

**Community-based River Conservation in the Ngao River Basin:
Inland Fisheries for Food Security, Self-determination, and New
Futures of Conservation in Thailand**

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Abstract

This thesis explores the emergence and implications of community-based river conservation programs that effectively manage inland fisheries by ethnic minority Karen communities in the Ngao River basin in Northern Thailand. By remotely collaborating with a local research assistant, the study generated qualitative data through group and individual interviews with 40 community members and two key informants, participant observation, and community mapping exercises. I draw on frameworks such as rooted networks and collectives to consider the role of various actors and materialities in determining effective conservation that contributes to community needs. The study found that the interplay of communities' networked relations centred the role of formalized river conservation in contributing to food security and self-determination in the face of a state-initiated exclusionary protected area. Shifting discourse from forests to rivers can contribute to an ontological redefinition of conservation in Thailand that counters longstanding marginalization of the Karen from resource governance arrangements.

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List of Abbreviations

CBC – Community-based conservation

CBNRM – Community-based natural resource management

DCCCN – Development Center for Children and Community Network

DNP – Department of National Parks, Wildlife and Plant Conservation

DOF – Department of Fisheries

EGAT – Electricity Generating Authority of Thailand

LRA – Local research assistant

MNNP – Mae Ngao National Park

NGO – Nongovernmental organization

RFD – Royal Forestry Department

RID – Royal Irrigation Department

Chapter 1

Introduction

The case of community-based river conservation in the Ngao River basin

At first Mae Lui village appears like any other Pga K'nyau (also known as Sgaw Karen, or more simply "Karen", as this group of people will be referred to hereafter) village in Northern Thailand. After all, if James Scott (2009) is right, ethnic Karen, like other upland groups, historically desired distance from urbanized lowland centres and thus it is not surprising that this area is still relatively underdeveloped, much like other remote upland villages, compared with the more accessible lowland settlements. The paved road does not reach the village, so my host family's house is frequently dusty from the many vehicles that stop at their shop for gas and snacks, it is one of two options in town for these supplies. Daytime is relatively quiet, as the kids are in school and the able-bodied adults are working somewhere, likely in the soybean fields on the outskirts of the village. Thus, one can constantly hear the muted rush of water coming from the nearby Ngao River. This river, unbeknownst to the uninformed visitor, obscures what is perhaps the most remarkable feature of this place. The Ngao, aptly named for its glistening surface, is certainly a beautiful sight to the appreciative eye, but this external beauty is only part of the picture. Hidden beneath the surface is a trove of life difficult to find in other rivers in Thailand these days.¹

¹ This comparison represents a popular narrative amongst those in Thailand who know of Ngao River. It is also corroborated by the local research assistant and one of the translators, who have remarked that the rivers in their

I was introduced to Mae Lui village, and others in the river basin, through a colleague, Dr. Aaron Koning, while he was conducting postdoctoral research to better understand the impact of community-based river conservation on local fisheries. As an ecologist and limnologist, Dr. Koning was particularly interested in the effects of relatively small protected areas along the river (small compared to marine protected areas) on aquatic ecologies. Communities have banned the harvesting of aquatic life inside these protected areas, referred to as river reserves. Community river conservation also includes other practices, which I will discuss further in Chapter 4. First adopted by Mae Lui village, river conservation practices have since spread to over 50 communities in the Ngao River basin (Koning et al., 2020). Particularly notable about this case is that community conservation maintains fish populations, and the overall ecological structure, despite intensive fishing activity to support local livelihoods (Koning & McIntyre, 2021). The salience of this case is emphasized by the lack of attention given to inland capture fisheries by policymakers worldwide, a need to ontologically rethink the nature of conservation globally, and a need for more examples of effective community-based conservation programs.

Conservation and development: Reconciling tradeoffs or an issue of ontology

The entrance into the Anthropocene epoch has raised questions about the ability of the Earth and its biosphere to maintain resilience in the face of human-impact trends since the industrial revolution (Chakrabarty, 2009; Rockström et. al., 2009; Steffen et. al., 2015). This has

hometowns (also Karen villages in nearby parts of Northern Thailand) are more bereft of aquatic life and tend to be dominated by the invasive Nile tilapia (*Oreochromis niloticus*).

reinvigorated calls to “protect” spaces of “pristine” Nature² to counter negative human impacts, emphasized perhaps most strongly in E. O. Wilson’s (2017) “Half-Earth” proposal. The issues with this and similar proposals are numerous (see Büscher & Fletcher, 2020), but in this thesis I focus on the consequences of this paradigm for social justice. Conservation strategies that seek to protect Nature typically do so in the form of protected areas, such as national parks, that subsequently dislocate, or significantly infringe upon, Indigenous peoples all over the world (Adams & Hutton, 2007; Dowie, 2009; Igou, 2004). Given these injustices, alternatives must be explored. Conservation, as a concept, is not inherently the problem. The premise of changing course from the uninhibited capitalistic development of natural resources that has defined the past two centuries is essential to curbing the worrying trends of the Anthropocene. Rather, it is the ways in which conservation is ontologically conceived and enacted that manifests issues.

Conservation and development have been understood and enacted with varying degrees of compatibility over time. According to the *Dictionary of Human Geography*, conservation is “[t]he maintenance of resources for future use, commonly by protecting species, habitats, natural resources, and human-made objects such as buildings or historic districts from uses that would diminish or even eliminate them” (Rogers et al., 2013a). Meanwhile, the dictionary defines development as “[t]he processes of growth and change, at individual, community, and social levels” (Rogers et al., 2013b). At one extreme, conservation takes the form of “preservation”, implying an absence of human use or interaction and an antagonism to development. At the opposite extreme, development is overemphasized in the “extractive imperative” concept, in

² I capitalize Nature to acknowledge it is only made “real” by specific ontologies. This will be elaborated in Chapter 5.

which resource extraction is framed as necessary to the development of a national economy as a source of income, employment generation, and financing for social policy expenditure and investment in infrastructure (Arsel et al, 2016), and conservation is downplayed or ignored. However, there are many intermediate approaches in which conservation and development are seen as co-productive (e.g., sustainable development). The key considerations to achieving both conservation and development goals are *how* conservation and development practices are conceived and enacted, and for and by *whom*.

Community-based conservation (CBC) has long been proposed by scholars and activists in Southeast Asia and globally as a viable option to meet conservation and development goals. As an alternative to state organized conservation that is perceived to be failing, CBC, like community-based natural resource management (CBNRM), is based on the idea that older or “traditional” management practices by local resource users can be mobilized and formalized, sometimes with scientifically informed intervention, to ensure the long-term sustainability of resources while providing for human needs (Agrawal & Gibson, 1999; Berkes, 2004; Ostrom, 1990). Despite this awareness and the work of many “people-centred” conservation advocates, CBNRM and CBC programs have seen mixed success (Brosius et al., 1998; Büscher & Fletcher, 2020; Dressler et al., 2010).

The conceptual reasons for the mixed success in CBC and CBNRM arrangements will be further explored in Chapter 4. Here, focusing on Thailand, the mixed success of CBNRM and CBC can be seen in a few examples. Communities in mangrove ecologies have found support from those government agencies who are more understanding, or at least not opposed, to CBNRM and CBC, such as the Department of Marine and Coastal Resources (Kongkeaw et al.,

2019). However, ethnic minority communities in upland forested areas have faced significant difficulties in gaining the trust of state forest conservation authorities. While accepting the management regime nominally, the Thai state agencies in charge of forests, particularly the Royal Forestry Department (RFD) and Department of National Parks, Wildlife and Plant Conservation (DNP), are reluctant to devolve meaningful power over natural resource management to upland ethnic minority communities.³ This is evident through several land policies. These policies include the extensive creation of state-managed national parks and wildlife sanctuaries that cover an estimated 19% of Thailand's land area (Singh et al., 2021), mostly in the north and west of the country. There has been a very limited creation of "co-management" protected areas, which have also been subjected to extensive criticisms as they do not necessarily include local people adequately (Fennell et al., 2008). The state has also avoided other strategies such as community land title that would grant private property rights to a community, preferring instead the less secure and condition filled household-based land document, called *Kor Tor Chor*, that cannot be applied to the steeply sloped land (commonly characteristic of upland areas) or within existing protected areas (Wittayapak & Baird, 2018).

