilitated the implementation of many forest management programs that continue to restrict Bribri access to land within the forest buffer zones they now inhabit (e.g., biodiversity conservation and PES). A second outcome of land reorganization is the concentration of human populations in forest buffer
zones; this can disproportionately increase pressure on the land people have state-
approved access to. These multiple pressures on land access are not experienced the same
way for all Bajo Coen residents. A few community households (19%) have access to
large land holdings (and private forests); and, these community members did not
experience land scarcity to the same degree as the majority of Bajo Coen residents with
access to smaller land holdings.

Although our work was limited to one region in Costa Rica, these findings are
relevant to understanding land access elsewhere. There are people living in the buffer
zones of 70 percent of the world’s protected areas (Terborgh and Peres 2002) who
experience similar pressures on land to those analyzed here (e.g., market agriculture,
protected area land-use regulations, land reorganization, and uneven land tenure within
communities; FAO 2014). Our work illustrates why we need to analyze these pressure
together to understand their interactive impacts on different people’s ability to benefit
from land and resources

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Sylvester and a SSHRC Grant awarded to Iain Davidson-Hunt.
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Chapter 8: Conclusions

Thesis Objectives and Related Findings

The purpose of this thesis was to better understand the factors that shape the harvesting of, and access to forest foods in the Talamanca Bribri Indigenous Territory, Costa Rica. I achieved this through three specific research objectives: 1) to describe the landscape ethnoecology of Bribri forest food harvesting, 2) to understand how forest food use and access by household, gender, and generation, and 3) to investigate how forest food harvesting is shaped by access to and rights over land and resources. I found that access to food in forests requires the use of multiple land patches, the continuity of polyculture and shifting agriculture, and interacting with non-human beings in non-physical worlds; these findings confirm the assertion that taking a landscape perspective is critical to understand forest food harvesting systems (e.g., Frost et al. 2006) and that ethnoecology is a useful framework to do so (e.g., Johnson and Hunn 2010). I also found that both harvesting and food sharing are important ways to access wild food. My analysis revealed that wild food is consumed in all households and commonly by members of all generations; these are key findings that fill knowledge gaps regarding forest food use. My gendered analysis demonstrates how gender roles are not fixed but relate to factors beyond sex (e.g., skills, motivation to harvest) and how harvesting can be cooperative among members of different sexes.

At the end of my thesis, I expanded upon political processes that interact with the ethnoecology system. Specifically, I illustrate how protected area (PA) regulations can hinder people’s access to food through multiple pathways (e.g., prohibiting harvesting
activities, disrupting opportunities to teach youth and share food). And, I demonstrate how long term access to forest food needs to be understood in terms of people’s access to land, a phenomena shaped by agricultural markets, land reorganization, and uneven land tenure within communities. In the next section, I elaborate how my findings make important theoretical contributions within the ethnobiology and related literatures.

**Theoretical Contributions**

There are two main areas in which this thesis contributes knowledge to build theory in ethnobiology and related fields. First, this thesis expands our understanding of the complexity and integrity of Indigenous people’s wild food harvesting systems. Ethnobiologists have developed frameworks for understanding resource use for Indigenous people; in these frameworks scholars illustrate how resource use is shaped by cosmology, knowledge about a species, and unique harvesting practices (i.e., ethnoecological frameworks; Toledo 2002, Posey 1984). In the published literature however, there are few case studies that use an ethnoecology lens to examine wild food harvesting to provide rich descriptions of complex harvesting systems. Most commonly, research on wild food harvesting has focused on one or few aspects of the harvesting system but not on the system as a whole (e.g., Camou-Guerrero et al. 2008). As a consequence, research on wild foods has been focused on two main areas: 1) lists of food species people use and/or lists of the species people harvest or hunt (e.g., Altrichter 2011) and 2) nutrition (Grivetti and Ogle 2000, Fa et al. 2003, Golden et al. 2011, Powell et al. 2013). By using an ethnoecology approach to understand wild harvesting, this thesis brings attention to widely overlooked aspects of Indigenous food harvesting systems. First
it examines how people’s relationships with the land and non-human beings shape food access (Chapter 3). Second, it describes the practices important for resource use and access; this includes harvesting and sharing (Chapter 4). Sharing is an element critical for people to access food, however, scholars have noted this is an aspect of Indigenous people’s food harvesting that has not been well examined; for instance, Collings et al (2009) explain how scholars have been more preoccupied with what people use than with the ways people share food to both access it and to support the continuity of the cultural practices surrounding food sharing.

The second main areas in which this thesis contributes to building theory relates to gender. Specifically, using the case of wild food, I unpacked some of the complexities related to gender and resource harvesting. Unpacking these complexities was important because in the published literature and in academic and development discourses there are widespread generalizations about women’s and men’s harvesting roles that do not always accurately reflect the reality of gendered harvesting. One way to reverse the reproduction of simplified explanations about gender and harvesting is to generate more nuanced analyses of gender; this is where my thesis makes an important contributions.

Specifically, my work contributes to a small but growing body of literature that has started to unpack the nuances of gender and wild food harvesting. Scholars have illustrated how hunting groups may be gender mixed (Bliege Bird et al. 2012) and my work confirms this finding (Chapter 5). My work brings attention to men’s contributions to wild plant gathering, a topic widely overlooked in the published literature and that has only been mentioned in a few studies (Dahlberg 1981, Draper 1975). Specifically, I illustrate how men can be primarily responsible for wild plant food access (Chapter 4)
and how some women rely on their male partners, friends, and relatives to harvest wild
plants when they do not have the opportunity to do so (Chapter 5). This contribution is
important because in the published literature the benefits of plant gathering, such as the
contributions gathering makes to household diets and nutrition, are commonly associated
with women (e.g., Mai et al. 2011, Powell et al. 2013).

