

Hmong Livelihood Strategies: Factors Affecting Hunting, Agriculture, and Non-timber Forest
Product Collection in Central Laos

By

Pao Vue (*Xeempov Vwj*)

A dissertation submitted in partial fulfillment of
the requirements for the degree of

Doctor of Philosophy

(Geography)

at the

UNIVERSITY OF WISCONSIN-MADISON

2018

Date of final oral examination: 05/07/2018

The dissertation is approved by the following members of the Final Oral Committee:

Ian Baird, Associate Professor, Geography

Matthew Turner, Professor, Geography

Lisa Naughton, Professor, Geography

Yongming Zhou, Professor, Anthropology

Arlyne Johnson, Senior Program Officer, Foundations of Success

J. Lin Compton, Professor Emeritus, Forest and Wildlife Ecology

In Memory of:

My father, Xai Kao Vue (*Nchai Kos Vwj*), for giving me a better life

My first cousin, Nhia Tong Vue (*Nyiaj Thoob Vwj*), for making the project possible

Fine gentlemen, they were

Acknowledgements

This research project brought me full-circle in that it took me back, for the first time since I left as a two-year old refugee, to the land in which I was born but which I did not know. It has been an unforgettable journey, one that would not have been made possible without support from institutions, mentors, friends, and of course, my family.

I am thankful for the United States Department of Agriculture Natural Resources Conservation Service (USDA NRCS) Basu Scholarship, the University of Wisconsin-Madison Center for Southeast Asian Studies (CSEAS) Center Fellowship, the University of Wisconsin-Madison Foreign Language & Area Studies (FLAS) Summer Fellowship, and to the University of Wisconsin-Madison Department of Geography for their support as I worked toward becoming a dissertator. I appreciate the University of Wisconsin-Madison Center for Southeast Asian Studies, the Trewartha Conference Travel Award, Odebolt Conference Travel Award, and the University of Wisconsin-Madison Graduate Research Travel Award for their support; these allowed me to attend conferences and present on my research at various stages of development. I am grateful for the International Union for Conservation of Nature Species Survival Commission (IUCN SSC) Saola Working Group, the University of Wisconsin-Madison Center of Southeast Asian Studies Field Research Award, and the Trewartha Travel Award for their generous support for my 16-month ethnographic research from October 2013 to February 2015. Lastly, I appreciate having received the Whitbeck Graduate Dissertator Fellowship and the University of Wisconsin-Madison Letters & Science Community of Graduate Research Scholars (CGRS) Fellowship for their support in the final writing-up stage.

My great gratitude is to my main advisor, Ian Baird, who has always supported and worked tirelessly with me to overcome each and every hurdle set in front of me as an aspiring, albeit a

little green behind the ears, PhD student; a graduate student cannot ask for a better advisor. Many thanks to Mathew Turner and Lisa Naughton for agreeing to be on my committee and guiding me through the prelims, a proposal defense, for their guidance in helping me better develop my ideas and methodologies, and to analyze my findings more critically. Many thanks also to Yongming Zhou, Arlyne Johnson, and Lin Compton for agreeing to be a part of and complete my committee and for sharing their experience, knowledge, and expertise on Southeast Asia.

Thank you to Sharon Kahn, former geography graduate studies coordinator, for her always cheerful demeanor and willingness to meet, even when I dropped by unexpectedly, to help me navigate through this often-confusing process. Thanks to Tom Tews and Paddy Rourke at the Geography Library for always greeting me with a smile and sharing their knowledge on scholarly literatures, and for making sure that my requested materials were always there and ready to be picked up. Thank you wholeheartedly to Michael Cullinane and Mary Jo Wilson at the University of Wisconsin-Madison Center for Southeast Asian Studies; and Larry Ashmun, senior academic librarian of the University of Wisconsin-Madison Libraries system, for always sharing a laugh while helping me navigate my way around the University of Wisconsin's shadowy funding sources, sending me to Laos, and then bringing me back.

I thank my friends and colleagues, Jeong Eun (Anyu) Lim, Phil Hahn, Andy Davey, David Chambers, Nathan Green, Will Shattuck, Wang Bo, Christopher Gavin, and Peter Swift for listening to my frustrations and then offering suggestions time and time again. Much appreciation goes to the outgoing, then-freshly-minted PhDs Matt Liesch, Leif Brottem, Jake Fleming, and Abby Neely for "breaking the ice" and showing me the ropes when I first arrived on the scene.

Life-time gratitude to Denis Tucker for taking a skinny Hmong kid under his wings, mentoring him, and showing him that there are bigger and better things in life than skipping

schools and getting into troubles. Sincere gratefulness to William Robichaud for his encouragement, inspiring conversations, and contribution of his vast knowledge and words of wisdom on how to survive fieldwork in a land I never knew.

I am indebted to the Hmong villagers in my research area for welcoming me with open arms and sharing with me their stories, experiences, and livelihood strategies. Many thanks especially to my first cousins, Pa Chong (*Paj Txoo*) and Chong Va (*Txooj Vam*) for their guidance while I was living in the Laksao area. Thank you to Kouaneng Xiong (*Kuamneeb Xyooj*), Youa Xiong (*Ntxuam Xyooj*), Houa Vang (*Huas Vaj*), Nao Mong Xiong (*Nom Moos Xyooj*), and many others for taking me places and showing me things very few foreign researchers have experienced or seen first-hand.

Finally, with the greatest sincerity and undying love, I am so thankful to my mother, Yer Yang (*Ntxawm Yaj*) who has always believed in me and have taught me to become a better man. Sincere gratitude and love to my older brother, Saiher (*Xaivhawj*) and his wife Mailor Lee (*Maivlauj Lis*) for their unwavering support and words of encouragement as I waded through this process; to my sister, May (*Me Vwj*) and brother-in-law Shong Na Yang (*Soob Nab Yaj*) for always encouraging me to move forward; to my oldest brother, Cha Neng (*Txav Neej*) for his words of encouragement; and to all the other cousins, nieces, and nephews who made the journey that much more joyful. Special thanks to my nephew, Yinkong (*Yeejkoob*) for drawing me the amazing arts used in this dissertation. Finally, thank you from the bottom of my heart to a very special person, K. Vang (*K. Vaj*) who has always been there for me through thick and thin, and although we have taken different paths, you will forever be special to me.

Table of Contents

Acknowledgements	ii
Abstract.....	xv
Chapter One: Introduction	1
1.1. Brief Overview of the Project	3
1.2. Dissertation Structure.....	4
1.3. Laos	6
1.3.1. Human population.....	8
1.3.2. Forests	9
1.3.3. Wildlife biodiversity	11
1.3.4. National protected area	15
1.4. Swidden Agriculture in Laos.....	17
1.4.1. General information regarding swidden	18
1.4.2. Southeast Asia swidden cultivators	22
1.4.3. Swidden as defined for this research	25
1.5. Hunting and NTFPs in Laos.....	25
1.5.1. Livelihood necessities	25
1.5.2. A note on firearm ownership in Laos	27
1.6. Policies Toward Ethnic Minorities in Laos.....	28
1.7. Livelihood Criminalization	31
1.8. Chapter Review and Concluding Thoughts	32
 Chapter Two: Theoretical Framework, Methodology, and Practice	 34
2.1. Theoretical Framework	34
2.1.1. Cultural ecology.....	35
2.1.2. Political ecology.....	35
2.2. Methodology	37
2.2.1. Surveys.....	38
2.2.2. Participant observation.....	39
2.2.3. Semi-structured and in-depth interviews	40
2.2.4. Focus groups	41
2.2.5. Mobile discussions.....	42
2.2.6. Physical distance analysis	42

2.2.7. A note on voice/video recordings	43
2.3. Primary Research Questions	43
2.3.1. Government policies and practices	43
2.3.2. Economic earning opportunities	46
2.3.3. Technological advancements and changing Hmong beliefs	47
2.4. Research Area	49
2.4.1. Laksao central area	51
2.4.2. The two villages	54
2.4.2.1. Thong Pei village	54
2.4.2.2. Ko Hai village	56
2.4.3. A brief discussion on power dynamics in the Research Area.....	58
2.4.4. Nakai-Nam Theun NPA.....	61
2.5. Gaining Access to Hmong Villages	62
2.5.1. Sensitive issues	62
2.5.2. The connections	64
2.5.3. Initial contacts	66
2.6. Actual Fieldwork.....	67
2.6.1. Starting with the surveys.....	67
2.6.2. Interviewing, focus group discussions, and mobile discussions.....	68
2.7. A Note on Age Verification	71
2.8. A Note on My Survey Design Flaw	71
2.9. Chapter Review and Concluding Thoughts	73
Chapter Three: The Hmong Ethnic Minority Group of Laos.....	75
3.1. The Hmong – Background and Literature Review	76
3.1.1. Hmong migration from present-day China to Laos	77
3.1.2. Hmong agricultural practices	78
3.1.2.1. Traditional Hmong swidden agriculture	80
3.1.2.2. Current Hmong swidden practices in the Research Area	86
3.1.2.3. The Hmong and wet-rice agriculture	87
3.2. Hmong Cultural Beliefs	89
3.2.1. A primer on Hmong religion.....	89

3.2.2. Navigating the spirit world and interacting with supernatural beings	90
3.2.3. Rituals	92
3.3. The Hmong in the Research Area	94
3.3.1. Arrival to Laksao and surrounding areas	94
3.3.2. General household statistics and structures	97
3.3.3. Agricultural land ownership and land rental	98
3.3.4. Swidden fields	103
3.3.5. Paddy fields	104
3.3.6. Agricultural land summary	107
3.3.7. Preferences for swidden and paddy agriculture	111
3.3.8. Usage breakdown between swidden and paddy agriculture	117
3.3.8.1. Food breakdown	119
3.3.8.2. Income breakdown	120
3.4. Domestic Animals	123
3.4.1. Asian cattle and water buffalo	123
3.4.2. Domestic pigs and goats	125
3.4.3. Chickens and ducks	126
3.5. Hunting	127
3.5.1. Hunting travels	129
3.5.2. Wildlife meat consumption	130
3.6. Chapter Review and Concluding Thoughts	131
Chapter Four: The Swidden Slippery Slope	134
4.1. Swidden Agriculture	135
4.2. The Swidden Scapegoat	138
4.3. Use of Space in Response to Swidden Restrictions	141
4.4. Villagers Awareness of the Government's Agendas	142
4.4.1. Overcrowding and space at a premium	142
4.4.2. Use of surrounding space	145
4.5. Fines for Clearing Land and Alternatives	146
4.6. Knowledge of Protected Area Boundaries and Regulations	149
4.7. Hunting of Endangered Animals	152

4.8. The Swidden Paradox.....	155
4.8.1. Swiddeners getting out of view.....	156
4.8.2. Efforts to decrease swidden, poverty, and their impact on wildlife.....	159
4.8.3. No swidden land	160
4.8.4. Shrinking swidden land.....	163
4.8.5. Small swidden fields, large swidden fields.....	165
4.8.6. Time and labor commitments	167
4.8.6.1. Less time in the fields, more time to hunt.....	167
4.8.6.2. More labor in the fields, less time to hunt	169
4.8.7. There are just not enough paddies to go around	171
4.8.8. More than just rice is needed	173
4.9. Chapter Review and Concluding Thoughts	175
Chapter Five: Money Talks – Cash Crops and Monetary Gift-Giving	178
5.1. Income Earning Opportunities	179
5.2. Changes in Agricultural Practices	183
5.2.1. From a collective ideology to producing cash crops	184
5.2.2. Technological advancement and vehicles.....	187
5.3. Cash Crops	190
5.3.1. The old guard – opium.....	190
5.3.2. The new (legal) guards.....	193
5.3.2.1. Cassava	194
5.3.2.2. Corn.....	196
5.3.2.3. Peanut.....	198
5.4. Cash Crop Price Fluctuations	199
5.4.1. Swiddening further away...again	201
5.4.2. Increase hunting...again	202
5.5. The “Talk” in Money Talks.....	204
5.6. Concepts of Corruption	209
5.7. A Soldier’s Salary	210
5.8. A Villager’s Choice.....	212
5.9. Corruption or Gift-Giving	212

5.9.1. Gifts.....	216
5.9.2. The art of gift-giving.....	218
5.10. Chapter Review and Concluding Thoughts	221
Chapter Six: Changing Spiritual Beliefs.....	224
6.1. An Emerging Threat.....	227
6.2. Local Ecological Beliefs and Knowledge	229
6.3. A Quick Literature Review on Supernatural Beings and Conservation Implications.....	231
6.3.1. Guardians of the wild places.....	231
6.3.2. Augury	234
6.3.3. Sacred groves	235
6.3.4. The <i>ntoo xeeb</i> ceremony of Mae Sa Mai village	237
6.4. Hmong Spiritual Beliefs.....	239
6.4.1. Forest guardians	239
6.4.2. Land spirits.....	240
6.4.3. Wild demons	241
6.5. Types of Supernatural Beings	242
6.5.1. <i>Nyus vais</i>	243
6.5.2. <i>Koos koim</i>	246
6.5.3. <i>Em ntoo</i>	249
6.5.4. <i>Dab ntxaug</i>	250
6.6. Discrepancies Abound.....	252
6.6.1. <i>Nyus vais</i> II	252
6.6.2. <i>Koos koim</i> II.....	254
6.6.3. <i>Em ntoo</i> II	255
6.6.4. <i>Dab ntxaug</i> II	256
6.7. The Safest Path is the Avoidance Path.....	257
6.8. Technological Advancements in Laos	261
6.8.1. Cell phones.....	262
6.8.2. Chainsaws	264
6.9. To Believe or not to Believe.....	265
6.10. In-Depth Interviews on Spiritual Beliefs and Hunting Activities	270

6.10.1. Weakening beliefs.....	270
6.10.2. Fighting back	273
6.11. Chapter Review and Concluding Thoughts	276
Chapter Seven: Conclusion and Thoughts	280
7.1. A Common Denominator	281
7.1.1. Laos' anti-swidden policies to...displace swidden agriculture	282
7.1.2. Money talks...and talks	282
7.1.3. Fear the supernatural beings...no more	284
7.2. All Roads Lead to Increase Hunting and Resource Use	285
7.3. The Future	290
7.3.1. The Hmong villagers.....	290
7.3.2. Laos' empty forests.....	294
7.4. The Bottom Line	295
7.5. Limitations	297
7.5.1. The clan/lineage double-edged sword	299
7.5.2. Gender roles	302
7.5.3. Translation	305
7.6. Possible Future Research	306
7.7. Study Contributions.....	309
Bibliography	312

Table and Figure Directory

TABLES

Table 3.1. Current agricultural fields size.....	109
Table 3.2. Cash crop annual labor cycle	116
Table 3.3. Ko Hai village food consumption and income	122
Table 3.4. Thong Pei village food consumption and income	122
Table 3.5. Laksao central area food consumption and income	123
Table 3.6. Research Area food consumption and income	123
Table 5.1. Cash crop annual labor cycle (reproduced from Table 3.2)	199
Table 5.2. Selected animal species and selling price in the Research Area.....	206
Table 6.1. Selected taboos	259
Table 6.2. Villagers' beliefs in supernatural beings	265

FIGURES

Figure 1.1. Map of Laos in mainland Southeast Asia.....	7
Figure 1.2. Saola (<i>Pseudoryx nghetinhensis</i>) skull	12
Figure 1.3. Hmong villager gunsmith	28
Figure 1.4. Traditional Hmong flint rifle	28
Figure 2.1. Map of Khamkeut District, Bolikhamxay Province, central Laos	50
Figure 2.2. Research Area.....	51
Figure 2.3. View of Laksao hills.....	54
Figure 2.4. Author overlooking the Laksao area	54
Figure 2.5. View of Thong Pei village facing west toward the Laksao area	55
Figure 2.6. Houses in Thong Pei village.....	55
Figure 2.7. Dirt road leading to Ko Hai village	57
Figure 2.8. Houses in Ko Hai village.....	57
Figure 3.1. Swidden fields near Ko Hai village.....	81
Figure 3.2. Swidden fields near Ko Hai village.....	81
Figure 3.3. Swidden fields near Thong Pei village	81
Figure 3.4. Swidden fields near Thong Pei village.....	81
Figure 3.5. Chart of Binney's (1968) Hmong annual agricultural cycle	84
Figure 3.6. Chart of Geddes' (1976) Hmong annual agricultural cycle	85
Figure 3.7. Burning remnant rice stalks to add nutrient to the soil.....	88

Figure 3.8. Close-up view of corn stalk burning	88
Figure 3.9. Traditional shamanistic Hmong house	90
Figure 3.10. Agricultural land.....	100
Figure 3.11. Swidden field size.....	103
Figure 3.12. Swidden size vs year moved to Research Area	104
Figure 3.13. Paddy field size.....	105
Figure 3.14. Paddy size vs year moved to Research Area	106
Figure 3.15. Paddy fields near Ko Hai village.....	106
Figure 3.16. Farmers tending wet-rice agriculture near Ko Hai village	106
Figure 3.17. Route #8 running though Thong Pei village.....	107
Figure 3.18. Hmong hand-harvesting paddy fields near Thong Pei village	107
Figure 3.19. Paddy fields in the Laksao area	107
Figure 3.20. Wet-rice agriculturalists in the Laksao area	107
Figure 3.21. Simplified annual wet-rice agriculture labor cycle	113
Figure 3.22. Simplified annual swidden agriculture labor cycle	115
Figure 3.23. Average household food intake	120
Figure 3.24. Asian cattle kept in garden	125
Figure 3.25. Asian cattle in holding pen	125
Figure 3.26. Pig in pigpen.....	126
Figure 3.27. Goats roaming free	126
Figure 3.28. Chicken kept in flocks	127
Figure 3.29. Ducks in holding cage and roaming free	127
Figure 3.30. Hmong hunter with a .22 rifle	129
Figure 3.31. Hmong hunters on a hunting trip.....	129
Figure 4.1. Permanent house in Ko Hai village	144
Figure 4.2. Permanent house in Thong Pei village	144
Figure 4.3. Billboard depicting the Land and Forest Allocation Plan for Thong Pei village	152
Figure 4.4. Poster depicting threatened and endangered wildlife in Laos	154
Figure 4.5. Remote areas cleared for swidden agriculture.....	158
Figure 4.6. Turtles held in outhouse waiting to be sold.....	159
Figure 4.7. Weigh scales at guesthouse used to weigh wildlife.....	159
Figure 4.8. Hmong villagers transporting timbers by foot to Vietnam.....	163

Figure 4.9. Remnant pump building from failed government water pipe project	173
Figure 4.10. Remnant pipe holders left from failed government water pipe project.....	173
Figure 5.1. Paddy tilling machine tilling paddy field	189
Figure 5.2. Paddy tilling machine modified as transportation vehicle	189
Figure 5.3. Poppy fields in Vieng Thong District.....	192
Figure 5.4. Opium harvesting tool	192
Figure 5.5. Marijuana fields north of the Research Area.....	193
Figure 5.6. Dried marijuana plants left in cabin	193
Figure 5.7. Number of household cash crops growers.....	195
Figure 5.8. Cassava fields near Ko Hai village.....	196
Figure 5.9. Cassava	196
Figure 5.10. Corn fields near Ko Hai village.....	197
Figure 5.11. Corn being dried in Ko Hai village	197
Figure 5.12. Cleaning peanuts in Ko Hai village.....	198
Figure 5.13. Peanuts hung to dry in Ko Hai village.....	198
Figure 5.14. Pangolin awaiting sale in the Laksao central area.....	208
Figure 5.15. Killed red-shank douc langur in the Laksao central area	208
Figure 5.16. Golden coin turtle sale in the Laksao central area.....	209
Figure 5.17. Turtles and tortoises awaiting sale in the Laksao central area	209
Figure 5.18. Semi-trucks loaded with timber in the Laksao central area	215
Figure 5.19. Typical-sized truck used to hull timber	217
Figure 5.20. Villagers from the Research Area harvesting timber	220
Figure 5.21. Villagers from the Research Area harvesting timber	220
Figure 6.1. A <i>nyus vais</i> trap	226
Figure 6.2. <i>Nyus vais</i>	244
Figure 6.3. <i>Koos koim</i>	247
Figure 6.4. <i>Em ntoo</i>	249
Figure 6.5. <i>Dab ntxaug</i>	251
Figure 6.6. <i>Nyus vais</i> categorization	253
Figure 6.7. <i>Koom koim</i> categorization	254
Figure 6.8. <i>Em ntoo</i> categorization	255
Figure 6.9. <i>Dab ntxaug</i> categorization.....	256

Figure 6.10. North-facing view from Thong Pei village	258
Figure 6.11. South-facing view from Thong Pei village	258
Figure 7.1. Flowchart diagram showing causes of increasing hunting/natural resource usage ...	287
Figure 7.2. Author during a hunting excursion.....	311

Abstract

The Hmong are the third most populous ethnic group in Laos and tend to live near areas with important conservation values where they engage in swidden agriculture, hunting, and the collection of various kinds of non-timber forest products for both subsistence and commercial purposes. However, their livelihood strategies are currently undergoing drastic changes due to a range of factors that are making it harder year after year for them to meet household needs.

This research investigates how government laws and policies designed to decrease swidden agriculture, the capitalistic market economy, and technological advancements are affecting how the Hmong in central Laos spatially navigate and use the surrounding lands to sustain and/or enhance their livelihoods. By examining how these factors are affecting Hmong livelihood strategies, I seek to expose variables that are contributing to the already heavy hunting and non-timber forest products usage by the Hmong ethnic group. I primarily conducted intensive ethnographic research which documented Hmong villagers' daily livelihood activities in order to understand how beliefs and practices are produced, modified, and re-produced to allow for continual swidden agriculture, wildlife hunting, and the harvest of non-timber forest products. I found that, among various factors, government laws and policies aimed at protecting the forests and biodiversity have been important for increasing hunting and natural resource use in some parts of central Laos. My field work also revealed that technological advancements are rendering some cultural traditional Hmong beliefs that historically promoted forest and biodiversity conservation less influential, which in turn is also leading to increase hunting and resource use.

Overall, my research enhances our understanding of the relationship between government policies, technological advancements, and the environment and how they are influenced by the capitalistic market economy and discourses associated with ideas of modernization.

Chapter One: Introduction

It was early in November 2013, and I had only recently arrived at the place where I planned to conduct my dissertation study on the factors changing Hmong livelihood strategies. On this particular night, I was attending a *noj mov nplej tshiab* (eat newly harvested rice) feast at the home of a villager living in Phong Meung Noi village, one of the many villages that make up the Laksao area in Khamkeut District.¹ The villager had recently finished his annual harvesting of rice and was hosting a special feast. It is Hmong cultural tradition that each household should have this feast before the New Year celebration in their area. To not do so would bring bad luck and a poor harvest the following year.

I was sitting on a wooden bench right outside the villager's house and was conversing with other Hmong villagers who had come to join the feast. When the male head of the household came outside, smiled, and sat down with our little group, he welcomed those he had not already greeted and then turned to me. He said that he was happy I was able to come but that, because he was poor, the feast is rather simple (consisting of freshly steamed rice harvested a few days before and chicken boiled with vegetable greens) and that he hoped I was not disappointed (he then joked about how well I must eat growing up and living in the United States). I assured him that I was not disappointed and that, on the contrary, I was honored to be there. I asked how many bags of rice his household was able to harvest that year.² "Fifty-two," he said, "but I gave five as payment to the boat operator so I brought home only 47 bags. I have a big family and we are poor as you can

¹ The Laksao area consists of 11 villages and approximately 23,000 people. I conducted my research in a part of the Laksao area that I am calling the Laksao central area. The Laksao central area consists of three villages, Phong Meung Noi village, Nong Pong village, and Laksao village. These three villages are at the center of the Laksao area and serve as the main hub where most activities and exchanges take place.

² The bags are usually 50-kilogram bags. However, this includes the rice and husk. Villagers tell me that once the husk is removed, a bag of pure rice grains weighs approximately 25-30 kilograms.

see by the type of house we live in [he waved his hands toward his house] and the condition of the house. And yet, because I have no money, I have to use some of the rice I harvested as payment to get the rice home...because my swidden field is far away and I have to transport the rice back by boat.” I asked him why he was swiddening so far away. He replied, “I have no money and cannot buy or rent paddy fields here so I have to clear land to practice swidden agriculture, but the government does not like us clearing land for swidden. They keep saying we need to protect the forest and animals, so we have to go farther away to where they will not see us doing swidden. But going far away means we have to work harder to transport the rice back home. The government says to stop swiddening and do paddy, but there are few paddy fields available and what is available costs too much to rent. They will not let us swidden nearby, so how can we eat? We have to go further out of view. That is how we eat, but we become poorer and poorer every year because we have to go farther and farther, which means we will have to pay the boat operators more and more to compensate for the distance...”

This conversation paints a bleak picture for the future regarding Hmong cultural identity and livelihood practices, but it is one that has been all too common throughout my research. The situation is even more dire considering that the Hmong are the third most populous ethnic group in Laos and many of the Hmong who live in rural areas are heavily dependent on swidden agriculture. Furthermore, their livelihood strategies are currently undergoing drastic changes due to a range of factors that are making it harder year after year to meet household needs. Thus, although many conservationists are concerned about the impact that Hmong people are having on biodiversity and natural resource sustainability, there have been no detailed studies that attempt to truly understand the ways Hmong interact with nature, including how they navigate their surroundings and how they relate with nature more generally.

This being the case, my main research question was: How do Hmong villagers from Ko Hai village, Thong Pei village, and the Laksao central area (hereafter, the Research Area) respond to various factors in order to spatially navigate and use the surrounding lands to sustain and/or enhance their livelihoods? To answer this question, I examined and analyzed three broad factors that are influencing the spatial pattern of Hmong people's interactions with their environment:

- government policies on swidden agriculture,
- economic income opportunities, and
- changing Hmong spiritual beliefs.

Only by carefully analyzing these factors and the corresponding factors that are affecting Hmong interactions with nature was I able to understand the ways that Hmong beliefs and livelihood practices are changing, and how these changes are affecting the ways that Hmong villagers spatially interact with the land.

1.1 Brief Overview of the Project

I conducted preliminary research (consisting of visiting possible field sites, meeting villagers, and collecting initial data in Laos, including in Khamkeut District, Bolikhamxay Province) from May 2011 to August 2011 and from May 2012 to June 2012. I then conducted the main portion of the research from October 2013 to February 2015 in Ko Hai village, Thong Pei village, and the Laksao central area in Khamkeut District, Bolikhamxay Province, central Laos. I conducted follow-up research from July 2016 to August 2016 and again in December 2016. I undertook both qualitative and quantitative research methods. The in-depth qualitative ethnographic research included interviews, participant observation, focus groups, and mobile discussions. I also conducted a systematic survey with a large number of villagers early on in the research. I chose to include qualitative methods to try to understand the actual on-the-ground

situations and feelings of Hmong villagers, with a focus on their relations with the environment. Quantitative methods were used to collect quantifiable data³ on wildlife and NTFP usage. I took a final trip in July 2016 to clarify confusing or contradicting statements in my field notes.

Conservation is inherently a human organizational process (Brechin et al., 2002). Thus, successful biodiversity conservation requires an intimate understanding of the local people who are making everyday decisions that affect the surrounding fauna and flora (Jefferies, 1998; Chamberlain, 2000). This includes understanding the social networks between individuals, households, groups of people, and villages. It is especially important to understand how people perceive and use the surrounding land for agricultural and other livelihood purposes, including detailing the assortments of products they harvest from the forests and their environmental cosmologies (Käkönen & Hirsch, 2009). This crucial but often overlooked component of conservation is especially important in countries where governmental institutions do not have the capacity to adequately deal with the variability of both economic and biophysical aspects of the landscape (Barrett et al., 2001). Unfortunately, the current reality is that livelihood practices and beliefs that could play crucial roles in biodiversity conservation are being neglected to the point that, in many areas of biological concern, social science seeking to understand the intimate relationships between human inhabitants and the environment is missing altogether (Scudder & Talbot, 2003).

1.2 Dissertation Structure

The dissertation is presented in seven chapters. The first chapter consists of a general introduction in which I present background information on Laos, including: its human inhabitants, important natural resources (particularly forests and wildlife biodiversity) and some relevant

³ Quantifiable data include number of hunting trips, distance traveled, types and quantity of domestic animals owned, types and hectares of land owned, income, kilogram of crops harvested, etc.

policies, and the Lao government's current emphasis on protected areas. This is followed by a discussion of swidden agriculture and Southeast Asian swidden cultivators. I then discuss hunting and non-timber forest products (NTFPs) in Laos, with a focus on their connection with human livelihood strategies. Finally, I end with a brief analysis of Laos' current policies toward its ethnic minorities in order to better prepare readers for the following chapters.

In chapter two, I first go over the theoretical ideas used to frame this research. I then discuss the research methods I used to obtain the information necessary to complete the project. This is followed by sections discussing my overall Research Area, including the nearby Nakai-Nam Theun National Protected Area (NPA). Next, I explain how I gained access to the Research Area, highlighting my connections to the people there. I end the chapter with detailed descriptions of what I did while in the field.

The third chapter is broken down into two primary parts. The first part introduces the Hmong, the ethnic group at the center of this research project. I briefly trace the migration history of the Hmong from present-day China to present-day mainland Southeast Asia, including Laos. I then discuss swidden agriculture, including the derogatory narratives associated both with it and the Hmong in general. Finally, I discuss Hmong spiritual beliefs concerning the environment, as this topic is crucial for making sense of changing Hmong livelihood practices. The second part of chapter three presents an in-depth discussion regarding the Hmong in my Research Area, including their arrival to the area, household structures, and current livelihood strategies.

Chapter four focuses on the current status of swidden agriculture in Laos and how government policies restricting swidden are changing villagers' livelihood strategies which, in turn, are having negative impacts on forest ecosystems and wildlife populations. Essentially, the chapter presents on-the-ground scenarios and argues that government restrictions on swidden,

ostensibly to protect the natural resources, are actually having the opposite effect, harming the very things that the restrictions were designed to protect.

Chapter five consists of two parts. First, I discuss how Laos' growing market economy and, more specifically the cash crop boom, is changing the way villagers spatially use their surroundings to maximize their earning potential and how these actions are leading to forest degradation and increased wildlife hunting. In the second part, I discuss how protected areas and the desire to generate income, soldiers, and villagers come together to create an environment of gift-giving that encourages hunting and NTFP harvesting inside protected areas, including the Nakai-Nam Theun NPA.

The sixth chapter focuses on changing Hmong spiritual beliefs concerning the environment and how these beliefs are changing in Hmong society, at least partially due to technological advancements. Of particular interest is how villagers believe that they can now take on powerful supernatural beings that were once feared with smartphones. Associated new ideas are empowering villagers to enter forestlands that were once off limits in order to hunt and harvest other natural resources without fearing any repercussions from the supernatural beings.

The final chapter, chapter seven, summarizes the key research findings and ties the dissertation together. It then offers possible actions that could be taken to alleviate some of the negative environmental impacts I describe in the dissertation. The chapter ends with a discussion of limitations and possible future research.

1.3 Laos

The Lao People's Democratic Republic, or the Lao PDR, or Laos (hereafter, Laos) is a landlocked, or land-linked country in mainland Southeast Asia (Figure 1.1). Most of Laos is located between 14° and 23° latitudes N and 100° and 108° longitudes E. Its total area is 236,800

km², divided into 18 provinces. Laos borders Thailand to the west, Vietnam to the east, Cambodia to the south, and Myanmar (Burma) and the People's Republic of China to the north. Its capital is the city of Vientiane, which is also its largest city. It is located in the Municipality of Vientiane, adjacent to the Mekong River which acts as the border with Thailand.



Figure 1.1: Laos in mainland Southeast Asia. Source: Esri. Map by P. Vue.

The topography of Laos is approximately 80 percent mountainous, with multiple mountain ranges running along the country's eastern and northern borders. The World Bank (2018a) suggests that Laos' higher uplands are mostly characterized by steep terrain that results in generally low agricultural productivity. Thus, only about six percent of Laos' total land area is considered arable, and most of this arable land is in the lowlands. However, this data most likely accounts for lowland wet-rice paddy agriculture and not swidden agriculture, especially considering much of Laos' midland and upland population has a long history of successfully practicing swidden at higher elevations.

Laos' geographical sub-tropical location means that it has a monsoonal climate consisting of a rainy season from about May to November, followed by a cooler dry season that runs from December to about April. Rainfall tends to vary from area to area due to the country's generally mountainous landscape; however, all areas in Laos tend to receive at least 1,200 mm of rain on an annual basis, with some areas receiving as much as 4,000 mm or more of rain per annum ("Water," 2002).

1.3.1 Human population. The current estimated population of Laos is approximately 6,492,000. Thus, Laos has a current average population density of 27 people per square kilometer. Sixty-seven (67.1) percent of the population is considered to be living in rural areas. This statistic is further broken down into those living in rural areas with road connectivity (59.2 percent), and those living in rural areas without road connectivity (7.9 percent) (MAF, 2014). Eighty percent of the rural population is heavily dependent on the land and natural resources to meet livelihood needs ("Vientiane," 2011). The largest age group is 15 to 64 years (63.7 percent). The second largest age group is 0 to 14 years (32 percent). The 65 years or older category is the smallest group (4.2 percent) (MPI, 2015).

Laos currently has 49 recognized ethnic groups and over 230 spoken languages or distinct dialects (Chamberlain & Phomsombath, 2002; Manivong & Sophathilath, 2007). The four primary ethno-linguistic groups are Lao-Tai (62.4 percent), Mon-Khmer (23.7 percent), Hmong-Mien (9.7 percent) and Chinese-Tibetan (2.9 percent). The majority of the Laos population self-identifies as Buddhist (64.7 percent), with the remaining population identifying with other religions (e.g., Christianity and traditional beliefs, including Hmong Shamanism).

The average household size in Laos is 5.3 people. Eighty-seven (86.8) percent of households in Laos are headed by a man, while 13.2 percent by a woman. Sixty-one percent of households have access to improved water sources and 84.0 percent have access to electricity. However, only 4.2 percent use electricity for cooking, while 66.9 percent of households still use wood and 23.9 percent use charcoal (MPI, 2015).

1.3.2 Forests. Many studies (e.g., Vongsiharath, 2011; Thomas, 2015; Phompila et al., 2017) suggest that Laos and Southeast Asia more broadly (e.g., Achard et al., 2002; Sodhi et al., 2004; Defries et al., 2005; Lepers et al., 2005) are currently experiencing the highest percentage rate of deforestation anywhere in the world (about twice that of Africa or South America).⁴ For example, Baker et al. (2000) found that forest cover in Laos had decreased from covering approximately 70 percent of the country's total land area in the 1940s to possibly covering less than 40 percent in the late 1990s to early 2000s. Bryant et al. (1997) estimated that 98 percent of Laos' primary forests have already been negatively affected by human actions (e.g., logging, land clearing) and are facing imminent extinction unless measures are taken to protect them. The three main causes of deforestation commonly cited are commercial logging, commercial crop

⁴ Achard et al. (2002) compared annual deforested area rates for Latin America, Africa, and Southeast Asia and found that Southeast Asia was approximately 2.5 ± 0.91 percent, Africa was approximately 0.85 ± 0.30 percent and Latin America was approximately 2.5 ± 1.4 percent (p. 999).

plantations, and swidden agriculture (Robichaud, 2005). This continuing loss and degradation of forests, in conjunction with other factors such as the over-collection of plants and the over-hunting of wildlife is causing biodiversity loss at an unprecedented scale (Khan & Naqyi, 1998; Sodhi et al., 2004). As such, the Lao government has taken drastic actions within the last couple of decades to try to slow down deforestation.

The primary law drafted by the Lao government to protect the country's forests is the Forestry Law No. 6/NA.⁵ The Forestry Law was first approved in 1996 with revisions in 2007 ("National Assembly," 2007). It essentially divides Laos' forest into three categories, each allowing for differing levels of human usage:

- **Conservation Forests.** Article 11:6 of the Forestry Law describes conservation forests as "forests for the purpose of conserving nature, preserving plant and animal species, and forest ecosystems as well as other valuable sites, including natural, historical, cultural, tourism, environmental, educational, and scientific research sites." The category is further divided into two primary zones and two offshoot zones. The two primary zones are the Total Protection Zones, in which all activities that may negatively affect the zones are prohibited, and the Controlled Used Zones, in which villagers are allowed to use some wood products and NTFPs as long as they are abiding by existing management plans. The two offshoot zones are the Corridor Zones, which serve to link corridors between two forest patches in which all activities that may negatively affect the corridors are prohibited, and the Buffer Zones, which surround designated conservation forests. Conservation forests emphasize biodiversity conservation.

⁵ For additional details and clarification, see the National Assembly No. 6/NA Forestry Law. Retrievable from <http://extwprlegs1.fao.org/docs/pdf/lao89474.pdf>

- **Protection Forests.** Article 10:6 of the Forestry Law describes protection forests as “forests for the function of protecting water and associated physical geographical features, protecting soils from erosion and other natural disasters, and protecting strategic areas for national security and defense.” The category is further divided into Total Protection Zones, where all activities that may negatively affect the area are prohibited, and Controlled Use Zones, where villagers are allowed to use wood and harvest NTFPs as long as they are abiding by existing management plans. Protection forests focus on protecting watersheds and water-related geographical features.
- **Production Forests.** Article 13:6 of the Forestry Law describes production forests as “forests managed for the production of wood and other forest products to promote national socio-economic development and meet villagers’ livelihood needs.” The category is further divided into Development Zones, where logging and the harvesting of NTFPs are allowed, and Protection Zones, which are areas that were previously used but are now being protected in order for regeneration to occur.

1.3.3 Wildlife biodiversity. Laos is one of the most biologically diverse countries in the world and is home to some of the rarest and most elusive animals in the world (Duckworth et al., 1999), including species that were until recently unknown to science. For example, it was only in the mid-1990s that the endangered Laotian Rock Rat or, as villagers call it, the kha-nyou (*Laonastes aenigmamus*) was discovered for sale as bush meat at a local market. This rodent is now identified as the last surviving member of the family *Diatomyidae*, which was thought to have gone extinct 11 million years ago (Jenkins et al., 2005). Another amazing discovery is that of the critically endangered saola (*Pseudoryx nghetinhensis*). This large antelope-like bovid was discovered in 1992 when researchers in bordering Vietnam found strange, unidentified horns

(Figure 1.2) in the Vu Quang Nature Reserve of west-central Vietnam (Stone, 1992). The discovery was hailed as one of the most remarkable discoveries of the 20th century (Hardcastle et al., 2004; W. Robichaud, personal communication, December 29, 2012). This led to an expedition survey that eventually confirmed the animal's existence in Laos as well (Schaller & Rabinowitz, 1995).



Figure 1.2: Saola (*Pseudoryx nghetinhensis*) skull in Chomthong village, Vieng Thong District. Photograph by P. Vue.

Other discoveries include the endangered large-antlered muntjac (*Muntiacus vuquangensis*) in 1994 (Schaller & Vrba, 1996), the striped rabbit (*Nesolagus timminsi*) in the early 1990s (SurrIDGE et al., 1999), and more recently, the bare-faced bubul (*Pycnonotus hualon*) (Woxvold et al., 2009). A few of the other endangered to critically endangered animals found in Laos include: the clouded leopard (*Neofelis nebulosa*), Asian black bear (*Ursus thibetanus*), Indochinese tiger (*Panthera tigris corbetti*), northern white-cheeked gibbon (*Nomascus leucogenys*), and southern

white-cheeked gibbon (*Nomascus siki*). Unfortunately, the rich wildlife biodiversity of Laos has also attracted excessive attention from poachers and wildlife traders. These illegal activities have been made easier by advancements in roads and other infrastructure. For example, one of the main roads in Laos, Route #8, runs eastward from Vientiane into Vietnam and serves as a prime conduit for wildlife trade within Laos and between Laos and Vietnam (Compton et al., 1999).

The primary law drafted to protect Laos' wildlife biodiversity is the Wildlife and Aquatic Law. The Wildlife and Aquatic Law was first implemented in 2007 and was designed to protect, manage, and sustainably use/harvest the country's wildlife populations.⁶ The law divides all wildlife, including aquatic organisms, into three categories:

- **Prohibition Category.** Article 11:4 defines and considers species in this category to be “rare and endangered” and of “high importance for the development of scientific, educational, and socio-economic research.” Villagers are prohibited from hunting or harvesting animals in this category for any reason unless the Ministry of Agriculture and Forestry (MAF) has given prior permission to do so. Otherwise, they are to be managed by the government.
- **Management Category.** Articles 12:4 and 12:5 define and consider species in this category to be “economically beneficial to national interests and/or socially beneficial for villager livelihood development,” as well as possessing qualities that are important to the scientific community. As such, species in this category are to be “managed, protected and used” following management guidelines that dictate when, where, and how such animals can be hunted and/or harvested and for what purpose.

⁶ For additional details and clarification, see the National Assembly No. 07/NA Wildlife and Aquatic Law. Retrievable from https://www.lexadin.nl/wlg/legis/nofr/oeur/arch/lao/wildlife%20law_official%20translation.pdf

- **Common Category.** Article 13:5 defines and considers species in this category to be “commonly found in the wild and yet are important for economic and social development. Because these species are common, they can be harvested as long as it is done “in accordance with established laws,” which are designed to prevent over-exploitation. Common category animals can be hunted wherever they are found, but only during specified seasons and via allowed hunting methods.

Furthermore, Article 52 of the law lists actions forbidding individuals residing in Laos as well as organizations based in Laos from:

- catching and keeping Prohibition Category animals in captivity;
- torturing wildlife, including aquatic organisms;
- illegally hunting or being in possession of wildlife without receiving prior permission;
- catching any animals in the Conservation Forest zone and during breeding seasons as well as prohibiting the capture of infants or pregnant females;
- crafting, selling, or importing weapons (especially firearms) that increase the likelihood of overhunting;
- performing activities that destroy wildlife habitats;
- modifying wildlife zones with the intent to mislead others including officials;
- conducting wildlife activities that degrade the ecosystem;
- transporting wildlife without proper and prior permissions; and
- attempting to mislead and/or corrupt officials.

Individuals caught committing these acts face fines and jail time, depending on the violation and where it occurred. For example, those caught with firearms can be fined one million Lao kip

(approximately US\$125.00)⁷ per firearm plus the confiscation of the firearm(s) (T.V. Vwj, personal communication, June 5, 2014). Being caught with firearms and wild meat results in being fined for both the firearm and the wild meat (fine for the wild meat depends on the amount and species). Being caught in possession of dynamite sticks (used for dynamite fishing) results in being fined 400,000 to 500,000 Lao kip (US\$50 to US\$62.50) per dynamite stick (T.V. Vwj, personal communication, June 5, 2014; P.Z. Xyooj, personal communication, July 9, 2014). Those found transporting wildlife without proper permission are fined depending on the species and quantity being transported.

1.3.4 National protected areas. As discussed above, to slow deforestation, the Lao government implemented the Forestry Law in 1996 which legalized state control over forests and classified the country's forests into different categories with varying levels of allowable usage. This law essentially nullified hundreds of local customary-use practices (Goldman, 2005). Decree No. 164/1993, passed the same year, established 18 National Biodiversity Conservation Areas or NBCAs, making up approximately 14-15 percent of the country's total land mass (Robichaud et al., 2001). These original NBCAs were created following suggestions and recommendations for site selection based on a biogeographic research conducted in the mid-1980s (MacKinnon & MacKinnon, 1986) and were funded through the central government. More recently, the title NBCA has been replaced with "National Protected Areas" (NPA). The effort is designed to encourage wildlife conservation through forest management (Sawathvong, 2000). Six additional NPAs have since been added for a total of 24 NPAs covering approximately 37,000 km² (Vinnaly, 2013). New NPAs have been added to contribute to increasing Laos' forest coverage to 65 percent by 2015 (this figure includes all NPAs, provincial protected areas, and district protected areas, as

⁷ The current currency exchange rate is approximately 8,000 Lao kip per US\$1.00. Hereafter, the approximate US currency value will be in () without the "approximately" word attached.

well as non-protected forested areas).⁸ Besides the Lao government's commitment to forest preservation, NPAs are seen as offering economic incentives and benefits such as ecotourism that would directly benefit both biodiversity and local villagers. Tobias et al. (1998), after surveying the Nakai-Nam Theun NPA, wrote: "If adequately protected, Nakai-Nam Theun will support vital populations of many rare species that are threatened with extinction both regionally and globally. Alongside an outstanding biological heritage, the reserve contains a remarkable diversity of ethno-linguistic groups, some of whom face imminent extinction themselves" (p. 9). These sentiments echo those of others working in protected areas around the world ("Secretariat," 2008; Stolton & Dudley, 2015).

Although labeled as protected, villagers are sometimes allowed access to these areas in order to harvest timber and NTFPs for livelihood needs (Baird, 2010c). A primary reason for this is that the government of Laos designates protected area management as the responsibility of local governments, with active participation from local villagers in order for them to directly benefit from the parks (Robichaud et al., 2001). As such, the Lao government actually took steps to acknowledge the rights of villagers to use the forest and NTFPs in 1993 while it developed plans for creating multiple protected areas. It later reaffirmed its commitment through the creation of the Forestry Law (discussed above) and the Land Use Planning and Forest Allocation Policy, in which land- and resource-use rights of local people are supposed to have been recognized and secured to improve their livelihoods (Balooni & Inoue, 2007; Manivong & Sophathilath, 2007). For instance, all Lao citizens are now allowed to harvest five m³/year of timber from natural forest zones for village production, non-commercial household uses, and public purposes. Hunters are also allowed to hunt and harvest non-protected wildlife (including aquatic species), as long as they obey

⁸ Increasing Laos' forest cover to 65 percent was part of the government's goal to increase Laos' forest cover to 70 percent throughout the country by 2020 (Thomas, 2015; FAO, 2016).

established guidelines (see above), collect non-protected NTFPs, and refrain from damaging the forests while abiding by restrictions laid out in various laws. Acknowledging local villagers is especially important as practically every protected area created in Laos contains human settlements that rely on the natural resources found within these protected areas for their livelihoods (Jefferies, 1998).

While Laos' NPA concept could be applauded for achieving certain goals (see Robichaud et al., [2001]), it also has many drawbacks. For example, many of the rules and regulations concerning NPAs are vague or unclear (Scudder & Talbot, 2004) and can lead to corruption (Hodgdon, 2006). Likewise, NPA boundaries are often questionable and debatable, and there are inadequate trained staff necessary to monitor the areas. These drawbacks have caused ongoing conflicts and misunderstandings between park officials and villagers over natural resource use. One of my objectives for conducting this research was to better understand these conflicts.

1.4 Swidden Agriculture in Laos

One of three reasons that is frequently mentioned as being primarily responsible for the loss of Laos' natural forests is swidden agriculture (Robichaud, 2009). JICA (2001) estimated that 39 percent of Laos' population was dependent on swidden agriculture to some extent and that all together, swidden fields covered approximately 13 percent of the country's total area. The majority of swiddeners are ethnic minorities living in the uplands of Laos. Unfortunately, the negative connotations associated with swidden agriculture, in conjunction with the general impression in the lowlands and urban areas that uplanders generally practice "backward" traditions including swidden, are evident in many parts of Lao government policy. Indeed, there is evidence of these views ever since the current regime came into power in 1975. For example, the government has advocated for the elimination or at least stopping the spread of swidden agriculture through the

education of ethnic minority uplanders on the advantages of what the government calls “fixed” or “permanent” livelihoods.

1.4.1 General information regarding swidden. Swidden agriculture (also known more pejoratively as slash-and-burn or shifting cultivation) is a fire-dependent agricultural management system that emphasizes field rotation over crop rotations as well as the use of fallow periods between usages to continually produce crop yields (Bruun et al., 2009). It is one of the most practiced agricultural systems in the world (Manchard, 1974; Beckerman, 1987; Cairns, 2017) and is the dominant land use system in Southeast Asia (Li et al., 2014). Besides deforestation, it is also seen by some as one of the main drivers of soil degradation and CO₂ emissions due to forest degradation and destruction (Brady, 1996; Harwood, 1996).

Most researchers suggest that swidden agricultural practices fall into two groups: pioneering swidden agriculture and rotational swidden agriculture.⁹ Pioneering swidden agriculture essentially involves constantly clearing new fields in a linear movement pattern. Swidden practices in the pioneering group have a very long fallow period (Kunstadter, 2000). Chamberlain (2000) and Cairns (2015) wrote that pioneering swidden practices are usually geared toward maximizing income opportunities through cash crops. On the other hand, rotational agriculture, as the name implies, involves movement in a rotational pattern where swidden fields are left fallow for shorter periods of time before the swiddeners eventually make their way around in a circular pattern to clear the fallowed land again for use. Subsistence is the primary focus with rotational swidden agricultural practices. Rotational swidden as practiced in Laos involves land use linked to communal tenure over a large area of fallow land. Rotational periods can range from

⁹ The Hmong have been historically associated with pioneering swidden agriculture, which may have historically been accurate but is now problematic. This is discussed in chapter three, section 3.1.2.1 on traditional Hmong swidden agriculture.

seven to 15 years (Robichaud, 2001), but the Lao government often promotes two- to three-year cycles. Robichaud (2001) remarked that the rotational swidden appears “relatively sustainable, at least in condition of low population density” (p. 93), but shorter fallows are likely to be much less sustainable.

Regardless of whether it is talking about pioneering or rotational swidden, it is indiscriminately portrayed in Laos as unplanned, nomadic movement that is detrimental to the environment (Ducourtieux et al., 2005) and has “depleted large areas in the hills” (Marks, 1973, p. 930); it is likewise argued that, along with forest fires, swidden is responsible for more than 80 percent of forest destruction in Laos (Suzuki, 1993). More recently, Phompila et al. (2017) wrote that “shifting cultivation practice is commonly recognized as a serious threat to biodiversity globally,” and that “in Lao PDR, the practice is associated with land clearance, tree cutting and use of fire, and has been viewed as a direct cause of deforestation”. Furthermore, “this destructive farming practice tended to cause serious land degradation, soil erosion and loss of biodiversity” (p. 11). These views on swidden have made it a target for drastic reduction or, as in many countries, complete elimination. Often, these actions end up pitting ethnic minority highlanders against dominant lowlanders (Pye, 2005; Hares, 2009).

There are many different classes of swidden agriculture with similar practices (e.g., fallow period, question of burn, slope-dependent field sowing) that are found throughout the region (Turner II & Brush, 1987). Essentially, they all involve cutting down trees and clearing vegetation in patches of forests during the dry season and then burning the area before the arrival of the rainy season in preparation for use. Burning is essential as it eliminates unwanted vegetation and insects. In addition, burning also produces ash that fertilizes the acid and provides nutrients to the nutrient-

poor soil commonly found in tropical areas. A common practice is to cut down shrubs and smaller trees before cutting down larger trees. This is done to facilitate burning.

Historically the length of time an area is cultivated depends on soil quality. Furthermore, the length of time a swidden field can continue to be productive depends on 1) the conversion of chemical nutrients that are initially not present into a bioavailable form during fallow periods and burning processes, and 2) a low net export of nutrients to other areas as a direct result of the low productivity of the area over time. An area is used until a noticeable drop in production is observed due to decreasing available nutrients in the soil, at which time the area is left to lie in fallow for various numbers of years to allow for secondary forest regrowth. The fallow period is key to maintaining the swidden cycle as it allows nutrients to be absorbed by plants that are recolonizing the area. These nutrients then return to the ground as litter and are made available to subsequent crops when the vegetation growth is cleared and burned. Fallow periods also allow tree and shrub saplings to establish themselves and grow taller. They eventually shade out unwanted weeds and grasses, thus allowing for natural forest successional regeneration to occur.

Forest recolonization occurs quite rapidly in tropical areas such that it becomes visually hard for the casual observer to distinguish between secondary forest regrowth and primary forests after just 15 to 20 years of recolonization (Brown & Lugo, 1990).¹⁰ For example, Fox (2000) suggests that areas in Southeast Asia that are labeled as primary forests (old-growth forests where human activities are absent) are actually late stage secondary forests, often having been previously cleared for swidden agriculture. More recently, the length of time an area is cultivated has become more and more dependent on either population density (Beckerman, 1987) or government policies limiting swidden (Baird & Shoemaker, 2007). Both increasing population density and swidden

¹⁰ Brown and Lugo (1990) defined secondary forests as forests “formed as a consequence of human impact on forest lands” such as logged forests and forests in fallows (p. 3)

limitation mean that fields are cultivated for longer periods of time and are left to fallow for shorter periods of time, as there is less and less land available to start anew.

While it may be true that certain forms of swidden are harmful to the environment, ruling governmental bodies of various countries have often indiscriminately lumped all swidden practices into a single category and then proceeded to criticize swidden as environmentally destructive, with the ultimate goal of controlling and decreasing the practice. Fox (2000) points out that opposition to swidden is based predominantly on misunderstandings of how the system actually works. For example, he points out how the Food and Agricultural Organization of the United Nations (FAO) defines deforestation as a linear transfer of forested land to non-forest uses and then continues to list swidden as one of these causes. Definitions such as this suggest that there is a misunderstanding of swidden as a form of permanent land-use. Thus, how permanent agricultural land-use practices affect wildlife and soil qualities are often blamed on swidden agriculture. In truth, swidden does not permanently use the land but rather uses it only temporally with long fallow periods in between; swidden is therefore not as detrimental to the environment as it is often portrayed to be. In fact, in-depth studies on swidden agriculture (e.g., Conklin, 1957; Dove, 1983; Bruun et al., 2009; Rerkasem, Lawrence et al., 2009; Padoch & Pinedo-Vasquez, 2010; Tran et al., 2006; Lestrelin, 2012) have shown that swidden practices are very diverse (both in terms of the number of ways that swidden is practiced as well as how swidden is practiced based on the agroforest ecosystems where it is practiced) and may actually help maintain ecosystem integrity. For example, traditional swidden done properly with long fallow periods provides various ecosystem services such as improving the hydrologic cycle, enhancing and promoting biodiversity, and carbon storage that commercial farming or intensified cash crops fields do not (Kleinman et al., 1995; Ziegler, Agus et al., 2009). Furthermore, traditional varieties of swidden agriculture can be based on farmers

making logical and rational economic choices, as these methods do not require the purchase of fertilizers, pesticides, or any other manufactured inputs. They also do not involve soil tilling. These studies further suggest that the actual agents of land degradation are deliberate agents of change such as development officers decreasing the amount of land available and the introduction of the market economy that increases intensification of land use (Beckerman, 1987; Stocks, 1983; Fox & Volger, 2005; Schmidt-Vogt et al., 2009; Ziegler, Agus et al., 2009). Unfortunately, local practitioners are blamed for forest destruction which, in the case of Laos, provides an excuse for the Lao government to redefine villagers' territories as protected areas or logging concessions (Colchester & Gray, 1998) and to otherwise resettle and spatially reorganize upland peoples (Baird, 2009b; Baird & Shoemaker, 2007).

1.4.2 Southeast Asia swidden cultivators. Estimating the number of Southeast Asian swidden cultivators is difficult even with modern technological advancements, as many are doing swidden agriculture unofficially or illegally. Swidden agriculture is also a dynamic and diverse system, making it difficult for researchers to see, define, and measure.¹¹ Another reason is that the majority of swidden agriculture falls under the smallholder category, spatially and temporally dynamic fields that researchers and officials find hard to add up in order to clearly see what is happening. Perhaps most important is the fact that swidden agriculture has historically been a politically contentious issue. Indeed, most Southeast Asian countries where swidden is practiced have subjected swidden to some form of limitations. These restrictions are established and enforced by various government bodies and are sometimes supported by non-governmental organizations as well. As such, many government bodies have been hesitant to adequately measure the extent that swidden is being practiced in their areas, as doing so would admit that these lands

¹¹ This is changing due to technological advances as will be discussed in chapter seven.

are and will continue to be used for swidden agriculture (Padoch et al., 2007). This has led many researchers (e.g., Mertz et al., 2009) to conclude that trying to estimate the number of swidden cultivators in Southeast Asia with the literature available is not useful.

Although swidden agriculture has been one of the more dominant and widespread agricultural systems in Southeast Asia and has long been an integral livelihood strategy for people belonging to many different ethnic groups (Garrity, 1993), it has undergone rapid and significant transformations within the last few decades (Rerkasem & Rerkasem, 1994; Fox & Vogler, 2005; Padoch et al., 2007; Fox et al., 2009). There are many reasons for these changes. For example, Schmidt-Vogt et al. (2009) reported that a review of 151 studies about swidden agriculture in Southeast Asia suggested that continuous annual cropping such as rubber, oil palm, and fruit trees to promote the industrial agriculture sector are rapidly replacing traditional swidden agriculture. For example, rubber cultivation has replaced large swaths of swidden agriculture in Laos (Alton et al., 2005; Vongkhamor et al., 2007; Shi, 2008; Ziegler, Fox et al., 2009; Baird, 2010b). Other reasons include various government policies and incentives (Padoch et al., 1998; Ngidang, 2002), privatization and commoditization of land (Fox et al., 2009), and the penetration of the market economy (Hansen & Mertz, 2005; Douglas, 2006) among others. These external factors are playing important roles in altering household livelihood strategies (Huijun et al., 2002; Cramb et al., 2009).

Pioneering swidden agriculture is now only very rarely practiced in the country. The reality is that the Lao government's plan to decrease both swidden agriculture and also to resettle villagers into more "permanent" villages (Baird & Shoemaker, 2005) have made it much more difficult to practice pioneering swidden for many swiddeners. Instead, many ethnic groups that once practiced pioneering swidden agriculture now practice rotational swidden due to restricted mobility,

increasing population, government regulations, and other factors (discussed throughout the dissertation).

Furthermore, many villagers are now not able to even practice rotational swidden agriculture for reasons mentioned above. Instead, many families are now farming areas continuously. Dupin et al. (2009) wrote that a shift from swidden with fallow periods to more permanent cropping systems in Southeast Asia has resulted in increasing weed pressure that now requires farmers to dedicate more labor to weeding. A primary factor contributing to this shift toward permanent agriculture is the Lao government's Prime Minister on Land 99/PM decree which states that land unused for more than three years becomes government property. Ducourtieux et al. (2005) stated that the decree was designed to limit swidden and wrote, "The decree...seeks to automatically return a plot which has been abandoned for over three years to the village committee: this land should then be redistributed in the village to farmers who can farm it" and that "Where shifting cultivation is used, fields are allocated temporarily, as long as they are farmed and the property tax is paid. To encourage farmers to change their ways, tenure security on these plots is deliberately limited since shifting cultivation 'takes up too much space'" (p. 506). Essentially, this means that villagers have to severely decrease fallow periods between land use to two years in order to maintain ownership of the land. The bottom line is that the policy was designed to 1) limit movement and 2) decrease swidden cultivation. Studies (e.g., Chamberlain, 2006, Roder et al., 2009) showed that decreasing fallow periods leads to increasing weed growth which then requires significantly more manual labor (this is further discussed in 4.8.6.1). Furthermore, the shortened fallow period strengthens the Lao government's idea to grow cash crops as cash crops are practiced without fallow periods.

1.4.3 Swidden as defined for this research. For this research, I define swidden as agricultural practices that do not require water inundation.¹² This means that rice fields, vegetable fields, and cash crops fields are all considered swidden fields as none required the fields to be inundated. On the other hand, paddy cultivation requires inundation with water for at least part of the annual growing season. Because I grouped all agricultural practices that do not require water inundation to be swidden fields, I did not break down swidden data into smaller categories (e.g., cash crops, subsistence). In fact, swidden cultivation is quite different from producing cash crops.

1.5 Hunting and NTFPs in Laos

Many Lao citizens have historically relied heavily on hunting (including fishing) and the harvest of NTFPs. Hunting wildlife is a critical component of rural livelihoods in that it provides valuable nutrition for villagers in Laos as well as income (Johnson et. al., 2003). However, many of Laos' wild animals are becoming rare due to unsustainable hunting. This is especially true for larger mammals such as tigers (Walston et al., 2010; Johnson et al., 2014), dholes (Lim, 2017), and large ungulates (Vongkhamheng et al., 2013). The following sections highlight the role that hunting, and to a lesser extent, NTFP collection, play in villagers' livelihoods.

1.5.1 Livelihood necessities. As stated earlier, the majority of Laos' human population lives in rural areas. Thus, the hunting and harvesting of wildlife and NTFPs are important parts of their livelihoods and help provide a considerable amount of income and nutritional intake (Duckworth et al., 1999; Baird & Bounphasy, 2002; Krahn, 2005; Lee et al., 2014). For example, Singh (2010) remarked, "Wildlife is widely consumed in Laos" and that "in more recent years,

¹² At the time, I did not think to distinguish between subsistence fields and cash crop fields so I grouped them together under swidden and then proceeded to collect data asking Hmong villager whether they have access to and were practicing "*teb*" which means "dry fields." I realized this was poor planning when I started writing the bulk of the dissertation in 2017 after my last follow-up visit to my Research Area. Unfortunately, I was unable to return to the Research Area to recollect the data and as such, this remains the dissertation's most visible weakness.

wildlife consumption has become increasingly popular even as its availability had declined” (p. 316). Hunting is mainly performed by male household members and is largely opportunistic. Hunting trips can consist of a lone hunter or groups of 10 or more hunters traveling together. A lone hunter usually hunts near his village¹³ and for a shorter amount of time before returning home, while a group of hunters would usually hunt further away from their village and for a longer duration. The preferred method for hunting most animals, especially larger animals, involves the use of firearms (“National University,” 2005). Johnson et al. (2005) also found that guns were the most common method used to harvest wildlife and remarked, “Guns were the most common method reported for capturing moth wildlife” (p. 2). Snares are the second most common method and are used to catch smaller animals, but some larger snares are also used to catch larger animals. Villagers are historically allowed to hunt in the area surrounding their villages while those not from the area usually had to ask for permission from village heads before being able to do so. However, this is changing as the numbers of reported hunting by outsiders have steadily been increasing in some parts of the country (“National University,” 2005). NTFPs also make up a significant component of villagers’ food and nutritional intake. Women and children usually harvest NTFPs, either opportunistically (going into the forest and looking around for particularly desired NTFPs but ending up harvesting other NTFPs) or purposefully (NTFP harvesting events in which villagers get together in groups to purposefully go into the forest and look for specific forest products such as bamboo shoots and wild fruits). Most of the forest products harvested are consumed by the harvesters themselves, but some products are also sold or traded to others. As with hunting, villagers are usually allowed to harvest NTFPs in areas surrounding or near their

¹³ This is changing. Lone hunters now travel further and hunt for longer time intervals due to various reasons as will be discussed throughout the dissertation.

villages, while avoiding areas further away as a sign of respect to other villages as well as for safety reasons.

1.5.2 A note on firearm ownership in Laos. It is illegal for regular citizens to own guns in Laos. As such, most hunters hunt with homemade flint guns (Figures 1.3, 1.4) that they keep hidden when not in use. The guns are single-shot pellet guns that require reloading after every shot. The hunter usually will wear a long necklace with a pouch containing the firecracker stubs used to ignite and fire the guns. A bag of gunpowder and another bag containing steel pellets is usually worn around the waist. A hunter usually loads his gun before walking around so that he is prepared to shoot if he sees a wild animal. He then immediately reloads after firing a shot in preparation for the next animal he encounters. A few hunters do have .22 small game rifles similar to those found in gun stores in the United States. However, these rifles are generally too expensive for the average hunter, as the average cost for one is about US\$1,000 (L. Xyooj, personal communication, May 12, 2014). A scope will cost an additional US\$100-\$250, depending on the quality and zooming power. Ammunition is purchased in secrecy in the back corners of various vendor stores because it is illegal to sell ammunition openly in Laos. A box of 50 bullets usually costs about 80,000 Lao kip (US\$10.00) while a kilogram of BB pellets is 20,000 Lao kip (US\$2.50). A few hunters also set live traps and snares, but only if they plan to spend more than a few days in the forest or if they plan to go back to the area the following day.



Figure 1.3: Hmong villager gunsmith. Photograph by P. Vue.



Figure 1.4: Traditional Hmong flint rifle. Photograph by P. Vue.

1.6 Polices Toward Ethnic Minorities in Laos

A brief discussion on government policies toward ethnic minorities is given below for readers to obtain a more thorough understanding of the government's policies and actions concerning Hmong swidden agriculturalists and hunting in Laos.

The National Assembly's Committee on Ethnic Affairs is currently tasked with drafting and evaluating proposed legislation to ensure that ethnic minorities' concerns are seriously considered, incorporated, and not infringed upon. The Lao National Front for Construction is Laos' leading institution for ethnic affairs and the Institute for Cultural Research is responsible for instigating and conducting research on ethnic minorities.

Ethnic minorities in Laos are defined in two main ways: 1) by their ethno-linguistic characteristics and 2) by their geographical-livelihood characteristics (SEMFOP, 2005). In Laos, the term "indigenous" is not used or permitted. Baird (2015b) in an analysis of the Lao government's attitude toward the term indigenous, wrote that "neither the present government of Laos (GoL) nor any previous government in the country has ever recognized this new idea of

indigenous people” (p. 55). Furthermore, Baird (2015b) wrote that “it does not seem likely that the GoL will recognize the concept of indigenous peoples in the foreseeable future” (p. 57). This deficiency makes it difficult at times to determine which ethnic groups are covered under its many laws, decrees, and provisions which are also often representative of the ideas of the dominant lowland Lao culture.

Since 1975 (when the current regime came into power), the general attitude towards ethnic minorities has been dominated by two themes, modernization/accluturation and national security (Chamberlain, 2000), which are largely about national control (Gilligly, 2004). To make dealing with ethnic minorities more manageable, Laos initially reduced the number of ethnic minority groups from over 200 (Chamberlain, 2001) to three (Duncan, 2004) based on altitudinal geographical distribution: 1) Lao Loum or lowland Lao, 2) Lao Theung or middleland Lao, and 3) Lao Soung or highland Lao (Jerndal, 1998). As previously stated, this has since been revised to recognize 49 ethnic groups, many of which are sub-groups.

In 1981, the first policy on ethnic minorities, “The Resolution of the Political Bureau Concerning the Affairs of Various Minorities, Especially the Hmong Minority,” was issued (“Political,” 1981). The main purpose of this policy was to respond to a growing insurgency threat led by anti-communist ethnic Hmong soldiers and sympathizers left over from the Second Indochina or Vietnam/Secret War.¹⁴ The policy identifies two main problems in areas where Hmong are present: 1) not having a strong enough government presence to inhibit these areas from being incorporated into the government system, and 2) government failure to meet local needs, especially regarding health and education. The policy advocates for improved grassroots political

¹⁴ The Vietnam/Secret War, also known as the Second Indochina War, was a proxy war fought between North Vietnam (supported by the Soviet Union and other communist allies) and regular and irregular military units (supported by the United States and other anti-communist allies) from 1961 and 1975. In Laos, thousands of Hmong villagers were recruited by both sides to in the conflict (Hillmer, 2010).

foundations in these areas, providing a stable settlement and sufficient food through the elimination of swidden by engaging with paddy cultivations. In 1991, the policy on ethnic minorities was rewritten (“Central,” 1992) to include all ethnic groups. It declared that it is in the State’s interest to promote equality and unity among all ethnic groups and that all groups have the right to protect, preserve, and promote their cultural heritage and ethnic identity. Just as importantly, it declared that the State must develop and improve the economic and social level of all ethnic groups.

Chamberlain (2000) summed up the Laos national government’s general policy concerning ethnic minorities into six key goals: 1) build national sentiment, 2) realize equality for ethnic minorities, 3) increase the level of solidarity among ethnic minorities as members of the greater Lao family, 4) resolve problems of inflexible and vengeful thinking, as well as economic and cultural inequality, 5) improve the living conditions of ethnic minorities, and 6) expand, to the greatest extent possible, the good and beautiful heritage and ethnic identity of each group as well as their capacity to participate in the affairs of the country (p. 23). Ironically, it then lists “essential” tasks that must be strived toward which, when examined more closely, contradict many of their policies pertaining to equality. These tasks include actions such as halting swidden cultivation and arranging for permanent settlements for villagers (Sparkes, 1997; Ducourtieux et al., 2005) to enforcing the use of the Lao alphabet for writing in Hmong and Khmu (Chamberlain, 2002) and reducing “backward” traditions (Trankell, 1998) in production and lifestyles. These contradictory statements suggest that while the Lao government supports ethnic minorities, they only do so if the minorities agree to become like ethnic lowland Lao. Lao government officials who still conform to the idea of cultural evolution or successive modes of production from the colonial era (Evans, 1999; Chamberlain, 2000) label minorities who do not conform to this image as primitive

or backward and make them into scapegoats for the deforestation and coveted space in the country (Daviau, 2010). Evans (2002) states that the Lao “modern secular state simply trumpets ethnic equality—but it is clear to everyone, especially to the minorities themselves, that they are not equal citizens. The truth is that the relaxation of political correctness in everyday life has seen the re-emergence of an older, derogatory nomenclature and a proliferation of ethnic jokes at minority expense, especially the Hmong” (p. 212).

1.7 Livelihood Criminalization

Readers will soon realize as they progress through this dissertation that many of the Hmong’s traditional livelihood strategies such as swidden agriculture, opium production, and now hunting have been criminalized. One has to wonder then, how is it the Hmong are still able to persist and make a living? There are many reasons as to why the Hmong in central Laos, and elsewhere in Laos are still able to make a living. Some of these reasons are discussed further into the dissertation. However, here I will discuss one of the main reasons as to how this can occur, that is, the Lao government’s policies and their actual practices.

The government is actively discouraging villagers from clearing additional land to practice swidden and threaten those caught doing so with hefty fines and possible jail time. However, this initiative is not as commonly enforced as one may believe. This is because the government knows that many Lao citizens are dependent on swidden to meet livelihood nutritional and income needs. The government also knows that it is unable to provide adequate alternatives to swiddeners (although they still actively promote wet-rice as a viable alternative as will be discuss later in the dissertation). Thus, although they present an anti-swidden stance, in practice, the Lao government is more lenient.

The Lao government is also preaching against illegal wildlife and timber trade. However, there are also ways around these restrictions. Many of these issues are discussed in this dissertation. For example, illegal wildlife and timber trade are occurring at unsustainable rates because there exist a mutual-benefit, gift-giving relationship between many villagers and government as well as law enforcement officials that allows, and in many cases, facilitates and encourages these activities to take place. There also exist multiple loopholes in timber and wildlife harvesting policies that also allow for excessive harvesting.

These are but a few examples highlighting why the Hmong are still able to practice many of their livelihood strategies that have since been criminalized. The rest of the dissertation will be discussing these issues in more details as well as presenting other issues that are affecting Hmong livelihood in one way or another and then providing data showing how the Hmong are responding to these changes. The take-away message here is that the Lao government is relying more on fear than actual on-the-ground regulations to discourage villagers from swiddening, hunting, or doing other frowned upon activities.¹⁵

1.8 Chapter Review and Concluding Thoughts

This chapter provided an introduction to the dissertation, including the changing Hmong livelihood strategies in Laos. It identified three broad factors that are primarily responsible for the many changes that have been occurring: 1) government policies regarding land-use, including swidden agriculture; 2) economic income opportunities; and 3) changing Hmong spiritual beliefs. Each issue will be discussed in-depth in specific chapters of this dissertation in order to provide readers with a better understanding of the complex situation as it exists on the ground.

¹⁵ However, because of this fear and the fear of being further labeled as savages and lawbreakers, many Hmong who are involve in such practices are doing so in remote places and in secrecy.

In a broad sense, by examining and documenting how local villagers interact with their surroundings to sustain or in some cases to enhance their livelihoods, this project makes a significant contribution to scholarly understanding of how people interact with and adapt to their social and physical environments, especially with regard to a well-known and important ethnic group of great interest to those involved with conservation: the Hmong.

More specifically, this project seeks to contribute to the literature on how national parks and other types of protected areas are affecting those who are and have been living in those areas for long periods of time (e.g., Brandon et al. 1998; Neumann, 1998; Turner, 1999; Wilkie et al., 2006; Das, 2008; Hanna et al., 2008; Liesch, 2011; Guerbois et al., 2012; Gupta, 2012; Ferraro & Hanauer, 2014). Furthermore, it sheds light on how these communities are adapting, diversifying, and compensating for these new restrictions in order to sustain their livelihoods.

The next chapter will discuss the theoretical framework used to guide the research and the methods used to obtain the necessary data to better understand the situation as it exists on the ground.

Chapter Two: Theoretical Framework, Methodology, and Practice

“Well, yes he could come and do his research in Laos,” said my first cousin, Nhia Tong (*Nyiaj Thoob*), on a hot and muggy day in Vientiane, the capital of Laos, in summer of 2011 when my PhD advisor and I first approached him about my conducting research in Laos, considering that, though I am Hmong American, my father sided with the United States and fought against the current Lao People’s Democratic Republic (Lao PDR) government during the Vietnam/Secret War, before fleeing the country as a refugee after the fall of Vientiane to communism. “However, he must do his research in an area that is dominated by our clan, the Vue clan, as that way, they can watch over him and make sure that he does not get into any trouble. We can only guarantee his safety if he does his research in a Vue-dominated area.”

Nhia Tong had said something similar when my advisor asked him about my prospects for conducting PhD research in Laos when they met in 2010. But on the day in 2011 when I was present, Nhia Tong said that “the Laksao area is where he can do his research because one of the villages there, Ko Hai village, is dominated by the Vue clan. Not only that, but many of the villagers there, including members of our lineage, supported the communist Pathet Lao during the war. Doing research in an area with strong pro-communist ties will lessen suspicions anyone may have about his possible motives.”

Approximately two and a half years later, in November of 2013, I arrived in the Laksao area to start my research.

2.1 Theoretical Framework

The following sections discuss the theoretical framework used to develop and conduct this research. I first discuss the field of cultural ecology and its significance to this project. This is followed by a brief review of political ecology.

2.1.1 Cultural ecology. An important part of this project focuses on how Hmong villagers adapt to their surroundings, how this adaptation affects and is affected by their beliefs concerning the forest, and how these beliefs affect how they view and use available natural resources. As such, the field of cultural ecology plays a central role in this project.

Anthropologist Julian Steward first introduced cultural ecology when he sought to identify a field of study that could be used to understand and explain how humans adapt to their environment to survive and reproduce (Steward, 1976, c1955). It is a broadly defined field that includes the study of anything from pets to various events in the history of human civilization. The field is recognized as one of two major sub-fields that make up the broad field of human ecology: cultural ecology and human biological ecology, which emphasizes the biological aspects of adaptation (Sutton & Anderson, 2004).