While *de jure* CBNRM and CBC regimes remain elusive outside of mangrove areas, there are prolific *de facto* examples all over the country, especially in the more remote upland areas. Of course, not all *de facto* CBNRM and CBC regimes are sustainably managing resources, and there remains a gap between academic understanding of CBNRM and CBC and the

³ These two agencies receive the most attention in this thesis due to their administration of land-based protected areas, primarily wildlife sanctuaries and national parks, in Thailand. These spaces were first created in the early 1960's under the administration of the RFD, and then later by the DNP, which was separated out from the RFD in 2002.

difficulties faced in on-the-ground implementation (Shackleton et. al., 2010). Thus, it may prove insightful to study successful cases. This is especially so for the ones that have managed to do so without significant outside interventions (e.g., state agency or international NGO sponsored programs), so that scholars and policymakers may better understand the development possibilities from marginalized peoples themselves (Gibson-Graham, 2005). It is important for scholars and policymakers to better comprehend this process because “bottom-up” CBC programs more effectively contribute to local peoples’ self-determination and to long-term conservation than conservation programs controlled by state, nongovernmental, and private actors (Dawson et al., 2021; Reed et al., 2021). This will be further explored in Chapter 4.

It is also important to consider further how conservation is ontologically conceived and enacted. In its broadest sense, ontology refers to “a set of beliefs and arguments about what exists or is real” (Rogers et al., 2013d). Mario Blaser (2009) expands on this definition noting that ontologies are political because they are enacted in practice by assemblages of humans and nonhumans. In other words, what objects *are* must not be taken as a given and rather must be understood as contested by multiple assemblages of agents that enact objects to be specific *things* through practices (Mol, 1999). For example, exploring the environmental conflict over water in the Klamath Basin, Carolan (2004) showcased how different groups such as agriculturalists, Indigenous fishers, conservationists, and water scientists engaged with water through specific practices and each in turn had very different conceptions of water. For the agriculturalists, water is a resource to irrigate crops but, for the conservationists, water is an ecosystem that gives life to endangered fish. Thus, water is a different *thing* to each of these groups. This contestation of ontologies elucidates why conflict persists in the Klamath Basin (Carolan, 2004).

Ontological difference can thus explain the origin of environmental conflicts, including those concerning conservation, and why many conflicts continue to persist despite mediation efforts. Many environmental conflicts are between a modernist ontology, which tends to be dominant, and nonmodernist ontology. While this dichotomy is a dramatic simplification, a key characteristic of a modernist ontology noted by Latour (1991/1993) is the Cartesian dualism between Nature and Society. This dualism differentiates it from nonmodernist ontologies, which may, for example, hold a more relational understanding of humans and their environments. Büscher and Fletcher (2020) argue that this dualism is fundamental to mainstream conservation and neoprotectionism, in which the latter represents the recent “back to the barriers” push for more protected areas.⁴ These kinds of conservation approaches reproduce colonial relations (Agrawal, 1997; Neumann, 2002) and assimilate local communities and ecologies into capital circuits (Büscher et al., 2014; Igoe & Brockington, 2007) to the detriment of the local communities and to the ecologies that these actions are meant to “conserve”. Paying attention to nonmodernist ontologies of conservation in which Society and Nature are not perceived as separate is thus vital to address the shortcomings of conservation in social justice thus far. Nonmodernist ontologies of conservation may be enacted through CBC programs, and this will be explored further in Chapter 5.

⁴ They also argue that some “new conservation” approaches also failed to address this dualism because these approaches were integrated with capitalist systems of accumulation, which are also fundamentally based in an ontological separation of Nature and Society (Büscher & Fletcher, 2020).

Inland capture fisheries: An understudied and underappreciated entity

One of the most pressing impacts of anthropogenic climate change is on freshwater resources. In 2010, it was found that nearly 80 percent of the world's population was facing significant freshwater issues and that the world's poorer nations are far less equipped to handle these issues (Vörösmarty et al., 2010). Both have likely only increased in severity since. While freshwater issues are receiving attention by policymakers and development stakeholders, this attention does not appear to extend to the aquatic life that inhabit freshwater systems, including fisheries (Cooke et al., 2016; Lynch et al., 2020; Opperman et al., 2020). This is problematic because of the significant role of inland capture fisheries for livelihoods, food security, and sustainable development, particularly in the “Global South” and for the most marginalized peoples (Bennett et al., 2018; Funge-Smith & Bennett, 2019). Inland fisheries are not immune to the effects of climate change, which exacerbates inland fisheries declines and loss of biodiversity and subsequently produces further vulnerability for those dependent on them (Kano et al., 2016; McIntyre, 2016; Welcomme et al., 2010).

A partial explanation for the lack of attention to inland fisheries lies in the fact that they have been notoriously difficult for scholars and policymakers to quantify (Allan et al., 2005). Funge-Smith and Bennett (2019) provided further insight with claim that “[t]he same factors which make inland fisheries difficult to track (their rural, highly dispersed, informal nature), also underlie their crucial contributions to the rural poor and food insecure” (p. 1189). Fluet-Chouinard et al. (2018) found that existing data were vastly underreported based on analysis from "household consumption and expenditure surveys", which were administered by national governments to find out how much of various types of food people were eating. Conducted in 42

countries, these surveys found that that people consume about 63% more wild caught freshwater fish than previously thought (Fluet-Chouinard et al., 2018). The significant dependence of marginalized peoples on inland fisheries highlights how disastrous mismanagement of these resources could be (McIntyre et al., 2016). However, proper management remains elusive because freshwater ecologies can be incredibly complex and understanding the cascading effects of fishing effort on various local fish assemblages challenges scientists and policymakers (Welcomme et al., 2010). Inland capture fisheries thus represent a critical sector worthy of more focused study globally.

Inland capture fisheries in Southeast Asia deserve particular attention due to the high catch and consumption of freshwater fish across the region. Thailand, Cambodia, and Myanmar/Burma make up three of the seven countries that contribute to 80% of the total global inland fisheries catch (Funge-Smith & Bennett, 2019). It is important to note that Thailand is one of the countries in which the total catch is known to be underreported (Fluet-Chouinard et al., 2018). Additionally, given that aggregated national data may obscure high levels of heterogeneity of per capita fish consumption by subnational division (Funge-Smith & Bennett, 2019), inland fisheries may be even more significant than estimates based on Thai national statistics for remote upland areas such as the Ngao River basin, where local people cannot easily access alternative protein sources. However, upland river ecologies have received much less attention and research relative to large lowland river ecologies like the Mekong despite the potential significance that these ecologies hold for upland peoples.

Furthermore, inland capture fisheries in Southeast Asia are severely threatened by a regional focus on large-scale water development projects. Governments in the region tend to

downplay the significance of inland fisheries and frame them as a “doomed resource” or as part of a “backwards livelihood” that is a reasonable tradeoff for the benefits of large-scale projects for hydropower and irrigation (Arthur & Friend, 2011; Sneddon & Fox, 2012). However, these projects can have serious repercussions for river ecologies and the sustainability of inland capture fisheries.

In seeking to address these risks, this thesis considers how further investigation of CBC of inland capture fisheries is merited, drawing on the evidence that CBC programs can meet both conservation and development objectives (Adams et al., 2004; Berkes, 2004). While scholars have identified some local communities that successfully manage inland fisheries, including for conservation (Baird, 2006; Khumsri et al., 2009; Loury & Ainsley, 2020; Loury et al., 2018), more research is needed to understand why and how communities initiate and continue to implement such conservation programs. However, to avoid falling into the trend in the social sciences of fisheries to focus on problem solving issues of “poorly defined property rights, mismanagement and institutional failures” (Sneddon & Fox, 2012, p. 280), attention must also be paid to wider social, political, and economic trajectories and histories that shape and constrain community resource managers and the ecologies in which they are embedded (Cleaver & de Koning, 2015). Thus, this thesis seeks to contribute to the social sciences literature on inland fisheries by centring the role of local communities but locating them within broader networks of various actors, power structures, materialities, and place-based histories to better understand effective and socially-just inland fisheries management.