My work also foregrounds the diversity of women’s contributions to wild food
harvesting across multiple harvesting stages. In ethnobiology and forestry literature this is
not a common approach to examining gender; instead scholars have focused on the
resource appropriation stage of harvesting (e.g., Camou-Guerrero et al. 2008). A focus on
only one stage of harvesting runs the risk of misrepresenting women’s skills and
contributions to food access (Peers 1996). Lastly, my research illustrates the importance
of understanding how other factors interact with gender to shape wild harvesting. In the
published literature scholars have broached this topic for select variables related to a
resource and to local environment variability (e.g., Codding et al. 2011). Specifically,
behavioural ecologists have created models that illustrate how the gendered composition
of harvesting groups depends on the resource harvested, the expected energetic returns of
a resource, the risk associated harvesting a resource, and the social support networks
available to harvesters (Codding et al. 2011). I contribute to this discussion by illustrating
how additional factors can interact with gender to determine who engages in harvesting;
these factors include: a person’s life-stage, health, motivation to harvest, opportunities to
harvest, knowledge about a species, personal relationships, and work responsibilities can
all shape participation in a given harvesting activity. Some of these factors have been
highlighted by feminist political ecologists regarding gendered resource use (e.g., life-
Unpacking the complexities of gender and resource harvesting is important to inform the design of research and development project; this is one area within which my work makes an important contribution. To explain why, I provide two personal experiences. During my Ph.D., I experienced how stereotypes based solely on sex-based assumptions influence how people think about research questions in academe. While I was designing this project, for instance, I was told that because I was working mainly with wild plant foods, I would mainly be working with Bribri women. Well into my research however, I realized that both men or women are responsible for wild plant harvesting; and, I learned how working with members of both sexes was important to fully understand access to these foods. If I had not sought to understand how factors beyond gender shape resource access and entered into this project with a priori assumptions about what women and men do, I may have failed to accurately represent the full contributions of women and men in my thesis. In another experience, I also learned how simplified generalizations about men’s and women’s roles in resource harvesting shape development projects. Specifically, I attended an International Union for the Conservation of Nature (IUCN) meeting to discuss wild resource harvesting in 2015 in Costa Rica; during this meeting scholars and practitioners were discussing the design of a regional conservation project, a project with study sites in the Talamanca Bribri Territory. During this discussion, people based their ideas for project design around the commonly held assumption that men hunt and women gather wild plants. From the information
generated in my thesis, I was able to offer insight that such generalizations about women and men’s roles do not always accurately reflect the harvesting system; and that using these generalizations can run the risk of overlooking women’s contributions to hunting and men’s to plant harvesting. My experiences illustrate how simplified assumptions about gender and wild resource harvesting are used to design research in academe and in development. And, I shared these experiences to demonstrate how the research I did for this thesis is important to support the design of academic and development projects that reflects the complex relationships surrounding gender and resource use.

**Methodological Contributions**

This thesis also makes an important methodological contribution to ethnobiology. Despite the centrality of Indigenous people to the existence of ethnobiology, there is little guidance in this field on decolonizing, feminist and Indigenous methodologies. Ethnobiology methods texts commonly describe research tools and techniques rooted in Western philosophical research traditions (e.g., Martin 2004, Etkin et al. 2011, McCune and Kuhnlein 2011). By describing a Ph.D. methodology that was based on Bribri teachings, this thesis increases awareness of how to use Indigenous teaching to design ethnobiological research. Increasing the awareness of Indigneous methodologies is critical to reversing methodological discrimination that exists in research across multiple disciplines; and, it is only through an increased awareness about Indigenous methodologies that this form of scholarship will become more accepted in academia (Kovach 2009).

By engaging with feminist methodolgies, this thesis is also a unique contribution to ethnobiology. Through feminist principles of reflective practice, I illustrated how
ethnobiology projects as well as specific data collection methods can have unintended or unforeseen impacts on research colleagues. By incorporating a feminist goal of producing knowledge for social transformation, my research has illustrated how ethnobiology research can be designed to: 1) generate knowledge important to accurately represent people’s identity and to 2) support people’s human rights goals.

In my view, the methodological contribution is one of the strongest contributions of my thesis. I recently co-organized and attended a conference on Indigenous research Ethics (February 2015); during this conference there was a unanimous sentiment expressed among scholars, policy makers, students, and practitioners for the need to make IR approaches more visible. The need for increased visibility has many levels. It is important that these approaches become better known so they are part of methodological options for scholars (Kovach 2009). Increasing the visibility of Indigenous research methods is also important so research and ethics boards can understand how to revise their guidelines to ensure these guidelines support and do not hinder the application of Indigenous methodologies in academe.

**Contributions of this Work to Indigenous Rights and Forest Management**

This thesis has practical applications that are relevant to Indigenous rights and forest management. Access to traditional food is supported by human rights conventions because this food is important for people’s health and nutrition; foods harvested from forests are examples of traditional foods (Damman et al. 2008, FAO 2008, CESCR 1999). In La Amistad Bisphere where my research takes place, Costa Rica has set goals to respect Indigenous rights in forest management and has ratified multiple conventions that support these goals (SINAC 2012, Cajiao Jiménez 2002). Despite this first step to
support Indigenous rights in forest management, there are limited directives on how to do so, especially regarding access to traditional food (SINAC 2012). Because this thesis examined Bribri people’s use of forest foods, it was well positioned to examine if and how forest management regulations affect people’s access to these foods; this analysis is important because it has not been carried out in any biosphere elsewhere and is relevant to verify if a biosphere has met its goal to balance people’s access to resources with biodiversity conservation. I found that in the case of La Amistad Biosphere, state managers have not yet met this goal because these managers have yet to fulfil Bribri people’s rights to access food.

