Chapter 1: Introduction and Methods

For many indigenous communities across the Americas, forests have powerful cultural, historical, and economic meanings. Forests provide tribal members with benefits including clean water, carbon sequestration, wood products, cultural resources, and wildlife habitat. In this dissertation, I argue that the legacies of history shape indigenous understandings of forest sustainability. Because indigenous communities in the United States and Bolivia have historically had limited access to economic, societal, and political resources, members of tribal communities have come to view forest management as a way to improve their livelihoods, foster their cultures, and exercise their land tenure rights.

Indigenous communities are responsible for managing significant forest acreage around the world. In the United States alone, 302 indigenous tribes manage approximately 18 million acres of forested lands. In Bolivia, rural and indigenous communities manage almost 1.7 million acres (685,388ha) of forestland. Many indigenous communities are attempting to develop sustainable forestry programs by using active forest management—harvesting trees and selling timber. These attempts raise the question of what sustainable forestry means for these tribes; however, despite the importance of sustainable forest management for these communities, academics and policymakers have paid little attention to the complex issues of sustainability and sustainable forest management within a tribal context. In this dissertation I explore the meanings of forest management for two indigenous groups, one in Bolivia and one in the United States. I address three fundamental questions in the dissertation: In what ways do indigenous communities understand their relationship with forests and forest management? Why have
indigenous communities engaged in forest management? How have the histories of these communities shaped their definitions and practices of sustainability?

**Community Forestry**

Community forestry is a system of forest management that involves community participation, goals of sustainability, and community benefits. Community forestry often implies that the community has control of and responsibility for forest resources and management; forest management produces social and economic benefits; and core management goals include ecological and sustainable uses of the forest. Community forestry links ecological and social systems through active forest management. Community forestry entails communities harvesting their own forests for their own goals.

Factors involved in successful community forestry include: individual and community commitments to maintaining forests and ecosystems; land tenure systems designed to maintain forests; a balance between individual and community interests; flexible management plans embedded in local and national institutions; and agile and entrepreneurial business management that responds to changing markets and engenders community support. Scholarly descriptions of community forestry have also included the following factors: community trust, community reciprocity, shared goals, individual and community social capital, and a set of tools used to make decisions and implement community projects.

**Indigenous Community Forestry in the United States**

Many American Indian communities use forestry to manage their forestlands and produce multiple community benefits. Federal statutes require federally recognized tribes to manage their
forests in accordance with the National Indian Forest Resources Management Act of 1996.\textsuperscript{9} The 1996 act declares that forestlands are some of the “most valuable” tribal resources, and requires tribes to manage their forestlands “in a perpetually productive state in accordance with the principles of sustained yield and with the standards and objectives set forth in forest management plans.”\textsuperscript{10} Tribal forest management plans outline tribal goals and objectives for forest management. The 1996 act also states that forest management should “promote self-sustaining communities”; protect soil and water resources; and maintain or improve “timber productivity, grazing, wildlife, fisheries, recreation, aesthetic, cultural and other traditional values.”\textsuperscript{11} Thus, federal law requires that forest management on American Indian forestlands benefit tribes on multiple levels: social, economic, and ecological.

The goal of community forestry is to conserve forest ecosystems while improving the well-being of communities.\textsuperscript{12} In other words, community forestry links the health of ecosystems with the health communities. American Indian forest management often supports broad community goals to improve social, economic, and ecological resources in Indian communities. Further, American Indian forestlands are legally required to promote self-sustaining communities and multiple tribal goals. American Indian forest management is community forestry.

The Menominee Indian Tribe is a world leader in indigenous and sustainable forest management. The tribe was one of the first communities in the United States to articulate a vision for the practice of sustainable forest management. The tribe has actively managed the same forests for thousands of years, and has harvested timber from their forests on a sustainable basis for the past 150 years. Today, the Menominee Forest has more volume and contains higher quality trees than it did in 1854 when the reservation was established.\textsuperscript{13} The Menominee people
view their current and past culture as based on a profound relationship with their forest.

Sustainable forest management in the United States began on the Menominee reservation.

**Indigenous Community Forestry in Bolivia**

Bolivia is a forested country. Forestland covers 53 million hectares (approximately half of Bolivia’s territory), and the Bolivian government has dedicated 41.2 million hectares (77% of all forestland) to forest management by designating the areas as permanent production forests. Within these permanent production forests, 8.5 million hectares are available for sustainable harvesting under government-approved forest management plans.