Understanding the relationships between culture and the environment is vital because it offers a way to understand and possibly seek out solutions to important contemporary problems such as deforestation, biodiversity conservation, and food security. Many of these issues reflect unsustainable resource-use and require conservation measures. This project contributes to this understudied area in relation to the Hmong and other ethnic groups in Laos. The key cultural ecology themes I engaged with for this study are: household agricultural practices and food production (Zimmerer, 2004; Carney, 1993), hunting and gathering (Peterson & Matsuyama, 1991; Trigger, 1999; Guenther, 2007), and conservation management (Neumann, 2004b; Zimmerer, 2006).

2.1.2 Political ecology. In addition to using a cultural ecology approach, this project also incorporates ideas associated with key social, political, economic, and ecological processes that shape resource use and control. Specifically, it considers how external forces such as governments,

international institutions, and NGOs affect Hmong agricultural practices, hunting, and NTFP harvesting strategies. The field of political ecology also plays a prominent role in this project.

Political ecology is one of the dominant frameworks used in studies that focus on nature-society or people-environment relationships (Walker, 2005; Turner II & Robbins, 2008). The field of political ecology is an offshoot of the merger of a broadly defined political economy and emerging concerns related to ecology that developed during the late 1970s (Campbell et al., 2008). Watts (2000) defined political ecology as a field that “seeks to understand the complex relations between nature and society through a careful analysis of what one might call the forms of access and control over resources and their implications for environmental health and sustainable livelihood” (p. 257). It seeks to identify key political and economic components that determine who has access to what resource goods by identifying a chain of causation and then tracing it back to the initial circumstances that triggered the events which led to the current situation.

The concept of political ecology first gained traction in the mid-1980s when scholars and researchers realized that environmental degradation could not be explained solely based on ecological factors. For example, Blaikie and Brookfield (1987) argued that, while it is true that environmental concerns are found in the physical or biophysical sciences, it is in the realm of social science that reasons for why adequate steps are not being taken to counter these degradations can be found, and as such, land degradation should be defined as a social problem. This realization led to the merging of political economy and concerns for ecology to produce more accurate explanations of resource-use conflicts and environmental change.

In general, contestations over natural resources can be thought of as social conflicts between two or more groups with differing visions for how those resources should be used (Colchester & Gray, 1998); these conflicts can reveal, among other things, diverging interests and

powers among various groups (Turner, 2004). Of interest to this project is the idea that government policies of control, in which the government actively restricts villagers' access to natural resources in protected areas, are at least partially responsible for causing conflict in those areas. These restrictions are often enforced to preserve a "pristine" wilderness that is devoid of people (Neumann, 1998), as well as to show the state's control over people and territories (Hall et al., 2011). Many times, villagers are labeled as threats to protected areas and excluded without the full understanding of the complex relationships between the natural resources and local communities.

This research took a political ecology approach to examining how Hmong agricultural practices and natural resource use have affected the land and forest, how the government has responded to these perceived and/or real impacts, and how these governmental responses have, in turn, affected both the environment and Hmong livelihoods practices. The key political ecology themes this research engaged with are: increasing human density and its impacts on the natural environment (Zimmerer, 2000), the power relations between various interest groups and how these relations impact resource access and use (Neumann, 1998, 2004a, 2004b; Paulson et al., 2003; Robbins, 2003), and the role that local knowledge plays in resource use and control (Nadasky, 1999; Robbins, 2000; Bassett & Crummey, 2003; Goldman, 2003, 2007; Fairhead & Scoones, 2005).

2.2 Methodology¹⁶

My research was largely ethnographic. As such, it relied heavily on qualitative research methods, including: surveys, participant observation, semi-structured interviews, focus groups, and mobile discussions. These methods allowed me to collect information on changing livelihood strategies resulting from government regulations, the market economy, and technological

¹⁶ All research methods conducted with human subjects were approved by the University of Wisconsin-Madison Education and Science/Behavioral Science Institutional Review Board (IRB).

advancements. This approach helped me meet the many calls to integrate participatory research into agricultural research (e.g., Lash et al., 1998; Pound et al., 2003).

While this project predominantly relied on qualitative methods, I also collected quantitative data on wildlife and NTFP usage. As such, this research followed the political ecology framework like the one described by Zimmerer and Bassett (2003), suggesting that efforts should be undertaken to engage both (in essence, a fusion of both) ecological/biophysical and political/social dimensions of environmental issues in a more integrated and balanced manner in order to achieve a vibrant transdisciplinary perspective. This is needed because most society-environment problems are hybrid ones, and possible solutions to these problems are usually only found after a thorough examination of the issue through multiple lenses (Donaldson et al., 2010; Hicks et al., 2010). Combining both qualitative and quantitative methods decreases limitations found in studies that apply only a single research methodology.

2.2.1 Surveys. Systematic family surveys were used to gather general quantifiable data on household structures, general livelihood practices, and seasonal activities in order to understand which household is involved in which strategies in the Research Area. These surveys allowed me to follow-up on the survey with more meaningful semi-structured interviews geared particularly toward that household and its practices. The surveys were:

- 1) General Livelihood Subsistence
- 2) Annual Livelihood Activities
- 3) Resource Use

The surveys were designed to:

- collect information on household structures,
- gather data on household livelihood practices and activities, and

- provide quantifiable data.

Though I focused mostly on swidden and hunting, I also looked at wet-rice agriculture, NTFP harvesting, livestock, and employment to gauge the importance of swidden and hunting in comparison with other livelihood activities.

2.2.2 Participant observation. Participant observation is a broad term used to describe four different sub-methods used to collect qualitative data. The four sub-methods are: 1) complete observation, in which researchers do not have any contacts with participants by maintaining an adequate distance between him/herself and those he/she is observing, 2) participant observation, in which there exists a defined relationship between researchers and participants, 3) observer-as-participant, in which researchers' roles are clearly defined, and 4) complete participation, where researchers completely hide their observational research agenda from unwary participants (Jorgensen, 1989).

I used all four sub-methods to collect data for this research project. The method used at different times depended on my positionality and the optionality of those around me. Many times, I switched between these sub-methods throughout an event to collect more thorough data. For example, the sub-method "complete observer" was used when I was in the field observing from a distance how villagers conduct daily agricultural field maintenance. I would then change over to the "participant observer" and/or the "observer-as-participant" sub-methods once I got close enough to the villagers I had been observing from some distance moments earlier. This was done so that I could engage and start conversations with informants. Finally, there were many times when I utilized the "complete participation" sub-method to collect more authentic data on a particular issue (Crang & Cook, 2007).

2.2.3 Semi-structured and in-depth interviews. “Semi-structured” is a term used to describe interviews with structured core questions that also allow for the conversation to depart from the core questions. Not only does this method allow for spontaneous discussion of issues that the interviewer may not have thought about, it also allows participants to discuss issues that are likely more important to them and more interesting overall.

The term “in-depth” is used to describe an interviewing technique that seeks to question participants thoroughly to obtain in-depth information. In-depth interviews usually involve multiple sessions (Jones, 1985) as it takes time after the initial meeting to build up the trust between the researcher and participants to an adequate level that would allow more in-depth, sensitive, and personal questions to be answered truthfully. In-depth interviews also reveal things that villagers may initially attempt to hide.

For this study, I used both semi-structured and in-depth interview techniques to converse with participants. Using both methods concurrently meant that I was able to obtain more in-depth, thorough data that may otherwise have been missed had I utilized just one possible interview method (Crang & Cook, 2007). The five semi-structured interviews were:

- 1) Spiritual Beliefs Concerning the Environment
- 2) Terrestrial Animals Hunting and Use
- 3) Aquatic Animals Harvest and Use
- 4) Non-Timber Forest Products Harvest and Use
- 5) Agricultural Practices

The semi-structured interviews were designed to:

- collect data on the topic;

- determine general categories concerning resource harvesting and usage (e.g., medicinal, seasonal availability, abundance);
- identify the various levels of participation and support for hunting, fishing, and NTFP harvesting in the villages;
- determine whether various beliefs play significant roles in determining how villagers go about their livelihood activities; and
- provide quantifiable data.

2.2.4 Focus groups. Focus group discussions are one of the most common, most useful, and perhaps most exciting ethnographic methods used to obtain information, as they allow multiple participants to interact with each other and share ideas and thoughts. Furthermore, this method allows participants to come together and share their experiences and feelings with others who may or may not share those sentiments.

I facilitated (thus, I was the moderator) discussions with multiple villagers in one setting (Crang & Cook, 2007). This method allows differing perspectives to emerge and interact to produce information that may reveal a group perspective not evident in one-on-one interviews. In other words, it allows for group dynamics (Cameron, 2001). Furthermore, it also created a safe space or a space of resistance that allowed for those involved to explore and learn from others while reconfirming their own beliefs (Hyams, 2004). However, focus group discussions are a double-edged sword in that they can intimidate participants who feel uncomfortable voicing their opinions for fear of being ridiculed, ostracized, etc. To minimize this potential pitfall, I established conduct rules for all participants to follow during focus group discussions and made sure that everyone understood the rules before we started talking.

2.2.5 Mobile discussions. Interviews and focus group discussions while moving from one place to another are becoming more and more popular in ethnographic research (Reed, 2002; Anderson, 2004; Carpiano, 2009; Evans et al., 2009; Fincham et al., 2010; Cresswell & Merriman, 2016). Indeed, various studies (e.g., Ingold & Lee 2008; Evans & Jones, 2011; Iared & De Oliveira, 2018) have shown that data generated through mobile discussions is frequently rich and can reveal much about a person's attachment to an area or a place. I incorporated mobile discussions into my research through conversations I had with villagers while moving from one place to another. These conversations usually took place during walks, but many also occurred during other modes of movement such as driving and boating.

Many villagers prefer this method to simply sitting and talking or being interviewed while sitting in one place because they feel more comfortable talking while moving about, as long as the conversation is not too loud. I found that villagers were more open, thoughtful, and talkative when we were moving, regardless of whether we were going from one place to another, walking around in circles, or just back and forth. I also used this method to start conversations on new issues and topics when villagers ran out of things to say during sit-down interviews. In a way, getting up and moving around may allow villagers to relax their minds and, in turn, help them to think of other issues or topics that they want to discuss.

2.2.6 Physical distance analysis. To get a sense of how villagers spatially used the forest in the past and how things have changed since the early 1980s, I used a Garmin GPSMap 62stc to map out areas where hunting and NTFP gathering activities are currently being done (obtained by accompanying hunters/gatherers). In addition, I used the Garmin GPSMap 62stc to record the routes traveled as well as how far villagers traveled to conduct agriculture (both swidden and wet-rice cultivation), hunt, and harvest various other natural resources. I also used maps and had

villagers point out the areas where they had hunted/collected NTFPs in the early 1980s, 1990s, and 2000s.

2.2.7 A note on voice/video recordings. I did not record or videotape any interviews or focus group discussions as I found that the mere mention of recording conversations made some villagers uncomfortable and much less talkative. Instead, I took conversation notes either on paper or on my laptop. I wrote down some of the more sensitive answers after the interviews/focus group discussions were finished, as I again found that villagers tended to be more comfortable and forthcoming when I refrained from jotting down notes while they were talking about an issue they had strong feelings about.

2.3 Primary Research Questions

The majority of Laos' Hmong populations live in rural areas where they are heavily dependent on forest products for both subsistence and income. Recall that the main research question was: How do Hmong villagers in the Research Area spatially interact with the forest to practice swidden agriculture, hunting, and NTFP collection?¹⁷ Also recall that, to answer this question, I examined and analyzed three broad factors that influence how Hmong are spatially interacting with the forest. They are:

- government policies on swidden agriculture,
- economic income opportunities, and
- changing Hmong spiritual beliefs.

2.3.1 Government policies and practices. The Lao government has drafted, passed, and implemented various laws and regulations that have affected how its citizens, including the Hmong, are able to interact with forest and the various things that live in them.

¹⁷ Chapter one, introduction.

For example, perhaps one of the most visible government policies relates to the creation of protected areas (PAs)—Nakai-Nam Theun NPA has recently become one of the most well-known and famous of Laos' PAs. There are also various government policies and practices that need to be considered, such as those related to swidden cultivation, wildlife trade, and laws related to hunting, fishing, and NTFP collection.

The main question for this factor is: How are various Lao government policies, laws, and regulations affecting how Hmong villagers in the Research Area are spatially using the surrounding areas, including the forest, for hunting and NTFP collection? Major sub-questions were designed as follows:¹⁸

- Are villagers in the Research Area aware of government policies dictating where they should live and what professions they should strive for?
- How are villagers responding to the government's agenda to limit and/or eliminate swidden agriculture?
 - What is the penalty for clearing forests without proper permission and are the prescribed penalties enforced?
 - How are villagers compensating for the loss of being able to practice swidden agriculture in preferred areas?
 - Are villagers traveling further to gain access to lands for swidden agriculture?
 - Is the government presenting villagers with alternatives to swidden?
 - Who or what village groups are most affected by the government's desire to limit swidden agriculture?

¹⁸ The sub-questions lists are not exhaustive. Many sub-questions were not listed so readers can better follow the project and not be overwhelm with questions and scenarios.

- How are villagers responding to the government's and outside factors' desire to eliminate the hunting/harvesting of endangered species?
 - Are villagers aware of any restrictions on the hunting and/or harvesting of endangered species?
 - Are villagers complying with the regulations, considering that many of the endangered species are economically valuable?
- How are villagers (hunters and NTFP harvesters) responding to government and local authorities' desire to decrease and/or prevent them from entering unprotected forests to harvest NTFPs (including hunting)?
 - How is the government promoting wildlife and forest conservation in unprotected areas?
 - Is the government encouraging villagers to substitute alternative goods (e.g., domestic animals, goods grown locally, cash crops) for forest goods?
 - How has pursuing these alternative goods affected how villagers spatially navigate and use their surroundings?
- How are villagers (hunters and NTFP harvesters) responding to the government's and local authorities' desire to decrease and/or prevent villagers from entering nearby PAs, including Nakai-Nam Theun NPA to harvest NTFPs (including hunting)?
 - Are villagers aware of the locations of the boundaries of nearby PAs?
 - Are villagers aware of laws and regulations concerning PAs?
 - How have park rangers and local law enforcement officers altered villagers' spatial usage of the surrounding lands (e.g., avoiding certain roads that are known to be staffed and monitored by law enforcement officers, creating new

routes to gain access to PAs, abandoning areas where they once hunted/gathered NTFPs because the areas are now guarded by people employed as park rangers)?

2.3.2 Economic earning opportunities. Economic earning potential is a major factor that influences how Hmong choose to interact with the surrounding areas. The main question for this factor is: How has the desire to increase one's economic earnings affected how Hmong villagers in the Research Area spatially use and navigate the surrounding areas, including the forest, for subsistence use and economic gain? This question seeks to examine how economic income opportunities are affecting how villagers (hunters and NTFP harvesters) interact with the surrounding areas. For example, how have cash crops, as well as the ability to sell a desired wildlife product (e.g., pangolin, turtles, tortoises) at a high price, affected how villagers and hunters operate (e.g., choose where to hunt, what to hunt, how far to travel, places to avoid)? Major sub-questions that were examined include:

- How are households changing their livelihood strategies to increase their economic earnings?
 - What livelihood strategies (e.g., hunting, farming) are households practicing now compared to the past (starting around 1980s)?
 - Are villagers now venturing further spatially than before to harvest goods that are more valuable?
 - How far do villagers travel to get the best prices for these goods?
- How are economic incentives influencing household decisions to get involved in what agricultural practices and in which crops?

- What agricultural practices (e.g., swidden cultivation, wet-rice cultivation) are currently being used? In the past (1980s), what type of agricultural practices were used?
- How has the restriction on swidden and the promotion of wet-rice agriculture by the government affected rice production and the production of other crops?
- How are economic incentives affecting how villagers spatially use and navigate the forest, and how they decide what methods are used to hunt and harvest NTFPs?
 - Which animals are legal to hunt? Which are not?
 - Are there certain previously left-alone areas that hunters/ NTFP harvesters are now entering to obtain desirable and valuable goods?
 - What methods are hunters/NTFP harvesters using to maximize their earning potentials?
 - Are hunters/NTFP harvesters traveling further to get these desired goods?
 - Are hunters/NTFP harvesters avoiding certain areas/paths to avoid community and park rangers?

2.3.3 Technological advancements and changing Hmong beliefs. As will be discussed in more detail in chapter six in the dissertation, there are cultural Hmong beliefs that have historically governed how Hmong people typically interact with the forest and its resources (especially hunting, but also NTFP collection and agricultural practices). However, rapid technological advancements in Laos may have affected these beliefs in ways that have yet to be carefully considered.

The main question for this factor is: How have technological advancements affected Hmong environmental beliefs and how this is affecting the ways that Hmong spatially use the

forest for hunting, fishing, and NTFP collection? This question seeks to determine whether and, if so, how technological advancements have affected Hmong cultural beliefs concerning the forest and how these impacts have in turn affected how they spatially use the forest and its resources.

- How are spiritual beliefs concerning the forest and its resources affecting how Hmong villagers are spatially using the forest and the available resources?
 - What are these spiritual beliefs?
 - How many types of supernatural beings are there?
 - Where are these spiritual beings found?
 - What do they govern?
 - Are Hmong villagers actively avoiding areas believed to be protected by supernatural beings?
 - How are villagers' actions different when in areas believed to be protected by supernatural beings versus in areas where no beings are believed to inhabit?
 - What actions are allowed, and which are prohibited while on hunting trips?
- What rituals are performed before, during, or after each hunting expedition and for what reasons?
- How has decreasing available areas for hunting/NTFP harvesting (partially due to government policies) affected how villagers view these supernatural beings and spatially interact with lands believed to be inhabited by these beings?
 - How has the desire to make money (economic earning opportunities) affected how villagers view these supernatural beings and spatially interact with the lands believed to be inhabited by these beings?

- Have these supernatural beliefs decreased, increased, or stayed the same regarding level of importance (e.g., strictly being followed, being actively practiced)?

2.4 Research Area

I conducted my research in Khamkeut District, Bolikhamxay Province, central Laos (Figure 2.1). Bolikhamxay Province is located in the middle of Laos, centered at approximately 19° N and 105° E with a total area of 14,863 km². It has very uneven terrain with altitudes ranging from 140 to almost 1600 meters above sea level. The province is divided into six districts with the city of Paksan serving as the provincial capital. The estimated 2012 population was approximately 280,000 (Geohive, 2015). Notable natural and human-made geographical features in Bolikhamxay Province include: the Annamite Mountain Range running along the border with Vietnam; the largest and most biologically diverse protected area in Laos, the Nakai-Nam Theun NPA; and the country's largest hydroelectric project, the Nam Theun 2 Dam (NT2) located near the Nakai-Nam Theun NPA. Semi-evergreen to evergreen forests with patches of wetlands dominate the landscape and are home to many threatened and endangered wild animals. Due to the high elevation, Bolikhamxay Province receives between 2200 and 2300 mm of rain per annum ("Water," 2002).

The Research Area consists of the Laksao central area and two additional villages: Ko Hai village and Thong Pei village in Khamkeut District (Figure 2.2). Due to various constraints and for ease of travel, I wanted the two villages to be relatively close to the Laksao area.¹⁹ Conducting research at three sites would allow for a more in-depth analysis of what is occurring on the ground. This in turn allowed me to better understand and compare diverse sociocultural practices in relation to spatial locations and surrounding areas (Tomforde, 2003). In addition, studies involving

¹⁹ See vignette at the beginning of the chapter explaining how I ended up doing my research in this area.

multiple sites allowed me to examine how these sites are influenced by outside factors and networking relationships.

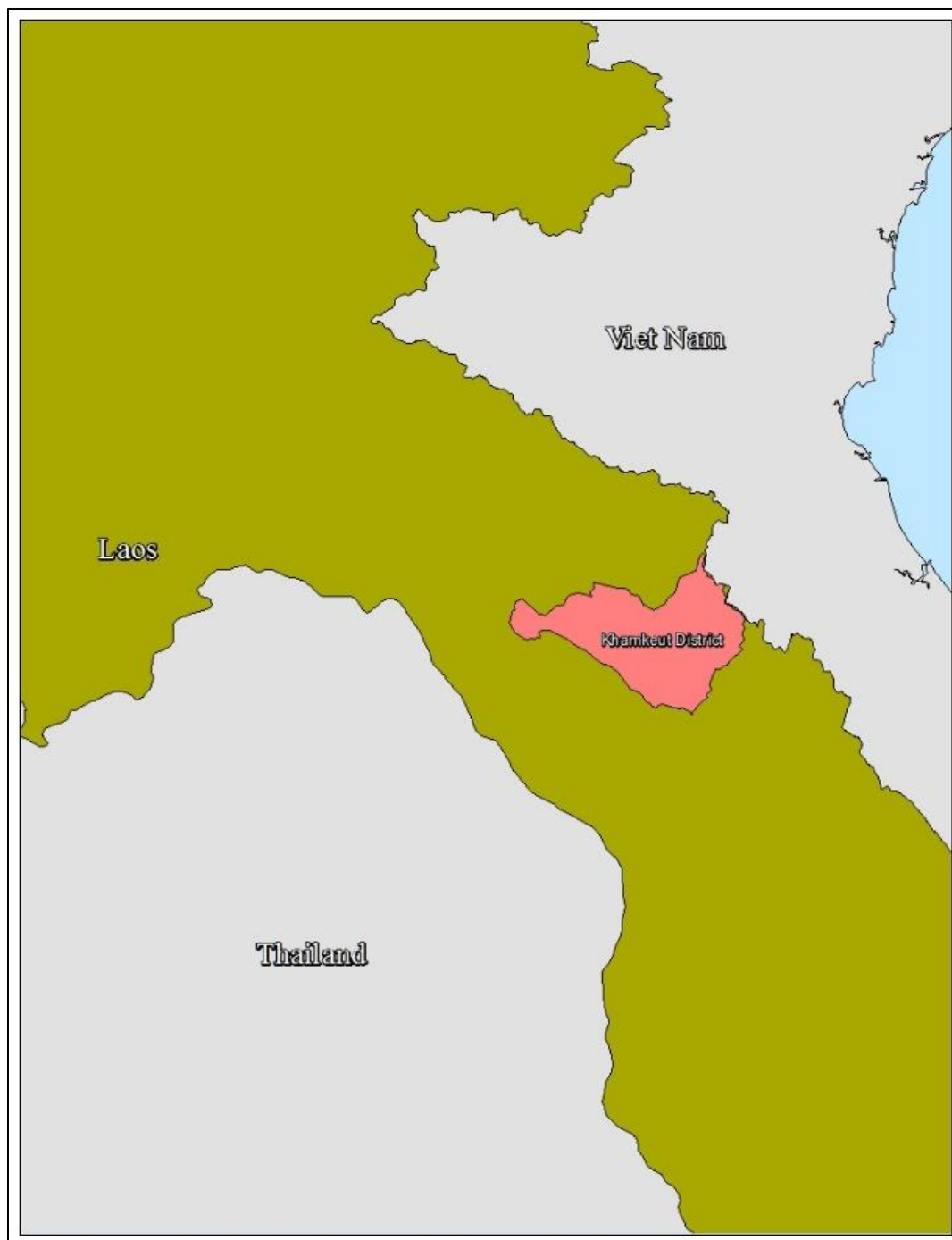


Figure 2.1: Khamkeut District, Bolikhamxay Province, Laos. Sources: Esri, Lao GOVT. Map by P. Vue.

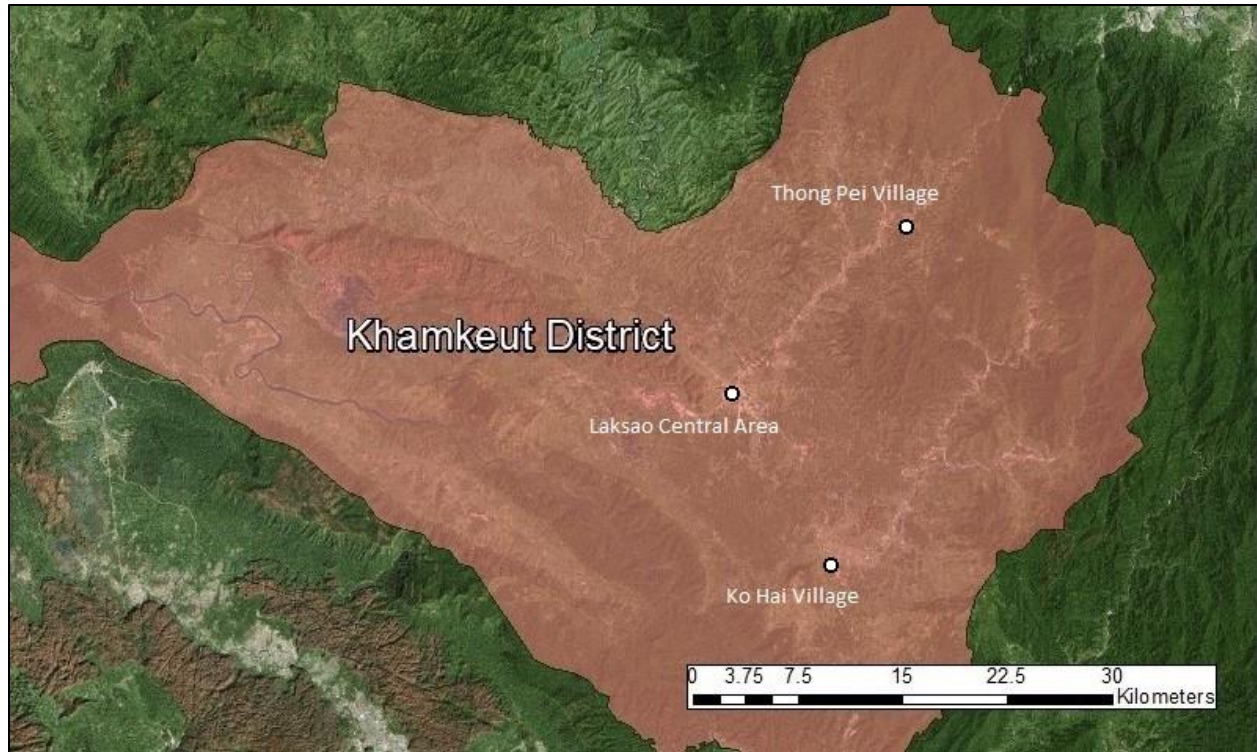


Figure 2.2: Research Area in Khamkeut District, Bolikhamxay Province, central Laos. Satellite image obtained from World Imagery. Sources: Esri, DigitalGlobe, GeoEye, Earthstar Geographic, Lao GOVT. Map by P. Vue.

2.4.1 Laksao central area. The Laksao central area (Figures 2.3, 2.4), as defined by this research, is a cluster of three villages that include Laksao village, Nong Pong village, and Phong Meuang Noi village. Laksao village consists of a little over 1,000 people, of which only a handful (two families) are Hmong. Nong Pong village has approximately 5,000 residents, of which about 2,000 are Hmong. Phong Meuang Noi village has about 3,000 residents, of which approximately 2,000 are Hmong. Thus, all together, the Laksao central area has a human population of around 9,000 to 10,000, about 4,000 of which are Hmong.²⁰

The location of the main market and most of the smaller shops and vendor stalls in Laksao village makes the village the primary hub where villagers shop for goods. The Laksao area was

²⁰ This estimate does not include other villages farther away from the Laksao central area.

sparsely populated by Hmong peoples, and villagers in general, until the early 1980s when large numbers of Hmong settlers started moving to the area from places such as Houaphanh and Xiang Khouang Provinces to the north.²¹ This includes many villagers who were displaced from their homes due to the Vietnam/Secret War; many of the current Hmong residents moved to the area shortly after the war in search of available land to farm.

Today, the Laksao area is bursting with life and activity. The station where buses, vans, and smaller transport vehicles wait for passengers to transport to various destinations is located right in Laksao village.²² A small bus station has been set up and is usually staffed with a person to oversee the place, answer questions, and direct people to where they need to go. However, personal experiences show that the staff is usually more interested in mingling, drinking, and playing a type of ball-rolling game with other people instead of staffing the office. Instead of tickets being sold at the office, each driver is responsible for collecting fares from the passengers once vehicles have departed the bus station. The fee depends on the passengers' destination, and fares are more expensive the further the destination. Restaurants surround the bus station where travelers and local villagers can go for a meal. These restaurants are mostly owned by Vietnamese and usually serve Vietnamese-style food. Many of these restaurants seem like legitimate law-abiding restaurants, but many are involved in the illegal wildlife trade that runs through the Laksao area and will be discussed in later chapters.

²¹ Prior to the early 1980s, the Laksao area was populated by mostly ethnic Lao. There were very few Hmong households in the area. Then after the end of the Vietnam/Secret War in 1975, many Hmong families moved south from areas around Vieng Thong District and Xiang Khouang Province in search of land to farm. Eventually many of these families ended up in the Laksao area. This is further discussed in chapter three on the Hmong migration.

²² The bus station was moved to a new location to be near the new Laksao area main market in 2016. However, many smaller buses, especially those going to Vietnam, still stop and wait for passengers at the old bus station.

Right next to and connected to the bus station is the Laksao area main market,²³ where villagers navigate through an intricate maze to buy fresh vegetables, fruits, and various NTFPs, in addition to meat products such as chicken, fish, pig, and cow. Many wildlife species are for sale in the market daily, such as ferret-badgers (*Melogale* spp.), lesser mousedeer (*Tragulus javanicus*), sambar (*Rusa unicolor*), red muntjac (*Muntiacus muntjak*), and countless species of smaller rodents and birds. There are also countless vendor stalls selling anything from shoes and clothing to household appliances and cell phones. Shoppers can also purchase items such as ammunition and metal BB pellets for hunting if they know where to look and who to ask.

Initially, I did not plan to conduct any research in the Laksao area as I felt it was too big of an area to cover.²⁴ Instead, I had planned to focus most of my research efforts on the two rural nearby Hmong villages that I visited in the summer of 2011. However, I was unable to obtain an official research permit from the National University of Laos (NUOL) and so I, along with my clan's village elders, felt that it would be best if I stayed in the Laksao area since, because it was more populous, I could get around without being noticed as much because of the greater density of people. Thus, I ended up renting a room in a guesthouse owned by one of my relatives in town.

The decision turned out to be a blessing in disguise for many reasons. For example, the Laksao area is located essentially at the midway point between the two rural villages, which made travelling to and from both villages much easier. This was quite advantageous in that I could quickly get to the villages from my home base when something came up that I wanted to see or partake in (many times I would get early morning calls about various events). Furthermore, I was

²³ The Laksao area main market was burned down in summer/fall 2014. The official accepted story was that the fire was started by malfunctioning electrical wires. However, many villagers say that it was purposely burned down by the owner to 1) claim insurance money and 2) to force vendors to move to the new market located a few kilometers west of the Laksao area.

²⁴ I ended up deciding to conduct research in the three central villages I called the Laksao central area instead of the entire Laksao area as that would have been too big of an area to cover.

able to move around from place to place more freely and I was able to write with minimal distractions when located at my base. But perhaps most importantly, I was able to witness many logging and wildlife trade agreements that took place in the guesthouse where I stayed (these will be elaborated upon in chapter five on patron-client gift-giving relationships).



Figure 2.3: View of Laksao hills. Photograph by P. Vue.



Figure 2.4: Author overlooking the Laksao area. Photograph by K. Xyooj.

2.4.2 The two villages. As already mentioned, apart from the Laksao central area, the two rural Hmong villages where I conducted my research were Thong Pei village and Ko Hai village. Both villages are located near the Laksao area and are further discussed below.

2.4.2.1 Thong Pei village. Thong Pei village (18° N 105° E, Figures 2.5, 2.6) is about 20 kilometers northeast of the Laksao area and 13 kilometers west of the Laos/Vietnam border. The village has 267 households, 185 of which are Hmong; the rest are ethnic Lao. Prior to Hmong arrival, the area was sparsely populated by ethnic Lao people. Many of whom were practicing paddy cultivation as well as clearing land for various reasons (e.g., chopping down trees to build houses, garden plots, animal pasture). The first Hmong families moved to the area in 1981 when approximately 25 families settled in the area from a place the villagers called *Naj Hiab* (a place in

Vieng Thong District). These early migrants increased the population to the point where the settlement could officially be recognized as a village.²⁵ Afterwards, more families from other places such as Vieng Thong and the Laksao area also moved to the newly established village. An influx of Hmong Vietnamese families (including many Vue families) crossed the border from Vietnam into Laos and established residency in Thong Pei village starting in 1987 and lasting for a few years. Apparently, some of the Hmong Vietnamese families that are currently residing in this village were at one time considered to be Hmong Lao. However, Laos conceded the land where they had previously been living to Vietnam some years ago. As a result, these families suddenly found themselves to be Hmong Vietnamese. Many were unhappy with this and after many years, some decided to “return” to Laos. There were also many families that had always lived in Vietnam but decided to relocate to the area as they heard that Laos is a land of economic opportunities.²⁶



Figure 2.5: View of Thong Pei village facing west toward the Laksao area. The paved road is Route 8. Photograph by P. Vue.



Figure 2.6: Houses in Thong Pei village. Photograph by P. Vue.

²⁵ A cluster of households can only apply to be recognized officially as a village if it has at least 10 *noi* (one *noi* = 10-12 households) or approximately 100-120 households (F.N. Vwj, personal communication, February 16, 2014).

²⁶ Many heads of households told me that Vietnam is a horrible place to conduct business (legal or illegal) because it is a socialist country that does not allow anyone to be wealthier than anyone else. Laos, on the other hand, is more pro-business, and as such, it is often considered to be easier to conduct business there.

Because of the connection with Vietnam, villagers tend to promote the village as a revolutionary pro-communist village. Most of these households settled in the area between 1987 to 1989. These settlers obtained wet-rice paddy lands from the Lao inhabitants. Initially there was abundant land available, and as such, many of these original migrating families were able to lay claim to large parcels of land. These early settlers also were not very dependent on forest resources and many did not even hunt during the early years. Eventually the population became so large that all the available nearby lands were claimed. New settlers and households were unable to find any more available land and so many started clearing forests in nearby hills to get involved with swidden agriculture and the raising of livestock. They also relied on forest products for subsistence. Unfortunately, this led to tense and often serious confrontations between new arrivals and established inhabitants.

Thong Pei village's local market is in the center of the village where vendors sell goods and produce to other villagers. Many vendors make the daily morning trip to the Laksao main market to buy goods that they then bring back to resell at the Thong Pei village market. Many of the same vendors then make another trip in the mid-to-late afternoon in preparation for the evening when other villagers visit the market to buy food for dinner. Besides making trips to the Laksao main market, many vendors also sell goods and produce they bought from villagers. These goods include vegetables from gardens as well as fruits and wildlife from hunters. It is common to see wildlife such as the sunda slow loris (*Nycticebus coucang*), binturong (*Arctictis binturong*), and various species of bats, rodents, and wild birds for sale at the market in the evening.

2.4.2.2 Ko Hai village. Ko Hai village (Figures 2.7, 2.8) is located approximately 17 kilometers southeast of the Laksao area. At the time of the research, the village consisted of 210 Hmong households and five ethnic Lao households. However, Ko Hai village is directly adjacent

to another Hmong-dominated village, Phongvily village.²⁷ Phongvily village consisted of approximately 400 households. As such, the total number of households in the area is over 600. Neither Ko Hai village nor Phongvily village currently have local markets. As such, all villagers either produce their own household consumption goods or make the trip to the Laksao main market to buy goods and produce.



Figure 2.7: Dirt road leading to Ko Hai village. Photograph by P. Vue.



Figure 2.8: Houses in Ko Hai village. Photograph by P. Vue.

Ko Hai village was established in 1985 when multiple families moved to the area from Xieng Khouang and Vientiane Provinces, and Vieng Thong District in Bolikhamxay Province in search of available land to cultivate as well as readily available forest products, as these resources were exhausted in the areas around their original villages. Prior to the Hmong's arrival in the mid-1980s, the area was forested with few households (mostly ethnic Lao but also a few other ethnic minorities as well, see vignette at the beginning of chapter three detailing when some of the first Hmong families moved to the area). The Hmong villagers claim that initially the government

²⁷ Prior to 2000, Phongvily village consisted of two villages: Phongvily village and Nongkham village. However, the two villages were combined in 2000 by local officials and villagers to create a larger village.

allowed and even encouraged them to settle in the area. In fact, the government gave approximately 100 hectares of agricultural land adjacent to the entrance of the village to the early settlers as incentives to move to the area. The idea was to use the nearby Nakadok River and other smaller streams to irrigate the lands and turn large areas into wet-rice paddy fields for cultivation. Unfortunately, the streams were too low to reach and adequately inundate the fields, and efforts to pump water from the streams via pipes failed.²⁸ Thus, villagers resorted to clearing lands in nearby hills to do swidden agriculture. They also started entering the Nakai-Nam Theun NPA to hunt and harvest various natural resources. These actions were frowned upon by the government which eventually resulted in government park patrol officials threatening any Hmong villagers caught entering the protected area with fines and jail time. These threats scared many villagers into not entering the NPA. However, as the population grew, more and more villagers started entering the NPA again to sustain their livelihood needs as well as to make additional income. Currently, many households are also involved in growing cash crops such as corn, peanut, and cassava, in addition to other agricultural food products that are consumed in the household.²⁹ After the NT2 hydropower dam was completed in 2008, the villagers were no longer allowed by the government to venture into the forest to collect NTFPs, hunt, or fish. The headman stated that villagers are regularly warned by government officials to stay out of the forest.

2.4.3 A brief discussion on power dynamics in the Research Area. Power relations are, of course, prevalent in Hmong society. While not always the case, in general, Hmong men are held in higher regards than Hmong women; Hmong elders are more respected than younger Hmong; shamans are respected more than non-shamans; Wealthy Hmong are favored over poorer Hmong;

²⁸ This is discussed in chapter four, section 4.8.7.

²⁹ Discussed in-depth in chapter four.

those holding respectable positions (government positions such as being employed as police officers or high-ranking soldiers) are treated better than average citizens; the list goes on. These relationships mean that some villagers have access to certain desired commodities more than others. Hmong villagers know this and will use their advantages to increase the chances of them being able to obtain what they want. This is especially true in relation to access to land. For example, my clan is the dominant clan in Ko Hai village. The village has always had a Vue as the village headman since it became a village in the mid-1980s. Other clans living in the area are well aware of this and rarely dare challenge the Vue clan. The clan spatial layout shows the clan power inequality quite well. In the village, most Vue households are in better locations (e.g., on flatter grounds, closer to the main road) while most of the Thao households were relegated to a small circular area approximately a hundred meters in diameter in an area with severe land erosion (the dirt road leading to this place has gigantic cracks running along the entire route). The Yang and Hang households were relegated to the outskirts of the village.

Access to land for both subsistence and cash crops is also determined by influence and power. As discussed elsewhere in the dissertation (chapter three, section 3.3.1), both Ko Hai and Thong Pei villages no longer allow outside households to move into the villages unless the outside household knows and are closely related to already established households in the villages. The headmen of both villages claimed the decision was made so the established villagers would not have to worry about losing their land to newcomers. This suggests that farmland access is the primary issue, and whether a household is granted access is determined by their relations to those already there. In other words, there exists an imbalance in power relation that is resulting in an inequality of agricultural land access.

Wealth is an important factor in determining a villager's prestige and power in the Research Area. Money is such a strong determining factor that it does not really matter how the money is earned, if a Hmong villager is wealthy, he will be given the best seat on the table at feasts and ceremonial events along with other respected villagers (e.g., headmen, local mid-ranking government officials). For example, a relative of mine is one of Laksao's most prominent drug dealers. Everyone in the village knows his wealth comes from dealing drugs and yet he gets one of the best seats around the table every time he shows up at a feast. While it could be that other villagers are trying to gain favors or that they are afraid to disrespect him, it does not take away the fact that, at least in public, he is treated with much respect.

The situation is similar in Thong Pei village where the Vue clan is also one of the dominant clans. Vue households in Thong Pei village are also located in better areas. However, wealth is again a very important indicator in Thong Pei village. Many Vang households (as well as Vue households) in Thong Pei village are involved with illegal drugs that have generated much wealth to these households. The Vang household have used the wealth advantage to create what Thong Pei villagers call *Zos Hmoob Vaj* or Vang village at the foot of the village right by a stream. This place is desired because it allows for anytime access to water for washing things.

In Nong Pong village (one of three villages that make up the Laksao central area), the Xiong clan are the respected clan as are the Yang clan. This is because many of them are wealthy. An interesting situation happened in Nong Pong village that showed the power of wealth. There was a good size, shallow, but permanent pond in the village. Villagers would come and collect aquatic organisms (e.g., small fish, frogs, snails) from the pond throughout the year to eat. However, the pond was located right next to a wealthy Xiong household. The Xiong household head told me that he was thinking about giving US\$20,000 as a gift to the village to gain ownership

of the pond and surrounding areas. I found out when I went back to conduct follow-up interviews in 2016 that he did as he said and was given the pond by the village headmen as a gift. He then built a fence around the pond to prevent other villagers besides relatives and close friends to harvest anything from the pond. This is a great example of wealth accumulation leading to access and exclusion (see Hall et al. [2011]). Unfortunately, I found out in 2017 that he had since filled up the pond and turned it into a cattle pasture for his fighting bulls.

2.4.4 Nakai-Nam Theun NPA. The Nakai-Nam Theun NPA is located within a few kilometers south of the Research Area. It is important to this project because one of the primary reasons for its creation was to protect wildlife from surrounding villagers who are mainly practicing swidden. In other words, it may have been created, in part, to limit swidden agriculture from spreading into and negatively affecting the wildlife population as well as to decrease hunting.

Prime Minister Decree 164 was passed in 1993, establishing the Nakai-Nam Theun NPA covering 3,550 km². It has since been extended by the addition of two forested corridors in 2000 (Phou Hin Poun and Hin Nam Nor NPA) and a Special Conservation Area (flooded areas created from the inundation of the NT2 reservoir) that increased its total area to approximately 4,025 km², making it the largest protected area in mainland Southeast Asia (SEMFOP, 2005; WMPA, 2013). Reasons for the added territories are: to compensate for habitat loss due to the NT2 hydropower project; to protect certain landscapes, fauna, and/or flora not found in the original park; and to link the Nakai-Nam Theun NPA with other NPAs (Ecotourism, 2013).

The protected area is covered by tropical dry evergreen to semi-evergreen forest that transitions into areas of mixed deciduous forest in certain areas (Robichaud, 2005). A survey conducted by Timmins and Evans (1996) identified five different forest habitat types in the NPA, including old growth pine, dry evergreen forest, and wet evergreen forest. A range of increasingly

high hills and mountains are found on the western edge of the reserve starting in the Nakai Plateau and continuing northeastward toward the main spine of the Annamite Mountains. The elevation ranges from about 500 meters to 2288 meters above sea level. Average rainfall ranges anywhere from about 2400 to 3000 mm/year depending on locations within the reserve. Many surveys and studies (e.g., Berkmuller et al., 1995; Ling, 1999; Robichaud et al., 2001) looked at various factors and have ranked the Nakai-Nam Theun NPA as the top or very near the top when it comes to importance for biodiversity conservation due to species richness and endemism. It is home to many globally vulnerable to critically endangered mammals (Timmins & Evans, 1996), possibly including the saola (*Pseudoryx nghetinhensis*).

2.5 Gaining Access to Hmong Villages

Successful ethnographic research requires obtaining access to the targeted communities and gaining their trust. This is even more difficult when researching issues that are considered sensitive. The following sections detail how I was able to gain access to the villagers in the Research Area to conduct the research dealing with sensitive issues pertaining to livelihood strategies.

2.5.1 Sensitive issues. Because of the sensitivity pertaining to the Hmong, swidden agriculture, hunting, and resource use, there has so far been only limited research done on the Hmong in Laos in relation to these issues (e.g., Compton, 1999; Robichaud, 2005; Robichaud et al., 2009; Lilao, 2018). Thus, while hunting, along with harvesting NTFPs and fishing, is very prominent amongst the Hmong, there are little data on what the Hmong presently hunt, or what forest products they consume or trade. Data that do exist tend to be simplistic. For example, Robichaud et al. (2001) wrote, “The Hmong, on the other hand, tend to be enthusiastic and effective hunters of almost everything except snakes” (p. 28). Other studies with Hmong villagers

tend to underrepresent the Hmong. For example, Johnson et al. (2005) conducted an extensive and highly valuable study on wildlife hunting and use in Luang Namtha Province with many ethnic groups, including the Hmong. However, only 15 of the 320 households surveyed for the study were Hmong households. Crucially, little is known about the various social, cultural, and economic factors that are affecting Hmong resource use. The two main reasons for this lack of information are: First, most of what few studies have been undertaken were done with minimal regard for the social dynamics and relationships that exist within Hmong social groups, including what the Hmong really think about the environment (Cooper, 1984; Dhammanaat, 1994; Luangaramsri, 1998; Yanane & Chanthirath, 2000; Siriphon, 2002). Also, many of these studies were undertaken with an already-established, biased perspective that generally paints a negative portrait of the Hmong and their relationships with their surroundings (see Chamberlain, [2002]). Second, the close-knit nature of Hmong society, especially in relation to families and clans makes these communities difficult to study. A consequence of this is that many Hmong distrust and are thus unwilling to express their true feelings to non-Hmong people. This is partially due to their long history of frequent conflicts with other ethnic groups and sometimes contentious relationships with the dominant cultures of the countries they live in, most commonly represented by government officials (Corlin, 2004; Ranard, 2004; Baird, 2010a, 2013, 2014). As such, most Hmong people tend to initially mistrust non-Hmong and, even when the trust is gained, Hmong rarely reveal all their ideas, views, and knowledge to outsiders.

This lack of quality information has led researchers to rely on outdated and, more often than not, poorly researched information that simplifies the relationships between the Hmong and the environment as a one-sided exploitation in which all Hmong are grouped into a single category and then accused of being environmentally destructive; they are labeled as one of the main causes

of Laos' environmental degradation, when in reality, there has barely been any in-depth research on how various Hmong groups really interact with the environment, what NTFPs they are harvesting, or what and why they're hunting. In other words, the relationship between the Hmong and the environment is almost certainly more complex than how it has been presented or understood by most outsiders in the past (Tungittiplakorn & Dearden, 2002; Brookfield et al., 2003; Forsyth & Walker, 2008). The situation with the Hmong may possibly parallel what, for example, Ian Baird found in relation to wood resin (*Dipterocarpus* spp.) collecting in mainland Southeast Asia. He found that almost everyone who examined the practice superficially found that it was destructive, whereas all of those who conducted detailed research, regardless of in what country or with what group, were much more positive about the practice (see Baird, [2009a]).

2.5.2 The connections. I was in an excellent position to conduct research on these issues for two primary reasons. First, I am Hmong and was born in Laos before immigrating to the United States in 1982 as a refugee of the Vietnam War when I was approximately two to three years old. Thus, I fluently speak, read, and write both Hmong and English. This means that I did not need an interpreter for the project, which in turn meant that I was able to fully communicate with, understand, and analyze the conversations between the villagers and myself without having to worry about ideas and thoughts being lost in translation.

Second, both villages are dominated by my clan (the Vue clan), with many of the villagers in both communities being of the same lineage as me. This is especially valuable as clan relations and blood ties are two of the most important factors that determine whether a Hmong person is willing to interact with and be honest to another person (Binney, 1968; Scott, 1982; Cooper, 1984; Lee, 1994; Goodkind, 2006; Baird & Vue, 2017). Having strong clan relations are generally believed to strengthen the Hmong community and is deemed advantageous because of the

exceptionally strong support system that such relations foster (Dunnigan, 1982; Tapp, 1986; Symonds, 2004; Charoenniyomphrai et al., 2006). As such, clan relations are preferable even if this advantage comes at the cost of diminishing individual freedoms (Tomforde, 2005). My first cousin, Nhia Tong³⁰, was a prominent and well-respected elder within my sub-clan and particularly my lineage. Crucially, he stated that he was willing to vouch for me to conduct my research in Laos only if I concentrated my study in areas that are dominated by our clan because Hmong relationships are based on clan structure, and as such, clan members would be more willing, and in a sense, are obliged to assist me with any problems I may encounter. Essentially, Nhia Tong and my other cousins were able to guarantee my safety (aside from unforeseen accidents, of course) if I conducted my fieldwork in a place that is dominated by my clan. In addition, the villages are also pro-communist villages, which helps ease any suspicion anyone may have toward having a foreign researcher from a non-communist country conducting research in the area (Woods, 2003). This suspicion is heightened since my father fought on the same side as the United States during the Vietnam/Secret War and, although the conflict ended in 1975, there still exists much animosity and distrust between the Hmong who sided with the United States and those who sided with the communist Pathet Lao (Vue, 2015). By working in a pro-communist area, villagers likely viewed me as someone who is genuinely interested in research versus someone who is possibly there as a spy to stir up political problems, which is heavily frowned upon and discouraged by the Lao government (Gould, 2010; Baird & le Billion, 2012). Finally, it is important for readers to realize that clan and lineage connections are not always advantageous. There were times when being related through clan or lineage has worked against me obtaining more truthful information. However, these questionable data were usually obtained early in the research period with surveys

³⁰ See vignette at the beginning of this chapter.

when many villagers were not yet as familiar with me so were more likely to be less honest. I was able to minimize these questionable data and obtained more accurate data through spending 16 months in the Research Area conducting ethnographic research, during which I was able to gain many villagers' trust. This issue will be revisited in chapter seven, section 7.5.1.

2.5.3 Initial contacts. I first visited the Research Area with my advisor, Ian Baird, in the summer of 2011 to scope out the situation and introduce myself to the villagers. The idea was to determine whether conducting research in the area was a possibility. I initially relied on the fact that many villagers are members of my lineage and that we were able to trace our roots back to a common ancestor. Being blood-related to many villagers meant that I was immediately welcomed to the area with open arms, even though they had not met or known of me prior to my visit.

I was almost immediately invited to participate in household ceremonies and village events where I was then introduced to other villagers who were not of my lineage. Here, I used the advantage that I am Hmong and speak the language to communicate with more people to strengthen my ties to the entire village irrespective of whether a person and I are blood related or not. I took these opportunities to facilitate informal group discussions to inform those present of my research intentions.

It was also important that I meet individuals holding prestigious positions in the villages. Thus, I took the initiative to inform village headmen as well as key members of the area including village elders, elected officials, and authoritative figures of my interest in conducting research in the area. All were welcoming once they realized that I am a blood relative to many villagers who were in full support of my research in the area.

I visited the area again in the summer of 2012 to reiterate and reconfirm my commitment to conducting research in the area. Again, villagers were welcoming and restated that I was

welcome to do so. Many stated that since I was now a familiar face in the area, I would have nothing to worry about when the time came for me to move there. However, if something did come up, they stated that they would be more than willing to help me in any way they could.

Finally, in October of 2013, I moved to the area to start conducting my doctoral research.

2.6 Actual Fieldwork

I recruited villagers to participate in the research using multiple methods. I initially relied on the connections with lineage members and others that I had developed to conduct the surveys. Additional households were then selected using the snowball method, in which one household surveyed leads to another, as well as through chance encounters while walking around and visiting other households in the Research Area. Finally, I also inquired about and sought out specific villagers to interview to obtain more in-depth and meaningful information on specific areas of interest.

2.6.1 Starting with the surveys. I started by conducting a broad village survey on livelihood strategies to gather information on households' livelihood practices. The surveys were administered to willing participants from 60 of 210 households in Ko Hai village, as this village served as my primary research village. In addition, the surveys were administered to 20 households in Thong Pei village (approximately 10 percent of total households) and 20 more households in the Laksao central area. Surveys were either administered in one session or broken up into multiple sessions. This was because participants differed in both energy levels and availability. Those who were more energetic and/or had more time to commit to the surveys usually finished the surveys in one session, while those with less energy and/or availability often required two or more sessions to complete the surveys.

Seventy-eight surveys were administered with the male heads of the households, eight were administered with women heads of households, 13 were administered to the sons who are not the heads of households, and one with the eldest daughter in the household.³¹

2.6.2 Interviewing, focus group discussions, and mobile discussions. Once all the surveys were completed, I went through and selected individuals who I felt, based on their initial answers, had the most experience on specific topics and thus were appropriate to interview and/or invite to participate in focus group discussions. While going through the surveys and choosing those I felt were most qualified to follow-up with for specific topics was a good way to gain more in-depth information, I also realized that not all answers were necessarily correct or truthful.³² Thus, I also sought out villagers who were deemed by village headmen or other village members to be knowledgeable on specific issues to interview and/or ask to partake in focus group discussions.

All those who were contacted for follow-up interviews were willing to give interviews as by then they all knew who I was and what I was doing there. Unlike the surveys that were administered to only one member of each household, many interview sessions started with one member of the household only and ended with multiple household members participating. Most interviews were conducted at the interviewees' homes. Those that were conducted outside of the home were held in public places such as restaurants or on walks to various destinations.

Interviews were done with both adult male and female villagers unless the topic to be discussed was explicitly performed by people of a certain gender (e.g., only male villagers hunt). However, interviews with female villagers were done in the presence of either their parents,

³¹ See Table 6.2 in chapter six for complete list of household representatives surveyed.

³² This is discussed in the chapter seven.

husbands, or other male family members due to cultural norms. For example, it is historically considered impolite, offensive, and viewed with suspicion for Hmong men to talk to Hmong women who were not members of his clan on a one-on-one basis unless he was actively courting her). Unfortunately, this meant that I was not able to collect more information on women activities. I recognize, however, that this sort of information is important for understanding labor, which itself is crucial to fully understand livelihood strategies. However, I was able to obtain some information through interviewing women who were in my clan, either through birth or through marriage, which allowed me to better understand overall Hmong livelihood strategies in the Research Site. The issue of data gender imbalances will be further examined in chapter seven, section 7.5.2.

Focus group discussions were either all male or mixed-sex (mostly husbands and wives) because, as mentioned above, it is considered inappropriate, impolite, and offensive for me to host focus group discussions consisting of just women. Twenty-two focus group discussions were done in the Laksao central area, 10 in Thong Pei village, and 10 in Ko Hai village. Some focus group discussions were scheduled ahead of time with the help of one or two villagers, while many of the focus group discussions were done opportunistically. For example, I would be invited to attend a ceremonial feast at a villager's home where I would then proceed to get a few people together to talk and answer questions. This was possible because most feasts are generally entire-day events. It is customary and viewed as being respectful for adults to go to feasts early in the morning and stay until after the meal is served. Thus, this allowed ample time to get villagers together for discussion.

Often the focus groups would start with four or five people including myself but then would be joined by other villagers as the discussion progressed. It was quite common for a discussion to

end with 10 or more participants sharing their opinions and experiences. These discussions were mostly carried out in public places such as open areas, outside a villager's house, or restaurants. There were very few times when focus group discussions were done in private, such as inside someone's house. In fact, private discussions were not planned that way; it just so happened that we ended up there. Most participants were men, due to cultural norms, but there were some village women who also participated (unless it was a husband-wife duo as stated above). However, this female participation was unplanned. The women participants walked by the focus group, heard the conversation, and then sat down and offered their perspectives.

I also accompanied male villagers during hunting trips to document their actions before, during, and after each outing. Many of the conversations occurred around the campsite as we busied ourselves with self-assigned responsibilities. Some interviews also took place as we moved through the forests looking and listening for animal movements. I would walk about 10 paces behind and write down what I was seeing, hearing, and thinking. Paying attention to the hunter(s) postures usually told me if an animal had been spotted, at which point I would enter a crouching stance and wait for the hunters' next action. A few times, a hunter asked me to assist in treeing an animal but most often, they would either succeed or fail at killing animals on their own. Asking questions about hunting was quite productive right after a successful kill, as the hunters were excited and willing share thoughts that they did not generally discuss. This was perhaps the most important ethnographic research method used during the study and undoubtedly produced some of the most interesting and valuable insights into hunting and resource use (see also, Steinmetz, [1996, 1999]; Martin, [2004]; Ingold & Lee, [2008]; Evans & Jones, [2011]; Iared & De Oliveira, [2018]).

2.7 A Note on Age Verification

Surveys and semi-structured interviews were administered to villagers who were or claimed to be at least 18 years old and were willing to participate. I asked each participant to verbally state their ages before we proceeded with the surveys and later in the interviews. However, many participants were obviously over 18 years old, so asking them to state their ages was more for record keeping than for verification. This was not the case with younger participants, as it was harder to accurately gauge their age based on physical characteristics. In these cases, younger participants' verbal age claims were generally accepted on good faith. Documented proof of age was not required from participants because many do not have such documents readily available. Also, asking for proof of age was seen as disrespectful when they had already stated their age. As such, I refrained from asking for documented proof of age.

Verifying the ages of participants in focus group events was also done but not as thoroughly. This was because, while it was easy to ask those who were present at the beginning of the sessions to verbally state their age, it became more difficult, impractical, and to a certain extent inconvenient to continually ask incoming participants for their age. This was especially true for sessions held during special events such as during weddings, *khi tes* string-tying ceremonies³³, and funerals as many of these sessions would end up with 20 or more participants cycling in and out of the discussion.

2.8 A Note on My Survey Design Flaw

I mentioned in chapter one, section 1.4.3 that I grouped all agricultural practices that do not require the field to be inundated for at least a part of the growing season as swidden agriculture.

³³ A *khi tes* string-tying ceremony is a ceremony in which guests would tie white strings around the wrists of the person(s) the ceremony is being done on. The strings are blessed with good fortunes and health.

I have also already discussed some of the problems this methodology error has caused. Here I want to continue this discussion in order to minimize any confusions readers may have going forward.

The swidden data I presented in this research will suggest that most Hmong villagers in the Research Area are practicing swidden agriculture. This statistic strongly contradicts my argument that many villagers are unable to practice swidden agriculture due to the Lao government's action plan to limit, control, and eventually decrease swidden agriculture. This is actually not the case. Instead, the majority of the swiddeners in the Research Area growing cash crops. Grouping cash crops with subsistence swidden means that the number of swiddeners in the Research Area is very high as many villagers are growing cassava, corn, and peanuts (these cash crops are discussed in chapter five).

However, this flaw in the survey design does not necessarily mean that I was unable to substantiate many of my claims. On the contrary, many of my analysis are still strong. This is because I did not depend very much on the surveys. As I have stated, the surveys were very helpful in providing me with a broad overview of what was going on in the Research Area. However, once I became familiar with the area, I resorted to primarily depending on and conducting semi-structured interviews, focus group discussions, and other ethnographic methods (as discussed previously). These methods provided me with some of the most meaningful, interesting, and powerful data. In fact, I found that my time spent observing and interacting with villagers produced data that contradicts many statements they made in the surveys (reasons as to why this may have been the case are discussed in chapter seven). Overall, although the part of my survey that asked about villagers' involvement in swidden was flawed, in the end, it did not have as significant of an impact as I initially believed. However, I still presented some of the swidden data in this research

because the data are still valuable and can still help readers better understand the issues facing Hmong villagers in central Laos.

2.9 Chapter Review and Concluding Thoughts

This chapter discussed the two primary theoretical frameworks underpinning the research. Natural resource conservation, as previously stated, is an anthropocentric idea. Thus, adequate understanding of how people in an area view the environment and use the available resources are key to successfully interacting and working with them to promote biodiversity conservation projects.

Both qualitative and quantitative methods were used to collect better and more meaningful data. However, as the research was primarily ethnographic in nature, this chapter mostly focused on outlining and detailing the various qualitative methods used to obtain and collect information pertaining to the research.

The bulk of the chapter focused on the big picture question and presented three factors primarily responsible for changing Hmong livelihood strategies (government policies, economic income opportunities, and technological advancements) that must be carefully considered to answer the main research question. Each factor will be explored in following chapters.

This chapter also gave an overview of the Research Area, including the Nakai-Nam Theun NPA. Finally, this chapter included an elaborate discussion of perhaps the most important factor in determining whether a project will be successful: the ability to gain access to one's Research Area and research subjects, including networking and taking advantage of one's ties to an area. In this chapter, I highlighted how I was able gain access to Hmong villages and gain most villagers' trust. The chapter then focused on the actual fieldwork that produced the data.

The following chapter will focus on the Hmong ethnic group, the group at the center of the research project, and the one most blamed for forest and biodiversity degradation in Laos.

Chapter Three: The Hmong Ethnic Minority Group of Laos

“So, when did you moved to this place?” I asked Pa Yia (*Paj Yias*), a villager residing in Ko Hai village, as we hung out in the living room of his recently-built house on June 14, 2014. I was sitting on an older, wooden chair and was a bit uncomfortable; he was lying down on a makeshift bed (he was at home because he had just had surgery to remove his appendix). It was a quiet day in the village; most of the villagers were out working on their fields. Occasionally we could hear the rumbling of a *tsheb thaim* (a wet-rice paddy tiller that has been modified to serve as a road vehicle) passing by.

“I moved here with my family in 1983...1984, we were actually one of the first, if not the first families to move to this place [Ko Hai village]. When we first moved here, all this was forested.” He continued, “I came looking for land to farm. There was no farmable land available where I was living [Vang Piang Village in Vieng Thong District] prior to moving here. The area where we lived was also very hot and humid and the ground always seemed moist. Furthermore, I am not sure why, but villagers were constantly becoming ill. We lost quite a few lineage members there. They would just break out with little red bumps, get sick, and then die in a few days to a week or two. Some of us thought that there might be something in the water, but I am not sure. An elder said it might be because the *tim tswv* or forest guardian did not want us there,³⁴ but I do not know for sure.”

“Anyway...” muttered Pa Yia as he struggled to reach a bottle of water, “I eventually felt that if we did not leave the area, we would probably either die from whatever it was that villagers were dying from or we would die from starvation due to a lack of farmable land. I heard that this

³⁴ Pa Yia stated that the creature was a *tim tswv* which translates to a forest guardian in English. Forest guardians, along with other supernatural beings, are discussed in-depth in chapter six.

place was a good place with a lot of available land so one day I came to see, maybe in 1982. I spoke with the people here (mostly ethnic Lao people and a few other ethnic minorities). They said we could move to this area because no one lived here at the time, as it was heavily forested. Therefore, I and a few other families decided to do so. Some families did not want to come so they stayed behind but I did not want to remain there. Good thing I came early, as I was able to claim a lot of land. Right now, I have three hectares of swidden land and two hectares of paddy fields. I had more but gave some to my kids. When the families that did not want to come saw that we were doing well and growing lots of rice, they came and now they are here...see, they are living over there, that house is theirs, and that house over there. I do not know where I would be if I had not moved here.” He then added with a chuckle, “I would probably be dead, especially if my appendix exploded like it did a few days ago!”

“Anyway, I am glad I came here. This is a very nice place. It is not hot like the place before...and of course, I have land for my family. You know, some newer households here do not have any land. I do not know what they are going to do later. You need land to farm, to grow food. What can you do if you cannot grow food to eat? Move to the city? Maybe if you are still young, but many of us are older. We do not want to leave. I am going to hang on to my land until I die. My kids do not care for farming very much, but I will give them the land and once I am dead; they can do what they want...but until then, my land is my land.”

3.1 The Hmong – Background and Literature Review

In this chapter, I discuss the Hmong ethnic group. I begin by briefly tracing the generally accepted history of the Hmong from their origin in present-day China to mainland Southeast Asia and then more specifically, their arrival in present-day Laos, and finally to the Research Area in Khamkeut District, Bolikhamxay Province, central Laos. It is important to introduce readers to the

Hmong ethnic minority group early on, as the Hmong are central to my research project. By introducing and discussing their history, readers will see that the Hmong are one of the more recent ethnic groups to enter Laos, which may help readers better situate them in the grander scheme of things. For example, it may help explain why most Hmong are found at higher elevations (less populated areas compared to the more fertile lowlands) in more remote and more heavily forested areas. Next, I examine Hmong historical agricultural practices and cultural beliefs relating to their environmental surroundings. It is my hope that by discussing how the Hmong historically viewed and interacted with nature, readers will at least question the long-running dominant narrative that the Hmong, as an ethnic group, have always been forest destroyers (SEMFOP, 2005; Forsyth & Walker, 2008). Finally, I transition to examining present-day livelihood strategies for Hmong people in my study area to set the stage for the following chapters.

3.1.1 Hmong migration from present-day China to Laos. A thorough retelling of the history of the Hmong is beyond the scope of this dissertation, nor is it necessary for this project. However, a general understanding of that history is essential for understanding Hmong livelihood strategies in Southeast Asia and Laos more specifically.

The exact origin of the Hmong prior to their migration to Southeast Asia is unclear (Hillmer, 2010) and is an issue often debated among scholars and non-scholars alike. However, it is generally accepted that the ancestors of the Hmong were part of a conglomeration of tribes that, around 3000-25000 BCE, were located along the Yellow River in northeast China under the rule of Chiyou, described by some as one of China's three founding fathers (Vwj et al., 1997). After many battles and wars with the dominant Han Chinese, Chiyou's forces were defeated and his people were either enslaved or forced to migrate southward. Many eventually reached the Yangtze River region around the twenty-first century BCE and parts of Hunan, Hubei, Guangxi,

Guangdong, Sichuan, and Guizhou Provinces by the fifth century CE (Lee, 2015). A long westward migration followed, one that eventually saw the Hmong arriving at the Yunnan-Guizhou Plateau (Yang, 1996) and finally, at the turn of the seventeenth century, to mainland Southeast Asia—more specifically, to present-day northern Vietnam (Enwall, 1995); they continued to enter Vietnam from China well into the nineteenth century (Michaud & Culas, 2000).

According to Yang (1992), the first Hmong arrived in northern Laos from Vietnam near the current town of Nong Het around the beginning of the nineteenth century. They came in search of available land to farm (this seems to be a recurring pattern). Here they saw and were attracted to the lush and fertile forests and mild climate of the higher elevation highlands where many eventually settled (Lee, 2015). More Hmong migrants soon followed and settled throughout northern Laos into present-day Xiang Khouang Province and later south to Vientiane and Bolikhamxay Provinces. Here, the southward Hmong migration was largely halted for various reasons, including social and political ones (see Baird, [2010a]). In any case, the Hmong in Khamkeut are amongst the southern-most Hmong inhabitants of Laos.

3.1.2 Hmong agricultural practices. In chapter one, I problematized how all forms of swidden practices have been lumped into essentially one practice. Swidden is then linked to unplanned movements that pose a significant threat to the integrity of the forests and natural resources (Suzuki, 1993; Ducourtieux et al., 2005; Lawrence et al., 2010). It is true that all swidden agricultural practices involve clearing land, the use of fire, and fallow periods. However, it has also been suggested that many of these swidden agricultural practices are beneficial to the land by producing new habitats that enhance biodiversity and improving many environmental cycles (Kleinman et al., 1995; Tran et al., 2006; Padoch & Pinedo-Vasquez, 2010). For example, Padoch and Pinedo-Vasquez (2010) wrote, “If swidden cultivation belongs in conservation landscapes, it

is largely because swidden systems harbor astounding levels of biodiversity” and if given a chance with “serious scientific research aimed at working with it and not against it” that the “payoff would be great, including the conservation of much biodiversity with special meaning to human communities” (p. 551, 552). Furthermore, some studies (e.g., Sanchez, 1976; Nair, 1993) suggest that there are many, perhaps hundreds, types of swidden agricultural practices worldwide (Mertz, 2009), especially at higher elevations (Raintree & Warner, 1986; Mertz et al., 2008).

A similar simplifying process can be seen with Hmong swidden agricultural practices. Many studies have been conducted on various aspects of Hmong history (e.g., Kunstadter, 2000; Michaud & Culas, 2000; Tomforde, 2003). These studies suggest that the Hmong historically and currently practiced what is often referred to as “pioneering swidden agriculture.” For example, Tomforde (2003), in her analysis of the Hmong in northern Thailand, wrote that the “Hmong were ‘pioneer’ swidden farmers, meaning that they cut primary forest with no attempt to preserve trees by not cutting large trees completely, as in the practice among ‘established’ swiddeners” (p. 357). Tunittiplakorn and Dearden (2002), echoing this sentiment, wrote: “In this study the Hmong ethnic group is the center of attention. They were selected for several reasons. First, as traditional ‘pioneer’ swidden agriculturalists they are often depicted as constituting one of the major challenges for conservation. Pioneering conservationists prefer to cut primary forests for their cultivation practices and use these clearing until they are barely productive; and then they are abandoned” (p. 2008). While it is true that the Hmong historically were historically pioneering swidden agriculturalists, this is no longer the case as government policies have significantly limited their ability to move from place to place to swidden. In fact, it could be argued that most Hmong swiddeners in Laos are considered to be rotational or permanent swidden agriculturalists now. Regardless, Hmong swidden is often understood simplistically (see Marks, [1973];

Dhammanaat, [1994]; Tunittiplakorn & Dearden, [2002]; Forsyth & Walker, [2008] for examples of this simplification process). The following sub-section elaborates further on this.

3.1.2.1 Traditional Hmong swidden agriculture. The Hmong in Laos historically and currently rely heavily on swidden agriculture for rice production as well as crops such as corn³⁵, beans, and various greens, along with other crops mainly to be consumed in the household. They have been associated with practicing what is typically known as pioneering swidden, which refers to swidden agriculture that relies on very long fallow periods (Kunstadter, 2000). Pioneering swiddening practices typically involve the constant clearing of new fields in a linear movement. More recently, these practices are often geared toward maximizing income opportunities through cultivating cash crops (Chamberlain, 2000; Cairns, 2015). Pioneering swidden agriculture is different from rotational swidden agriculture in that subsistence is the primary focus of the latter.

The Hmong are involved in both types of swidden practices (Figures 3.1 – 3.4). These practices go back at least a few hundred years to when their ancestors were still living in central China (Lee, 2005). They are not, however, the only ethnic group in the region to practice swidden. In fact, various types of swidden agricultural practices have, for thousands of years, been the dominant agriculture method used by many ethnic groups in Southeast Asia (Kunstadter, 1978; Roder, 2001; Yin, 2001; Chamberlain, 2001), long before the arrival of the Hmong.

³⁵ The corn strain the Hmong grow for food consumption is different from the cash crop corn strain.



Figure 3.1: Swidden fields near Ko Hai village. Photograph by P. Vue.



Figure 3.2: Swidden fields near Ko Hai village. Photograph by P. Vue.



Figure 3.3: Swidden fields near Thong Pei village. Photograph by P. Vue.



Figure 3.4: Swidden fields near Thong Pei village. Photograph by P. Vue.

Although the Hmong are not the only ethnic group practicing swidden agriculture in Southeast Asia, their swidden practices have been singled out as particularly environmentally destructive and unsustainable by some (Savina, 1924; Marks, 1973; Chamberlain, 2002; Siriphon, 2006). As such, many government officials, as well as many in conservation groups, have expressed concern about the impact that Hmong agriculture has on natural resource management

and biodiversity protection (Luangaramsri, 1998; Delang, 2002; Siriphon, 2002; Tungittiaplakorn & Dearden, 2002; Tomforde, 2003; Leepreecha, 2004; Quang, 2004; Forsyth & Walker, 2008; Robichaud, 2009). They are frequently accused of unsustainable natural resource management (Marks, 1973; Dhammanaat, 1994; Ovesen, 1995). Yamane and Chanthirath (2000), for example, blamed the Hmong for nearly half of Laos' degraded areas. They explicitly state that "the Hmong emphasize high-yield, short-term agricultural production and do not pay attention to the sustainability or vegetation and stability of the land," and that their "SAB [slash-and-burn] cultivation is practiced with no intention for reuse after the fallow period" (p. 127).

Scudder and Talbot (2004) found that swidden is perhaps the single most important component of the various production systems of most villages within and around the Nakai-Nam Theun NPA and that, while there is currently very limited understanding of how local ethnic minorities including the Hmong utilize land and resource tenure systems in and around the protected area, a major concern of Nakai-Nam Theun NPA managers and officials is that the Hmong are a growing threat to the integrity of the park because they are moving into the area and clearing lands for swidden agriculture. SEMFOP (2005), for example, wrote that the "Hmong... deserve special attention due to their considerable impact on the forests" and that "they are perhaps the most challenging [to work with] of the ethnic minority groups that rely partly on the NT2 Watershed for food and trade in wildlife and forest products" (part. 3, p. 20). Forsyth and Walker (2008) stated that throughout their study in northern Thailand, they experienced a "highly charged atmosphere of the uplands," in which "it is hard to not read the statement about different levels of sympathy as an argument for the continued presence of Karen [another minority ethnic group found in northern Thailand] communities but for the relocation of the Hmong," to save biodiversity and natural resources (p. 207).

How Hmong swidden came to be associated with this derogatory perception is not entirely clear and deserves further examination. One of the few studies to shed light on the possible origin of this narrative was conducted by Robert Cooper (1984), who suggested that the negative discourse linking environmental degradation to Hmong swidden agriculture may have originated from a study conducted by the French missionary Savina in 1924. In this study, Savina first described the destructive nature of swidden techniques and then proceeded to accuse the Hmong of indiscriminately deforesting Asia, ultimately arguing that they must be educated, modernized, and most importantly, converted to Christianity. Later agriculturalists and foresters found that this particular discourse supported their perspectives on the “backwardness” of hill tribes in need of modernization. Thus, they spread the idea without any further efforts to examine the issue. Tomforde (2003) elaborated on how these types of environmental discourses not only involve struggles over desired or crucial resources, but also over symbolic powers used to define how these problems can and should be solved. Lee and Tapp (2007) suggest that the Hmong are often singled out as “destroyers of the environment” because they happen to live in the highlands and practice swidden cultivation. Regardless of how the narrative came to be accepted as truth, the government of Laos, along with governments in other countries in Southeast Asia, have developed extensive plans to move and resettle Hmong people into the lowlands (Baird & Shoemaker, 2007, 2008; Forsyth & Walker, 2008; Baird, 2010a).

Although Hmong swidden has been labeled environmentally destructive and efforts have been made by both the Lao government and NGOs to eradicate the practice, few detailed studies have been conducted on Hmong swidden practices and how these practices are affecting both the environment and Hmong livelihood strategies (see Forsyth & Walker, [2008] for a simplified explanation). One of the earliest and most detailed studies on Hmong agricultural practices, and

more specifically Hmong swidden, was conducted by George Binney for his doctoral research in 1968. In addition to documenting a variety of NTFPs used for medicinal purposes by Hmong living in northern Thailand, Binney also broke down the yearly annual agricultural cycle into specific periods and then listed the main activities that took place during each of those. The period from about February to mid-March was identified as the “burning field” time. This was followed by the “planting corn” period that lasted to about the beginning of May. “Planting rice” followed and lasted until about July. “Harvesting and bundling rice” then continued until about September, at which time it changed to the “planting opium” period, which lasted until about November. Following “planting opium” was the “collection of rice” period that went until about mid-December. Finally, the last period was “cutting/harvesting opium,” which lasted until about February, at which time the cycle would start again. Despite the labels of these periods, it is important to realize that there were other agricultural activities such as weeding, land clearing, and the planting of other crops that were taking place concurrently as part of the main activities (Figure 3.5).