Research questions and main arguments

My experiences highlighted in the beginning of this chapter piqued my interest and sparked my master's research to address the gaps identified above. While my colleague, Dr. Koning, was focused on community conservation's impact on fish, I sought to further explore this river conservation program's social dimensions. How did such an effective conservation program arise? What does it mean for these marginalized peoples? These general questions were refined to guide my research inquiry as:

1. Why and how did the Ngao communities create formalized river conservation programs?
2. What has been the role of river conservation in the Ngao communities from its formal initiation until today?
3. Does community-based river conservation contribute to new worldmaking possibilities for these communities, and how?

This thesis thus seeks to contribute to a deepened understanding of Karen relations with fish and rivers in Thailand. Typically, literature on the Karen focuses on forests, especially in relation to struggles over access to resources. Given the centrality of swidden agriculture for Karen livelihoods and identity, this focus has some salience. However, Karen livelihoods are multi-faceted, and thus more attention should be paid to the importance of other ecologies such as rivers (e.g., Lamb, 2014). I argue that Karen riverine livelihoods are essential to their wellbeing, at least in the Ngao River basin where aquatic plants and animals play a central role in local food security. I focus on two communities in the Ngao River basin as study sites (see Fig. 1). River conservation represents a proactive measure by Ngao communities to ensure food security for

current and future generations and this is a key factor in the successful management of inland fisheries.



Figure 1. Location of the study sites: (a) shows an approximate location of the Ngao River basin within Thailand, adapted from the US Library of Congress Geography and Map Division Washington, D.C. 20540-4650 USA dcu <http://hdl.loc.gov/loc.gmd/g8000.ct001587> (b) shows the Mae Ngao National Park with the locations of Mae Lui and Na Doi Villages, adapted from the Thailand Department of National Parks, Wildlife and Plant Conservation http://park.dnp.go.th/visitor/nationparkshow.php?PTA_CODE=9112

Additionally, I argue that river conservation contributes to Ngao communities' self-determination. There is a strong indication that community river conservation programs have helped Ngao communities resist potentially severe livelihood restrictions or even evictions from the delineation of the proposed Mae Ngao National Park (MNNP) in the river basin. This contribution to self-determination is another key factor in successful management of inland fisheries. By taking an ontological lens, I assert that community river conservation may further

contribute to self-determination by reshaping national narratives of what comprises effective conservation practices. Recognition and legitimization of Ngao communities' ontological conceptualization of conservation could make new worlds with increased self-determination for Karen peoples in Thailand.

Outline of the thesis

This thesis is structured around two main manuscripts. Chapters 4 and 5 are written to stand alone for publication in peer reviewed journals. The language I use and the framing of the research in each of these chapters vary to reflect the styles and approaches of the intended journals. At the time of submitting this thesis, Chapter 4 has been submitted to the journal *Society and Natural Resources*, which invited me to resubmit the manuscript after major revisions. The chapter reflects some of the suggested revisions. I intend to submit Chapter 5 to the journal *Conservation and Society*. These two chapters present the main findings of my research, and the others support them by providing further detail on the context, formulation, conduct, and implications of the research. There will be some inevitable repetition between chapters, but I try to avoid this when possible.

Chapter 2 will introduce the background and key conceptual theory for this thesis. I provide background on Karen struggles to access natural resources in Thailand and address how this thesis will contribute to and build on that literature. Some of this background will be utilized again in Chapters 4 and 5, but to a lesser extent. Following is a detailed outline of the overarching concepts of this thesis and review of the relevant literature. Further elaboration and additional concepts are included as needed in Chapters 4 and 5.

Chapter 3 will elucidate the research design. I explain the evolution from my original research design in the research proposal through the changes to adapt to the realities of international research during the COVID-19 pandemic. This chapter draws from a reflection of mine entitled “Reflections on conducting community-engaged research during COVID-19” published in *New Sociology: Journal of Critical Praxis* (Duker, 2021). I expand on this reflection to detail the research sites and the specific methods used in this study. Chapters 4 and 5 also repeat some of this material.

Chapter 4 is the first of the findings chapters and represents the more empirical of the two chapters. This chapter addresses the first two research questions. It explains how and why communities started river conservation, considering how river conservation has been an effective response to community needs. The main thrust of the chapter is that community-based river conservation emerged and spread throughout the river basin as a response to threats to food security and political marginalization posed by outsiders, such as the Thai state, and that it has been relatively effective at doing so. The chapter provides a detailed history of formalized river conservation’s emergence in the Ngao River basin and thoroughly describes how communities have institutionalized it. It also considers how communities’ riverine livelihoods enabled their observation and experience of the benefits of river conservation. This material will be of interest to scholars and policymakers seeking to understand and foster community-based conservation and natural resource management programs, especially for inland fisheries.

Chapter 5 follows as the more theoretical of the two findings chapters. It addresses the third research question and considers the role of river conservation for the future of Karen communities in Thailand. I dive deeper into the significance of Ngao communities making fish

visible, which is first introduced in Chapter 4, and of the nonmodernist ontology of conservation they enact. Chapter 5 presents a theoretical argument using ontological politics as a framework to understand the nature of environmental conflict in Thailand over conservation and advocates for shifting discourses from forests to rivers to move forward in this conflict. I argue that doing so will elevate and legitimize Karen community-based conservation across Thailand. This study demonstrates how looking to the worldmaking possibilities of different collectives of humans and nonhumans may offer ways forward for marginalized groups in ontological conflicts over environmental management.

The thesis is brought to a synthesis in Chapter 6, the conclusion. This chapter sheds light on the ways in which inland fisheries and CBC stand to support each other in Thailand. I find that inland fisheries make visible and legitimize CBC, and that CBC makes visible and legitimizes inland fisheries. While the study is set in Thailand and has important implications in the struggles for self-determination by marginalized Karen peoples, it also offers insight for scholars and policymakers globally to understand the importance of materiality and the place-based relations and ontologies of local peoples to answer questions about reconciling the differences between conservation and development in the Anthropocene.

Chapter 2

Background and Conceptual Framework

Introduction

The purpose of this chapter is to provide context for the rest of the thesis. First, I provide a background on the Karen in Thailand, focusing on the issues faced since the Thai state began to concentrate on state-building during Southeast Asia's colonial era. While the goal of this thesis is to bring attention to rivers and fish, here I must focus primarily on forests as these ecologies have been at the centre of state policies that either displace Karen communities or severely reduce their livelihood opportunities. In response, Karen communities in spaces delineated as state-managed forest have struggled to maintain and legitimize their residence and livelihoods. Additionally, these dynamics have received the bulk of the attention in the academic literature. By exploring these state-community conflicts over forest access, I identify gaps and the ways in which my research can build on this literature. I will then introduce my conceptual framework for the thesis but Chapters 4 and 5 will expand further as relevant for the arguments presented in those chapters.

Background on the Karen in Thailand: Legacies of racialization and forest control

Who are the Karen?

All academic work about the Karen must acknowledge how “Karen-ness” and their racialized ethnic identity have been discursive tools utilized in various ways by both the Thai

state and by Karen communities themselves. Narratives inherently shape everything about the Karen and what they do. The most common narratives have long-standing historical roots in the complex social dynamics of Southeast Asia.

Karen identity was produced both internally and externally. The word “Karen” has origins in the Mon term “Kariang” which, pronounced as “Kayin” in Burmese, was then spoken as “Karen” in English, holding onto the original “r” sound (Renard, 2004). In fact, a monolithic “Karen” identity never existed and multiple groups of people with varying degrees of similar culture and language were somewhat arbitrarily grouped together into what we know today as the Karen. The labelling as “Kariang” or “Kayin” was originally a signification of a “cultural outsider” or “Other” that was due, in part, to their residence in upland forested areas and was placed in opposition to “civilized” lowlanders (Laungaramsri, 2004). Although, it should be noted that this upland-lowland dynamic is not unique to the peoples grouped as Karen and included most other ethnic groups that resided at higher elevations.