As part of my goal to engage in critical scholarship, I generated three key recommendations for forest management. First, a broad human rights framework should be applied to protected area (PA) management. Second, people require opportunities to define what harvesting activities are traditional and sustainable and should be respected in PA management. Third, harvesting regulations need to be clearly communicated by land managers to resource users so people have the necessary information to exercise their rights to access food. Generating these recommendations is relevant to addressing an international call to better respect Indigenous rights to resources in PAs (e.g., outcome 5, Durban Action Plan; IUCN 2004). A recent report on Human Rights for Conservation report explains how a decade after a call to better respect Indigenous rights to resources in PAs, many PAs continue to be managed in ways that fail to uphold Indigenous rights (Jonas et al. 2013). Still, from my literature review, there are only two studies to my knowledge that have analyzed the topic of food access in PAs (Hitchcock et al. 2011, Ibarra et al. 2011). And, these studies lacked on making detailed links among traditional
food access and human rights. Because my research relates traditional food access in PAs to human rights conventions, it fills an important gap in conservation biology. My results will be especially useful to Costa Rican PA managers that have the responsibility to support Indigenous people’s access to traditional resources (SINAC 2012, ILO 1989). My analysis will also be useful to non-state actors (e.g., international organizations, NGOs, and funders) that have responsibilities to respect Indigenous resource rights in the design, funding, and/or implementation of conservation initiatives (Jonas et al. 2013).

Generating information relevant to people’s resource rights was one of my primary goals when I chose to do a Ph.D.; it is rewarding that this goal was accomplished. I have done research on access to food resources in PAs in Costa Rica for almost a decade. During this time I have learned how relevant food access in PAs is for a number of forest-dwelling communities because many foods harvested from forests have both cultural and nutritional significance (Sylvester and Avalos 2009, Chapters 3,4). Also, I have learned how PA managers are interested in learning how to better support people’s access to traditional food resources but have described how they lack the information on how to do so. During my Ph.D., for instance, Mr. Olman Morales, the administrator for La Amistad Park (Caribbean sector), explained how he is the only person working as a representative for park administration in the area of the Talamanca Bribri Territory; working on his own, he said, means he does not have the time or economic resources to visit individual communities to learn about the nuances of Bribri food harvesting systems nor to organize meetings for this purpose (interview 19/11/2012). In this context, my work is relevant to land managers that are required to ensure that PA regulations do not hinder access to traditional food. Some of my Bribri
colleagues have already expressed how they value this applied aspect of my thesis; these colleagues have explained how for decades the state has taken control over Bribri lands and resources without adequate respect for Bribri rights over land and resources. This feedback is encouraging and it is my hope, thus, that the information generated in this thesis will be used to bring attention to areas of PA management that need more work regarding access to forest food, attention needed in Costa Rica and PAs elsewhere.

**Avenues for Future Research**

My thesis uncovers multiple avenues for future research regarding forest food harvesting systems. First, my analysis reveals the need to understand how forest foods are important to Indigenous people beyond their economic and/or nutritional values, values most commonly reported on in the literature. Increasing awareness of the social or symbolic importance of forest foods is important to support ensure forest management interventions respect people’s right to enjoy their cultural identity. Second, my research illustrates how there are complex relationships among gender and food access, relationships that require further unpacking in the published literature. My work brings attention to the need to understand how gender interacts with other factors (e.g., life-stage, health, motivation to harvest, opportunities to harvest, knowledge about a species, personal relationships, and work responsibilities can all shape participation in a given harvesting activity) to shape access to food. My work also illustrates how many stages of wild food harvesting are done in mixed gendered groups and/or are done in cooperation among members of different sexes. Considering the relationships among gender and food access are complex, my work should be followed up on with different case studies that examine these complexities in different regions and among different cultural groups.
Perhaps most importantly, my thesis reveals the need to evaluate PA regulations to determine if they respect Indigenous rights. Specifically, my analysis focused on people’s rights to access culturally acceptable food such as traditional foods harvested from forests. My thesis revealed that in La Amistad Biosphere Reserve, a PA managed to support Indigenous rights, has not met this goal regarding food access. That my analysis is the only one to my knowledge done in a Biosphere Reserve illustrates the need to carry out similar analyses in Biosphere Reserves elsewhere; my thesis provides a framework to do so.

**Concluding Thoughts**

When I met with Mr. Alí García in 2009 to express my interest in working together on a project related to food harvesting in the Talamanca Bribri Territory, he taught me the most valuable aspect of this project: to not rush the process. On March 31st, 2015, over five years later, this point surfaced again while we were having coffee. We realized we spent one hour talking about why the English word “sharing” does not adequately describe the Bribri concept behind resource sharing: *I tchabë tòk*. And, despite the fact that I lived for nine months with Mr. García’s family, sharing food and other resources on a daily basis, I still did not understand this fundamental concept. This conversation, along with many others have reminded me not rush the process, if I want to produce information of value to Bribri people. For this reason, this project should not be viewed as complete. Instead, it is the start of my journey as a student of Bribri language, history, and food harvesting; it is also the start of a journey to apply Bribri teachings to an academic methodology. These processes require a lifetime of learning and this is only the beginning. Thus, I invite readers, especially Bribri readers, to use this document to learn
from my journey, to build on it, and to continue to discuss insights that were not accurately captured or explained here.
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HOUSEHOLD SURVEY

Date & Time: ___________________ Community: ____________________________
Household Number: ___________________ Interviewer: _______________________

“We will begin by asking you to provide some general information about the people living in your household. This includes all of the individual’s age, sex, education and activities or jobs.”

Table 1: Household Information
(In the first column mark X for all individuals present during the interview and mark * for the respondent) Age Categories: a) 0-9 b) 10-19 c) 20-29 d) 30-39 e) 40-49 f) 50-59 g) 60+

<table>
<thead>
<tr>
<th>Individual (X, *)</th>
<th>Age</th>
<th>Sex</th>
<th>Education</th>
<th>Primary source of income</th>
<th>Activities +/or Jobs in last year (Circle which generate income)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2</td>
<td></td>
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<tr>
<td>3</td>
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<td>4</td>
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<tr>
<td>5</td>
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<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1.1 How many people total live in your house? ________?
1.2 How long has your family lived in this community? ________ years.