Over the past 20 years, Bolivia has emerged as a leader in sustainable tropical forestry. Many academics and foresters have attributed Bolivia’s success to the 1996 Forestry Law and its regulations. The law required forest management plans, forest inventories, harvest limits, seed tree retention, and annual reports; it also created a professional forestry agency, the Bolivian Forestry Superintendent (Superintendencia Forestal), which held oversight authority for the implementation and enforcement of the regulations. Finally, for the first time in Bolivian history, the law guaranteed the legal right of indigenous communities to manage their forests for timber.

Indigenous communities were the first groups to engage in sustainable forest management in Bolivia, and these indigenous communities created the first certified indigenous forestry operations in South America. Since SmartWood certified the first indigenous forest operation in 1996, many indigenous communities in the Bolivian tropics have initiated community forestry activities. There are currently 83 approved indigenous community management plans covering approximately 16% (1.4 million acres) of the permanent production forests in Bolivia. These plans outline the communities’ economic, environmental, and social
goals for forest management. For indigenous groups in both Bolivia and the United States, the foundation of forestry is the achievement of community goals; in both countries sustainable forestry began in indigenous communities.

Methods

I use a qualitative mixed-methods approach to answer the research questions in this dissertation. I combine historical research methods with a multiple case study approach as outlined by leading case study researchers.18 I also use methods from the literature on community participatory research, focusing on what Colin Robson, emeritus Professor of Human and Health Sciences at the University of Huddersfield, called a "real world research" approach. This approach emphasizes that practical mixed-methods and participatory approaches to research can produce meaningful results for the researcher, community, and the academy.19

Case Studies

A case study is "an empirical inquiry that: investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used."20 Case studies answer "how and why questions," and are well suited to describing the complexities of real life and exploring complex phenomenon.21 Bent Flyvbjerg, a management and planning professor at the University of Oxford, stated that well-designed "case studies often contain a substantial element of narrative. Good narratives typically approach the complexities and contradictions of real life."22 In addition, the use of multiple methods strengthens case studies, and "combining cross-case and over-time case comparisons" can strengthen inferences generated by case studies.23
Case study selection is a methodological component that is critical for the production of supporting arguments and generalization to other cases. I selected two cases that Bennett and Elman would categorize as "most similar cases." In this type of analysis, the cases should be as similar as possible, but should differ in one independent variable and their outcomes. Flyvbjerg described a similar case study method, in which a case study is designed "to obtain information about the significance of various circumstances for case process and outcome (e.g., three to four cases that are very different on one dimension: size, form of organization, location, budget)."

A critical methodological aspect of case study selection is that the case, or cases, must be clearly bounded. I chose the two case study communities based on four criteria. The first—and arguably the most important—criterion was the presence of community support and willingness to participate in the research project. Community input and enthusiasm were critical to the success of the project and quality of the data. The second criterion was that the community must be indigenous. For the purposes of this dissertation, I included Bolivian communities that defined themselves as indigenous. Within the United States, I considered communities that were federally recognized tribes. The third criterion for the case study selection was that the community was currently involved in some form of forest management or forestry activity. The final criterion was the inclusion of two or more case studies that had many similar characteristics but differed on one main management problem or issue.

The Menominee and Guarayos communities met these four criteria. First, each community was interested in working on an environmental history research project to understand factors that promote and inhibit sustainable forest management. Second, both communities self-identified as indigenous and the Menominee community is a federally recognized tribe. Third, the communities are involved in forest management activities. Finally, the cases have many
similar characteristics in that the communities are indigenous, they practice community forest management for multiple community goals, they have community governance institutions but they differ in their success over time. These similarities and differences provide important contrasts and highlight factors that promote sustainable community forestry.

**Methods from Environmental History**

Environmental history approaches can provide important insights into complex interactions between forests and indigenous communities. Environmental history typically examines three key dimensions of environmental change: biophysical elements, political/economic "modes of production," and cultural "structures of meaning." Environmental historians illuminate complex historical human and environmental interactions through narrative. Historian William Cronon defined narrative as “the chief literary form that tries to find meaning in an overwhelmingly crowded and distorted chronological reality.” I use historical research methods to craft a narrative of the changes in each of the two case study communities and forests over time. I construct the narrative by using oral history interviews and primary documents.