Historically, dynamics between Karen peoples and lowlanders were not always negative, despite the Othering, but the Karen did seek to distance themselves from lowland kingdoms. Scott (2009) has powerfully argued that prior to the 20th century residing in upland areas was a deliberate decision by the Karen and other upland groups to reduce the power that lowland groups held over them. In the patronage systems common throughout precolonial Southeast Asia, the extent of power decreased with distance from the kingdom centres and lordships that were commonplace throughout the lowlands (Vandergeest & Peluso, 1995). Thus, by living in the uplands the Karen were on the fringes of lowland influence. However, the Karen were involved in numerous social and economic relationships with lowland societies, mostly as patronage or

tributary systems (Lauraramsri, 2003). In fact, the relatively higher extent of interaction by the Karen with lowland groups (of which Tai is the majority ethnic group) earned them a “place within the pre-modern Tai society [that] was... of an ‘in between’ and they were considered ‘the holder of the wild for the sown’” (Laungaramsri, 2003, p. 159) and as “guardians of the forest” (Laungaramsri, 2004, p. 25). This distinguished the Karen from other upland residing ethnic groups. Essential to the construction of these Othering terms was the dichotomy of “civilization”, that was typical of the lowland perception of their own residence in the lowlands, in antagonism with the “wildness” of the forested uplands and its residents (Wittayapak, 2008; Winichakul, 2000).

However, Karen identity was not merely imposed on them by other ethnic groups. There are also aspects of identity that Karen peoples find in common with each other and outwardly express to the world. While Karen peoples did not traditionally keep written historical records, involvement with Christian missionaries established written accounts of some people outwardly claiming their Karen identity in the 19th century (Renard, 2004). Additionally, Gravers (2012) notes the existence of a “Karen royal imaginary” that spans across different groups of Karen in Thailand and Burma. Scholars also note the use of the metaphor of the Karen as “orphans” across multiple study sites in the region (Gravers, 2012; Renard, 2004). Assertion of their own unique identity became particularly important to Karen peoples after the emergence of nation-states with their subsequent nation-building projects and the resulting marginalization that they experienced.

Political forests: State-building, territorialization, and ethnic marginalization in Thailand

While my study focuses more on rivers and their politics and ecologies, the “political forest” has been overwhelming instrumental in shaping and constraining the lives and livelihoods of the Karen. Rather than “seeing a forest for the trees”, the concept of “political forests” recognizes that forests “are created and always in the process of being created through politics and cultural ways of seeing, as well as through “nature’s agency” or biological, ecological, and socio-natural processes” (Peluso & Vandergeest, 2020, p. 1089). The ways in which state conceptions about forests were mobilized, as well as resisted by groups like the Karen, were the result of the complicated interplay between territorialization, racialization, and ontological difference. Therefore, a discussion of the role of forest resource and land control is essential prior to conceptualizing that of rivers and fish.

The relationship between power, people, and land drastically shifted in what is now called Thailand during the period of colonization in Southeast Asia in the nineteenth century (then referred to as “Siam”). Historically, tributary and patronage systems had organized power relationships around the control of people rather than land. However, with increasing pressure from colonized neighbors that were attempting to demarcate the spatial extent of their access to resources, the Siamese monarchy then shifted to exert its power to establish and control national spatial boundaries as part of its state-building efforts to remain sovereign from foreign powers (Vandergeest & Peluso, 1995). The borderlands between what is now Thailand and its colonized neighbors then became those areas that had traditionally been outside of control from lowland power centres, the upland forests. In its shift to controlling land as well as people, the Thai state began a process of creating internal administration systems and had adopted a Westernized land

code, whereby land was either administered as private land via cadastral surveys or claimed as state-owned land if considered as “unoccupied” (Vandergeest & Peluso, 1995). Borderland areas, with their upland forests, were almost exclusively placed under the latter category.⁵ Thus, began the process of *territorialization* that “[was] about excluding or including people within particular geographic boundaries, and about controlling what people do and their access to natural resources within those boundaries” (Vandergeest & Peluso, 1995, p. 388). Over the next few decades, the status of people residing in forested areas underwent varying states of precarity due to frequent shifts in land laws as there were constant frictions between the abstractions of land policy, the material implementation of policy by government agencies, and the lived realities of people on the ground.

While the control of land became increasingly important, the Thai state did not lose sight of the control of people. In addition to territorialization, another major nation-building project was the formulation of “Thai-ness” and the homogenization of the peoples within its borders (Laungaramsri, 2003). This occurred through the institutionalization of Thai nationalism, based on ethnic Tai culture of the Chao Phraya River delta (what is now known as Central Thailand). Ethnic heterogeneity thus became a problem. Ethnic identification then became a tool of inclusion and exclusion by the Thai state. Language, religion, livelihood practices, and political and geographical organization were the criteria for hierarchical ethnic classes and over time the main distinction grew to be that between those grouped as lowland, considered as “Thai”, and upland peoples, considered as “hill tribes” (Laungaramsri, 2004; Wittayapak, 2008). The

⁵ With the exceptions of some privately owned timberlands and plantations.

importance of ethnicity, which signifies unique culture and language, for nation-building can be seen in the Thai word for nation, “chat”, that originates in a sanskrit word that “was initially used to mean people who share a common language and culture” (Laungaramsri, 2003, p. 161). Thus, nationalism was intricately tied with ethnicity and culture, and ethnic heterogeneity was perceived to threaten national security. I follow Vandergeest (2003) in seeing the weaponization of ethnicity by the Thai state through the concept of *racialization*, which “often builds on ethnic differences, by stereotyping them and making them the basis of discriminatory practices such as the exclusion of stereotyped ethnic groups from many citizenship rights” (p. 21). Upland peoples were initially racialized as “khon pa”, meaning “wild peoples” or “forest peoples”, in which forests and wildness were synonymous in the imaginaries of the elites in the ethnic Tai lowlands (Laungaramsri, 2004). The Karen were included in this category, despite the extensive history of mutually beneficial relationships, but were endowed with a slightly elevated status when compared to some other upland groups (such as the Hmong).

This identification of upland peoples with “wildness” is best understood in relation to the lowland Tai preoccupation with “siwilai”. “Siwilai” can be translated as “civilization”, and connotes notions of development, progress, and modernity (Winichakul, 2000). Civilization was affiliated with the relatively urbanized lowlands, in juxtaposition with the wildness of the uplands. The significance of these affiliations can be seen in relation to lowland Tai perceptions of different peoples. European and other Western cultures were considered an external Other to be *emulated* because they were affiliated with civilization (Winichakul, 2000). Meanwhile, upland peoples were considered an internal Other to be *marginalized* because they were affiliated with wildness (Laungaramsri, 2004). “Khon pa” evolved into “chao khao”, which has

the dual meaning of both “mountain people”, characterized by their residence in upland areas, and “other people” signifying the naturalization of their status as Other. Discourse shifted from representing upland peoples as a “wild” group that was subordinate but free to maintain relative independence, to a group that needs to be controlled. These now border areas became sites of concern for national security and “turned cultural differences into signs of the putative disloyalty and unlawfulness of the hill peoples” (Laungaramsri, 2004, p. 31). With this assumed need for control, the Thai state was able to justify interventions in upland areas.