2. Food Security

“We will now ask a few general questions about food production.” [use table below]

<table>
<thead>
<tr>
<th>2.1 Which foods does your household produce?</th>
<th>2.2 Where are these foods destined?</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Banana</td>
<td>Consumption Both</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sale</td>
<td></td>
</tr>
<tr>
<td>Plantain</td>
<td>Consumption Both</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sale</td>
<td></td>
</tr>
<tr>
<td>Corn</td>
<td>Consumption Both</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sale</td>
<td></td>
</tr>
<tr>
<td>Yucca</td>
<td>Consumption Both</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sale</td>
<td></td>
</tr>
<tr>
<td>Name</td>
<td>Consumption Both</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sale</td>
<td></td>
</tr>
<tr>
<td>Nampi,</td>
<td>Consumption</td>
<td>Sale</td>
</tr>
<tr>
<td>----------------</td>
<td>--------------</td>
<td>------</td>
</tr>
<tr>
<td>Rice</td>
<td>Consumption</td>
<td>Sale</td>
</tr>
<tr>
<td>Beans</td>
<td>Consumption</td>
<td>Sale</td>
</tr>
<tr>
<td>peach palm</td>
<td>Consumption</td>
<td>Sale</td>
</tr>
<tr>
<td>chicken</td>
<td>Consumption</td>
<td>Sale</td>
</tr>
<tr>
<td>pork</td>
<td>Consumption</td>
<td>Sale</td>
</tr>
<tr>
<td>coffee</td>
<td>Consumption</td>
<td>Sale</td>
</tr>
<tr>
<td>Other:</td>
<td>Consumption</td>
<td>Sale</td>
</tr>
</tbody>
</table>

“Now we will ask you about how you obtain foods not produced by your household”
[use table below]

2.3 When you don’t produce foods, how do you obtain them?
- Exchange (Trueque/Meneuk)
- Purchase from store/mobile vendors
- Travel to purchase outside community
- Other:

2.4 In the last 3 months, how do you consider your family’s diet?
- Below Average
- Average
- Good
- Excellent

2.5 In the last 3 months have you received any seeds/plants from extension services (e.g. INA)?
- No
- Yes, occasionally
- Yes, frequently

2.6 In the last 3 months has your family felt a shortage of any food items?
- No
- Yes, specify: (e.g., meat, grains)

2.7 Are you part of a group or cooperative related to food production?
- Yes, which one:
- No
- Would you like to be?
- Yes
- No
Why haven’t you participated in such a group?

3. Harvesting/Consuming Forest Plant Foods “Now we’ll ask a set of questions relating to your household’s consumption of forest plants.”

<table>
<thead>
<tr>
<th>Forest Plant Foods</th>
<th>3.2 Who in your household eats these plants?</th>
<th>3.3 Who in your household harvests this plant?</th>
<th>3.4 How often has your household consumed this resource in the last 3 months?</th>
<th>3.5 How do you obtain this resource?</th>
<th>3.6 Where do you obtain this plant?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ar</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Broku</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Snar</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yawo</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>a. elders</td>
<td>Use numbers from Table 1</td>
<td>a. once a week</td>
<td>a. harvested</td>
<td>a. community, on your land</td>
</tr>
<tr>
<td></td>
<td>b. youth</td>
<td></td>
<td>b. once a month</td>
<td>b. gifted/ shared</td>
<td>b. community, others’ land</td>
</tr>
<tr>
<td></td>
<td>c. everyone</td>
<td></td>
<td>c. Not at all</td>
<td>c. purchased</td>
<td>c. outside community</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>d. other</td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td>c. other</td>
</tr>
</tbody>
</table>

3.7 If you don’t harvest forest plant foods, what do you consider the principle barriers:

a. access
b. abundance of other foods
c. time
d. dislike taste
e. other

“Now we’ll ask a few individual-based questions.”

3.8 Who did you learn to eat forest foods from?

a. father / mother b. grandfather / grandmother c. uncle / aunt
d. brother / sister e. cousin f. friend g. other
3.9 Who are you teaching these practices to?
   a. niece / nephew  
   b. son / daughter  
   c. friend  
   d. brother / sister  
   e. cousin  
   f. other

3.10 What do you like about eating forest plants [circle all relevant]:
   a. taste  
   c. nutrition  
   d. tradition  
   e. variety  
   f. other

4. Forest Meat “Now we will ask a few questions based on eating meat from the forest.”

4.1 Who in your household eats forest meat?
   Eats  a. elders  
   b. youth  
   c. everyone  
   d. no one
   Hunts  a. elders  
   b. youth  
   c. everyone  
   d. no one
   (if no one in both Eats/Hunts proceed to section 5)

4.2 In the past 3 months how often have people in your household hunted or consumed any forest animal meat?
   a. every week  
   b. every month  
   c. once/three months  
   d. never
   If NEVER, what do you consider the principle barriers? [circle all relevant]
   a. access to land  
   b. access to rifle or hunting dog  
   c. lack of skills  
   d. time  
   e. preference for other meat  
   f. conservation policy  
   g. other:________________

4.3 How do you get forest meat?
   a. hunt yourselves (on your land, on someone else’s land, in another community)  
   b. gifts or share  
   c. purchase  
   d. other:______________

4.5 In the last three months, which of the following species have you eaten?
   a. Kno, from__________
   b. Shurre, from__________
   c. Suni, from__________
   d. Tswi, from__________
   e. Sna, from__________
   d. Aves, from__________ (specify which birds if possible)
   e. Other:______________

   “Now we’ll ask a few individual-based questions”

4.6 Who did you learn to hunt from?
a. father / mother   b. grandfather / grandmother   c. uncle / aunt

d. brother / sister   e. cousin   f. friend   g. other

4.7 Who are you teaching these practices to?

a. niece / nephew   b. son / daughter   c. friend   d. brother / sister

e. cousin   f. other

4.8 What do you like about eating forest meat [circle all relevant]:

a. taste   c. nutrition   d. tradition   e. variety   f. other

5. Harvest & Use of Traditional Medicines “Now we’ll ask a few questions related to medicinal plant harvesting”

5.1 Who in your household uses or harvests medicinal plants?

Uses  

a. elders   b. youth   c. everyone   d. no one

Harvests  

a. elders   b. youth   c. everyone   d. no one

(if no one in both Uses or Harvests proceed to section 6)