Harvest Opium	Burn Field		Plant Corn	Plant Rice	
Jan	Feb	Mar	Apr	May	Jun
Harvest and Bundle Rice			Plant Opium	Collection of Rice	Cutting -
Jul	Aug	Sep	Oct	Nov	Dec

Figure 3.5: Simplified visual representation of Binney’s (1968, p. 46A) Hmong annual agricultural cycle. Note that Binney used only the Gregorian calendar. Chart by P. Vue.

Binney wrote that during the time of his study, the Hmong would plant a newly cleared field with rice for the first year or two. After the initial two years, the field would be intercropped with corn and opium for the next four to five years until the soil became nutrient-poor, at which time the field would be converted to grow opium exclusively. This final stage usually lasted anywhere from 10 to 15 years until the field was abandoned and entered fallow. However,

Binney's descriptions were simplistic and did not demonstrate the complexity of the knowledge systems that are linked to this agricultural process.

William Geddes (1976) conducted another early study of Hmong agricultural practices in northern Thailand. He found that Hmong farmers, due to the great number of crops they grew on the same swidden fields, would go to great lengths to seek out lands with a preferred type of soil along with a desired type of microclimate conducive for agricultural productivity. Geddes reported that the annual Hmong calendar is divided into 12 lunar months of 30 days each. However, the Hmong calendar does not match the Western or Gregorian calendar and instead is ahead by approximately one month (e.g., the month of May in the Western calendar would generally coincide with the 6th month in the Hmong calendar). Important events in the Hmong lunar year include the New Year (12th month); when opium is planted (9th/10th month) and harvested (end of 1st month); when corn is planted (6th month) and harvested (9th month); and when rice is planted (6th months) and harvested (12th month). Geddes also recorded that fields are usually burned during the 4th month and that this is followed by land clearing during the 5th month. For the most part, these findings agree Binney's study which documented the five most critical events in the Hmong agricultural calendar in order of importance: 1) rice planting (6th month), 2) maize planting (5th month), 3) maize harvesting (9th month), 4) opium planting (10th month), and 5) opium cropping (2nd month) (Figure 3.6).

	Clear New Field	Burn Field	Clear Old Field	Plant Corn/Rice	
2nd mo. (Jan)	3rd mo. (Feb)	4th mo. (Mar)	5th mo. (Apr)	6th mo. (May)	7th mo. (Jun)
	Harvest Corn	Plant Opium		Harvest Rice	Harvest O.
8th mo. (Jul)	9th mo. (Aug)	10th mo. (Sep)	11th mo. (Oct)	12th mo. (Nov)	1st mo. (Dec)

Figure 3.6: Simplified visual representation of Geddes' (1976, p. 158) Hmong annual agricultural cycle. Note that Gedde used the Hmong annual calendar in conjunction with the Gregorian calendar. Chart by P. Vue.

Both Binney's and Geddes' research projects suggested that weather plays an important role in Hmong agricultural practices. This is even more obvious given how the Hmong themselves break down the annual agricultural cycle. The Hmong simplify the annual agricultural cycle into three periods based on generally predictable weather patterns. The first season is the *caij ntuj qhua* or "dry and lazy season" and runs from about March to June. Next is the *caij ntuj los nag* or "rainy season" that runs from about June to October. This season is characterized by an abundance of vegetables and other food crops, but is also a time of sickness due to the prevalence of rain. Finally, the third season, which runs from about November to February, is called *caij ntuj no* or "cold season" and is usually spent planting opium, which is one of three main crops along with rice and maize. This attention to the climate suggests that weather directly regulates the cycle of agricultural activities throughout the year (Binney, 1968).

3.1.2.2 Current Hmong swidden practices in the Research Area. As previously discussed, the Hmong historically practiced pioneering swidden agriculture. However, government initiatives to decrease swidden in conjunction with more permanent settlements (discussed in chapter one, section 1.4.2 and sporadically throughout the dissertation) and with other contributing factors (e.g., growing population, land access, financial status) has resulted in Hmong villagers no longer being able to practice pioneering swidden or even rotational swidden agriculture without resorting to traveling far into remote areas (this is discussed in chapter four and five). Instead most Hmong in the Research Area who own fields near communities are now practicing permanent upland agriculture. In this study, I defined permanent upland agricultural practices as those in which the area is used on an annual basis with at most, one fallow year in between use. However, the reality is that most Hmong-owned fields are used every year for cash crop production, again, in part due

to the Land Law (covered in section 1.4.2) and in part, due to limited land availability (local officials now highly discourage and threaten to fine those caught clearing lands).

3.1.2.3 The Hmong and wet-rice agriculture. The Lao government has long favored lowland paddy or wet-rice cultivation (hereafter, wet-rice refers to the practice while paddy refers to the fields) over swidden for many reasons to be discussed throughout this chapter. As such, they have developed policies and programs to encourage and, in some cases to force villagers, to stop practicing swidden and to start practicing wet-rice lowland agriculture. Thus, many Hmong have given in to these government policies and have increased their involvement in wet-rice agriculture to give the impression that they are abiding by government policies pertaining to reducing or eradicating swidden.

Wet-rice agriculture is an agricultural system that utilizes partially-inundated fields divided into small sections to cultivate rice. It is one of the most widespread agricultural systems used to produce rice in countries with tropical and sub-tropical climates and is commonly found in lowland areas across Laos. Historically, this type of agriculture was dependent on the annual monsoon season to flood the paddies. However, technological advancements (e.g., water pumps) have provided other ways to irrigate some fields for dry season production. Paddy fields require an impermeable layer of subsoil that can hold and prevent water from seeping further into the ground for at least three-quarters of the growing season to achieve success.

There are various methods used for cultivating wet-rice agriculture. However, paddy fields are generally prepared by plowing, fertilizing (historically this mainly involved livestock manure and sometimes rice husk), and then smoothing the soil out to make the paddy fields more level. Bunds made of sticks and mud were built around each paddy to make it possible to regulate the

amount of water during the growing season. Small water-gates that can open and close are built into the walls to allow for drainage as necessary.

Rice seeds were grown in separate seedling beds for approximately one month until they reached about a foot in height and were then transported to the fields where they were transplanted into the flooded paddies. Once the rice was harvested, the paddy fields were drained and allowed to dry. Although not a common practice in the past, at present some farmers spread remnant rice stalk onto the fields and burn it to add nutrients to the soil in preparation for the next crop (Figures 3.7, 3.8).



Figure 3.7: Burning remnant rice stalks to add nutrients to the soil. Photograph by P. Vue.



Figure 3.8: Close-up view of corn stalk burning. Photography by P. Vue.

An advantage of wet-rice cultivation over swidden cultivation is that less work is needed to ensure success. A farmer only needs to make sure that the paddy walls are in good shape to be able to hold water. This is not a major concern as these walls are quite strong and sturdy, so little maintenance is required. In addition, these walls tend to last for multiple years. Weeding is also not very prevalent in paddy fields as very few plants, apart from rice, can survive in a flooded setting. Furthermore, as wet-rice agriculture is stationary, there is no need to constantly search for more land to clear, as is the case with swidden agriculture.

3.2 Hmong Cultural Beliefs

A thorough examination of Hmong traditional religious practices is beyond the scope of this chapter. However, some knowledge of key cultural beliefs concerning the environment is necessary to adequately understand how Hmong livelihood strategies have been affected by various factors.

3.2.1 A primer on Hmong religion. The Hmong, as an ethnic group, historically practiced shamanism (Figure 3.9). Hmong cosmology consists of two worlds: the living world (*yaq ceeb*) and the spirit world (*yeeb ceeb*). Hmong mythology concerning spirits says that in the beginning, the two worlds were connected and that men and spirits could meet and interact with each other. Spirits from the spirit world could enter the living world and men from the living world could enter the spirit world. Due to man's treachery, the worlds were split apart and now only shamans may venture into the spirit and return safely to living world.

A primary practice of Hmong shamanism is ancestor veneration. The core basis of this belief centers on the relationship between people living in the living world and the deceased inhabiting the spirit world. Ancestor veneration involves honoring and worshipping the ancestral spirits or *ntsuj plig* (hereafter, *ntsuj plig* will be used to refer to human spirits in order to separate human spirits from supernatural beings) to keep them content so that they would watch over and protect household members. This is because the Hmong traditionally believe that *ntsuj plig* can and do influence and communicate with the living through supernatural means, including through causing sickness. It is important to understand that Hmong ancestor veneration does not confer deity-status on the deceased. Instead, it honors, respects, and takes care of ancestors in the afterlife as well as provides guidance and protection for living descendants. Most ancestral veneration rituals are performed by the male head of the household. However, women can also perform these

duties, especially when a woman is also a shaman. Practices include food offering as well as burning incense and paper or spiritual money.



Figure 3.9: An artistic rendition of a typical traditional shamanistic Hmong house. The shaman sits in front of her ceremonial altar complete with spirit knives, a spirit gong, bells, and split Asian cattle horns among other spiritual objects. Drawing used with permission from the artist, Yinkong Vue.

A spiritual belief historically practiced by the Hmong, and one that is more central to my research, is that of environmental supernatural beings. Associated beliefs are briefly explored in the following sections. However, the main research concerning this belief and associated supernatural beings are discussed in chapter six.

3.2.2 Navigating the spirit world and interacting with supernatural beings.

Maintaining a harmonious relationship with the spiritual world is core to traditional Hmong beliefs (Duffy et al., 2004). The Hmong traditionally practiced a form of shamanism in which the physical well-being of a person was linked to one's spiritual health. Thus, what happened in the living world

was believed to affect the spirit world and vice versa. For example, being startled in the physical world (e.g., being pranked, hearing loud sudden noises) could possibly result in one or more of the startled person's *ntsuj plig* getting frightened, fleeing the physical body, and becoming lost in the spirit world. When this happens, the person whose *ntsuj plig* has flown away would become ill (Gerdner, 2012). There are multiple ways of retrieving the *ntsuj plig* depending on the severity of the scare. For example, a person traveling alone and startled would prevent his or her *ntsuj plig* from fleeing by immediately calling to them and citing a reassurance chant to assure them that there is nothing to be afraid of and for the *ntsuj plig* to not leave the body. The startled person could also have his or her companion either call or go to find someone nearby to call the *ntsuj plig* if he or she so desired. In intermediate to more severe fright cases, it was believed that the *ntsuj plig* would fly away even if a reassurance chant was spoken immediately following a fright incidence. When this happened, the person would soon become sick and spirit/soul calling (*hu plig*) ceremony would need to be performed by a shaman to find and retrieve the lost *ntsuj plig*. This was so because only shamans were able to act as an intermediary between the physical and spiritual world, and as such, only they could enter the spirit world to either retrieve the *ntsuj plig* or at least communicate with other spirits to determine why the lost *ntsuj plig* were unable to return to the body. Shamanistic ceremonies were often performed in two steps. The first involved a diagnostic ceremony in which a shaman entered a trance to journey into the spirit realm and communicate with spirits to identify the cause of the sickness. If this was successful, it was then followed by a second healing ceremony in which the shaman again entered a trance to communicate and bargain with the spirits for the safe return of the sick person's *ntsuj plig*. However, fright is not the only time an *ntsuj plig* leaves the body. Sometimes a person can get sick for no apparent reason, only to be discovered after consulting with a shaman that one or more of

the person's *ntsuj plig* have left the body for various reasons including sadness, boredom, or the desire to explore.

3.2.3 Rituals. A person who has ventured into the forests to hunt or gather other resource goods must perform certain cultural practices associated with acknowledging and honoring these beings to show respect. For example, before eating their meals in the forests, a party member first must perform a ritual to invite the supernatural beings to eat first. This is done by putting a bit of food on a spoon, turning toward the forest, and chanting a personally preferred version of the supernatural beings chant:

*Hu koj tswv teb tswv chaw nrog noj, Cuaj lub roob cuaj tug
 xeeb koob
 Yim lub dawm yim tug xeeb yawg, Tuaj nrog noj nrog haus
 <Name of area> li tim tswv
 tuaj nrog noj nrog haus, Pov fwm pov yawm
 Peb pab kwv tij txiv tub tuaj nrhiav noj nrhiav haus txog
 ntawm nov
 Peb noj tshais/sus/hmo ces nrog peb noj tshais/sus/hmo
 Ua yaig ua luag, pov fwm pov yawm
 Peb mus nce toj kom hmab tsis dawm tes, nqi hav kom hlua
 tsis dawm taw
 Kom peb nrhiav tau noj tau haus
 Peb yuav npawg yuav laig rau nej sawv daws
 Nyob deb cug tes nyob ze cug ncauj*

This chant translates to:

Oh, calling you the forest guardians/spirits to come and eat
 (with us).

Nine mountains with nine <original> rulers. Eight valleys
 with eight <original> ruling fathers, come eat and drink (with us)
 oh forest guardians/spirits of (name of the place).

Come eat (with us) and watch over us.
 Us friends/families have come here looking for food.
 We are eating breakfast/lunch/dinner so come eat
 breakfast/lunch/dinner with us.
 Come bless and watch over us. Make it so that no vines
 will tangle our hands as we climb uphill and that no ropes will
 tangle our feet as we climb downhill.
 So that we will be successful in finding food.
 We will honor and feed all of you.
 Extend your hands (to receive the food offerings) if you are
 far, open your mouth (to be spoon-fed) if you are near.

As soon as the chant is complete, the person performing the ritual will fling the food away from the campsite. Once the ritual is completed, the party members can then settle down and eat. It is also important to understand that performing these supernatural chants does not mean that people can then do whatever they want in the forest. A person should not commit actions that are considered taboo while in these wild areas. Many of these taboos are environmentally friendly in nature. For example, a person should not cut down a tree or branches in a forest to build a fire. Instead, he should gather branches that have already fallen to the ground. Other taboos include: shooting rare animals, shooting at an animal more than twice, starting large bonfires, grilling killed animals over a fire, plugging up valleys and creeks, dumping waste, and burning certain species of trees or vegetation, such as rattan. Committing one or more of these taboos infuriates the supernatural beings and causes them to retaliate with force, including severely injuring or even killing the person responsible, as well as possibly even the entire hunting party.

Some supernatural beings inhabit certain areas and cannot be pleased or satisfied; they become malevolent toward anyone entering, even if the person has not committed any taboos.

These supernatural beings are said to be more evil than others and can attempt to hurt anyone who crosses their paths. As such, it is in the best interests of most hunters to avoid hunting in or near those areas. Usually villagers know where these unruly beings are, and they do what they must to respect them, including not shooting anything if they find themselves in those areas. Many times, Hmong hunters and NTFP harvesters avoid those areas altogether, even if it means taking the long way and walking around the entire area to get to their intended destination. These beliefs are what primarily shape how Hmong traditionally view and interact with forests and available resources.

Although the Hmong historically and culturally believe in supernatural beings, there are discrepancies as to the grouping of these beings. There seems to be three main groups of supernatural beings. These groups, as well as specific types of supernatural beings, will be discussed in chapter six.

3.3 The Hmong in the Research Area

The following sections discuss the Hmong in the Research Area. I start by briefly discussing their arrival to the area and their current household structure. I follow up by discussing the various strategies they employ to meet their livelihood needs.

3.3.1 Arrival to Laksao and surrounding areas. The first wave of Hmong migration to the Research Area (see chapter two, methodology for information on individual research areas) occurred around the early 1980s, shortly after the end of the Vietnam/Secret War, as described in the anecdote provided at the beginning of this chapter. The first settlers came from nearby areas from within a hundred kilometers or so, such as Vieng Thong District, Bolikhamxay Province, to as far away as a few hundred kilometers north of the Research Area (such as Xieng Khouang Province). Here, distance is expressed as a geographic measurement to establish a sense of space. However, it is important to realize that traveling in Laos in the 1980s and even today is very time

consuming due to inadequate road infrastructure and lack of vehicle availability.³⁶ For example, many Hmong villagers have told me that it took them at least three days of walking to get back to Vieng Thong District after moving to the Laksao area in the early 1980s. This sense of time-space is discussed in chapter four.

Initially, the primary reason for moving to the Research Area was to look for land to practice swidden agriculture. Once these villagers were able to build houses and establish a sense of residency, they sent word to relatives living in their previous villages as well as elsewhere to join them in the new area, as the place was lush with forest and natural resources to be extracted. This resulted in a second wave of villager arrivals to the area. For example, Pa Yia's household (vignette at the beginning of the chapter) first moved to Ko Hai village in 1983 looking for land. Once the household was established, the household head sent word to cousins and relatives to come and join him. Many families heeded his call and moved to the area starting in the mid-1980s, with additional families and relatives arriving year after year. Eventually, most of his lineage ended up joining him in the area. Because of the desire for land in conjunction with the Hmong desire to be with other clan and lineage members, the Hmong population in the Research Area drastically increased during this time. This event was quite significant as there were few Hmong in the area prior to these events.

In addition to the initial reasons that villagers moved to the Research Area, there were other reasons that arose later. For example, starting around the mid-1990s, many families from Xieng Khouang Province moved to the Laksao area because they wanted to get away from the sporadic fighting between the Lao government and remnants of Vang Pao's Hmong guerilla army from the

³⁶ Laos' roads and infrastructures have drastically improved in the last few decades, but they still lag behind more developed countries such as the United States and even Thailand.

Vietnam/Secret War.³⁷ These families claimed that the fighting was getting too close to their villages. Some could hear gunshots in broad daylight and were afraid to go out of their homes at night. Thus, they wanted to move their families to a safer area and they heard that the Laksao area was a growing town with a lot of available land and resources nearby.

The idea that the Research Area is a growing town on the brink of “modernity” was another reason often cited to explain why many households decided to move to the area. Laksao village was a shining beacon and a representation of prosperity and wealth for many households living in smaller communities in surrounding areas. For example, the head of Household #66 stated that the family was enticed to move to the area in 1992 because he heard that the Laksao area was developing rapidly and he wanted to be a part of the development effort. Others believed that moving to the area would provide better educational and employment opportunities for their children. For example, Household #16 moved to the area in 2010 to be in a place that would provide a better education for the children. A few of the later arrivals to the area (after 2005) came from Vietnam to find land to farm as well as to be with relatives who came earlier. Other families were actually returning to the Laksao area after being away for many years. Still other families are newer families that formed when male children moved out to start his own family.

Initially, villagers were allowed to move to Thong Pei village and Ko Hai village regardless of whether they knew or were related to anyone already living in the villages. However, both villages decided to stop allowing people to move into the villages a few years prior to my fieldwork because both villages were getting too big (this was according to village headmen and elders) and there was not enough land. However, if a household has close relatives in the two villages, they

³⁷ General Vang Pao was a Hmong major general in the Royal Lao army until the end of the war. He commanded the “secret” army consisting of Hmong soldiers and soldiers of other ethnicities against the Pathet Lao. He migrated to the US after the war and died on January 6, 2011.

may still be allowed to move there. Laksao central area was more lenient as the area is much larger so it is harder to control who moves in and who moves out. As such, villagers there told me that so far, people are allowed to move to the Laksao central area and surrounding villages if they want to.

3.3.2 General household statistics and structures. The households surveyed (surveys conducted with the household heads) and interviewed (interviews were conducted primarily with the household heads, but many times also with their family members on an opportunistic basis) that arrived earliest to the Laksao area came in the early 1980s while the latest households to move to the area arrived as recently as 2014. Only two households interviewed came to the area when the heads decided to move out of their fathers' home to start their own households.

The ages of those surveyed and interviewed ranged from 19 to 90, with an average age of 44 years. The average number of adults per household (rounded to the nearest whole number) is four; the average number of children is also four. Thus, the average number of people per household is eight. However, this varies quite a bit between households. For example, one household consisted of 16 adults and 14 children for a total of 30 individuals, while another household had only one person.

Most Hmong villagers in the Research Area still practice Hmong shamanism. There are Hmong Christians in the Laksao area, but their number is quite small (it is likely that there are less than 20 Hmong Christian households). They do have a small one-room building that they use as a place of worship to meet weekly and praise God. Although I did not investigate this topic much, I suspect the situation is similar in Thong Pei village. On the other hand, I experienced two interesting cases concerning the treatment of Hmong Christians in Ko Hai village that are worth discussing.

The first concerns a Vue Christian family. This family was one of the very few Hmong Christian household in Ko Hai village and the only Hmong Christian household that I interacted with during my research since most converted villagers were forced to leave the village. This household has been tolerated so far for two reasons. First, before the male head died in a drowning accident a few years back, he was one of the village leaders. After his death, his family converted to Christianity because they were no longer able to conduct the necessary household shamanistic rituals (e.g., maintaining the *xwm kab*, the most important household spirit, is the sole responsibility of the male head). The second reason was that although they are now Christians, they do not openly talk about it or preach God's word in the village. Thus, the other village leaders decided that they could stay. However, the household confided in me privately that they may not stay much longer as they feel despised and unwanted by some.

The second case concerned two teenage boys around sixteen years of age who converted to Christianity while I was doing fieldwork. The teens were jailed by the parents while the Vue clan (my clan) called a meeting to decide what to do with them. I attended the meeting and listened to the entire conversation. Eventually it was decided that the teens would be banished to a Christian-dominated village called Phomlon village, approximately 50 kilometers away (Phomlon village was essentially founded by Christian exiles and serves as a Christian refuge in the area) unless they renounced Christianity and converted back to shamanism. The teens eventually "converted" back and were able stay in the village.

3.3.3 Agricultural land ownership and land rental. Most household members interviewed in Ko Hai village stated that they own all the lands (both swidden and paddy fields) they are currently farming while some households are using a combination of land they own and

rent (Figure 3.10).³⁸ Many villagers stated that they are the original owners of the land they currently farm, as they were the ones who cleared the fields when they moved to the area. As the village grew in population and numbers of households, more land was cleared until the entire area was partitioned and claimed. Now new households can only obtain desirable land as inheritance, gifts from close families and friends, or through buying or renting land. Three households in Ko Hai village do not own any agricultural land and are only renting.

Land ownership in Thong Pei village is similar to Ko Hai village in that most of the households surveyed there also claimed that they own the land they are currently farming (Figure 3.10). Villagers who first arrived and settled in the area own most nearby fields, while many of the newer arrivals are forced to find land farther away, with some farming as far as 20 or more kilometers away from the village. Two newly established households stated that they do not have agricultural fields at all (both household heads stated that they would like to obtain some but currently do not have the financial means to do so).

As is the case with both Ko Hai village and Thong Pei village, most of the household representatives surveyed in the Laksao central area claimed that they owned all the land they are currently farming. However, most of these areas are located far away from the Laksao area, some up to 20 kilometers away. The main reason for this is the area's geographical topography. The Laksao area is bordered by jagged hills to the west and by rivers and other villages to the north and east. The natural geographical features decrease the amount of nearby farmable land. Five households do not own any land and instead are renting land to farm. One household reported not

³⁸ Most surveyed and interviewed households who were involved with land rental were renting land to use. Household #30 was the only household I surveyed and interviewed that was renting its land out. This household is a unique case in that there was only one household member at the time of my research (he has since married). He has one hectare of swidden lands but did not want to swidden so he was renting it out free of charge to his older brother.

having either paddy or swidden fields (Figure 3.10). This young family recently moved to the area from Vietnam.

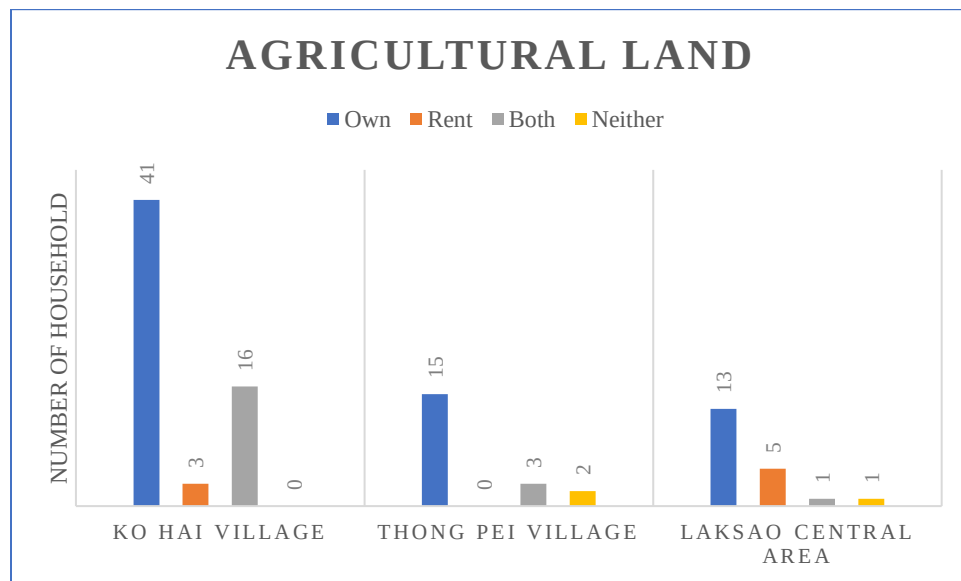


Figure 3.10: Agricultural land (swidden and paddy fields) access comparison between the three areas as reported by surveyed household representatives. Note that 60 households were interviewed in Ko Hai village but only 20 in Thong Pei village and 20 in the Laksao central area. Chart by P. Vue.

Although most of the household representatives surveyed and interviewed stated that they owned all the land they are currently farming (see Figure 3.10), the term “land owner” is loosely used in respect to agricultural land in the Research Area. While many households do have official and certified land titles showing that they own a certain parcel of land, other households do not have such land titles and base their ownership claim on having cleared and worked the area for years without coming into conflict with other villagers. The understanding was that once a certain amount of time has passed without such conflicts, the land becomes theirs. Other villagers also recognize this claim and generally do not intrude. Although land titling is slowly replacing this traditional way of recognizing land ownership³⁹, it is still practiced throughout Laos, especially in

³⁹ The Lao government is encouraging, or perhaps coercing, villagers to obtain official land titles by implementing laws stating that the only way a villager can prevent others from taking his/her (hereafter, his) land is if the villager has an official land title for that piece of land. In other words, a villager can be farming a piece of land for years or

more rural and remote areas. One land dispute case I became aware of was settled after a meeting in which the households disputing the land, clan representatives, and village elders was convened.⁴⁰ In fact, most disputes, regardless of what they are, are usually settled using this kind of traditional justice system.

Many households are also renting land to farm. The renters are usually newer arrivals or newly established households formed by sons moving out of their parents' homes to start their own families.⁴¹ Renting agreements vary from agreement to agreement and are dependent on various factors including the relationships between renters and landowners, financial status, land availability, and land condition. For example, some agreements state that the renting farmer must pay a set fee to the landowner before he is able to use the land. The farmer can then keep all the goods and/or income generated from the land for that year. Other agreements include those in which a farmer pays a set fee based the crop being cultivated. The price paid depends on the crop

decades but if he does not have an official land title for that piece of land, others can take the land away and become the new and official landowner of that piece of land by going to the government and getting an official land title. Once a villager obtained an official land title for a piece of land, he must pay annual land taxes. The land tax in the Research Area is 40,000 Lao kip (US\$5) per hectare per year. The complex land tax system in Laos is set up to encourage (or coerce) villagers to pay annually and not miss a year as doing so will result in fines and loss of land ownership. If a villager missed a year and goes to renew the following year, he would have to pay 120,000 Lao kip total per missed hectare (40,000 for the previous year, 40,000 for the current year, and a penalty fee equaling how much he would have paid if he had paid the previous year, in this case, it is 40,000 for a total of 120,000). If he missed two years in a row and goes to renew the third year, he would have to pay 240,000 Lao kip total per missed hectare (40,000 for missing the first year, 40,000 for missing the second year, 40,000 for the current year, and a penalty fee equaling how much he would have paid if he had paid the previous year [paid the second year after missing the first year], which in this case is 120,000 for a total of 240,000). If he does not pay for three consecutive years, the land gets repossessed by the government and other villagers can then apply for a land title to be the new owner of that land. If he wants the land back, he would have to reapply for a new land title by hiring a land survey team to resurvey the land which would likely cost him millions of Lao kip before he gets the land back (P.T. Vwj, personal communication, April 18, 2014).

⁴⁰ Each Hmong community in Laos would form a loosely connected committee called the 18 Clans (*18 Xeem*) that is comprised of respected leaders from different clans who convene to settle disputes between clans. The number of clan members in a committee varies from one community to the next, but committees in all places serve the same purpose.

⁴¹ The newer arrivals (those arriving after 2000) were mostly either from Vietnam or were coming back to the area after having spent many years living in Thailand. A few were from northern Laos (Vieng Thong District and Xiang Khouang Province). However, all newer arrivals are related to some of the established villagers which is why they were allowed to move to the area. This is because both Thong Pei village and Ko Hai village have stopped allowing non-related people to move to the areas a few years back as things were "getting crowded" (F.N. Vwj, N.N. Xyooj, personal communication, 2014).

sown (e.g., two million Lao kip per corn harvest or paying 500,000 Lao kip per peanut harvest regardless of the size of the area). Some agreements state that the farmer must give a pre-agreed upon amount of harvested goods to the landowner, regardless of how much the farmer is able to produce that year. Still other agreements require that the total harvest be over a minimum set amount (e.g., 15 50-kilogram bags) before the farmer is required to give a pre-agreed upon set amount to the landowner. However, if the total harvested amount is less than the minimum set amount, then the farmer can keep all the harvested crop. Not all land agreements require paying a fee or agreeing to a set agreement, as sometimes people do borrow land for free, with no stipulations to pay the landowners in any way. Ultimately, there are many forms of agreements regarding land and these agreements are usually not written down in any official or binding documents. Instead, they are generally oral in nature and based on faith and trust. They are also not set in stone and can sometimes be changed with the circumstances.

Finally, farmers no longer stay overnight in their fields as much as they once did, because technological advancements and improved transportation services have allowed for easier traveling between their home and their fields, and because Hmong children now mainly go to school and so need to stay near the village school. Whilst before Hmong people, who were often very strong mountain walkers, would spend almost an entire morning to travel from the village to their fields, now they can get there in a matter of minutes. Therefore, most farmers usually get up early in the morning, head out to the fields, and then return home in the evening. This process is repeated daily as needed. On rare occasions, some farmers stay overnight, but these circumstances are usually based on other activities such as: raising livestock in the fields and wanting to guard them against thieves, wanting to guard their crops against wild animals, or wanting to harvest a certain crop within a certain allotted time.

3.3.4 Swidden fields. Ninety-seven households reported having access to swidden fields (Figures 3.11).⁴² The field sizes as reported by 96 of the 97 households range from 0.2 to eight hectares per household⁴³, with an average size of approximately 1.94 or roughly two hectares. Households #25, 26, and 33 reported having no access to swidden fields.

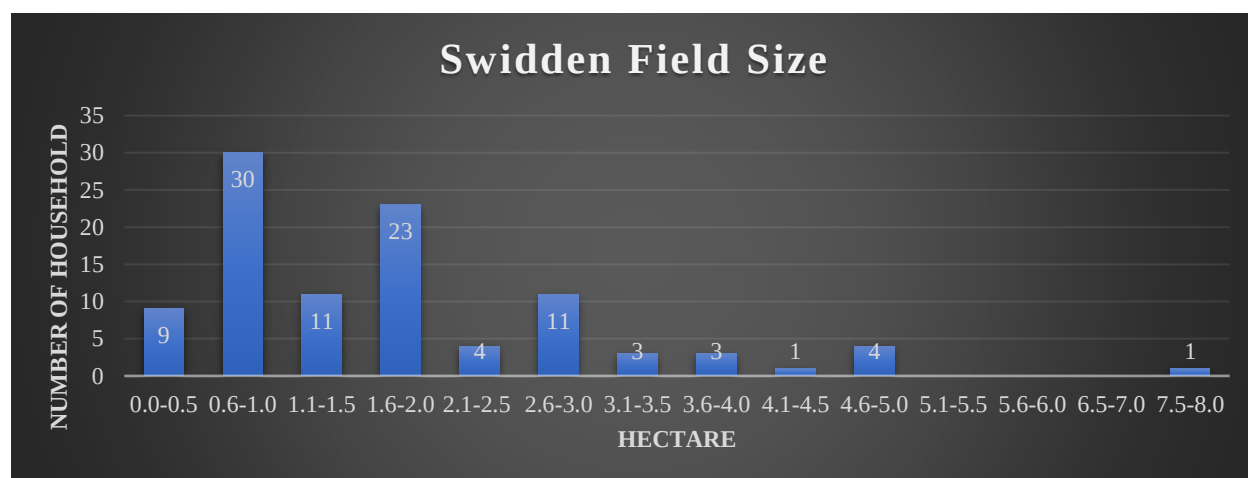


Figure 3.11: Swidden field size (hectare) as reported by surveyed household representatives. Note that land sizes were clustered into groups (e.g., 0.0 – 0.5) to make chart more legible. Chart by P. Vue.

A quick linear regression analysis comparing when households moved to the Research Area and the size of their current swidden fields (Figure 3.12) suggests that there is a slow decrease in swidden size over time for newer and newer households moving into the area. The decreasing pattern is striking as one would think that the decrease should be happening quicker due to government restrictions. However, in-depth interviews and data analysis showed that this may indeed be the case. In fact, this actually strengthens my argument that swidden is not decreasing and or eliminated as the Lao government suggest. Instead swidden is being displaced to more remote areas. However, the slight decreasing rate suggests that government regulations are having

⁴² Access is defined as having the rights to use the swidden fields via ownership or by renting. This does not include households that assist other households with their swidden fields in exchange for rice.

⁴³ One household with access to swidden fields did not report how much it has access to.

some affects as villagers are having less and less swidden fields to grow crops. Various reasons that could partially explain the slight decreasing rate includes travel hardship, time and commitment to such remote areas, and a decreasing land availability (at least desired and manageable land availability).

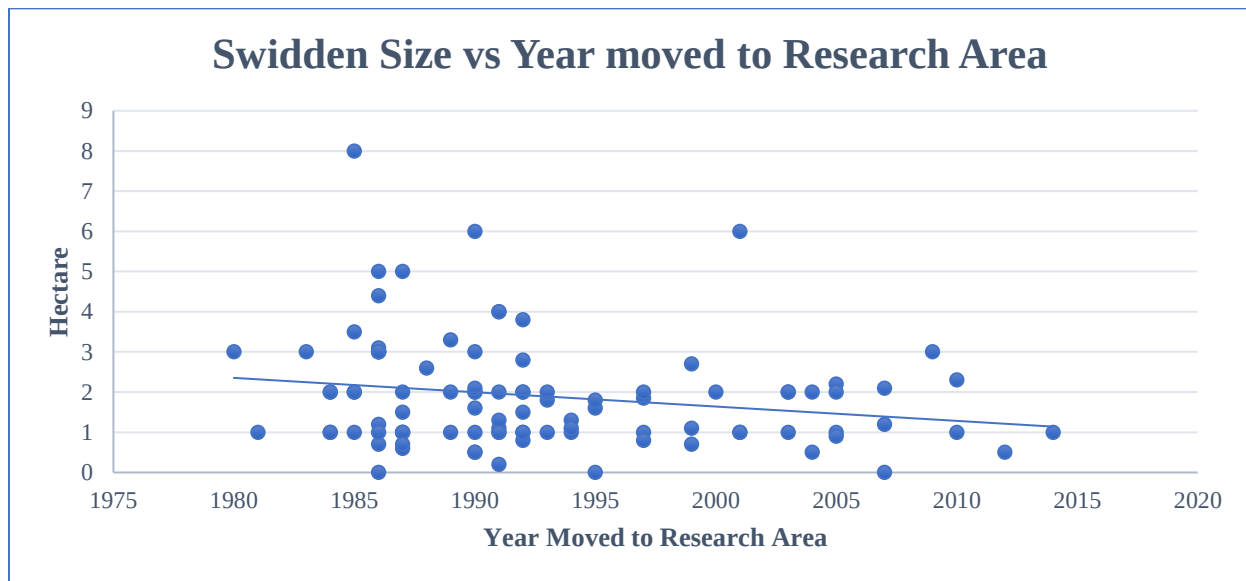


Figure 3.12: Simple linear regression model looking at household swidden size in relation to when the household moved to the Research Area. Note: 97 household data were used in this chart, as two households were missing the year they moved to the area while one household did not report how much swidden fields they have. These households were not included. Chart by P. Vue.

3.3.5 Paddy fields. Only 65 of the 100 households surveyed had access to paddy fields (Figure 3.13). The field size per household based on 64 of the 65 households ranged from 0.09 to three hectares⁴⁴, with an average size of approximately 1.1 hectares (see Figures 3.15 – 3.20 for photos of paddy fields at the Research Site). Thirty-five households did not have paddy fields. When asked why they were not practicing wet-rice paddy agriculture, 25 of the 35 households stated that they did not have money to buy or rent paddy fields. However, this response must be

⁴⁴ One household with access to paddy fields did not report how much it has access to.

analyzed cautiously, as many villagers prefer to not invest in paddy fields even if they have money, as they would much prefer to use the money on other things they deem more in line with their livelihood practices (e.g., swidden fields, hunting, vehicles). Others stated that there are no viable paddy lands available. A few households stated that they had previously practiced wet-rice paddy agriculture but have since sold their paddy fields for various reasons, such as needing to cover unexpected medical and other expenses, avoiding conflicts with other villagers, and wanting to do something else.

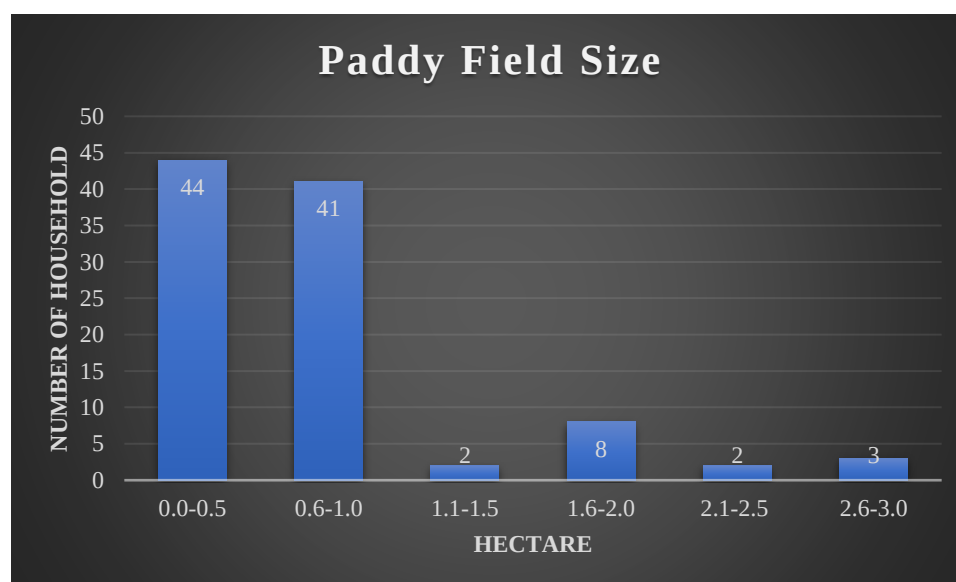


Figure 3.13: Paddy field size (hectare) as reported by the surveyed households. Note that land sizes were clustered into groups (e.g., 0.0 – 0.5) to make chart more legible. Chart by P. Vue.

A similar pattern was found when I ran a quick linear regression analysis comparing when a household moved to the Research Area and the size of their paddy fields (Figure 3.14). The resultant chart suggests that there is a decrease in paddy size over time for newer and newer households moving into the area. However, as paddy fields are not being displaced to more remote

places, it could be assumed that the decreasing pattern seen is due to less and less paddy fields being available for villagers to use.

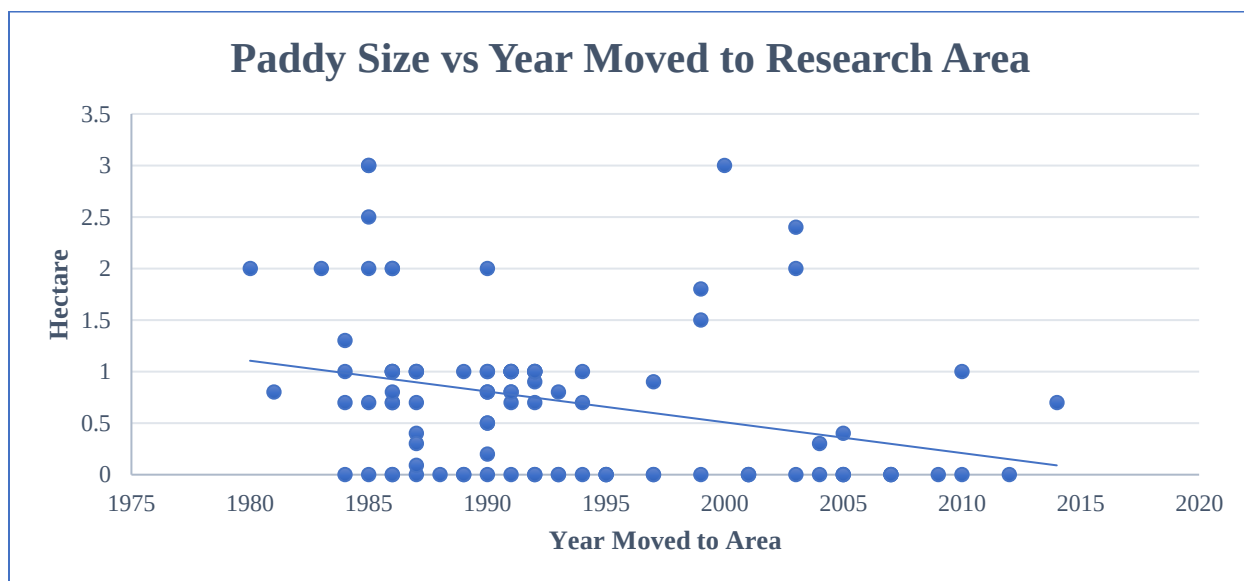


Figure 3.14: Simple linear regression model looking at household swidden size in compared to when the household moved to the Research Area. Note: data for 97 households were used in this chart. Two households were missing the year they moved to the area while one household did not report how much paddy fields they have. These households were not included. Chart by P. Vue.



Figure 3.15: Paddy fields near Ko Hai village. Photograph by P. Vue.



Figure 3.16: Farmers tending wet-rice agriculture near Ko Hai village. Photograph by P. Vue.



Figure 3.17: Route #8 running through Thong Pei village. Paddies are seen in the distance. Photograph by P. Vue.



Figure 3.18: Hmong hand-harvesting paddy fields near Thong Pei village. Photograph by P. Vue.



Figure 3.19: Paddy fields in the Laksao area. Photograph taken by P. Vue.



Figure 3.20: Wet-rice agriculturalists in the Laksao area. Photography by P. Vue.

3.3.6 Agricultural land summary. Overall, most Hmong villagers in the Research Area are involved in either swidden or wet-rice agriculture, with many practicing both (Table 3.1). Important considerations for selecting field sites are financial capability, availability of land,

proximity to the villages, topography, and ease of access. Finally, it is important to know that the amount of land a household owns does not remain constant. In many cases, it was reported that the amount of land owned by a household had decreased over time.⁴⁵ A father may decide to gift a portion of his lands to a daughter who is getting married or to a son who is moving out of the household to start his own family. Other events that have led to households decreasing the amount of lands they own include selling some of their land, or in some cases being forced off their land by others for various reasons. For example, a Hmong man was forced to sell the land he built his house on because a company came in and started buying the soil near his house which was on the side of a small hill. The company was only supposed to dig and buy dirt from a specified area and remain a safe distance away from the house, but they kept encroaching closer and closer to his house. Soon, it became too dangerous to live there so he essentially was forced to sell his land to the company. In a cruel turn of events, a company representative said that the company was not interested in buying his house and that he could move his home to wherever he desired. However, due to the house's foundation and structure, moving it would have essentially required dismantling piece by piece or bulldozing the house to the ground.⁴⁶ Thus, not only was he forced to sell some of his land, but he also lost his house without being compensated for it.

⁴⁵ This is further discussed in chapter four, section 4.8.4.

⁴⁶ The house's foundation and floor were erected by pouring cement around a central beam as well as other surrounding corner and side support beams and then allowing the cement to harden. Once hardened, more cement is poured on the ground, molded, and smoothed to form the floor. Thus, moving the house would require destroying the cement floor and the beams as well as the walls and roof. While not impossible, it was impractical and essentially pointless.

Table 3.1**Current Agricultural Fields Size**

Household Representative	Age	Year Moved to Current Area	Current Swidden Size (Hectare)	Current Paddy Size (Hectare)
Cib Vwj	35	1984	2	1
Paj Yias Vwj	51	1983	3	2
Faiv Nplooj Vwj	49	1986	3	0.7
Suav Vwj	36	1987	1	0.4
Nyiaj Nplaib Vwj	35	2005	1	0.4
Tswb Neeb Vwj	40	2010	1	1
Ntxoov Nyiaj Vwj	33	1984	1	0.7
Nom Lwm Vwj	46	1990	6	2
Tooj Mas Vwj	28	1990	0.5	0.5
Teeb Vwj	28	1987	1	0
Tsav Sawm Vwj	40	1991	1	1
Ntxoov Vaj Vaj	75	2003	1	2.4
Nom Vaj Xyooj	38	1997	1	0
Vam Xeeb Xyooj***	88	1997	0.8	N/A
Thaiv Vwj	37	1990	2	0.2
Soob Leej Vwj	50	1990	2	0
Vaj Tuam Vwj	40	1990	0.5	0.8
Xaiv Vwj	53	1987	1	0.3
Vam Lwm Vwj	39	1987	2	1
Vam Nruas Xyooj	60	1994	1	1
Lig Vwj	20	1990	1	1
Ntxawg Vwj	35	1984	1	0
Vam Tuam Vwj	50	1992	1.5	0.9
Lis Vwj	40	1986	0.7	0
Vam Suav Vwj	46	1985	3.5	0
Ntxoov Tub Vwj	45	1990	1.6	0.5
Txiaj Toob Vwj	90	1992	3.8	0
Txooj Kuam Vwj	60	1992	2	1
Zam Ntxaij Vwj	60	1990	2.1	0.8
Niam Ntxoov Lauj Xyooj	60	1989	3.3	0
Txiaj Tsav (Xyooj Neeb) Vwj	34	1989	1	1
Yeej Vwj	30	2001	1	0

Raj Kawm Vwj	47	1987	0.6	0.09
Niam Vam Pov Vwj	58	1991	2	0
Teeb Ham	29	1985	2	2.5
Tswv Huas Ham	40	1985	1	2
Nchaiv Pov Vwj	50	1995	1.6	0
Nyiaj Thoob Vwj	32	1994	1.3	0.7
Lwm Vwj	30	1995	1.8	0
Suav Yaj Vwj	33	1992	0.8	1
Nkaj Pov Vwj	51	1993	1.8	0
Paj Txim Vwj	39	1992	2.8	0
Sov Txiaab Vwj	60	1986	1.2	0.7
Nkaj Nob Vwj	37	2004	2	0.3
Niam Fav Ceeb Vwj	50	1988	2.6	0
Tsav Yim Vwj*	26	N/A	1.5	0.5
Xaiv Kuam Thoj	35	1991	1.1	1
Xaiv Teev Thoj	50	1991	1.3	1
Nyiaj Yeeb Vwj	55	1986	3	1
Tswj Thoj Xyooj	42	1999	2.7	0
Nyiaj Looj Xyooj	42	2005	0.9	0
Yaj Huas Yaj	30	2007	2.1	0
Niam Vam Lis Thoj	37	2010	2.3	0
Suav Nus Vwj	48	1986	3	1
Paj Vws (Suav) Vaj	42	2005	2.2	0
Yeej Vaj	30	2007	1.2	0
Yias Vwj	52	1991	1	0.8
Npliaj Pov Xyooj	50	1999	1.1	1.8
Neej Siab Vwj	34	1986	3.1	1
Nyiaj Txam Vwj	50	1986	4.4	1
Soob Ntxawm Vwj**	66	1985	N/A	3
Paj Zeb Xyooj	54	2005	2	0
Ntxoov Neeb Xyooj	76	1984	2	1.3
Lauj Foom Xyooj	55	1991	4	1
Vam Yeej Vwj	62	1986	5	2
Ntxoov Pov Vwj	34	1989	2	0
Txais Vwj	19	1995	0	0
Nyiaj Teev Vwj	29	1986	0	0
Nom Kos Xyooj	29	1992	1	1
Txawj Thaiv Xyooj	40	1992	1	1
Npliaj Kab Xyooj	48	1987	5	1
Ntshuab Yaj Vaj	45	1991	0.2	0.7
Ntxoov Xeeb Vaj	43	1987	1.5	1

Ntxoov Tsu Vaj	67	1981	1	0.8
Txaj Lis Vaj	35	1991	4	0.8
Niam Nyiaj Kaub Xyooj	52	1980	3	2
Niam Txhuas Ntxawg Xyooj*	40	N/A	1.5	1
Vam Kub Vwj	53	1986	3	2
Nyiaj Npis Vwj	82	1986	1	0.8
Xab Vwj	31	1985	2	0.7
Txooj Vam Vwj	56	1997	1.85	0
Paj Txoo Vwj	60	1997	2	0.9
Suav Nchai Vwj	34	1993	1	0
Niam Soob Xais Xyooj	64	1992	2	0.7
Nyiaj Tsav Vaj	31	2009	3	0
Kuamneeb Xyooj	25	1990	3	1
Huas Vwj	29	2014	1	0.7
Tswv Tuam Vaj	62	2000	2	3
Xov Xyooj	24	1999	0.7	1.5
Soob Tsheej Xyooj	38	1987	0.7	0.7
Nyiaj Ntaj Xyooj	65	1985	8	3
Nuj Xyooj	22	1993	2	0.8
Xauv Lauj	29	2007	0	0
Vam Muas Vwj	40	1994	1.1	0
Nom Moos Xyooj	37	2001	6	0
Tooj Nchai Ham	37	2004	0.5	0
Pob Tsuas Ham	34	2001	1	0
Ntxoos Pov Ham	30	2012	0.5	0
Tooj Npliam Yaj	33	2003	2	0
Niam Ntsuab Toog Yaj	49	2003	2	2
Notes: * denotes households were not included in swidden or paddy regression analyses due to missing “Year” data. ** denotes household was not included in swidden regression analysis due to missing swidden size data. *** denotes household was not included in paddy regression analysis due to missing paddy size data. Table by P. Vue.				

3.3.7 Preferences for swidden and paddy agriculture. Eighty-eight of the 100 household representatives claimed that they preferred wet-rice agriculture to swidden. Only 11 household members stated that they preferred swidden. One household was not sure. Many of the farmers claimed that they preferred wet-rice agriculture because yields from wet-rice agriculture are more consistent and predictable and because paddy fields can be used for more consecutive years than

swidden fields. Other reasons are that paddy fields are more stable in that they remain in one place and there is a sense of land ownership due to the stationary status of the land. As one farmer put it “...ua liaj ces tau npluas noj npluas haus” (paddy allows for constant and dependable yields year after year). However, follow-up conversations with various households suggest that the preference for wet-rice agriculture over swidden was for only rice production, as many villagers voiced their desire for more swidden land to grow other crops.⁴⁷ This is not surprising, as many swidden cultivators in other parts of Southeast Asia evaluate paddy fields highly in relation to rice production, but value swidden fields for other crops that they either wish to consume or sell (Baird, 2008).

By far the most popular reason given (60 of the 88 household representatives) for preferring wet-rice agriculture over swidden is that many farmers felt that wet-rice agriculture is much less work when compared to swidden. A wet-rice cycle in the Research Area is somewhat different than most of the rest of Laos, as it includes plowing the fields early in the year, usually around March. Plowing is done by using a two-wheeled tilling machine (see Figure 5.1 in chapter five) that is almost always driven and guided by a male tiller.⁴⁸ Usually a couple of able-bodied young men set aside a day to till one of the participant’s fields. They take turns tilling small sections known as a *phawv* (usually measured out to be a tenth of a hectare) until the entire targeted area has been plowed. They continue to set aside future days to till the next person’s field until all participants’ fields are tilled. Once the paddy fields are plowed, they are then left alone until the arrival of the rainy season in May, at which time the fields are planted with rice transplants.

⁴⁷ Follow-up interviews with the 65 households with access to paddy fields found that 53 households relied on paddy fields to grow only rice and not much else. As such, most of these households stated that they would like to have more swidden fields to grow cash crops.

⁴⁸ I have heard of cases where women operated the paddy tiller but have never witnessed it in person.

Depending on the arrival of the rains, planting can take place anywhere from late May to as late as July. Unlike tilling, which men always do, planting is performed by both men and women. After planting is complete, the paddy fields are left alone with minimal care until the rice is ready to be harvested, starting around October.⁴⁹ Usually, most of the wet-rice harvest is complete by the end of November, so that the villagers can get ready to welcome in the New Year. In some years when the harvest is late, the New Year celebration in the area is postponed allowing villagers more time to harvest. Harvesting is done by both men and women and generally involves multiple families working on one household's field at the same time. To summarize, wet-rice agriculture has only three periods in an annual year where heavy work is required: tilling, planting rice saplings, and harvesting (Figure 3.21). In other words, while labor is still necessary, the labor is essentially concentrated into three distinct phases. This means that villagers can plan out the paddy season, be around to perform the necessary activities at those times, and then leave for long periods of time (to hunt or do other activities). Furthermore, modern technology such as the tilling machines (mentioned above and in chapter five) makes paddy fields much easier to prepare and maintain. In fact, villagers have stated to me that the manual labor involved in cultivating lowland paddy has gone down significantly within the last decade for paddy cultivation and maintenance due in part to advances in technologies.

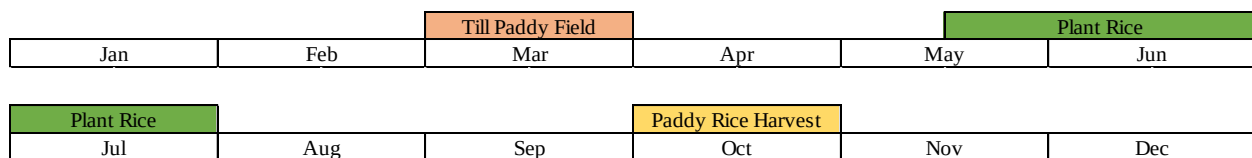


Figure 3.21: Simplified annual wet-rice agriculture labor cycle. Chart by P. Vue

⁴⁹ Some maintenances are necessary to maintain the paddy dikes but villagers stated that the dirt in the Research Area are very dense and sticky and as such, the walls, once terraced, hold very well. Villagers even stated that they actually have to hammer the walls to create new waterways.

When compared to wet-rice cultivation, Hmong villagers overwhelmingly claim that swidden is much more labor intensive. According to villagers, farmers involved in swidden agriculture generally clear the fields in early to mid-February. If the area is being cleared for the first time, the general routine is to clear out the underbrush with machetes but in some cases also with hand-held gas-powered weed whackers. Larger machines are not used for swidden agriculture because many of the swidden fields are on steep slopes where maneuvering the machines is very difficult. Furthermore, many of the subsistence swidden fields are far away, which makes it difficult to transport these machines to those places. Once the underbrush has been cleared out, the farmers then cut down the remaining trees with hand axes or in some cases with chainsaws. The cutting down of trees is usually done by men but in some cases, women can also be observed cutting down trees, although usually only the small ones or shrubs, etc. Fields that have been cleared the previous year generally do not have trees to be cut down, which decreases the labor required. The cut underbrush and trees are left in the fields to dry for a couple of weeks before being burned with carefully managed fires. Villagers would have to constantly make visits to the drying fields to pull any weeds (by hand) growing in the fields. Many times, the larger tree trunks and branches are also hauled back to the villages to be used as firewood. Burns are usually done in late March to early April. The fields are then left alone until May besides the constant weeding. I lost count of how many times I saw Hmong women throw up their hands and scream, “*teb fab li os lawv es ntuj pab os!* (help us sky⁵⁰, the swidden fields are so entangled [with weeds]”).⁵¹ In May, rice and other vegetables are sown into the fields (using a dibble stick to make holes in the

⁵⁰ The Hmong traditionally call upon the “*ntuj*” or sky for help at times of distress or fear. The “*ntuj*” is seen as an all-knowing entity similar to God in Christianity.

⁵¹ In contrast, I did not once hear Hmong women complain that inundated paddy fields are “*fab fab li*.”

ground and then planting by hand) in straight lines. Because the Research Area is very hilly (and in general, Laos altogether), many of the swidden fields are located on slopes. These fields are especially labor intensive and difficult to manage.⁵² Weeding and general field maintenance are performed weekly throughout the wet season until the rice is harvested starting around October and continuing until December. Although fields used more than one year require less labor for tree cutting and clearing, they generally require much more labor (generally female) for weeding, compared to new fields. Because a wide variety of crops are grown in swidden fields, as compared to lowland paddy, villagers must constantly go to the fields to tend to and harvest different crops (different crops mature at different times).⁵³ After gradually harvesting different crops over many months, farmers typically leave their fields alone until February of the following year, at which time the cycle starts again. This is a very simplified synopsis of the actual work needed to maintain swidden agriculture. It can be much more complex depending on the crops grown and for what purpose (Figure 3.22).

		Clear Field		Burn Field		Plant Rice/Greens	Field Maintenance
Jan	Feb	Mar	Apr	May	Jun		
Field Maintenance				Harvest Rice			
Jul	Aug	Sep	Oct	Nov	Dec		

Figure 3.22: Simplified annual swidden agriculture labor cycle. Chart P. Vue

Although swidden agriculture is very labor-intensive, some farmers still prefer it to wet-rice agriculture. Reasons for this include the fact that farmers can plant more crop varieties for household consumption, that they have always done swidden agriculture and so are familiar with

⁵² Many villagers in the Research Area stated that it is much easier to paddy because paddy fields are flat so walking around and tending paddy fields are much easier than trying to walk up and down swidden fields on steep slopes.

⁵³ Unlike mono-crop rice paddy fields where villagers can wait until the rice matures to harvest all at once, swidden fields planted with different crops required villagers to constantly visit the fields to harvest certain crops.

the system, and that in some years the rice yield is higher with swidden than it is for wet-rice agriculture. However, the most common and perhaps most persuasive reason is that swidden allows farmers to generate additional income by growing cash crops. Ten of the 11 households that reported preferring swidden to paddy agriculture stated that this is their number one reason for why they much prefer to practice swidden agriculture.

Table 3.2

Cash Crop Annual Labor Cycle

Month	Manual Labor
January	Plant Peanuts (2nd Season)
February	Harvest Cassava
March	Plant Corn (1st Season), Harvest Corn (2nd Season), Harvest Cassava, Harvest Peanuts (2nd Season)
April	Plant Corn (1st Season), Harvest Corn (2nd Season), Harvest Cassava, Harvest Peanuts (2nd Season)
May	Plant Cassava, Plant Peanuts (1st Season)
June	Plant Cassava, Plant Peanuts (1st Season)
July	Plant Cassava
August	
September	Harvest Peanuts (1st Season)
October	Harvest Corn (1st Season), Plant Corn (2nd Season), Harvest Peanuts (1st Season)
November	Harvest Corn (1st Season), Plant Corn (2nd Season)
December	Plant Peanuts (2nd Season)
<i>Note.</i> 1 st Season refers to the first season for that crop in an annual year cycle, 2 nd Season refers to the second season for that crop in an annual year cycle as some crops have more than one season per annual year. Table by P. Vue.	

Indeed, the introduction of cash crops such as corn, peanut, and cassava have altered the swidden cycle. For example, farmers involved in corn production work the field year-round as farmers can get two harvest seasons per year with corn. The first corn crop is sown around October

and harvested in February or March. The field is then almost immediately reseeded with corn kernels that would then be ready to be harvested in September/October and then again almost immediately reseeded with corn kernels to begin the process again. It is important to realize that the majority of swidden farmers are involved in growing multiple cash crops in addition to planting rice and green vegetables. As such, swidden is very labor-intensive and practically requires year-round maintenance (Table 3.2).

3.3.8 Usage breakdown between swidden and paddy agriculture. Fifty-eight households stated that they use paddy fields to grow rice for household consumption. The only exception is when there is a severe drought and no water is available, in which case they either resort to growing other crops or completely abandon the fields until the following year. Very few households can generate additional income from paddy fields, as almost all the harvested rice grains are consumed in the home. In fact, only five of the 58 households stated that they sold surplus rice. Households that do sell rice usually sell to other villagers or to the local market at approximately 6,000 to 9,000 Lao kip (US\$0.75-\$1.13) per kilogram. Even if more households were able to produce surplus rice, many would still choose not to sell any as such excess rice is kept as a safety net, just in case the next year's harvest is not as fruitful. As such, villagers tend to view wet-rice agriculture as a necessity to produce rice to eat and not as a method for generating income. There were seven households that have paddy fields but were not currently using the land, and 35 households that do not have paddy fields, for a total of 42 households that were not practicing wet-rice agriculture for either growing food or as a way of generating additional income. Of the seven households that do have paddy fields but were not using the fields, two households stated that they were not using their paddy fields because the fields were too far away, two were not using their paddy fields because there was no water, and two households owned small

businesses and stated that they did not have time. Finally, one household just bought its paddy fields the year I conducted the research so it has not started using the fields yet. All these households claimed to be wet-rice agriculturalists. This suggests that perhaps they may be trying to give the impression that they are abiding by the Lao government's policies to conduct wet-rice agriculture.

Some of the additional crops grown in swidden fields for household consumption include cucumbers, watermelons, squash, leafy greens, cabbages, and beans. Many farmers have also taken advantage of being able to grow a variety of crops in swidden fields and have started growing cash crops such as peanuts, cassava, and corn to sell as a way of generating additional income. For example, a farmer growing cassava reported farmers can sell cassava harvests to Vietnamese companies for anywhere from 1,000 to 1,500 Lao kip (US\$1.25-\$1.88) per kilogram, while corn can be sold for anywhere from 1,000 to 3,000 Lao kip (US\$1.25-\$3.75) per kilogram. In all, 64 of the 100 households surveyed stated that goods grown in their swidden fields are consumed by the household and sold. However, six of the 64 households had just obtained swidden fields the year I conducted my research, so they had yet to profit from the practice at the time I spoke with them. In addition, four household representatives stated that all the crops harvested from their swidden fields are consumed by the family. On the other hand, 25 household representatives claimed that they planted only cash crops in their swidden fields and that they grew rice in their paddy fields, or if they do not have paddy field, they would then sell the cash crops and use some of the income to purchase rice either from other villagers or from local markets. Finally, three households claimed that they do not own any swidden fields at all while four households had swidden fields but were fallowing them, for a total of seven households that were not practicing swidden. Interestingly, the sheer number of swiddeners around the Research Area contradicts data that

suggest most prefer wet-rice agriculture. However, it may also be that most villagers do prefer wet-rice but do not have paddy fields, so they are instead practicing swidden, or it may be that many were just saying they prefer wet-rice to align themselves with government policies.

3.3.8.1 Food breakdown. Households in the Research Area utilize various strategies in different combinations to obtain food for family consumption (Tables 3.3 – 3.6). For example, Household #30 does not practice agriculture. Instead his household obtains food through raising domestic animals (18 percent)⁵⁴, NTFPs (5 percent), wild meat (2 percent), and through other means (75 percent).⁵⁵ Household #9 gets its food from rice paddy agriculture (60 percent), livestock (10 percent), NTFPs (1 percent), wild meat (9 percent), and through other means (20 percent). The variations between household food strategies meant that analyzing the responses to produce any meaningful food intake statistics was a difficult task. Below is a figure (Figure 3.23) generated to show average household food intake according to villagers' responses.⁵⁶

⁵⁴ All percentages are rounded to the nearest whole number.

⁵⁵ There are two "Others" categories. The first "Others" category concerns food and is comprised of food items that the household did not grow or harvest themselves. Thus, crops, domestic meat, wildlife meat, and NTFPs purchased from the market or were gifted to the household were grouped into the "Others" food category. In hindsight, this was poorly structured as this meant that a household's actual wildlife meat consumption may be higher than what was reported. Take, for example, a hypothetical case in which a household reported that its total wildlife meat consumption was 10 percent of its total food consumption while the "Other" category made up 20 percent of its total food consumption. However, half of the "Other" category was wildlife meat, meaning that 10 percent of its total household consumption was also wildlife meat for a total of 20 percent wildlife meat consumption. Unfortunately, due to how the survey was designed, I kept the data collected as is without trying to divide up the "Others" category. At the time of the research, I felt this was a better option than to ask villagers to go back and split up their "Others" category and then have them merge the smaller groups into the other categories. The second "Others" category concerns income and is comprised of income that was generated through other means beside those listed in the surveys. So, income received as gifts or through timber sales were considered to be "Others" income as the income were not generated through the sales of a household's crops, livestock, harvested wildlife meat and NTFPs, or from working jobs.

⁵⁶ The average percentages were calculated using data provided by households that reported using that strategy and answered the question. It does not apply to households that were not utilizing that strategy or did not answer the question.

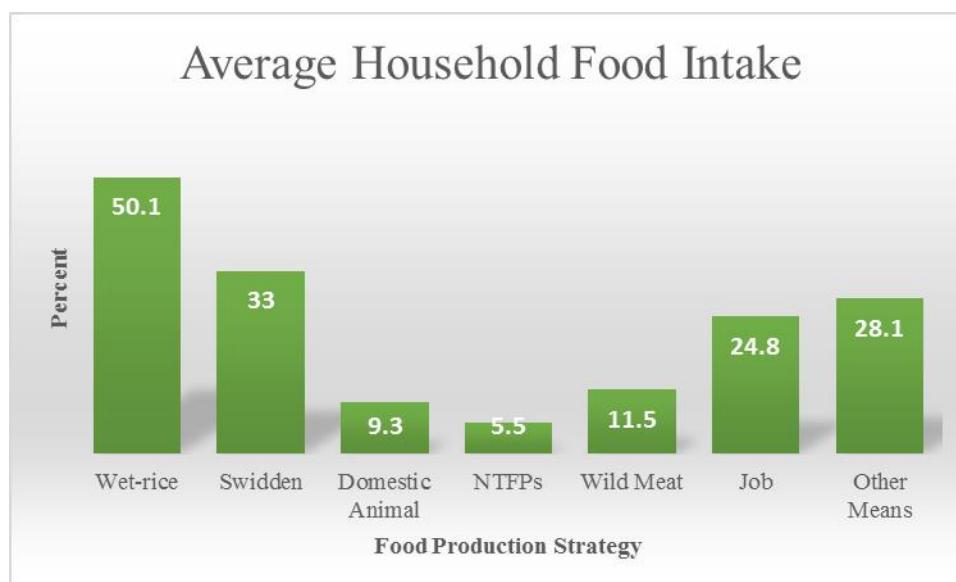


Figure 3.23: Average household food intake by production strategy in the Research Area. Note that the percentage for wild meat in the chart is 11.5 percent. This is different from the wild meat consumption percentage calculated in section 3.5.2 (11.8 percent). This is because the above percent was calculated using data from all households that answered this question while the percentage calculated in section 3.5.2 used only data from households that answered both questions as stated in section 3.5.2. Chart by P. Vue.

3.3.8.2 Income breakdown. As stated above, only five of the 58 households practicing paddy agriculture were able to produce surplus rice to sell as a way of generating additional income. The average income generated from the sales of rice for these five households was approximately 26 percent of their annual household income. No household representatives stated that they used their paddy fields solely for producing rice to sell.

Not surprisingly, determining the average income generated from swidden per household was quite difficult, as there are multiple crops grown in them, and different crops are harvested at different times. What can be presented, however, is that 97 of the 100 households have access to swidden fields (either through owning or renting). However, four households are not using their fields, while an additional four households are using their fields to grow crops for household consumption only. This leaves 89 households that are using their fields to grow greens (e.g.,

vegetables) for both household consumption and to generate income.⁵⁷ However, six of the 89 households have only recently been involved with the cultivation of cash crops and as such, they have not yet profited from the practice. This leaves only 83 households that have been able to generate additional household income through predominantly cash crop swidden agriculture. The average percentage of the total household income earned from swidden fields for these 83 households is 52.7 percent.⁵⁸ The income data suggests that many villagers are dependent on swidden agriculture to generate household income. In fact, many households reportedly obtain 100 percent of their income from their swidden fields.

Most farmers grow different varieties of rice, cucumbers, watermelons, beans, and other fruits and vegetables for household consumption, but some farmers also sell their goods at the local markets. This occurs in two ways. The first involves farmers taking their goods to the local market and setting up temporary stalls on grounds next to either permanent stalls or other open areas. These temporary stalls are quite simple and require just a sheet of cardboard or straw mattress that is placed on the ground. The goods are then displayed on the cardboard or mattress for shoppers to examine. Farmers that do not have large quantities of agricultural products to sell usually use this method to market their produce. Being able to sell produce in this way has two advantages. One is that the sellers can generate some income, and the other is that the produce does not go to waste, as many villagers do not have refrigerators to slow down harvested produce from spoilage.⁵⁹ The other method that farmers use to sell their goods is to arrive early and sell the

⁵⁷ Cassava, corn, and peanut are grown in my Research Area to generate income. These are discussed in-depth in chapter five.

⁵⁸ 52.7 percent was derived from taking the reported income from swidden fields for the 83 households. Eight of the 83 households reported earning 100 percent of their household income from swidden agriculture (cash crops).

⁵⁹ Villagers generally only harvest what they can eat within the next few days to prevent unnecessary loss through spoilage. In other words, they harvest a little at a time for household consumption and only harvest large quantities if they plan to sell the produce or if the produce is starting to go bad in the fields due to the weather, insects, etc.

goods in bulk quantities to either permanent stall vendors or to middlemen, some of whom set up their temporary stalls for reselling the goods. The benefit to the farmers is that they can unload their produce quickly and go home, while the benefit to the temporary stall workers is that they are able to make some money from selling the produce even though they did not cultivate what they are selling. Many of the middlemen are young Hmong women around 13-16 years of age who attend school in the day and then go to the market at night to partake in these income-generating activities. On good nights, these middlemen can make around 50,000 Lao kip (US\$6.25). However, more and more Hmong villagers are becoming cash crop farmers focusing on cassava, corn, and peanuts. This issue is further discussed in the following sections as well as in later chapters.

Table 3.3: Ko Hai Village			
Food Consumption		Income	
Wet-Rice	46.7	Rice Paddy	18.3
Swidden	36.3	Swidden	60.6
Livestock	9.6	Livestock	15.4
NTFPs	5.9	NTFPs	4.3
Wild Meat	12.4	Wildlife	11
Jobs	21.3	Jobs	42.2
Others	28.3	Others	40.7

Table 3.3: Food consumption and income for Ko Hai village. Numbers expressed as a percentage and are rounded to the nearest tenth of a percent. Table by P. Vue

Table 3.4: Thong Pei Village			
Food Consumption		Income	
Wet-Rice	50.6	Rice Paddy	20
Swidden	16.9	Swidden	33.9
Livestock	7.6	Livestock	12
NTFPs	4.1	NTFPs	4
Wild Meat	12.1	Wildlife	15.4
Jobs	50	Jobs	35
Others	21.1	Others	53.7

Table 3.4: Food consumption and income for Thong Pei village. Numbers expressed as a percentage and are rounded to the nearest tenth of a percent. Table by P. Vue

Table 3.5: Laksao Central Area			
Food Consumption		Income	
Wet-Rice	63.8	Rice Paddy	55.0
Swidden	38.1	Swidden	40.4
Livestock	10.5	Livestock	14.6
NTFPs	6.4	NTFPs	24.0
Wild Meat	7.5	Wildlife	14.0
Jobs	6.5	Jobs	30.0
Others	34.3	Others	53.2

Table 3.5: Food consumption and income for the Laksao central area. Numbers expressed as a percentage and are rounded to the nearest tenth of a percent. Table by P. Vue

Table 3.6: Research Area			
Food Consumption		Income	
Wet-Rice	50.1	Rice Paddy	26.0
Swidden	33.0	Swidden	52.7
Livestock	9.3	Livestock	14.6
NTFPs	5.5	NTFPs	11.9
Wild Meat	11.5	Wildlife	12.8
Jobs	24.8	Jobs	36.4
Others	28.1	Others	46.7

Table 3.6: Food consumption and income for the Research Area. Numbers expressed as a percentage and are rounded to the nearest tenth of a percent. Table by P. Vue

3.4 Domestic Animals

Domestic animals are an important source of food and cash income in Laos (Knips, 2004) and were estimated to generate approximately nine percent of the country's GDP in the mid-2000s (Chilonda, 2005). Other reasons for raising domestic animals are to take advantage of animal labor and manure production, as a form of wealth accumulation, and for various cultural uses. While my research focused on harvest and use of wildlife and other natural resources, I did conduct a short survey on domestic animal ownership to get a more complete picture of livelihood strategies in the area.

Keeping and raising livestock is popular among villagers throughout Laos, including in the Research Area, where 79 of the 100 household representatives surveyed and interviewed own domestic animals. These domestic animals include: Asian cattle, water buffalo, pigs, goats, chickens, and ducks.

3.4.1 Asian cattle and water buffalo. Asian cattle, and to a much lesser extent, water buffalo, are the two large animal species that are most commonly kept by Hmong villagers. Water buffalo were historically kept to be used as a source of cheap manual labor to till paddy fields by

lowland Lao people. The Hmong, on the other hand, did not historically keep water buffaloes for this reason because they were not historically wet-rice paddy agriculturalists. Rather, many cattle and/or buffalo-owning household representatives who were interviewed in the area stated that one of the primary reasons for owning such large animals is so that they can sell them for money in times of financial need. Another reason for raising large cattle and buffaloes is so that the animals are available to be sacrificed during special or ceremonial events such as weddings, funerals, or the New Year. Still other reasons for raising cattle and buffalo include entertainment, such as for Hmong bull fighting, or simply to keep as pets. In fact, one of the fastest growing sports within the Hmong ethnic group in Laos is bull fighting. These events attract huge crowds and are held all over the country in Hmong-dominated communities. There are now many Hmong groups working to expand this sport even more. I was even asked by a very prominent (and rich) Hmong villager to help conceive and implement a strategic plan to start an annual bull fighting tournament that would feature all the “greatest bull fighters” that Laos has to offer. These events are also huge moneymakers via gambling. It is normal for thousands of US dollars, sometimes in the tens of thousands, to change hands during bull fights because of gambling, even though all forms of gambling are technically illegal in Laos.