The need to control people was used in conjunction with *ontological differences* between upland peoples and the Thai state in their conceptions of Nature, whereby the state’s conception further rationalized state interventions in the uplands. The Royal Forestry Department (RFD) was created at the end of the 19th century so that the Thai state could appropriate value from the lucrative teak industry (Vandergeest, 1996a). This led to the vilification of upland peoples’ traditional forms of agriculture. While not the only form of agriculture practised by upland peoples, and while individual families may practise a diverse range of agricultural practices, swidden agriculture has been and continues to be an important food production practice in upland ecologies. Swidden comprises many different place and culturally based practices but can be roughly generalized as an agricultural practice that shifts locations of fields based on varying periods of cultivation and fallow. Additionally, swidden agriculture was not practised exclusively by upland peoples but also by many lowland peoples. Nonetheless, a derogatory framing of swidden agriculture as “slash and burn” became naturalized with upland peoples due to the tendency of both academic and nonacademic depictions of upland peoples to solidify the narrative that upland peoples and “slash and burn” are synonymous (Vandergeest, 2003). In part

due to the Food and Agriculture Organization's forestry development programs, the Royal Forestry Department (RFD) framed swidden agriculture as "wasting" economic potential by denuding valuable timber forests (Vandergeest and Peluso, 1995, 2006). This tactic of designating areas as "wasteland" or "degraded" because of local land uses has been employed all over Southeast Asia to justify land control (Harms & Baird, 2014).

The RFD's perspective on forests changed over the course of the 20th century, shifting from a focus on extraction to conservation, but the underlying ontological opposition to local livelihoods remained (Vandergeest, 1996b). The program to create protected areas, typically as wildlife sanctuaries and national parks, was created in the early 1960's following a mandate from Field Marshall Sarit Thanarat, who led a successful coup. He had an affinity for nature as an important aspect of national identity "that coincided with the growing influence of the international development and conservation communities, and with the emergence of a nature conservation constituency in Thailand" (Vandergeest, 1996b, p. 260). These sentiments drew inspiration from an originally Western conception of nature (see Cronon, 1996) that was increasingly accepted internationally, and was founded on the ontological separation between Society and Nature. This further naturalized the civilization-wild dichotomy that had already racialized and marginalized upland peoples for centuries. This ontological separation informed the rules that had determined most livelihood practices by upland peoples as degrading to natural resources that should instead be "protected" and "conserved".⁶

⁶ This does not necessarily mean that no human activities can occur in these spaces, but only those deemed permissible by these agencies. The restriction of activities tended only to occur on those practised by local peoples rather than those by rich and influential people or activities that directly benefit the agencies themselves, such as tourism (Vandergeest, 1996b). See the controversy over the shooting of a black panther in a Wildlife Sanctuary by a wealthy business owner for a recent example ("Thai tycoon," 2019).

Swidden became even more problematic in the public eye as water shortages and sedimentation in rivers, a major issue for lowland agriculturalists, increased in the latter half of the 20th century. Based on what was elsewhere labelled the “Himalayan environmental degradation” theory, lowland peoples blamed these issues on the deforestation of the uplands caused by swidden agriculture, even though this theory has been shown to be unsubstantiated in Northern Thailand (Forsyth, 1996) as well as in many other cases across the world (Blaikie & Brookfield, 1987). While there had been a general trend of deforestation in Thailand more broadly, the assumption that it was rampant and caused by upland agricultural practices “is more indicative of a particular regulatory vision than actual changes in land cover” (Forsyth et. al., 2008, p. 39). The regulatory vision identified in this quote resulted from the mission of territorialization by the Thai state and the continued effort of the RFD to maintain the legitimacy of its authority and recover its share of government budgets after earlier declines (Vandergeest, 1996b). At the end of the century, additional regulations were created to specify permissible land use practices on land of varying degrees of slope referred to as watershed classes as another means of control of land use in upland areas.

While specific case studies are not highlighted in this section (for some examples see Delang, 2004; Forsyth et. al., 2008; Laungarmsri, 2001; Roth, 2007; Vandergeest, 1996b; Wittayapak, 2008), it should be evident that the dynamic interplay between these forces of territorialization, racialization, and ontological difference created ambiguous and ever-changing statuses of land and resource security for upland peoples. By the year 2000, an estimated 200 communities had been displaced because of these forest management regimes (Srimongkontip, 2000). The evictions have largely halted since the turn of the century but the remaining at-risk

upland communities in forest spaces continue to be subject to severe uncertainty and ambiguity concerning the legality of their livelihood practices. In 2010, an estimated 635,916 people remained at risk (Kriyoonwong, 2015 in Bunditderdsakul, 2019).

In 2002, the Department of National Parks, Wildlife and Plant Conservation (DNP) was separated out from the RFD but both agencies continue to be relevant for upland communities residing in areas delineated as forest. The DNP took over the administration of protected areas including national parks and wildlife sanctuaries. The RFD remains responsible for other areas such as those classified as “reserved” forest and “industrial” forest. While the discretion of individual officials of the RFD and the DNP often leads to relatively acceptable circumstances for some communities, the lack of land ownership and constantly shifting rules of legal resource use continues to marginalize their way of life. The virtual halt in evictions and the changing stance of the Thai state was due to resistance by coalitions of upland communities and sympathetic NGO’s, state agencies, and international actors who continue to develop and advocate for solutions to these problems.

Ethnic politics: A “benign environmentalist” discourse coalition and unresolved issues

As prior sections have discussed, much of Karen ethnic identity has been constituted by outside forces imposing particular narratives of upland peoples. Thus far in this chapter, the particularly impactful role of the state has been the focus. However, many Karen leaders have mobilized certain essentialized ethnic characteristics and cultural practices to assist in their struggles for self-determination. Much of the success that Karen groups have achieved in influencing broader conceptions of their identity was due in part to the building of broader multi-

scalar coalitions across Karen communities and with outside groups such as livelihood-oriented NGO's (including at the international level), social justice minded academics, and certain friendly government agencies who opposed the exclusionary approach of the RFD and DNP. In this way, Karen identity has effectively been coproduced through the network of various actors involved in Karen lives and livelihoods, whereby various actors are working to solidify particular narratives of Karen identity to fit their own agendas. In this section, more attention will be paid to how the coalition, roughly united by a vision of more self-determination and resource rights for the Karen, have influenced the narrative of Karen identity and changed the trajectory of the struggle over resource use. Additionally, the limitations and problems associated with this united front and their essentialization of Karen identity will also be considered.

A common portrayal of Karen ethnicity by this coalition of Karen rights activists is exemplified by Buergin's (2004) work in Thung Yai National Park in which he notes that "[c]ontrary to the image of the forest-destroying hill tribes deployed by the RFD and the military, the Karen in Thung Yai conceive themselves as people living in and with the forest, as part of a complex 'local community' of plants, animals, humans, and spiritual beings" (p. 44). The counternarrative of the Karen as forest "protectors" (Santasombat, 2004; Walker, 2001) or "guardians" (Forysth et al, 2008), "benign environmentalists" (Buergin, 2004), or "ecologically noble savages" (Laungaramsri, 2001) was used to justify, at minimum, continued access to natural resources and up to establishing systems of community-based decision-making on the rules and regulations pertaining to local resource use, as opposed to governmentally mandated rules and regulations. Many scholars and activists have highlighted how both local knowledge systems and Western science support claims that traditional Karen livelihood practices are not

only sustainable but even increase ecosystem biodiversity and other indicators of ecosystem health (see for example Fox, 2000; Laungaramsri, 2001; Rerkasem et al., 2009; Wangpakapattanawong et al., 2010). Karen communities and their network of allies mobilized a strong counternarrative that demonstrated the capacity of Karen communities to sustainably manage natural resources without interference from the Thai state.

As the notion that the Karen can be sustainable natural resource managers grew in acceptance, the power of Karen communities and their allies grew. Drawing on Bourdieu's concept of cultural capital, Santasombat (2004) highlighted the roles of community leaders as "cultural producers" to instigate this change "in creating symbolic power and establishing the legitimacy of Karen communities in the context of tenure insecurity and resource conflict" (p 107). Karen cultural capital includes aspects such as local ecological knowledge systems, relational understandings of human and their "environments", and sustainable resource management practices. This transformation of cultural capital into symbolic power has been essential to the decline of forced relocations of upland communities from designated forest lands.

It should also be noted that Karen peoples maintain a desire to engage with the Thai state and Thai society more broadly. The purpose of mobilizing Karen cultural capital as a source of symbolic power is not to distance themselves from the Thai state, but to assert the same rights of citizenship that the majority of Thai nationals experience, which includes the right to use natural resources (Hengsuwan, 2019; Vandergeest, 2003). However, this is not necessarily what Karen communities and their allies have been able to achieve.