**Data Collection: Interview Data**

In August 2008 and June 2009, I interviewed forest professionals and Guarayos community members, and convened community meetings in Bolivia. In the process, I compiled just over 100 pages of field notes. I conducted 16 formal interviews and held 2 community meetings with Guarayos community members and the forestry professionals who work with the communities. Of the 16 interview participants, 2 were women and 14 were men; this gender imbalance occurred because, even though women in the community support forestry, men
dominate the community forestry operations in Guarayos. In addition, as a male outsider, Bolivian societal norms limited my access to female participants. I used snowball sampling for interview participants, semi-structured interviews, and semi-structured community meetings to gather data. I considered the sample of community members complete when the answers to the questions became repetitive (saturation) and when participants no longer suggested other people to interview. The interviews lasted 14-62 minutes, with an average of 36 minutes. I digitally recorded the interviews and hired GMR Transcriptions to transcribe the audio recordings. I spot-checked each interview transcription with the audio recordings and made changes whenever I found errors. Prior to conducting the data analysis, I converted each transcript into portable document format (pdf) and read each transcription three times. I then used Adobe Acrobat Professional software to annotate the document with themes and comments. I coded seven major themes in the Guarayos interviews: benefits of forest management, definitions of sustainable forest management, factors affecting forest management, Guarayos values, community decision making, forest management goals, and past events important for Guarayos forest management.

I used similar methods for the Menominee case study. I conducted 20 interviews with Menominee tribal members and 1 interview with a tribal descendant between April and August of 2011. The interview participants consisted of 12 men and 9 women ranging in age from 32 to 70 years of age at the time of the interviews. I used snowball sampling and semi-structured interviews to gather data from interview participants. As with the Guarayos interviews, I stopped interviewing community members when participants began to provide repetitive answers (interview theme saturation). The interviews lasted 28-120 minutes, with an average of 58 minutes. I digitally recorded the interviews and hired GMR Transcriptions to transcribe the audio recordings. I spot-checked each interview transcription with the audio recordings and made
changes whenever I found errors. Prior to conducting the data analysis I read each transcription three times. I used Nvivo 9 qualitative analysis software to track and display interview themes and explore my annotated research notes. I coded nine major themes in the Menominee interviews: benefits of forest management, definitions of sustainable forest management, factors affecting forest management, mentions of the clear cutting controversy, Menominee values, tribal decision making, forest management goals, past events important for Menominee forest management, and Menominee sovereignty.

Data Collection: Primary Documents and Archives

In 2008, I visited four document repositories in Bolivia: The Bolivian Forestry Superintendence in Santa Cruz de la Sierra, the Center for Amazonian Forestry Development (Centro Amazonico de Desarrollo Forestal or CADEFOR) in Santa Cruz de la Sierra, San Juan Guarayos community forestry offices in Ascención de Guarayos, and the Cururú Guarayos community forestry offices in Urubichá. I collected almost 1,500 pages of documents including forest management plans, community meeting minutes, community regulations, statutes, and miscellaneous reports. I collected all documents containing information about Guarayos forest management except detailed lists of financial data. I also collected several historical newsletters and oral history interview transcripts related to the 1990 March for Territory and Dignity that are held by the University of Wisconsin library system. I took digital photographs of each document and converted the photographs into portable document format (pdf). I then used Adobe Acrobat Professional software to annotate each document with themes and comments. I coded six major themes in the documents: community reasons for managing the forest, forest management goals, benefits of forest management, factors affecting forest management,
definitions and perceptions of sustainable forest management, community organization, and Guarayos values.

I collected historical documents related to Menominee forest management from the archives of the State Historical Society of Wisconsin in Madison, Wisconsin and their Area Research Center in the Cofrin Library at the University of Wisconsin–Green Bay. I searched the archive catalogue and finding aids for references pertaining to the Menominee Indian Tribe of Wisconsin and then narrowed my research to five collections including: the Jay P. Kinney papers (mainly 1910-1933, Kinney was the director of forestry for the US Indian Service); miscellaneous items regarding territorial matters (1841); Menominee Tribal Council Notes (1866, 1941-1942, and 1953-1959); Menominee Tribal Enterprises’ records (1954-1976); and the Robert M. Lafollette Papers (1879-1910, 1922-1924). I also used the State Historical Society of Wisconsin’s microfilm copies of the National Archive’s US Office of Indian Affairs records (1910-1939), which contained reports and information about the Menominee tribe. In total, I used 886 pages of documents from these collections in the analysis.

I also searched the congressional records database in the LexisNexis Congressional Hearings Digital Collection through the University of Wisconsin library system. I used the keyword “Menominee” and searched this database for any document from 1912 or earlier. I found 64 “congressional publications” and 143 “congressional records” that met the search criteria. I also used copies of "Wisconsin Public Land Survey Records: Original Field Notes and Plat Maps," published by the United State General Land Office in 1845-1854, which were digitized and maintained by the Wisconsin Board of Commissioners of Public Lands and the University of Wisconsin Board of Regents. Finally, I used digitized copies of the 1914 Edward
Ayer Board of Indian Commissioners Report on Menominee Indian Reservation and Robert La Follette’s 1911 Autobiography, which I obtained via Google Book Search.