In my Research Area, 43 household representatives reported keeping at least one Asian cattle while four household representatives reported keeping at least one water buffalo. Although many households keep these large animals, many of these households lack the land and/or capacity to adequately house and feed such large animals. Thus, most animals are taken to village-designated areas where they are either allowed to free-roam or are tied to trees with long ropes and then allowed to graze nearby areas within the rope’s length. At night, the animals are retrieved and housed in small, standing-only, wooden holding pens until the morning. Some animals can stay

out in the fields overnight, but this is risky as there is always the possibility of the animals getting free of the ropes and wondering off or, in some cases, being stolen and sold or slaughtered by strangers. Usually men look after these animals, but women are typically the ones who chop up banana stalks and other greens to feed them if the animals are already in their pens.



Figure 3.24: Asian cattle kept in garden as no fields were available. Photograph by P. Vue.



Figure 3.25: Asian cattle in holding pen. Notice the fresh wound on the neck from a recent bull fighting event. Photograph by P. Vue.

3.4.2 Domestic pigs and goats. Pigs are the most popular medium-sized domestic animal kept by villagers, and 19 household representatives claimed to own pigs. Goats are another medium sized animal species that is occasionally kept by villagers. However, only one household interviewed reported having goats. Both species, but especially pigs, are kept as both a source of income and for ceremonial purposes. For example, most Hmong ceremonies require the sacrifice of at least one or two pigs in combination with a few chickens. Households that do not have their own pigs would usually go from village to village inquiring about whether any households have pigs for sale a few days before the ceremony is to take place. Most of the pigs raised are black indigenous varieties as are typical in the uplands of Laos.



Figure 3.26: Pigs are generally kept in pigpens. Photograph by P. Vue.



Figure 3.27: Goats allowed to roam free. Photograph by P. Vue

Most pigs in the Research Area were kept in pens where they were fed chopped up banana plant stalks (*kav tsawb*) mixed with other greens two to three times a day to fatten them up. A few pigs were able to free roam, but this occurs only in large semi-fenced in areas (although most pigs can roam free in more rural areas). On the other hand, goats are usually allowed to free-roam throughout the village and along the edges of roads. Both men and women take turns caring for and feeding enclosed pigs while goats are usually left to graze for themselves.

3.4.3 Chickens and ducks. The most common domestic animal kept and raised by most households in the Research Area are chickens and to a lesser extent, ducks. In Laos, indigenous varieties of chicken are the primary type of poultry that are raised by households and smallholders, especially in the uplands. Seventy-two households interviewed reported owning at least a flock of chickens, while 12 household representatives stated that they owned ducks.



Figure 3.28: Chickens kept in flocks.
Photograph by P. Vue.



Figure 3.29: Ducks in holding cage and roaming free. Photograph by P. Vue.

Chickens and ducks are usually raised in a scavenging system where the animals can free-roam. While this system requires less time commitment and energy output from household members, it also results in low growth rates and limited egg production, in addition to the high mortality rates amongst the chicks. Some households also feed the chickens rice and corn in the early morning and evening to supplement their diet. Usually women feed the chickens. However, men usually care for and feed fighting cocks as they see the fighting cocks as “money-generating fighters” and as such, take pride in taking care of and feeding the “fighters”. Also, these chickens are more valuable. Ducks are probably the animal with the least amount of household care. They can roam around semi-fenced yards and are usually left to find food on their own. Nevertheless, they do best in places with a good supply of water.

3.5 Hunting

Seventy-three of the 100 household representatives interviewed stated that they have at least one household member in the home who hunts (see Figures 3.30, 3.31 for photos of Hmong hunters). However, hunters in 28 of the 73 households stated that they prefer to not hunt and only

do so to have enough to eat. Some of the more common reasons given for why these hunters prefer to not hunt include advancing age, limited places to hunt, finding it too hard and time consuming, and personal safety. Other reasons include fear of supernatural beings and being aware of decreasing wildlife populations. For example, when I asked a young man why he does not hunt, he reached out to his son standing nearby and said, “*Kuv tsis yos tsiaj hav zoo vim kuv xav kom kuv cov me nyuam pom cov tsiaj uas kuv pom*” (I do not hunt because I want my children to see and experience the animals I see and experience). Finally, 37 household representatives interviewed stated that no one in their household hunts.

Villagers who hunt usually do so on their own terms. In other words, most of the other members of a hunter’s household do not actively encourage him to go hunting. In fact, most of the times household members voice their displeasure is when hunters decide to go hunting. This is because hunting takes time away from other household activities such as farming, caring for children, or pursuing other avenues to generate income. For example, I went with a group of hunters to a favored hunting spot located approximately 50 kilometers from the village for a planned week-long hunting trip. However, the day after we arrived, the wife of one of the hunters called his cell phone to say that one of their children was sick and that he needed to return home. We did not want him to return alone (partly due to the distance and partly because we traveled by boat and had only one boat) so the group decided to cut the trip short and return the following day. We later found out that the wife made up the story and that in truth she did not want her husband to go hunting regardless. The level of support from villagers is similar. Sixty-two of the 100 households surveyed and interviewed stated that most of the villagers do not actively support hunters or make special requests for hunters. However, if a hunter returns with a large kill, such as wild pigs (*Sus spp.*), then he will butcher the animals and sell it in pieces to other villagers. One

could theorize that the lack of support for hunter among villagers is because other villagers want to be the ones to harvest the animals. While this is plausible, it seems highly unlikely, as most of the villagers do not hunt.



Figure 3.30: Hmong hunter with a .22 rifle. Hunter's face was blacked-out to conceal identity. Photograph by L. Xyooj.



Figure 3.31: Hmong hunters on a hunting trip. Photograph by P. Vue.

3.5.1 Hunting travels. The data collected suggest that hunters tend to travel the same distance to hunt regardless of whether it is the dry season or the wet season. The actual distances recorded indicate that the average distance hunters travel to hunt in the dry season is approximately 16.6 kilometers, while the average distance traveled during the wet season is 17.7 kilometers. The average number of days that hunters spend hunting is 4.7 days per 30-day month in the dry season and 4.4 days per month during the wet season.⁶⁰ However, there are preferences on an individual level. For example, 15 hunters reported preferring to do most of their hunting in the dry season.

⁶⁰ My data suggest that hunting travel and hunting efforts (number of days spent hunting) is similar year-round. This data contradicts what Johnson et al. (2005) found in their research as they found that villagers hunting efforts were greatest from September to March. However, Johnson et al. (2005) conducted research with the Akha, Khamu (Khmu) Kui, Tai, and Mien as well as the Hmong (15 of 320 households). It could be that they arrived at their conclusion by combining all the groups.

Some reasons given are that it is much easier to walk around on dry ground than on wet ground, there are less land leeches, and more time is necessary to hunt successfully as there are fewer animals seen due to less tracks being visible. On the other hand, 10 hunters preferred and do most of their hunting in the wet season. A few reasons cited are that it is easier to approach animals without them noticing, as the ground is soggy and will mask footstep noises and that in general there are just more animals around.

In summary, Hmong hunters can travel great distances to hunt.⁶¹ There is no consensus on what time of the year to hunt. Hunters tend to have their own preferences. Many hunters also hunt based on their availability and needs. For example, many hunters state that they go hunting when they can spare time away from their agricultural fields or when they need food. Some hunters also hunt based on the species targeted (e.g., hunting squirrels and wild pigs in August, September, or October to coincide with fruit and nut ripening).

3.5.2 Wildlife meat consumption. Sixty-nine of the 100 household representatives surveyed and interviewed (some interviews were done with more than one members in a group setting) answered both questions asking 1) how many days out of a 30-day month is the household consuming wild meat and 2) wild meat makes up approximately what percentage of the household's total food consumption?⁶²

The average number of days out of a 30-day month that these 69 households reported consuming wild meat was approximately 4.7 days. For these same households, wildlife meat reportedly constitutes an average of approximately 11.8 percent of their total monthly food

⁶¹ Hunting, including where hunters are hunting, is covered in more details in chapters four, five, and six.

⁶² Many households answered only one of two questions so they were not added to the data analysis.

consumption.⁶³ It is important to realize that most of the animals eaten are small game animals such as rodents and birds or pest animals such as wild pigs. Other animals are too valuable to be eaten and are instead sold to Vietnamese and Lao wildlife traders, but this issue is covered in a later chapter. In comparison, Johnson et al. (2005) in their study of wildlife hunting and use in Luang Namtha Province in northern Laos, with multiple ethnic groups, including the Hmong, found that Hmong villagers consumed wildlife meat an average of almost seven times in the week prior to their survey.

3.6 Chapter Review and Concluding Thoughts

This chapter focused on the Hmong as an ethnic group, but also on the general circumstances of the Hmong in the Research Area. It started by highlighting Hmong migration from present-day China to Laos. The chapter then turned its attention to Hmong swidden agriculture, including outlining a few early studies done on Hmong agricultural practices. These studies are of utmost value to scholars of Hmong studies. They have also contributed a wealth of knowledge to many academic fields, including but not limited to: cultural ecology, agriculture, resource use, and local ecological knowledge. However, in the truest sense, they have been greatly simplified, as the actual practice is much more complex and variable.

The process of simplifying swidden agriculture does not just occur when the Hmong are involved. Rather, it is an all too common theme seen all over the world and is affecting countless other ethnic groups. Not only are swidden practices being simplified, they are then lumped together into one practice and blamed for deforesting large swaths of forestland in countries around the world, including Laos. Regardless of their veracity, these narratives crucially influence what governments can do to villagers and their ways of life once when accepted as fact. These

⁶³ Note that the 11.8 percent is different from the 11.5 percent calculated in section 3.3.8.1. See Figure 3.23 explanation for what caused the difference in percentages.

consequences are clearly seen in Laos where the Lao government has spent the last few decades trying to eradicate the practice, sometimes through questionable means such as resettlement, creation of protected areas, and prohibiting villagers from entering those areas.

The chapter then turned its focus to the Hmong in the Research Area, including highlighting their arrival to the area. Interestingly, their arrival to the Research Area bears a striking similarity to their migration from current-day China to Southeast Asia more generally. As discussed at the beginning of the chapter, studies suggest that the Hmong were historically pioneering swidden agriculturalists who migrated to Southeast Asia, including Laos in search of land to practice swidden agriculture. This search for available land to farm and the desire to avoid conflict was also evident with villagers in the Research Area, albeit to a much lesser extent.

Hmong beliefs concerning the wild environment were also a major part of the chapter. What is important here is that the Hmong were not always the environmental degraders and the threat to wildlife that many narratives say they are. They historically did not just go into a forest and shoot anything they saw. Rather, how they behave in the forests and interact with the available resources and wildlife are regulated by their environmental beliefs, many of which are environmentally friendly.

Data collected suggest that many Hmong households reported preferring wet-rice agriculture to swidden cultivation for various reasons, including villagers claim that paddy cultivation is less labor intensive than swidden. However, these responses must be taken with a grain of salt, as it may be that some responses might have been influenced by government rhetoric which degrades swidden and paints the lumped-together practices as backward and preferred only by “*neeg npaj nauj*” (dumb hicks) while valuing lowland wet-rice as more in tune with the “modern” world. As this is government policy and practice, many villagers may have stated that

they prefer wet-rice to swidden to align themselves with this government agenda. Perhaps in the minds of many villagers, repeating this will keep the government away. The reality is that swidden provides villagers with opportunities to grow various crops which can then be consumed in the household or sold as commodities to generate income. The data collected from this study suggest that a significant amount of households' income is generated through the sale of crops, including cash crops (which will be discussed in chapter five) grown in swidden fields. Thus, eliminating swidden agriculture may eliminate one of the surest ways for villagers to generate household income. This, in turn, may lead to increased hunting and wildlife trade.

The next chapter will go into more depth about government swidden policies and how they are changing Hmong livelihood strategies, including how they are interacting spatially with their environmental surroundings.

Chapter Four: The Swidden Slippery Slope

“So, where are we going?” I asked as we made our way to the nearby Laksao market to purchase ammunition for a .22 caliber rifle that we were taking with us on this particular hunting expedition (I of course, would be paying for the bullets). “Far away,” answered one of my companions. He continued, “We are going to take a boat upriver for a hundred kilometers or so and hunt.”⁶⁴ “Why so far? Why not just go hunt in the Nakai-Nam Theum NPA?” I further inquired. Another companion chimed in and said, “We got time and nothing to do so we are going to buy a few cases of Beer Lao (Laos’ largest beer brand), a few bottles of rice whiskey, and we are going to show you a good time. Plus, there are more animals up there as there are less people around.” “Yea, you are lucky that we have nothing to do; no swidden to farm, no paddy to farm, nothing so we are going to take you hunting,” another companion added, to which all my companions burst out laughing.

We arrived at the market, parked our motorcycles, and made our way to a shop located on the edge of the market. The shop seemed to specialize in selling outdoor equipment, given that boots, rain ponchos, hats, and fishing nets, were strategically placed around the shop waiting for buyers. We made a beeline to the back of the shop where we were met by a middle-aged man wearing dirty pants, a t-shirt, and sporting a few days’ growth of facial hair. One of my companions spoke to the man in Lao, after which the man walked further into the back of the store and came back with a little cardboard box full of bullets. My companion opened the box to make sure it was full and that the bullets were in decent shape. After confirming the bullets were good, he nodded in my direction to pay the man and we were off.

⁶⁴ The Nam Nyouang River.

4.1 Swidden Agriculture

Chapter one introduced us to three broad topics that are primarily responsible for changing Hmong livelihood in the Research Area and more generally, in Laos: 1) government policies on swidden agriculture, 2) economic income opportunities, and 3) changing Hmong spiritual beliefs. This chapter will now revisit the first topic: how Lao government policies toward swidden agriculture are altering Hmong livelihood strategies and how these changes are in turn affecting Laos' wildlife.

I suggest that the Lao government's initiative to decrease, halt, and eventually eradicate or, at the very least, to control the spread of swidden has in many cases only displaced swidden activities from places near villages or urban areas to more remote areas.⁶⁵ These displaced activities are bringing villagers into contact with forest and wildlife biodiversity that, ironically, is resulting in an increase in wildlife harvesting and trade. The second part of my argument focuses on poverty. Some studies of rural development and poverty in Laos (Chamberlain 2001, 2007; Daviau, 2001; Baird & Shoemaker, 2005) have suggested that poverty has sometimes been exacerbated in Laos due to government restrictions on swidden agriculture and that its reduction has sometimes led to rice and other food shortages; this in turn has encouraged rural people to increase hunting and wildlife trading in order to earn income to buy the food that they used to grow themselves in their swidden fields. For example, Steven Daviau (2001) reported that district-level government officials in Laos' Luang Namtha Province imposed serious restrictions on swidden agriculture without providing income generation or food production alternatives; this lead swidden farmers to become impoverished. Similarly, Chamberlain (2001) conducted an extensive study with 84 rural villages in 43 districts in northern, central, and southern Laos, wrote that, "The result

⁶⁵ There are very few swidden fields in true urban areas such as around Vientiane, Laos' capital.

[of restrictions to swidden cultivation] has been the impoverishment of swidden families through decreased rice yields, and, increased deterioration and degeneration of wildlife and forest resources by families attempting to compensate for rice shortages” (p. 89). Finally, Baird and Shoemaker (2005) writing about resettlement throughout Laos, suggested that “severe restriction of swidden agriculture” has “contributed to chronic food shortages, increased and over-exploitation of forestry and fishery resources” and that the “end result is generally increased poverty levels,” which in turn has encouraged unsustainable exploitation of wildlife and forest resources for the generation of income to buy food (p. 7). Despite the above observations by Chamberlain (2001) and Baird & Shoemaker (2005), which were made as part of broader studies, so far there have not been any studies that examine these circumstances in depth, either with the Hmong or with other ethnic groups in Laos.

In this chapter, I expand on previous work by demonstrating that the inability to practice swidden due to government restrictions has increased poverty in my Research Area because villagers are unable to grow enough food to eat or grow enough marketable agricultural goods to generate income. This has led to an increase in hunting and wildlife trade as villagers look for ways to compensate for this loss.⁶⁶ I also bring new understanding to the situation, arguing that the Lao government’s agenda to decrease swidden agriculture and replace it with wet-rice agriculture has caused considerable harm to wildlife populations for yet another reason: wet-rice agriculture is less labor intensive which allows villagers to spend more time hunting instead of tending their fields. Swidden agriculture, on the other hand, requires tending for most of the year, thus reducing the amount of time available for the long distance travel most hunting requires. I also show how the reality is that there are just not enough paddy fields for everyone to sustain their livelihoods

⁶⁶ Follow-up interviews showed that while many hunters enjoy hunting, many villagers also hunt because they have to and not because they enjoy hunting.

even though the Lao government is actively promoting wet-rice as a viable alternative to swidden. Villagers are therefore seeking out other ways, such as hunting, to meet those needs. Finally, I show how even households with adequately-sized paddy fields are still pursuing other ways to make money to buy non-rice foods; wet-rice paddy is grown as a mono-crop, unlike swidden which tends to incorporate rice as well as a wide variety of non-rice crops, thus addressing food security issues in a broader way.

I start by first presenting current discourses around swidden in Laos, including how and why the Lao government is portraying swidden agriculture as an impoverishing, outdated, and inferior practice to wet-rice agriculture. I then show how the Lao government is using these ideas to justify their plans to restrict, contain, and eventually eradicate swidden agriculture in the name of forest and resource conservation, but also as a way to modernize and raise people out of poverty.

Next, I address the questions concerning swidden as presented in chapter two, including discussions about villagers' knowledge of government policies concerning swidden and the hunting of animal species. Addressing these questions in this chapter is crucial to understand how and why Hmong villagers are responding to swidden restrictions the way they are. For example, I explain how swidden restrictions in conjunction with the desire to avoid being labelled as "backward" has led many villagers to want to build large permanent houses similar to lowland houses in concentrated areas; ultimately, this is causing overcrowding, which in turn creates poverty. I also show why many villagers are resorting to swiddening in more remote places in order to get away from government officials by addressing fines for clearing land and villagers' knowledge and understanding of protected area boundaries.

I then present real life scenarios as seen on-the-ground in order to present an in-depth analysis of the changes that swidden restrictions have on villagers' livelihoods. Specifically, I look

at how, because some villagers are unable to produce enough rice and other food items, these restrictions are causing increased poverty and how the practices utilized to make up these deficiencies are impacting the region's wildlife biodiversity. Finally, it is important to understand that this chapter focuses on swidden restrictions, and as such, my argument and case studies are built around showing how restrictions on swidden is affecting villagers' livelihoods, particularly, how swidden restriction is leading to increase hunting and NTFP harvest. The reality is that restrictions on swidden is not the sole cause of increase poverty, hunting, and NTFPs use. There are many other factors involved, some of which will be discussed in chapter five (economic earning opportunities) and six (changing beliefs due to technological advancements). However, restrictions on swidden do have a significant impact on hunting and NTFP use.

4.2 The Swidden Scapegoat

Due to emerging concerns regarding deforestation and natural resource degradation in Southeast Asia, including in Laos, starting in the late 1980s and early 1990s ("Committee," 1995; Vongsaly, 1995; Kinnaly, 1996; "Lao-Swedish," 1996; Domoto, 1997; Long et al., 1999; Fox et al., 2009), the Lao government launched a campaign to "modernize" and "educate" its citizens, including many of the country's ethnic minorities by passing laws and introducing regulations designed to protect the environment through eradicating swidden agriculture (Tsing, 1993; Tookey, 1997; Ducourtieux, 2006; Cramb et al., 2009; Fox et al., 2009). For example, Laos' first National Forestry Conference was organized in 1989 when Prime Minister Kaysone Phomvihane called for Laos to decrease its forest degradation.⁶⁷ Kaysone also called for the country to increase its forest cover to 70 percent (Mossberg, 2013). This goal is currently scheduled to be met by 2020

⁶⁷ Recall from chapter two and three that the majority of the Hmong villagers in the Research Area moved to the Research Area starting in the early- to mid-1980s. As such, they were allowed to clear lands then, which was one of the enticing reasons for many earlier households to move there. It was only afterward that land clearing became harder to do due to emerging policies aimed at halting such practices.

(FAO, 2016). Following this conference, a Tropical Forest Action Plan (TFAP) for Laos was drawn up and completed in 1990 which singled out swidden agriculture for eradication through the intensification of other types of land use such as agricultural crops, tree plantations, and commercial logging (Baird, 2014).^{68,69} Ironically, commercial logging and crop plantations, along with swidden, are the three most often cited causes of deforestation and forest degradation in Southeast Asia, including Laos (Robichaud, 2005).⁷⁰

Not only is swidden seen as being one of the primary causes of deforestation and degradation, it is also viewed as an unproductive agricultural practice that does not make use of all available resources and as such is inferior to the low-land dominated, wet-rice agricultural system.⁷¹ These portrayals are significant as they allow the government to label its many ethnic minority groups as outdated and backward and in need of government assistance by virtue of their connection to swidden. Finally, some studies also suggest that ongoing swidden activities may be directly or indirectly responsible for increasing poverty in some areas, especially in areas inhabited by ethnic minorities (Boonwaat, 2005; Windle, 2018). Thus, government policy-makers in Laos typically believe that eliminating swidden will not only help preserve the forest but will eradicate poverty as well.

⁶⁸ The Lao People's Democratic Republic Tropical Action Plan can be obtained from <https://portals.iucn.org/library/>

⁶⁹ The TFAP, launched in 1985 with support from the WB, UNDP, FAO and WRI, was a mechanism created to ensure that tropical forests and resources are used and managed in a way that ensures the sustainability of forest-based industries while at the same time promoting forest ecosystem conservation (World Bank, 1989).

⁷⁰ These three are still the primary reasons cited by the Lao government today.

⁷¹ This is the dominant view in Laos. However, it is largely incorrect as studies (such as those mentioned in chapter one, section 1.4.1) have shown that swidden is more productive than wet-rice in certain context and ecosystem settings. For example, Russell (1988) found that in terms of external energy inputs required, swidden is considered the most efficient form of agriculture in tropical environments.

In 2001, the Seventh Lao Congress was organized. The Party discussed, reaffirmed, and outlined their position to eliminate poverty by implementing the National Poverty Eradication Programme (NPEP) which aimed to promote strong economic growth, socio-cultural development, and environmental protection (“National Committee,” 2003). As opium and swidden were seen as causes of poverty (UNDCP, 1999),⁷² the environmental protection component was to be achieved through eradicating opium production by 2005 and gradually eradicating swidden agriculture in the uplands by 2010 (this goal was not achieved). The call to eradicate swidden echoed earlier sentiments by various government actors which argued for the eradication of swidden agriculture by presenting it as both primitive and devastating to the (MAF, 1999). These goals were to be achieved with the support of NPEP, which would collaborate with the Ministry of Agriculture and Forestry (MAF). NPEP was to promote development in poor rural communities located mostly in the uplands, while the MAF would initiate programs to develop “permanent wet-rice paddy agriculture” (MAF, 1999).

Unfortunately, these policies have severely limited villagers’ livelihood practices and ways of life (Cramb et al., 2009; Dressler & Pulhin, 2010); this is particularly so for upland peoples, mainly ethnic minorities including the Hmong. Many villagers are turning to lowland farming (predominantly wet-rice agriculture), cash crop production, trading, wage labor, and other occupations to make ends meet. Thus, swidden (and opium) restrictions have not only led to the loss, reassertion, realignment, and redefinition of livelihoods, but also cultures and identities (Ellen, 2012). Finally, existing studies (e.g., Novellino, 1998; Chamberlain, 2001, 2002; Robichaud et al., 2001; Tomforde, 2003; Bruun et al., 2009; Cramb et al., 2009; Rerkasem, Lawrence et al., 2009; Lilao, 2018) suggest that the increasing restrictions on swidden have had

⁷² Opium is covered in more detail in chapter five which deals with cash crops.

disastrous outcomes not only for local villages but also for the environment. Of particular relevance to my Research Area was Robichaud's (2005) Master's thesis which argues that increased wildlife trade *may be* partially responsible for forest perseverance; thus, restrictions on hunting *may lead* to increased forest clearing for swidden. I expand on this previous work by examining how swidden restrictions are altering Hmong livelihoods in my Research Area and how Hmong people are responding to these changes. Finally, I consider how these responses are affecting wildlife and other natural resources.

4.3 Use of Space in Response to Swidden Restrictions

Government land-use policies and practices have significantly affected Hmong livelihood strategies, including how they interact with the forest and use various natural resources. Perhaps two of the most obvious examples of government policies and practices pertaining to land use are the restrictions placed on swidden agriculture and the creation of NPAs, such as the Nakai-Nam Theun NPA directly to the south of my Research Area. While they might look attractive to some given that they promise to greatly assist in the protection and sustainable use of the forest and natural resources, it is less clear as to whether Hmong villagers truly understand these policies. Furthermore, it is not clear how they feel about the policies and, just as important, why they are responding to them as they are. Recall that the main question for this factor was: How are various Lao government policies, laws, and regulations affecting how Hmong villagers in the Research Area are spatially using the surrounding areas, including the forest for hunting and NTFP collection?⁷³

⁷³ Chapter two, section 2.3.1.

4.4 Villagers Awareness of the Government's Agenda

This section addresses whether villagers were aware of government policies encouraging where villagers should live and what livelihood strategies they should pursue.

4.4.1 Overcrowding and space at a premium. Data from the Research Area suggests that most Hmong villagers are aware of the government's desire to dictate where they should live. However, villagers do not know of any concrete plans that explain exactly where they should and should not build their houses. When asked this question, most interviewees provided general statements such as “the government does not want us to build homes in protected areas”; but, when asked if they know where the Nakai-Nam Theun NPA's boundary is, they would point in the general direction of the protected area and say something along the lines of “...it is over there across the dam.”⁷⁴ Other responses regarding the government's desire to dictate where Hmong villagers should live include vague statements such as “the government wants us to live in areas near roads so that we will have better access to markets and hospitals” or “the government wants us to settle down permanently in one area and not move around.” When asked about why they think the government wants them to settle down permanently in areas with roads, many replied that they believe the government wants them to “be modern” and not so *npab nauj* (similar to the term ‘dumb hick’ in English). This fits very well with the justifications for resettling upland people in Laos that are frequently articulated in Laos (see Baird & Shoemaker, [2005]).

The desire to build permanent houses (see Figures 4.1, 4.2)⁷⁵ in established villages and near roads in conjunction with an increasing population at the Research Area has led to decreased

⁷⁴ Although Hmong villagers were not able to tell me exactly where the Nakai-Nam Theun NPA border is, they do have a sense of the general location and would often talk about going into the “big forest” to “hunt and harvest NTFPs.” This issue is covered in further detail in chapter four, section 4.6.

⁷⁵ Hmong villagers define a permanent house (likely influenced by government officials and development discourses) as one that has a cement floor, cement sidings, and a roof covered with cement or metal shingles. There are many reasons why Hmong villagers, and villagers in general, would want to build more permanent, harder-to-move houses.

living space per family. New households are especially affected by the decreasing availability of space, finding it harder and harder to locate available patches of land around the villages that are large enough to build a single-room house on. For example, I was visiting the village headman in Ko Hai village one afternoon in June 2014 when a recently-married young man planning to move out of his parents' house came in seeking support and assistance from the headman in order to obtain enough land to build a house on. His parents gave him a tiny parcel of land right behind the *kwj tse* of their house (the gutter area where water from the roof hits the ground), but the parcel is not quite large enough to accommodate the house he wanted to build. Thus, he asked the headman to talk to the adjacent household living behind his parents to see if that family would be willing to give up a few meters so that he would have enough space to build his house. The village headman assured him that he would go and talk to the adjacent household, at which point the young man thanked the village headman and left. After the young man left, I asked the village headman if this was a common occurrence, and he confirmed that it was.

For one, living in permanent houses is a sign of wealth and prosperity which elevates one's status within the Hmong community. Permanent houses also offer more stability, an increase sense of meaning (Tuan, 1977) even if socially constructed (Marston, 2000), and a legitimate claim to the ground where the house is built in relation to surrounding space (Baird, 2008). This is especially important in Laos where most landowners do not have official land titles. Of course, this plays right into the hands of the Lao government in that villagers living in permanent houses are easier to monitor and control (see Baird, [2009b] for an analysis of how the Lao government views permanent houses and why they favor them over less-permanent houses such as traditional Brao or Hmong houses).



Figure 4.1: Permanent house in Ko Hai village. Photograph by P. Vue.



Figure 4.2: Permanent house in Thong Pei village. This household is among the wealthier households in the village. Also, many newer houses are brightly colored. Photograph by P. Vue.

Not only are villagers vying for space for themselves, but also space for their domestic animals. Piggens are getting smaller and smaller as villagers are forced to make room to accommodate people. Many Hmong villagers have given up on owning pigs altogether, which historically has been unheard of given the vital roles that pigs play in most Hmong events (e.g., New Year celebrations, weddings, funerals, *hu plig* [soul calling], and *ua neeb* [shamanistic] ceremonies). Large livestock such as cattle and water buffaloes are now mostly kept either in tiny stalls or in communal pastures far away from villages. This increases the chance of losing the animal due to theft or accidents. Many times, villagers told me that they had recently lost cattle to starvation because the collar or leash had become entangled on tree branches and so the animal was unable to move to new feeding grounds to obtain enough food to survive. Other villagers reported that their cattle would just disappear and that it was probably due to theft. Sometimes villagers would find their animals slaughtered and hacked into pieces for no apparent reason. Because the perpetrators were usually never caught, an aura of uneasiness and mistrust has started to be felt in the villages. For example, a villager told me about an incident that occurred in a nearby

village not too long ago. It involved a villager finding the hacked remains of one of his cattle. He became so enraged after unsuccessfully searching for the perpetrator(s) that he blamed the entire village for conspiring against him. He hired a powerful shaman to perform a ceremony in which the shaman cleaned some knives in a large bowl filled with water, cast a magic spell, and then had each person in the village (including the shaman but excluding those who were deemed incapable of slaughtering such a large animal) drank one spoonful of water. The magic spell made it so innocent villagers who drank the water would be blessed with prosperity and wealth while the guilty person(s) would die a sudden and unexplainable death within three months (if a villager refused to drink, he/she would automatically be found guilty and punished accordingly). However, there was an added stipulation that if no one in the village dies from a sudden unexplained cause (dying from an unexplained cause would identify that person as the one who slaughtered the cow), then the owner himself would die because he had unfairly blamed his fellow villagers.⁷⁶

Other consequences that villagers mention as having resulted from overcrowding include: a noticeable increase in garbage (villages are littered with plastic bags, etc.), more frequent livestock diseases (villagers informed me that events in which hundreds of chickens would unexpectedly die are now occurring more frequently due to lack of space), arguments between neighbors (especially over land access), noise pollution, and a decrease in living standards.

4.4.2 Use of surrounding space. Follow-up questions about how government policies dictating where villagers should live and what their livelihood activities should be are affecting how they are using the surrounding areas to meet their livelihood needs suggests that the policies are having some affect. For example, some hunters said that the government's decision to create the nearby Nakai-Nam Theun NPA and establish patrol checkpoints have made it a little more

⁷⁶ The Hmong are not the only ethnic group in Laos to do this. Other ethnic groups such as the Brao and Lao also have similar rituals (I. Baird, personal communication, March 30, 2018).

intimidating to hunt in the area.⁷⁷ They still actively hunt there, even if it is now a protected area, but they do take more precautions and hunt in larger groups. These same hunters told me that now they usually travel to hunting areas in two groups: a smaller group consisting of two or three unarmed hunters posing as traveling villagers and a larger group carrying hunting and camping equipment. The smaller group goes first to make sure there are no unexpected patrol posts along selected routes to particular hunting destinations. If they do encounter a patrol, they call back to warn the larger group to take an alternative route.

The government's agenda, encouraging villagers to pursue "less environmentally destructive" livelihood professions, is also affecting how Hmong villagers are spatially using the surrounding areas to meet their livelihood needs. A textbook example is the government's goal to convert the majority of swidden agriculturalists to wet-rice paddy farmers.⁷⁸ Not only has this initiative changed how Hmong villagers are spatially navigating and using the land, it has also actually backfired and caused more damage to the environment in many cases. This is discussed in later sections.

4.5 Fines for Clearing Land and Alternatives

Penalties for land clearing vary from place to place but usually involve fines, loss of land use, and in rare cases, jail time. For example, if caught, a villager could be fined approximately one to two million Lao kip (US\$125-\$250) per hectare and/or 100,000 to 200,000 Lao kip (US\$12.50 – \$25) per tree that measures eight inches in diameter or more (F.N. Vwj, personal

⁷⁷ These hunters are usually the poorer villagers. Wealthier villagers engage and establish a gift-giving relationship with soldiers and forest patrols in the area. This relationship allows villagers to enter the forest and hunt/harvest the resources. This gift-giving relationship is discussed in chapter five.

⁷⁸ The Lao government has been vigorously trying to decrease swidden but efforts have been uneven, both spatially or temporally. Also, the government often tries to convert newer resettled villagers into becoming wet-rice cultivators while encouraging already settled villagers with non-paddy fields (swidden) to grow other crops (cash crops) besides subsistence crops. This will be discussed in chapter five.

communication, July 6, 2014; P.Z. Xyooj, personal communication, July 9, 2014). In addition, the villager would not be allowed to use the cleared area. If a cleared area has already been sowed, the villager can negotiate with the officials (usually by paying a fee) to be allowed to tend the fields and harvest the crops. Once the crops are harvested, the villager is then banned from using the land. Although fines and jail time are possible consequences for clearing land for swidden, many local officials do not strictly enforce the ban on swidden expansion as they know that swidden is the main method to produce food and income for many villagers. For example, local officials would allow villagers to clear bamboo fields to practice swidden agriculture. Villagers are also allowed to practice swidden agriculture on “degraded” land next to rivers and streams (S. Vwj, personal communication, July 7, 2014).

Alternative livelihood professions encouraged by the government and NGOs are problematic for villagers as well. For example, villagers explained that a livelihood profession encouraged by various officials is that of a domestic animal or livestock farmer. Government officials and various organizations would come to the Laksao area and gift, or in some cases loan, domestic animals to particular villagers as a way for them to produce food and generate income. Villagers are usually given a choice between a small piglet, a few chickens, or a large shoal of juvenile fish (usually tilapia, a non-native aquaculture species). The villagers are then expected to care for these animals until they reach a profitable size, at which point they are consumed or turned into a commodity to be sold for profit (e.g., many loaned animals are sold back to the loaning company). There are problems associated with this practice. For one, most villagers do not have proper infrastructure to care for certain animals such as proper shelters to house pigs. Likewise, many villagers do not have ponds to raise fish. Those who do have ponds usually do not have very good luck with keeping the fish alive. This was clearly illustrated when a villager told me that he

once accepted 200 small tilapia fingerlings and put them in his pond only to find that most had died by the following morning. As such, most villagers prefer to raise chickens, but there are only so many chickens available. Unfortunately, even those that raise chickens have reported high fatality rates for undetermined reasons. Many villagers speculate that the high mortality rate may be microclimate-related, as most livestock given in this manner are brought in from other areas and may be unable to adapt to the weather in the Laksao area. Secondly, the animal loaning practice is not always profitable for the villagers, and in many cases the villagers actually end up losing money. For example, a villager would enter into a kind of share-cropping agreement with a company where the company would loan a determined number of piglets to the villager to raise to adulthood, at which point the villager would sell the pigs back to the company. The idea is that the farmer pays for the cost of raising the pigs (e.g., food, medicine, vaccinations, etc.) and then sell them back at a price that would provide a net profit. However, in many cases, villagers end up spending more than the adult pig's worth on food, medications, and vaccines, or the pigs do not develop as expected (e.g., skinny, deformed) so their value drops below what the villagers spent.⁷⁹ Another livelihood alternative encouraged by the government is to somehow obtain paddy fields and become wet-rice cultivators.⁸⁰ This will be discussed in-depth in the following sections, as it is an important component of this research.

Overall, the majority of Hmong villagers are aware of the government's goal to halt the spread of swidden. They stated that government officials would come to the area from time to time and hold meetings and workshops to remind villagers that swidden has destructive capabilities. Likewise, villagers are usually given vague responses when they question whether there are

⁷⁹ Very few Hmong villagers vaccinate their animals due to the cost, but some have started to do so.

⁸⁰ The government encourages villagers to become wet-rice cultivators but do not have the means to provide them with paddy fields, so villagers are told to find paddy fields by themselves.

enough paddy fields to compensate for not being able to do swidden cultivation. Many villagers informed me that they are often told by officials to “modernize” and find paying jobs in Vientiane,⁸¹ approximately 330 kilometers away from the Research Area, as farming is a dying profession and a person will never get rich by being a swidden farmer.

4.6 Knowledge of Protected Area Boundaries and Regulations

Most villagers’ awareness of where exactly the Nakai-Nam Theun NPA is located is vague at best. This is despite various signs and billboards posted along roads around the Research Area. For example, a common response I received when I asked hunters where they are not allowed to hunt is “*lawv tsis pub neeg tua tsiaj hauv lub hav zoo loj*,” which translates to “they (the government) do not allow people to hunt in the big forest.” When asked further about where this “big forest” is located, they pointed toward the direction of the NT2 dam to the south of the Research Area and say “*nyob pem khuaj pas dej tauv pev*” (by the dam over there), but were unable to tell me the exact location of the “big forest” border or point to it on a map. They would then just say that once a hunter has walked so far into the forest on the other side of the lake (dam’s reservoir), that he is “there.” Once “there,” he is not allowed to hunt animals or harvest NTFPs.

It became even more muddled and confusing for most hunters when I asked whether they knew the differences between the various types of forest categories and allowable usage (discussed in chapter one). For example, many hunters gave me a blank stare when I explained the difference between a “conservation” forest and a “protection” forest. Hunters really became confused when I started explaining why certain animal species can be hunted in certain areas, while they are protected in other areas; or why certain areas are off-limits to NTFP harvesting, while others are

⁸¹ Vientiane, the capital of Laos, is seen as Laos’ most prosperous city and as a beacon of modernity. Most Hmong villagers in my Research Area speak highly of Vientiane and express their desires move there to be modern. I suspect this idea is strengthened by government officials who are telling villagers to move there for well-paying jobs.

more accessible. It may be possible that Hmong hunters and NTFP harvesters were not aware of such classifications because the Hmong never had such things. However, it may also be due to a language barrier as I suspect some may have been more familiar with such classifications if Lao terms were used.

The complex scenarios above suggest that most villagers do not fully understand government regulations regarding protected areas and hunting. The government, according to villagers, is also partly to blame for this because, although government officials do preach protected area management and wildlife conservation, these words are usually hollow in that many government officials themselves do not fully understand concepts behind various protected areas categories either. Furthermore, villagers' assumptions that it is OK to hunt in "protected" areas is further strengthened because of the government's inability to present viable alternatives in conjunction with the fact that many officials would turn a blind eye on illegal hunting or in many cases, even actively encourage hunting.⁸²

Unlike hunting, most villagers seem to think that the government allows the collecting and harvesting of NTFPs in protected areas (albeit with some confusion, as explained above), including Nakai-Nam Theun NPA. They frequently stated that to their knowledge, the government permits them to enter Nakai-Nam Theun NPA to collect NTFPs for household use. When asked what NTFPs are allowed to be harvested, villagers would often name edible goods such as wild fruits and mushrooms. The collection of tree branches only for household firewood use is also allowed, according to villagers. On the other hand, villagers tend to agree that collecting firewood to sell is not permitted. Thus, the creation of the Nakai-Nam Theun NPA has not greatly affected some of villagers' NTFP usage. These assumptions are partly correct as the Lao government had

⁸² This relationship is discussed in great detail in chapter five that deals with income-generating opportunities.

established various laws and decrees to restrict, but also allow for, some natural resource usage. For one, all Lao citizens are allowed to possess and use trees, natural forests, and forest land if authorized by the responsible factor under the Forestry Law and the Wildlife and Aquatic Law.⁸³ Some customary user rights to natural resources include: 1) 5 m³/year of timber from natural forest zoned for village production for non-commercial household and public purposes, 2) hunting of non-protected wildlife (including aquatic species) for both consumption and sale, and 3) the collection of non-protected NTFPs. Furthermore, various laws allow villagers to have open access to forestland and forest resources within their village boundaries that are either officially or traditionally recognized as long as villagers avoid damaging the forest via respecting and abiding by established laws and restrictions.

⁸³ See chapter one, section 1.3.2 for a summary of the Forestry Law and section 1.3.3 for the Wildlife and Aquatic Law.

specifically the sunda pangolin (*Manis javanica*) and larger animals such as tigers and elephants (although in reality, there are very few if any tigers and/or elephants in the area). One villager had a poster depicting threatened and endangered animals taped to a wall of his house (Figure 4.4), but the majority of villagers do not seem to understand or care about endangered animals. This uncertainty means that hunters take extra precaution to avoid forest officials regardless of the animal species they were able to harvest, except for wild pigs or smaller animals such as rodents, frogs, and aquatic animals.⁸⁵

Perhaps what is more crucial than hunters' knowledge of which animal species are and are not allowed to be harvested is the fact that regardless of its status, most hunters will harvest most animals (especially larger, more valuable species) if the opportunity presents itself.⁸⁶ This is because swidden restrictions (among other factors such as increase demands for wildlife products, increasing animal rarity) now mean that hunting has become one of the primary means of obtaining food and generating income. Thus, less valued animals such as wild pigs, various species of small birds, and invertebrates are harvested and consumed or sold (usually at local markets), while valuable species such as pangolins, turtles, and tortoises are virtually always sold to wildlife traders in the area. At present, hunters often hunt opportunistically but also go on hunting excursions with the intent to target especially valuable species, such as turtles and tortoises which hunters train dogs to sniff out. Wildlife is now becoming increasingly commodified as the economic gains associated with hunting are tremendous and are much more than what villagers may make from

⁸⁵ Villagers would try to avoid forest officials that they have not established a working patron-client relationship with. Those with an established patron-client relationship tend to not worry as much. This is further discussed in chapter five.

⁸⁶ This hunting strategy was not practiced until recently, as will be further discussed in chapter six.

4.8 The Swidden Paradox

The idea behind the Lao government's drive to decrease and eventually eradicate or, at the very least, prevent swidden's further expansion is ostensibly to protect the natural forests that, in theory, would provide habitats for and protect wildlife populations. However, many rural villagers, including Hmong villagers, have long been heavily dependent on swidden to produce agricultural goods for household consumption, and also at present to generate income. Thus, the restrictions placed on land clearing for swidden and unrealistic government-sponsored alternatives (as discussed above) have resulted in villagers finding ways to compensate for the inability to clear new land for swidden agriculture.⁸⁷

Land for farming is in high demand. This is demonstrated by the fact that Hmong villagers are asking non-Hmong landowners if they can use their unused land to grow crops.⁸⁸ For example, villagers will ask if they can grow crops on tiny patches of land along the road or adjacent to a landowner's own fields. Many times, this amounts to just a few square meters of land but it is still better than not having any crops at all. Others ask if they can rent larger fields to grow crops on.⁸⁹ However, this is not a viable option for many of the poorer villagers, as renting requires resources many do not have. Other households that are unable to produce enough rice to last until the following year's harvest due to restrictions put on swidden cultivation are resorting to asking neighbors and relatives for rice.⁹⁰ Of course, this is not always feasible as most households are

⁸⁷ Local officials also highly discouraged the clearing of land outside of protected areas for swidden agriculture. This is because the Lao government is trying to prevent the spread of swidden.

⁸⁸ Hmong villagers looking for land to farm are mostly asking Lao landowners as most Hmong landowners are already using their land to farm.

⁸⁹ Some landowners may not use their land for a year or two depending on their living situations. For example, a household may decide to not farm a particular year because all the children are away for school.

⁹⁰ Restrictions in the form of not being able to clear available land and in some areas, land availability.

unable to produce surplus rice. Those able to produce rice surpluses usually save and treat the surplus as a safety net to be consumed the following year in case that year's harvest is not fruitful. Thus, households which cannot afford to rent land or purchase rice from local markets must undertake other compensatory methods to make up for the loss.

The following sections discuss the compensatory methods practiced by villagers that illustrate how rural Hmong villagers are being affected by and are responding to restrictions on swidden agriculture, including moving swidden agriculture to different places and increasing the amount of hunting done to compensate for lost income. The final discussion focuses on how the inability to practice swidden agriculture has freed up villagers' time and allowed them to hunt longer and more often.

4.8.1 Swiddeners getting out of view. Recall that the first argument I made in this chapter was that, in many areas, swidden is not decreasing as much as the Lao government claims. Instead, it is being moved to more remote areas (essentially, government restrictions on swidden are resulting in villager hardship, which they then compensate for by swiddening out of view). This is bringing villagers into contact with more wildlife that they then can exploit.

For example, unable to obtain nearby land to conduct swidden agriculture, many villagers in the Research Area like Household #33 have resorted to traveling long distances in order to remain undetected by local officials when conducting swidden cultivation. Household #33's Hmong male head of household moved to the Research Area from Vietnam in 2007 in order to work as a front-desk hotel employee at one of the guesthouses in the area (the same guesthouse I stayed at during my fieldwork). He lived at the guesthouse and was able to support himself with his salary until early 2014 when he quit the job after getting married. Unable to find swidden or paddy land to farm, he resorted to moving in with his in-laws who were living in a remote village

about 130 kilometers away. The remoteness of the village meant that the villagers there were still able to practice swidden cultivation. Not only was he able to clear hectares of land to grow various crops, he was also able to exploit the area's wildlife due to his connection with wildlife traders in the Research Area, using the guesthouse as a base for operations (Figures 4.6, 4.7). He captured various wild animals, including common hill mynas (*Gracula religiosa*), gibbons (*Hylobates* spp.), and assorted turtles/tortoises and sold them to wildlife traders in the Laksao area. He was able to generate so much revenue through selling wildlife that he contemplated becoming a full-time wildlife trader and not farming anymore. Essentially, swidden restrictions are forcing villagers to swidden in more remote areas, which then brings them into contact with wildlife. Some villagers then decided to harvest and trade wildlife instead of swiddening (besides growing opium) as wildlife is economically more profitable than subsistence farming. In other words, the initial reason for villagers swiddening further away was avoid the restrictions on swidden. However, economic generating opportunity then took over and became one of the primary factors for increasing hunting.

Likewise, the eldest son of Household #17 (see chapter four, section 4.8.4 for history on the household) is another example. He was unable to obtain nearby land to do swidden agriculture, so he and his wife decided to go to Vieng Thong District about 85 kilometers northwest of Laksao. Not only was he able to grow rice on swidden fields there, he is now capturing various birds and selling them to villagers in the Research Area. He also started growing and selling opium to locals in the Research Area and elsewhere.⁹¹ Household #34 also resorted to clearing forestland in remote areas in order to do swidden. I will discuss this case in more detail in the following chapter.

⁹¹ This will be discussed in more detail in chapter five on cash crop.



Figure 4.5: Remote areas cleared for swidden agriculture by villagers living in the Research Area. The area in the photo is primarily accessible by boat. Photograph by P. Vue.

These are but a few case studies that suggest that the Lao government's attempt to decrease and eradicate swidden agriculture is actually forcing villagers to venture further into remote areas to farm, which is not only counterintuitive but it is also putting villagers in contact with wildlife that they would otherwise not have encountered. The result is quite devastating to wildlife populations. Similar observations have also been made by others in the past (Chamberlain, 1997, 2001; Baird & Shoemaker, 2005; Robichaud, 2005).



Figure 4.6: Using the guesthouse's outhouse to hold turtles waiting to be sold to Vietnamese traders in the Laksao area. Photograph by P. Vue.



Figure 4.7: Scales kept at the guesthouse to weigh wildlife being sold. Photograph by P. Vue.

4.8.2 Efforts to decrease swidden, poverty, and their impact on wildlife. The Lao government is currently promoting the idea that one of the surest ways to protect the forest and its wildlife population is to decrease swidden agriculture and replace it with wet-rice cultivation. However, laws and implementing regulations aimed at discouraging swidden have been met with mixed success at best and, in many cases, these laws and regulations may actually be having the opposite effect by increasing villager poverty which in turn is causing more harm to wildlife. This has already been reported by others (Chamberlain, 2001; Baird & Shoemaker, 2005), but this is the first study in Laos to examine this issue through conducting long-term research in specific places. Chamberlain (2001) and Baird and Shoemaker (2005) did not conduct long-term research on any one place but rather relied on short-term visits to a larger number of locations.

Recall that my second argument in this chapter was that the Lao government's agenda to decrease swidden has increased villager poverty by limiting villagers' ability to grow crops for household consumption and to generate income.⁹² The following are some examples that suggest

⁹² Cash crops are discussed in chapter five.

that policies regarding decreasing swidden and promoting wet-rice agriculture are negatively affecting wildlife populations.

4.8.3 No swidden land. Many newer households in the area do not have swidden fields for reasons previously discussed. As such, they must hunt both for food and to generate income. For example, the Hmong male head of Household #9 moved to Ko Hai village in 2005 to become a teacher at one of the local grade schools. Initially he was able to support himself and his wife on a US\$100 per month salary. Now with two young kids and building a permanent house, he needed a way to generate more money. Unable to clear land to generate the additional revenue through swidden, he resorted to regularly venturing into the Nakai-Nam Theun NPA to hunt wildlife. He makes these trips mostly on the weekends but also goes for four or more days during school breaks or in the summer. I accompanied him on a few trips, and we had some detailed discussions about hunting and decreasing wildlife populations. He is aware that wildlife is decreasing (e.g., he pointed out that he has to invest more time to hunt and that he has to travel further to harvest the same amount of wildlife now compared to seven or eight years ago) and does feel badly about that, but at the same time he claims that it is the only way for him to generate additional income. He said, “*Yuav tsum muaj ru tsev thiaj li tsis ntub nag*” (must have a roof to not get wet from the rain).

The male head of Household #71 shared a similar story. His parents divorced when he was about four years old. His mother took him with her and remarried into another clan. In his words, he “*noj mov Hmoob Vaj hlob*” (grew up eating the Vang clan’s food). In 2001, he tracked down his father and moved to the Research Area to be with his paternal clan. The village gave him a small patch of land to build a house on but no swidden or wet-rice paddy fields. Unable to get into farming to generate income, he started hunting and selling wildlife meat to other villagers. He is currently one of the most ardent hunters in the village and frequently ventures into the Nakai-Nam

Theun NPA to hunt. He also hunts nearby in the village territory. For example, we were once sitting outside his house talking when a flock of small birds flew overhead and landed on a few nearby trees about 50 yards away. He ran into his house to retrieve his flint gun, slowly walked toward the trees, took aim, and shot and killed one of the birds. He brought it back with a smile and we grilled it right there to eat with rice. I asked him if he would still hunt if there were other ways to make money and he said yes, he would still hunt because he has been hunting so much and has gotten so good that he now enjoys hunting.

Another example is Household #25. The male head was 19 at the time I interviewed him, which made him the youngest person I talked to about hunting. He recently married and in 2014 his wife had given birth to a baby boy. As with the other examples, his household does not have swidden or wet-rice paddy fields, as none were available when he established his family. As such, the male head assists his grandfather with his paddy fields and gets a portion of the harvested rice in return. To generate income, he hunts and sells wildlife at the local market. He often gets up around four in the morning and heads out to the surrounding hills to hunt for small game, such as birds and squirrels, that he brings back to sell to local food vendors. For longer hunting trips, he crosses over to Vietnam by foot by following various trails snaking around the hills. Hunting trips to Vietnam average two days per trip. He is a very good hunter and usually returns with a bag full of small game. The family consumes some of the wildlife meat and sells the rest to other villagers. When asked why he hunts so much, he replied that hunting is fun and it keeps him busy. What made this case more interesting was that he was crossing over to Vietnam to hunt, as this was previously unheard of. It is usually hunters and wildlife traders from Vietnam crossing over to Laos for hunting and wildlife trade. I asked whether it was a common occurrence and he said that

it was. It happens all the time, especially when logs are being transported by foot to Vietnam (Figure 4.8).

The above-mentioned cases are different from one another, but they all demonstrate one thing: the inability to obtain nearby swidden fields to grow crops for household use is a contributing factor to increasing dependence on wildlife. Keep in mind that the situation is more complex than presented in this section, as there are undoubtedly other factors (e.g., increasing wildlife prices, illegal cash crops, changing beliefs) that are also contributing to increasing hunting and NTFP harvests in central Laos (these are discussed in detail throughout the dissertation). In addition, free time by itself does not fully explain the increase in successful hunting as successful hunting requires skills that are gained from years of experience. Furthermore, villagers do not hunt or harvest NTFPs every time they are free. Many villagers spend their free time fixing things around the house, tending to their livestock, attending feasts and ceremonial events, playing sports, and caring for other family members to name a few. In other words, I am not saying that swidden restriction is the sole cause of hunting as there are countless other factors that should be considered. However, in accordance to the purpose of this chapter, I am analyzing how swidden restrictions are affecting villagers' livelihoods and found that one of the primary activities that many Hmong male villagers get involved with during these free times is hunting, thus, in a sense, not being able to swidden is a significant factor. Essentially, not being able to swidden means less food is available for household consumption, less income, and more free time. All three variables come together to strongly encourage hunting and harvesting of natural resources.



Figure 4.8: Hmong villagers transporting timber by foot to Vietnam. Photograph by K.N. Xyooj.

4.8.4 Shrinking swidden land. The male head of Household #1 is one of the most active hunters in the entire Research Area. The family is an interesting case because its members first settled in the Research Area in 1992 and initially owned a couple hectares of swidden land on which the family farmed. However, for various reasons the family fled to Thailand in the late 1990s in an attempt to gain refugee status and migrate to the United States or another country. The household returned to the Laksao area in 2007 after failing to do so. By that time his house had been torn down to make way for new houses and his agriculture lands had been claimed by other villagers. A relative allowed the family to build a small one-room house behind his. Unable to

practice swidden or do cash crop agriculture to generate money because he was essentially landless,⁹³ he decided to engage in hunting wildlife for both food and to generate income. He constantly hunts in and around the Nakai-Nam Theun NPA as well as in areas to the north and northwest of the Research Area. He hunts for valuable wildlife species to sell to local Vietnamese wildlife traders. He is the only hunter who was successful in catching multiple pangolins during the duration of my research. When I asked if he would give up hunting if he had stable lands to farm, he immediately said, “*Yog muaj av ua liaj ua teb ces kuv yeem ua teb tsis yos hav zoov vim yos hav zoov yuav npaj tsis tau rau yav pem suab rau kuv cov me nyuam. Yog muaj av ua noj ces kuv cov me nyuam yuav muaj chaw khwv noj tom qab kuv*” (I would rather farm instead of hunt if I had land because hunting cannot guarantee food for my children in the future. If I had land to make a living, then my children will have a way to sustain their livelihood after I am gone).

Household #17 is in a similar situation. This particular family actually first settled in the area in the mid-1980s but sold all their belongings and left for Thailand in 2001. The family returned to the area in late 2013. Unable to find land to farm, the eldest son left to clear forestlands for opium cultivation in remote areas around Vieng Thong District while the second eldest son took up hunting and started going with other villagers to hunt in the Nakai-Nam Theun NPA.⁹⁴ He had very limited hunting skills and was not very successful due to having spent the past 12 years working in a factory in Bangkok. He often complained to me about being forced to go hunting by his father. Fortunately, the household was able to rent 0.7 hectare of paddy fields to grow rice and one hectare of upland agricultural land to grow cassava, a cash crop. The second son has since

⁹³ Household #1 was able to rent one hectare of swidden lands in early 2014 on which he planted cassava.

⁹⁴ Usually hunters travel long distances to hunt in non-protected and protected forested areas away from swidden fields on longer hunting excursions. These hunting areas are usually not around any swidden fields with the exception being when villagers are out tending their remote swidden fields and at that time they may also hunt in the area (usually for subsistence while in the fields). However, some villagers do hunt around their nearby agricultural (both swidden and paddy) fields.

stopped going on hunting trips and started tending these fields. Often times he would tell me how happy he is now that he does not have to go hunting. He would often say, “*Kuv twb tsis paub tua phom es yuav tua tau tshiaj li cas nas*” (I do not even know how to shoot a gun, so how could I even successfully hunt?).

One final example of how decreasing the size of swidden ownership over time has been associated with increased hunting can be seen with regard to Household #6. Unlike the previous two examples, this family did not lose its swidden fields by moving away. Instead, the family was actually forced to sell its land due to conflicts with other villagers. Initially, the male head owned over two hectares of swidden fields in two separate locations. One patch was located further away from the village while the other one was located at the edge of the village. As the population increased and the village grew, villagers started settling near the closer field. This resulted in heavy human and animal traffic around his field, which negatively affected his crop yields (humans hunting in and around the field and thus disturbing the crops, while domestic animals disturbed the field by walking around and eating the crops). After trying various methods to decrease traffic and multiple meetings with village elders, he decided to sell that patch in order to prevent further conflicts with villagers. Unfortunately, this meant that he no longer has enough land to grow sufficient food to feed his family, let alone to generate additional income, and so he has resorted to hunting wildlife to sell to local Vietnamese traders. He frequently reminded me that he was not a hunter before and actually does not like hunting (he considers himself a “city” person) but now he frequently travels 20 or more kilometers to hunt and he spends an average of seven to 10 days a month hunting in the Nakai-Nam Theun NPA and elsewhere.

4.8.5 Small swidden fields, large swidden fields. Households that own inadequate amounts of swidden fields are also hunting more. For example, Household #42 owns 0.2 hectares

of swidden land. The head of the household stated that he travels 30 or more kilometers to hunt, and that he hunts an average of 10 days a month. I asked how was it that he was able to hunt so much. He replied, “*Tsis ua liaj ua teb ces kawg mus yos hav zoov*” (might as well go hunting if [one] has no land to farm).

On the other hand, households that have more swidden fields tend to travel shorter distances to hunt and also tend to hunt less.⁹⁵ For example, Household #28 owns over six hectares of swidden land. Although members of this household do go hunting about two days a month, they only travel three kilometers or so to do so. In other words, they hunt in the hills around the village and do not venture into the Nakai-Nam Theun NPA to hunt. Household #99 owns about 4.4 hectares of swidden fields and its members go hunting less than one day a month on average, only traveling up to five kilometers to hunt. Households #4 and #7 have three hectares each and do not hunt at all. These cases suggest that villagers with more swidden land tend to hunt less. In other words, the more swidden land a villager farms, the less time he spends hunting.

These case studies suggest that some villagers are becoming more and more dependent on wildlife and other forest products as they continue to lose more and more of their swidden land.⁹⁶ As such, decreasing swidden does not enhance wildlife populations but instead is actually counter-productive and harming the wildlife population.

⁹⁵ Hunting around the villages and sometimes around their swidden fields.

⁹⁶ The Lao government’s implemented action plan to control swidden agriculture and prevent it from spreading to other areas is the main reason why many villagers have no swidden fields, as restrictions mean the villagers cannot clear lands to swidden. Those that do clear nearby lands are taking huge risks as discussed in chapter four, section 4.5. Along the same line, shrinking swidden fields and tiny swidden fields are also direct consequences of the Lao government’s initiative to decrease and eliminate swidden. Other less obvious, but perhaps just as important, reasons why so many villagers have no or little swidden fields include not having the money to buy/rent fields or that there are just very few swidden fields available in the area due to overcrowding (as discussed at the beginning of this chapter).

4.8.6 Time and labor commitments. The third argument I make is that the Lao government's initiative to promote wet-rice agriculture while restricting swidden has led to increased hunting because wet-rice is not as time consuming or labor intensive, which frees up time for villagers to hunt.⁹⁷

4.8.6.1 Less time in the fields, more time to hunt. Perhaps one of the most wildlife-damaging aspects of promoting wet-rice agriculture and essentially forcing villagers to practice it instead of swidden is that wet-rice agriculture is much simpler and less time consuming than swidden, especially how swidden is currently practiced in the Research Area.⁹⁸ This gives villagers so much more time to go hunting for pleasure and, to borrow the villagers' catchphrase, to simply "kill time." As has already reported, 88 of 100 households surveyed state that they prefer wet-rice paddy cultivation to swidden agriculture.⁹⁹ Sixty of those 88 households explicitly mentioned that one of the main reasons, if not the primary reason, why they prefer paddy agriculture to swidden is because it is easier and less time consuming, which allows them to partake in other activities, including hunting. For example, Household #32 owns 2.4 hectares of paddy land. Yet members of the family are able to travel 20 or more kilometers to hunt for four or more days at a time. This household is able to do this because they have only one hectare of swidden that it is maintained by the wife and daughter. The male household head said during the interview that he is an avid hunter and enjoys being in the forests for days at a time, and that paddy agriculture allows him to do this. Two other households with similar circumstances are Household #2 and #21. Each owns over three hectares of paddy fields, yet both households also have multiple members hunting on a regular

⁹⁷ I did not expect this and was actually quite surprised when villagers told me that swidden was more time consuming and labor-intensive than paddy cultivation.

⁹⁸ Intensive swidden agriculture with very short fallow periods.

⁹⁹ Chapter three, section 3.3.8.

basis (sons living in both households travel at least 30 or more kilometers and spend four or more days per month to hunt). They do so for the same reason: wet-rice agriculture allows them to have ample time to go hunting. This finding was quite surprising and I initially thought that perhaps villagers were not being very truthful. However, personal experience living with Hmong villagers in the Research Area for 16 months suggest that they were telling the truth as it became obvious that many villagers with both swidden and paddy fields were spending significantly more time performing maintenance duties in their swidden fields. An Asian Development Bank (ADB)-sponsored study on gender inequality regarding women's access to land, forests, and resource in Laos and headed by Jim Chamberlain found compelling evidence suggesting that this may be the case in Laos. For example, Chamberlain (2006) found that in Khmu villages where villagers undertake both swidden and paddy farming simultaneously during certain parts of the year, that the majority of the food comes from sources associated with swidden. In addition, the period of swidden cultivation, including all the activities involve (e.g., planting of vegetables, growing subsistence crops) lasts anywhere from eight to ten months and during this time women spend the bulk of their time in the swidden fields. Furthermore, with land intensification due to the Lao government's Land Forest Allocation program, not only have swidden crop yields significantly decreased (over 60 percent), but that the increase in grasses and weeds now meant that women went from spending five days per hectare weeding to two weeks per hectare. In addition, now weeding needs to be done four times prior to harvest when before it only required two times. Chamberlain wrote, "women today must spend two months or 60 days out of every year weeding one hectare of swidden compared to only ten days in the past, a 600 percent increase in labor" (p. 75). A very detailed doctoral dissertation study by Malcolm Cairns found a similar situation with the ethnic Angami Naga peoples of Nagaland in northeast India. In his study, Cairns (2007) found

that Naga women were investing about 75 percent of their labor in swidden fields compared to approximately 50 percent in wet-rice paddy terraces.

4.8.6.2 More labor in the fields, less time to hunt. As was stated in chapter three, 97 of the 100 households stated that they have at least a small amount of swidden land. This statistic includes those who are renting their fields. Of the 97 households with swidden fields, 37.1 percent stated that they hunt in and around their swidden fields. The majority of the species hunted there are small game species such as birds and rodents. Larger species harvested from time to time include wild jungle fowl and wild pigs. One interviewee stated that he also hunts crickets for household consumption as well as to sell to other villagers. The most common answer to why many farmers are not hunting in and around their swidden fields was that there are few animals there. On the other hand, other farmers stated that they actually see abundant small game around their swidden fields and that the actual reason why they do not hunt animals there is because they are too busy tending their swidden fields. I actually experienced this situation first-hand while out with swidden farmers. While out working on Household #1's rented swidden fields in early April, the household head and I could hear wild jungle fowl calling each other from the surrounding bushes. The household head had a homemade flint gun but decided not to go after the jungle fowl because he wanted to complete our agricultural tasks as quickly as possible so we could return to the village before nightfall.¹⁰⁰ Another time I was out with a group of villagers from Ko Hai village and we stumbled upon fresh wild pig tracks while out tending cattle. Again, we entertained the idea of hunting it down and eating it for dinner, but no one ended up going after the pig as everyone was too concerned with getting their other work done so that we could come back home before dark. These incidences were not isolated cases involving only a few villagers. Rather, similar situations

¹⁰⁰ This was a surprise as he was one of the most ardent and ambitious hunters in the Research Area as discussed previously in chapter four, section 4.8.4.

involving many villagers were common during my research. These events suggest that while some animals are harvested around swidden fields throughout the year, these areas may also act as wildlife refuges for at least some parts of the year for some species (e.g., wild jungle fowls, rodents). Naughton-Treves et al. (2003) found a similar situation while studying the impact that swidden has on mammals in Tambopata, Peru. In this study they found that fields surrounded by more disturbed vegetation within five kilometers were visited by smaller animals than those surrounded by more close-canopy forests; and that several wildlife species forage and hunt in swidden fields near human settlements. Not only do swidden fields provide habitat cover for the animals, but also many swiddeners just do not have the time or want to put in the effort into hunting around their swidden fields during times when the fields require much work and maintenance. However, it is likely that villagers would hunt and kill animals around the area if the animal(s) become a nuisance (trampling on crops, eating crops, etc.).¹⁰¹

Twelve of the 65 households (18.5 percent) that have paddy fields stated that they hunt in and around their paddy fields. Species harvested from these paddy fields are mostly aquatic animals such as small fish, frogs, and snails. Fifty-two households stated that they do not hunt in or around their paddy fields simply because there are few (terrestrial) animals there. There are few or no terrestrial animals around paddy fields because paddy fields offer no protection against threats. Many paddies are adjacent to each other and form large paddy patches stretching for kilometers with no or very few shrubs, trees, or any other objects that wildlife species could use as cover. One farmer blatantly looked at me and said, “*Ntsia qhov twg los liaj li liaj xwb es yuav*

¹⁰¹ I asked villagers about crop-wild animal conflicts in the area, especially issues with wild pigs, but did not thoroughly look into the issue. Instead, it seems like most villagers were more concerned with crop-domestic animal conflicts.

muaj tsiaj qhov twg” (everywhere you look there are other paddy fields so how can there be any animals?).

In summary, these cases suggest swidden fields may harbor more biodiversity overall than paddy fields. Furthermore, and perhaps more importantly, villagers with swidden fields are less likely to hunt around their swidden fields, as they are too busy tending their fields during certain times of the year. On the other hand, villagers are hunting less in paddy fields, not because they are busy (as with swidden), but because there are very few animals seen in paddy fields. However, it is important to realize that many paddy-only owners are able to spend more time hunting elsewhere even if they do not hunt in their own paddy fields. This is possible because paddy agriculture is much simpler and less time consuming than swidden. Thus, villagers who are practicing only paddy cultivation have more time to hunt wildlife than villagers practicing swidden.

4.8.7 There are just not enough paddies to go around. The Lao government has invested much time and money into promoting wet-rice agriculture as a viable and environmentally friendly alternative to swidden. For example, massive water irrigation pipes were installed in paddy fields along roads leading from the Laksao area to Ko Hai village to transport water from nearby rivers to paddy fields (Figures 4.9, 4.10). Unfortunately, according to villagers, this project failed when the rivers’ water level rose after a period of very heavy rainstorm that flooded and damaged the pump mechanics to the point that the pumps were no longer able to generate enough pressure to pump water from the river to the fields.¹⁰² Eventually, the irrigation plan was abandoned, but the pipes and infrastructures were left behind and can still be seen from the road. Even with such obvious failures, the government continues to support wet-rice cultivation and promote it as a

¹⁰² Villagers were not sure about why the pumps stopped working but attributed it to the flood.

viable alternative to swidden agriculture. However, research and interviews with villagers suggest that wet-rice cultivation may actually be harming wildlife and as such, contributing to the “empty forest” phenomena (see chapter seven for discussion on the empty forest phenomenon).¹⁰³

One of the biggest obstacles to promoting paddy agriculture and getting everyone involved is that there are just not enough paddy fields for everyone. As previously stated, 35 of the 100 households surveyed and interviewed do not have paddy fields. Many of these households are resorting to traveling great distances to illegally hunt and log valuable timbers (e.g.; rosewood) in order to generate money. For example, Household #26 is a newly established household in Thong Pei village. The male head was told that he could not clear forest- or shrub-lands to plant crops due to government restrictions on swidden and that he should get involved with wet-rice cultivation. However, he was unable to find any paddy fields and has since resorted to traveling 30 kilometers or more to hunt inside the Nakai-Nam Theun NPA and 50 kilometers or more to hunt in Vieng Thong and Pak Kading districts.

Even those who have paddy fields often do not have enough to produce sufficient rice for household consumption. For example, Household #9 has only 0.4 hectares of paddy fields. The male head claimed that on good years he is able to produce just enough rice for his family to subsist on for the year. However, he is unable to produce enough to eat in bad years (e.g., drought, insect swarms), so he resorts to hunting to make up for the loss. A few other households that own such small paddy fields reported that their fields are essentially useless because of their small sizes. This included Households #54 (0.2 hectare), #57 (0.3 hectare), and #72 (0.09 hectare). Such small paddy fields mean that households cannot depend on them to produce enough rice to eat so they must look for other alternatives to generating income in order to buy rice from other villagers. All

¹⁰³ Or see Redford, [1992]; Wilkie et al., [2011]; Stokskad, [2014]; and Antunes et al., [2016] for a few academic articles discussing the phenomenon.

these households have stated that their paddy fields are so small that the only reason they are still using them is to produce a handful of rice for the all-important Hmong welcoming in the New Year ceremonial feast called *Noj mov nplej tshiab*.¹⁰⁴



Figure 4.9: Building left from failed government water pipe project. Photograph by P. Vue.



Figure 4.10: Remnant pipe holders left from failed government water pipe project. Photograph by P. Vue.

4.8.8 More than just rice is needed. Households that do have enough paddy fields to grow rice for household consumption are also hunting and or getting involved with other opportunities to generate income. This is partially because paddy agriculture is primarily a rice monocrop agricultural practice. In other words, it is very hard if not impossible to grow other crops besides rice in paddy fields. This eliminates the opportunity to grow cash crops such as corn, cassava, and peanuts. With government restrictions on clearing land for swidden, many villagers find themselves going into the forest to hunt and harvest valuable resources to make up for lost income that could be generated through cash crop agriculture. Household #3 was in this situation. The male head of this household owns one hectare of paddy fields that were used to plant rice for

¹⁰⁴ However, it is likely that many villagers are keeping these tiny paddy fields around and in use as it projects an image that they are following government policies by practicing wet-rice cultivation while cloaking the fact that they are actually doing swidden agriculture in remote places away from government eyes.

household consumption. He does not have any swidden fields or other upland fields to plant cash crops. Thus, he resorted to hunting and cutting wood in the Nakai-Nam Theun NPA and the surrounding hills. However, in 2012 he was able to obtain two hectares of swidden lands from other villagers and has since become involved with growing cassava, corn, and peanuts. When I interviewed him in 2014, he was very upbeat and happy with his new livelihood opportunity and said to me, “*Kuv yog ib tug neeg uas tsis nyiam mus hav zoov li vim muaj hiab muaj hmob tom yus tiam sis kawg tsis muaj kev khwv nyiaj es lam mus xwb. Xyoo tag los no kuv dhiav tau ob hevtawj teb los cog pob kws, qos, thiab txiv luam huab xeeb ces nyaj yuav tau me ntsis nyiaj los siv lawm. Yog tau nyiaj no ces kuv xum ua teb es tsis mus yog hav zoov*” (I am the type of person who does not like hunting because there are leeches and other biting bugs but there were no other ways to bring in money so I had to go. However, this past year I was able to obtain two hectares of swidden lands that I am now using to plant corn, cassava, and peanuts in hopes of being able to generate a little money for my family to use. If I can make money this way, then I would much rather continue to farm and not go hunting in the forests).

These cases suggest that far from positively benefiting wildlife populations, swidden as practiced in central Laos, actually limits wildlife hunting more than it supports it. The Lao government wants villagers to practice wet-rice agriculture but there are not enough paddy lands for everyone. Limiting swidden without providing enough paddy fields forces villagers to look for other ways to generate income, often hunting. In addition, paddy is less demanding so villagers have more free time to go hunting.

4.9 Chapter Review and Concluding Thoughts

Protecting wildlife is one of the primary reasons why the Lao government has worked diligently, and at times forcefully, to decrease and eventually eradicate swidden agriculture.¹⁰⁵ Ironically, as my research suggests and as others have suggested but without having done detailed fieldwork regarding the topic as I have here, the Lao government's initiative to protect wildlife through swidden eradication has actually led to an increase in hunting in some areas. Also, swidden practice has not slowed down as much as the Lao government suggests; it is just happening further away from inhabited areas so as to keep activities out of sight. Furthermore, the combination of more people and less land, or the concentration of people into smaller areas via government policy, translates into people having smaller patches of land. This in turn, has led to land use intensification, including shorter fallow cycles for swidden, which has further degraded the soil and has resulted in decreasing food yields. This forces villagers to look for alternatives in order to meet their daily needs. Usually these alternative methods end up negatively affecting the environment and biodiversity.

This begs the question: why is it that the Lao government has continually promoted the idea that swidden is detrimental to wildlife, and have their policies have really had their intended effects? Villagers are encouraged or required to stop practicing swidden and start practicing wet-rice cultivation ostensibly in order to protect the environment and wildlife biodiversity, but has that been the outcome?

There have been some attempts to answer this question. For example, some scholars suggest that the Lao government's dislike of swidden stems from the fact that swidden is primarily an ethnic minority agricultural practice while the majority of government officials are from the

¹⁰⁵ Recall that the government aims to achieve this by 1) limiting additional land clearing and 2) discouraging those with swidden land from growing rice or other subsistence crops.

dominant Laos ethnic group that historically practice wet-rice cultivation in the lowland (Marks, 1973; Colchester & Gray, 1998; Evans, 1999; Ducourtieux et al., 2005). Many Lao officials believe ethnic minorities are backward people whose swidden agricultural practice is primitive and unproductive (as discussed in Trankell, 1998; Evans, 1999; Baird & Shoemaker, 2005; Charoenniyomphrai et al., 2006; Daviau, 2010). As such, they feel that it is their duty to modernize the swiddeners by forcing them to abandon swidden and take up wet-rice cultivation. Another possible reason for why the government is trying to decrease and eradicate swidden may be because swidden requires moving around from place to place in order to take advantage of nutrient-rich soils after nutrients in the previous soils have been exhausted. As such, swiddeners are much harder to keep track of and control as they are constantly on the move. The government perceives this as a threat to the country's security and seeks to decrease and eliminate what the government frequently refers to as "nomadic movements" (*het hai leuan loi* in Lao) by decreasing and eradicating swidden. Still another possible reason for the government wanting to eradicate swidden is that swidden tends to be a subsistence agricultural practice, which makes it hard to tax to generate income for the government.