Despite the growing acceptance, both worldwide and in Thailand, of the commensurability of local peoples with conservation efforts, the broad coalition of Karen rights

activists, communities, NGOs, and others that have been most critically pushing the benign environmentalist narrative as a means for legitimizing Karen presence have not been able to fully realize their objective of Karen self-determination. This results from the only partial selection of Karen identity and cultural practices in the benign environmentalist construction (Walker, 2001). It excluded the long and continuing history of engagement in commercial endeavors as well as divergent interests within and across Karen communities of ideal futures for their communities (Walker, 2001; Vandergeest, 1996b). Additionally, and perhaps more importantly, the benign environmentalist narrative fails to challenge the dominance of the Thai state's ontology, wherein the separation of Society and Nature continues to justify the framing of upland peoples and their practices as the root causes of environmental issues in Thailand more broadly.

As noted by Forsyth et al. (2008), "the tendency for the debate about environmental degradation to regularly revert to distinctions between "forest guardians" and "forest destroyers" is unproductive and socially unjust" (p. 25) as it leaves unchallenged the entire discourse about *who* gets to decide what are proper and improper ways to make decisions about natural resources in the uplands. These labels reify the idea that upland forests are vulnerable spaces from which people need to be excluded unless they preserve an idealized Nature. Meanwhile, relatively few conservation regulations apply to lowland land uses, despite some lowland land uses greatly impacting ecologies (Forsyth et al, 2008; Vandergeest, 2003). By relying on the notion of benign environmentalism, the Karen rights coalition molds Karen livelihoods and ontologies in a way that is legible to the Thai state to gain *recognition* and theoretically be given a stake in resource management decisions as a result (which has not yet occurred). The danger inherent in any politics of recognition is that it reinforces the hegemonic paradigm where the state maintains the

power to decide which groups do and do not receive recognition (Coulthard, 2014). Thus, the authority to permit specific practices of the Karen as legitimate or not lies with Thai state. With the overall narrative remaining unchallenged and the Karen stuck in a politics of recognition, the Karen rights coalition will be unable to achieve better conditions for Karen communities in Thailand with this strategy.

The question then is how the Karen can continue to move forward in their struggle for self-determination given the advances and critiques of the efforts considered thus far. Through this section on the background of the Karen, it should by now be evident that the ways in which the Karen have aligned themselves with other human actors, and the discourses that connect them, have shaped their tools, resources, and opportunities for action in their struggles for self-determination. However, placing Karen communities into opposition to the state (e.g., Scott, 2009) is, at least at present, an overly simplistic rendering and ignores the realities that many communities and individuals wish to engage with the state and aspire to full citizenship status but in a way that retains the right to express distinct ethnic identifications and cultural practices including those concerning natural resource management (Hengsuwan 2019; Vandergeest, 2003). Self-determination thus is not merely a form of resistance but is instead about creating meaningful livelihood opportunities and democratically selected development. Identities such as benign environmentalist, rather than self-evident descriptions, are constructions that emerge from particular networks and ways of defining one's position in the world. These identities can then be mobilized in certain ways, often with the assistance of networks, but these mobilizations come with both benefits and limitations that must be acknowledged.

What remains to be considered more is how the Karen are embedded in networks of various human and *nonhuman* agents. How do different material-discursive networks based in different sets of connections with nonhuman agents enable new opportunities in Karen communities' struggles for self-determination? This question is also raised by McCreary and Lamb (2018) who ask, "what role do 'natures' or 'ecologies' play in shaping how governance processes unfold?" (p. 618). Much of the work on the Karen and environmental governance considered thus far has centred on people and forests, and perhaps it could be said that the benefits to be gained for Karen self-determination from this assemblage have reached their limit. My research will consider this question by changing the focus from people and forests to new material-discursive networks in which rivers and fish are also agents of interest. Thus, we are broadening the scope of the network from a focus on the "political forest" and reconsidering "nature's agency" in how it is enacted through embedded socio-ecological relationships instead with rivers and fish.

Conceptual framework and the contribution of this thesis

To remain in line with the literature highlighted above, in this thesis I employ a political ecology perspective that explores "social and environmental changes with an understanding that there are better, less coercive, less exploitative, and more sustainable ways of doing things" (Robbins, 2011, p. 20). I focus on environmental management and governance as sites of contestation between alternative ways of doing, knowing, and being. Specifically, I focus on community-based conservation and consider the reasons for mixed success in the implementation of the concept. Chapter 4 expands on this. Additionally, I focus on the

materiality and agency of nonhumans in environmental management and governance contestations by using the frameworks *rooted networks* and *collectives*. In Chapter 5, I demonstrate how this perspective highlights the role of nonhumans in enacting ontologies and making new worlds. Given that materiality and agency of nonhumans are key to both Chapters 4 and 5, I provide a more detailed background of the concepts here. In these later chapters I will explain other key concepts as relevant for the arguments there.

My call to look towards new spaces of opportunity in relation to rivers and fish reflects the agentic capacity of nonhumans to shape futures, to make worlds. Gaining popularity in fields such as new materialism and posthumanism, Western scholars are increasingly paying attention to the capacity of nonhumans to exhibit agency. Accounting for other conceptions of nonhuman agency enables researchers to be open to a multiplicity of ontologies and epistemologies. Indigenous scholars have demonstrated the agency of numerous nonhuman actors including glaciers (Cruikshank, 2005), rivers (Stevenson, 2018), and fish (Todd, 2014), and others have also demonstrated how Indigenous ontologies understand the supernatural as agents (Paul et al., 2021; Theriault, 2017). Thus, I engage with nonhuman agency because the concept assists me, through my training in a Eurocentric modernist ontology,⁷ to critically recognize how nonhumans shape the world. I will also keep my analysis open to different ontologies, such as that of the Karen research participants. To *not* do so would limit the horizons of my research and further reify the dominance of Eurocentric modernist ontology in academia (Sundberg, 2014) and on research participants. While frictions remain, this process of translation across worlds,

⁷ Chapter 5 delves more into the definitions and roles of ontologies.

however imperfect it is, is important as the Karen research participants seek to rectify their longstanding marginalization by agencies of the Thai state who utilize a different ontology.

I must also emphasize that seeking to understand the ontologies enacted by research participants and the role of nonhumans is made difficult by my remote research methodology (see Chapter 3). Many ontologies are place- and practice-based (see Wilson, 2008) and thus remote work may preclude these ways of being and knowing. However, understanding agency as emergent through networked relations offers ways for scholars to understand how nonhuman agents shape worlds despite physical (as well as ontological and epistemological) distance.

The concept of agency has shifted dramatically in recent decades. It has been scrutinized, particularly in subaltern and postcolonialism studies, to expand on the typical notion of agency as a simple synonym of “free will” and, alternatively, to reconceptualize agency as *resistance* in order capture the role of society, culture, and other metastructures on constraining or enabling the actions of individuals (Ahearn, 2001). However, seeing the limitations of agency as resistance, Mahmood (2009) further defines agency as "a capacity for action that historically specific relations of subordination enable and create" (p. 5) as there are other modalities of agency that are not "captured within the logic of subversion and resignification of hegemonic norms" (p. 15). In other words, relationships and societal metastructures constrain the range of possible actions but not all actions will be antagonistic to these relationships and structures. However, it is important to understand agency in ways that are not overly deterministic and therefore existing *a priori*. Agency is still *performed* by the individual within these constraints that not only limit but also shape and enable action (Mahmood, 2009).