5.2 How often have people in your household harvested medicines from the forest in the last 3 months:

a. every week   b. every month   c. once/three months   d. never

5.3 If NEVER, what do you consider the principle barriers?

a. access to land

b. availability of plant

b. time

f. abundance of other medicine

e. plant identification

h. other: ____________________________

5.4 Where do you generally harvest medicines?

a. on your land in the community   b. on other’s land in community   c. outside community

d. other: ____________________________

5.5 Who from your household generally harvests medicinal?

______________________________________________________________________.

5.6 If you can’t find a plant here in the community, how do you obtain it?
a. travel to another community/forest to harvest, where____________________
b. ask a friend to harvest it
c. purchase from someone
d. other: ____________________

5.7 In your household who knows how to prepare medicines?
a. elders       b. adults       c. youth       d. everyone       e. no one

5.7 In your household, who uses traditional medicines?
a. elders       b. adults       c. youth       d. everyone       e. no one

5.8 Does any one in your household cultivate forest medicinal plants here in the lowlands?
Yes
Which ones and where?_________________________________________________________________
________________________________________________________________________
________________________________________
No

5.9 Is anyone in your family a traditional doctor or studying to be one?
Yes   No

“Now we’ll ask a few individual-based questions”

5.10 Who did you learn to harvest medicines from?
a. father / mother       b. grandfather / grandmother       c. uncle / aunt       
d. brother / sister       e. cousin       f. friend       g. other

5.11 Who are you teaching these activities to?
a. niece / nephew       b. son / daughter       c. friend       d. brother / sister       e. cousin       f. other

6. Land Access “We will now ask a few general questions about the land your household uses.”

6.1 Do you own this land where you live?
Yes   No

6.2 What are the barriers to owning land?
a. lack of available land       b. cost of land       c. difficulty obtaining loans       d. other:______________________________.
6.3 Do you own agricultural land?
Yes, how much land _______________________ How is it being used? ______________________
No

6.4 How far your own agricultural land from the forest?
a. inside forest  b. on the edge of forest  c. in a field close to forest  d. near house and with forest nearby. near house and far from forest

6.5 What is the quality of soil on your agricultural land?
a. excellent  b. good  c. average  d. poor

6.6 In the last year, have you borrowed land to cultivate?
Yes, from who: ______________________________
No

6.7 In the last year, how often have you participated in Ulapeitok to cultivate the land?
No
Yes, how often?
   a. every week  b. every month  c. once/three months  
   d. once/year  e. never

6.8 Do you have other land not used for food production?
No
Yes, How is the land being used?
____________________________________________________________________

7. Energy Access “We will now ask a few general questions about household energy.”

7.1 Where do you harvest wood for household energy?
a. own land  b. family’s land  c. another community members’ land
other: __________________

7.2 In the past 3 months has your family has a shortage of firewood?
No
Yes, Explain: ______________________________

8. Migration “Now we’ll ask you a few questions about migration”

8.1 Has anyone from your household left the community?
Yes  How many people?  Where did they go to?
No

8.2 What were the reasons of their migration?
_______________________________________________________________________.

8.3 Are you or any of members of your household planning to migrate out?
Yes, for which reasons:
_______________________________________________________________________.

No

9. Future Activities “Now we’ll ask you a final question about the activities you would like to be involved in the future”

<table>
<thead>
<tr>
<th>9.2 Thinking of your household, in which of the following would you like to see improvements?</th>
<th>9.2 What do you consider barriers to improving these things?</th>
<th>9.3What is a potential solution(s)?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job opportunities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conventional Health care</td>
<td></td>
<td></td>
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<tr>
<td>Education</td>
<td></td>
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<tr>
<td>Food availability</td>
<td></td>
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<tr>
<td>Food quality</td>
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<tr>
<td>Access to land</td>
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<td>Access to water</td>
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<tr>
<td>Access to loans</td>
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<tr>
<td>Increased reliance on traditional medicine</td>
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<tr>
<td>Great consumption of traditional foods</td>
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<tr>
<td>Other:</td>
<td></td>
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<tr>
<td>Other:</td>
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“Okay, we have now completed the questionnaire. Thank you for participating. Is there anything else that you’d like to add – further information, questions, concerns, suggestions?”
CONSENT FORMS

Consent forms for adult research participants

Project Title: The Intergenerational Continuity of Forest Food Harvesting in the Talamanca Bribri Indigenous Territory, Costa Rica
Researcher: Olivia Sylvester
Sponsor: International Development Research Centre
PO Box 8500 Ottawa, Ontario, Canada K1G 3H9

This consent form, a copy of which will be left with you for your records and reference, is only part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. If you would like more detail about something mentioned here, or information not included here, you should feel free to ask. Please take the time to read and understand this carefully and to understand any accompanying information.

1. Introduction: You are invited to participate in a research study to better understand the factors that influence the use and access to forest resources. This project is part of Olivia Sylvester’s graduate research (Ph.D.) at the University of Manitoba, Canada. In this research, I will work with a group of 20-25 people to understand the factors that shape food and medicine access. This study will take place from March 2012 to December 2012; after this period, I will return to your community for follow-up aspects of this project. This form is designed to provide you information on the objectives, methods, risks and benefits, and the expected outcomes of this research.

2. Your Participation: Your participation in this study is voluntary. If you decide to participate, you may withdraw from the study at anytime. If you withdraw from this research, every attempt will be made to remove your contributions and have them destroyed. You also have the right to omit any question(s)/procedure(s) you choose. If you agree to participate, you will be asked to be involved over a maximum period of 12 months; after this, upon your consent, I may invite you to follow-up discussions. Your participation will involve allowing myself either to participate in your resource harvesting activities and/or to have conversations and/or join group discussions on this topic. You will be invited to participate in research exercises at your discretion and at your convenience. On average the following activities will last one hour and will not exceed two hours in one session, unless you need more time to share your insights about an aspect of this work.