After converting all historical documents related to the Menominee Forest to portable document format (pdf), I read each document at least two times and then coded each one using Nvivo 9 qualitative analysis software.34 For all documents related to Menominee forest management I used Nvivo 9 to code seven major themes: benefits of forest management, perceptions of forest management (Menominee, non-Menominee, and La Follette), Menominee Forest descriptions, logging before 1890, logging under the 1890 and 1908 acts, selective logging, and clear cutting.

Data Analysis

I analyzed the archival and interview data in three steps. First, I analyzed historical environmental information. Specifically, I examined social and environmental changes over time. I used archival and oral history descriptive sources to generate qualitative arguments about the meanings of forest management and forest change over time. Second, I used the data to summarize the current environmental and social contexts of each case study, including current demographic characteristics, local land use and local livelihoods, and local community organization. For this section I relied mainly on secondary literature. Finally, I analyzed the oral history interviews and group discussions to gain an understanding of the communities’ perspectives on forest management and sustainability. The dissertation manuscript consists of an introduction, five core chapters, and a conclusion. The conclusion is a comparison of the findings from the two case studies.
Qualitative researchers have argued that scholars can use multiple data sources to validate qualitative research findings via a process called triangulation. I validated the results by triangulating data from the individual oral history interviews, community meetings, historical documents, and secondary literature for each community. I compared information from historical documents (e.g., forest management plans, congressional record, and community meeting minutes) to the themes in the oral history interviews. I highlighted similarities and differences between the sources throughout the dissertation. In addition, I validated my findings from the Menominee case study by presenting my research to the College of Menominee Nation’s Institutional Review Board; I then incorporated their comments, suggestions, and insights into the final analysis. For the Bolivian case study, I validated the research findings by returning to Guarayos in June 2009 to confirm my initial findings with interview participants. I also provided transcriptions and audio recordings to each participant in the Guarayos study. I incorporated the community comments, suggestions, and my personal observations from this 2009 visit into the final analysis.

Dissertation Chapter Summary

Chapter Two, "Menominee Forests and Environmental History before 1890," explores the environmental and forest history of the Menominee Forest from glaciation to the late 1800s. I examine changes in the forest between the 1850s (when the reservation was established) and the passage of the 1890 Forest Act, which enabled commercial forest harvesting to become the established livelihood of the Menominee people. I use historical photographs, maps, and written descriptions to show that the Menominee Forest was an open pine/oak forest on the Eastern portion of the reservation and a closed maple/hemlock forest on the Western portion of the
reservation. I also use historical documents to demonstrate that Menominee tribal members and US government officials perceived the forest differently. I argue that the Menominee Forest contained diverse forest types at the time and that the differing perceptions of the forest had profound effects on its management in the early 1900s.

Chapter Three, "Forest Management History on the Menominee Reservation: The 1890 Forestry Act to the 1973 Menominee Restoration Act," explores the legal and political importance of Menominee forest management. I discuss the 1890 and 1908 laws that limited harvesting on the Menominee reservation. These laws were the first codification of harvest limits in the United States, and the subsequent forestry techniques stood in stark contrast to the cut-and-run logging occurring in the Wisconsin forests surrounding the reservation. I show the ways in which different government and tribal interpretations of these laws affected the forest itself and the Menominee tribe. I review the federal government’s process of legally terminating the Menominee tribe in the mid-1900s after the tribe successfully sued the government for mismanagement of their forest. I conclude the chapter with a brief discussion of the restoration of the Menominee tribe, tribal identity, and forest management in the 1970s.

Chapter Four, "Menominee Oral History: Using Historical Perspectives to Inform Contemporary Sustainable Forest Management," is the last chapter in the Menominee case study. I draw on data from oral history interviews to understand Menominee perceptions of forest management, sustainability, and the legacy of Menominee forest management. I provide a basic overview of contemporary Menominee forest management strategies and then use a detailed examination of the clear cutting conflict to analyze the way tribal members have used forest management to further Menominee goals, Menominee cultural values, and community well-being. I explore multiple tribal perspectives and their development in conjunction with
ecological changes in the Menominee forest. Finally, I analyze the ways that various groups within the Menominee community use history when negotiating conflicts over forest management issues.