Relieved of the burden of determining free will or intentionality, it is possible to locate agency in the nonhuman. However, efforts to do so must avoid anthropomorphizing the nonhuman or “resurrecting” environmental determinism, and rather must open consideration of the possibilities of nonhuman agency to pay attention to “how human and nonhuman agents exist in close relationship to each other and how their ability to act is contingent on these historically situated relations” (Pearson, 2015, p. 710). Haraway (2007) and Tsing (2015) likewise see the entanglements of humans and nonhumans as constraining, shaping, and enabling possibilities for action. For them, like Mahmood (2009), agency is performed at a moment in time, wherein the constraining, shaping, and enabling occur within a specific action (Haraway, 2007; Tsing, 2015). In other words, agency becomes apparent through the momentary expression of a network of human and nonhumans, enabled and shaped by their materiality and associated meanings and discourses. It must be noted that the agency of nonhumans cannot be known in advance given its performative nature, but it is there whether we choose to notice it or not (Gill, 2015; Mitchell, 2002).

An issue in some of the new materialism and posthumanism literature is an undue levelling of power relations. While I acknowledge the importance of this intent to counter the anthropocentrism of the humanities and social sciences, the reality is that the distribution of power is vastly skewed towards humans over nonhumans (Carter & Charles, 2013). This way of thinking also ignores the problematic power imbalances between humans (groups and individuals). Given the current realities of human dominance of the ecologies and biogeochemical cycles in the world (i.e., the Anthropocene), trying to decentre humans is

unjustifiable. For theories of nonhuman agency to have contemporary relevance, there must be a consideration for this unequal distribution of power.

While not explicitly theorizing how to rectify this issue, Sundberg (2011) demonstrates how scholars can account for nonhuman agency while still acknowledging the unequal power relations between various networked humans and nonhumans through the term *collectives*. Collectives are similar to the terms networks or assemblages in that agency is conceptualized as “doing-in-relation” to these interconnected groups of humans and nonhumans (as a “collective performance”). However, Sundberg’s (2011) use of collectives differs in its greater consideration of differential power between different groupings. This consideration of power is important to understand why certain agents enable desirable outcomes more easily than others. Accordingly, while an approach that sees the performative quality of agency as emergent through specific interactions reduces the overdeterminism of metastructures and enables new possibilities and alternative futures (see Tsing, 2015, for example), the additional consideration of differential power is important to fully account for the historically constituted relations that influence the chances that metastructures (such as racism or colonialism) will be overcome or not.

In addition to collectives, I find the concept of *rooted networks* to be useful (as I previously stated). Addressing some of the critiques of networks-thinking, the rooted networks framework takes the analytic of networks and inserts attention to power relations and territories and encompasses both the social and the natural (Rocheleau & Roth, 2007). The framework also embraces both the power of metastructures and the unpredictable momentary expression of performative agency, the constant “making and un-making of socio-ecological networks through continuous interactions” (Rocheleau & Roth, 2007, p. 436). Thus, it also helps us to understand

“the terms of connection, about why actors make particular decisions, and why events unfold in particular ways” (Cantor et. al., 2018, p. 970). As such, I use the rooted networks framework in each chapter, though in different ways. In Chapter 4, it is used to untangle the circumstances that lead to CBC success and proliferation. In Chapter 5, I use the framework to trace out different collectives and explore the implications of these collectives for Karen communities.

Returning to the point discussed earlier, by using the concepts of rooted networks and collectives I can understand the agency of nonhumans through their performances as parts of collectives. By communicating with the local communities with whom nonhumans are in collectives, I can understand how these agents shape worlds. In other words, while I cannot engage with the nonhumans of the Ngao River basin directly while conducting research remotely, I can follow the “traces” of nonhumans and the agency they express through the sharing of knowledges and practices by research participants (Sundberg, 2011). This insight is not only methodological but is also a part of my main argument in Chapter 5 that local communities are best positioned to know freshwater fish, and that through these communities the rest of Thailand can also know, and care about, freshwater fish. While nonhuman agency is not centred as prominently in Chapter 4, the concept still underlies the chapter as community relations with fish are noted as a key aspect of CBC success in the Ngao River basin. Paying attention to nonhumans and the relations to them is important to sharpen analysis and to stay open to the ontologies of research participants.

Chapter 3

Methodology and Research Design

Introduction

This thesis arose from a commitment to elicit the voices and experiences of Karen people in the Ngao River basin. My original goal was to conduct research that has meaningful outcomes for research participants. Familiar with the concept of “community-engaged research”, I saw the process of collaboratively working with research participants as a “silver bullet” to alleviate any potential ethical issues pertaining to the role of “outsiders”. Thus, my research endeavoured to collaboratively engage with the research participants to formulate a collective understanding and representation of river conservation and the networks in which these communities are embedded. However, my original plans to achieve a mutually beneficial and collaborative process were upended by the COVID-19 pandemic. While COVID-19 is certainly unique, many of its challenges are ubiquitous in academic research, and underscore the existing tensions within community-engaged research. Some these tensions will be explored throughout this section as I elaborate on how I navigated them.

I do, however, argue that this research contributes to the Ngao communities. While perhaps not an ideal scenario, conducting research remotely did place the research in the hands of the communities more than if I had been physically present. While I originated, funded, and continued to mold the research from afar, the field research took place in the communities and was conducted by members who volunteered as research participants. One community member,

Santi Klanarongchao, worked with me as a local research assistant, whose role will be explained later in this chapter.⁸ Outcomes of the research were always mediated by these participants. What is left for me now is to produce meaningful outputs, including those that can be more directly useful to the communities.

The rest of this chapter elaborates further on the process of research design and conduct. I provide background on the Ngao River basin and the two villages centred in this study. Following this, I lay out my positionality in relation to research participants and critically reflect on my role as a researcher. I then follow with a brief discussion of the ontological and epistemological foundations of the research design, drawing from the concepts described in Chapter 2. Subsequently, I get further into the specifics of the research design. I outline my original intentions in this master's research project and explain how these were adapted to the realities of the COVID-19 pandemic. This section entails critical reflections on working with a local research assistant. I then lay out the methods, ethics protocols, and the analytical process to conclude the chapter.

Research Sites

Chapter 4 provides an historical and basic overview of the research sites, which will not be repeated here. Details that are not included in that chapter are provided below.

⁸ I name the LRA, the translators, and my local contact to give due credit to their important contributions to this research. I use their names in full the first time they are mentioned and use their first names or nicknames thereafter. In Thailand it is not common to use last names. While the ideas produced in this thesis were produced through my work with the research team, participants, and other relationships (e.g., my supervisory committee), the final thesis was written by me alone. Thus, the views expressed in this thesis are not necessarily shared by these other contributors and only I am responsible for any faults or issues.

Mae Lui and Na Doi villages are of similar size, with populations of 237 and 391 respectively. I was unable to determine the exact date of establishment, but each is at least 50 years old. Both villages have grown significantly in recent decades, evidenced by the fact that 33 out of 40 research participants migrated to their current village within their lifetimes. For Na Doi village, the most widely cited reason for in-migration was religion. Na Doi is a Christian community (all go to the same church) and thus many participants reported moving there from mixed religious communities (the other religious affiliations being animism and Buddhism) because of underlying tensions. The other reasons for in-migration include road access (easier to get to lowland urban centres with larger markets and better healthcare and schools), access to the Ngao River for riverine activities and rice paddies, and marriage.

Livelihood activities are very similar in the two villages. Nearly every family cultivates soybeans to sell for income. Soybeans are grown on hillside fields during the rainy season and some families plant an additional crop in their paddy fields during the dry season. Many families also use hillside fields for growing rice in the rainy season. Paddies are primarily used for rice during the rainy season, and some also plant another crop of paddy rice in the dry season if they do not plant soybeans or vegetables during that time. Hillside fields may be intercropped with chilis and vegetables during the rainy season. Some families also cultivate other streamside plots to grow vegetables. Both villages have multi-use forest areas where community members grow and harvest a variety of crops including bananas, jackfruit, chilis, soybeans, and konjac (forest taro). These may be for local consumption or to sell for income. Many families rear livestock such as chicken or pigs. Fishing and other riverside activities are incredibly important for local livelihoods and will be elaborated in Chapters 4 and 5. Many participants engage in local labour

opportunities for daily wages such as collecting or transporting sand for construction, building the concrete road, transporting people to nearby villages and cities, cooking at the school (typically women), milling soybeans, and tractor-driving. Some are engaged in various commercial activities including supply shops (e.g., gas, foods, and cellphone sim cards). In Na Doi there is a privately-owned mushroom growing facility. Others are hired to work in local government offices or local healthcare clinics. Some women weave traditional clothes for local use or for income. Finally, a few community members travel to distant places like Bangkok or Southern Thailand for more income opportunities.