Swidden agriculture is considered to be one of the primary drivers of deforestation and resource degradation. The Lao government has taken up this discourse and has drafted many policies aimed at limiting, controlling, and eventually eradicating the practice. Government officials (and NGOs representatives) constantly repeat the idea that swidden leads to massive land clearing, which in turn leads to biodiversity loss; as such, they have taken great measures to restrict and prevent it from expanding while simultaneously promoting wet-rice cultivation as a viable and more environmentally-friendly alternative. However, I have provided in-depth, on-the-ground case studies with Hmong villagers in Khamkeut District, Bolikhamxay Province, central Laos showing

that the actual results of these policies are mixed at best and in many cases, are actually causing more harm to both forest biodiversity and natural resources, especially to those that are located in more remote areas.

Chapter Five: Money Talks – Cash Crops and Monetary Gift-Giving

Sitting in the middle of the backseat of a pick-up truck with one companion on my left and two others to my right, we were making our way along the winding dirt road leading out of a forested area bordering the Nakai-Nam Theun NPA when we spotted a checkpoint ahead. The driver smirked and spoke to me in a jokingly yet serious tone, telling me in Hmong to keep my mouth shut and to not say a thing if the soldiers approach our vehicle, as he did not want them to find out that I am not a Lao citizen via hearing my accent.¹⁰⁶ Also, I am unable to speak fluent Lao. I smiled back and nodded in agreement.

We approached the checkpoint and rolled to a stop, at which time one of the soldiers standing along the road approached our vehicle and started conversing with the driver in Lao. A brief conversation ensued in which the soldier asked our driver for his driver's license and vehicle registration.¹⁰⁷ After verifying that everything was in order and up to date, the soldier walked around the vehicle and visually inspected its contents, including us. Finding nothing out of the ordinary, he handed the requested documents back to the driver and said we could go.

As we drove off, I asked what that was about, to which one of my companions replied, “Nothing but trying to make money off us. These soldiers, I tell you, are always looking for ways to make easy money. Good thing we were not transporting any timber, or we would likely have had to have given them a monetary gift.” He continued, “But it is better than not being allowed to

¹⁰⁶ The Lao government does not like and highly discourages foreigners from going into non-tourist places, especially into forests and remote places without proper documents, and views those that do with suspicion.

¹⁰⁷ According to villagers, one of the surest and quickest ways for Lao soldiers and police officers to make extra money is to set up a checkpoint to stop traveling people and ask for their vehicle-operating license and vehicle registration (or get them for other offenses such as not wearing a helmet). Those who are unable to provide valid and current documents are threatened with fines and vehicle impoundment. However, one just has to slip them some money (usually 50,000 Lao kip or approximately US\$6.25 per missing document) and they will let the traveler(s) go. This is such a common practice that Hmong villagers would often joke and say, “Looks like the police need money today,” or “The police are out like dogs looking for food” when they see a checkpoint.

enter these parts of the forests to harvest or hunt. We give them money, they allow us to enter and hunt. That is how it works. If we do not give them money, they take away what we have harvested, fine us, and even possibly take us to jail.” Another companion chimed in, “Yeah, but they help us out too. If you become friends with them, they will tell you where the animals are, when higher-ranking provincial officials are coming, and other useful information. So yes, the best thing to do is to keep them happy and they will work to allow us to continue to make money.” “Everyone wants money,” someone quipped as we continued our way.

The vignette above describes an all-too-familiar scene in Laos, a typical interaction that occurs between villagers and enforcement officials,¹⁰⁸ as both navigate the surrounding space and take advantage of each other’s positions to generate additional income.

5.1 Income Earning Opportunities

This chapter’s focus is on villagers’ desire to generate income. It revisits the second factor introduced in chapter one: how economic income opportunities have affected how Hmong villagers navigate and spatially use their surroundings to increase their earning potential, and how this in turn is or is not affecting wildlife biodiversity and natural resource use. Recall that the main question for this factor was: How has the desire to increase one’s economic earnings affecting how Hmong villagers in the Research Area are spatially using and navigating the forest for subsistence use and economic gains?¹⁰⁹

Many villagers in the Research Area can generate income through various means, such as opening restaurants and guesthouses, making and selling handicrafts, and working as wage laborers among others. In this chapter, however, I focus on two practices utilized by local villagers

¹⁰⁸ Government officials, soldiers, police, forest patrols.

¹⁰⁹ Chapter two, section 2.3.2.

that not only generate income, but also, as I will argue, have serious repercussions on Laos' forests and natural resources. The two practices are cash crop production and patron-client informal payment/gift-giving (hereafter, gift-giving).

The first practice is cash crop production. The government of Laos strongly promotes cash crops cultivation as a mean to generate income (NAFRI, 2010; Thongmanivong et al., n.d.). Thongmanivong et al. (n.d.) wrote that the “commercialisation of agricultural production, particularly in upland areas, is promoted by the Lao government as an alternative to shifting cultivation practices and is deemed to eradicate rural poverty at the same time” in their analysis of agrarian land-use change in northern Laos (p. 191). Various researchers and scholars have conducted studies regarding cash crop cultivation and how it is affecting rice production and the environment more generally in Laos. For example, Ducourtieux et al. (2006) wrote about the introduction of cardamom (*Amomum villosum*) as a cash crop in Phongsaly Province in the northernmost part of Laos, with the goal of replacing swidden agriculture with cash crops to sell to neighboring China. Manivong and Cramb (2008) have written about how rubber was first introduced to southern Laos in the 1930s, but failed to expand beyond the trial plot until the mid-to late-1990s when it then rapidly spread throughout the country as a response to rising demand from foreign investors. Shi (2008) researched and wrote articles about the spread of rubber in northern Laos and the role of the market on that expansion. Baird and Vue (2017) looked at networks within the Hmong ethnic group that allowed rubber cultivation to spread amongst the Hmong at a much faster rate than with many other ethnic groups. Kenney-Lazar and Wong (2016) discussed both the opportunities and challenges associated with rubber cultivation in Laos, emphasizing the role of the market in the rise and fall of the “rubber boom.” Viau et al. (2009) wrote about the introduction of corn in northern Laos and its negative impact on rice production.

Other cash crops that have been introduced into Laos and written about include sugarcane (Vongvisouk et al., 2014) and coffee (Arihiro, 2014; Schönweger & Messerli, 2015; Gant, 2016), which in 2010 was Laos' largest agricultural export (Schönweger & Messerli, 2015).

What I present here that is new and understudied is how the Lao government's action plan to promote cash crop cultivation has affected the Hmong, and how the cultivation of cash crops in order to secure a reliable way to generate income has resulted in increased hunting and natural resource use amongst the Hmong. I start by giving a brief history on Laos' agricultural economy after the end of the Vietnam/Secret War in 1975 to provide readers with materials to understand Laos' current obsession with cash crops. This is followed by a brief discussion on improved technologies that made cash cropping easier and profitable. Next, I discuss the Hmong's longstanding, economically-driven relationship with cultivating the cash crop opium and suggest that this experience, in conjunction with opium being recently declared illegal, has acted as a driving force behind looking for new cash crops to generate income, particularly government-promoted cash crops such as cassava, corn, and peanuts.¹¹⁰ I then articulate how the government's cash crop initiatives, hand in hand with the Hmong's desire to cultivate cash crops, have led most Hmong farmers to convert most, if not all, of their nearby fields to cash crop production. This agrarian change has put farmers in an uncertain financial situation, one that in turn has resulted in the clearing of remote forestland to practice swidden as an insurance policy in case the prices of government-promoted cash crops plummet. The result is that not only are villagers clearing remote lands to do swidden cultivation, including growing opium in increasing quantities, but they are now able to take advantage of their location to harvest wildlife and NTFPs to a much greater extent than previously.

¹¹⁰ The three primary cash crops in my Research Area are cassava, corn, and peanut. They are individually discussed starting with chapter five, section 5.3.2.

The second money-generating practice I discuss in this chapter centers on an unspoken agreement between hunters/NTFP harvesters and the soldiers patrolling the forests, ostensibly to protect natural resources in the area. As this chapter discusses, many of Laos' protected areas, including the Nakai-Nam Theun NPA where I conducted part of my research, are not adequately staffed by trained forest patrols (Robichaud, 2005, 2009). As a consequence, many of the protected areas in Laos are predominantly guarded by district soldiers and police officers who work with local villagers. A USAID-supported study by Johnston (2010) found that many interviewees worried that the soldiers and police were trying to take advantage of the situation and make money off of villagers, as the soldiers are usually obtained from a larger source pool of recruits and few have connections to, or care much about, the local area or the people who live there. However, up to now no in-depth studies have been done to flesh out pertinent details. Here, I argue that the on-the-ground cases presented here illustrate how the Lao government's creation or expansion of protected areas has the potential to frequently result in low-wage soldiers being assigned to guard the protected areas. However, these guards, and Hmong villagers are increasingly oriented toward the capitalistic generation of income, and this has created and nurtured a gift-giving environment that allows for the harvesting of the same natural resources that the soldiers are there to protect. Again, as with cash crops, patron-client informal payment is not a new concept. Indeed, many scholars have written about these relationships.¹¹¹ However, what I present that has not been talked about is how these relationships are developed, nurtured, and maintained in a way that encourages villagers, many times with the support and full blessing of the soldiers, to enter protected areas for the purposes of hunting rare wildlife and harvesting NTFPs.

¹¹¹ Patron-client informal gift-giving payment is discussed starting with chapter five, section 5.6.

Both practices are quite different from each other, and yet both essentially result in the same outcome: the exploitation of the forests and other forest-based natural resources. As such, I will spend a significant amount of time discussing wildlife harvest and trade in this chapter as these practices are very important income-generating opportunities for villagers in the Research Area.

5.2 Changes in Agricultural Practices

The Hmong historically practiced small-scale swidden agriculture, in which households grew crops such as rice, beans, eggplant, leafy greens and various other edible plants, most of which were consumed by the household. There was very little trading of agricultural products in the past, and even fewer crops were grown for commercial purposes, with the notable exception being opium (as will be discussed in the next section). In other words, the Hmong were historically small-scale farmers who focused their time and energy on producing goods for subsistence purposes. However, the introduction of legal cash crops (hereafter, the term “cash crops” refers only to legal cash crops, unless explicitly stated otherwise) into Laos has significantly altered Hmong agricultural practices. As stated in chapter three, many Hmong villagers are now involved with these cash crops as a response to government-promoted programs as well as the increasing presence of the market economy. These phenomena are discussed in detail in the following sections.

However, before we discuss cash crops, it is important to take a moment to examine the primary factors that make cultivating cash crops possible and profitable in Laos. First, the Lao government has a policy to encourage farmers to produce more products for export, and second, technological advances in farming machinery and roads have had a considerable impact on farming practices amongst the Hmong in the Research Area.

5.2.1 From a collective ideology to producing cash crops. To adequately situate and discuss the place of cash crops within household livelihood strategies in Laos, we must first examine how Laos has come to embrace and promote cash crops in the first place.

After what felt like a long, snail-paced crawl toward communism, the Pathet Lao took control of Laos, and finally declared the establishment of the Lao People's Democratic Republic (Lao PDR) on December 2, 1975, approximately seven months after the fall of Saigon on April 30, 1975, an event that officially marked the end of the Vietnam/Secret War. Baird (2015a) wrote that "Laos did not 'fall to communism' in the same way as South Vietnam and Cambodia," as the fall of those governments "occurred decisively." Instead, "Laos, fell gradually to communism" (p. 745) (see Baird, [2015a] for a synopsis of the relatively 'slow' transformation from constitutional monarchy to one-party state Soviet Union-style communism).¹¹²

Once the Pathet Lao took control of the country, they immediately set into motion a plan to socialize Laos with the goal of transforming rural areas into collectives, as the government believed that doing so was the only way of boosting the sagging agricultural economy¹¹³. It was also a way to decrease peasant animosity toward the government due to food shortages (Evans, 1990). The plan, however, failed as farmers often felt that their lands were being taken from them unfairly; many farmers actively resisted by destroying their crops so that they would not fall into the government's hands (Barnet, 2015). This, on top of already poor productivity and a lack of incentive to produce beyond the minimum amount, further crippled the agricultural sector.

¹¹² Unlike with Vietnam and Cambodia in which both previous governments fell decisively on specific dates (Vietnam on April 30, 1975 and Cambodia on April 17, 1975), Laos experienced a slow gradual takeover by the communist Pathet Lao. The takeover was so slow and inconspicuous at times that many countries did not even initially notice that it was happening.

¹¹³ The economy was struggling due to various factors, including a deteriorating relationship with neighboring Thailand, Laos' increasing isolation, business-oriented people fleeing the country, and decreasing support from the World Bank and other leading financial institutions.

Eventually, in 1979, the Lao government realized that the project was not working and suspended their plan to collectivize rural Laos. In the same year, the government introduced the Seventh Resolution in which Laos recognized the importance of five economic sectors.¹¹⁴ Crucially, however, the resolution called for a free agricultural market and a decentralized process to develop Laos (Barnet, 2015), including emphasizing the privatization of the agricultural sector. The result was that production improved somewhat along with family income. However, agricultural production declined again 1986, at which time the World Bank publicly criticized Laos' agricultural sector for being unproductive, especially the export sector and threatened to cut back on more assistance unless the country took steps to improve their economy. Joiner (1988) in his analysis of Laos' economy in 1987, wrote that the "World Bank was highly critical, citing Laos's agricultural inefficiency, industrial output decline, dependency on socialist nation's loans on poor terms..." and "warned that expanded international assistance would depend upon greater public enterprise management efficiency..." (p. 96).

As a response to this threat and after assessing and determining that the country's current economic policy, which relied on tight government control of the private sector (to get them to produce) in conjunction with centralized planning, was not working due to the country's limited resources (Warr, 2010), the government initiated the New Economic Management (NEM) plan in 1987. This policy focused on relying much more on the market. The reforms essentially promoted private sector activities (Vongvisouk et al., 2016) as well as reducing the domestic barriers in Laos to agricultural commodity trading. It was hoped that region with a comparative advantage in cultivating certain cash crops could more readily sell their produce and, if necessary, purchase rice. As there were no longer any domestic restrictions for trading, many households could focus on

¹¹⁴ The five sectors were: 1) individual economy, 2) collective economy of agricultural cooperatives, 3) capitalist economy, 4) state-capitalist joint economy, and 5) state economy (Barnet, 2015).

growing cash crops. The NEM focused on utilizing market mechanisms because the government felt that the market offered a better opportunity to appropriately allocate available resources. A major component of the plan was to give farmers more autonomy and control over their agricultural activities, with the ultimate plan being for the rural sector to generate profit. This capitalist process resulted in the rapid increase in the production of cash crop commodities (Warr, 2010), as farmers took advantage of the new marketing system.

Laos then reestablished ties with Thailand. This not only eased political tensions but also opened cross-border trade opportunities. This was crucial as the Thai economy was growing rapidly, thus greatly increasing the demand for many of the cash crops produced more efficiently in Laos (Warr, 2010). Laos also engaged in dialogue with other countries that opened more international trade possibilities and thus more economic trade opportunities. To hasten the government's economic plan to produce and export goods, cash crops were introduced with the idea that not only would it be exported but crucially, it was intended that cash crops would displace swidden agriculture (MAF, 1999) and serve as a way for farmers to sell commercial products and then use the profits to buy rice. Essentially, the government's aim was to actively promote and encourage villagers to take up cash crops cultivation for both domestic use and export (MPI, 2010).

Today, the Lao government is actively promoting a "produce for export" policy that is encouraging farmers to change from producing crops for household consumption to producing cash crops for sale and export (Roberts, 2015). For example, one of the primary goals set by the Lao government is to "increase application of modernized lowland market-oriented agricultural production" so as to "lead to pro-poor and green value chains targeting domestic, regional, and global markets" in which smallholder agricultural production will be "market-oriented" (MAF, 2010, p. 27) with the goal to significantly increase export goods.

5.2.2 Technological advancement and vehicles. Technological advancement is key to villagers' involvement with cash crops. This is because cash crop production for the Hmong in Laos can be labor intensive over short periods.¹¹⁵ Indeed, it would be quite difficult for a single family to harvest and transport large amounts of cash crops to local buyers without advanced equipment (e.g., harvesting equipment, transportation vehicles). As such, a discussion on how modern technology and transportation infrastructure has made it possible for villagers to grow and sell cash crops in huge quantities is needed. In addition, it is crucial to examine how improving road infrastructure and farming equipment is affecting farming.

Ducourtieux et al. (2006), based on their work studying the cardamom cash crop in northern Laos, identified one of the requirements necessary for cash crops to succeed being that they must be “easily transportable” (p. 74).¹¹⁶ In other words, road infrastructure and transportation access play crucial roles in successful cash crop businesses. As will be discuss in chapter six, the last 30 or 40 years have seen significant advancements in roads and modes of transportation in Laos. The number of vehicles (e.g., cars, trucks, motorcycles) has also grown significantly within the last decade. A report compiled by Wijeratne and Lau (2015) showed that Laos has one of the highest rates of vehicle sales' growth at 21 percent y-o-y.¹¹⁷ For comparison, Vietnam was at 16 percent, Cambodia at five percent, Thailand at three percent, China at 16 percent, India at seven

¹¹⁵ Intensive and time-consuming labor requirements may make it harder for villagers to go hunting and to harvest NTFPs due to time constraints (which may benefit wildlife and natural resources) but in this context, technological advancements are actually making it easier to grow cash crops which then means that 1) villagers can grow more cash crops or 2) spare more time to go hunting and harvesting NTFPs.

¹¹⁶ The other requirements are: 1) the cash crops must be more productive than swidden cultivation (the labor must bring in more per workday than the current family income), 2) the cash crops must offer more security than swidden as farmers cannot drop their staple diet for risky crop proposals, and 3) that households must have access to staple food.

¹¹⁷ Investopedia (2018) defined Year Over Year, commonly abbreviated as y-o-y, as “a method of evaluating two or more measured events compared to the results at one-time period with those of a comparable time period on an annualized basis.”

percent, and the United States at zero percent, while countries such as Germany, Mexico, Italy, and Singapore were in the negatives (p. 5). Conversations with both urban and rural Hmong who are Lao citizens support this data, suggesting that more and more vehicles are being sold in Laos. Many Hmong people living in the capital of Vientiane told me that driving around the capital 10 years ago was much easier than it is now, as there were not nearly as many vehicles on the road. Now, although they do not have the statistics to prove it, these Hmong I spoke with estimate that the number of vehicles has more than quadrupled. A relative of mine who lives in Lak 10 (a suburb west of Vientiane) stated that 10 years ago it took him about twenty minutes to get from his house to Chao Anouvong Park, which is in the middle of Vientiane along the Mekong River approximately 20 kilometers away. Now he says it takes him at least an hour on a good day.

The amount and variety of farm equipment has also increased drastically, thus making farming much easier. For example, villagers now have access to paddy-tilling machines (Figure 5.1) that make tilling land much easier (versus doing it by hand or using water buffalo labor). When not used for tilling fields, these vehicles are modified to serve as vehicles used for transporting people, animals, and goods (Figure 5.2).



Figure 5.1: Paddy tilling machine operated by a cousin. Photograph by V. Vue.



Figure 5.2: Paddy tilling machine modified to serve as a transportation vehicle. Photograph by P. Vue.

Finally, improved roads are also a major factor contributing to changing farming strategies. Improved roads mean that villagers can get from one location to the next much more quickly, a process known as time-space compression (Harvey, 1989; Baird & Vue, 2017). In particular, perishable food can be transported from one area to another more quickly. This is especially important, as being able to transport perishable goods rapidly is crucial for generating money (“Improved,” 1921). The ability to transport perishable goods quickly is even more crucial in countries such as Laos where adequate storage containers (e.g., refrigerators, freezers) or storage facilities are not always accessible. Failure to do so can result in serious consequences. For example, Görçün and Saygili (2008) studied the conditions required to preserve perishable goods and stated that inadequate transportation of perishable goods can lead to economic losses, environmental fatalities, and even raising medical costs. Moreover, Hammond et al. (2015) found that advances in transportation that have allowed for faster deliveries have played crucial roles in feeding the growing human population.

5.3 Cash Crops

Other crops that Hmong people grow in the Research Area such as cucumber, bean, corn, and assorted leafy greens are typically grown in smaller quantities and are usually cultivated mainly for household consumption. Households that can produce surplus quantities of these crops but are unable to consume the goods before spoilage will typically sell them at local markets, as previously discussed.¹¹⁸ However, many villagers explained that they preferred to use their land to grow cash crops, provided that there are buyers, as it is a more dependable and usually more profitable way to generate income. Perhaps a Hmong villager described it best when he stated, “*Cog pob kws ces tau nyiaj dua vim muaj koos haum yuav. Yog tsis muaj koos haum yuav tam sis los pob kws tsis lwj sai ces yus muab khaws tau lwm hnuv mam muag. Cog zaub ces yog tsis muaj neeg yuav tam sis ces lwj tag tsis tau nyiaj*” (Planting corn [as a cash crop] is more profitable because there are companies that buy it. Even if no companies buy it immediately, corn can be stored and sold later, as it does not spoil quickly. Planting leafy greens requires that they be sold immediately, or they will spoil and no money will be made).

5.3.1 The old guard: opium. Opium was not a significant part of my research project but its long-standing association with the Hmong makes it necessary to discuss opium cultivation in this chapter to better understand how the Hmong view cash crop cultivation, with the goal of better situating their role in the larger economy.

Opium was historically one of the most widespread and important crops grown by many mid-to-highland ethnic groups in Laos. The Akha in northern Laos, for example, grew opium in small quantities for local sale and consumption (Cohen, 2000). However, perhaps the ethnic group that has been most associated with the crop is the Hmong ethnic group. Hmong villagers

¹¹⁸ Chapter three, section 3.3.9.2.

historically cultivated the valuable crop in large quantities for both local consumption and as a dependable cash crop (“Laos,” 2015). However in 2001, the Lao government relented to increasing pressure to make the crop illegal, both from the United Nations Drugs Control Programme (UNDCP) and the United States government.¹¹⁹ Opium was declared to be illegal and the government crafted ambitious policies aimed at eradicating it from Laos by 2005 (Baird & Shoemaker, 2005). This goal was enforced even though studies (e.g., Epprecht, 2000) showed that opium was a valuable crop to many villagers living in areas with chronically undependable rice yields. In 2006, after multiple years of aggressively cracking down on producers, the Lao government declared the crop to be eradicated within its borders (Cohen, 2013; Corben, 2015). In reality, the crop was not eradicated and has actually increased in some areas (UNODC, 2015) as is further discussed below. Regardless, the now-illegal status makes opium growing riskier for Lao people, and as such, those growing the crop, including many Hmong, have resorted to cultivating it in more remote locations.

Hmong villagers no longer grow opium in large quantities near villages with moderate to heavy traffic because of its illegal status. Thus, most opium grown in and around the Research Area is cultivated in small, inconspicuous quantities in backyard gardens for various reasons, including medicinal and aesthetic usage. For example, older Hmong plant opium around their house because when the plants bloom, the flowers remind them of when they were still living in the *toj siab* (highlands). Not only does opium bring back nostalgic memories, but many Hmong also told me that there is a connection between them and opium. In a sense, they see opium as a part of their history and way of life and as such, they have a hard time accepting that a part of their history and way of life is now illegal. Even younger Hmong in the Research Area would tell me

¹¹⁹ The UNDCP promised to give US\$80 million to Laos in aid if the Lao government would agree to make the country opium-free by 2005.

that they want to move back to the *toj siab* to raise livestock and grow opium because it is the *ywj pheej* (freedom) life.¹²⁰

Opium is still grown in large quantities in more rural remote places for the illegal drug trade (Figure 5.3). A skilled opium farmer with good quality land can produce and harvest 10 or more kilograms of opium paste per hectare using simple harvesting tools (Figure 5.4). The harvested paste is usually sold in two measures. The first is to divide the paste into small weighted amounts called *ntxiag* in Hmong, which amounts to approximately 3.85 grams each. These are then sold for 50,000 Lao kip (US\$6.25) each. There are 260 *ntxiag* in a kilogram so a farmer can make around US\$1,625 if he sells a kilogram worth of opium in *ntxiag*. The other measure that opium is sold in is by the kilogram. A kilogram usually sells for about US\$1,000.



Figure 5.3: Poppy fields in Vieng Thong District. Photograph by anonymous photographer.



Figure 5.4: Opium harvesting tool. Photograph by P. Vue.

The ability to sell opium at high market values makes growing it an attractive livelihood strategy to many Hmong, including some of those living in the Research Area. Thus, although

¹²⁰ I found these thoughts interesting as many younger Hmong were born in the area and never really experienced the *toj siab* life. However, I did not look deeper into these feelings.

many Hmong villagers give the impression that they are following government policies on opium prohibition, the reality is that its high market value, its illegal status, the Lao government's push to get villagers to grow legal cash crops (discussed below), and the historic relationship between the Hmong and opium all come together to strongly encourage Hmong villagers to grow opium but do it out of sight. Finally, it is worth noting that many Hmong in the Research Area have taken advantage of swiddening in remote places to grow marijuana. Marijuana growers, who are mostly men, sometimes stay for weeks or even months at a time at the marijuana fields to keep watch over and harvest the crop before coming back to their homes. What is interesting, and warrants further inquiries, is that marijuana is a new illegal cash crop that the Hmong in central Laos have only recently started growing (as compared to opium that has a much longer history).



Figure 5.5: Marijuana fields north of the Research Area. Photograph by anonymous photographer.



Figure 5.6: Dried marijuana plants left in a cabin. Photograph by anonymous photographer.

5.3.2 The new (legal) guards. The previous chapter discussed the Lao government's agenda to eradicate or at least limit swidden agriculture through actively discouraging it, while promoting wet-rice paddy agriculture as an alternative. This creates a dilemma for the government.

On the one hand, the government is adamant about decreasing swidden agriculture. On the other hand, it recognizes that there are cleared (and uncleared) non-paddy lands all over the country that villagers could use to not only generate income to sustain their livelihoods but to produce more export commodities (as discussed above). Thus, a practice that could be used to kill not two, but four birds with one stone (increase Laos' export, provide a way for villagers to generate income, reduce swidden agriculture, put non-paddy land to use) is to allow, and in many cases even encourage, villagers to grow non-opium cash crops.

At the time of the study, 57 of the 97 households with swidden lands reported that they were using their swidden fields to grow only cash crops, while only three households stated that they were using their swidden fields to grow only rice and vegetables for household consumption. Twenty-nine households reported that they are using their swidden fields to grow both rice and cash crops while eight households reported either not using their swidden fields or using their fields to grow just vegetables and other greens for mainly household consumption (these fields are usually just small gardens). The high number of Hmong households growing cash crops suggests that the Hmong are both economically driven to produce crops that can be sold to generate higher levels of income (as was with opium) and are experienced enough to do so successfully. The following sections highlight the three most common cash crops grown in the Research Area. Here the term “most common” refers to the number of households that are growing a particular cash crop and not necessarily the number of hectares that a cash crop is grown on.¹²¹

5.3.2.1 Cassava. By far the most common cash crop grown by Hmong farmers in the Research Area is cassava (Figures 5.7 – 5.9). The first Hmong cassava farmers in the Research Area initially either purchased or were loaned cassava planting material by small Vietnamese

¹²¹ Villagers chose which cash crops to invest in based on household financial status, field locations, availability, whether they have connections to a “guarantee” buyer, among other reason.

companies, depending on the agreement between the farmer and the Vietnamese company. Some companies would give free cassava to villagers with the agreement that the villager would sell the cassava back to the company at a discounted price the following year. Other times, villagers could sell to whomever they wanted if they purchased the cassava planting material. These sorts of agreements are usually for only a year given that afterwards, farmers can just grow their own using planting material obtained from the first generation's stock.

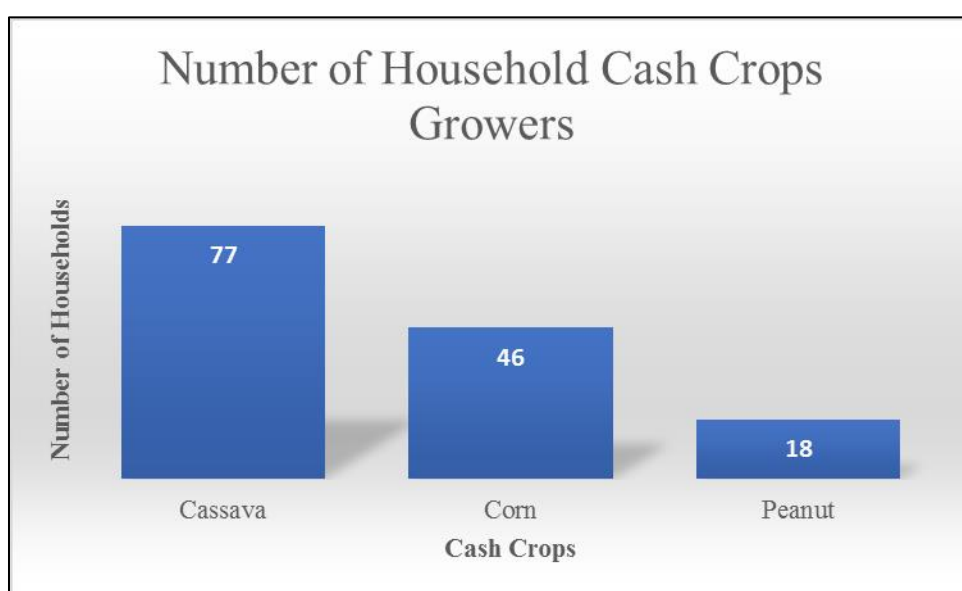


Figure 5.7: Chart showing how many of the 100 interviewed households were growing which cash crop(s). Some households were going two or all three of the cash crops. Chart by P. Vue.

Regardless of the terms of agreement, the general idea was that farmers would tend the fields until the crop was ready to be harvested, at which time they would dig, slice up, dry, and transport the cassava to local Vietnamese cassava buyers. To entice villagers to plant cassava, these companies would promise to buy back the cassava at a set price regardless of the state of the economy in the near future. The companies would then leave the area before returning the following year to buy the cash crop. When they did purchase cassava, they would set up temporary

shops along roadsides or sometimes rent a house where they would buy and store the cassava. Later, the Vietnamese would close the shop once they had 70-80 tons of cassava, and then take the cassava to Vietnam to sell there. Recently, in 2017, a permanent cassava shop was opened in the Laksao area. This shop promised to buy raw cassava anytime (P.T. Vwj, personal communication, April 3, 2018) which further enticed villagers to grow the cash crop.¹²²



Figure 5.8: Cassava fields near Ko Hai village. Photograph by P. Vue.



Figure 5.9: Cassava. Photograph by P. Vue.

Cassava takes an entire year to grow to the size preferred by Vietnamese companies. As such, cassava farmers can only produce one crop harvest per year. It is usually planted at the beginning of the wet season, between May and July, and is harvested between February and April of the following year. The selling price for cassava at the time of the research was 1,000-1,500 Lao kip (US\$0.13-\$0.19) per kilogram.

5.3.2.2 Corn. The second most popular cash crop grown in the Research Area is corn or maize (Figures 5.10, 5.11). Corn farmers purchase corn kernels to plant from a few sources on an

¹²² Unsliced and undried.

annual basis. Once harvested, they either sell the corn to local companies or transport it to the Laos-Thailand border and sell it to buyers there.



Figure 5.10: Corn fields near Ko Hai village. Photograph by P. Vue.



Figure 5.11: Corn being dried in Ko Hai village. Photograph by P. Vue.

There are two types of corn kernels available for purchase: the Vietnam kernel and the China kernel. The Vietnam kernel, as the name suggests, is from Vietnam. Corn farmers either purchase this variety upfront from Vietnamese companies for 25,000 Lao kip (US\$3.13) per kilogram or obtain the kernels as a loan to be paid back after the harvest. The China kernel is purchased for 50,000 Lao kip (US\$6.25) per kilogram. The China kernel is more expensive because it produces a higher yield per stalk than the Vietnam kernel. In addition, villagers say that the China variety must be purchased on an annual basis from Chinese companies because the strain will produce less and less yield from one generation to the next. I did not look for information on this strain, but it could very likely be a hybrid variety because of the decreasing yield from one generation to the next (Richey et al., 1934; Neal, 1935; Kinman & Sprague, 1945).

Unlike cassava which has only one harvest season per year, corn can be harvested two times per year. The first season kernels are usually planted between March and April and harvested

between October and November of the same year. The second season kernels are planted from October to November and the harvest is in March or April of the following year. The average selling price for corn during the study was 1,500-2,000 Lao kip (US\$0.19-\$0.25) per kilogram. The companies then turn the corn into animal feed.¹²³

5.3.2.3 Peanut. The third most common cash crop grown by households in the Research Area is peanuts (Figures 5.12, 5.13). Peanuts are sold to farmers for 8,000 Lao kip (US\$1.00) per kilogram. The peanuts are then planted, harvested, and sold back either to the company that sold the peanuts to the farmers or to other companies willing to buy the cash crop. The average price that companies pay for peanuts is about 2,500-3,000 Lao kip (US\$0.31-\$0.38) per kilogram.



Figure 5.12: Cleaning peanuts in Ko Hai village. Photograph by P. Vue.



Figure 5.13: Peanuts hung to dry Ko Hai village. Photograph by P. Vue.

Like corn, peanuts can be planted and harvested twice a year. The first season involves peanuts being planted at the beginning of the wet season around May to June and then being

¹²³ These cash crop corn varieties are sometimes eaten by people as well but only during times of food shortage as they do not taste good.

harvested in September to October of the same year. The second season peanuts are planted in late December to January. This second crop is harvested in late March to April.

Table 5.1 (Reproduced from Table 3.2)

Cash Crop Annual Labor Cycle

Month	Manual Labor
January	Plant Peanuts (2nd Season)
February	Harvest Cassava
March	Plant Corn (1st Season), Harvest Corn (2nd Season), Harvest Cassava, Harvest Peanuts (2nd Season)
April	Plant Corn (1st Season), Harvest Corn (2nd Season), Harvest Cassava, Harvest Peanuts (2nd Season)
May	Plant Cassava, Plant Peanuts (1st Season)
June	Plant Cassava, Plant Peanuts (1st Season)
July	Plant Cassava
August	
September	Harvest Peanuts (1st Season)
October	Harvest Corn (1st Season), Plant Corn (2nd Season), Harvest Peanuts (1st Season)
November	Harvest Corn (1st Season), Plant Corn (2nd Season)
December	Plant Peanuts (2nd Season)
<i>Note.</i> 1 st Season refers to the first season for that crop in an annual year cycle, 2 nd Season refers to the second season for that crop in an annual year cycle as some crops have more than one season per annual year. Table by P. Vue	

5.4 Cash Crop Price Fluctuations

The potential to generate above average income through cash crop agriculture makes the practice enticing and attractive to many Hmong villagers. Not only are they able to potentially generate income from cash crops, but they are also able to position themselves in ways that demonstrate that they are indeed supportive and are following government policies with regard to limiting swidden agriculture and producing crops for export. Thus, many Hmong villagers have

converted nearly (if not all) their nearby fields from swidden rice-producing to growing cassava, corn, and peanuts for the market.

However, cash crop prices tend to fluctuate greatly depending on the year; they are particularly dependent on demand, and in turn, on what companies are willing to pay. For example, a cassava farmer informed me that the local Vietnamese companies in the area often try to coerce farmers to sell their cassava to them at a price far lower than the originally agreed upon price. In these cases, they tend to cite the declining economy (whether real or fabricated) as the primary reason for price declines. If farmers refuse to sell the cassava at such low prices, company representatives often threaten to leave the area. Many farmers relent, as they do not want to be stuck with hectares of cassava and no buyers.¹²⁴ On the other hand, some farmers have gotten so angry with the companies that they have refused to dig up the cassava and have instead left their crop in the ground until the following year to see if the buying price would increase. They harvest the cassava the following year if the price increases (even though older more mature cassava are, kilogram for kilogram, worth less than young cassava). If the price does not increase to an acceptable level, farmers may elect to leave the cassava in the ground, unless they are in desperate need of money. For example, when I returned to the Research Area in 2016, the year after my main research period in order to conduct follow-up interviews, I was informed that many farmers had refused to dig up and sell their cassava after I had left the Research Area because the selling price was 500-700 Lao kip (US\$0.06-\$0.09) per kilogram, which was a much lower price than they expected to receive. In their words, the selling price was not even worth their time to go to the fields, let alone dig up the cassava. A farmer said to me, “*Tus nqi Nyaj laj yuav twb tsis them roj*

¹²⁴ Villagers who have used money to rent their fields would usually relent as they do not want to be stuck paying another year's rent. It is better to dig up and sell the crop even if the price is low than to leave the cassava in the ground and having to pay another year's rent.

tshej mus txog tej teb li” (the price the Vietnamese were willing to pay will not even pay for enough gas to get to the fields). This situation is not unique to cassava, as similar circumstances have also occurred with corn and peanuts.

Unsurprisingly, growing cash crops is a huge risk, with potentially disastrous financial outcomes. Cash crops in Laos are often a feast or famine investment in which households can potentially become rich rather quickly if selling prices are high, or suffer severe income losses if prices drop. What this means to villagers is that cash crops, while potentially profitable, cannot be depended upon to generate household income from year to year. As such, many households have elected to grow cash crops while simultaneously finding other ways to generate money in case the cash crop market fails.

5.4.1 Swiddening further away...again. One practice proven repeatedly to be able to produce food for family consumption is swidden agriculture. However, as most available fields in the Research Area are now used to grow the aforementioned cash crops, villagers must look for other land further away from populated areas in order to conduct swidden agriculture. Thus, unlike in the previous chapter in which government restrictions on swidden were linked to villagers venturing into more remote areas to conduct swidden agriculture, in this chapter, related behavior is linked with the introduction of cash crops.

Consider Household #34 which owns a 1.1-hectare field about seven kilometers from the village and is using the entire field to grow cassava. Initially, this family cleared land around the village to grow rice and other swidden subsistence crops, but residents and government officials told family members that they could no longer do so. Left with no alternatives, the family and a few other households decided to travel upriver by boat to the northern part of the Nam Theun watershed (north of the Research Area) in order to clear forestland to grow rice. Getting to this

area requires a one- to two-hour motorboat ride up the Nam Ngouang River and then a two- to three-kilometer walk into the forest in order to “get out of view.” These households have been going to this area for the last seven years and have cleared many hectares. The male head of the household explained that in 2013 his family was able to harvest seventy 50-kilogram bags of rice from the area. However, in 2014 the family was only able to get 52 bags, so the head of the household decided that he would need to clear new adjacent lands in 2015 since the soils in his present area were being depleted.

While there is a cost associated with transporting the harvested rice back to the village, members of these households said that it is much better than not having rice to eat if the cash crop market crashes. This is one of the primary ways, and the preferred way for many poorer villagers, to address food security issues when faced with uncertain cash crop markets. Furthermore, not only are farmers getting out of view of local officials, they are also venturing to distant forests, thus bringing them into contact with valuable timber and wildlife. As a result, now they are not only clearing forestlands to farm, they also are also cutting down valuable trees and hunting wildlife to greater extents than before. For example, one evening I was visiting one of Household #34’s neighbors when the male head of Household #34 returned with seven brush-tail porcupines and some birds and squirrels, after having spent a few days at his remote swidden rice fields. In addition, he had bought a gas-powered chainsaw and was cutting down valuable trees to sell (the timber could be seen stored behind his house).

5.4.2 Increasing hunting...again. Economic earning potential is also responsible for increasing wildlife hunting and illegal wildlife trading, as many hunters now view hunting as not just a way to put food on the table, but also as a way to generate income. This is especially the case for households that do not have much, if any, land to practice swidden on. Although many

households did not answer questions I asked about their income regarding the harvesting and sale of wildlife, data obtained from those who did answer suggests that the income generated from wildlife meat averages about 13 percent of a household's total annual earnings.¹²⁵

Increased hunting linked to economic earning opportunities has led to drastic changes in household livelihood strategies. Hunters now spend less time hunting around their villages and instead are investing more time and traveling further to hunt in remote areas where wildlife is more abundant. For example, one hunter explained that he would go on hunting excursions lasting ten days or longer and that he travelled 100 kilometers or more to hunt. The great distances traveled mean that Hmong hunters are reaching remote places. This includes hunting in and around the center of the Nakai-Nam Theun NPA. Many hunters drive *tsheb cav* or scooter/motorcycles (hereafter motorcycles, as most villagers refer to their scooters as motorcycles) on trails to get near the NPA and then leave the motorcycles in “motorcycle lots” in various nearby villages to be looked after by motorcycle lot operators (usually members of households that own the lots). They either then hunt around the edge of the NPA or take a boat across the NT2 hydropower dam's reservoir and go hunting near the center of the NPA for many days. It is also worth noting that many hunters do not actually know where the protected area starts and only know that they are in the protected area after walking some distance into the forest (as previously discussed in chapter four). In any case, once they have hunted long enough, they use their cell phones to call for a boat ride back to the dam (the cost is usually 5,000-10,000 Lao kip or US\$0.63-\$1.25 per person), pick up their motorcycles (usually 5,000-20,000 Lao kip or US\$0.63-\$2.50 per stay), and return home.

¹²⁵ See chapter three, tables 3.3 – 3.6.

5.5 The “Talk” in Money Talks

Economic income opportunities (along with government policies prohibiting civilian ownership of firearms) have also led to changes in hunting strategies. Hmong hunters are now hunting animals that they historically did not consume and therefore had no reason to hunt in the past. For example, many villagers living in the Research Area are now targeting turtles and tortoises. Not only are they actively looking for these animals, they are now training dogs to sniff them out. This is accomplished by villagers taking a turtle and allowing the dogs to sniff it for a few minutes and then removing the dogs from the area and allowing the turtle to roam (all the while keeping track of its location). Once the turtle/tortoise has gone far enough, the dogs are returned to the area and released to track down the animal. A dog is rewarded if it successfully finds the turtle/tortoise. If a dog fails enough times, it is sold off and will likely end up in a cooking pot. Villagers spend significant amounts of time training dogs this way because turtles and tortoises are currently a hot commodity animal in the area and more generally in Laos (Stuart & Timmins, 1999; Yoon, 1999). Indeed, wildlife is becoming increasingly commodified. Common turtles and tortoises usually sell for 300,000-500,000 Lao kip (US\$37.50-\$62.50) per kilogram in the Research Area. Rarer and highly sought-after species command much higher prices. For example, two Hmong hunters came to my Research Area looking to sell a golden coin turtle (*Cuora trifasciata*). They eventually were able to sell it to a Vietnamese trader in the area for 60,000,000 Lao kip (US\$7,500). This is a huge amount of money, but it pales in comparison to another larger female golden coin turtle that was sold for 600,000 Thai baht (US\$18,000). Because the money involved was so substantial, the Hmong hunters did not trust the Vietnamese buyer or risk losing/misplacing the turtle. Instead, the deal was mediated by my cousin using two photographs (Figure 5.16) that he showed prospective buyers first to see if they were interested. A deal was

finally completed after he traveled back and forth and met with both parties separately multiple times. Once the deal with finalized, the hunters retrieved the turtle and delivered it to the buyer (with many people, including myself, going as a security measure to make sure the buyer did not try to rob them). Once the money was paid in full and the buying party had departed with the turtle, one of the Hmong hunters smiled and made a very thought-provoking comment. He quipped, “*Nrhiav tau ib tug vaub kib kub ces tau ib lub Vigo tshiab*” (find a golden coin turtle and get a brand-new Vigo [Vigo refers to a popular variety of Toyota Hilux Vigo pick-up truck that is being sold in Laos in large quantities]).

Hmong hunters are also expanding their hunting practices to include more and more snares. While the increase in snare use is undoubtedly a response to laws prohibiting firearms, it is also true that economic incentives play a significant role in the expansion of the use of snares. Snares, unlike firearms, do not require the hunter to be present. Many hunters in the area set snares, leave the area, and return a few days later to see if any animals have been caught. Hunters frequently leave hundreds of snares out to maximize chances of catching something valuable. Many are smaller snares, but some are large enough to catch and hold large, deer-size muntjacs. Finally, enticing economic incentives have also resulted in hunters venturing into and hunting in previously avoided areas. This important change is discussed in the next chapter.

Table 5.2**Selected Animal Species and Selling Price in the Research Area**

Species	Cost (Lao kip) *8,000 Lao kip ≈ US\$1.00*
Bear (<i>Ursus</i> spp.)	Body parts = 600,000/kg and up (gall bladder significantly higher)
Green peafowl (<i>Pavo muticus</i>)	50,000 each
Deer/muntjac spp.	1,000,000/20kg
Pangolin (<i>Manis javanica</i>)	3kg or less =1,500,000/kg; 3-7kg = 1,200,000/kg; 8kg or more = 1,100,000/kg
Macaque (<i>Macaca</i> spp.)	40,000/kg dead; 250,000/kg alive
Ferret-badger (<i>Melogale</i> spp.)	300,000 each; 40,000/kg or more
Large rodent spp.	130,000 each or more depending on species
Monitor/large lizard spp.	50,000 each or more depending on species
Various squirrel spp.	5,000 - 28,000 each or more depending on species
Bamboo rat spp.	40,000 - 80,000 or more depending on size
Brushed-tailed porcupine (<i>Atherurus macrourus</i>)	250,000 - 300,000 each or more depending on size
Wild pig (<i>Sus</i> spp)	20,000 - 50,000/kg
Various pheasant spp.	70,000 each depending on species
Various fish spp.	5,000 - 20,000 each or more depending on size and species
Various shrew spp.	10,000 or more depending on species
Red-shanked douc (<i>Pygathrix nemaeus</i>)	80,000/kg
Giant flying squirrel spp.	200,000 or more depending on size
Turtle/tortoise spp.	300,000 - 500,000 each; 50,000/kg or more depending on size and species
<i>Note.</i> Many animals were not identified to the species level. Table by P. Vue	

Although hunters are now hunting more frequently and presumably harvesting more animals, in truth many of the harvested animal species are too valuable for the hunters and their families to consume. Instead, these animals are sold to mostly Vietnamese wildlife traders. Many

of these wildlife traders are also the owners of the many restaurants and stores in the area. A hunter usually has at least four or five contacts that he will call to inquire about interest in purchasing an animal and then he sells the animal to the highest bidder. The hunters then take the money and buy cheaper meat products such as small game and fish from the market to consume at home.

A few of the most valuable animals are sunda pangolin (*Manis javanica*, Figure 5.14), red-shanked douc langur (*Pygathrix nemaeus*, Figure 5.15), and various species of turtles and tortoises (Figures 5.16, 5.17). These animals currently command such high prices that it becomes a rational decision for hunters to sell them instead of eating them. For example, I travelled with a few hunters who managed to tree a pangolin with dogs. The animal was captured alive, so the group decided to come back from the hunting trip early because they did not want to risk the pangolin escaping or dying (pangolins are worth significantly less if they are deceased). Once we got back to the village, the hunters called around and price shopped to see which wildlife trader would offer them the best price. Eventually it was sold to a Vietnamese trader for 8,000,000 Lao kip (US\$1,000). In addition, six brush-tailed porcupines were also caught and sold for 225,000 kip per kilogram to the same trader, for a total sum of 3,825,000 Lao kip (US\$478). While these may seem like great selling prices for villagers, in truth, the final prices of these animals are actually quite a bit higher (Sutter, 2014; Zhang et al., 2017). After we made the sales, we came back to one of the hunter's houses and ate the remaining squirrels and a wild jungle fowl (*Gallus gallus*).



Figure 5.14: Pangolin awaiting sale in the Laksao central area. Photograph by P. Vue.



Figure 5.15: Killed red-shanked douc langur in the Laksao central area. Photograph by P. Vue.

In summary, the wildlife market has made hunting very enticing to Hmong hunters, as the potential economic gains associated with hunting are tremendous. Thus, hunters are traveling great distances to hunt. There is no consensus on what time of the year to hunt, as different hunters tend to have their own preferences. Many hunters also hunt based on availability, needs, and the market. For example, many hunters stated that they go hunting when they can spare time away from their agricultural fields or when they need food or money. Some hunters also hunt based their decisions on the species targeted (e.g., hunting squirrels and wild pigs in August, September, or October to coincide with fruit and nut ripening). This increase in hunting brings up questions regarding how hunters negotiate the area to maximize hunting opportunities, as discussed below.



Figure 5.16: A picture of two other pictures of a golden coin turtle. The hunters refused to show the live turtle due to security concerns so they shopped the turtle around using pictures in the Laksao central area. Photograph by P. Vue.



Figure 5.17: Turtles and tortoises awaiting sale in the Laksao central area. Photograph by P. Vue.

5.6 Concepts of Corruption

Just setting aside areas to be protected does not actually protect the forests or natural resources in those areas. Laos, as a country, does not have the financial capacity to staff its numerous protected areas with decently paid rangers (Robichaud, 2005). Instead, most of the protected areas, including the Nakai-Nam Theun NPA where I conducted some of my research, are mostly staffed by newly drafted, low-ranking soldiers, who conduct forest patrols and man checkpoints near the forest. This is notable as this protected area has more funding than any other protected area in the country, since the construction of the NT2 dam included an agreement to provide over \$1 million a year to fund the protected area for the foreseeable future.¹²⁶ Robichaud

¹²⁶ To help divert some attention away from the serious impacts that the NT2 has on wildlife, the Nam Theun Power Company (NTPC, a company established to build and operate the NT2 and associated projects) committed approximately US\$31.5 million over a 30-year period to protect the watershed area and the Nakai-Nam Theun NPA (McDowell et al., 2008). The \$31.5 million consists of \$6.5 million that the NTPC gave during the initial planning and construction phase and approximately \$1 million/year for the 25-year concession once the dam is operational. This approximately \$1 million/year was to be divided up for three main uses: 1) administrative (25 percent), law enforcement/monitoring (40 percent), and rural development (35 percent) (Johnston, 2010). It was likely that the fund was not used to adequately staff the park and instead used for other purposes. For example, according to the concession agreement that was signed between the Lao government and the NTPC, there would be money for cooks, satellite TV, air-conditioned offices, and solar-powered refrigerators among other things with little mention of how the money was going to be used to staff the park with trained park patrols (Probe, 2008). Johnston (2010) wrote, “Although some

(2005) conducted extensive research for his Master's thesis on forest cover in the Nakai-Nam Theun NPA and wrote that "the reserve has a modest headquarters (located outside the area, in the district capital), a head and a small staff" which meant that "on-the-ground management has been limited, with few resources or staff, and low staff professionalism and inclination to venture into the forest or the NPA's villages." Thus, "patrolling is provided mainly by a single post near the Vietnam border, manned by a contingent of district border police" (p. 24). A report by USAID (Johnston, 2010) found that the NPA, the largest protected area in mainland Southeast Asia at 4,025 km² (SEMFOP, 2005), was staffed by only 20 enforcement staff. Madhu et al. (2014) in their study on capacity building for protected area management in Laos remarked, "In Laos, as in many other countries, the challenge of producing well-trained professionals to implement conservation and establish sustainable practices in protected areas is enormous" (p. 717). The lack of adequately trained staff opens opportunities for villagers and soldiers (and to a lesser extent, police officers) to develop and nurture a mutually beneficial relationship that may be viewed by others as bribery and corruption. However, before discussing and trying to make sense of the term "corruption" in Laos, a first look at Laos' current soldier salaries is warranted.

5.7 A Soldier's Salary

The minimum wage in Laos is currently set at 900,000 Lao kip (\$112.50) a month ("Lao," 2015).¹²⁷ Although this is currently the minimum wage, most Lao wagedworkers are paid much less. For example, many young villagers stated that they are working 48-60 hours, six days a week for about 600,000 to 800,000 Lao kip (US\$75-\$100) a month working in stores and guesthouses.

WMPA (Watershed Management and Protection Authority) staff have participated in biodiversity workshops, WMPA continues not to have staff with foundational knowledge of biodiversity conservation" and that "at the time of USAID's visit, WMPA did not even have biodiversity technical advisors" (p. 6).

¹²⁷ Minimum wage relates to paid wages receive through employment at shops, guesthouses, restaurants, etc. and not the amount of money that villagers make from farming.

A soldier's wage, on the other hand, depends on his education and time served in the military. A recently recruited soldier with less than a bachelor's degree is usually paid 1,000,000-1,500,000 Lao kip (US\$125-\$187.50) per month. A lower- to mid-ranking soldier with a bachelor's degree (either attained through education or time served in the Lao army) can make around 2,000,000 Lao kip (US\$250) a month (N. Xyooj and X. Vwj, personal communication with two Hmong soldiers in the Research Area, 2014, 2017). However, these wages are net wages. The actual amount a low-ranking soldier receives is quite a bit less as they are required to give a portion of their salary to higher-ranking officials to use for "necessities" such as "equipment" and "area maintenance" fees.¹²⁸ In addition, a soldier is responsible for most of his food. This includes rice rations,¹²⁹ a couple of chickens,¹³⁰ and in some cases, a piglet. Soldiers are also required to establish and maintain garden plots around their camps to grow edible greens. Finally, it is important to realize that while soldiers are supposed to be paid monthly, wages are often paid late, and sometimes soldiers will go for months without being paid.

Soldiers stationed in and around forestland are responsible for patrolling the area to make sure that no one enters the forest to illegally log or hunt wildlife,¹³¹ especially animals that are threatened or endangered. The penalties for getting caught illegally cutting down trees or harvesting wild animals include fines and possible jail time (as discussed in chapter four). The idea behind stationing soldiers in an area to monitor, capture, and fine lawbreakers was to dissuade villagers from entering certain areas to harvest available natural resources. However, the reality is

¹²⁸ These words are in quotations because the Hmong soldiers told me that they were not sure if the money were indeed being used for these necessities and that in truth, they do not know where the money go.

¹²⁹ Hmong soldiers with families in the Research Area would come home every so often to get a large bag of rice.

¹³⁰ The soldiers also would take chickens with them to eat, as pets, and as entertainment (cock fighting). Some soldiers claim that the chickens would also alert them to nearby/approaching wild animals and people.

¹³¹ There are hired park patrol officials patrolling the Nakai-Nam Theun NPA and surrounding areas, but they are few in number. I personally did not meet or run into any during my fieldwork.

that stationing low-wage, armed soldiers in and around protected areas actually creates opportunities for these soldiers and villagers to develop and nurture unspoken agreements in which both parties benefit financially in a mutual-aid, moral-economy-type relationship (see, for example, Thompson, [1971]; Scott, [1976]; Brocheux, [1983] for studies on the moral economy; and see Ribot & Peluso, [2003]; Hall et al., [2011] for concepts of access and control).

5.8 A Villager's Choice

Before I examine this unspoken mutual-benefit agreement, I need to discuss briefly the choices villagers have when government officials tell them that they can no longer clear land for swidden or that they can no longer hunt or collect NTFPs in certain areas. What can villagers do when, with a stroke of a pen, their livelihoods are suddenly criminalized?

An obvious choice is to stop clearing land, stop hunting, and stop collecting NTFPs. However, this is not a practical option for the majority of Laos' population, as 70 percent are rural villagers (see chapter one) who are very dependent on the surrounding resources to meet and sustain their livelihood needs. A more viable option is to venture deeper into more remote and less disturbed forests to swidden and/or hunt and harvest NTFPs. Many villagers are now adopting this strategy, as has been discussed in previous chapters including this one. The third choice, and one that will now be discussed in-depth, is what I am calling the economy of "gift-giving."

5.9 Corruption or Gift-Giving

Bribery and corruption within the Lao forestry and natural resource sector is nothing new (Callister, 1999; Keuleers, 2002; Hodgdon, 2008). Stuart-Fox (1986) traced the historically embedded and currently accepted patronage system back to the original Lao kingdoms. In other words, this patronage system persisted and continued throughout Laos' many eras, including Siam domination from 1779 to 1893, French colonialism from 1893 to 1953, and the Royal Lao

government until the end of the Vietnam/Secret War in 1975, to today's current government. Roberts (2015) states that the patronage system's "historical continuity makes it a default system as people learned long ago that gift-giving gets things done" and that it "is a never-ending cycle that sustains itself" (p. 16). Barney and Canby (2011) showed how forestry officials and company representatives are able to profit from the timber trade due to various loopholes that allow for various corrupted practices, from over-quota logging and logging outside of legally designated zones to benefits for those in higher positions. Indeed, many are concerned about corruption in Laos and have voiced their opinions on this matter (e.g., see Hodgdon, [2008]; To, [2009]). From a different perspective, Baird's (2010c) analysis on corruption and patron-client relations in Laos indicates that various types of patron-client relationships that would be viewed as corruption in developed countries are not necessarily seen as corruption in other less developed countries such as Laos. Furthermore, what appears to be corruption by international standards may be considered rational payment for services within the Lao socio-cultural and political context.

Regardless of whether it is corruption or clientelism, studies have shown that these activities and practices occur along various commodity chains within the Lao forestry sector. Often, these activities are easy to conduct due to the complex procedural documentations required. For example, Baird (2010c) also found that the many permissions and documentations required throughout the logging process provide multiple opportunities for officials to gain benefits. Furthermore, he wrote that "the majority of the illegal payments will have been made either in the forest, or at the wood sorting sites" (p. vii). My research expands on this concept but instead of looking at the interactions between large companies and mid- to higher-ranking officials, I looked at patron-client relationships at the beginning of the logging process—that is, the relationship and interactions between villagers and newly recruited, low-ranking soldiers.

I personally witnessed meetings related to establishing agreements between enforcement officials and businesspeople many times because of where I stayed during my fieldwork. I rented a room in a guesthouse owned by one of my relatives who is also a major wildlife trafficker in the area. The guesthouse is also located at a very convenient location. Many times, I woke up, or came back to the guesthouse lounge, to find the guesthouse packed with soldiers dressed in their government-issued, dark green uniforms and police officers in their tan uniforms talking back and forth with businesspersons (mostly men). They did not seem to care that the guesthouse front clerk and I were within earshot of them and listening to their conversations. I speak some Lao, but I am not fluent so although I can pick out words and phrases, I would ask the guesthouse clerk in Hmong what the conversations were about in order to better understand what was going on. He would casually reply that they were discussing various deals and dividing the money so that everyone gets a little and all remain happy or at least content. The only time these conversations took place were when there were semi-trucks full of timber parked along the road and off to the side (Figure 5.18). The deals were usually completed within a couple of days, after which time the trucks, soldiers, police officers, and businesspersons would disappear until the next meeting. It is important to know that not all the people involved in these agreements gain the same monetary gift; it depends on positions, influence, aggressiveness, and other factors. Baird (2010c) wrote, "In many ways, it has become an art for company representatives to determine who they need to pay for what and to avoid paying when such payments are not necessary or even problematic" (p. vii). This skill is similarly practiced by villagers through constant dealing with soldiers in the area.



Figure 5.18: Semi-trucks loaded with timber waiting for the then-current deal to be finalized before heading to Vietnam. Businesspeople, soldiers, and police officers would meet for three to four days in the guesthouse before leaving. Photograph by P. Vue.

Bribery is illegal in Laos. However, accepting gifts is considered legal by most. Indeed, in countries with weak laws and regulations such as Laos, it is difficult to prove and/or determine which is which. Over time, the situation becomes so muddled that illegal activities become legal and unethical decisions become ethical. This will be further discussed in the following sections. Furthermore, it is important to realize that this relationship is not unique to natural resource extraction and use. In fact, similar interactions take place between various groups regarding a range of issues. For example, I was told by an informant that if a new or recent graduate wants a job at a bank, he/she would have to provide a monetary gift to senior bank managers (usually around the equivalent of US\$5,000-\$10,000) to secure the job. Another example would be if a student wants good grades, he/she would have to give gifts to the teacher. Again, these practices are not written

down anywhere, but most people know about them and many try to use these circumstances to their advantage.

In a sense, Scott's (1976) concept of a moral economy, especially with regard to the risk-sharing relationships that exist between two groups, is useful to consider. Scott argues for a subsistence ethic that promotes a type of social exchange relationship where both parties benefit (because everyone has the right to partake in activities to meet or surpass their livelihood needs). Additionally, most villagers feel that the available natural resources in the area belonged to them in the first place and that the government essentially stole the resources from them. This was especially evident in my Research Area, as many of the villagers there have been living in the area since the early 1980s and had access to its natural resources until around 1993 when the Nakai-Nam Theun NPA was established. Villager access was further restricted in the mid-2000s when the US\$1.45 billion NT2 project was approved (SEMFOP, 2005; World Bank, 2007; Lawrence, 2008). Thus, villagers use memory¹³² to claim ownership of the land, and as such, they are only doing what they must to take back what was theirs to begin with. Gift-giving is then seen not as corruption, but as a means that not only satisfies both the villagers and the soldiers patrolling the area, but to get back at the government.

5.9.1 Gifts. So, what are these gifts? Furthermore, how do various groups initiate and interact with each other to come to a gift-giving understanding? The gifts in question are essentially lump monetary sums usually given to soldiers, forest patrols, and to a lesser extent, police officers for allowing villagers to go into protected areas and harvest available natural resources. The amount of money given is dependent on what products are harvested, the quality, and the amount. My research shows that agreed upon, but unwritten monetary gift amounts are expected to be given

¹³² See Korsmo, [1996]; Baird & le Billon, [2012]; and McCall, [2016] for case studies discussing how memories were used to claim land and resource rights.

to forest patrols at checkpoints. These sums often amount to 300,000-400,000 Lao kip (US\$37.50-\$50) per truckload (Figure 5.19) of timber consisting of valuable or desirable tree species. Less valuable tree species command a gift of approximately 150,000-200,000 Lao kip (US\$18.75-\$25) per truckload (N.V. Xyooj, personal communication, October 10, 2014). Because more valuable tree species and larger quantities harvested command higher monetary gifts, forest patrols would indirectly encourage NTFP harvesters to target valuable timber to harvest in larger quantities. For example, two trucks were taken on one of the timber harvesting excursions that I accompanied, to which one of the checkpoint soldiers remarked, “Only two trucks?” when we were stopped. It is also important to note that because it is easier to see and control timber harvesters going in and out of the forest, the patrols were willing to let timber harvesters enter the forest with their vehicles, harvest the trees, and then give the monetary gifts when they leave the area.



Figure 5.19: A typical-sized truck used to haul timber out of the forest. Driver's face and car's license plate were blacked-out to conceal identity. Photograph by P. Vue.

A similar gift-giving relationship exists for those hunting wild animals, either for household consumption or for the wildlife trade. The amount of monetary gifts is dependent on the number of animals and the animal species harvested. For example, forest patrols operating around the NT2 dam's reservoir usually expect anglers to gift approximately 20,000-100,000 Lao kip (US\$2.50-US\$12.50) and some of the fish caught, depending on the fishing method used. Gifts for terrestrial animals are usually higher but the blueprint is the same. Essentially, the more animals harvested and the more valuable an animal is, the higher the monetary gift expected. Thus, many forest patrols actually encourage and help hunters to find areas most abundant with wildlife, so as to increase hunters' success, which in turn means larger monetary gifts to the forest patrols. To lighten up the agreement, some soldiers will ask for additional cases of Beer Lao as, in their words, there are no natural Beer Lao in the forest. In addition, because hunting is harder to regulate, many patrol posts will require that a gift be given before hunters can hunt in the area. Many times, this turns off poorer hunters to the point that they will either not hunt in that area altogether or they may try to sneak in without being detected. Finally, local soldiers will warn hunters and NTFP harvesters to "lay low" for a few days when higher ranking provincial officials are visiting the area.

5.9.2 The art of gift-giving. This working relationship is not written anywhere. There are no formal rules to follow. It is also not spoken aloud, but everyone knows it is practiced all over the country. While the procedural interactions vary from place to place and from person to person, overall it often takes on a recognizable pattern. For example, a typical gift exchange interaction between village timber harvesters and forest patrols may unfold as follows.

A member or two of a timber-harvesting or hunting party would approach the checkpoint (either by foot or as the first vehicle) and start a casual conversation with one or more of the forest patrol members. They will inform the soldiers what they are doing in the forest and then proceed to show the soldiers some of the collected goods. One of the village spokespersons would then casually hand one of the soldiers some money and tell the recipient to use the gift to buy themselves drinks and food. Sometimes, instead of handing the gift to a forest patrol soldier, the villager will set it down in plain view before leaving. What is important to understand here is that these interactions are not generally seen as corruption by either the villagers or the forest patrols (as discussed above). In fact, they are mostly seen as a form of mutual-benefit sharing or as part of a patron-client relationship (Baird, 2010c; Hall et al., 2011). The villagers view the gift giving as a way of helping the forest patrol soldiers alleviate some financial burdens, while the soldiers view taking the money and letting the villagers through as helping poor villagers meet their livelihood needs. In other words, a moral economy is performed by both sides of the transaction.

Sometimes timber harvesters would have to travel longer distances, up to a hundred kilometers or more, back to the Research Area. Because an average timber-harvesting excursion takes about three days to a week to complete, it is never a given that the checkpoint stations will still be manned by the same soldiers who they had an agreement with prior to entering the forest. In these situations, the timber harvesters will first send “runners” to go ahead and scope out the roads and checkpoints to see if they are still staffed by the same patrol soldiers. If the same staff is still there, then the rest of the timber harvesters will proceed as usual. However, if some, or all, of the original forest patrol soldiers have been replaced with new soldiers, then it gets trickier as one can never be sure if the new soldiers will be “on board” with the agreement. If a few soldiers from the previous group are still there, the timber harvesters will seek them out and ask them as to

whether it would be fine for the harvesters to come through. However, if the checkpoint has been completely staffed with new soldiers, the runners will approach, converse, and casually bring up the topic to feel the new soldiers out and then go on from there. If the new soldiers are not willing to partake in the agreement activities or demand a higher monetary gift than what the harvesters feel is reasonable, the harvesters would seek out alternative routes. However, this is usually not the preferred option because while roads in Laos have increased drastically in number and quality over the last two decades, there are still few alternative route options, and those that are available usually add significant amounts of travel time for the harvesters. Thus, it is better for the harvesters to negotiate with the new soldiers to come up with an agreement. Sometimes this may take a day or two, in which case the harvesters would park their trucks and camp out in the forests, or in some cases, even right off the roads while they wait. Thus, while the practice of gift-giving occurs in the Research Area, villagers have told me that the exchange is not always pleasant and smooth.



Figure 5.20: Villagers from the Research Area harvesting timber. Harvestors' faces were blacked-out to conceal identity. Photograph by anonymous photographer.



Figure 5.21: Villagers from the Research Area harvesting timber. Harvestors' faces were blacked-out to conceal identity. Photograph by anonymous photographer.

Finally, villagers say that it is less intimidating to give gifts to district or local police officers and soldiers as compared to provincial officers, as provincial officers receive higher salaries, so they are less likely to accept gifts (or if they do accept monetary gifts, they tend to want more). While this was what the villagers told me, it may only partially explain why they feel this way. Another reason could be that villagers do not have the opportunity to develop a patron-client relationship with provincial officials. Provincial officers are also less likely to be connected or become connected to the area, or to be related to local villagers. This brings up interesting, though obvious, preferences for soldiers and villagers alike. For soldiers, many prefer to be stationed as near to their village or residence as possible once they have completed their trainings (sometimes soldiers are given a choice, but with restrictions, as to where they are stationed). The obvious reasons include being able to go home more frequently to get supplies (e.g., rice, chicken, clothing), more familiarity with the area, and of course, knowing the villagers more on a personal level, which makes dealing with them easier. Hmong villagers also prefer that their area be staffed with people, especially other Hmong, who were originally from that area as it makes negotiating and gift-giving much more relaxed.

5.10 Chapter Review and Concluding Thoughts

Economic earning opportunities play a significant role in how Hmong villagers interact with their surroundings, including how they maximize their earnings. In this chapter, I discussed how the market economy, and more specifically the introduction of cash crops with assistance from technological advancements, has led to changes in Hmong agricultural practices. The Hmong ethnic minority group in Laos has historically practiced swidden agriculture to grow rice and other crops for household consumption. However, the Hmong also have a historical relationship with growing cash crops, specifically opium, and as such are aware of cash crops' income-generating

capabilities. Thus, most Hmong willingly got involved with government-backed cash crop agriculture because cash crops have the potential to generate income far above what is needed to buy rice and other food that people consume.

The change from utilizing nearby swidden fields for rice production to growing cash crops has also resulted in changes to how Hmong spatially use their surroundings. Specifically, Hmong villagers are committing most, if not all their fields, to the production of cash crops. The reasoning was that the money generated from the sales of cash crops could then be used to purchase rice and other greens for household consumption. However, prior experiences made clear to Hmong villagers that companies could not be trusted to keep their promises to buy back the cash crops, let alone buy back the cash crops at the agreed upon price. Trusting these companies puts the entire household at serious financial and nutritional-deficiency risk. Thus, to ensure food security, many families still practice swidden agriculture, but they do so in faraway areas as most or all their nearby fields are being used to grow cash crops. This leads to the same issues seen when villagers get out of view to practice swidden (discussed in chapter four) to avoid government crackdowns.

The market economy and potential earning opportunities are also leading to an increase in hunting, logging, and NTFP harvesting. Hmong harvesting strategies are changing in response to growing demands for these products in Laos and beyond. These changing strategies not only include utilizing different hunting methods such as increasing the use of snares and advanced firearms to hunt, but hunters are also changing where they hunt. For example, as discussed previously, hunters are now spending less time hunting around their villages and more time traveling and hunting further away in remote areas where there is more wildlife. They are also targeting previously ignored species such as turtles, lizards, and other animals to sell to local wildlife middleperson traders in the Research Area. However, perhaps the most environmentally

impactful, but least visible method is the emergence of gift-giving with forest patrol soldiers in the area. Many people in developed countries might view this gift-giving as blatant corruption. However, many villagers and forest patrols in Laos appear to not see this interaction as corruption but rather as a form of mutual assistance in which all parties benefit. The relationship is viewed as one in which Lao citizens are helping other Lao citizens increase their income, which in turn improves their livelihood standing.

What does this mean for Laos' wildlife and natural resources? First, cash crops are having a huge indirect, but important impact on Laos' forest and wildlife biodiversity. Second, the Lao government is currently promoting the narrative that one of the surest ways to protect the forest and its natural resources is to create as many protected areas as possible and to staff them with mostly low-wage soldiers. However, as this chapter suggests, economic income-generating opportunities along with creating and inadequately staffing protected areas have created an environment that allows for a form of gift-giving that in many ways promotes and increases wildlife hunting and NTFP harvesting. Thus, this strategy has achieved mixed success at best.

So, what can be done to slow down and eventually reverse this trend? While forest protection remains one of the most important aspects to resource conservation, if the Lao government is truly interested in protecting its wildlife population and natural resources, perhaps just creating protected areas and staffing it with poorly trained and paid forest patrols and soldiers is not the answer. Instead, the Lao government should find ways to better allocate available land to villagers and collaborate with them to encourage better agricultural land use while working with them to better manage wildlife and resource use. This issue will be revisited in the conclusion of this dissertation.

Chapter Six: Changing Spiritual Beliefs

In the afternoon of March 28th, 2015, while I was hosting a focus group discussion and talking with Hmong people about hunting in my Research Area, one of participants asked if I would be interested in possibly catching a *nyus vais*.¹³³ My eyes gleamed and I replied, “Yea, I would be, but how do we do it?”

“Quite simple,” he replied. “This is how it is done. First, we need four mirrors and a cell phone with a loud external speaker attached. Tape recorders work too but they are not as good as cell phones because we cannot remotely activate tape recorders, we can with cell phones. Next, we make some snares. Those are all the equipment we need. The actual procedure is a two-step process. The first step requires getting recordings of *nyus vais* howls. The best way to do this is to go into a forest and purposely do things to get the *nyus vais* in the area angry so that it would come and try to frighten and harm you with its howls and branch-breaking activities. When it makes its presence known, record its howls and then run if you do not think you can fight it. Once you have a recording, you can proceed to the second step, which involves taking the mirrors and placing them in this pattern (draws it out on the dirt ground, Figure 6.1) in the area where you are going to set up the trap and then put the cell phone with the attached speaker in the center. Oh yea, do not forget to set the howls recording as your ringtone. Now as before, do things on purpose to get the *nyus vais* angry with you so it will come looking. Once it is near, call the speaker-attached cell phone so the ringtone will play. The *nyus vais* will think there is an intruding *nyus vais* challenging it for territorial control and move toward the cell phone to accept the challenge. It will then see its own reflection in one of the mirrors, think that it is the intruder *nyus vais*, and run toward the

¹³³ A *nyus vais* is a supernatural being believed by the Hmong ethnic group to inhabit forests, valleys, and other natural geographical features. See chapter six, section 6.5.1 for information on the creature.

reflection to fight, only to become entangled in the snare placed in front of that mirror. Once the *nyus vais* is snared, it will lose some of its power but it will still be quite powerful; so, call the cell phone again so the ringtone goes off a second time. The *nyus vais* will again think the intruder has moved back toward the center so it will go back there. Once there it will see its reflection in another mirror and proceed to attack it as before, only to be entangled in yet another snare that will weaken it even more. Once it has been entangled in enough snares, it will become so weak that you will be able to capture it as if it is a [wild] animal.”

I sat there thinking about what I had just heard while the other participants nodded in agreement. Finally, I replied, “OK, that sounds doable. You know, a relative told me a few weeks ago that there are two *nyus vais* inhabiting the areas around Thong Pei village. Maybe we could try to record the howls of one of them.” All the participants again nodded in agreement, indicating that it was a great idea.

A few weeks later, I was in Thong Pei village talking to the relative when I brought up the idea. He smiled and said that he would be willing to take me if I really wanted to go. In fact, we could go the next day. The following day, we and two other villagers were on our way to the hills south of the village where one of the area’s resident *nyus vais* supposedly lives. We arrived at our destination after approximately three hours of traveling by motorcycle. We then walked into the forest. After settling down, we took out the food we packed and started eating without inviting the *nyus vais* to eat first. We then orchestrated efforts to anger the *nyus vais*: snapping a few branches off trees and dragging them around the ground while talking and laughing loudly. That night we waited, waited, and waited... but nothing came, not even a puff of wind or a tiny whimper. Early the next morning around four or so, our two companions got up to go hunting while the relative and I stayed behind to make breakfast. The two companions returned around 9 am with one squirrel

and one wild jungle fowl, nothing more. As we made our way back toward where we stashed our motorcycles, the relative said to me with a smile, “Oh well, we could try again another time if you want, but I do not think they will come just like they did not come this time. You see, we are stronger than they are now. We are more powerful because Laos is now becoming modern and with modernity comes advanced technology, and the *nyus vais* are afraid of advanced technology.”