Chapter Five, "Indigenous Perspectives on Sustainability: The 1990 Indigenous Peoples' March for Territory and Dignity and the Origins of the Bolivian National Forestry Law," is the first of two chapters focusing on the Bolivian case study. In this chapter, I explore the conflicting ideas of sustainability at the core of the 1996 Bolivian Forestry Law to provide a deeper understanding of the complex cultural, historical, and environmental influences that affect forest management, planning, and perceptions of sustainability among indigenous communities in lowland Bolivia. I illustrate the influence of ecological diversity on tropical forest harvesting and the examine the effects of development projects on marginalized indigenous communities and their territories in the second half of the twentieth century. I also explore the way lowland Bolivian indigenous people expressed their demands for territory through a 1990 protest march and outline the Bolivian government’s subsequent decision to enact a number of laws including the 1996 Forestry Law. I use a collection of interviews and first-person indigenous accounts of the 1990 march to analyze indigenous perspectives on sustainability, territory, forest management, and indigenous identity.

Chapter Six, "Community Forestry as a Method of Territorial Control in Guarayos, Bolivia," explores the reaction of one group of indigenous people, the Guarayos, to the 1996 Forestry Law and this community’s view of sustainable forest management. I briefly discuss the history of the Guarayos community in lowland Bolivia. I then use oral history interviews and community documents to explore Guarayos perspectives of sustainability, forest management,
and the 1996 Forestry Law. I show that Guarayos people view community forest management as a tool to control their territory and provide benefits for community well-being.

In the conclusion (Chapter Seven), I explore the similarities and differences between the two case studies and histories. Despite different histories, cultures, ecosystems, and values, there are several similarities between Menominee and Guarayos perceptions of the importance of forest management for their communities. Both the Menominee tribe in Wisconsin and the Guarayos community in lowland Bolivia have used forest management to foster territorial control; strengthen community well-being; protect the forest; and bolster cultural connections between past, present, and future generations.

Many indigenous communities perceive forestry as a way to improve their livelihoods, protect their forests, and maintain their cultural heritage. Few academic studies, however, have explored the importance of indigenous forest management from the perspectives of these communities. There is a dearth of information pertaining to indigenous community forestry in the United States. Further, few forestry researchers incorporate indigenous and historical perspectives into research on sustainable tropical forestry in Bolivia. This project provides information that will begin to incorporate indigenous and historical perspectives into the literature on sustainable forestry. The research also adds to a growing body of indigenous and American Indian scholarship by explicitly highlighting Menominee and Guarayos perspectives of their own forest management experiences and goals. The project also provides information that indigenous communities can use to reflect on their own forest management strategies and techniques, which may foster new innovations in community forest management. Finally, the dissertation provides the two case study communities with information they can use in community discussions, decision making, and forestry management. The ultimate goal of the
dissertation is to improve decision making, environmental analysis, and the sustainable management of forests in indigenous communities.
Endnotes – Chapter 1


10 Ibid.

11 Ibid.


23 See Appendix 1 for a list of interview participants in the Guarayos case study and Appendix 2 for a list of the Guarayos case study interview questions.

24 GMR Transcriptions transcribed all Bolivian interviews in Spanish. I analyzed the interviews in Spanish and translated the direct quotations used in the dissertation into English.

25 See Appendix 3 for a list of interview participants in the Menominee case study and Appendix 4 for a list of Menominee case study questions.

26 This analysis method is the same one I used to analyze the Guarayos interviews; however, I used Nvivo 9 software instead of Adobe Acrobat.

27 All Bolivian documents were in Spanish. I analyzed the documents in Spanish and translated direct quotations used in the dissertation into English.

28 This historical analysis method is the same as the method I used to analyze the Guarayos documents; however, I used Nvivo 9 software to track and display the coded themes and annotations instead of Adobe Acrobat.


30 I will also present each interview participant with a copy of their audio recordings and interview transcripts. These will be permanently stored in the College of Menominee Nation’s library and archive in Keshena, Wisconsin. I will share the research results and transcripts with interview participants and the Menominee community and incorporate their comments, suggestions, and insights into future publications and research based on the oral history interviews. These methods are similar to the indigenous research protocols outlined by Smith, L. T. (1999). *Decolonizing methodologies: research and indigenous peoples,* London; New York, University of Otago Press; distributed in the USA exclusively by St Martin's Press, Louis, R. P. (2007). "Can you hear us now? Voices from the margin: using indigenous methodologies in geographic research." *Geographical Research* 45(2): 130-139.