3. Information-Gathering Procedures: I will ask you to participate in the following exercises either in the field or in another mutually agreed upon setting.
   Participation: Participation involves partaking in peoples’ daily activities related to resource harvesting. I hope that peoples’ participation in the research will not deviate greatly from peoples’ everyday lives. Also, I hope this process promotes ongoing feedback from participants throughout the entire research process.
   Group Discussions: You will be invited to group discussions throughout the duration of my research to learn about the project as it evolves and/or provide your feedback on the process.
   Interviews: I will ask for your voluntary participation in interviews. You will choose whether I am invited to: 1) listen to your insights shared in interviews and remember these insights by recording them in my notebook after interviews, 2) take notes while you are sharing insights, and/or 3) audio record interviews. You will always be informed if I am collecting information I plan to use in this research. To ensure that you are fully aware of what information will be used,
after any interviews I will go over your information with you to make sure I understand correctly what you wish to share.

3. **Anonymity and Confidentiality**: You will decide whether you wish to use your real name or remain anonymous. If you request anonymity, you will be given a pseudonym in this project and all personally identifiable information will be removed from research products; only the researcher will have access to the real names of anonymous participants. All information will remain confidential and access will be limited to my advisory professor and research colleague Mr. Ali Garcia. Information, including field notes, audio recordings, will be stored in a locked cabinets at the University of Costa Rica and/or University of Manitoba. You will be asked to provide consent to the use of any information published in a written thesis, academic publications, reports, and presented for educational purposes. In the consent section of this document, you will be asked to provide your ongoing informed consent regarding: 1) whether all or part of your contributions can be used publically, 2) whether your contributions may be directly quoted and used publically, and 3) whether personally-identifiable information will be removed from your contributions prior to storage when this projects finishes. You may request any of your research contributions or any other non-confidential information at any point during the research. You may withdraw any information upon request throughout this research or withdraw completely from the research project. In the case you withdraw any or all information, it will be deleted from audio recordings, erased from my notes, and/or deleted from computer files; and in the case you withdraw from this research, any personally-identifiable photographs will be destroyed.

4. **Risks and Benefits**: This research is not expected to physical, psychological, spiritual, or economic risks to participants. Because you may share personally-identifiable information, confidentiality will be maintained from your start of your participation and throughout the entire research process. In notes and other files, you will be referred to by a confidential code. Anything stored on my computer will also be locked with a password. In addition, participation is voluntary, consent is ongoing, and you have the right to remain anonymous. This research aims to increase awareness of the skills, knowledge, and practices of Bribri people. And, this information could be used for education purposes, for community projects related resource harvesting, and in negotiating resource access. The results of this research will be available to yourself (if requested), and they will be available by contacting Mr. Ali Garcia, Bajo Coen community member.

5. **Compensation**: I will not provide monetary compensation for participation in this study. I will cover all costs of the project, including the materials that result from his research.

6. **Feedback and Publication**: You will be invited to group discussions throughout the duration of this project. These meetings will facilitate 1) discussion concerning my interpretation of results, and 2) give you the opportunity to provide feedback on the research process. Print copies of your photographs and your interview transcripts will be prepared for you as requested (indicated on the informed consent form).

In addition, you will be asked to provide your ongoing consent to the following potential uses of this research: a written thesis, academic publications, and educational purposes.

7. **Contact Information**:

<table>
<thead>
<tr>
<th>Olivia Sylvester</th>
<th>Dr. Iain Davidson-Hunt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduate Student Researcher</td>
<td>Research Advisor</td>
</tr>
<tr>
<td>University of Manitoba, Canada</td>
<td>University of Manitoba, Canada</td>
</tr>
<tr>
<td>Costa Rica 8896-5225; Canada 1-204-416-0033</td>
<td>Phone in Canada 1-204-474-8680</td>
</tr>
<tr>
<td>E-mail: <a href="mailto:livsylvester@gmail.com">livsylvester@gmail.com</a></td>
<td>E-mail: <a href="mailto:davidso4@cc.umanitoba.ca">davidso4@cc.umanitoba.ca</a></td>
</tr>
</tbody>
</table>

This research has been approved by the University of Manitoba Research and Ethics Board. If you have any concerns or complaints about this project you may contact any of the above-named persons or the Human Ethics Coordinator (HEC) at 474-7122 or e-mail
margaret_bowman@umanitoba.ca. A copy of this consent form has been given to you to keep for your records and reference. The University of Manitoba Research Ethics Board(s) and a representative(s) of the University of Manitoba Research Quality Management / Assurance office may also require access to your research records for safety and quality assurance purposes.

8. Consent: You will be asked to provide ongoing consent to multiple aspects of this research either in writing or orally. Consent is ongoing, thus once it has been given it can also be withdrawn.

| Yes/No | 1. I have read or had read to me the details of this consent form. |
| Yes/No | 2. My questions have been addressed. |
| Yes/No | 3. I agree to have my interviews audio recorded. |
| Yes/No | 4. I wish to remain anonymous in all aspects of this research. |
| Yes/No | 5. I agree to the public use of... |
| Yes/No | personally-identifiable quotations |
| Yes/No | anonymous quotations |
| Yes/No | ...in products of this research (written thesis, academic publications/presentations, and educational publications/presentations, community documents). |
| Yes/No | 6. I agree to the use of my contributions be used in a report/presentation prepared for: |
| Yes/No | a. community schools |
| Yes/No | b. community councils |
| Yes/No | 7. I agree that photographs of myself may be taken and used in products of this research. |
| Yes/No | 8. I wish to receive a summary of the research results? |
| Yes/No | 9. I wish to receive print copies of my interview transcripts and/or photographs from research exercises? |
| Yes/No | 10. I request personally-identifiable information be removed from my contributions prior to storage when this research finishes. |
| Yes/No | 11. I agree to be contacted for future research conducted by Olivia Sylvester. |

Your signature on this form (and/or oral consent) indicates that you have understood to your satisfaction the information regarding participation in the research project and agree to participate. In no way does this waive your legal rights nor release the researchers, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from the study at any time, and/or refrain from answering any questions you prefer to omit, without prejudice or consequence. Your continued participation should be as informed as your initial consent, so you should feel free to ask for clarification or new information throughout your participation.