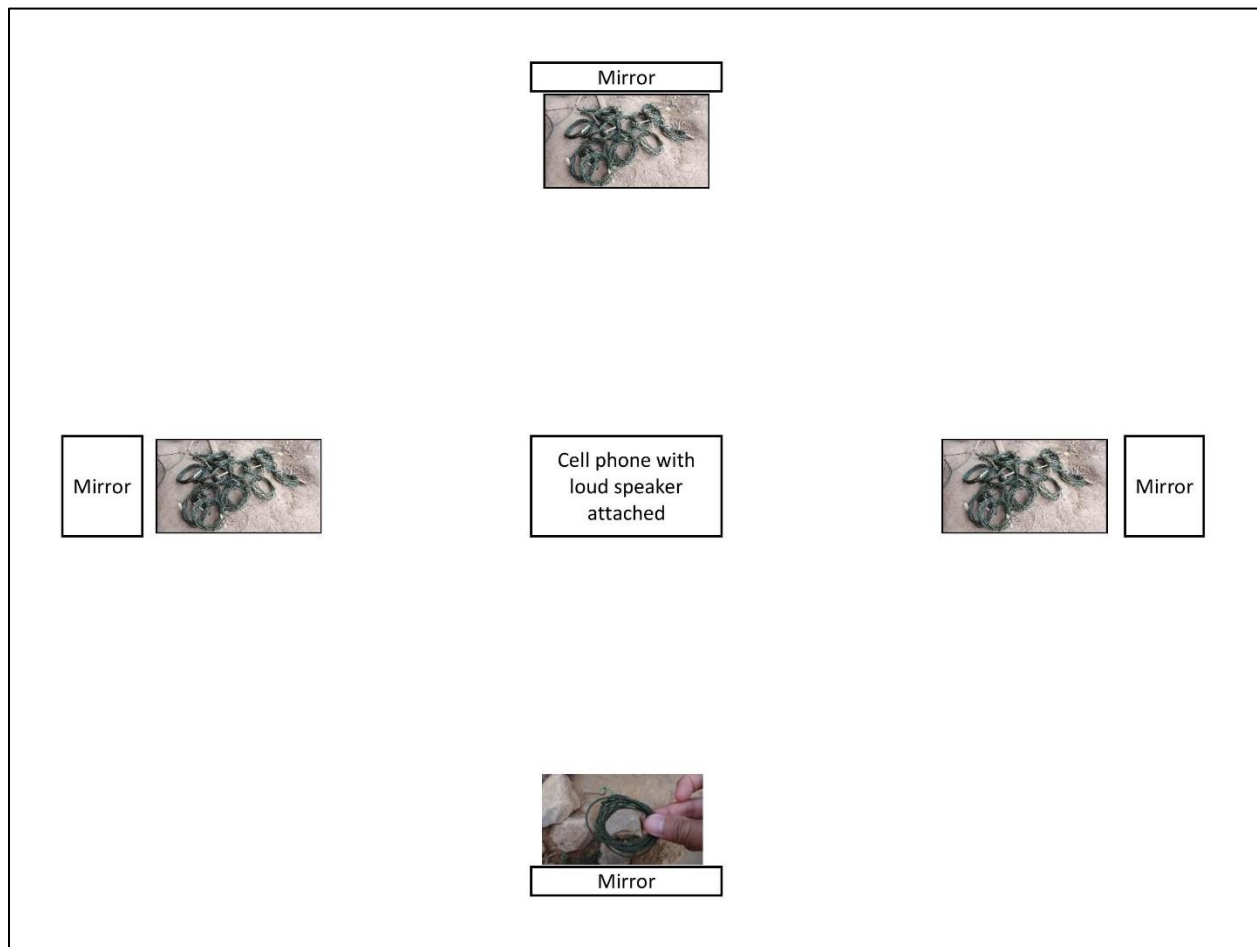


Figure 6.1: A *nyus vais* trap as described by villagers. Created by P. Vue.

6.1 An Emerging Threat

There are countless studies on how technological advancements and all of its advanced equipment, gadgets, and devices are being used to produce new data that are having positive impacts on the ecosystem. These impacts can be felt all the way from the global to the local scale. For example, advanced satellite imagery is being used to map out land use and forest cover changes (e.g., Li et al., 2016) to better understand and predict CO₂ emissions, climate change, and ecological services worldwide. Advanced technologies are now used to understand soil and water attributes in vulnerable areas in order to improve agricultural industry-resource optimization, but also to better inform and educate those living in less developed regions (Kagoya et al., 2018), as well as to develop strategies capable of dealing with soil- and water-related environmental issues (Nicolai-Shaw et al., 2017; Qiao et al., 2017). Graham et al. (2011) studied how modern technological communication devices such as mobile phones can be used to lessen the number of human-animal (elephants in this study) conflicts in Laikipia County, Kenya. However, very few studies have examined how technological advancements are influencing and changing people's spiritual beliefs, and how these changes are affecting ecosystems. Midden et al. (2007) wrote, "Since man first stood upright and struck a piece of flint to make a spark, the use of natural resources and technological development has marched hand in hand." However, "despite the fact that humans have used technology as long as they have consumed natural resources, technology as related to environmental resource use is often set apart from the study of human behavior and resource conservation" (p. 155). It is this area that I hope to help inform with this component of my research.

This chapter revisits the third factor regarding how technological advancements have changed Hmong cultural beliefs concerning supernatural beings and how these changes, in turn,

have altered how Hmong hunters now view and exploit the surrounding forest and other natural resources.

Here, I argue that Hmong spiritual beliefs that historically have indirectly promoted forest and nature conservation as well as the care and maintenance of natural geographical features have greatly been diminished in recent times, and in many cases, have been rendered less effective by technological innovations such as tape recorders and cell phones. Furthermore, I argue that the belief that only powerful shamans and magic users are able to stand up to and defeat wild supernatural beings has been largely replaced by new beliefs that promote the idea that common villagers can now take on and defeat powerful supernatural beings with the aid of simple, yet powerful modern artifacts such as smartphones. Finally, I argue that Hmong historical cultural beliefs that were once dependable concepts for encouraging sustainable forest and resource conservation can no longer be relied upon to serve those same purposes due to technological advances.

I start by introducing Hmong natural resource use and how these uses were historically governed by cultural ecological beliefs. Next, I present a brief literature review highlighting a few fields of studies that, while vastly different from my own, do address some similar issues to give readers a sense of what fields have examined that informs this research. I then address the questions concerning Hmong spiritual beliefs as listed in chapter two,¹³⁴ including a detailed consideration of the various groups and types of supernatural beings to help explain how and why the Hmong historically interacted with the forests in particular ways. I then proceed to discuss technological advancements in Laos in order to reflect on how some of these inventions, specifically cell phones and logging equipment, have informed how Hmong villagers in the Research Area view

¹³⁴ See chapter two, section 2.3.3.

supernatural beings. Finally, I present real life cases to show how these changes are actually affecting Hmong hunting and natural resource use.

6.2 Local Ecological Beliefs and Knowledge¹³⁵

The Hmong historically, and currently, relied heavily on practicing swidden agriculture, gathering NTFPs, and hunting and fishing. In fact, some of the most visible harvesters of NTFPs are Hmong women. Many Hmong women can be seen in markets and next to roads selling a wide variety of harvested NTFPs that they either have collected themselves or have bought from others. This is not only true in Laos, but also in parts of Thailand and Vietnam as well (Delang, 2007; Tugault-Lafleur & Turner, 2009). Concerning men, it is widely acknowledged within conservation circles in Southeast Asia, and particularly in Laos, that Hmong men are some of the most, if not *the* most, aggressive and successful hunters in the region (Compton et al., 1999; Scudder & Talbot, 2003; W. Robichaud, personal communication, 2012). Hunting and fishing are deeply engrained as a part of Hmong culture, and as such, most able-bodied men and even young boys are involved in these practices in some way. However, this does not imply that Hmong hunters always hunt and harvest NTFPs indiscriminately and everywhere (although this is the current narrative with regard to Hmong and hunting).¹³⁶ In fact, how Hmong use the forest and surrounding natural resources has historically been governed by their beliefs and cultural ecological knowledge.

¹³⁵ Local ecological beliefs and knowledge, as defined by my research context, are used interchangeably with other names including, but not limited to cultural, traditional, indigenous, intimate, and lay knowledge. Regardless of which phrase is preferred by which researchers or groups of people, the general consensus is that they all pertain to similar ideologies with subtle differences between them. Local ecological knowledge plays a central role in how local communities and villagers interact with and utilize their surroundings to sustain or enhance their livelihoods. As such, its influences on environmental issues will only continue to grow (Van den Breemer, 1992). See Agrawal (1995) and Nadasky (1999) for further reading on integrating local ecological knowledge into environmental studies.

¹³⁶ The narrative, while historically inaccurate, may have become more accurate due to reasons that will be discussed in this chapter.

Cultural ecological knowledge plays a central role in how local communities and villagers interact with and utilize their surroundings in order to conserve their resources while sustaining or enhancing their livelihoods. As such, cultural ecological knowledge influences environmental issues. Indeed, a large number of scholarly articles and books have been published that focus on such knowledge. For example, Yaofeng (2009) found that Baima Tibetans living in Gansu Province possess a wealth of knowledge on culture, traditional beliefs, and resource use that they then apply toward helping conserve local biodiversity (such as the giant panda), as well as preserving the local inhabitants' way of life. Another study by Yeo-Chang (2009) on traditional forest-related knowledge and the livelihoods of forest dependent communities in South Korea found that local residents possess a great deal of traditional knowledge on various NTFPs in the area. This knowledge is then used to not only generate income for forest-dependent communities, but also to help manage forest NTFPs sustainably. Rerkasem, Yimyam et al. (2009) conducted a study looking at the role of indigenous knowledge and skills in forest management of multiple ethnic minority groups living in the mountainous area of mainland Southeast Asia. The research showed that in the face of land use transformation, not only do the people living in those areas possess a wealth of traditional knowledge, but that they are fully capable of dealing with and adapting this knowledge for the changing environment that in turn has helped forest regeneration and biodiversity conservation in their respective areas. These are but a few studies which find that cultural ecological knowledge can thrive in the modern world and as such are valuable to scholars. Colchester and Erni (1998) wrote that "community-based systems of natural resource management have secured growing respect" due to in-depth studies that reveal the "extraordinary sophistication of indigenous knowledge and customary management regimes" (p. 14).

In this chapter, I discuss traditional Hmong ecological beliefs and knowledge, which historically governed how Hmong interacted with nature, and how these beliefs are being affected by the introduction of new modern technological gadgets. This is a different approach from previous studies on Hmong cultural practices in that it considers technological advancement and how this advancement is influencing Hmong spiritual beliefs, which to my knowledge is largely missing in Hmong studies. Recall that the main question for this factor was: How have technological advancements affected Hmong environmental beliefs, and how is this in turn affecting how Hmong spatially use the forest for hunting, fishing, and NTFP collection?¹³⁷

Here I want to emphasize that unlike most western societies that tend to separate scientific knowledge from religious beliefs, most ethnic minorities in Asia, including the Hmong, do not divide these ideas. Hmong traditional ecological knowledge incorporates religious beliefs and vice versa. In other words, both are necessary for awareness and understandings of one's surroundings.

6.3 A Brief Literature Review on Supernatural Beings and Conservation Implications

The belief in supernatural beings inhabiting forests and other wild areas is prevalent in other ethnic groups as well, especially in hunter-gatherer and pastoral societies (Ingold, 1986). The following sub-sections discuss three areas (and a fourth sub-section discusses the *ntoo xeeb* ceremony by the Hmong of northern Thailand) that are relevant in one way or another to this portion of my research.

6.3.1 Guardians of the wild places. Hundreds, if not thousands, of different ethnic groups living all around the world believe that there are spirits or guardians residing in forests, lakes, caves, and other natural geographical features, as well as watching over wild animals (see Croll & Parkin, [1992]; Ingold, [2000] for collected essays and studies on the interconnections between

¹³⁷ Chapter two, section 2.3.3.

peoples, spirits, animals, and resources). For example, Ingold (1986) talks about the “non-human (mythic) guardians who control the wild species just like human guardians control their domestic herds” in his work on reindeer hunting and pastoralism among the circumboreal peoples of North America and Eurasia (p. 13). Ingold reinforces this point by showing how many animal species have a “spiritual owner,” “master,” or “guardian” who inhabits the forests and watches over the animals (p. 245). Not only do guardians watch over the animals, but they also regulate and control what happens to those animals. For example, they decide if an animal is to be killed during a hunt. Because it is also found within the Hmong ethnic group, this idea of forest guardians watching over wild animal populations in the forests is relevant to this part of my research (discussed in section 6.5 below).

Most cultures that believe in these guardians also believe that the guardians not only watch over the forests and other wild places, but that they can also shape-shift and take the forms of other animals for various reasons. As such, a hunter or an NTFP harvester can never be sure if an animal he/she sees in the forest is a guardian or an animal. However, an experienced person would be able to tell whether the “animal” is a guardian or a regular animal by looking for certain physical or behavioral characteristics. For instance, Ingold (1986) remarked that if a normally shy animal species (such as a bird) approaches a person, that the person should address it accordingly (depending on the particular belief) as it is likely that the bird is actually a manifestation of a spirit (or another supernatural being).

Many beliefs associated with wild supernatural beings specify that the beings can and do get hostile when human hunters intrude upon their areas. For example, the Dogon believed the bush was a dangerous place to be at night. Hence, the only time they would sleep outside is if there was a makeshift cover such as a hut or there were many people around because of the many

different types of spirits roaming in the bush. These spirits are aggressive toward people and may attack or even exchange body parts with them, especially the eyes (thus, leaving the person blind). These spirits can also take the form of a person and interact with real people (e.g., go shopping at the market) before disappearing (van Beek & Banga, 1992). Similarly, Leach (1992) discussed how the Mendes ethnic group living in Sierra Leone believed that the bushes are inhabited by evil spirits who constantly threaten to retake areas that were once forested but had been cleared by people to practice agriculture. This chapter explores the ways in which these ideas have historically regulated how the Hmong view and interact with the forest, including the hunting of wild animals.

Other studies I found relevant to my research were Wessing (2006) and Uyeda et al. (2014). Wessing wrote a long and very detailed essay on spiritual beliefs among the Javanese in which he explored the relationships between humans, ancestral spirits, and nature spirits, and the role these relationships play in the maintenance of the natural and social order. Two of the many groups of spirits he discussed in the essay are village guardians (those residing near or within villages) and forest spirits (those residing in the wild). The chapter on forest spirits was especially relevant to my research. However, instead of simply discussing forest spirits, I also complicate these beliefs by introducing the role of advanced technologies. Uyeda et al. (2014) conducted a preliminary study (using very limited data, one case study) looking at the role that traditional beliefs play in wildlife conservation. Specifically, they looked at how a local taboo has discouraged the collection of two reptile species (the water monitor [*Varanua salvator*] and the reticulated python [*Python reticulatus*]) on Tinjil Island, Indonesia and how breaking this taboo will anger the local forest guardians. Here, I expand on this idea by conducting in-depth research on taboos (Hmong taboos) and presenting on-the-ground cases as they relate to the protection or exploitation of natural resources.

6.3.2 Augury. Whether an area is believed to be inhabited by a supernatural being depends on prior villager-experiences in that area, particularly when out hunting or collecting NTFPs. A supernatural being is believed to be in the area if a hunter sees an augury/sign/omen or experiences an event while in that area for which there is no rational explanation. For example, unexplained phenomena (e.g.; hearing animal-like howls that seem to be coming from all directions, suddenly-strong gusts of wind, or a foul odor in the air) can be attributed to the presence of a supernatural being or force. Other more obvious signs include seeing odd tracks on the ground, hair on trees (as with the *em ntoo*),¹³⁸ or leaves arranged in ways no animals in the area are known to be capable of. These augury beliefs are not unique to the Hmong as scholars have found similar beliefs concerning the environment among other ethnic groups.

Perhaps one of the best-known works on augury was Michael Dove's (1993a) work among the Kantu', a Dayak tribe living in West Kalimantan. In this study, Dove analyzed how the Kantu' use augury signs to link themselves and wild bearded pigs to mast-fruiting *Dipterocarpaceae* events so as to, among other things, decide how much time and effort they should put into guarding their swidden fields (large mast-fruiting events mean more bearded pigs in the area but less crop raiding since the pigs are eating the fruit; as such, the Kantu' can spend less time guarding their crops and instead use the time to do something else). Another study by Dove (1993b), and one that is more closely related to my research, looked at how the Kantu' selected swidden sites based on augury involving various species of birds. In the study, Dove states that, "Kantu' divination is based on the premise that the major deities of the spirit world have foreknowledge of human events and that out of benevolence they endeavor to communicate this to the Kantu' through the medium of natural phenomena"; he also explains that the Kantu' believed that if they could just read these

¹³⁸ A *em ntoo* is a supernatural being believed by the Hmong ethnic group to inhabit forests, valleys, and other natural geographical features. See chapter six, section 6.5.4 for information on the creature.

signs accurately, they would “possess” the “foreknowledge” to select the most favorable site to swidden (p. 148). Essentially, by basing their site selections on augury signs, the Kantu’ allow for randomization (instead of striving for certain desirable patterns). The Hmong also historically relied on augury signs to determine how they interact with a place. Unlike the Kantu’ who used the signs to select a place, the Hmong used the signs to avoid a place even if full of biodiversity and natural resources. However, by using signs to avoid a place, the Hmong allow for the creation of other belief practices that would then allow for them to enter that “prohibited” place (essentially accepting signs that put things out of one’s reach and then creating beliefs that then put things back into one’s reach). This idea is central to this portion of the research and is discussed at length in this chapter.

One final study I found that is of particular interest to this research was conducted by Robert Lawless (Lawless, 1975) in which he showed how the divination beliefs system among the people of Northern Luzon changed as a response to growing scarcity of forest wildlife. Lawless wrote that “the growing scarcity of forest wildlife led to a change in the travel omen system to allow more frequent and wider-ranging trips” (p. 30). While vastly different from one another, this study was similar to my own research in that both studies looked at how decreasing interactions with certain things (forest wildlife for Lawless, supernatural beings for my research) are changing a group’s beliefs concerning the environment, which in turn changes how they interact with that environment.

6.3.3 Sacred groves. In the most general sense, sacred groves are any grove of trees or even shrubs imbued with religious importance (there are also sacred forests, mountains, streams, and other sacred natural geographical bodies). They are quite prevalent, found in large numbers in various countries all over the world. For example, the country of India has between 100,000 to

150,000 sacred groves/forests (Malhotra et al., 2007). Sacred groves range in size from less than a hectare (Mgumia & Oba, 2003) to several thousand hectares (Khan et al., 2008). While fundamentally different from one another, sacred groves and areas believed to be inhabited by supernatural beings (as defined in this research) do share a common feature that is central to this part of the research: the protection of the animals (and resources) within its vicinity or borders. As such, sacred groves are briefly discussed here to give readers more a stronger understanding of prohibited hunting places.

Sacred groves' primary function is to serve as places of cultural and religious salvation. Often times, people would visit sacred groves to cleanse their spirits and become reenergized from life's daily grind. However, sacred groves also have a secondary, albeit indirect, function. This secondary function is the protection of trees, NTFPs, and animals residing within its borders. Thus, sacred groves represent an important tradition associated with land and resource conservation. In fact, it could be argued that sacred groves represent a traditional form of community-based conservation (Ormsby & Bhagwat, 2010) that provide valuable ecosystem services (Tiwari et al., 1998), as well as protecting wildlife and resource biodiversity. For example, Baird (2013b) discussed how the ethnic Brao-Kavet living on the Laos-Cambodia border do not hunt or cut down trees near a pair of high mountains they believe is inhabited by powerful mountain spirits and as such, Baird argues that this performative belief has considerable potential for promoting indigenous biodiversity conservation. Onyekwelu and Olusola (2014) found that sacred groves in the rainforest zone of southwestern Nigeria contained higher tree species abundance and diversity when compared to non-sacred places in the area. This is because tree felling within the groves was considered an abomination.

As was stated above, sacred groves are different from the areas inhabited by supernatural beings as discussed in this study. First, sacred groves are permanent places located in a defined space and are imbued with religious beliefs; they do not relocate to other areas. Thus, as long as the place is considered to be a sacred grove, that the trees and resources within its borders will be protected by these religious beliefs (although in reality, hunting and NTFP harvesting occur in sacred groves as well; see Wadley & Colfer, [2004] for an example of hunting in sacred groves). However, with regard to areas inhabited by supernatural beings (as discussed in this study), if and when the supernatural beings leave the area, those resources are no longer protected. It is because of this difference that sacred groves were not made a larger component of the research.

6.3.4 The *ntoo xeeb* ceremony of Mae Sa Mai village. The Hmong *ntoo xeeb* ceremony, while not directly related to this research, is of particular interest for reasons I will discuss here. The ceremony is not very well known or often practiced within the larger Hmong ethnic group. For example, the *ntoo xeeb* ceremony was not practiced where I conducted my research. In fact, I am not aware of any place in Laos where it is practiced. Furthermore, the Hmong in my Research Area had not even heard of the ceremony. The only place where the ceremony is practiced that I am aware of is Mae Sa Mai village in northern Thailand. Huang (2004) wrote, “Presentation of this eyewitness account of the ritual Hmong New Year’s *ntoo xeeb* ceremony addresses several concerns...as no detailed description of the *ntoo xeeb* ceremony exists.” Furthermore, he remarked in his in-depth eyewitness account of the ceremony in Mae Sa Mai village that “we have found only one Western scholarly reference to the sacred *ntoo xeeb* ritual ceremony: ‘Sometimes the spirits of particular trees are propitiated, especially at the New Year. These are known as the *ntoo xeeb*, or trees which have their roots above ground [Tapp, 1989a, p. 61]” (p. 34).

Leepreecha (2004), a professor at Chiang Mai University in northern Thailand and one of the very few scholars of Hmong studies who has written about the ceremony, suggested that the Hmong first practiced the ceremony during their migration from southern China to northern Thailand as a response to multiple hardships (such as illness and low yields from animals and crops);¹³⁹ this essentially created a way to offer supernatural beings gifts so that they would bless the villagers with good health and crop harvests. He further discussed the *thwvtim* or *xeeb teb xeeb chaws*, a supernatural being that the Hmong who practice the *ntoo xeeb* ceremony believe governs everything within a natural geographical feature (e.g., watershed, mountain range). To make dealing with the *thwvtim* easier, and to have a place for offerings, the Hmong usually invite the supernatural being to settle in the biggest tree near the practicing village. This tree is then called the *ntoo xeeb*.

Leepreecha further suggests that the Hmong in northern Thailand have revived and redefined this practice to show how their beliefs, in conjunction with their local knowledge, can play a role in efforts to protect and conserve natural resources. This effort was in response to government officials crafting policies based on assumptions that villagers are not capable of natural resource management. As this ceremonial practice is not present in my Research Area, I did not make it a significant part of my research. However, the ceremonial practice does involve a supernatural being, resource conservation, and an interesting twist that I shall return to in the conclusion of the chapter.

¹³⁹ To my knowledge, the *ntoo xeeb* ceremony is not practiced in Laos. It could be that the ceremony was first adapted/conceived by the Hmong who migrated directly to present-day Thailand from China, and as such, bypassed Laos.

6.4 Hmong Spiritual Beliefs

The Hmong historically believed in a variety of natural and supernatural spiritual forces or beings (hereafter, supernatural beings) that live in and animate all living and non-living things (Tapp, 1989; Lee & Tapp, 2010). These beings must be respected in order to maintain and preserve the delicate balance between the physical and the spirit worlds. Not only are individual objects inhabited by supernatural beings, but also entire forests, lakes, and rivers are also watched over by supernatural beings; Hmong people historically believed these objects and areas must be respected because if a person offends a supernatural being, the being can either physically harm the offender, frighten away one of more of the offender's *ntsuj plig*,¹⁴⁰ or place a curse on the offender. The curse can be passed on from the offender to other members of his or her household or even other villagers from the same community.

There seem to be three main groups of supernatural beings according to Hmong belief.¹⁴¹ The following sections discuss each group in more detail. However, it is important to understand that regardless of the group affiliation, the taboos still apply to all. In other words, violating a taboo would still offend a supernatural being regardless of its group affiliation.

6.4.1 Forest guardians. The general Hmong term used to identify forest guardians is *tim tswv teb tswv chaw* (spiritual ruler of the land), which is usually shortened to just *tim tswv* (spiritual ruler or ruler). For the most part, a forest guardian inhabiting a specific area is identified by the title followed by the name of the area (e.g., village name or name of natural ponds, streams, or

¹⁴⁰ Recall from chapter three that the Hmong phrase *ntsuj plig* will be used to refer to human spirits in order to separate human spirits from wild demons/supernatural beings.

¹⁴¹ Most of the stories used to collect this information are oral stories that have yet to be documented. Thus very few, if any, scholarly work currently exists on Hmong supernatural beings.

mountains). Some forest guardians do in rare cases have specific names, while many others are identified and addressed by their type, as will be explained shortly.

These supernatural beings inhabit and watch over an area or a natural geographical feature such as a pond, river, forest, or mountain. Generally, forest guardians do not bother a person if he/she respects and has not offended them. A person can even call out and ask for assistance if he or she is lost in the forest. Forest guardians usually stay in the area they are watching over; however, in certain circumstances they may leave their homes. For example, a forest guardian could be forced from an area by stronger, more powerful forest guardians or by powerful magic users. Another reason why a forest guardian might leave an area is if the area becomes so degraded that it can no longer support the guardian. When it leaves an area, that area is no longer protected from hunters or NTFPs harvesters (unlike sacred groves as discussed above).

6.4.2 Land spirits. The *dab teb dab chaw* or the land spirits or land ghosts (hereafter, land spirits) are technically different from forest guardians in that land spirits do not necessarily watch over an area. Instead, they tend to wander from area to area in search of spiritual food. However, land spirits do watch over and defend an area for as long as they reside there. Thus, a person walking around in a forest must be careful not to violate any taboos, even if he/she knows that the area does not have a forest guardian, because the area might be currently inhabited by a land spirit.

Some land spirits develop a liking for a particular area and end up living in and watching over the place. As such, villagers sometimes address land spirits as forest guardians even though the average area that a land spirit watches over is significantly smaller than the average area that a forest guardian watches over. On the other hand, a forest guardian may watch over such a small area that it is labeled as a land spirit. This overlap tends to lead to disagreements between villagers as to what group a particular spirit belongs to.

6.4.3 Wild demons. The *dab qus* or wild demons or wild ghosts (hereafter, wild demons) include evil spirits that have always existed among the wild and domestic spirits (e.g., human *ntsuj plig*, household spirits) that somehow end up in the wild forest and are unable to find their way home. The wild demons have a particular preference for inhabiting wild and uncultivated spots, isolated groves of trees, and solitary boulders, among other places (Tapp, 1989). Thus, venturing near these areas risks disturbing and angering them, at which point they will likely attack and inflict harm upon the often-unwary intruder. A specific type of wild demon is the *poj ntxoog*.¹⁴² *Poj ntxoog* are spirits of deceased people who are not able to undergo reincarnation and as such, become wandering evil spirits or ghosts. Sometimes a living person can become a *poj ntxoog* without physically dying. This happens when a person is said to “*mus nyoos*” or “leave in/with the flesh” in which he/she essentially just walks away and disappears into the forest, maybe never to be seen again.

These wild demons are similar to the land spirits in that they move around from place to place in search of food but are different in that they are malevolent demons that cause harm and sickness to any person that crosses their path, regardless of whether a person has violated a taboo or not. Baird (2008) also reported that the wild spirits/demons of ethnic Brao people in southern Laos and northeastern Cambodia are also considered to be malevolent spirits/demons, and so they must be appeased to keep them away and from causing harm. Sometimes a wild demon will settle down in a natural geographical feature such as a cave or a body of water and defend that area against both human intruders and other supernatural beings. As such, it is extremely important to

¹⁴² Culturally, one cannot be a Hmong and not have heard of a *poj ntxoog*. They are quite common in Hmong storytelling and rituals. In a way, *poj ntxoog* influence a Hmong person’s everyday life (e.g., where to go, what to do, how to behave when away from the villages).

avoid any activities that attract these spirits while in the forest. Similarities between land spirits and wild demons mean that villagers sometimes disagree on how to classify particular spirits.

6.5 Types of Supernatural Beings

The Hmong historically believed that forests and other natural geographic features are inhabited by a multitude of supernatural beings. Traditional beliefs speak of supernatural beings watching over and guarding the animals and forest resources in the area they inhabit. Hmong hunters claim to hear them calling out to all the animals of the forest in the evening to make sure that the animals are safe. Some supernatural beings have a preference for certain wild animals in their area and watch out for and care for these animals. For example, Hmong elders living in the Research Area sometimes speak of a “ghost” rhinoceros that (presumably) roams the Annamite Mountain range straddling Laos and Vietnam, not far from where I conducted my research. This rhinoceros was said to be the favorite animal of the beings in that area. Many hunters claimed to have seen tracks made by the rhinoceros, while a few hunters claim that they have actually seen the animal (described as a very large, greenish male with a single long horn) and have tried to hunt it down. However, all hunting efforts have failed due to supernatural/unexplained circumstances (e.g., guns suddenly unable to fire, overhead branches suddenly fall on hunters, thorns suddenly fly into the hunters’ eyes, etc.). Hunters believe that the supernatural beings are protecting this (and other) animals and causing the unexplainable mishaps.¹⁴³ If a supernatural being realizes that one or more of its animals are missing during a roll call for unknown reasons, it would attempt to locate the missing animal(s). It is during these times that hunters are most vulnerable to a supernatural being’s wrath.

¹⁴³ A hunter actually asked if I would be willing to give him a few camera traps to 1) catch pictures of the “ghost” rhinoceros and 2) to scare and keep away the supernatural beings so they cannot get involved and prevent him from killing the rhinoceros (to harvest the horn and other body parts).

The following sections discuss the four main types of supernatural beings in more detail: the *nyus vais*, *koos koim*, *dab ntxaug*, and the *em ntoo*.¹⁴⁴ Note that I am using the phrase “supernatural beings” to describe these spirits instead of referring to them as forest guardians, land spirits, or wild demons because there is much disagreement amongst Hmong people themselves as to whether a specific type belongs to what group, as will be discussed below.

6.5.1 *Nyus vais*. The most famous Hmong supernatural being is the *nyus vais*, most commonly described as a creature weighing about 20 or more kilograms and physically resembling a macaque or a gibbon (Figure 6.2). Its body is covered in whitish to silvery hair, except for the chest which is covered in bright red hair. It usually walks on all fours but is capable of walking on two legs as well. In addition, it seems to enjoy swinging on and hanging from tree branches. The *nyus vais* is well known for its ability to shape-shift. While other supernatural beings also possess this ability, the *nyus vais* is the only one known to take on human-like forms. Furthermore, *nyus vais* are said to transform into rare and never-before-seen animals to tempt hunters to shoot them. If hunters do take the bait and shoot a *nyus vais*, it will retaliate with dangerous force.

¹⁴⁴ I did not thoroughly trace the supernatural beings back to their origin as I was more interested in their current status. It could be possible that these supernatural beings were adopted from other ethnic groups as the Hmong do have a history of adopting some beliefs of the dominant group of the area.



Figure 6.2: An artistic rendition of a *nyus vais*. Drawing used with permission from the artist, Yinkong Vue.

The *nyus vais* is believed to be one of the more malicious and unpredictable supernatural beings inhabiting forests and other natural geographical bodies. When a *nyus vais* gets offended by people in the forests and becomes angry, it makes its presence known in two primary ways. The first is through obvious fear-invoking tactics such as conjuring up powerful winds, making high-pitched screams that can be heard for kilometers, swinging on and breaking tree branches around where people are camping, and thrashing and running back and forth in the darkness just out of sight of the terrified human campers. The goal is to frighten the people so much that their own *ntsuj plig* would flee their bodies. Once a *ntsuj plig* flees the physical body, it either wanders off and eventually gets lost in the forest or it is captured by the *nyus vais*. The people are then allowed to leave the forest and return to their village. However, if one or more of a person's *ntsuj*

plig is no longer with the physical body, that person would soon become gravely sick and likely die as a result. Thus, the *nyus vais* accomplishes its goal of eliminating those who have offended and angered it. The second way that *nyus vais* make their presence known is more subtle. The *nyus vais* can take the form of a person, casually approach the people who have offended it, and introduce itself as just another person looking for things to harvest in the forest. Many times, the form it takes is that of a person that someone in the group knows, while other times it takes the form of a complete stranger. Regardless, the *nyus vais* asks if it can join the party around the campfire and rest for a little while. Once it gets permission to stay (and it always receives permission due to cultural norms amongst the Hmong), it sits down and starts friendly conversations on various topics, including hunting. The *nyus vais* then casually takes out an edible food item such as a banana or a piece of meat jerky from its bag and proceeds to eat it. Unbeknownst to the people, the *nyus vais* is actually consuming the living essence of one of the party members. Sometimes, the person being consumed will die instantly, while at other times he/she will quickly become severely ill and die within the hour. The *nyus vais* will have its fill before politely excusing itself and leaving, but only after it has consumed the living essences of enough people to satisfy its anger.

Although the *nyus vais* are powerful supernatural beings, it is possible to bargain with them, fight against them, and even kill them if a person is an exceptionally powerful shaman or magic user. For example, powerful shamans can retrieve *ntsuj plig* held prisoner by *nyus vais*. Shamans do this by performing a shamanistic ceremony that allows them to enter a *nyus vais*' realm and then negotiate with them for the safe return of the *ntsuj plig*. Thus, shamans do not actually kill the *nyus vais*. On the other hand, powerful magic users can confront and kill *nyus vais*. For example, stories speak of how powerful magic users can cast spells to summon extremely

powerful spiritual Asian cattle (*nyuj toog nyuj ciab*) that would then proceed to gorge the *nyus vais* to death. The spiritual Asian cattle do this by either flying at the *nyus vais* from all directions and killing it with multiple fatal blows or by flying into the *nyus vais*' mouth and gorging its internal organs, killing it from the inside. However, there were historically very few of these magic users around which continues to be the case today. One primary reason that there are so few powerful magic users is because one requirement in order to become powerful enough to challenge *nyus vais* is using the deadly magic to kill an immediate family member to prove his or her loyalty to the art. Killing a member of one's immediate family with magic will elevate the magic user's power to a level that makes one strong enough to challenge and kill *nyus vais*. Because of this requirement, most magic users are unable to achieve their full potential and thus are not considered powerful or master magic users.

6.5.2 *Koos koim*. The *koos koim* is a small supernatural being about the size of a housecat. It is said to be covered in short, dark hair and to walk on all four legs. However, the legs are splayed outward similar to that of large monitor lizards. The creature's most unique physical feature is its eyes, as the eye lids open and close from the sides instead of from above like human eyes (Figure 6.3).

Koos koim seem to have an affinity for water, and as such, their haunting calls are usually heard near lakes, streams, and rivers. In fact, this supernatural being got its name "*koos koim*" from its distinct "*kong koy...kong koy*" call, which can be heard in the evening and early morning and when it is active (e.g., searching for food). When hunters hear the call, they must immediately take out a small amount of food and put it on a spoon and then call out "*koj tim tswv teb tswv chaw, peb tuaj nrhiav noj nrhiav haus. Koj mus koj, peb mus peb. Koj tshaib plab kuv muab zaub mov koj noj ces sib ncaim nyias mus nyias*" (you forest guardian of the land, we came here searching for

food to eat and water to drink. Please go your own way and we will go ours. Here is some food for you to eat to satisfy your hunger but let us part now.) The hunters then must throw the food toward the sound, then respectfully back away, and go a different direction.



Figure 6.3: An artistic rendition of *koos koim*. Note the eyes' vertical positions and the perpendicular perching position of the *koos koim* in owl form. Drawing used with permission from the artist, Yinkong Vue.

The *koos koim* also possesses the ability to shape-shift. However, unlike the *nyus vais* that can change its appearance to any animal, the *koos koim* seems to be limited to shape-shifting between its base appearance and that of a shape resembling an owl. This sometimes causes confusion as to whether a creature observed by people in the forests is a *koos koim* or just a regular owl. This is made even trickier in that either the owl may have learned to mimic the *koos koim*'s call or vice versa. However, it is said that those brave enough to gaze at the “bird” would be able to tell whether it is a *koos koim* or an owl by the creature's perching posture. Unlike owls that

perch upright on tree trunks and branches, the *koos koim* grasp tree trunks with both talons and then position themselves straight out at a near perpendicular angle to the tree trunk instead of positioning themselves in upright positions. In addition, the eye slits of the *koos koim* in owl form are also vertical while the eye slits of real owls are horizontal like other birds (this careful observance to details to determine whether an animal is a supernatural being or a regular animal is similar to what Ingold [1986] discussed as stated in section 6.3.1).

The *koos koim* is also less menacing and vengeful than the *nyus vais*. However, the *koos koim* can still be offended and angered if a person violates a taboo. When this happens, a *koos koim* would make its presence known by making its distinct call. The calls are at first usually faint and far away. However, it gets closer and closer until it can be heard coming from all directions. As with the *nyus vais*, the purpose of making loud calls from all directions without being seen is to frighten the peoples' *ntsuj plig* to the point that one or more of the *ntsuj plig* will leave the physical body. When the *ntsuj plig* leaves one's body, they either are captured by the *koos koim* or wander off and become lost. The *koos koim* then allows the people to leave the forest without physically harming them. However, since some people have lost one or more of their *ntsuj plig*, soon they can expect to become sick and die just as the *koos koim* desired. Of the four primary supernatural beings covered in this research, the *koos koim* was stated by Hmong villagers to be the one that cares the most about the forest and the trees. There are countless stories and personal experiences told by villagers of how *koos koim* could be heard crying for days when large patches of forests have been cleared.

It is possible to fight back against the *koos koim* but, as with the *nyus vais*, one has to be an exceptionally strong shaman or magic user. Thus, it is in the best interest of most hunters to respect the supernatural being to avoid angering it.

6.5.3 *Em ntoo*. The *em ntoo* (Figure 6.4) resembles a sun bear (*Helarctos malayanus*) in shape and size, but is without the yellow crest on its chest. It is also said to be skinnier than a bear and it has a longer, thinner snout and longer claws. Unlike the sun bear, which walks mostly on all four legs, the *em ntoo* walks primarily on two legs. Its name “*em ntoo*” comes from the Hmong phrase “*ev ntoo*,” which translates to “tree/wood carrier.” The supernatural being was given this name by the Hmong because of its habit of leaning its back against upright tree trunks and moving its body back and forth as if scratching itself. Countless hunters claim to have stumbled upon tree trunks that have been quite worn out because of this behavior. Another less used and less familiar name for the *em ntoo* is *tab yeeb*. It is quite possible that its original name was *tab yeeb* but due to the being’s behavior, people have come to associate it with the name *em ntoo*.



Figure 6.4: An artistic rendition of an *em ntoo*. Drawing used with permission from the artist, Yinkong Vue.

Of the four primary supernatural beings, the *em ntoo* is the least aggressive and will tend to avoid people if possible. The *em ntoo* can be killed by experienced hunters in two ways. The first is to get close to the creature without being detected and killing it instantaneously with a single fatal shot from a high-powered rifle.¹⁴⁵ It is of utmost importance that the shot kills the *em ntoo* quickly before it becomes aware of the hunters and brings down a curse upon them or scares away their *ntsuj plig*. If a hunter fails to kill it quickly, the *em ntoo* becomes invulnerable and cannot be killed. Finally, *em ntoo* are powerful supernatural beings but are said to be susceptible to snares. Once caught in a snare, they lose their power and are easily captured and killed by hunters.

6.5.4 Dab ntxaug. The *dab ntxaug* is a supernatural being that is believed to have a daytime and a nighttime form (Figure 6.5). The daytime form resembles a mouse or a shrew. Villagers claiming to have seen this supernatural being state that its body is covered in greyish to tan fur with an almost naked tail and short stubby legs. These supernatural beings are generally encountered in disturbed ecosystems, including areas where trees are being uprooted or where large quantities of soil, rocks, and boulders are being dug up and moved. When the beings are disturbed, it is said that they will use their mouth to latch on to another's tail and form a caravan, similar to that of the Asian house shrew (*Suncus murinus*). Then they will flee the area. It is cultural belief amongst the Hmong that the *dab ntxaug* will then curse the people responsible for disturbing them and forcing them to flee their homes. Many villagers believe that seeing these supernatural beings flee in such a manner is a death curse and that those who witness the incident are destined to become sick and die soon after. However, there is a way to avoid this fate: quick thinking and the ability to consume raw meat. Basically, when a person sees these supernatural beings in a

¹⁴⁵ This implies that before firearms became advanced enough to one-shot kill, Hmong hunters would just do what they could to avoid the *em ntoo* as they knew they could not kill it with one shot. This is another example of how technology has influenced how Hmong interact with these supernatural beings.

caravan fleeing the area, the person must quickly catch as many as he/she can and eat them raw right on the spot while mocking the *dab ntxaug* and proclaiming superiority over them. Doing this is believed to frighten the *dab ntxaug*, as they would be led to believe that they have encountered something that is more powerful than they are and as such, the curse will be rendered harmless.



Figure 6.5: An artistic rendition of *dab ntxaug*. Note that both the daytime and nighttime forms are shown in the drawing. Drawing used with permission from the artist, Yinkong Vue.

The nighttime form is quite different from the daytime form and is only seen when the sky is darkened enough to make visibility of twenty meters or so difficult. People claiming to have seen *dab ntxaug* in the late evening, at night, or early in the morning say that the supernatural beings show themselves as glowing orbs (see for example, Lee, [2007]). These orbs are estimated to be from about the size of a marble to about the size of a ping-pong ball and are first seen emerging from the ground in groups. The orbs would slowly revolve and float around one another

as they rise higher and higher into the air. Once they reach a height of about one to three meters, the orbs disperse and float around randomly in the area. After some time floating around, the orbs will reunite and then slowly descend back toward the ground before eventually disappearing. What makes witnessing the nighttime form different from the daytime form is that the nighttime form is usually seen from a distance away, when not much else is visible. As such, the people witnessing the events were actually not disturbing the *dab ntxaug* and as such, they do not have much to fear. Of course, seeing such an event typically scares people but as long as they remain calm and quiet, they will be fine. *Dab ntxaug* are different from *nyus vais* and *koos koim* in that they do not actively approach humans to do them harm.

6.6 Discrepancies Abound

The previous sections introduced three primary groups of supernatural beings and four primary types. In this section, I more closely examine how Hmong villagers group these supernatural beings and discuss the discrepancies that exist concerning the grouping of these supernatural beings. Understanding this ontology is important, as it is these discrepancies that, in a sense, force hunters to uphold taboos in forests and other wild places as they can never be sure if a being is present. The discrepancies among the Hmong as to what group the following supernatural beings belong to is interesting and should be thoroughly researched. A plausible reason could be that the Hmong have only recently adopted some of these supernatural beings from other cultures (particularly the Lao culture) and therefore have not yet fully integrated the beings into Hmong environmental belief systems. However, there remains uncertainty and the issue deserves further investigation.

6.6.1 *Nyus vais* II. There are disagreements between Hmong villagers as to whether the *nyus vais* is a forest guardian, a land spirit, a wild demon, or something else (Figure 6.6). The data

collected through surveying (and later through interviewing) shows that villagers are almost evenly split with regard to classifying the *nyus vais*, with 14 respondents stating that it is a forest guardian, 18 saying that it is a land spirit, 16 believing that it is a wild demon, five thinking that a *nyus vais* is something else,¹⁴⁶ and 16 stating that they are unsure (note that only 69 villagers replied to this question during interviews).

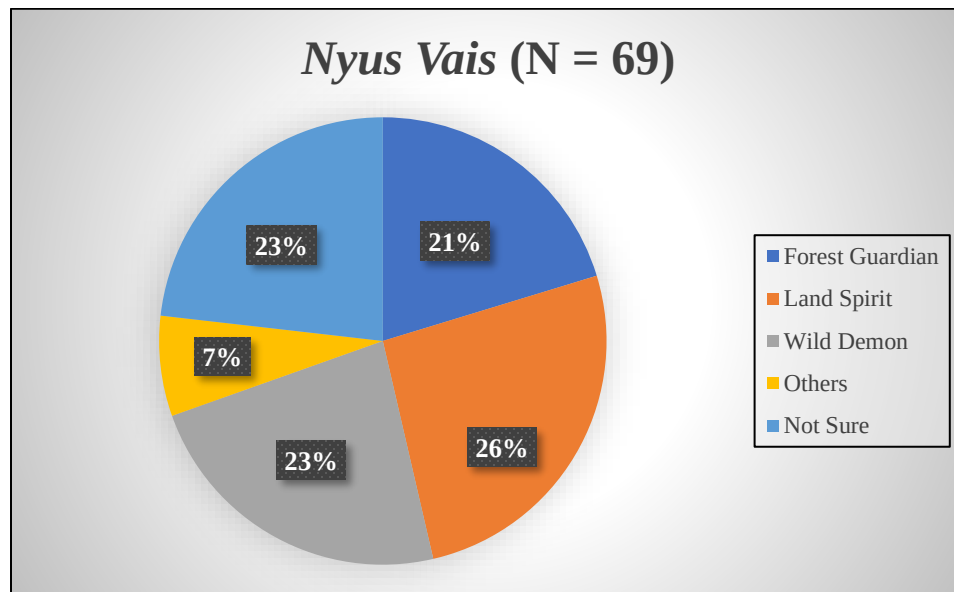


Figure 6.6: Pie chart showing how surveyed villagers are categorizing the *nyus vais*. Note that the chart is shown as a percentage. Chart created by P. Vue.

Villagers who believe that the *nyus vais* is a forest guardian point to the idea that a hunter can call upon a *nyus vais* for assistance in times of need, as long as the hunter has not offended it. A person can also ask for forgiveness if he or she offends a *nyus vais*. Others cite its malevolent nature as the primary reason why *nyus vais* are wild demons. Still, others argue that it is a land spirit because of its mobility. Finally, some villagers believe that it is something other than a supernatural being. For example, many villagers state that *nyus vais* were originally animals that

¹⁴⁶ Some villagers say *nyus vais* are not any of the mentioned categories but are something else (e.g., an animal with magical powers, a wise animal, just a misunderstood animal in the forests, etc.).

somehow learned black magic (*tsiaj paub khawv koob*) that allows it to live for hundreds of years. This allows it to enhance its knowledge of the world to in turn become a wise and cunning animal (*tsiaj muaj fwj chim*).

6.6.2 Koos koim II. Villagers are almost evenly split as to what a *koos koim* is, with 12 respondents stating that they believe that a *koos koim* is a forest guardian, 17 say it is a land spirit, 15 believe that it is a wild demon, five say that the creature is probably something else, and 14 are not sure (Figure 6.7).

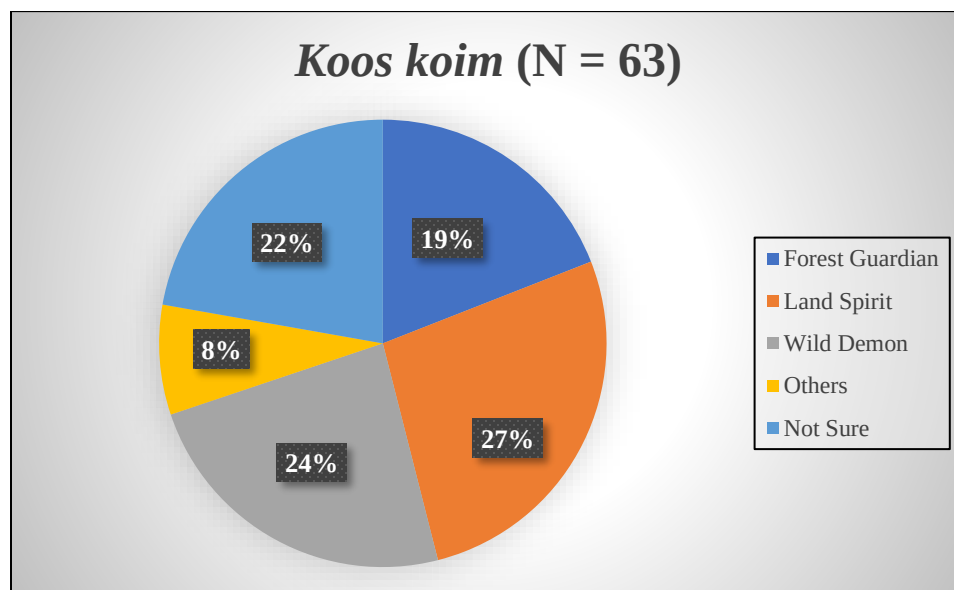


Figure 6.7: Pie chart showing how surveyed villagers are categorizing the *koos koim*. Note that the chart is shown as a percentage. Chart created by P. Vue.

Those believing that the *koos koim* is a forest guardian again cite the narrative that a person can pray to the *koos koim* for assistance in times of need. For example, many villagers believe that the *koos koim* is actually more powerful than the *nyus vais* and can be called upon to protect hunters from a *nyus vais*. The narrative is that a *nyus vais* knows that it is outmatched and thus, will flee

from a *koos koim*.¹⁴⁷ As such, many hunters actually pray to the *koos koim* for protection when in the forests. Still, other villagers believe that it is a land spirit, wild demon, or something else.

6.6.3 *Em ntoo* II. The *em ntoo* follows a similar grouping pattern with seven respondents believing that the *em ntoo* is a forest guardian, six saying that it is a land spirit, nine believing that it is a wild demon, six thinking it is something else, and nine not being sure (Figure 6.8).

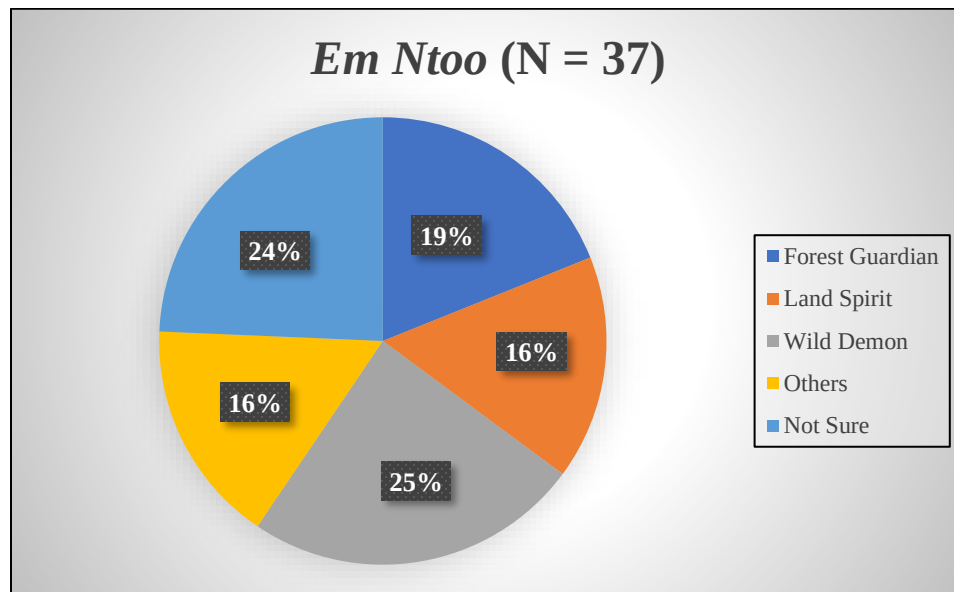


Figure 6.8: Pie chart showing how surveyed villagers are categorizing the *em ntoo*. Note that the chart is shown as a percentage. Chart created by P. Vue.

The *em ntoo* is different from both the *nyus vais* and the *koos koim* in that it does not get offended when hunters commit certain actions (e.g., grilling rodents, dragging branches on the ground) that would have offended the *nyus vais* and *koos koim*. Thus, about the only time an *em ntoo* is a threat to hunters is when hunters are actively (either knowingly or unknowingly)¹⁴⁸ trying

¹⁴⁷ An origin story says that the *nyus vais* and *koos koim* were Hmong brothers before each learned his own form of magic (the older brother learned the *koos koim* magic arts, while the younger brother learned the Chinese magic arts) and transformed into different supernatural beings. Because the *koos koim* is the older brother, the *nyus vais* is afraid of him and will run from the *koos koim*.

¹⁴⁸ Hunters may recognize a creature in the forest as an *em ntoo* and try to kill it or they may not recognize it, think it is just an animal, and shoot at it from a distance.

to hurt the supernatural being and it retaliates. Perhaps it is this perceived calm, secretive behavior that has made it less well known to hunters and villagers.

6.6.4 *Dab ntxaug* II. The final supernatural being also showed the same grouping pattern in terms of villager beliefs in that there is an almost even split among villagers as to what the creature is. Six believe it is a forest guardian, eight think it is a land spirit, nine believe it is a wild spirit, five respondents think it is something else, and nine are not sure (Figure 6.9).

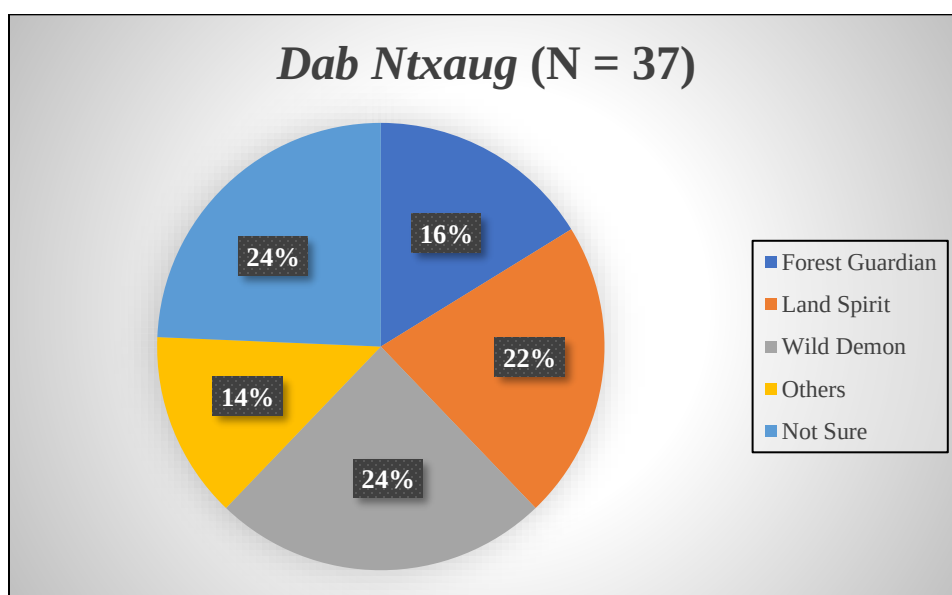


Figure 6.9: Pie chart showing how surveyed villagers are categorizing the *dab ntxaug*. Note that the chart is shown as a percentage. Chart created by P. Vue.

As with the *em ntoo*, the *dab ntxaug* is not as well-known as the *nyus vais* or *koos koim*. The reason is probably that, like the *em ntoo*, the *dab ntxaug* does not get offended by certain actions deemed offensive by the *nyus vais* or *koos koim*. As such, it does not lash out unless provoked, as previously discussed.

6.7 The Safest Path is the Avoidance Path

Each supernatural being is described as having different personalities, strengths, and weaknesses. Thus, each is viewed, categorized, labelled, and addressed differently by different villagers. However, all of them have two main things in common: 1) they all inhabit wild places, including forests, rock formations, water bodies, etc. and 2) they all watch over both natural geographical features and provide protections to the wild animals living in those areas. Offending them could, therefore, result in serious consequences and even death to the offenders, as well as his or her loved ones or even other villagers or clan members.

Hmong hunters historically would go to great lengths to avoid areas believed to be inhabited by supernatural beings. This was especially true if the area was believed to be inhabited by a malicious or malevolent one, as these beings are said to be more evil than other supernatural beings and thus could be expected to attempt to hurt anyone who dares to venture into their territory, regardless of whether they have committed any taboos or not. For example, as already mentioned in the vignette at the beginning of this chapter, the area surrounding one of my research villages, Thong Pei village, is believed to be inhabited by two forest guardians (*tim tswv*). One is said to live north (Figure 6.10) of the village, and one is believed to live south (Figure 6.11) of the village. The one residing north of the village is known as the *Tim Tswv Hav Nyaj Phaus*. It is the nicer of the two and usually leaves people alone as long as they do not violate taboos or disrespect the guardian while in the area. The guardian residing south of the village is known as the *Tim Tswv Hav Nyaj Hawb*. It is said to be quite mean and to frighten anyone who enters its area regardless of whether they have violated a taboo (e.g., cutting down trees, breaking down branches, grilling animals over a campfire). As such, until recently most hunters in the area have avoided hunting south of the village. Not only did hunters actively avoid hunting in the area but villagers also avoid

entering the area altogether, even if it means taking the long way and walking around the entire area in order to get to their intended destination on the other side.



Figure 6.10: North-facing view from Thong Pei village. Many villagers believe that a 'nicer' forest guardian resides in the distant hills. Photograph by P. Vue.



Figure 6.11: South-facing view from Thong Pei village. Many villagers believe that a mean forest guardian resides in the distant hill. Photograph by P. Vue.

A hunter can never be sure if an area is inhabited by one or more of the supernatural beings, as many of these beings are mobile. As such, when a person first enters an area, he/she must announce his/her presence and then conduct a ritual known as *fiv yeem* (a ritual promising a gift in the form of food/spirit money/animal sacrifice in exchange for permission to stay and protection while in the forest).

As previously explained, a person should not commit actions that are considered taboo while in these wild areas. Many of these taboos are environmentally friendly in nature. For example, a person should not cut down tree branches to build a fire while in the area. Instead, he or she should gather branches that have already fallen to the ground. Other taboos include burning rattan, pulling on and breaking vines hanging from tree, and damming up valleys and low areas where water would likely funnel through during rainstorms (Table 6.1). Violating one or more of

the taboos can be expected to infuriate the supernatural beings and they are likely to retaliate with force and possibly kill the guilty person as well as his entire hunting party.

Table 6.1	
Selected Taboos: Do Not –	
Common Courtesy	Eat before inviting the supernatural beings to eat first
	Disrespect the supernatural beings by talking down on them
	Boast about oneself
	Be loud
	Pack red sticky rice to eat in the forest (the supernatural beings [especially the wild demons] will think you are challenging them to eat blood and come for you)
Natural Resource	Burn any parts of the rattan palm trees
	Cut down trees to use as firewood
	Push/kick down an almost-felled tree in the daytime (cut it all the way)
	Burn freshly-picked tree leaves
	Pull/break vines from trees
	Drag or roll logs on the ground (carry it)
	Throw/slam logs or branches onto the ground (set it down gently)
	Dam ditches, streams, and low areas with logs/branches/rocks
	Pour dirty cooking water/oil or blood into ditches, streams, or low areas
Wildlife Biodiversity	Shoot rare/never before seen animals
	Shoot an animal more than twice in an attempt to kill it (let it go)
	Grill squirrels or other rodents over a fire in the evening
	Grill crab species over a fire in the evening
<i>Note.</i> Recommended actions are in parentheses. Table by P. Vue	

Finally, many beliefs associated with supernatural beings can be thought of as traditional biodiversity conservation practices. For example, as already mentioned, the *nyus vais* is said to be able to shape-shift and transform into rare animals to tempt hunters into shooting it. A hunter that takes the bait and shoots at this rare animal would suffer serious retaliation. This fear has prevented

many hunters from shooting and killing animals indiscriminately. This contradicts the long-running, seldom written but often spoken, narrative promoted by wildlife officials that Hmong hunters have always and still do “shoot anything that moves.” The practice becomes even more crucial to biodiversity conservation, considering the fact that the belief explicitly discourages hunters from shooting rare animals. In essence, this practice was preserving rare, threatened, and endangered species of wildlife. Along the same line of thought, the narrative that one must aim carefully and kill an *em ntoo* with one shot or risk suffering its curse is a belief that discourages sloppy, opportunistic hunting practices. Stories of how *koos koims* can be heard mourning deforestation and forest degradation for days, or *dab ntxaug* fleeing and cursing those who have trampled upon and destroyed their homes are traditional ideas that promote ecosystem and natural resource conservation. These beliefs are what primarily shaped how Hmong traditionally viewed and interacted with nature.

On a final note regarding traditional spiritual beliefs that benefit natural resource conservation, while the taboo beliefs discussed above are associated with the Hmong, they are not the only group to have particular spiritual practices that are environmentally friendly. For example, Baird (2008) looked at the Brao in southern Laos and northeastern Cambodia and described of their practices that could be viewed as resource conservation practices. Luo (2009) found similar religious biodiversity and resource conservation beliefs with the Baima Tibetans in Gansu Province, China, as did Singh et al. (2012) with the Kumoan in India, Wu and Fan (2011) with the native people in Dalai Lake Biosphere in China, and Sarma and Barpujari (2011) with the Karbis of Assam, India to name a few.

6.8 Technological Advancements in Laos

There is no denying that technological advancements have had a huge impact on the world we live in (Cowhey & Aronson, 2012; Saon, 2012; Bagatin et al., 2014; Dumitrescu, 2014). It is, however, especially evident in less-developed countries such as Laos (Phonephachanh, 2012; Sturgeon et al., 2013; Khorasanizadeh et al., 2016; Abay et al., 2017; Baird & Vue 2017; Coates, 2017; Xinhua, 2017; Aklin et al., 2018). For example, modes of transportation and transportation infrastructure in Laos two to three decades ago were so underdeveloped that it sometimes took days for villagers to travel relatively short distances. Villagers living in the Laksao area since the mid-1980s told me that as recently as 15 to 20 years ago, it took them three straight days of walking from sunrise to sunset, stopping only for lunch, to travel from Laksao to Nam Yang village in Vieng Thong District about 85 kilometers away. Now it takes an average of approximately an hour and a half by car or bus, and about two hours by motorcycle to travel that distance (see Sturgeon et al., [2013]; Baird & Vue, [2017] for other examples of what Harvey [1989] referred to as time-space compression).

Communication has also greatly improved in Laos within the last couple of decades (Phanvilay, 2010). Thirty to 40 years ago, when a Lao citizen wanted to communicate with another person living in a different area (sometimes as close as 10 or so kilometers away) but did not want to walk there, he/she would wait for days or weeks to give the message to a passerby. Today it is much easier to communicate, not just between Lao citizens living in Laos but between Lao citizens and their friends and relatives living in other countries such as the United States; this networking has facilitated various economic opportunities, such as relatives living overseas investing in the development of small-scale rubber plantations in Laos (see Baird & Vue, [2017]).

6.8.1 Cell phones. Mobile phones have become integrated into various relations (e.g., social, identity) in everyday life and will likely continue to increase in popularity in the future (Ling, 2004; Goggin, 2006; Elderfield, 2007; Horst & Miller, 2007; Campbell & Park, 2008; Comer & Wickle, 2008; UNCTAD, 2010; Kevany, 2012; Warf, 2013; Tawil-Souri, 2015). Probably the most desirable device a rural Lao citizen can own right now is, in fact, a cell phone. Technological advancements have allowed the cell phone industry in Laos, as well in other less-developed countries (e.g., Ling, 2004; Melkote & Steeves, 2004; Barrantes & Galperin, 2008; Mayer et al., 2008; Buys et al., 2009; James, 2010; Warf, 2013), to expand exponentially within just the last few years. Warf (2013) found that Laos actually has one of the highest growth rates of mobile phone subscriptions. This is quite the achievement considering that Laos is considered a less-developed country with a very poorly developed landline network (Huijsmans & Lan, 2015). For example, in my Research Area, villagers stated that a decade ago, it was rare for a household to own a phone and that if a person wanted to make a call, he or she would have to walk to the nearest post office to use the available landlines there. Now, practically every household owns a landline phone with many households owning three or four additional cell phones. Cell phone ownership is taken to the extreme in that many villagers, especially younger people, own three or more cell phones. One young man I interviewed and became good friends with owns seven cell phones, all of which are operational. When I asked them why they have cell phones, their general reply was “*tam sis no teb chaws vam meej lawm, neeg txawj ntse muaj dabtsi ces peb xav muaj dabtsi thiab*” (right now the world is prosperous; so, we also want what smart people have).

The last few years have seen an explosion of the use of not just cell phones in Laos (as stated above), but smartphones running on 2G and 3G technologies (Huijsmans & Lans, 2015; Baird, in press) with many running 4G technologies today (P.Z. Thoj, personal communication,

March 30, 2018). In fact, many younger Hmong villagers were calling me an *npaj nauj* (dumb hick) because I was using a basic “old people” cell phone while there conducting my research. This suggests that beyond simply having practical values as a tool for communication, cell phones have become important symbols of modernity, wealth, and progress (Bunnag, 2006; Burrell, 2014; Kwami, 2016). Thus, it was unsurprising that most of the cell phones found in remote places where there are no internet services were also smartphones. In some cases, villagers even own smartphones where there were no cell phone services at all. A primary reason for this, besides the desire to be “modern,” was that villagers could use smartphones to take and store videos, songs, and pictures. This is quite advantageous to villagers in remote places who do not have readily available access to photo printing places. In other words, camera- and video-equipped cell phones are taking the place of picture albums and cassette/DVD players. They can also be used as flashlights when in dark places.

Smartphones also come loaded with simple games that villagers can play to entertain themselves and pass the time (unable to do swidden agriculture frees up time for this, as was discussed in chapter four). Many villagers have never seen these types of simple games before and greatly enjoy playing them, even though often times they do not know what they are doing. For example, many times I witnessed young people playing Texas Hold'em on their smartphones without understanding the rules. They just kept pressing the same button that allowed them to bet and progressed in the game to see whether they would win or lose game money. When I asked them why they were playing a game that they do not understand, they replied that it was fun although they were not exactly sure why it was fun (besides winning game money).

There is also no denying that cell phones have tremendously influenced how villagers communicate and interact with each other in Laos, including between the government and village

leaders. This, in turn, has affected how villagers develop their livelihood strategies. For example, cell phones allow families to stay in touch when they are in the fields. If those in the fields run out of certain products (e.g., seeds, herbicides, food), they can call others to bring what is needed to them without having to travel to get it themselves. They can also call and ask relatives living near their fields to tend to the fields if they are unable to make the trip themselves. In short, cell phones have made working in the fields much more convenient and efficient for villagers. However, cell phones have also influenced other livelihood strategies that might not be as obvious without deeper inquiry. I looked at how cell phones, and more generally, technological advancements have influenced villagers' beliefs concerning supernatural beings, and how this in turn, has affected how Hmong people hunt and use forest resources.

6.8.2 Chainsaws. Villagers in the Research Area historically cut down trees with hand axes or handheld saws. As such, clearing a hectare or two of forested land was a long and difficult undertaking. However, technological advancements along with improved modes of transportation have allowed for gas-powered chainsaws and heavy logging machines to make their way to the area. Now many villagers own or at least have access to chainsaws that they use to harvest timber or to clear land for agricultural purposes. It is obvious that chainsaws and heavy logging equipment are having a significantly negative impact on the environment. What is less clear is how these technological advancements are (or are not) influencing Hmong beliefs on supernatural beings in the forests and thus, how they view and harvest forest resources. This chapter aims to examine this gap to understand how technological advancements are affecting villagers' beliefs and livelihood strategies.

6.9 To Believe or not to Believe

Seven of the 100 household representatives surveyed in my Research Area claimed that they do not believe in supernatural beings, while eight heads were not sure.^{149,150} However, 85 (Table 6.2) heads reported that they believe that there are supernatural beings that inhabit the forests, lakes, streams and other natural geographical features.¹⁵¹

Table 6.2 Villagers' Beliefs in Supernatural Beings				
Interviewee Name	Age	Are there supernatural beings in the wild?	Has your beliefs in them changed since you first moved to area?	If YES, how has it changed?
Txooj Vam Vwj	56	Yes	Yes	↑
Soob Ntxawm Vwj	66	Yes	Yes	↓
Cib Vwj	35	Yes	Yes	↑
Paj Yias Vwj	51	Yes	Yes	↓
Paj Txoo Vwj	60	Yes	Yes	↓
Suav Nchai Vwj	34	Yes	Yes	↓
Faiv Nplooj Vwj	49	Yes	Yes	↓
Suav Vwj	36	Yes	Yes	↓
Nyiaj Nplaib Vwj	35	Yes	No	
Niam Soob Xais Xyooj*	64	Not Sure	No	
Paj Zeb Xyooj	54	Yes	Yes	↑
Ntxoov Neeb Xyooj	76	Yes	Yes	↓
Lauj Foom Xyooj	55	Yes	Yes	↓
Nyiaj Tsav Vaj	31	Yes	Yes	↓
Kuamneeb Xyooj	25	Yes	Yes	↓
Tswb Neeb Vwj	40	Yes	No	
Huas Vwj	29	Yes	Yes	↓
Tswv Tuam Vaj	62	No	Yes	↓
Xov Xyooj	24	Yes	Yes	↓

¹⁴⁹ All seven household heads who did not believe in supernatural beings were male heads.

¹⁵⁰ Of the eight household heads who were not sure, four were male heads and four were female heads.

¹⁵¹ Eighty were male and four were female household heads, and one was the eldest daughter of the household.

Soob Tsheej Xyooj	38	Yes	Yes	↓
Nyiaj Ntaj Xyooj	65	Yes	Yes	↓
Nuj Xyooj	22	Yes	Yes	↓
Vam Yeej Vwj	62	Yes	No	
Ntxoov Pov Vwj	34	Yes	No	
Txais Vwj	19	Yes	No	
Nyiaj Teev Vwj	29	Yes	No	
Ntxoov Nyiaj Vwj	33	Yes	Yes	↓
Nom Lwm Vwj	46	Yes	No	
Tooj Mas Vwj	28	Yes	No	
Teeb Vwj	28	Yes	Yes	↓
Tsav Sawm Vwj	40	Yes	No	
Ntxoov Vaj Vaj	75	Yes	No	
Xauv Lauj	29	Yes	No	
Vam Muas Vwj	40	Yes	No	
Nom Moos Xyooj	37	Yes	No	
Nom Kos Xyooj	29	Yes	No	
Txawj Thaiv Xyooj	40	Yes	No	
Npliaj Kab Xyooj	48	Yes	No	
Tooj Nchai Ham	37	Yes	No	
Pob Tsuas Ham	34	Yes	Yes	↓
Ntxoos Pov Ham	30	Yes	No	
Ntshuab Yaj Vaj	45	No	No	
Ntxoov Xeeb Vaj	43	No	Yes	↓
Ntxoov Tsu Vaj	67	Yes	No	
Txiaj Lis Vaj	35	No	Yes	↓
Niam Nyiaj Kaub Xyooj*	52	Yes	Yes	↓
Niam Txhuas Ntxawg Xyooj*	40	Not Sure	No	
Tooj Npliam Yaj	33	Yes	Yes	↓
Niam Ntsuab Toog Yaj*	49	Yes	Yes	↓
Nom Vaj Xyooj	38	Yes	Yes	↓
Vam Xeeb Xyooj	88	Yes	No	
Vam Kub Vwj	53	Yes	Yes	↓
Nyiaj Npis Vwj	82	Yes	Yes	↓
Thaiv Vwj	37	Yes	No	
Soob Leej Vwj	50	Yes	No	
Vaj Tuam Vwj	40	Yes	Yes	↓
Xaiv Vwj	53	Yes	No	
Vam Lwm Vwj	39	Yes	No	
Vam Nruas Xyooj	60	Yes	No	
Lig Vwj*	20	Yes	No	
Ntxawg Vwj	35	Not Sure	No	
Vam Tuam Vwj	50	Yes	Yes	↓
Lis Vwj	40	Yes	No	
Vam Suav Vwj	46	Yes	No	
Ntxoov Tub Vwj	45	Yes	No	
Txiaj Toob Vwj	90	Not Sure	No	
Txooj Kuam Vwj	60	No	No	

Zam Ntxaij Vwj	60	Yes	No	
Niam Ntxoov Lauj Xyooj*	60	Yes	Yes	↓
Txaij Tsav (Xyooj Neeb) Vwj	34	Yes	No	
Yeej Vwj	30	Yes	No	
Raj Kawm Vwj	47	Yes	No	
Niam Vam Pov Vwj*	58	Not Sure	No	
Teeb Ham	29	No	No	
Tswv Huas Ham	40	Yes	No	
Nchaiv Pov Vwj	50	Yes	No	
Nyiaj Thoob Vwj	32	Yes	Yes	↓
Lwm Vwj	30	Not Sure	No	
Suav Yaj Vwj	33	Yes	Yes	↓
Nkaj Pov Vwj	51	Yes	No	
Paj Txim Vwj	39	Yes	No	
Sov Txiab Vwj	60	No	No	
Nkaj Nob Vwj	37	Yes	No	
Niam Fav Ceeb Vwj*	50	Yes	No	
Tsav Yim Vwj	26	Yes	No	
Xaiv Kuam Thoj	35	Yes	No	
Xaiv Teev Thoj	50	Yes	No	
Nyiaj Yeeb Vwj	55	Yes	No	
Tswj Thoj Xyooj	42	Not Sure	No	
Nyiaj Looj Xyooj	42	Yes	No	
Yaj Huas Yaj	30	Yes	No	
Niam Vam Lis Thoj*	37	Not Sure	No	
Suav Nus Vwj	48	Yes	No	
Paj Vws (Suav) Vaj	42	Yes	No	
Yeej Vaj	30	Yes	Yes	↓
Yias Vwj	52	Yes	Yes	↓
Npliaj Pov Xyooj	50	Yes	Yes	↓
Neej Siab Vwj	34	Yes	Yes	↓
Nyiaj Txam Vwj	50	Yes	Yes	↓
Xab Vwj	31	Yes	No	
Note. * Indicates interviewee was a woman. Table sorted by interviewee's ID number. Table by P. Vue				

Seventy-four of these 85 household representatives also believe that there is a connection between actions committed in the forest and unfortunate events that befall villagers in the villages. For example, supernatural beings are believed to cause other villagers, and especially family members of the hunter, who have violated taboos while in the forest to fall ill and die. This suggests that not only is the hunter putting his life at risk by violating taboos but also the lives of other villagers as well. For example, a Hmong hunter told me how one of his relatives shot and killed

what he thought was a large dog-like animal in 1978. Upon examining the body of the animal, he became scared, as the animal was “strange-looking” and seemed to possess physical characteristics attributed to *em ntoo* based on descriptions provided by village elders. He left the body in the forest and immediately returned to the village, but he did not tell anyone about the incident. Two to three weeks later, villagers started getting sick and soon over half of the people in the village were sick and dying. Buddhist monks from ethnic Lao villages were brought in to perform rituals to determine the cause (see Lee & Tapp, [2010]; Baird, [2012]; Chambers, [2014] for further reading on Buddhist influences on the Hmong). It was concluded that someone in the village had shot something in the forest and now the forest guardians or spirits were angry. The relative did not confess to being the one who had violated the taboo because he was scared of what the villagers would do to him, so he kept quiet (he eventually confessed years later on his deathbed). Unable to identify the person(s) responsible, the monks held a council and decided to protect the village from the curse by enclosing the entire village with blessed white strings to prevent the curse from further entering the village. In addition, all villagers drank special blessed water to cleanse their spirits and receive blessed strings to tie around their wrists to protect them when they venture outside of the village. After a few weeks, things got back to normal and people were again able to move around freely, but the monks warned the villagers to not shoot anything in the forests for an extended period of time.

Another example involved a village that, while not in my Research Area, was close enough that I visited it a few times during my fieldwork. About a year before I arrived, a group of hunters from the village went hunting and brought back many wild animals, including small mammals, reptiles, and birds. The day after the hunters returned, a female monkey carrying an infant came and settled right on the edge of the village. Soon, bad and unexplained incidents started befalling

the villagers. For example, the interviewee stated that one of her grandsons was accidentally shot and killed by another grandson while they were out in the forest. Other villagers were getting sick and, to make matters worse, the crops were failing. The villagers consulted with a Hmong shaman and were told that the forest guardian in the area was looking for something that was taken from it and had tracked it to the village. The villagers were now scared but were not sure what could be done. The interviewee asked if there was anything I could do to help drive the supernatural being from the village, as I lived in a developed country (the United States) so I would surely know what could be done. I thanked her for her confidence in me, but told her that I honestly did not know what to do and probably would not be able to drive away the supernatural being. She said it was okay and added that the villagers would continue to look into what they could do.

These examples clearly illustrate the belief that a connection exists between actions that are committed in forests and villagers' suffering due to supernatural beings. Hunters are aware of this connection and so are extra careful not to offend any supernatural beings. Furthermore, the second case shows that Hmong villagers associate modernization and development with having the ability, via technology and technological advancements, to fight back against the supernatural beings and prevent them from causing harm.

On the other hand, only four of the 85 heads I interviewed do not believe that there is a connection between actions that occurred in the forests and villagers' wellbeing. These heads believe that if a hunter violates a taboo in the forest, the supernatural beings could harm that hunter while there. However, once the hunter leaves the forest and returns to the village, the supernatural beings are no longer able to harm the hunter, family members, or other villagers. Thus, it is believed that some unfortunate events that befall villages are just caused by bad luck. The seven

remaining heads who believe in supernatural beings claimed that they are not sure if there are connections between violating taboos that occur in the forest and events that occur in the villages.

Seven household representatives did not believe in supernatural beings. These representatives stated that the reason why they do not believe was because they have not experienced anything that they could attribute to the supernatural. Many stated that if they do experience something while out in the forest that they could not explain, then perhaps they will rethink their stance. However, so far they have not seen or heard anything that cannot be explained in a logical manner. On the other hand, the eight who were not sure stated that they also have not had any experiences but have not ruled out that supernatural beings may exist. Thus, to be safe, they would still perform the rituals and uphold the taboos when out in the forests. One individual stated, “*xum laig es tsis xwm ntsib*” [rather perform the ritual (even if it ends up being for nothing) than meet a supernatural being].

6.10 In-Depth Interviews on Spiritual Beliefs and Hunting Activities

Administering the surveys was an excellent way to obtain certain types of data. However, I followed up the surveys with interviews to gain an in-depth understanding of the actual situation on-the-ground. Follow-up, in-depth interviews with the 85 representatives who stated that they believe in supernatural beings (some interviews were also done in the presence of their family members, many of whom were more than happy to chime in and voice their own opinions) revealed two significant yet intertwining shifts in beliefs concerning supernatural beings and the wild amongst the Hmong in my Research Area: weakening beliefs and fighting back.

6.10.1 Weakening beliefs. The first shift was that the supernatural beings’ overall level of importance is changing. This was made obvious during the in-depth interviews, during which time 37 of the 85 representatives stated that their beliefs regarding supernatural beings have either

increased or decreased since moving to the Research Area. Three of the 37 representatives stated that their beliefs have increased or gotten stronger. Interestingly, these three villagers have varying levels of hunting experience.

One does not hunt at all, but his beliefs have become stronger because, in his words, he was ignorant back then. Now he realizes that there are things out there even though he does not hunt and has not had a personal experience that could be attributed to the actions of supernatural beings. Interestingly, additional conversations with this individual suggest that the reason why his beliefs have become stronger was because he does not hunt and does not want to hunt. Thus, increasing his beliefs in supernatural beings gives him a stronger reason (excuse) to not go hunting or harvest NTFPs.

The second villager was a recent arrival from Vietnam. He stated that his beliefs have become stronger since moving to the area because he had experienced things while out hunting that could not be explained without referring to guardians, spirits, or demons. When I asked if he had experienced similar things when he was living in Vietnam, he replied that he did not because he did not hunt when he lived there. He only started hunting after moving to the area, as he had no land to farm (see chapter four for discussions on land availability). Additional conversations with this individual suggest that his beliefs have gotten stronger because he does not want to hunt but has to in order to obtain enough food to eat. Thus, by increasing his beliefs, he is essentially coming up with a counter reason to not wanting to hunt.

The third villager who stated that his beliefs have gotten stronger is one of the most avid hunters in my Research Area. His belief in supernatural beings has become stronger because he has had many experiences with supernatural beings and he claimed that he had determined that praying to them works. I accompanied him on many hunting trips and every time he would perform

the necessary rituals before, during, and after going hunting. Additional conversations with this individual suggest that his beliefs have gotten stronger because he hunts so often that he needs a sense of security or protection from the supernatural beings in case they do exist. Thus, by believing in supernatural beings and then conducting the necessary rituals, he is essentially putting himself at peace and imbuing himself with a sense of confidence that he will be fine in the forest and as such, can concentrate on hunting.

Perhaps more interesting was that 34 of those interviewed stated that while they still do believe in supernatural beings, their beliefs have decreased or become weaker since moving to the area. The overwhelming majority of villagers stated that their beliefs in supernatural beings are decreasing, and this suggests that supernatural beings no longer command villagers' respect as they once did; as such, they no longer hold as much sway over villagers' activities. One of the more popular reasons given for why villager beliefs about supernatural beings are diminishing is because there seems to be fewer and fewer interactions/incidences between hunters and events attributed to supernatural beings in the forests. When asked about why there are fewer incidences involving supernatural beings, many villagers stated either that the supernatural beings have become more tolerant and nicer, or that they have left the area. For example, Interviewee #27 proclaimed, "*Cov tim tswv khiav tag lawm tsis muaj li lawm tiag. Tam sis no peb mus ci nas pem hav zoov los tsis muaj dabtsi los hem los yog los ua li cas rau peb lawm os*" (There are no more forest guardians [in the area] as they have all left. Now we can go and grill squirrels in the forest and not worry that they are going to come to scare us or do something to us). Fewer confrontations mean fewer stories and fewer stories which in turn mean decreasing beliefs in their existence (similar to the western catchphrase "out of sight, out of mind.") However, it seems unlikely that this decreasing belief pattern was primarily caused by fewer confrontations with supernatural

beings. Instead, it seems likely that the desire and/or need to enter the forest to hunt animals and harvest NTFPs to meet household needs is primarily responsible for the decreasing belief. This will be discussed in the chapter's conclusion.

6.10.2 Fighting back. The second shift concerns all who claim that they still believe in supernatural beings. This shift revolves around the idea that ordinary people (non-magic users) can now challenge and overpower supernatural beings. As was previously explained, Hmong historical cultural beliefs stated that only very strong magic users (and shamans) are able to challenge and defeat supernatural beings. As there are very few of these magic users around to accompany hunters on hunting trips, the majority of the hunters are essentially forced to conduct the required ritual practices as well as uphold beliefs in respecting taboos. Now ordinary people are capable of challenging and defeating supernatural beings by utilizing a different type of magic: technologically advanced equipment (e.g., phones, vehicles). In other words, ordinary villagers can now fend off supernatural beings with advanced electrical/gas-powered equipment or other modern devices.

This new aura of confidence was easily observed when talking to villagers about hunting. For example, the head of Household #7 grinned widely and proclaimed, “*Peb teb chaws pib vam meej tuaj lawm. Peb ua dabtsi los muaj zog ua lawm. Tam sis no neeg txawj ntse paub siv khoom faiv fab khoom tshiab lawm ces ua dabtsi los tau tsis ntshai lawm*” (Our country [Laos] is becoming more and more modern. We now are motivated to do what we want to do. People are now getting smarter and are able to use new electrical gadgets so [we] can do whatever and not be afraid anymore). Many other households echoed this sentiment. For example, the head of Household #6 stated, “*Teb chaws vam meej lawm ces dab tim tswv ntshai peb vim peb heev tshaj lawv lawm*” ([Our] country is now modern so the forest guardians/spirits are now afraid of us

because we are fiercer than they are).¹⁵² Members of Household #21 all nodded in agreement when the eldest son said, “*Kev mam meej ua peb paub ntau lawm. Tam sis no peb paub tshaj tej dab lawm ces peb tsis tas laig thiab yug lawv lawm*” (Modernity has made us more knowledgeable [about the world]. Now we are smarter than the spirits so we do not have to perform offerings or feed them anymore). Perhaps Interviewee #1 described this newfound power best when he said: “*Cov tim tswv ntshai neeg vim neeg coob muaj koob thaij lawm. Lawv ntshai ib tsam tej neeg ho thaij tau lawv duab es coj mus rau neeg thoob ntuj saib. Yog tias neeg ntiaj teb pom thiab paub tias muaj lawv ces tsis ntev neeg Asmesliskas yuav tuaj nrhiav thiab ntes lawv ces lawv yuav khiav tsis dim. Lawv ntshai qhov no es lawv thiaj li tsis los hem hem neeg yos hav zoov lawm. Ib yam li tam sis no ne, Asmesliskas coj koob caws mus caws pem hav zoov tiam sis cov koob tsuas thaij tau tsiaj tiag tiag xwb...yeej thaij tsis tau cov tim tswv rau qhov lawv paub ces lawv yeej tsis los ze*” (The forest guardians are afraid of people now because many people have cameras [including camera cell phones]. They are afraid that someone will take their pictures and show the world. If people around the world find out that they exist, before long Americans are going to come look for and try to capture them and they would not be able to escape. They [the forest guardians] are afraid of this, which is why they are harassing hunters less and less. Like right now, Americans have set up motion capture cameras in the forests, but the cameras have only been able to capture real animals... and not the forest guardians because they know already so they would not come close).

Other villagers told me that supernatural beings are afraid of advanced guns and gas-powered chainsaws because the loud, deafening noise that guns (when firing bullets) and

¹⁵² Modern, as defined by Hmong villagers, has two definitions depending on the subject: 1) a person is considered to be modern if he/she attained a higher level of education (having at least graduated from high school) and 2) an area is considered to be modern if it has good infrastructures, roads, tall buildings, and other architectural advances.

chainsaws make (when in use) are louder than any noise a supernatural being can make. Thus, the supernatural beings believe that these creatures are even greater beings who should not be messed with and so they flee. Villagers claimed that supernatural beings are not only afraid of modern guns and chainsaws, but they are also terrified of gas-powered logging vehicles for the same reason. The following is a story told to me by a Hmong elder that illustrates this claim:

One night a villager had a dream. In his dream, he was standing at the edge of his village staring down a dirt road, and he saw many people holding hands and walking toward him. Staring at these people, he could tell that they are weary, tired, and scared.

When the group got close enough to him, he asked the leader who they were and where they were going. The leader replied that they were fleeing their homes because a great evil had come to their land, an evil that they were unable to defeat.

The leader continued, “The frightening roars of this unstoppable beast can be heard all day as it destroyed our homes and ravages our land. It leaves nothing but destruction in its path. At night when it sleeps, we would sneak up to it and attempt to kill it by wounding it and drinking its blood...but its blood is strange... it makes us sick and delusional... but we drink as much as we can in the hope of killing it. However, when daylight breaks, the beast roars back to life and continues its onslaught as if nothing had happened. We cannot defeat this evil so we must flee. You should come with us for the beast is coming this way.”

The villager woke up befuddled and confused. The next morning, he went for a walk around the edge of the village when he spotted a *dab ntxaug* caravan running around and then disappearing into the nearby shrubs. He then gazed down the valley and saw gigantic

logging vehicles roaring around and cutting down trees. It was then that he made the connection. The people in his dream holding hands and fleeing were the forest guardians... and the unstoppable evil was a logging vehicle nearby. The forest guardians were trying to kill it by drinking the gasoline that was why they were getting sick and were forced to flee... and this beast is unstoppable.

6.11 Chapter Review and Concluding Thoughts

This chapter has explored Hmong cultural beliefs concerning nature and how these beliefs have historically regulated how Hmong villagers in my Research Area in Laos view and interact with their surroundings. The chapter started with a brief discussion of Hmong ecological and spiritual beliefs and highlighted three main groups of supernatural beings consisting of four main types, their characteristics, and discrepancies concerning how Hmong villagers group these beings. It then discussed technological advancements in Laos, and finally, how these technological advancements are influencing and changing how Hmong villagers view the environment, including the supernatural beings that in turn are changing how they interact with the environment in order to sustain and or exceed their livelihood needs.

The research presented in this chapter demonstrates that Hmong cultural beliefs have generally been shifting and weakening, particularly in relation to supernatural beings over the last few decades due, at least in part, to advances in technologies. The research has shown that modern gadgets such as cell phones or gas-powered chainsaws are playing significant roles in the slow erosion of Hmong cultural beliefs concerning supernatural beings and forest resource usage, as was made evident in the vignette about trapping a supernatural being (*nyus vais*) using a cell phone described at the beginning of the chapter. The associated shift in beliefs is having severe impacts on the environment, including the forests and other natural resources. Specifically, villagers now

often believe that they can enter areas that were once “off-limits” due to the presence of supernatural beings and not only hunt, but they can actually challenge and defeat the beings that once protected the area and natural resources.

However, it is unlikely that advances in technology alone are responsible for increased hunting and resource extraction in once-prohibited areas due the presence of supernatural beings. Instead, advancing technology, while crucial to resource extraction, is but a part of the larger issue: the increasingly unsustainable exploitation of animals and NTFPs by large corporations. Hmong villagers know this and they see it happening in their area, in their forests. They also know that unless they “take chances” to hunt and harvest more NTFPs, soon there will be very little left to hunt or harvest. However, many villagers also believe that there are supernatural beings in the forests and other natural geographical features that will not take too kindly to hunters and resource harvesters, even if they do not commit any taboos. A way around this would be to use technology as a tool to shift power from the supernatural beings to the human hunters and harvesters. One of these ideas is the belief that supernatural beings are afraid of advanced technology, so a hunter only has to be in possession of a camera phone in the forest and he would have nothing to fear, at least from supernatural beings. The same reasoning can explain why some villagers have stated that their beliefs have decreased. In other words, their beliefs have decreased because they need to devise a way to empower themselves, or to make them stronger than the supernatural beings. Positioning themselves as being stronger and more powerful means that they can now enter the forests to hunt the animals and harvest the NTFPs with confidence, or at least with less fear. Ironically, these self-empowering practices mirror the *ntoo xeeb* ceremony that was discussed toward the beginning of the chapter. Both the Hmong in Mae Sa Mai village, Thailand and the Hmong in the Research Area are redefining certain cultural beliefs (the Mae Sa Mai Hmong are

redefining the *ntoo xeeb* ceremony, while the Hmong in the Research Area are redefining their relationships with the supernatural beings) in order to shift power from the government (in the case of the Mae Sa Mai Hmong) and from the supernatural beings (in the case of the Hmong in the Research Area) to gain access to the natural resources.

This weakening of cultural beliefs in response to technological advancements echoed earlier studies (see, for example, Immel [1971] for a discussion on how changing cargo technology has threatened and changed seaport livelihoods, Misra & Mishra [2006] on how emerging agricultural technology has led to a degradation of agro-based rituals and folk songs in rural Orissa, and Neely [2011] on how improving healthcare has led to an abandonment of ritual protection in Pholela, South Africa). A study that was particularly relevant because it looked at how technology has led to an erosion of traditional beliefs that then lead to increased resource use was conducted by Heidi Glaesel. Glaesel (1997) researched the declining fish haul in four protected area complexes and other non-protected areas off the Kenyan coast and found that advances in technology have also contributed to decreasing villagers' Eco-cosmological beliefs, and in turn, an increase in fish harvest.¹⁵³ Essentially, outsiders were coming to the area and using advanced destructive fishing techniques such as spear guns and harvesting the fish stock at an unsustainable rate. As the fishing stock decreased, so too did younger local fishers' beliefs in traditional eco-cosmological marine organism management. As elders were not able to do much to halt fish declines via pleasing the spirits, younger fishers began to question the elders' interpretations of Islamic and traditional norms even more. This led to further erosion of traditional beliefs concerning the sustainable harvest of the fish stock as younger fishers began to use more modern fishing methods (e.g., nets) to compete with outsiders. Glaesel wrote, "The introduction of outside

¹⁵³ Malindi-Watamu Biosphere Reserve, Mombasa, Diani, and Kisite-Mpunguti Marine Parks.

technical knowledge in the form of spear guns by tourists and nylon nets, led to a massive increase in more aggressive forms of fishing” that in turn lead to “a decline in elder status and local tenure systems” and “partial abandonment of time-honored marine resource management strategies and loss of related fishing knowledge” (p. 219).

The bottom line is that the Hmong in the Research Area can now defeat the once powerful beings of the forest; Hmong hunters and NTFP harvesters now enter the forest and hunt more commonly and with less care, and thus more unsustainably. This, indeed, strengthens the commonly held notion that Hmong hunters shoot anything that moves. Moreover, this shift in ideas can also lead some Hmong to degrade ecosystems and not worry about supernatural retaliations in the form of unexplained sickness and death—things that were once greatly feared. The impact that this new mentality could have on wildlife and biodiversity conservation cannot be overstated and needs to be considered more when examining Hmong nature-society relations.

Chapter Seven: Conclusion and Thoughts

At approximately six in the morning on February 10, 2015, I boarded a bus to Vientiane, the capital city of Laos. After spending the previous 16 months living in the Laksao area and learning what I could about how Hmong villagers' livelihoods in the Research Area are changing, I was on my way home.

My last few days in the Research Area were spent visiting those I had become good friends with and those who I had not yet had the opportunity to interact with on a personal level. I made last visits to both Thong Pei village and Ko Hai village to say my goodbyes and to thank the villagers for their hospitality. I came back to the Laksao central area and did the same (a few villagers told me to hurry back if I wanted to try and catch supernatural beings, as just like me, the supernatural beings are leaving). I gave away most of the things I had accumulated, including a microwave, pots and pans, clothing, random figurines, and one of my cell phones (I kept the other one). After attending two feasts held in my honor (and a third one in Vientiane), I was finally ready to leave.

The eight-hour bus ride from my Research Area to Vientiane gave me some time to reflect on my time with the Hmong villagers in central Laos. I thought of what I did, what I wanted to do but did not, and what I did not want to do but ended up doing. Most of all, I thought about the villagers and their changing livelihood strategies (or more accurately, livelihood struggles). I could not help but ponder about where they are heading, where they will be in five, ten, fifteen years. I think about the requests I received, such as, "Can you bring me a made-in-the-USA rifle scope next time you come back?" or "Bring me a handgun with a silencer," or "Bring us some night vision goggles and camera traps (to scare away the supernatural beings)." Somebody said, "Find me a wife/husband in America so I can come live there, as life in America is so much better than

here.” These requests, while light-hearted and often said with a smile, conveyed a deeper message about an uncertain future. These villagers know times are changing and that their livelihoods are also changing. There are factors creeping in and changing the way they see things and the way they go about their daily activities to meet their livelihood needs. Some are hopeful and betting that with the proper equipment (e.g., a .22 rifle equipped with a US-made scope and a pair night vision goggles), they will be fine. Others feel more unsure. To them, the only sure way out of livelihood constraints and poverty in Laos is to come to the United States.

7.1 A Common Denominator

This dissertation’s main focus has been on hunting and agricultural practices, and to a lesser extent, on NTFP harvesting and use among Hmong villagers in central Laos. I examined and analyzed three broad factors that are affecting how the Hmong view and interact with their surroundings in order to sustain or, in some cases, to enhance their livelihood circumstances. Recall that the overall research question for this dissertation was: How do Hmong villagers from the Research Area respond to various factors in order to spatially navigate and use the surrounding lands to sustain and/or enhance their livelihoods?¹⁵⁴

Throughout the dissertation, I have used ethnographic data to demonstrate how Hmong livelihood strategies, particularly hunting and agricultural practices, but also NTFP harvesting and use, are being influenced and affected by: government policies related to swidden agriculture, lowland wet-rice paddy cultivation, the production of cash crops, the desire to generate income through available means, and by advances in technology. All of these factors are quite different from one another and yet, all are interrelated and have resulted in one common outcome: an increase hunting and harvesting of wild animals and other forest-based natural resources.

¹⁵⁴ Chapter one, introduction.

7.1.1 Laos' anti-swidden policies to...displace swidden agriculture. In this dissertation, I argued that the Lao government's agenda to decrease, control, and restrict swidden agriculture has, in many cases, just displaced the practice from more populated areas to more remote ones. I also presented cases that suggest that the initiative to decrease swidden agriculture is causing more monetary and nutritional problems than it is solving. Thus, villagers are forced to take up swidden agriculture elsewhere, again in more remote places that then brings them into direct contact with more wildlife and various forest products. These resources are being harvested for both subsistence and as a way to generate additional income. Sometimes these new exploitation opportunities are so profitable that some villagers are going into the wildlife and resource trade profession on a full-time basis. Finally, I suggest that the government's plan to replace swidden agriculture with wet-rice cultivation has also lead to increasing hunting and forest exploitation because unlike swidden agriculture, which is labor intensive and results in a variety of crops being cultivated, wet-rice cultivation is significantly less labor-intensive when compared to swidden agriculture, and as such, wet-rice cultivators can spend more time hunting and harvesting NTFPs. Furthermore, wet-rice cultivation is a monocrop agricultural practice, so villagers have to swidden elsewhere and/or harvest more NTFPs to meet dietary and other subsistence needs.

7.1.2 Money talks...and talks. Economic earning opportunities play a huge role in how Hmong villagers are presently interacting with their surroundings, including to generate income as well as to partake in "insurance policy" strategies in case the primary income-generating activity (cash crop cultivation) fails. The Lao government's long-standing "produce for export" policy, which has led government officials to push cash crops production with villagers, is greatly affecting villagers' livelihood strategies. The government currently sees cash crop cultivation as something that all rural people should partake in, as it is assumed that cultivating cash crops can

be beneficial in various ways. Specifically, the government portrays cash crops as a way to increase Laos' economic sector through producing goods for export; as a way for villagers to generate income, and thus it is hoped that they will be less dependent on hunting and forest resources; as an alternative to swidden agriculture; and as a way to put non-paddy land to use in ways that will not be overly detrimental to the environment. Indeed, while cash crops can generate a significant amount of money for villagers. I have, however, demonstrated that villagers cannot depend on cash crops to generate a lot of income or even ensure food security. Villagers realized this and, as a result, are taking precautionary measures to minimize possible future problems associated with income and nutritional needs. These precautionary measures include 1) traveling to more remote places and 2) swiddening as a way to grow food for household consumption and as a way to generate income through opium cultivation (one of the surest income-generating cash crops in Laos). Again, this brings villagers into contact with more wildlife and forest resources, which are then exploited, often at unsustainable rates.

The market economy and potential earning opportunities are also leading to an increase in hunting and forest use amongst the Hmong in the Research Area. Indeed, their strategies are evolving to maximize their chances of success in an environmental setting which has been designed to restrict their movements. These changes include venturing into further away places to hunt generally, and also increasingly hunting species that were previously not hunted.

The second money-generating practice I discussed centers on an unwritten agreement between villagers and the soldiers patrolling the forests in the Research Area. The desire to generate income has also led to a patron-client, gift-giving relationship between villagers and soldiers in the Research Area. I argued that the Lao government's establishment of many protected areas and then the staffing of these areas primarily with low-ranking and low-paid soldiers (many

of whom have no connections or ties to the area) has led to a particular kind of working relationship between them and the Hmong villagers that this dissertation is focused upon. I have presented cases showing that not only is this mutual-benefit relationship allowing villagers to enter the protected and non-protected areas to hunt and harvest natural resources, but the relationship is nurtured in a way that actually encourages hunting and harvesting activities.

Finally, it is important for the reader to see and realize that the Lao government and the Vietnamese traders both play significant roles in encouraging and facilitating the hunting and harvesting of Laos' natural resources by Hmong villagers. Reasons as to why the Lao government is partly to blame for increasing wildlife hunting and resource trade in Laos have been discussed at length in this dissertation. However, the role of Vietnamese traders, while mentioned throughout the dissertation (especially in chapter five when discussing cash crops and wildlife trade but also elsewhere) is certainly quite important. Indeed, Vietnamese traders (both cash crops traders and wildlife traders) play prominent roles in encouraging, facilitating, and supplying the demand to keep hunting and resource harvesting going. They do this by creating networks that provide outlets for Hmong villagers to sell the harvested goods. As was previously discussed, many Vietnamese restaurants are actually fronts for illegal wildlife trade. In fact, most of the wildlife I witnessed being sold in Laksao were sold to Vietnamese traders who then transported the animals to Vietnam. By creating a demand for the product, the Hmong in the Research Area could then become the suppliers.

7.1.3 Fear the supernatural beings...no more. I have argued that Hmong spiritual beliefs that historically promoted forest and wildlife biodiversity conservation, as well as the care and maintenance of natural geographical features, have greatly been diminished in recent times by modern technological gadgets such cell phones and chainsaws. Perhaps even more damaging to

the environment is the belief that powerful shamans and magic users are no longer the only ones able to stand up to and defeat supernatural beings. This has led to the belief amongst common villagers that they can now take on and defeat powerful supernatural beings with the aid of simple, yet powerful modern artifacts such as smartphones. The associated shift in beliefs is having severe repercussions on the environment, including on wildlife and other forest resources. Specifically, villagers now often believe that they can enter areas that were once “off-limits” due to the presence of supernatural beings. The end result is that Hmong hunters and NTFP harvesters in the Research Area are now entering forests and exploiting the available resources in unsustainable and environmentally-detrimental ways.

7.2 All Roads Lead to Increased Hunting and Resource Use

Forest and wildlife conservation are the primary reasons why the Lao government has implemented various policies, programs, and action plans to eradicate swidden agriculture, hoping to replace it with an “environmentally-friendlier” agricultural practice such as wet-rice cultivation. In addition, the Lao government has strongly promoted cash crops as an alternative practice to swidden agriculture, as it can be practiced on non-paddy lands with the idea that the income generated from the sales of cash crops can then be used when necessary to buy rice for household consumption. Interestingly, as my research suggests, the Lao government’s initiative to protect wildlife and forests through the above activities has also contributed to an increase in hunting and resources use in the Research Area.

Furthermore, my research on technology and Hmong beliefs suggests that advancing technologies are influencing Hmong villagers’ environmental beliefs in ways that have resulted in increased hunting and forest use. While it remains to be seen how advanced technologies affect Hmong beliefs concerning the environment and supernatural beings in the long run, this study

suggests that the supernatural beings are fighting a losing war. Without these beliefs to protect some forest areas and the resources found in those areas, it is likely that they too will be exploited, perhaps unsustainably, by younger Hmong villagers who now embrace technology as a savior while throwing away any cultural beliefs that may stand between them and “modernization.”

The question becomes: which of these three factors is most responsible for affecting how Hmong in central Laos view, and in turn, use wildlife and forest resources? Figure 7.1 is a visual cause-and-effect flowchart diagram depicting how certain actions are causing certain reactions. The entire dissertation should be considered using figure 7.1.

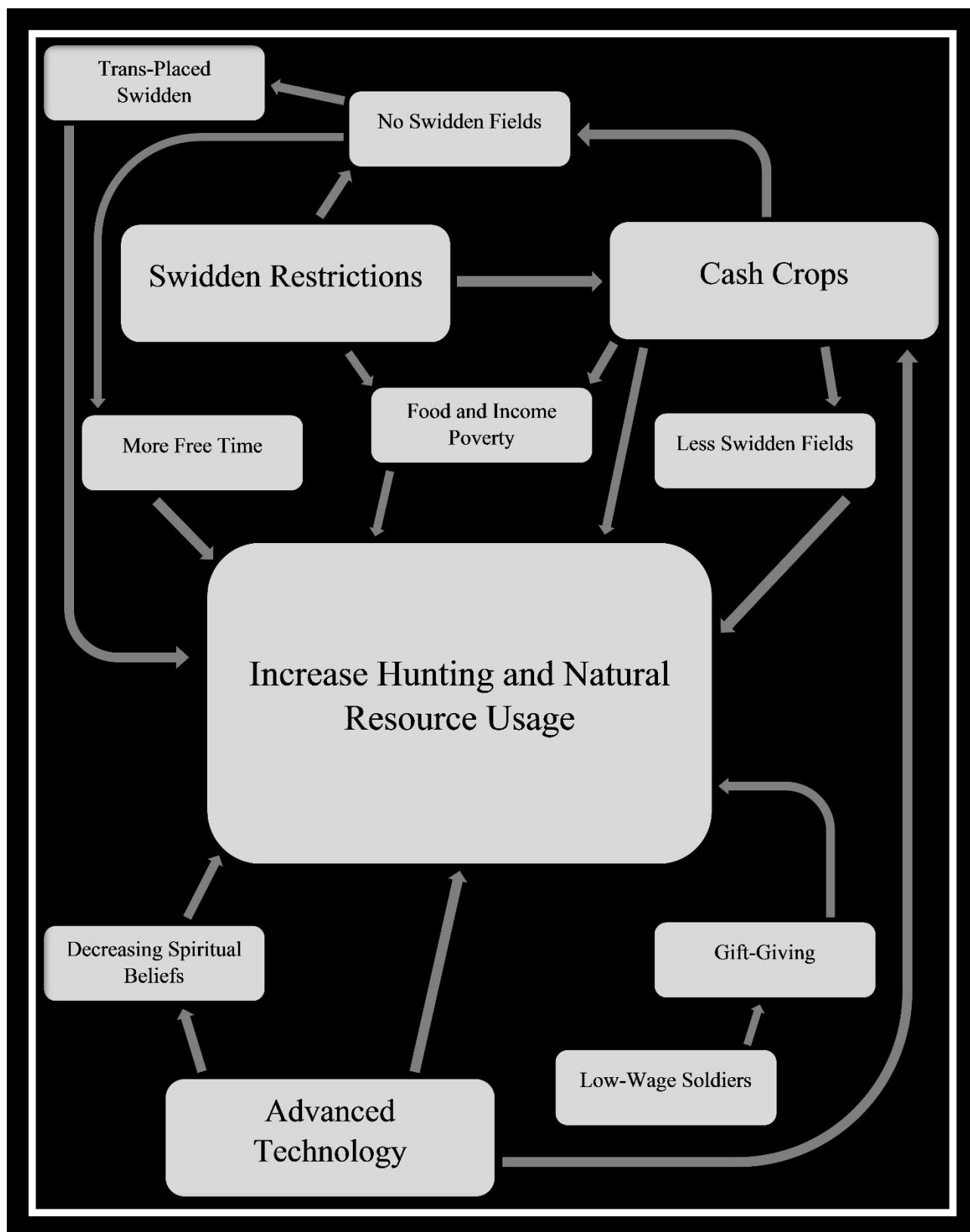


Figure 7.1: Hunting and natural resource usage web. Flowchart diagram by P. Vue

To summarize, the Lao government is currently discouraging villagers from practicing swidden agriculture by restricting its spread and fining those caught clearing lands. This restriction on swidden means that many Hmong villagers in the Research Area are unable to produce enough rice or other food to eat, or in many cases, to grow additional crops to sell as a way to generate income. Thus, these villagers are resorting to gift-giving in order to hunt and harvest NTFPs in nearby forested areas or swiddening further away in remote areas, which in turn brings them into contact with wildlife and NTFPs that are then harvested and traded in the Research Area. Restricting swidden agriculture without being able to provide villagers with enough paddy fields is also resulting in increased hunting and NTFP harvesting. Also, restricting villagers from practicing swidden agriculture has meant that villagers now have more free time to hunt wildlife and harvest NTFPs.

Restricting swidden agriculture and promoting cash crops as an alternative is also leading to increased hunting and NTFP use to provide nutrients because cash crops are not usually eaten by villagers. While some studies (e.g., Dewalt, 1993; Euler et al., 2017) suggest that heavy investments in cash crops could improve household living standards and nutrition, these same studies also state that cash crops can only do so if farmers are allowed to significantly increase the size of their land holdings in order to maximize production. Furthermore, cash crops can only be successful if “subsistence production is protected or stabilized” (Dewalt, 1993, p. 1407), which is not the case in Laos.

Other studies looking at cash crops and nutritional needs have found that income gained from cash crops did not have an immediate or large impact on household nutritional status, especially for younger children. For example, Babu et al. (2014) stated, “There is no observed pattern of relationship between cash crop growing and food security and between cash crop

growing and nutrition status of children in general” (p. 87), while Kennedy et al. (1992), in a comparative analysis on the nutritional effects of cash crops in six countries,¹⁵⁵ wrote that “household income gains (from cash crops) did not have an immediate or large impact on preschooler health and nutrition,” and that gains in nutrition may be obtained more so “though investment in community health and sanitation infrastructure, the education of households to recognize nutritional problems and improve feeding practices” (p. 696). Some research (e.g., Wood et al., 2013) actually showed that cash crop cultivation is having negative consequences on health issues, such as stunting due to nutritional deficiencies.

The point is that by devoting all their fields to cash crop production, villagers have had to find ways to obtain food in case their cash crops fail to generate sufficient income to buy enough food to subsist on. Thus, villagers are going to more remote areas to swidden, hunt, and harvest NTFPs, which again, is bringing them into contact with even more wildlife and NTFPs. Now instead of just hunting and harvesting for subsistence, it has become full-scale exploitation. Furthermore, practicing cash crop cultivation means that less land is available to conduct swidden in nearby fields, so villagers then partake in gift-giving relationships with local low-wage soldiers in order to hunt and harvest natural resources in nearby forested areas, including the Nakai-Nam Theun NPA.

Finally, technological advancements are also changing Hmong villagers’ beliefs concerning the wild forested areas. For the most part, technology is eroding cultural beliefs that once protected the forests, wildlife, and other natural resources. Now Hmong hunters are going into the forests and doing what they want without fear of retaliation by forest guardians or other supernatural beings. These emerging beliefs are devastating to the forests and associated wildlife.

¹⁵⁵ Gambia, Guatemala, Kenya, Malawi, the Philippines, and Rwanda.

Technology is also increasing the cultivation of cash crops in that technologies are making it easier and more manageable to grow, harvest, transport, and sell cash crops in large quantities. This meant that cash crops are attractive alternatives to swidden, provided that there are buyers. However, this leads to the issue discussed above: by converting most nearby fields for cash crop production, villagers then tend to resort to swiddening further away to produce food to eat in case these often unreliable cash crops do not bring the benefits hoped for.

The bottom line is that it is not only government restrictions on swidden agriculture that are responsible for increasing Hmong hunting and NTFP use in the Research Area—much in the same way that it is not just cash crops or advancing technologies that are solely responsible for the increasing exploitation of resources by Hmong people in Laos. Likewise, it is not just the Hmong's long-standing vanguard and desire to generate income or the poorly-paid soldiers who are responsible for increasing hunting and resource use in the Research Area. It is all the above, and this is bad news for Laos' wildlife biodiversity and forest resources.

7.3 The Future

What does the future hold for the villagers and the forests in the Research Area and in Laos more broadly?

7.3.1 The Hmong villagers. The Lao government has recently enacted multiple orders aimed at decreasing the logging and export of Laos' timber to other countries. For example, in August 2015, a notice was issued that prohibited the export of raw logs from Laos. The moratorium was signed by Prime Minister Thongloun Sisoulith, who assumed his position just a few weeks before, on April 20, 2015. The moratorium required all officials, from provincial governors to mayors, to implement strict measures to control illegal logging (Souksavanh & Gerin, 2016). Then in May of 2016, the government enacted Prime Ministerial Order #15 (PM15) which bans the

export of raw logs. These decrees were designed to control and decrease Laos' deforestation rates as well as to boost the domestic wood industry. To and Canby (2017) analyzed the effects of the regulations and stated that both China and Vietnam are now feeling the effects of the bans. Vietnam, for example, has seen their log export from Laos plummet from approximately 330,000m³ in 2015 to less than 36,000m³ in 2016. However, the study also noted that despite the declines in Lao log exports, some trade continues, especially with the more valuable species such as rosewood. In addition, it is also important to know that this number only considered what was reported and not the thousands of cubic meters of unreported logs entering Vietnam illegally.

The crackdown on logging was designed to reduce deforestation, which in turn will have some serious impacts on local villagers, including many Hmong villagers. For one, the crackdown on logging meant that officials are also cracking down on the equipment used for logging, including logging vehicles and chainsaws. However, it remains to be seen how effective these crackdowns are. For example, when I returned in 2017, I visited Nam Yang village in Vieng Thong District and was talking to villagers there about logging when they informed me that a couple weeks prior, the district government had issued a notice to village headmen in the area to round up all the chainsaws in the villages and surrender them to the local government. Most of the headmen obliged, but only after warning villagers about the notice and then telling villagers to find the 20 or so most broken down, useless chainsaws they could find and surrender them to the government while hiding the good ones for future use. The villagers then burst out laughing and making fun of the officials and questioning how the officials are going to do their own logging with the junk chainsaws they received. This suggests that villagers will continue to log as before but they will just have to be more secretive and likely venture even deeper into the forest to do so.

This brings up the question of just how far can they venture into the forest? Perhaps they can continue to go deeper and deeper into the forest to clear land and harvest available resources for a time, but eventually they will run into complications stemming from travel distances and confrontations with inhabitants in those areas. Increasing distances traveled meant that more time and effort will be needed for villagers to get to their destination to partake in hunting and NTFP harvesting activities. This means that they will be home less often, which in turn can lead to household instability, the theft of one's properties, and even death. For example, there have been many news stories (e.g., Moua, 2017) involving Hmong families in Laos, in which young children were killed in their homes because the parents were tending fields far away from their villages.

Another issue emerging as a result of Hmong villagers venturing deeper into the forests to swidden, hunt, and harvest NTFPs is that they are now encroaching upon and clearing fallow land that belongs to other villagers. This has led to tense, head-on conflicts between the established inhabitants and the newly-arrived Hmong swidden farmers, which further intensified the already tense relationship between the groups. These confrontations over land can have serious consequences, including murder. For example, Kue (2017) interviewed a young Hmong widow whose husband and his younger brother were both killed in early 2015; they were beheaded and dismembered while looking for land to farm in a remote area in Xieng Khouang Province, central Laos.¹⁵⁶ The murderers were never caught, but it is believed that the inhabitants of the area became angry that the brothers were there looking for land; they did not want the brothers to move into the area as doing so might encourage others to move there as well. So, they murdered the brothers and

¹⁵⁶ Both were members of the Vue clan, my clan.

purposely left the hacked-up bodies on the road as a sign to scare and discourage others from moving to the area (S. Lis,¹⁵⁷ personal communication, December 26, 2017).

Advanced technologies could also be a game changer (specifically satellite imagery) as this can be expected to make it harder for villagers to practice swidden agriculture and opium cultivation in remote places in the future. The last few years have seen a number of studies done on land cover change in Laos through using satellite imagery. For example, Phompila (2017) used Landsat ETM+ imagery from 2006 and 2012 to determine forest cover changes in southern Laos and found that forest clearance was strongly correlated with elevation, distance to main roads, and swidden agriculture. Yamamoto et al. (2009) investigated land use conditions in Laos and developed a method to identify swidden crop-fallow rotation using Landsat Thematic Mapper (TM) and Enhanced Thematic Mapper+ (ETM+). Hurni et al. (2013) used Landsat and MODIS data and landscape metrics to identify and delineate swidden cultivation landscapes in Laos. These are but a few studies that have utilized advanced technologies to determine types and amount of land use practices in Laos.

While all these studies were done with good intent—that is, to provide knowledge and hopefully to help assist in finding solutions to various environmental challenges, these studies could also have a negative impact: governments such as the Lao government could take these studies and use them to find out where swidden agriculture is being practiced and send officials to the area to prevent swidden cultivation from continuing. As such, it seems that advanced technologies have the potential to hinder and/or restrict villagers from going to remote areas and practicing swidden agriculture. When this comes to fruition in the near future, villagers will have to find other ways to meet their livelihood needs.

¹⁵⁷ The widow.

7.3.2 Laos' empty forests. Laos' forest cover percentage is a topic of fierce debate in Laos. For example, the World Bank (2018b) stated that forests covered approximately 71.6 percent of Laos' total land mass in 2000, 73.1 percent in 2005, and 77.2 percent in 2010. It has since increased to 81.3 percent as of 2015 and is still showing signs of growth. It should be noted that these numbers include monoculture rubber tree and other plantations, as well as various secondary forests. On the other hand, a USAID-supported study compiled by Thomas (2015) estimated Laos' forest cover to be approximately 40.3 percent in 2010. Even if we accept USAID's much more conservative estimate, it is safe to say that Laos has more forests relative to its size than most other countries in the world (Thomas, 2015; World Bank, 2018b). When this statistic is taken into consideration, and although forests are crucial for the conservation of wildlife biodiversity, perhaps it is not the forests that the Lao government should be worried about; instead, perhaps it is the empty forests that the government should worry about if it is sincere about protecting its wildlife, and in the long-term, its forests.

Redford (1992) warned us of the "empty forest" deception in which forests may be intact and *seem* healthy but in actuality are devoid of animals (a process known as defaunation), and in essence, dead forest because there are no longer sufficient animals to fulfill the many ecological roles (e.g., seed dispersal, pollination, predator-prey relationships) necessary to keep it alive. Redford ends his now-landmark article with the words: "We must not let a forest full of trees fool us into believing that all is well" and that, "although satellites passing overhead may reassuringly register them as forest, they are empty of much of the faunal richness valued by humans. An empty forest is a doomed forest" (p. 421). Since the article was published in 1992, other researchers working in various places around the world have come to the same conclusion. For example, Stokstad (2014) wrote about how the Lambir Hills National Park in western Borneo is now a

“lonely island in a sea of oil palm plantations” and how “trees growing on the clay soil are gargantuan, dwarfing the Amazon,” but the “forest is not what it was,” as the “helmeted hornbill was long gone” and other species such as the “swan-sized rhinoceros hornbill and the gibbon, seemed rarer than they should have been” (p. 398). Furthermore, Stokstad reported that a researcher spent six months in the park in 2007 and could not find a single animal that weighed more than a kilogram. Other researchers and scientists have found similar forest conditions in nature reserves in China (Sreekar et al., 2015), in the aquatic ecosystems of Amazonia (Antunes et al., 2016), and in Kuiburi National Park in Thailand (Steinmetz et al., 2013) to name a few.

What we are witnessing in Laos may very well be another example and variety of an empty forest deception. In fact, my study suggests that this is indeed happening, as villagers have informed me that they have to travel further and hunt for longer durations to harvest the same amount of wildlife that they were able to harvest in a fraction of the time a few years ago. This finding supports previous studies that suggested that Laos’ biodiversity is disappearing. For example, Johnson et al. (2005) conducted extensive research in Nam Ha NPA (located in Luang Namtha Province in northern Laos) found that most frequently used animals were small-bodied animals weighing less than two kilograms while the majority of the larger-bodied animals were increasingly being reported as becoming more and more rare. Thus, while protecting the forest remains one of the most important aspects of wildlife conservation, if the Lao government is truly interested in protecting its wildlife population, perhaps eradicating swidden and encouraging wet-rice cultivation is not the answer.

7.4 The Bottom Line

What does this mean for Laos’ wildlife and forest? As Figure 7.1 illustrates, Laos’ forests and wildlife biodiversity are being attacked from all sides.

In chapter five's conclusion, I asked what could be done to slow down and eventually reverse forest degradation and defaunation? I suggested that if the Lao government is truly interested in protecting its wildlife populations and forest resources, perhaps just creating protected areas and staffing them with low-waged soldiers is not the answer. Indeed, my study shows that this has resulted in a suitable environment being developed to nurture gift-giving relationships. As a starting point, the Lao government should stop lumping all swidden practices into a single category. Moreover, they should stop creating policies designed to stop villagers from practicing swidden agriculture, as these policies are clearly not working.

Second, the government should find ways to better allocate available land to villagers and work with them to encourage better land management and usage (e.g., to use agricultural methods such as contour farming which minimizes soil erosion; fine-tune crop rotations to minimize soil nutrient loss; and to grow cover crops). The government should also stop promoting the simplistic idea that cash crops are the solution to all agricultural issues, and instead encourage diversified agricultural practices. Finally, the Lao government must work with its citizens and not against them to better educate all citizens of Laos on the crucial roles that wildlife biodiversity plays in promoting healthy forest ecosystems, and work with and allow them to use the forest and available resources in a sustainable manner. This is crucial considering that all of Laos' NPAs and even provincial and district PAs are understaffed. Designing protected areas with zones (discussed in chapter 1.3.2 and 1.3.3) with allowable resource use is necessary for successful forest and biodiversity conservation. However, establishing different types of zone use does not have much affect if villagers 1) do not understand these concepts and 2) when they need to somehow meet their livelihood needs because of other, more unavoidable restrictions. The bottom line is that creating protected areas is crucial to successful resource conservation but along with these

creations, there needs to be better communications between the Lao government, NGOs, and the very people these policies are affecting, that is, the villagers.

Finally, Laos is a wonderful country with a government that, at least on paper, seems to be one of the most progressive in promoting equal treatment of its citizens regardless of one's ethnic affiliation. However, just like its protected areas looking good on paper but are actually not being in very good shape in reality, the treatment of its many ethnic groups also looked good on paper but in reality, the ethnic minorities are also not in very good shape (standing with the government).

7.5 Limitations

In 2013, I argued in the dissertation proposal and again while writing the dissertation that although the Hmong in Laos are heavily involved with practicing swidden agriculture, gathering NTFPs, and hunting and fishing, there currently exists very little data regarding what they presently hunt or what forest products they consume or trade.¹⁵⁸ Just as important, there was little known about the various social, cultural, and/or economic factors affecting Hmong resource use. Furthermore, there existed very little data on how the Hmong feel about certain livelihood issues and strategies that the Lao government is promoting.

I then highlighted the challenges associated with conducting in-depth research with the Hmong ethnic group. I suggested that one of the primary reasons as to why conducting research with the Hmong is difficult is because of the close-knit nature of Hmong society in relation to clans (Jaafar, 1975; Geddes, 1976; Cooper, 1984; Lee, 1994; Symond, 2004; Badenoch, 2006) and families (Jaafar, 1975; Scott, 1982; Lee, 1994; Tomforde, 2005; Goodkind, 2006). As a consequence of this practice, many Hmong distrust and are thus unwilling to express their true feelings to non-Hmong. In chapter two, section 2.5.1, I cited their long history of frequent conflicts

¹⁵⁸ Chapter two, section 2.5.1.

with the dominant ethnic group of the region as being a significant contributor to the distrust that many Hmong have of dominant groups (Corlin, 2004; Ranard, 2004; W. Robichaud, personal communication, 2012; Baird, 2013a). As a consequence of this turbulent history, many Hmong distrust and are thus unwilling to express their true feelings to non-Hmong.

I then contended that I was situated in a good position to conduct research with the Hmong on hunting, NTFP use, and agricultural practices. Specifically, I highlighted my Hmong ethnicity and clan connection with Hmong villagers in the Research Area as being perhaps my two greatest assets that would increase the chances of my successfully conducting research in Laos. I stated that their strong sense of loyalty meant that although I am technically an outside, foreign researcher from the United States, I thought I would also be viewed as an inside researcher (Brannick & Coghlan, 2007) and that with time, I would eventually be viewed as an academic homecomer (Orilola & Haggerty, 2012). This, I reasoned, would offer many benefits and opportunities to perhaps obtain more sensitive information. I also reasoned that I did not need an interpreter for the project because I speak, read, and write both Hmong and English fluently. Furthermore, I suggested that because I was able to fully communicate with, understand, and analyze the conversations between the villagers and myself without an interpreter, that I would not have to worry about ideas and thoughts being lost in translation.

My arguments/assumptions largely proved correct. As I have already mentioned, I was almost immediately invited (the day I arrived) to participate in household ceremonies and village events by clan and lineage members. I was then introduced to other villagers who were not of my lineage. Here, I used the advantage that I am Hmong and speak the language to communicate with more villagers in order to strengthen my ties to the area and to the people irrespective of whether we were blood related or not.

However, being Hmong, a clan member, a lineage member, and conducting ethnographic research in the Hmong language with other Hmong, clan members, and lineage members also had many disadvantages (see for example, Kanuha, [2000]; Simmons, [2007]; Humphrey, [2013]; Oriola & Happerty, [2012] for research done by researchers with groups they are affiliated with in one way or another and the conflicts they experienced); I explore this in the following sections.

7.5.1 The clan/lineage double-edged sword. Conducting research with Hmong villagers, many of whom are members of my clan and lineage, was rewarding for the most part; I gained the chance to interact with them and learn about their lives and how they view their relationships with others and their surroundings. However, I also felt that at times these connections hindered my ability to obtain truthful information.

Many times, awkward exchanges occurred when I inquired about financial income. Obtaining financial income as it relates to agricultural activities was particularly tricky. For example, I would ask someone's involvement in swidden agriculture, to which the person would reply that he did not have access to swidden fields and therefore was not practicing swidden agriculture; or, I would inquire about cash crops and they would often say that they were not cultivating any cash crops, even though they were. Sometimes I would allow the conversations to drift to other topics and then triangulate back to ask how the household was able to generate income if they were not involved in any forms of agriculture. To this they would say they do not have much income, if any at all. Weeks later, I would be in the area and see that they were drying cassava in front of their houses and inquire about where the cassava came from, to which I would be told that it was theirs and that they had cultivated it. I would then ask for clarifications as they told me a few weeks back that they were not involved in cash crop cultivation, to which they would say that they "forgot" or just "did not think of it."

I also encountered the “I forgot” or “did not think of it” replies during inquiries regarding hunting and NTFP usage. For example, I had a conversation with the head of one of the households in Ko Hai village regarding hunting, and he stated that he did not hunt at all; I made note of the response and then moved on to discuss another matter. However, two weeks later I was in Ko Hai village for a ceremonial feast when he returned with a few other villagers from a hunting trip in the nearby hills. They had just killed a wild pig and were going to butcher it and divide it amongst the hunters. I did not approach the villager but made notes of the incidence. Another few weeks passed, and we were at another feast when I casually brought up the hunting scene to which he replied that he *does* go once in a great long while but that he does not consider it hunting since the trips were so few and far in between. Of course, I did not have a way to dispute this as I did not participate in those events. He could have gone as an unarmed observer or a cook, so I took the answer as he initially gave it and made adjustments based on my best judgement.^{159,160}

I suspect that some villagers gave inaccurate answers for a few reasons. For one, they may have wanted to give the impression that they are following government policy (e.g., saying that they are not swiddening when they actually are or saying that they are not hunting when they do go from time to time). Likewise, they may have also given inaccurate statements due to differences in interpretation; for example, what I define as hunting may not necessarily be how they define hunting (as was suggested above). Still, some villagers may not want to give honest answers even though I am Hmong as there could still be gaps in trust between myself and these villagers. Furthermore, many did not understand what I meant when I told them that what they say would be

¹⁵⁹ A huge advantage I had was that, because I was there for such a long time, I was able to figure out who hunts and who does not hunt by asking other villagers in the area. I was also able to get a general idea of how often some villagers hunt by asking other villagers as well.

¹⁶⁰ Villagers would go as ‘cooks’ or ‘meat preparers’ to cook and prep the meat while others hunt.

anonymous and that I would not include their names in any published work if they did not want me to. This villager perception probably stemmed from how the Lao government operates in Laos (e.g., strict control of its citizens). As such, I feel that many villagers were afraid to say what they really wanted to, worrying that it may get out and that they may get in trouble. It was only through multiple interactions with these individuals that I was finally able to get a more accurate “truth” from them. One final reason that some villagers may have given me inaccurate answers was because of my status as an “American researcher” and as a clan/lineage member. My status as an “American researcher” automatically puts me at a higher financial income level, which means that I am immediately perceived to be richer than many villagers because the perception is that no matter how poor I am (even as a student), I will still undoubtedly be better off than most villagers. My status as a clan/lineage member meant that I should, and in a way was obligated, to help them just as they were obliged to help me. This meant that by presenting themselves as poorer villagers, I should be inclined to give them some money (this occurred even after I made it clear that I was a poor student who was only able to come and do fieldwork with assistance from various institutions). In one instance, an older man introduced himself as a lineage member to me while I was attending a feast and then immediately asked for US\$50 (they apparently prefer US currency over Lao kip) so he could get new ceremonial bells. I explained my situation as best as I could and politely said no, but I did say that I would help in the future when I was in a better financial situation.

In summary, being Hmong, a clan member, and a lineage member was very helpful in some ways and gave me the freedom to roam as I pleased and to go where I wanted to go. Furthermore, I was also invited to many events that foreigners may not have been allowed to attend (e.g., the very important death-drum feeding and repair ceremony that can only be attended by close clan

members and maybe a few non-clan close relatives. This ceremony was so secretive that it was only allowed to take place in the forests away from other villagers, for various Hmong cultural reasons). However, there were also drawbacks, and thus limitations, such as those I mention above.

7.5.2 Gender roles. My research was heavily skewed toward Hmong men. There are reasons why this was so. For one, my primary focus was on hunting, and to a lesser extent, agriculture and NTFP use. Within the Hmong ethnic group, almost all hunting is done by the men. There was only one woman in my entire Research Area who stated that she harvested wild animals through the use of snares (she does not use guns). As such, in order to adequately obtain good data on hunting strategies, I needed to focus my time and effort on interacting with men.¹⁶¹

Many Hmong women do harvest NTFPs and go on harvesting excursions. However, cultural norms made it difficult for me to interact with and accompany women on harvesting excursions. Doing so would be viewed with suspicion, for fear that something sexually inappropriate was going on. I went with them a few times, but only if the harvesting areas were close by the villages and in plain view. I did not go if they were going to venture further away. Thus, most of the NTFP data I obtained were through either interacting with Hmong men, with husband and wife teams, with women who were closely related to me through marriage (e.g., women who married my first cousins and are considered to be my sister-in-law), or with a group of women in a casual setting (e.g., talking to them while they were preparing food at a feast or ceremony). As such, although I did manage to get some NTFP data from Hmong women, I feel that much more data needs to be collected from Hmong women to better understand Hmong NTFP usage. The dearth of women surveyed and interviewed is obvious in my research, as only nine of

¹⁶¹ Of course, by focusing my time on the actual hunting, I was missing crucial information on what was happening in the home (home instability) due to the men being gone so often. But again, I would not have been able to adequately get this information with Hmong in Laos anyway.

the 100 household representatives surveyed were women.¹⁶² This lack of information meant that I was probably missing a lot of crucial information on livelihood strategies that only Hmong women could adequately provide given that Hmong women are the primary harvesters of many NTFPs.¹⁶³

Not only is more data on NTFP harvesting is needed, but more data on agricultural activities would have strengthened this dissertation. Once again, however, Hmong women are primarily responsible for many agricultural and gardening practices, and they were much less accessible to me than Hmong men. Crucially, there are clearly defined, albeit increasingly murky lines between certain activities which are considered to be “men only” and some that are considered to be “women only.” For example, as stated above, hunting was historically a men-only activity. Women did not historically hunt. In fact, there are Hmong hunting beliefs that forbid women from touching guns. These hunting beliefs state that allowing a woman to touch a gun will make that gun highly inaccurate and so the hunter will not be able hit and kill anything. Even worse, a woman touching a gun right before that gun is used in a hunting excursion is believed to have the potential to result in a tragic event befalling the hunting party (usually in the form of a hunter being shot by another hunter or a hunter being fatally wounded by a wild animal). These defined lines meant that there were just some data that I was not able to get.

Some scholarly work has been done on Hmong women over the last decade. However, most of these studies are on diasporic Hmong women in the United States. Lor (2013), for example, looked at Hmong women in America. He wrote, “Over the last three decades, emerging out of this modern diaspora is the emerging stories and triumphs and challenges of Hmong women” and that “the existing research provides a window into the changing and transformative roles of Hmong

¹⁶² This does not include the number of women I conversed with at ceremonies or other gatherings.

¹⁶³ For example, one of Thong Pei village’s most ambitious timber traffickers was a Hmong woman who would plan meetings and get villagers together to transport timber to Vietnam.

women in America” (p. 40). Most of these studies focus on Hmong women’s professional development and health care. For example, Vang and Bogenschutz (2014) looked at teenage marriage and the socioeconomic status of Hmong women in the United States, Vue et al. (2011) studied the link between Hmong women (and young children) and Hmong food in California, and Lor et al. (2013) analyzed Hmong women’s perceptions and beliefs about the healthcare system in America.

On the other hand, there are few studies on Hmong women in Laos. However, those that are available show that Hmong women in Laos are undergoing significant and drastic changes paralleling, if not exceeding, those in parts of the United States. For example, Stewart et al. (2004) wrote, “that Hmong in Laos are undergoing rapid urbanization” and that without traditional subsistence farming, many “women find work in sewing and selling *paj ntaub* (p. 2, 4).”¹⁶⁴ There are a few other studies that were conducted on the changing livelihoods of Hmong women in Laos. Inui (2015), for example, looks at how Hmong women are being affected by Laos’ educational system and Oparaocha (1998) examined how opium restrictions have affected Hmong women’s labor and livelihood strategies. This last study, conducted in the Nong Het area of northern Laos, suggested that small livestock professions may be a viable alternative to opium cultivation for Hmong women given certain necessary circumstances (e.g., access to extension services, improved labor-saving technologies).

In summary, having a Hmong woman researcher look into how government restrictions on swidden agriculture, the capitalistic market economy, and even how changing Hmong environmental beliefs are all influencing each other and, in turn, influencing and changing Hmong

¹⁶⁴ Hmong embroidery flower cloth.

women's livelihood practices would undoubtedly produce data that I was not able to adequately obtain.

7.5.3 Translation. I mentioned in chapter four, section 4.6 that translation was an issue regarding knowledge of protected areas and regulations. I pointed out that many hunters seemed confused when I explained the differences between the various types of forests and allowable usage based on categories. I suggested that a possible reason for this was that the Hmong ethnic group historically did not have words for such terms or phrases. Thus, although I speak fluent Hmong, villagers may not have clearly understood what I was trying to explain at times, as the concepts were missing or non-existent at either my end or theirs. In other words, things were sometimes lost in translation. This issue may have been alleviated if I had a Lao translator with me, as many Hmong in the Research Area, especially the younger villagers,¹⁶⁵ would have undoubtedly attended workshops had they heard about them in Lao.

Another kind of situation in which translation was an issue was when identifying animal species and plants. The Hmong do not have specific names for many of the animal species hunted and often use general umbrella terms when speaking about closely-related species (e.g., all deer- and antelope-like species are called '*mos lwj*' or '*kauv*'). This is an issue not just for Hmong Lao but also for Hmong Americans in the United States. For example, a person only has to open up a Hmong-English dictionary and look up various vegetables such as lettuce, cabbage, and other leafy greens and the dictionary will identify them all using the general term "*zaub ntsuab*" (vegetable greens). Many times, the Hmong in Laos would use Lao names to identify the animal species. This was especially prominent with aquatic organisms such as fish. For example, the Hmong would identify certain fish as *pam nais* (for the introduced carp, *Carpio carpio*) or *pam kheb* (for catfish

¹⁶⁵ Around 50 years of age or younger.

in the *Bagarius* genus). When I inquired about how the fish got their names, they told me that the names were borrowed from the Lao (*pam* [pa] means fish in Lao).

Often, I would be talking to hunters about the animal species they are seeing and the animals they had harvested the last time they were out hunting, and they would tell me that they harvested a *kauv* (antelope-like animal), a bunch of *nas* (squirrels), and some *noog* (birds) but were unable to tell me exactly what species they were; when they did have an exact name, the names were mostly Lao names (as stated above) that I was not able to identify. The direct result of not being able to adequately identify a type of forest category or an animal down to the species level meant that I had some unclear data that I was not able to use in the dissertation.

7.6 Possible Future Research

The limitations discussed above can lead to future research opportunities. As I have made clear, my research was heavily biased toward men's livelihood strategies. While I was able to obtain some valuable knowledge on changing Hmong livelihood strategies, I definitely feel that the dissertation would have been much stronger had I been able to interact with Hmong women and learn about their livelihood strategies and how they are being affected by these changing times. However, because of how Hmong Lao still carry themselves and how gender is understood (for the most part, still treated separately), I feel such projects would probably be better suited to a Hmong female researcher, at least as the primary researcher. I have no doubt that valuable information would be gained from such studies.

In addition, further studies on how government policies, cash crops, and technologies are affecting Hmong livelihood strategies are also warranted, as there are many issues that I simply did not have time to look into. What I did was simply "scratch the surface" on many of these

complex issues. For example, researchers could do in-depth studies on why and how Hmong villagers are impacting aquatic ecosystems.¹⁶⁶

One thing that I wanted to but was unable to accomplish was to create a lexicon of the Hmong and English names of the wild animal and plant species seen, hunted, and/or harvested in the Research Area. Such a list would have been quite valuable for those working with Hmong villagers in Laos and other countries on biodiversity and resource conservation (my research would have benefited greatly from such a list). Unfortunately, I was not able to put together a sufficiently accurate and complete list.

There are other issues that I was made aware of that I was not able to look into more in-depth. For example, while in the Research Area, I found out that many of the better off (wealthier) villagers from Thong Pei village had set up a village timber monitoring group called the *kus tas* to control the flow of timber going to Vietnam.¹⁶⁷ This group would set up two checkpoints along Route #8, a few kilometers before the road runs through Thong Pei village. The two checkpoints were set up strategically about a kilometer apart. The first group would flag down passing motorists to check if they were transporting any timber or wildlife. If a motorist stopped and allowed the first group to check his/her belongings, the motorist would be allowed to proceed through the second checkpoint without stopping. However, if the motorist speeds through the first group without stopping, they will call the second group at which point the second group would lay nail-embedded plywood across the road to puncture the vehicle's tires. All group members were required to staff these checkpoints on a rotating schedule. The idea was to encourage villagers to

¹⁶⁶ I looked into types of fish caught and eaten but did not get in-depth with analyzing aquatic systems. Hmong villagers are currently using multiple methods to obtain fish that are devastating to aquatic ecosystems. For example, they are using dynamites, poisons, electrical shocks, and other environmentally harmful methods. These issues can be further researched.

¹⁶⁷ The phrase *kus tas* has no meaning. It is just a name to identify the group.

join the group. Once a villager joined, the villager was allowed to transport timber and wildlife along Route #8, but he/she would have to pay a commission based on what and how much he/she is transporting. The money is then supposedly used to fund the group's operations, improve village infrastructure, and to purchase other necessities. I collected some information but did not look into this group in-depth as I did not have time (considering all the other things I wanted to get done), as the group formed just five or six months before I was scheduled to return to the United States. However, when I returned Laos again in 2016, I found that the group had disbanded, as the confrontations between members and non-members got very serious,¹⁶⁸ including setting fires to each other's vehicles and making death threats. Regardless, I think it would be valuable knowledge to research how this, and perhaps, other similar groups form and understand things.

Finally, two other issues mentioned in the dissertation that deserve further research are Hmong involvement in growing marijuana (as discussed in chapter five, section 5.3.1) and the history of supernatural beings (as discussed in chapter six, section 6.6). Both issues are fascinating in their own right and conducting research to learn more about them would contribute greatly to Hmong studies and understanding crop commodities. At the beginning of the dissertation, I stated that conservation is inherently a human organizational process and as such, successful biodiversity conservation requires an intimate understanding of the local people who are making everyday decisions that are affecting the surrounding wildlife and natural resources. I then added my voice to rising concerns of others that this very important but often overlooked component of conservation is neglected, and often missing in many areas of biological concerns. This remains the case in Laos today. Many of its people, mostly ethnic minorities but also many lowland ethnic Lao peoples as well, are getting their voices drowned out by the Lao government's capitalist

¹⁶⁸ The non-members were mostly poorer Thong Pei villagers as well as villagers from other villages. Many of these poorer villagers were working with and for the woman timber trafficker mentioned in footnote 163.

agenda. To borrow a phrase from Abraham Lincoln, the sixteenth president of the United States of America, a government of a country should be a “government of the people, by the people” and most importantly, “for the people.” The Lao government needs to acknowledge this and do what it can to reach out to and better the lives of its many citizens.

7.7 Study Contributions

In a broad sense, by examining and documenting how local communities interact with their surroundings to sustain, or in some cases enhance, their livelihoods, this project has contributed to the field of cultural ecology, political ecology, and any other fields that seek to advance the understanding of how people interact with and adapt to their social and physical environments. More specifically, this project has contributed to growing academic fields that study and analyze how protected areas, including national parks, are affecting those who are and have been living in those areas. Furthermore, it shed light on how these communities are adapting, diversifying, and compensating in response to new restrictions in order to sustain their livelihoods.

This study was worthwhile because it focused on nature-society relations of the Hmong in Laos. Some have studied the Hmong and others have studies nature-society relations, but few have studied them in combination. Indeed, there exists very little information on what is actually happening “on-the-ground.” As such, the information gathered from this study provided new insights into the relationships that Hmong have with nature. These insights could prove valuable in informing existing narratives with regard to the real or perceived impacts that Hmong are having on the environment. The information published (strictly following IRB guidelines for identity protection) in this study will be of great value to conservationists as this project significantly advances the state of knowledge with regard to the interaction between Hmong and nature—

something that is of great importance for biodiversity conservation in Laos and other parts of Southeast Asia.

Rather than simply lumping all swidden practices into a single practice and broadly blaming the Hmong and/or other ethnic minority groups for negatively impacting biodiversity (and then introducing regulations that severely handicap their livelihood practices, all the while introducing alternative practices that may even be more detrimental to wildlife and resource conservation), there is the need for a more detailed approach to learning about various ethnic group interactions with nature in order to design and implement conservation projects that make sense on-the-ground and thus have higher chances of success. This project hopefully brings us a step closer to delivering exactly that.



Figure 7.2: The author during one of the many hunting excursions he went on. The two flint rifles were made by Hmong villagers in the Research Area. Photograph by N. Xyooj.

Bibliography

- Abay, K.A., Blalock, G., & Berhane, G. (2017). Locus of control and technology adoption in developing country agriculture: Evidence from Ethiopia. *Journal of Economic Behavior and Organization*, 143, 98-115.
- Achard, F., Eva, H.D., Stibig, H., Mayaux, P., Gallego, J., Richards, T., & Milingreau, J. (2002). Determination of deforestation rates of the world's humid tropical forests. *Science*, 297(5583), 999-1002.
- Agrawal, A. (1995). Dismantling the divide between indigenous and scientific knowledge. *Development and Change*, 26, 413-439.
- Aklin, M., Cheng, C., & Urpelainen, J. (2018). Social acceptance of new energy technology in developing countries: A framing experiment in rural India. *Energy Policy*, 113, 466-477.
- Alton, C., Bluhm, D., & Sananikone, S. (2005). *Para rubber study Hevea brasiliensis Lao P.D.R.* GTZ.
- Anderson, J. (2004). Talking Whilst Walking: A Geographical Archaeology of Knowledge. *Area*, 36, 254-261.
- Antunes, A., Fewster, R., Venticinque, E., Peres, C., Levi, T., Rohe., F., & Shepard, G. (2016). Empty forest or empty rivers? A century of commercial hunting in Amazonia. *Science Advances*, 2(10), 1-14.
- Arihiro, M. (2014). The emergence of wealthy farmers in the coffee-planting area of southern Laos. *Japanese Journal of Southeast Asian Studies*, 51(2), 297-325.
- Babu, S., Gajanan, S.N., & Sanyal, P. (2014). *Food security, poverty and nutrition policy analysis* (2nd ed.). Elsevier Science. Retrieved from <https://www.sciencedirect.com/science/book/9780124058644>
- Badenoch, N. (2006). *Social networks in natural resource governance in a multiethnic watershed of northern Thailand*. Doctoral Dissertation. Kyoto University.
- Bagatin, R., Klemes, J.J., Reverberi, A.P., & Huisinigh, D. (2014). Conservation and improvements in water resource management: A global challenge. *Journal of Cleaner Production*, 77, 1-9.
- Baird, I.G. (2008). *Various forms of colonialism: The social and spatial reorganization of the Brao in southern Laos and northeastern Cambodia*. Doctoral Dissertation. University of British Columbia.
- Baird, I.G. (2009a). *Dipterocarpus wood resin tenure, management and trade: Practices of the Brao in northeast Cambodia*. Saarbrücken, Germany: VDM Verlag.

- Baird, I.G. (2009b). Spatial (re)organization and places of the Brao in southern Laos and northeastern Cambodia. *Singapore Journal of Tropical Geography*, 30, 298-311.
- Baird, I.G. (2010a). The Hmong come to Southern Laos: Local Responses and the Creation of Racialized Boundaries. *Hmong Studies Journal*, 11, 1-38.
- Baird, I.G. (2010b). Land, rubber and people: Rapid agrarian changes and responses in southern Laos, *Journal of Lao Studies*, 1(1), 1-47.
- Baird, I.G. (2010c). *Quotas, powers, patronage, and illegal rent-seeking: The political economy of logging and the timber trade in southern Laos*. Washington D.C.: Forest Trends.
- Baird, I.G. (2012). The monks and the Hmong: The special relationship between the chao fa and the Tham Krabok Buddhist temple in Saraburi province, Thailand. *Buddhism and Violence: Militarism and Buddhism in Modern Asia*, 120-151.
- Baird, I.G. (2013a). Remembering old homelands: The Houay Ho Dam, the resettlement of the Heuny (Nya Heun), memory, and the struggle for places. In P. Vathana & O. Tappe (Eds.), *Interactions with a violent past – Reading post-conflict landscapes in Cambodia, Laos, and Vietnam* (pp. 241-261). Singapore: NUS Press.
- Baird, I.G. (2013b). Shifting contexts and performances: *The Brao-Kavet and their sacred mountains in northeast Cambodia*. *Asian Highlands Perspectives*, 28, 1-23.
- Baird, I.G. (2014). Degraded forest, degraded land and the development of industrial tree plantations in Laos. *Singapore Journal of Tropical Geography*, 35, 328-344.
- Baird, I.G. (2015a). 1975: Rescaling our understanding of the fortieth anniversary of the establishment of the Lao People's Democratic Republic. *Geopolitics*, 20, 745-748.
- Baird, I.G. (2015b). Translocal assemblages and the circulation of the concept of "indigenous peoples" in Laos. *Political Geography*, 46, 54-64.
- Baird, I.G. (in press). Party, state and the control of information in the Lao People's Democratic Republic: Secrecy, falsification and denial. *Journal of Contemporary Asia*.
- Baird, I.G., & Bounphasy, S. (2002). *Non-timber forest product use, management and tenure in Pathoumphone District, Champasak Province, southern Laos*. Pakse: Global.
- Baird, I.G., & le Billon, P. (2012). Landscapes of political memories: War legacies and land negotiations in Laos. *Political Geography*, 31, 290-300.
- Baird, I.G., & Shoemaker, B. (2005). *Aiding or abetting? Internal resettlement and international aid agencies in the Lao PDR*. Toronto, Ontario, Canada: Probe International.

- Baird, I.G., & Shoemaker, B. (2007). Unsettling experiences: Internal resettlement and international aid agencies in Laos. *Development and Change*, 38(5), 865-888.
- Baird, I.G., & Shoemaker, B. (2008). *People, livelihoods, and development in the Xekong River Basin, Laos. Bangkok*. Thailand: White Lotus Press.
- Baird, I.G., & Vue, P. (2017). The Ties that bind: The role of Hmong social networks in developing small-scale rubber cultivation in Laos. *Mobilities*, 12(1), 136-154.
- Baker, J., McKenney, B., & Hurd, J. (2000). *Initial assessment of social and economic factors affecting biodiversity conservation efforts in the forests of the Lower Mekong ecoregion complex*. Hanoi, Vietnam and Vientiane, Laos: WWF Indochina Programme/IUCN Laos.
- Balooni, K., & Inoue, M. (2007). Decentralized forest management in South and Southeast Asia. *Journal of Forestry*, 105(8), 414-419.
- Barney, K., & Canby, K. (2011). *Baseline study 2, Lao PDR: Overview of forest governance, markets, and trade*. Kuala Lumpur, Malaysia: EU FLEGT Facility.
- Barrantes, R., & Galperin, H. (2008). Can the poor afford mobile telephony? Evidence from Latin America. *Telecommunication Policy*, 32(8), 521-530.
- Barrett, C.B., Brandon, K., Gibson, C., & Gjertsen, H. (2001). Conserving tropical biodiversity amid weak institutions. *Bioscience*, 51(6), 497-502.
- Bassett, T.J., & Crummey, D. (2003). *African savannas: Global narratives and local knowledge of environmental change*. Oxford: James Currey.
- Beckerman, S. (1987). Swidden in Amazonia and the Amazon rim. In B.L. Turner II and S.B. Brush (Eds.), *Comparative farming systems* (pp. 55-94). New York, NY: Guilford Press.
- Berkmuller, K., Southammakoth, S., & Vongphet, V. (1995). *Protected area system planning and management in Lao PDR: Status report to mid-1995*. Vientiane: IUCN/Lao-Swedish Forestry Cooperation Programme.
- Binney, G. (1968). *The social and economic organization of two white Meo communities in northern Thailand*. Washington, D.C.: Wildlife Management Institute.
- Blaikie, P.M., & Brookfield, H. (1987). *Land Degradation and Society*. London: Methuen.
- Boonwaat, L. (2005). The balanced approach to opium elimination in the Lao PDR. In B. Bouahom, A. Glendinning, S. Nilsson, & M. Victor (Eds.), *Poverty reduction and shifting cultivation stabilization in the uplands of Lao PDR* (pp. 95-100). Vientiane, Lao PDR: National Agriculture and Forestry Research Institute.