Participant’s Signature ___________________________ Date ________________
Researcher’s Signature ___________________________ Date ________________

For oral consent, please state: “I agree to participate in this research.”
Consent form for protected area managers

Project Title: The Intergenerational Continuity of Forest Food Harvesting in the Talamanca Bribri Indigenous Territory, Costa Rica
Research Exercise: Semi-structured Interview for Protected Area Managers.
Researcher: Olivia Sylvester
Sponsor: International Development Research Centre
PO Box 8500  Ottawa, Ontario, Canada K1G 3H9

My name is Olivia Sylvester, and I am working on a project related to better understand the factors that influence Bribri use and access to forest resources in La Amistad Biosphere Reserve. This project is part of Ms. Sylvester’s graduate research at the University of Manitoba, Canada. You are invited to participate in an interview related to resource access in La Amistad Biosphere Reserve.

This consent form, a copy of which will be left with you for your records and reference, is only part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. If you would like more detail about something mentioned here, or information not included here, you should feel free to ask. Please take the time to read and/or understand this carefully and to understand any accompanying information.

I am interested in engaging with park managers and conservation practitioners to better understand resource use within and surrounding La Amistad International Park. I will be holding face-to-face interviews with park employees and/or conservation practitioners. This interview will include general questions related park regulations, conservation programs and other projects involving communities surrounding the park. Specifically questions will relate to programs and policies around Indigenous people’s forest resource access. This interview is designed to take approximately 45 minutes.

If you agree to participate, the information gathered will be used for academic/educational purposes documents (Olivia Sylvester’s graduate thesis, published articles, and educational presentations). If you wish to receive a summary of this research, please indicate this on this form.

Your participation is voluntary and you may stop your participation at any time. If you wish to stop you participation, your responses will be erased from this study. If you have any questions as the interview proceeds, you have the right to ask them. You have the right to omit any question(s) you choose. You will decide whether you wish to use your real name or remain anonymous. If you request anonymity, you will be given a pseudonym in this project and all personally identifiable-information will be removed from research products; only the researcher will have access to the real names of anonymous participants.

This research is not expected to physical, psychological, spiritual, or economic risks to participants. Benefits include a better understanding of the how a conservation area has reached successes and faced challenges in supporting Indigenous peoples’ access to resources. The information from this study may be used by your organization in the development of programs that seek to support Indigenous people's access to resources. Olivia Sylvester will use the information collected in this study for a written thesis, academic publications, and educational purposes.
Contact Information:

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<td>Phone in Canada 1-204-474-8680</td>
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<td>E-mail: <a href="mailto:davidso4@cc.umanitoba.ca">davidso4@cc.umanitoba.ca</a></td>
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This research has been approved by The University of Manitoba Research and Ethics Board. If you have any concerns or complaints about this project you may contact any of the above-named persons or the Human Ethics Coordinator (HEC) at 474-7122 or e-mail margaret_bowman@umanitoba.ca. A copy of this consent form has been given to you to keep for your records and reference. The University of Manitoba Research Ethics Board(s) and a representative(s) of the University of Manitoba Research Quality Management / Assurance office may also require access to your research records for safety and quality assurance purposes.

8. Consent: You will be asked to provide informed consent to multiple aspects of this research in writing. Consent is ongoing, thus once it has been given it can also be withdrawn.

<table>
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<th>Participant Consent Terms</th>
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<td>Yes/No 2. My questions have been addressed.</td>
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<td>Yes/No 4. I agree to the public use of...</td>
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<td>Yes/No 5. I wish to receive a summary of the research results.</td>
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<td>Yes/No 6. I wish to receive print copies of my interview transcripts.</td>
</tr>
<tr>
<td>Yes/No 7. I agree to the storage of my anonymous/personally-identifiable contributions upon completion of this research.</td>
</tr>
<tr>
<td>Yes/No 8. I agree to be contacted for future research on protected areas conducted by Olivia Sylvester.</td>
</tr>
</tbody>
</table>

Is there anything else I can clarify for you before you decide whether to participate in this interview?

Your signature on this form indicates that you have understood to your satisfaction the information regarding participation in the research project and agree to participate as a subject. In no way does this waive your legal rights nor release the researchers, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from the study at any time, and/or refrain from answering any questions you prefer to omit, without prejudice or consequence. Your continued participation should be as informed as your initial consent, so you should feel free to ask for clarification or new information throughout your participation.

Participant's Signature _________________________________ Date _________________
Researcher’s Signature _________________________________ Date _________________
Consent forms for youth and their parent or legally authorized representative

Project Title: The Intergenerational Continuity of Forest Food Harvesting in the Talamanca Bribri Indigenous Territory, Costa Rica
Research Exercise: Understanding youth’s views on forest and traditional food
Researcher: Olivia Sylvester
Sponsor: International Development Research Centre
PO Box 8500 Ottawa, Ontario, Canada K1G 3H9

This form is directed to both the participant and the parent or legally authorized representative.

1. Introduction: My name is Olivia Sylvester, and I am working on a project related to forest food harvesting in Bajo Coen. This project is part of Ms. Sylvester’s graduate research at the University of Manitoba, Canada. You are invited to participate in a research exercise to understand youth’s views on Bribri foods. This consent form, a copy of which will be left with you for your records and reference, is only part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. If you would like more detail about something mentioned here, or information not included here, you should feel free to ask. Please take the time to read and/or understand this carefully and to understand any accompanying information.