- Brady, S. (1996). Alternatives to slash-and-burn: A global imperative. *Agriculture, Ecosystems & Environment*, 58(1), 3-11.
- Brandon, K., Redford, K.H., & Sanderson, S.E. (eds.). (1998). *Parks in peril: People, politics, and protected areas*. Washington D.C.: Island Press.
- Brannick, T., & Coghlan, D. (2007). In defense of being “native” – The case for insider academic research. *Organizational Research Methods*, 10(1), 59-74.
- Brechin, S.R., Wilshusen, P.R., Fortwangler, C.L., & West, P.C. (2002). Beyond the square wheel: Toward a more comprehensive understanding of biodiversity conservation as social and political process. *Society and Natural Resources*, 15, 41-64.
- Brocheux, P. (1983). Moral economy or political economy? The Peasants are always rational. *The Journal of Asian Studies*, 42(4), 791-803.
- Brookfield, H., Parsons, H., & Brookfield, M. (Eds.). (2003). *Agrodiversity: Learning from Farmers Across the World*. Tokyo: United Nations University Press.
- Brown, S., & Lugo, A.E. (1990). Tropical secondary forests. *Journal of Tropical Ecology*, 6(1), 1-32.
- Bruun, T.B., de Neergaard, A., Lawrence, D., & Ziegler, A.D. (2009). Environmental consequences of the demise in swidden cultivation in Southeast Asia: Carbon storage and soil quality. *Human Ecology*, 37, 375-388.
- Bryant, D., Nielsen, D., & Tangle, L. (1997). *The last frontier forests: Ecosystems and economics on the edge*. Washington, D.C.: World Resources Institute.
- Bunnag, C. (2006). Mobile phone culture in Bangkok: The expression of modernity and cultural changes, *PQDT*: Global.
- Burrell, J. (2014). Modernity in material form? Mobile phones in the careers of Ghanaian market women. *Review of African Political Economy*, 41(142), 579-593.
- Buys, P., Dasgupta, S., Thomas, T.S., & Wheeler, D. (2009). *Determinants of a digital divide in Sub-Saharan Africa: A spatial econometric analysis of cell phone coverage*. World Development, 37, 1494-1505.
- Cairns, M.F. (2007). *The Alder managers: The cultural ecology of a village in Nagaland, N.E. India*. Doctoral Dissertation. Australian National University.
- Cairns, M.F. (2015). *Shifting cultivation and environmental change: Indigenous people, agriculture and forest conservation*. New York, NY: Taylor and Francis.

- Cairns, M.F. (Ed.). (2017). *Shifting cultivation policies: Balancing environmental and social sustainability*. Boston, MA: CABI.
- Callister, D. (1999). *Corrupt and illegal activities in the forestry sector: Current understandings, and implications for World Bank forest policy*. Forest Implementation Review and Strategy Development: The World Bank Group.
- Cameron, J. (2001). Focussing on the Focus Group. In I. Hay (Ed.), *Qualitative Research Methods in Human Geography* (pp. 83-102). Oxford/Melbourne: Oxford University Press.
- Campbell, L.M., Gray, N.J., & Meletis, Z.A. (2008). Political ecology perspectives on ecotourism. In K.S. Hanna, D.A. Clark, & S.D. Slocumbe (Eds.), *Transforming parks and protected areas: Management and governance in a changing world* (pp. 200-221). New York, NY: Routledge.
- Campbell, S., & Park, Y. (2008). Social implications of mobile telephony: The rise of personal communication society. *Sociology Compass*, 2(2), 371-387.
- Carney, J. (1993). Converting the wetlands, engendering the environment: The intersection of gender with agrarian change in the Gambia. *Economic Geography*, 69(4), 329-348.
- Carpiano, R. M. (2009). Come take a walk with me: The “go-along” interview as a novel method for studying the implications of place for health and well-Being. *Health & Place*, 15, 263-272.
- Central Party Organization. (1992). *Resolution concerning ethnic minority affairs in the new era*. Vientiane, Laos.
- Chamberlain, J.R. (2000). *Policy study on ethnic minority issues in rural development*. International Labour Office, Geneva: Project to Promote ILO Policy on Indigenous and Tribal Peoples.
- Chamberlain, J.R. (2001). *Participatory poverty assessment Lao PDR*. Asian Development Bank State Planning Committee National Statistics Center.
- Chamberlain, J.R. (2002). *Assessment of economic potentials and comparative advantages of the ethnic minority groups of Lao PDR*. Asian Development Bank.
- Chamberlain, J.R. (2006). *Study of gender inequality in women's access to land, forests, and water*. Vientiane, Laos: Asian Development Bank.
- Chamberlain, J.R., & Phomsombath, P. (2002). *Poverty alleviation for all: Potentials and options for people in the uplands*. Vientiane, Lao PDR: Sida Mimeo.

- Chambers, D. (2014). Constructing a governing rationale: Developing Lao Hmong refugees at Wat Tham Krabok, *Hmong Studies Journal*, 15(2), 1-13.
- Charoenniyomphrai, U., Phchetskulsamphan, C., & Tharawodome, W. (Eds.) (2006). *Indigenous knowledge, customary use of natural resources and sustainable biodiversity management: Case study of Hmong and Karen communities in Thailand*. Chiangmai: Inter Mountain Peoples Education.
- Chilonda, P. (2005). *Laos, People's Democratic Republic livestock sector brief*. Rome, Italy: Livestock Information, Sector Analysis and Policy Branch, FAO.
- Coates, K. (2017). A singular landscape: New technology is enabling archaeologists to explore a vast but little-studied mortuary complex in war-damaged Laos. *Archaeology*, 70(1), 55-56, 58, 62-63.
- Cohen, P.T. (2000). Resettlement, opium and labour dependence: Akha-Tai relations in northern Laos. *Development and Change*, 31, 179-2000.
- Cohen, P.T. (2013). Symbolic dimensions of the anti-opium campaign in Laos. *The Australian Journal of Anthropology*, 24, 177-192.
- Colchester, M., & Erni, C. (Eds.) (1998). *Indigenous peoples and protected areas in South and Southeast Asia*. Copenhagen, Denmark: Eks-Skolens Trykkeri aps.
- Colchester, M., & Gray, A. (1998). Toward conclusions. In M. Colchester & C. Erni (Eds.), *Indigenous peoples and protected areas in South and Southeast Asia* (pp. 300-307). Copenhagen, Denmark: Eks-Skolens Trykkeri aps.
- Comer, J., & Wikle, T. (2008). Worldwide diffusion of the cellular phone, 1995-2005. *Professional Geographer*, 60(2), 252-269.
- Committee for planning and co-operation (1995). *1975-1995 basic statistics about the socio-economic development in the Lao PDR*. Laos: National Statistical Centre.
- Compton, J., Khounbouline, K., & Quang, L.H. (1999). *Vanishing point: A study of cross-border wildlife trade between Lao PDR and Vietnam – Focusing on the Route 8 crossing from Bolikhamxai Province, Lao PDR and Ha Tinh Province, Vietnam*. WWF and CPAWM.
- Conklin, H.C. (1957, republished in 1975). *Hanunóo Agriculture: A Report on an Integral System of Shifting Cultivation in the Philippines*. Northford, Connecticut: Elliot's Book.
- Cooper, R. (1984). *Resource scarcity and the Hmong response*. National University of Singapore: Singapore University Press.

- Corben, R. (2015, March 27). Laos backs programs in opium eradication. Retrieved from <https://www.voanews.com/a/laos-backs-development-programs-in-opium-eradiction/2696689.html>.
- Corlin, C. (2004). Hmong and the land question in Vietnam: National policy and local concepts of the environment. In N. Tapp, J. Michaud, C. Culas, & G.Y. Lee (Eds.), *Hmong/Miao in Asia* (pp. 295-320). Chiang Mai: Silkworm Books.
- Cowhey, P., & Aronson, J. (2012). *Transforming global information and communication markets: The political economy of innovation*. Cambridge: MIT Press.
- Cramb, R.A., Colfer, C.J.P., Dressler, W., Laungaramsri, P., Quang, T.L., Mulyoutami, E., ... Wadley, R.L. (2009). Swidden transformations and rural livelihoods in Southeast Asia. *Human Ecology*, 37, 323-346.
- Crang, M., & Cook, I. (2007). *Doing Ethnographies*. London: SAGE Publications.
- Cresswell, T., & Merriman, P. (2016). *Geographies of mobilities: Practices, spaces, subjects*. Great Britain: Taylor and Francis.
- Croll, E., & Parkin, D. (Eds.). (1992). *Bush base: Forest farm: Culture, environment and development*. London and New York: Routledge.
- Das, B.K. (2008). The policy of reduction of cattle populations from protected areas: A case study from Buxa Tiger Reserve, India. *Conservation and Society*, 6(2), 185-189.
- Daviau, S. (2001). Resettlement in Long District, Louang Namtha Province. *Action Contre La Faim*, Vientiane.
- Daviau, S. (2010). Conducting fieldwork with Tarieng communities in southern Laos: Negotiating discursive spaces between neoliberal dogmas and Lao socialist ideology. *Asia Pacific Viewpoint*, 51(2), 193-205.
- Defries, R., Hansen, A., Newton, A.C., & Hansen, M.C. (2005). Increasing isolation of protective areas in tropical forests over the past twenty years. *Ecological Applications*, 15(1), 19-26.
- Delang, C.O. (2002). Deforestation in northern Thailand: The result of Hmong farming practices or Thai development strategies? *Society and Natural Resources*, 15, 483-501.
- Delang, C.O. (2007). The role of medicinal plants in the provision of health care in Lao PDR. *Journal of Medicinal Plants Research*, 1(3), 50-59.
- DeWalt, K.M. (1993). Nutrition and the commercialization of agriculture: Ten years later. *Social Science & Medicine*, 36(11), 1407-1416.

- Dhammanaat Foundation. (1994). *An outline of the Dhammanaat foundation solution to the problem of deforestation in Thailand, with particular reference to the Mae Soi Valley Project*. Unpublished manuscript.
- Domoto, K. (1997). Environmental issues in Laos: Balancing development with preservation. In M. Than & J. Tan (Eds.), *Laos' dilemmas and options: The challenge of economic transition in the 1990s* (pp. 309-319). Singapore: Institute of Southeast Asian Studies.
- Donaldson, A., Ward, N., & Bradley, S. (2010). Mess among disciplines: Interdisplinaryity in environmental research. *Environment and Planning A*, 42(7), 1521-1536.
- Douglas, I. (2006). The local drivers of land degradation in South-East Asia. *Geographical Research*, 44(2), 123-143.
- Dove, M.R. (1983). Theories of swidden agriculture, and the political economy of ignorance. *Agroforestry Systems*, 1(1), 85-99.
- Dove, M.R. (1993a). The responses of Dayak and bearded pig to mast-fruited in Kalimantan: An analysis of nature-culture analogies. In C.M. Hladik, A. Hladik, O.P. Linares, H. Pagezy, A. Semple, & M. Hadley (Eds.), *Tropical forest, people and food: Biocultural interactions and applications to development* (pp. 113-123). Paris: Parthenon.
- Dove, M.R. (1993b). Uncertainty, humility, and adaptation in the tropical forest: The agricultural augury of the Kantu. *Ethnology*, 32(2), 145-167.
- Dressler, W., & Pulhin, J. (2010). The shifting ground of swidden agriculture on Palawan Island, the Philippines. *Agriculture and Human Values*, 27, 445-459.
- Duckworth, J.W., Salter, R.E., & Khounboline, K., (1999). *Wildlife in Lao PDR 1999 status report*. Vientiane, Lao PDR: IUCN, Wildlife Conservation Society, and Centre for Protected Areas and Watershed Management.
- Ducourtieux, O. (2006). *Du Riz et des Arbres: L'élimination de l'agriculture d'abattis-brûlis, une constante politique au Laos (Rice And Trees: Eradicating shifting cultivation: an abiding policy in Laos)*. Thèse pour obtenir le grade de Docteur de l'Institut National Agronomique Paris-Grignon.
- Ducourtieux, O., Laffort, J.R., & Sacklokham, S. (2005). Land policy and farming practices in Laos. *Development and Change*, 36(3), 499-526.
- Ducourtieux, O., Visonnavong, P., & Rossard, J. (2006). Introducing cash crops in shifting cultivation regions – the experience with cardamom in Laos. *Agroforestry Systems*, 66, 65-76.

- Duffy, J., Harmon, R., Ranard, D.A., Thao, B., Yang, K., & Herr, P. (2004). *The Hmong: An introduction to their history and culture*. Cultural Profile No. 18. Washington, D.C.: Cultural Orientation Resource Center, Center for Applied Linguistics.
- Dumitrescu, G. (2014). The new world of information and communication technologies: Global and regional trends. *Economics*, 6(4), 17-24.
- Duncan, C. (2004). Legislating modernity among the marginalized. In C.R. Duncan (Ed.), *Civilizing the margins: Southeast Asian government policies for the development of minorities* (pp. 1-23). Ithaca and London: Cornell University Press.
- Dunnigan, T. (1982). Segmentary kinship in an urban society: The Hmong of St. Paul-Minneapolis. *Anthropological Quarterly*, 1, 126-134.
- Dupin, B., de Rouw, A., Phantahvong, K.B., & Valentin, C. (2009). Assessment of tillage erosion rates on steep slopes in northern Laos. *Soil & Tillage Research*, 103, 119-126.
- Ecotourism Laos. (2013, September 15) *Nakai-Nam Theun NBCA*. Retrieved from http://www.ecotourismlaos.com/directory/protected_areas/nakainamteun.htm
- Elderfield, A. (2007). *Connecting People: Mobile Phone Use in Social, Intimate and Identity Relations*, PQDT - Global.
- Ellen, R. (2012). Studies of swidden agriculture in Southeast Asia since 1960: An overview and commentary on recent research and syntheses. *Asia Pacific World*, 3(1), 18-38.
- Enwall, J. (1995). *Hmong writing systems in Vietnam: A case study of Vietnam's minority language policy*. Stockholm, Sweden: Center for Pacific Asian Studies, Stockholm University.
- Epprecht, M. (2000). The blessing of the poppy: Opium and the Akha of northern Laos. *Indigenous Affairs*, 4, 16-21.
- Euler, M., Krishna, V., Schwarze, S., Siregar, H., & Qaim, M. (2017). Oil palm adoption, household welfare, and nutrition among smallholder farmers in Indonesia. *World Development*, 93, 19-235.
- Evans, G. (1990). *Lao peasants under socialism*. New Haven: Yale University Press.
- Evans, G. (1999). Ethnic change in highland Laos. In G. Evans (Ed.), *Laos culture and society* (pp. 125- 147). Chiang Mai: Silkworm Books.
- Evans, G. (2002). *A short history of Laos: The land in between*. Singapore: South Wind Production.

- Evans, J., & Jones, P. (2011). The walking interview: Methodology, mobility, and place. *Applied Geography*, 31, 849-858.
- Evans, J., Jones, P., & Krueger, R. (2009). Organic regeneration and sustainability or can the credit crunch save our cities? *Local Environment: The International Journal of Justice and Sustainability*, 14, 683-698.
- Fairhead, J., & Scoones, I. (2005). Local knowledge and the social shaping of soil investments: Critical perspectives on the assessment of soil degradation in Africa. *Land Use Policy*, 22, 33-41.
- FAO. (2016, November, 22). Government aims to restore forest cover to 70 percent by 2020. Food and Agriculture Organization of the United Nation. Retrieved from <http://www.fao.org/laos/news/detail-events/en/c/454719/>
- Ferraro, P.J., & Hanauer, M.M. (2014). Quantifying causal mechanisms to determine how protected areas affect poverty through changes in ecosystem services and infrastructure. *PNAS*, 111(11), 4332-4337.
- Fincham, B., McGuinness, M., & Murray, L. (Eds.). (2010). *Mobile Methodologies*. Basingstoke, GB: Palgrave Macmillan.
- Forsyth, T., & Walker, A. (2008). *Forest guardians, forest destroyers: The politics of environmental knowledge in Northern Thailand*. Seattle, WA: University of Washington Press.
- Fox, J.M. (2000). How blaming 'slash and burn' farmers is deforesting mainland Southeast Asia. *Asia Pacific Issues*, 47, 1-8.
- Fox, J.M., Fujita, Y., Ngidang, D., Peluso, N., Potter, L., Sakuntaladewi, N., ... Thomas, D. (2009). Policies, political-economy, and swidden in Southeast Asia. *Human Ecology*, 37, 306-322.
- Fox, J.M., & Vogler, J.B. (2005). Land-use and land-cover change in montane mainland Southeast Asia. *Environmental Management*, 36(3), 394-403.
- Gant, T. (2016, June 17). Xam Tai, Laos: The birth of specialty coffee farming. *Perfect Daily Grind*. Retrieved from <https://www.perfectdailygrind.com/2016/06/xam-tai-laos-revival-specialty-coffee-farming/#>
- Garrity, D.P. (1993). Sustainable land-use systems for sloping uplands in Southeast Asia. *ASA Special Publication*, 56, 41-66.
- Geddes, W.R. (1976). *Migrants of the mountains: The cultural ecology of the blue Miao (Hmong Njua) of Thailand*. Oxford: Clarendon Press.

- Geohive. (2015, November 22). Laos. Retrieved from <http://www.geohive.com/cntry/laos.aspx>
- Gerdner, L.A. (2012). Shamanism: Indications and use by older Hmong Americans with chronic illness. *Hmong Studies Journal*, 13(1), 1-22.
- Gillogly, K. (2004). Developing the 'hill tribes' of northern Thailand. In C.R. Duncan (Ed.), *Civilizing the margins: Southeast Asian government policies for the development of minorities* (pp. 116-149). Ithaca and London: Cornell University Press.
- Glaesel, H. (1997). *Fishers, parks, and power: The socio-environmental dimensions of marine resource decline and protection on the Kenya coast*. Doctoral Dissertation. University of Wisconsin-Madison.
- Goggin, C. (2006). *Cell phone culture: Mobile technology in everyday life*. London: Routledge.
- Goldman, M. (2005). *Imperial Nature: The World Bank and struggles for social justice in the age of globalization*. New Haven and London: Yale University Press.
- Goldman, M.J. (2003). Partitioned nature, privileged knowledge: Community-based conservation in Tanzania. *Development and Change*, 34(5), 833-862.
- Goldman, M.J. (2007). Tracking wildebeest, locating knowledge: Maasi and conservation biology understandings of wildebeest behavior in Northern Tanzania. *Environment and Planning D: Society and Space*, 25, 307-331.
- Goodkind, J.R. (2006). Promoting Hmong refugees' well-being through mutual learning: Valuing knowledge, culture, and experience. *American Journal of Community Psychology*, 37(1/2), 77-93.
- Görçün, Ö.F., & Saygili, M. (2008). *Important factors on perishable foods transportation and food logistic systems and Turkish food logistic sector*. Besiktas, Istanbul: Bahcesehir University Vocational School Department of International Logistics.
- Gould, K.A. (2010). Anxiety, epistemology, and policy research "behind enemy lines." *Geoforum*, 41, 15-18.
- Graham, M.D., Adams, W.M., & Kahiro, G.N. (2011). Mobile phone communication in effective human elephant-conflict management in Laikipia County, Kenya. *Oryx*, 46(1), 137-144.
- Guenther, M. (2007). Current issues and future directions in hunter-gatherer studies. *Anthropos*, 102(2), 371-388.
- Guerbois, C., Dufour, A., Mtare, G., & Fritz, H. (2012). Insights for integrated conservation for attitudes of people toward protected areas near Hwange National Park, Zimbabwe. *Conservation Biology*, 27(4), 844-855.

- Gupta, A.C. (2012). *Conservation's complexities: A study of livelihoods and people-park relations around Chobe National Park, Botswana*. Doctoral Dissertation. University of California-Berkeley.
- Hall, D., Hirsch, P., & Li, T.M. (2011). *Powers of exclusion: Land dilemmas in Southeast Asia*. Honolulu, HI: University of Hawaii Press.
- Hammond, S.T., Brown, J.H., Burger, J.R., Flaagan, T.P., Fristoe, T.S., Mercado-Silva, No., ...Okie, J.G. (2015). Food spoilage, storage, and transport: Implications for a sustainable future. *BioScience*, 65(8), 758-768.
- Hanna, K.S., Clark, D.A., & Slocombe, D. (2008). *Transforming parks and protected areas: Management and governance in a changing world*. New York, NY: Routledge.
- Hansen, T.S., & Mertz, O. (2005). Extinction or adaptation? Three decades of change in shifting cultivation in Sarawak, Malaysia. *Land Degradation & Development*, 17, 135-148.
- Hardcastle, J., Cox, S., Nguyen, T.D., & Johns A.G. (Eds.). (2004). *Rediscovering the saola*. Hanoi, Vietnam: WWF Indochina Programme.
- Hares, M. (2009). Forest conflict in Thailand: Northern minorities in focus. *Environmental Management*, 43, 381-395.
- Harwood, R.R. (1996). Development pathways toward sustainable systems following slash-and-burn. *Agriculture, Ecosystems and Environment*, 58(1), 75-86.
- Harvey, D. (1989). *The condition of postmodernity: An enquiry into the origins of cultural change*. Cambridge, MA: Blackwell.
- Hicks, C.C., Fitzsimmons, C., & Polunin, N.V.C. (2010). Interdisciplinarity in the Environmental Sciences: Barriers and Frontiers. *Environmental Conservation*, 37(4), 464-477.
- Hillmer, P. (2010). *A people's history of the Hmong*. St. Paul, MN: Minnesota Historical Society.
- Hodgdon, B.D. (2006). No success like failure: Policy versus reality in the Lao forestry sector. *Watershed*, 12(1), 37-46.
- Hodgdon, B.D. (2008) The political culture of logging and development on the periphery in Laos. *Kyoto Journal*, 69, 58-65.
- Horst, H.A., & Miller, D. (2007). *The cell phone: An anthropology of communication*. Oxford and New York: Berg.
- Huang, H., & Sumrongthong, B. (2004). Speaking with spirits: The Hmong *ntoo xeeb* new year ceremony. *Asian Folklore Studies*, 63(1), 31-55.

- Huijsmans, R., & Lan, T.T.H. (2015). Enacting nationalism through youthful mobilities? Youth, mobile phones and digital capitalism in a Lao-Vietnamese borderland. *Nations and Nationalism*, 21(2), 209-229.
- Huijun, G., Padoch, C., Coffey, K., Aiguo, C., & Yongneng, F. (2002). Economic development, land use and biodiversity change in the tropical mountains of Xishuangbanna, Yunnan, Southwest China. *Environmental Science and Policy*, 5(6), 471-479.
- Humphrey, C. (2013). Dilemmas in doing insider research in professional education. *Qualitative Social work*, 12(5), 572-586.
- Hurni, K., Hett, C., Heinimann, A., Messerli, P., & Wiesmann, U. (2013). Dynamics of shifting cultivation landscapes in northern Lao PDR between 2000 and 2009 based on an analysis of MODIS time series and Landsat images. *Human Ecology*, 41, 21-36.
- Hyams, M. (2004). Hearing girls silences: Thoughts on the politics and practices of a feminist method of group discussion. *Gender, Place & Culture*, 11(1): 105-119.
- Iared, V.G., & De Oliveira, H.T. (2018). Walking walking ethnography and interviews in the analysis of aesthetic experiences in the Cerrado. *Educacao E Pesquisa*, 44(1). Retrieved from http://www.scielo.br/scielo.php?pid=S1517-97022018000100414&script=sci_arttext&tlng=en
- Immel, R. (1971, June 28). Container controversy: Many seaports are finding their livelihood threatened by changes in cargo technology. *The Wall Street Journal*, p. 28.
- Improved distribution of food products essential. (1921, May 17). *The Wall Street Journal*.
- Ingold, T. (1986). *The appropriation of nature: Essays on human ecology and social relations*. Manchester, UK: Manchester University Press.
- Ingold, T. (2000). *The perception of the environment: Essays on livelihood, dwelling and skill*. London and New York: Routledge.
- Ingold, T., & Lee, J. (2008). *Ways of Walking: Ethnography and Practice on Foot*. London: Ashgate.
- Investopedia (2018, March 31, 2018). Year over year – YOY. Retrieved from <https://www.investopedia.com/terms/y/year-over-year.asp>
- Jaafar, S.J. (1975). The Meo people: An introduction. In A.R. Walker (Ed.), *Farmers in the hills: Upland peoples of north Thailand* (pp. 61-72). Penang: Phoenix Press.
- James, J. (2010). Penetration and growth rates of mobile phones in developing countries: An analytical classification. *Social Indicators Research*, 99, 135-145.

- Jefferies, B.E. (1998). *Land-forest allocation in protected areas in the Lao PDR: Issues and options*. Vientiane: Forest Management and Conservation Project: Conservation Sub-Programme.
- Jenkins, P.D., Kilpatrick, C.W., Robinson, M.F., & Timmins, R.J. (2005). Morphological and molecular investigations of a new family, genus and species of rodent (Mammalia: Rodentia: Hystricognatha) from Lao PDR. *Systematics and Biodiversity*, 2, 419-454.
- Jerndal, R. (1998). Making space in Laos: Constructing a national identity in a 'forgotten' country. *Political Geography*, 17(7), 809-831.
- JICA. (2001). *Master plan study on integrated agricultural development in Lao People's Democratic Republic Volume I, II, and III*. Vientiane: Japan International Cooperation Agency (JICA) and Ministry of Agriculture and Forestry.
- Johnson, A., Goodrich, J., Hansel, T., Rasphone, A., Saypanya, S., Vongkhamheng, C., ...Strindberg, S. (2014). To protect or neglect? Design, monitoring, and evaluation of a law enforcement strategy to recover small populations of wild tigers and their prey. *Biological Conservation*, 202, 99-109.
- Johnson, A., Singh, S., & Doungdala, M. (2005). Wildlife hunting and use in Luang Namtha Province: Implications for rural livelihoods and biodiversity conservation in the uplands of the Lao PDR. In B. Bouahom, A. Glendinning, S. Nilsson, & M. Victor (eds.), *Poverty reduction and shifting cultivation stabilization in the uplands of Lao PDR: Technologies, approaches and methods for improving upland* (pp. 195-208). Vientiane, Lao PDR: National Agriculture and Forestry Research Institute.
- Johnson, A., Singh, S., Dongdala, M., & Vongsa, O. (2003). *Wildlife hunting and use in the Nam Ha National Protected Area: Implications for rural livelihoods and biodiversity conservation*. Vientiane: Wildlife Conservation Society.
- Johnston, L. (2010). *Nam Theun 2 hydropower project – Lao*. USAID
- Joiner, C.A. (1988). Laos in 1987: New economic management confronts the bureaucracy. *Asian Survey*, 28(1), 95-104.
- Jones, S. (1985). The analysis of depth interviews. In. R. Walker (Ed.), *Applied Qualitative (PAGE) Research*. Brookfield, VT: Gower.
- Jorgensen, D.L. (1989). *Participation Observation: A methodology for human studies*. Newbury Park, London, New Delhi: Sage Publications.
- Kagoya, S., Paudel, K.P., & Daniel, N.L. (2018). Awareness and adoption of soil and water conservation technologies in a developing country: A case of Nabajuzi Watershed in Central Uganda. *Environmental Management*, 61(2), 188-196.

- Käkönen, M., & Hirsch, P. (2009). The anti-politics of Mekong knowledge production. In F. Molle, T. Foran, & M. Käkönen (Eds.), *Contested waterscapes in the Mekong region: Hydropower, livelihoods and governance* (pp. 333-356). Washington D.C. and London: Earthscan.
- Kanuha, V.K. (2000). "Being" native versus "going native": Conducting social work research as an insider. *Social Work*, 45(5), 439-447.
- Kennedy, E., Bouls, H., & von Braun, J. (1992). Health and nutrition effects of cash crop production in developing countries: A comparative analysis. *Social Science & Medicine*, 35(5), 689-697.
- Kenney-Lazar, M., & Wong, G. (2016). Challenges and opportunities for sustainable rubber in the Lao People's Democratic Republic. *Center for International Forestry Research*, 153, 1-4.
- Keuleers, P. (2002). *Corruption in the Lao PDR: Underlying causes and key issues for consideration (Case Study Lao PDR)*. United Nations Development Programme: Bangkok.
- Kevany, K. (2012). Gathering mobile momentum. *NZ Business*, 26(10), 32-25.
- Khan, M.L., Khumbongmayum, D.V., & Tripathi, R.S. (2008). The sacred groves and their significance in conserving biodiversity: An Overview. *International Journal of Ecology and Environmental Sciences*, 34, 277-291.
- Khan, S.R., & Naqyi, A. (1998). Indigenous rights and biodiversity conservation: A case study of Anybia National Park, Pakistan. In M. Colchester and C. Erni (Eds.), *Indigenous peoples and protected areas in South and Southeast Asia* (pp. 46-65). Copenhagen, Denmark: Eks- Skolens Trykkeri aps.
- Khorasanizadeh, H., Honarpour, A., Sang-Ah Park, M., Parkkinen, J., & Parthiban, R. (2016). Adoption factors of cleaner production technology in a developing country: Energy efficient lighting in Malaysia. *Journal of Cleaner Production*, 131, 97-106.
- Kinman, M.L., & Sprague, G.F. (1945). Relation between number of parental lines and theoretical performance of synthetic varieties of corn. *Journal of American Society of Agronomy*, 37(5), 341-351.
- Kinnaly. (1996, March 22-28). Sixth Party Congress. *Vientiane Times*, pp. 4-7, 11.
- Kleinman, P.J.A., Pimentel, D., & Bryant, R.B. (1995). The ecological sustainability of slash-and-burn agriculture. *Agriculture, Ecosystems & Environment*, 52(2-3), 235-249.
- Knips, V. (2004). *Review of the livestock sector in the Mekong countries*. Livestock Information, Sector Analysis and Policy Branch, FAO.

- Korsmo, F. (1996). Claiming memory in British Columbia + Native Americans in Canada, land claims: Aboriginal rights and the state. *American Indian Culture and Research Journal*, 20(4), 71-90.
- Krahn, J. (2005). *The dynamics of dietary change of transitional food systems in tropical forest areas of Southeast Asia: The contemporary and traditional food system of the Katu in the Sekong Province, Lao PDR*. Doctoral Dissertation. Rheinischen Friedrich-Wilhelms-Universität Bonn.
- Kue, X.P. [Xai Phia Kue]. (2017, September 5). *Ncig teb chaws nplog 2017 – Ib tug niam tsev poj ntsuam, tham txog neeg phem tua nws tus txiv*. [Video file]. Retrieved from https://www.youtube.com/watch?v=q_-O1yv0Pa8&t=465s
- Kunstadter, P. (1978). Subsistence agricultural economics of Lua' and Karen hill farmers, Mae Sariang District Northwestern Thailand. In P. Kunstadter, E.C. Chapman, & S. Sabhasri (Eds.), *Farmers in the forest* (pp. 71-133). Honolulu: The University Press of Hawaii.
- Kunstadter, P. (2000). Changing patterns of economic among Hmong in northern Thailand 1960-1990. In J. Michaud (Ed.), *Turbulent times and enduring peoples: Mountain minorities in the South-East Asian Massif* (pp. 167-192). Richmond, VA: Curzon Press.
- Kwami, J. (2016). Development from the margin? Mobile technologies, transnational mobilities, and livelihood practices among Ghanaian women traders. *Communication, Culture and Critique*, 9(1), 148-168.
- Lao News Agency. (2015, March 2). Retrieved from <http://kpl.gov.la/En/Detail.aspx?id=1779>
- Lao-Swedish forestry project enters new phase. (1996, May 10-16). *Vientiane Times*, p. 3.
- Laos: Laos backs programs in opium eradication. (2015, March 31). *Asia News Monitor*.
- Lash, S., Szerszynski, B., & Wynne, B. (1998). *Risk, environment and modernity: Towards a new ecology (theory, culture & society)*. London: SAGE Publications.
- Lawless, R. (1975). Effects of population growth and environment changes on divination practices in northern Luzon. *Journal of Anthropological Research*, 31(1), 18-33.
- Lawrence, D., Radel, C., Tully, K., Schmook, B., & Schneider, L. (2010). Untangling a decline in tropical forest resilience: Constraints on the sustainability of shifting cultivation across the globe. *Biotropica*, 42(1), 21-30.
- Lawrence, S. (2008). Case study four: Nam Theun 2 hydropower project. *Power surge: The impacts of rapid dam development in Laos*, 41-46.

- Leach, M. (1992). Women's crops in women's spaces: Gender relations in Mende rice farming. In E. Croll and D. Parkin (Eds.), *Bush base: Forest farm: Culture, environment and development*. London and NY: Routledge.
- Lee, G.Y. (1994). The religious presentation of social relationships: Hmong world view and social structure. *Lao Studies Review*, 2, 44-60.
- Lee, G.Y. (2005). The shaping of traditions: Agriculture and Hmong society. *Hmong Studies Journal*, 6, 1-33.
- Lee, G.Y. (2007). The hunting trip. *Paj Ntaub Voice*, 12(1).
- Lee, G.Y., & Tapp, N. (2007). *Current Hmong Issues: 12-point statement*. No publishing information.
- Lee, G.Y., & Tapp, N. (2010). *Culture and customs of the Hmong*. Santa Barbara, California: Greenwood.
- Lee, M.N. (2015). *Dreams of the Hmong kingdom: The quest for legitimation in French Indochina, 1850-1960*. Madison: University of Wisconsin Press.
- Lee, T.M., Sigouin, A., Pinedo-Vasquez, M., & Nasi, R. (2014). *The harvest of wildlife for bushmeat and traditional medicine in East, South and Southeast Asia: Current knowledge base, challenges, opportunities and areas for future research*. Occasional Paper 115. Bogor, Indonesia: CIFOR.
- Leepreecha, P. (2004). *Ntoo xeeb*: Cultural redefinition for forest conservation among the Hmong in Thailand. In N. Tapp, J. Michaud, C. Culas, & G.Y. Lee (Eds.), *Hmong/Miao in Asia* (pp. 335-352). Chiang Mai: Silkworm Books.
- Lepers, E., Lambin, E.F., Janetos, A.C., DeFries, R., Achard, F., Ramankutty, N., & Scholes, J. (2005). A Synthesis of information on rapid land-cover change for the period 1981-2000. *Bioscience*, 55(2), 115-124.
- Lestrelin, G., Vigiak, O., Pelletreau, A., Keohavong, B., & Valentin, C. (2012). Challenging established narratives on soil erosion and shifting cultivation in Laos. *Natural Resources Forum*, 36, 63-75.
- Li, P., Feng, Z., Jiang, L., Liao, C., & Zhang J. (2014). A review of swidden agriculture in Southeast Asia. *Remote Sensing*, 6(2), 1654-1683.
- Li, W., Ciais, P., MacBean, N., Peng, S., Defourny, P., & Bontemps, S. (2016). Major forest changes and land cover transitions based on plant functional types derived from the ESA CCI land cover product. *International Journal of Applied Earth Observation and Geoinformation*, 47, 30-39.

- Liesch, M. (2011). *Community conceptions of Keweenaw National Historical Park*. Doctoral Dissertation. University of Wisconsin-Madison.
- Lilao, B. (2018, March 6). Property relations of the Hmong in Laos. Retrieved from https://dlc.dlib.indiana.edu/dlc/bitstream/handle/10535/719/Lilao_Bouapao.pdf?sequence=1
- Lim, J.E. (2017). *Living with carnivores: Human-carnivore conflict in Lao PDR and amur leopard restoration in South Korea*. Doctoral Dissertation. University of Wisconsin-Madison.
- Ling, R. (2004). *The mobile connection: The cell phone's impact on society*. San Francisco, CA: Morgan Kaufmann.
- Ling, S. (1999). *A biological system of prioritization for protected areas in the Lao PDR. Centre for protected areas and watershed management/wildlife conservation society cooperative program*. Vientiane.
- Long, C.L., Wang, J., Fox, J., Lu, X., Cai, K., & Gao, L. (1999). State policies, markets, land-use practices, and common property: Fifty years of change in a Yunnan village, China. *Mountain Research and Development*, 19(2), 133-139.
- Lor, M., Khang, P.Y., Xiong, P., Moua, K.F., & Lauver, D. (2013). Understanding Hmong women's beliefs, feeling, norms, and external conditions about breast and cervical cancer screening. *Public Health Nursing*, 30(5), 420-428.
- Lor, P. (2013). A Hmong professional woman's reflections and perspectives on the influences affecting the changing roles of Hmong women in America. *Journal of Cultural Diversity*, 20(1), 40-48.
- Luangaramsri, P. (1998). The ambiguity of 'watershed': The politics of people and conservation in northern Thailand – A case study of the Chom Thong Conflict. In M. Colchester & C. Erni (Eds.), *Indigenous Peoples and Protected Areas in South and Southeast Asia* (pp. 108- 133). Copenhagen, Denmark: Eks-Skolens Trykkeri aps.
- Luo, Y., Liu, J., & Zhang, D. (2009). Role of traditional beliefs of Baima Tibetans in biodiversity conservation in China. *Forest Ecology and Management*, 257(10), 1995-2001.
- Mackinnon, J., & Mackinnon, K. (1986). *Review of the protected areas of the Indo-Malayan realm*. Gland, Switzerland: IUCN-The World Conservation Union.
- Madhu, R., Johnson, A., Spence, K., Sypasong, A., Bynum, N., Sterling, E., ...Praxaysombath, B. (2014). Building capacity for protected area management in Lao PDR. *Environmental Management*, 53, 715-727.

- MAF (Ministry of Agriculture and Forestry). (1999). *The government's strategic vision for the agricultural sector*. Vientiane: Ministry of Agriculture and Forestry.
- MAF (Ministry of Agriculture and Forestry). (2010). *Strategy for agricultural development 2011 to 2020*. Vientiane: Ministry of Agriculture and Forestry.
- MAF (Ministry of Agriculture and Forestry). (2014). *Lao Census of Agriculture 2010/11: Analysis of Selected Themes*. Vientiane: FAO.
- Malhotra, K.C., Gokhale, Y., Chatterjee, S., & Srivastava, S. (2007). *Sacred Groves in India*. New Delhi, India: Aryan Books International.
- Manchard, W. (1974). *Tropical agriculture: A geographical introduction and appraisal*. London and New York: Longman.
- Manivong, K., & Sophathilath, P. (2007). *Status of community based forest management in Lao PDR*. Vientiane, Lao PDR: NAFRI.
- Manivong, V., & Cramb, R.A. (2008). Economic smallholder rubber expansion in northern Laos. *Agroforestry Systems*, 74, 113-125.
- Marks, T.A. (1973). The Meo hill tribe problem in north Thailand. *Asian Survey*, 13(10), 929-944.
- Marston, S.A. (2000). The social construction of scale. *Progress in Human Geography*, 24(2), 219-242.
- Martin, G. J. (2004). *Ethnobotany: A methods manual*. London, UK: Earthscan.
- Mayer, R., Figueredo, K., Jensen, M., Kely, T., Green, R., & Barra, A. (2008). *Costing the needs for investment in ICT infrastructure in Africa*. Winrock International/Pyramic Research for AICD, Background Paper. Washington D.C.: The World Bank.
- McCall, S. (2016). Land memory, and the struggle for indigenous rights: Lee Maracle's "Goodbye, Snauq". *Canadian Literature*, 230/231.
- McDowell, D., Schudder, T., & Talbot, L.M. (2008). *Lao PDR Nam Theun 2 multipurpose project: Thirteenth and fourteenth reports of the international environmental and social panel of experts*. Washington D.C.: The World Bank.
- Melkote, D.R., & Steeves, H.L. (2004). Information and communication technologies for rural development. In C. Okigbo & F. Eribo (Eds.), *Development and communication in Africa* (pp. 165-173). Lanham, USA: Rowman & Littlefield.
- Mertz, O. (2009). Trends in shifting cultivation and the REDD mechanism. *Current Opinion in Environmental Sustainability*, 1(2), 156-160.

- Mertz, O., Leisz, S.J., Heinemann, A., Rerkasem, K., Thiha, W., Dressler, V.C., ...Potter, L. (2009). Who counts? Demography of swidden cultivators in Southeast Asia. *Human Ecology*, 37(3), 281-289.
- Mertz, O., Wadley, R.L., Nielsen, U., Bruun, T.B., Colfer, C.J.P., de Neergaard, A., ...Magid, J. (2008). A fresh look at shifting cultivation: Fallow length an uncertain indicator of productivity. *Agricultural System*, 96, 75-84.
- Mgumia, F.G., & Oba, G. (2003). Potential role of sacred groves in biodiversity conservation in Tanzania. *Environmental Conservation*, 30(3). 259-265.
- Michaud, J., & Culas, C. (2000). The Hmong of the Southeast Asian Massif: Their recent history of migration. In G. Evans, C. Hutton, & K.E. Kuah (Eds.), *Where China meets Southeast Asia: Social and cultural change in the border regions* (pp. 98-121). New York: St. Martin's Press.
- Midden, C.J., Kaiser, F.G., & McCalley, T. (2007). Technology's four roles in understanding individuals' conservation of natural resources. *Journal of Social Issues*, 63(1), 155-174.
- Misra, K.K., & Mishra, N. (2006). Changing agricultural technology and its impact on agro-based rituals and folk songs in rural Orissa. *Indian Anthropologist*, 36(1/2), 73-100.
- Mossberg, C. (2013). *Swedish support to the forestry sector in Laos*. Vientiane: Unpublished Paper.
- Moua, P. [piab moua]. (2017, November 14). *XOV XWM Tshiab Deev Tag Muab Tua Pov Tseg*. [Video file]. Retrieved from <https://www.youtube.com/watch?v=rBnJXP07XR4>
- MPI (Ministry of Planning and Investment). (2010). *The seventh national socio-economic development plan (2011-2015)*. Vientiane, Laos: Ministry of Planning and Environment.
- MPI (Ministry of Planning and Investment). (2015). *Results of population and housing census*. Vientiane, Laos: Ministry of Planning and Investment.
- Nadasky, P. (1999). The politics of TEK: Power and the "integration" of knowledge. *Artic Antropology*, 36(1-2), 1-18.
- NAFRI (National Agriculture and Forestry Research Institute) (2010). *Rubber expansion in Lao PDR*. Vientiane: Agriculture and Forestry Policy Research Center. Retrieved from http://www.asia-uplands.org/Catch-Up/pdf/10CC_R1.pdf
- Nair, P.K.R. (1993). *An introduction to agroforestry*. Dordrecht, The Netherlands: Kluwer Academic Publishers.

- National Assembly Lao PDR. (2007). *Forestry Law*. Vientiane, Lao PDR: Government of the Lao People's Democratic Republic. Retrieved from <http://extwprlegs1.fao.org/docs/pdf/lao89474.pdf>
- National Assembly Lao PDR. (2007). *Wildlife and Aquatic Law*. Vientiane, Lao PDR: Government of the Lao People's Democratic Republic. Retrieved from https://www.lexadin.nl/wlg/legis/nofr/oeur/arch/lao/wildlife%20law_official%20translation.pdf
- National Committee for the NPEP. (2003). *Progress report on the finalization of the National Poverty Eradication Programme (NPEP)*. Washington D.C.: International Monetary Fund Country Report No. 03/310.
- National University of Lao PDR. (2005). *Improving livelihoods in the uplands of the Lao PDR - Volume 2: Options and opportunities*. Vientiane, Lao PDR: NAFRI.
- Neal, N.P. (1935). Decreasing in yielding capacity in advanced generations of hybrid corn. *Journal of the American Society of Agronomy*, 27(8), 666-670.
- Neely, A.H. (2011). *Reconfiguring Pholela: Understanding the relationships between health and environment from the 1930s to the 1980s*. Doctoral Dissertation. University of Wisconsin-Madison.
- Neumann, R.P. (1998). *Imposing wilderness: Struggles over livelihood and nature preservation in Africa*. Berkeley, Los Angeles, London: University of California Press.
- Neumann, R.P. (2004a). Moral and discursive geographies in the war for biodiversity in Africa. *Political Geography*, 23(7), 813-837.
- Neumann, R.P. (2004b). Nature-state-territory: Toward a critical theorization of conservation enclosures. In R. Peet & M. Watts (Eds.), *Liberation Ecologies: Environment, Development and Social Movements* (pp. 195-217). London and New York: Routledge.
- Ngidang, D. (2002). Contradictions in land development schemes: the case of joint ventures in Sarawak, Malaysia. *Asia Pacific Viewpoint*, 43, 157-180.
- Nicolai-Shaw, N., Zscheischler, J., Hirschi, M., Gudmundsson, L., & Seneviratne, S. (2017). A drought event composite analysis using satellite remote-sensing based soil moisture. *Remote Sensing the Environment*, 203, 216-225.
- Novellino, D. (1998). The ominous switch: From indigenous forest management to conservation – The case of the Batak on Palawan Island, The Philippines. In M. Colchester & C. Erni (Eds.), *Indigenous Peoples and Protected Areas in South and Southeast Asia* (pp. 250-297). Copenhagen, Denmark: Eks-Skolens Trykkeri aps.

- Oparaocha, S. (1998). Hmong women, opium cultivation and livestock production in Lao PDR. *Gender, Technology, and Development*, 2(3).
- Oriola, T., & Haggerty, K.D. (2012). The ambivalent insider/outsider status of academic 'homecomer': Observations on identity and field research in the Nigerian Delta. *Sociology*, 46, 540-548.
- Ormsby, A., & Bhagwat, S.A. (2010). Sacred forests of India: A strong tradition of community-based natural resource management. *Environmental Conservation*, 37(3), 320-326.
- Ovesen, J. (1995). *A minority enters the nation state: A case study of a Hmong community in Vientiane Province, Laos*. Uppsala: Uppsala University.
- Padoch, C., Coffey, K., Mertz, O., Leisz, S.J., Fox, J., & Wadley, R.L. (2007). The demise of swidden in Southeast Asia? Local realities and regional ambiguities. *Geografisk Tidsskrift Danish Journal of Geography*, 107(1), 29-41.
- Padoch, C., Harwell, E., & Susanto, A. (1998). Swidden, sawah, and in-between: Agricultural transformation in Borneo. *Human Ecology*, 26(1), 3-30.
- Padoch, C., & Pinedo-Vasquez, M. (2010). Saving slash-and-burn to save biodiversity. *Biotropica*, 42(5), 550-552.
- Paulson, S., Gezon, L.L., & Watts, M. (2003). Locating the political in political ecology: An introduction. *Human Organization*, 62(3), 205-217.
- Peterson, N., & Matsuyama, T. (Eds.). (1991). *Cash, commoditisation and changing foragers*. Osaka, Japan: National Museum of Ethnology.
- Phanvilay, K. (2010). *Impacts of land-use and land-cover transitions on people's livelihoods in the uplands of northern Laos: Case studies from Bokeo and Louang Namtha Provinces*. Doctoral Dissertation. University of Hawai'i, Honolulu.
- Phompila, C., Lewis, M., Ostendorf, B., & Clarke, K. (2017). Forest cover changes in Lao tropical forests: Physical and socio-economic factors are the most important drivers. *Land*, 6(23), 1-14.
- Phonephachanh, K. (2012). Household biogas technology to improve rural livelihoods in Laos. *Journal of Developments in Sustainable Agriculture*, 7(2), 158-163.
- Political Bureau of the Central Party Organization. (1981). *Resolution concerning ethnic minority affairs, particularly the Hmong*. Vientiane, Lao PDR.
- Pound, B., Snapp, S., McDougall, C., & Braun, A. (Eds.). (2003). *Managing natural resources for sustainable livelihoods: Uniting science and participation*. London: Earthscan.

- Probe International. (2008, September 10). Friends of the earth? Retrieved from <http://eprf.probeinternational.org/node/6176>
- Pye, O. (2005). Forest policy and strategic groups in Thailand. *International Quarterly for Asian Studies*, 36(3/4), 311-336.
- Qiao, M., Wang, J., Li, Y., Cheng, S., & Li, Maosen. (2017). Soil and water conservation technology in the Zhifanggou watershed. *Journal of Resources and Ecology*, 8(4), 433-440.
- Quang, V.D. (2004). The Hmong and forest management in northern Vietnam's mountainous areas. In N. Tapp, J. Michaud, C. Culas, & G.Y. Lee (Eds.), *Hmong/Miao in Asia* (pp. 221-234). Chiang Mai: Silkworm Books.
- Raintree, J., & Warner, K. (1986). Agroforestry pathways for the intensification of shifting cultivation. *Agroforestry Systems*, 4(1), 39-54.
- Ranard, D.A. (Ed.). (2004). The Hmong: An introduction to their history and culture. *Culture Profile No. 18*. Washington, D.C.: Center for Applied Linguistics.
- Redford, K.H. (1992). The empty forest. *BioScience*, 42(6), 412-422.
- Reed, A. (2002). City of details: Interpreting the personality of London. *Journal of the Royal Anthropological Institute*, 8, 127-141.
- Rerkasem, K., Lawrence, D., Padoch, C., Schmidt-Vogt, D., Ziegler, A.D., & Bruun, T.B. (2009). Consequences of swidden transitions for crop and fallow biodiversity in Southeast Asia. *Human Ecology*, 37, 347-360.
- Rerkasem, K., & Rerkasem, B. (1994). Shifting cultivation in Thailand: Its current situation and dynamics in the context of highland development. London: IIED Forestry and Land Use Series No. 4.
- Rerkasem, K., Yimyam, N., & Rerkasem, B. (2009). Land use transformation in the mountainous mainland Southeast Asia region and the role of indigenous knowledge and skills in forest management. *Forest Ecology and Management*, 257, 2035-2043.
- Ribot, J., & Peluso, N. (2003). A Theory of Access. *Rural Sociology*, 68(2), 153-181.
- Richey, F.D., Stringfield, G.H., & Sprague, G.F. (1934). Loss in yield that may be expected from planting second generation double-crossed seed corn. *Journal of the American Society of Agronomy*, 26(3), 196-199.
- Robbins, P. (2000). The practical politics of knowing: State environmental knowledge and local political economy. *Economic Geography*, 76(2), 126-144.

- Robbins, P. (2003). Political ecology in political geography. *Political Geography*, 22(6), 641-645.
- Roberts, M.S. (2015). Understanding farmer decision making in northern Lao PDR. *Culture, Agriculture, Food and Environment*, 37(1), 14-17.
- Robichaud, W.G. (2005). *Testing assumptions: The recent history of forest cover in Nakai-Nam Theun National Protected Areas, Laos*. Master's Thesis. The University of British Columbia. 2005.
- Robichaud, W.G., Marsh, C.W., Southammakoth, S., & Khounthikoummame, S. (2001). *Review of the national protected area system in Lao PDR*. Vientiane: Lao-Swedish Forestry Programme.
- Robichaud, W.G., Sinclair, A.R.E., Odarkor-Lanquaye, N., & Klinkenberg, B. (2009). Stable forest cover under increasing populations of swidden cultivators in central Laos: The roles of intrinsic culture and extrinsic wildlife trade. *Ecology and Society*, 14(1), 33.
- Roder, W. (2001). *Slash-and-burn rice systems in the hills of northern Laos PDR: Description, challenges and opportunities*. Los Banos, the Philippines: International Rice Research Institute.
- Roder, W., Phouaravanh, B., Phengchanh, S., & Keoboulapha, B. (1995). Relationships between soil, fallow period, weeds and rice yield in slash-and-burn systems of Laos. *Plant Soil*, 176, 27-36.
- Russell, W. (1988). Population, swidden farming and the tropical environment. *Population and Environment*, 10(2), 77-94.
- Sanchez, H.P. (1976). *Properties and management of soils in the tropics*. New York, NY: John Willey and Sons.
- Saon, R. (2012). Technology transfer and technology policy in a developing country. *Journal of Developing Areas*, 46(2), 371-396.
- Sarma, U., & Barpujari, I. (2011). Eco-cosmologies and biodiversity conservation: Continuity and change among the Karbis of Assam. *International Indigenous Policy Journal*, 2(4), 1-10.
- Savina, F.M. (1924). *Histoire des Miao*. Hong Kong: Imprimerie de la Société des Missions Étrangères de Paris. Republished in 1972, Westmead, Farnborough, and Hants, England: Gregg International Publishers Limited.
- Sawathvong, S. (2010, March 10-12). Progress in REDD+ preparation in Lao PDR. Tokyo, Japan. Retrieved from <http://www.rinya.maff.go.jp/j/kaigai/kyoryoku/pdf/sawathvong.pdf>

- Schaller, G.B., & Rabinowitz, A. (1995). The saola or spindlehorn bovid *Pseudoryx nghetinhensis* in Laos. *Oryx*, 29, 107-114.
- Schaller, G.B., & Vrba, E.S. (1996). Description of the giant muntjac (*Megamuntiacus vuquangensis*) in Laos. *Journal of Mammalogy*, 77(3), 675-683.
- Schmidt-Voght, D., Leisz, S.J., Mertz, O., Heinemann, A., Thiha, T., Messerli, P., ... Dao, T.M. (2009). An assessment of trends in the extent of swidden in Southeast Asia. *Human Ecology*, 37(3), 269-280.
- Schönweger, O., & Messerli, P. (2015). Land acquisition, investment, and development in the Lao coffee sector: successes and failures. *Critical Asian Studies*, 47(1), 94-122.
- Scott, G.M. (1982). The Hmong refugee community in San Diego: Theoretical and practical implications of its continuing ethnic solidarity. *Anthropological Quarterly*, 55, 146-160.
- Scott, J.C. (1976). *The moral economy of the peasant: Rebellion and subsistence in Southeast Asia*. New Haven: Yale University Press.
- Scudder, T., & Talbot, L.M. (2003). *Nam Theun 2 hydro project: Sixth report of the international environmental and social panel of experts*. Washington D.C.: The World Bank.
- Scudder, T., & Talbot, L.M. (2004). *Nam Theun 2 Hydro Project: Seventh report of the international environmental and social panel of experts*. Washington D.C.: The World Bank.
- Secretariat of the Convention on Biological Diversity. (2008). *Protected areas in today's world: Their values and benefits for the welfare of the planet*. Montreal: Technical Series No. 36.
- SEMFOP (Social Environment Management Framework and Operational Plan). (2005, September 15). Retrieved from <http://www.namtheun2.com/reports/semfop.html>
- Shi, W. (2008). *Rubber boom in Luang Nam Tha: A transnational perspective*. Vientiane, Lao PDR: GTZ RDMA.
- Simmons, M. (2007). Insider ethnography: Tinker, tailor, researcher or spy? *Nurse Researcher*, 14(4), 7-17.
- Singh, H., Husain, T., Agnihotri, P., Pande, P.C., & Iqbal, M. (2012). Biodiversity conservation through traditional beliefs system: A case study from Kumaon Himalayas, India. *International Journal of Conservation Science*, 3(1), 33-40.
- Singh, S. (2010). Appetites and aspirations: Consuming wildlife in Laos. *The Australian Journal of Anthropology*, 21, 315-331.

- Siriphon, A. (2002). *Opium and the Hmong: The dynamic and complexity of marginal people*. Master Thesis, Chiangmai University.
- Siriphon, A. (2006). Local knowledge, dynamism and the politics of struggle: A case study of the Hmong in northern Thailand. *Journal of Southeast Asian Studies*, 37(1), 65-81.
- Sodhi, N.S., Koh, L.P., Brook, B.W., & Ng, P.K.L. (2004). Southeast Asian biodiversity: An impending disaster. *TRENDS in Ecology and Evolution*, 19(12), 654-659.
- Souksavanh, O., & Gerin, R. (2016, May 16). New Lao Prime Minister issues ban on timber exports. *Radio Free Asia*. Retrieved from <https://www.rfa.org/english/news/laos/new-lao-prime-minister-issues-ban-on-timber-exports-05172016152448.html>
- Sparkes, S. (1997, September). *Ethnicity and in-migration on the Nakai Plateau, Central Laos*. 14th Annual Conference of the Nordic Association of Southeast Asian Studies, Helsinki.
- Sreekar, R., Zhang, K., Xu, J., & Harrison, R. (2015). Yet another empty forest: Considering the conservation value of a recently established tropical nature reserve. *PLoS ONE*, 10(2), 1-18.
- Steinmetz, R. (1996). *Landscape ecology and wildlife habitats: An indigenous Karen perspective in Thung Yai Wildlife Sanctuary of western Thailand*. Bangkok: Wildlife Fund Thailand.
- Steinmetz, R. (1999). The ecological science of the Karen in Thung Yai Naresuan Wildlife Sanctuary, Western Thailand. In M. Colchester & C. Erni (Eds.), *From principles to practice: Indigenous peoples and protected areas in South and Southeast Asia* (pp. 84-107). Copenhagen: IWGIA.
- Steinmetz, R., Seuaturien, N., & Chutipong, W. (2013). Tigers, leopards, and dholes in a half-empty forest: Assessing species interactions in a guild of threatened carnivores. *Biological Conservation*, 163, 68-78.
- Steward, J.H. (1976, c1955). *Theory of culture change: The methodology of multilinear evolution*. Urbana, IL: University of Illinois Press.
- Stewart, M., Xiong, K., & Xiong, X. (2004). Hmong in Laos: Urbanization and adaptation. *UW-L Journal of Undergraduate Research*, VII. Retrieved from https://www.researchgate.net/publication/242112799_Hmong_in_Laos_Urbanization_and_Adaptation
- Stocks, A. (1983). Candoshi and Cocamills swiddens in eastern Peru. *Human Ecology*, 11(1), 69-84.
- Stokstad, E. (2014). The empty forest: A beleaguered national park in Borneo hints at what can happen when animals disappear. *Science*, 345(6195), 396-399.

- Stolton, S., & Dudley, N. (2015). Values and benefits of protected areas. In G.L. Worboys, M. Lockwood, A. Kothari, S. Feary, & I. Pulsford (Eds.), *Protected area governance and management*. The Australian National University, Canberra, Australia: ANU Press.
- Stone, R. (1992). No ordinary ungulate. *Science*, 257(5071), 742.
- Stuart, B.L., & Timmins, R.J. (1999). Conservation status and trade of turtles in Laos. In P.P. van Dijk, B.L. Stuart, & A.G.J. Rhodin (Eds.), *Asian turtle trade: Proceeding of a workshop on conservation and trade of freshwater turtles and tortoises in Asia*. Phnom Penh, Cambodia: Chelonian Research Foundation.
- Stuart-Fox, M. (1986). *Laos: Politics, economics and society (Marxist Regime)*. University College, Cardiff, London: Pinter Publisher.
- Sturgeon, J.C., Menzies, N.K., Lagerqvist, Y.F., Thomas, D., Ekasingh, L., Lebel, L., ... Thongmanivong, S. (2013). Enclosing ethnic minorities and forests in the golden economic quadrangle. *Development and Change*, 44(1), 53-79.
- Surridge, A.K., Timmins, R.J., Hewitt, G.M., & Bell, D.J. (1999). Striped rabbits in Southeast Asia. *Nature*, 400(6746), 726.
- Sutter, J.D. (2014). The most trafficked mammal you've never heard of. Retrieved from <http://edition.cnn.com/interactive/2014/04/opinion/sutter-change-the-list-pangolin-trafficking/>
- Sutton, M.Q., & Anderson, E.N. (2004). *Introduction to cultural ecology*. Walnut Creek, Lanham, New York, Toronto, & Oxford: Rowman & Littlefield Publishers, Inc.
- Suzuki, M. (1993). Feasibility of Japan's yen loans for rural development in Laos, time to help check deforestation and poverty. *IDC FORUM*, 12, 27-41.
- Symonds, P.V. (2004). *Calling in the soul: Gender and the cycle of life in a Hmong village*. Seattle, WA & London, England: University of Washington Press.
- Tapp, N. (1986). *The Hmong of Thailand: Opium people of the golden triangle*. London: Anti-slavery Society.
- Tapp, N. (1989). *Sovereignty and rebellion: The White Hmong of northern Thailand*. Oxford and New York: Oxford University Press.
- Tawil-Souri, H. (2015). Cellular borders: Dis/connecting phone calls in Israel-Palestine. In L. Parks & N. Starosielski (Eds.), *Signal traffic: Critical studies of media infrastructure* (pp. 157-180). Urbana, Chicago, and Springfield, IL: University of Illinois Press.
- Thomas, I.L. (2015). *Drivers of forest change in the greater Mekong subregion*. USAID.

- Thompson, E. (1971). The Moral economy of the English crowd in the eighteenth century. *Past & Present*, 50, 76-136.
- Thongmanivong, S., Phanvilay, K., Fujita, Y., & Fox, J. (n.d.). Agrarian land-use transformation in northern Laos. *Sustainable Sloping Lands and Watershed Management Conference*. Retrieved from http://rightslinklao.org/wp-content/uploads/downloads/2014/11/ch2_07_sithong.pdf
- Timmins, R.J., & Evans, T.D. (1996). *Wildlife and habitat survey of the Nakai-Nam Theun National Biodiversity Conservation Area*. Centre for Protected Areas and Watershed Management. WCS.
- Tiwari, B.K., Barik, S.K., & Tripathi, R.S. (1998). Biodiversity value, status, and strategies for conservation of sacred groves of Meghalaya, India. *Ecosystem Health*, 4(1), 20-32.
- To, P.X. (2009). *Timber markets and trade between Laos and Vietnam: A commodity chain analysis of Vietnamese-driven timber flows*. Washington D.C.: Forest Trends.
- To, P.X., & Canby, K. (2017). *Laos log and sawnwood export ban: Impacts on the Vietnam – Lao timber trade*. Forest Trends Report Series: Forest Policy, Trade, and Finance. Washington D.C.: Forest Trends.
- Tobias, J., Davidson, P., & Robichaud, W. (1998, November). *Nakai-Nam Theun: Can development save one of South-East Asia's last wilderness*. Oriental Bird Club, 28. Retrieved from <http://orientalbirdclub.org/nakainam/>
- Tomforde, M. (2003). The global in the local: Contested resource-use systems of the Karen and Hmong in northern Thailand. *Journal of Southeast Asian Studies*, 34(2), 347-360.
- Tomforde, M. (2005). *The Hmong mountains: Cultural spatiality of the Hmong in northern Thailand*. New Brunswick and London: Transaction Publishers.
- Tookey, D. (1997). Sustainable development in Laos: Prospects for a green Future. *The Journal of Environment & Development*, 6(2), 170-179.
- Tran, D.V., Leisz, S.J., Nguyen, T.L., & Rambo, A.T. (2006). Using traditional swidden agriculture to enhance rural livelihoods in Vietnam's uplands. *Mountain Research and Development*, 26(3), 192-196.
- Trankell, I.B. (1998). The minor part of the nation: Politics of ethnicity in Laos. In I. Trankell & L. Summers (Eds.), *Facets of power and its limitations: Political culture in Southeast Asia*. (pp. 45-64). Uppsala: Department of Cultural Anthropology.
- Trigger, D.S. (1999). Hunter-gatherer peoples and the nation states. In R.B. Lee & R. Daly (Eds.), *The Cambridge encyclopedia of hunters and gatherers* (pp. 473-479). Cambridge: Cambridge University Press.

- Tsing, A.L. (1993). *In the realm of the diamond queen: Marginality in an out-of-the-way place*. Princeton, NJ: Princeton UP.
- Tuan, Y.F. (1977). *Space and place: The perspective of experience*. Minneapolis, MN: University of Minnesota Press.
- Tugault-Lafleur, C., & Turner, T. (2011). Of rice and spice: Hmong livelihoods and diversification in the Northern Vietnam Uplands. In J. Michaud & T. Forsyth (Eds.), *Moving mountains: Ethnicity and livelihoods in highland China, Vietnam, and Laos* (pp. 100-122). Vancouver: UBC Press.
- Tungittiaplakorn, W., & Dearden, P. (2002). Biodiversity conservation and cash crop development in northern Thailand. *Biodiversity and Conservation*, 11, 2007–25.
- Turner, M.D. (1999). No space for participation: Pastoralist narratives and the etiology of park-herder conflict in southeastern Niger. *Land Degradation and Development*, 10(4), 345-363.
- Turner, M.D. (2004). Political ecology and the moral dimensions of “resource conflicts”: The case of farmer-herder conflicts in the Sahel. *Political Geography*, 23, 863-889.
- Turner II, B.L., & Brush, S.B. (Eds). (1987). *Comparative farming systems*. New York, NY: Guilford Press.
- Turner II, B.L., & Robbins, P. (2008). Land-change science and political ecology: Similarities, differences and implications for sustainability science. *Annual Review of Environmental and Resources*, 33, 295-316.
- UNCTAD (United Nations Conference on Trade and Development). (2010). *Information economy report 2010: ICTs, enterprises and poverty alleviation*. Geneva, Switzerland: UN Conference on Trade and Development.
- UNDCP (United Nations International Drug Control Programme). (1999). *A balanced approach to opium elimination in Lao PDR*. Programme des Nations Unies pour le Contrôle et l'Interdiction des Drogues.
- UNODC (United Nations Office on Drugs and Crime). (2015). *Southeast Asia opium survey 2015*. UNODC Illicit Crop Monitoring Programme. Retrieved from http://www.unodc.org/documents/southeastasiaandpacific/Publications/2015/Southeast_Asia_Opium_Survey_2015_web.pdf
- Uyeda, L.T., Iskandar, E., Purbatrapisila, A., Pamungkas, J., Wirsing, A., & Kyes, R.C. (2014). *Oryx*, 50(2), 296-301.

- van Beek, W.E.A., & Banga, P.M. (1992). The Dogon and their trees. In E. Croll and D. Parkin (Eds.), *Bush base: Forest farm: Culture, environment and development*. London and NY: Routledge.
- Van den Breemer, J.P. (1992). Ideas and usage: Environment in Aouan society, Ivory Coast. In E. Croll & D. Parkin (Eds.), *Bush Base: Forest Farm* (pp. 97-109). London: Routledge.
- Vang, P.D., & Bogenschutz, M. (2014). Teenage marriage, and the socioeconomic status of Hmong women. *International Migration*, 52(3), 144-159.
- Viau, J., Keophosay, A., & Castella, J. (2009). *Impact of maize expansion on traditional rice production systems in northern Lao PDR: A case study in Xiengkhor district, Huaphan province*. Vientiane, Laos: Catch-Up Programme, NAFRI.
- Vientiane Times*, (2011, May 23). Paper No. 120.
- Vinnaly. (2013, July 30). Laos approves two more national conservation forests. *Lao News Agency*. Retrieved <http://kpl.net.la/english/news/newsrecord/2013/July/29.7.2013/edn1.htm>
- Vongkhamheng, C., Johnson, A., & Sunkuist, M.E. (2013). A baseline survey of ungulate abundance and distribution in northern Lao: Implications for conservation. *Oryx*, 47(4), 544-552.
- Vongkhamor, S., Phimmasen, K., Silapeth, B., Xayxomphou, B., & Petterson, E. (2007). *Key issues in smallholder rubber planting in Oudomxay and Luang Prabang Provinces, Lao PDR*. NAFRI.
- Vongsaly, B. (1995). Lao environmental law and the implementation of international environmental law in the Lao PDR. *Environmental Treaties – The Asia Pacific Dimension*. Darwin, Australia.
- Vongsiharath, V. (2011). *Forest cover and land-use changes in Lao PDR: According to the national forest reconnaissance survey*. Vientiane, Lao PDR: Department of Forestry.
- Vongvisouk, T., Broegaard, R., Mertz, O., & Thongmanivong, S. (2016). Rush for cash crops and forest protection: Neither land sparing nor land sharing. *Land Use Policy*, 55, 182-192.
- Vongvisouk, T., Mertz, O., Thongmanivong, S., Heinimann, A., & Phanvilay, K. (2014). Shifting cultivation stability and change: Contrasting pathways of land use and livelihood change in Laos. *Applied Geography*, 46, 1-10.
- Vue, P. (2015). The Vietnam War and Its Impacts on the Hmong, *Geopolitics*, 20(4), 749-752, DOI: 10.1080/14650045.2015.1095592

- Vue, W., & Wolff, C., & Goto, K. (2011). Hmong food helps us remember who we are: Perspectives of food culture and health among Hmong women with young children. *Journal of Nutritional Education and Behavior*, 43(3), 199-204.
- Vwj Z.T., Yaj, N.Y., & Bertrais, Y. (1997). *Haiv Hmoob liv xwm [Hmong history]*. Quezon City, the Philippines: Patrimoine Culturel Hmong.
- Wadley, R., & Colfer, C.J.P. (2004). Sacred forest, hunting, and conservation in West Kalimantan, Indonesia. *Human Ecology*, 32(3), 313-338.
- Walker, P.A. (2005). Political ecology: Where is the ecology? *Progress in Human Geography*, 29(1), 72-83.
- Walston, J., Robinson, J.G., Bennett, E.L., Breitenmoser, U., da Fonseca, G., Goodrich, J., Gumal, M., ... Wibisono, H. (2010). Bringing the tiger back from the brink – The six percent solution. *PLoS Biology*, 8(9), 1-4.
- Warf, B. (2013). Geographies of global telephony in the age of the internet. *Geoforum*, 45, 219-229.
- Warr, P.G. (2010, July 2). *Economic change in agriculture: The impact of policy reform*. Retrieved from <http://www.mekonginfo.org/assets/midocs/0002641-farming-economic-change-in-lao-agriculture-the-impact-of-policy-reform.pdf>
- Water Resources Guide Book of Lao P.D.R. Vol. 1.* (2002, September). DMH.
- Watts, M. (2000). Political ecology. In E. Sheppard and T. J. Barnes (Eds.). *A companion to economic geography* (pp. 257-274). Malden, MA: Blackwell.
- Wessing, R. (2006). A community of spirits: People, ancestors, and nature spirit in Java. *Crossroads: An Interdisciplinary Journal of Southeast Asian Studies*, 18(1), 11-111.
- Wijeratne, D., & Lau, S. (2015). *Riding Southeast Asia's automotive highway: Strategies to steer through Southeast Asia's promising automotive market*, PWC.
- Wilkie, D.S., Bennett, E.L., Peres, C.A., & Cunningham, A.A. (2011). The empty forest revisited. *National New York Academy of Science*, 1223, 120-128.
- Wilkie, D.S., Morelli, G.A., Demmer, J., Starkey, M., Telfer, P., & Steil, M. (2006). Parks and people: Assessing the human welfare effects of establishing protected areas for biodiversity conservation. *Conservation Biology*, 20(1), 247-249.
- Windle, J. (2018). Why do South-east Asian states choose to suppress opium? A cross-case comparison. *Third World Quarterly*, 39(2), 366-384, DOI: 10.1080/01436597.2017.1376582

- WMPA (Watershed Management and Protection Authority). (2013, September 15). *Overview of WMPA organization and formation*. Retrieved from http://nt2wmpa.gov.la/wp-content/uploads/2011/05/FactSheet_Overview-of-WMPA-organization-formation_Draft.docx
- Wood, B., Nelson, C., Kilic, T., & Murray, S. (2013). *Up in smoke? Agricultural commercialization, rising food prices and stunting in Malawi*. The World Bank.
- Woods, D. (2003). The tragedy of the cocoa: Rent-seeking, land and ethnic conflict in Ivory Coast. *The Journal of Modern African Studies*, 41(4), 641-655.
- World Bank. (1989). *Tropical Forestry Action Plan (TFAP). Technical note, 9*. Washington D.C.: World Bank. Retrieved from <http://documents.worldbank.org/curated/en/160311468329071868/pdf/811880BR0IDA0T0official0use0only090.pdf>
- World Bank. (2007). *Lao PDR Public Expenditure Review Integrated Fiduciary Assessment*. Washington D.C.: East Asia and the Pacific Regional Office.
- World Bank. (2018a, January 22). Retrieved from <https://data.worldbank.org/indicator/AG.LND.ARBL.ZS>
- World Bank. (2018b, April 16). Retrieved from <https://data.worldbank.org/indicator/AG.LND.FRST.ZS>
- Woxvold, I.A., Duckworth, J.W., & Timmins, R.J. (2009). An unusual new bulbul (*Passeriformes pycnonotidae*) from the Limestone karst of Lao PDR. *Forktail*, 25, 1-12.
- Wu, W., & Fan, D.L. (2011). The relationship between the biodiversity conservation and the traditional beliefs of the native people in Dalai Lake Biosphere Reserve. *Advanced Materials Research*, 295-297, 574-580.
- Xinhua News Agency. (2017, June 26). Laos to benefit from new technology and innovation center. *Xinhua News Agency*.
- Yamamoto, Y., Oberthür, T., & Lefroy, R. (2009). Spatial identification by satellite imagery of the crop-fallow rotation cycle in northern Laos. *Environment, Development and Sustainability*, 11, 639-654.
- Yamane, M., & Chanthirath, K. (2000). Lao cypress forests: Causes of degradation and the present state of conservation in Lao P.D.R. *International Review for Environmental Strategies*, 1(1), 119-133.
- Yang, D. (1992). The Hmong: Enduring traditions. In J. Lewis & D. Tayanin (Eds.), *Minority cultures of Laos: Kammu, Lua', Lahu, Hmong, and Mien*. CA: Southeast Asia Community.

- Yang, K. (1996). The Hmong are not Mongols. Retrieved from <http://www.oocities.org/hmongarenotmongols/>
- Yin, S. (2001). *People and forests – Yunnan swidden agriculture in human-ecological perspective*. Kunming: Yunnan Education Publishing House.
- Yoon, C.K. (1999, May 4). Turtles vanish in black hole: Soup pots and pans of China. *The New York Times*. Retrieved from <https://www.nytimes.com/1999/05/04/science/turtles-vanish-in-black-hole-soup-pots-and-pans-of-china.html>
- Zhang, M., Gouveia, A., Qin, T., Quan, R., & Nijman, V. (2017). Illegal pangolin trade in northernmost Myanmar and its links to India and China. *Global Ecology and Conservation*, 10, 23-31.
- Ziegler, A.D., Agus, R., Bruun, T.B., van Noordwijk, M., Lam, N.T., Lawrence, D., ...Padoch.C. (2009). Environmental consequences of the demise in swidden in montane mainland Southeast Asia: Hydrology and geomorphology. *Human Ecology*, 37(3) 361-373.
- Ziegler, A.D., Fox, J.M., & Xu, J. (2009). The rubber juggernaut. *Science*, 324(5930), 1024-1025.
- Zimmerer, K. (2000). The reworking of conservation geographies: Nonequilibrium landscapes and nature-society hybrids. *Annals of the Association of American Geographers*, 90(2), 356-369.
- Zimmerer, K. (2004). Cultural ecology: Placing households in human-environment studies – The cases of tropical forest transitions and agrobiodiversity change. *Progress in Human Geography*, 26(6), 795-806.
- Zimmerer, K. (2006). Cultural ecology: At the interface with political ecology – The new geographies of environmental conservation and globalization. *Progress in Human Geography*, 30(1), 63-78.
- Zimmerer, K., & Bassett, T. (Eds.) (2003). *Political ecology: An integrative approach to geography and environment-development studies*. New York: Guilford Press.