2. Information-Gathering Procedures: I will ask you to participate in the following exercises either in the field or in another mutually agreed upon setting.
   Participation: Participation involves partaking in peoples’ daily activities related to resource harvesting. I hope that peoples’ participation in the research will not deviate greatly from peoples’ everyday lives. Also, I hope this process promotes ongoing feedback from participants throughout the entire research process.
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4. Risks and Benefits: This research is not expected to physical, psychological, spiritual, or economic risks to participants. Because you may share personally-identifiable information, confidentiality will be maintained from your start of your participation and throughout the entire research process. In notes and other files, you will be referred to by a confidential code. Anything stored on my computer will also be locked with a password. In addition, participation is voluntary, consent is ongoing, and you have the right to remain anonymous. This research aims to increase awareness of the skills, knowledge, and practices of Bri bri people. And, this information could be used for education purposes, for community projects related resource harvesting, and in negotiating resource access. The results of this research will be available to yourself (if requested), and they will be available by contacting Mr. Ali Garcia, Bajo Coen community member.

5. Compensation: I will not provide monetary compensation for participation in this study. I will cover all costs of the project, including the materials that result from his research.

6. Feedback and Publication: You will be invited to group discussions throughout the duration of this project. These meetings will facilitate 1) discussion concerning my interpretation of results, and 2) give you the opportunity to provide feedback on the research process. Print copies of your photographs and your interview transcripts will be prepared for you as requested (indicated on the informed consent form).

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<td>Research Advisor</td>
</tr>
<tr>
<td>University of Manitoba, Canada</td>
<td>University of Manitoba, Canada</td>
</tr>
<tr>
<td>Costa Rica 8896-5225; Canada 1-204-416-0033</td>
<td>Phone in Canada 1-204-474-8680</td>
</tr>
<tr>
<td>E-mail: <a href="mailto:livsylvester@gmail.com">livsylvester@gmail.com</a></td>
<td>E-mail: <a href="mailto:davidso4@cc.umanitoba.ca">davidso4@cc.umanitoba.ca</a></td>
</tr>
</tbody>
</table>

This research has been approved by The University of Manitoba Research and Ethics Board. If you have any concerns or complaints about this project you may contact any of the above-named persons or the Human Ethics Coordinator (HEC) at 474-7122 or e-mail margaret_bowman@umanitoba.ca. A copy of this consent form has been given to you to keep for your records and reference. The University of Manitoba Research Ethics Board(s) and a representative(s) of the University of Manitoba Research Quality Management / Assurance office may also require access to your research records for safety and quality assurance purposes.

8. Consent: You will be asked to provide informed consent to multiple aspects of this research either in writing or on an audio recording. Consent is ongoing, thus once it has been given it can also be withdrawn.
<table>
<thead>
<tr>
<th>Participant</th>
<th>Parent/Guardian</th>
<th>Consent Terms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes/No</td>
<td>Yes/No</td>
<td>1. I have read or had read to me the details of this consent form.</td>
</tr>
<tr>
<td>Yes/No</td>
<td>Yes/No</td>
<td>2. My questions have been addressed.</td>
</tr>
<tr>
<td>Yes/No</td>
<td>Yes/No</td>
<td>3. I agree to have my interviews audio recorded.</td>
</tr>
<tr>
<td>Yes/No</td>
<td>Yes/No</td>
<td>4. I agree to the public use of…</td>
</tr>
<tr>
<td>Yes/No</td>
<td>Yes/No</td>
<td>personally-identifiable quotations</td>
</tr>
<tr>
<td>Yes/No</td>
<td>Yes/No</td>
<td>anonymous quotations</td>
</tr>
<tr>
<td></td>
<td>Yes/No</td>
<td>…in products of this research (written thesis, academic</td>
</tr>
<tr>
<td></td>
<td>Yes/No</td>
<td>publications/presentations, and educational publications/presentations,</td>
</tr>
<tr>
<td></td>
<td>Yes/No</td>
<td>community documents).</td>
</tr>
<tr>
<td>Yes/No</td>
<td>Yes/No</td>
<td>5. I agree to the use of information from my interviews and any</td>
</tr>
<tr>
<td>Yes/No</td>
<td>Yes/No</td>
<td>photographs I took be used in a report/presentation prepared for:</td>
</tr>
<tr>
<td>Yes/No</td>
<td>Yes/No</td>
<td>a. community schools</td>
</tr>
<tr>
<td>Yes/No</td>
<td>Yes/No</td>
<td>b. community councils</td>
</tr>
<tr>
<td>Yes/No</td>
<td>Yes/No</td>
<td>6. I wish to receive a summary of the research results?</td>
</tr>
<tr>
<td>Yes/No</td>
<td>Yes/No</td>
<td>7. I wish to receive print copies of the photographs I take during the</td>
</tr>
<tr>
<td></td>
<td>Yes/No</td>
<td>research exercise?</td>
</tr>
<tr>
<td>Yes/No</td>
<td>Yes/No</td>
<td>8. I request personally-identifiable information be removed from my</td>
</tr>
<tr>
<td></td>
<td>Yes/No</td>
<td>contributions prior to storage when this research finishes.</td>
</tr>
<tr>
<td>Yes/No</td>
<td>Yes/No</td>
<td>9. I agree to be contacted for other research done by Olivia Sylvester?</td>
</tr>
</tbody>
</table>

Is there anything else we can clarify for you before you decide whether to participate?

Your signature on this form (and/or oral consent) indicates that you have understood to your satisfaction the information regarding participation in the research project and agree to participate. In no way does this waive your legal rights nor release the researchers, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from the study at any time, and/or refrain from answering any questions you prefer to omit, without prejudice or consequence. Your continued participation should be as informed as your initial consent, so you should feel free to ask for clarification or new information throughout your participation.

Participant’s Signature __________________________ Date __________________
Participant’s Parent or Guardian’s Signature __________________________ Date __________________
Researcher’s Signature __________________________ Date __________________

For oral consent, both participant and participant’s parent or guardian will be required to state: “I agree to participate in this research”. 331