Both communities have been increasingly engaging with the rest of Thailand and the international world in the past few decades. Importantly, nearly all community members have citizenship cards at this time, but a few of the oldest generation have never received one. Both villages have government schools that go to grade nine, at which point students must attend school in nearby cities to finish their education. Both villages also have government healthcare clinics and have been the sites of a few development projects. Na Doi has an extensive household water system including storage tanks and a filter at the school, a rice bank, and a community coop and weaving centre. Cell reception has been very poor in the communities, and people typically must climb nearby mountains for service. The schools have Wi-Fi, but it is not available for public use, if usable at all due to weather and other interruptions. Recently, one telecommunications company installed solar powered Wi-Fi transmitters for cellphone users with that company's sim cards, although during the rainy season this system typically does not get enough solar energy to keep the battery charged. Na Doi has an NGO facility that is affiliated

with Compassion International and engages in a variety of development activities, mostly for children.

The two villages, like many Karen communities in Northern Thailand, represent some of the least developed places in Thailand. They are, however, much more developed than the more upland villages in the basin that are further from the main road. Additionally, this is rapidly changing and thus Mae Lui and Na Doi villages exemplify how rural ethnic minority communities are negotiating development and engagement with larger scale and more powerful actors, but not without tensions in this process. In addition to the actors and forces that will be discussed in Chapters 4 and 5, growing in relevance is the Yuam River Dam that passed the environmental impact assessment on 15 September 2021 and has been given the go-ahead from the National Environment Board (“Construction of,” 2021). The dam was first proposed in the 1990’s to mitigate the “closing” of Chao Phraya River basin, wherein the demand for water nearly meets the supply in the largest river basin in Thailand that encompasses the bulk of irrigated agricultural land and the Bangkok Metropolitan Area (Molle, 2002). Molle (2007) argued that this closure was caused by an “overcommitment of water resources, thereby artificially generating water scarcity” (p. 364), but the Thai state has continued the narrative that increasing water supply is the solution, including through water diversions from the Salween River basin into existing reservoirs (Molle, 2002). Reportedly, the sudden progress after being stalled for decades is due to an offer by a Chinese state-owned company that expressed interest in constructing the project for free (Zsombor, 2021), and in return would get future rights to construct hydroelectric dams on the Salween River (Deetes, 2020). If constructed, the Yuam River Dam would remove water bound for the Salween River and run it through the proposed

Mae Ngao National Park (MNNP) across the mountains to the Bhumibol Dam and reservoir. The project would have devastating environmental and social costs due to the construction of a 69-meter-tall dam, an 830-acre reservoir, and a 61-kilometer-long concrete tunnel (“Chinese keen,” 2021). The proposal has been criticized for not adequately including public participation as it affects the lives and livelihoods of many communities in the area (The People’s Network of Salween River Basin, 2019), but the Royal Irrigation Department (RID) shockingly claimed it will affect no more than 30 individuals (“Construction of,” 2021). The Ngao communities were not included in the RID’s estimate but are at risk because the proposed site is just downstream of the confluence of the Ngao and Yuam rivers. Participants in this research expressed serious concerns about what the construction of this dam would mean for their communities. While I do not subject the Yuam River Dam to significant attention in Chapters 4 and 5, I will revisit it again in the conclusion of this thesis.

Positionality and Reflexivity

Transnational research, especially when researchers from the “Global North” go to the “Global South”, is fraught with ethical dilemmas. Research, particularly that by geographers, has been tied to imperialism, colonialism, and economic exploitation (Smith, 1999). While perhaps not as overtly violent as in centuries past, contemporary research can still be violent, including but not limited to epistemological violence that suppresses other ways of being and knowing (Wilson, 2008), or extractive violence wherein the benefits of research are exclusive to the researcher rather than shared with research participants (Nagar, 2002). These concerns must not be ignored. However, I also believe that these concerns do not preclude transnational research

because of the many potential material and symbolic benefits for research participants and their communities. Nagar (2002) demonstrated how reducing the politics of fieldwork to identity and reflexivity does not serve calls for social justice. Questions surrounding “who can represent who” can end up distracting from the potential power that transnational linkages and relationships can bring to marginalized peoples.⁹ Rather, scholars need to be willing to engaged with the messiness inherent in transnational research so that the voices of the marginalized are heard more widely and deeper political engagement is made possible (Nagar, 2002).

I hold this idea of engaging with the messiness in my research project. My positionality as a white man from the Global North certainly entails a power imbalance with the research participants as members of a rural, marginalized ethnic group in the Global South. However, this dynamic is muddled given my experiences in Thailand and with the research participant communities. My research project arose from my experiences living and working in Thailand for five years, during which I spent much of my time in rural areas working with Karen and other ethnic minority communities. During 2018-19, I worked part-time as a research assistant in the Ngao River basin for Dr. Aaron Koning, an ecologist affiliated with Cornell University. For this project, I engaged with five communities in the river basin as we created surveys, trained volunteers, and followed up bimonthly to get recordings of daily fishing activity to better understand the impacts of their river reserves on the local ecology. During this time, I began to be identified as the foreign “pu chuay” (translated as helper or assistant) for the foreign “ajaan” (translated as professor or teacher) who had already developed meaningful relationships with

⁹ This is not meant to imply that marginalized peoples do not have power without allies, rather that this power can be magnified, or shaped, for their benefit.

these communities over the five years of his doctoral research. While this positioning implies significant hierarchical distance between participants and myself, I also developed close personal relationships with a few community members that could somewhat reduce that distance. While I do not intend to imply that I can accurately gauge my positionality and measure its impacts, I do believe that I have a level of understanding and familiarity with the culture and participants that allows me to somewhat bridge the gap. This understanding and familiarity has allowed me to gain a better view of the tensions that define and constrain my research.

While my positionality as a white man from the Global North created tensions for the research process, I also believe that the power resulting from this positionality can be used to help advance the efforts of marginalized groups such as the Karen. My research axiology follows Linda McDowell who argued that,

[a]s interviewers, we cannot and should not evade the academic and political responsibility of speaking for/on behalf of others through interpretations of the world that start, if not end, with the personal interactions that take place in interviews and the ways in which we interpret these through the lens of our philosophical, theoretical and political frameworks (McDowell, 2010, p. 14).

Researchers can leverage their power to advance social justice by amplifying the voices of their research participants. Accordingly, in my research I adopted methodologies that seek to engage with research participants in a meaningful way. These methodologies must take seriously the tensions surrounding transnational research without disengaging from the people the research is intended to support.

To continue to engage with my positionality and its effects on the research, I kept a research journal throughout the fieldwork process. In this journal, I documented each day's activities related to fieldwork. This process encouraged critical reflection on the effects of myself

and my research on the communities. Many of the insights developed in this journal informed the writing of this chapter and the thesis.

Ontological and Epistemological Foundations

The foundations of this research project arose from an understanding that research must take into account ontological and epistemological multiplicity in the world. As highlighted earlier in this chapter, researchers must be wary of the potential for epistemological violence on the holders of diverse ways of knowing and knowledge systems given the historic domination of Eurocentric thought in academia. This includes the differences between that of my academic training and that of the Karen research participants. However, I simultaneously acknowledge that I will not simply be able to adopt a Ngao Karen ontology and epistemology. While the framing I adopt also cannot “capture” their worldview, it may, however, translate Karen ways of knowing and being to others, who can then learn to recognize and appreciate them more fully. While there certainly are frictions in this endeavor, this process of translation across worlds, however imperfect it is, is important as the Karen research participants seek to rectify their longstanding marginalization by others that enact different ontologies. Thus, this process has important political and material implications for the future of the Karen peoples in Thailand. The ontological and epistemological foundations of this research project must be able to account for this multiplicity and be able to translate across worlds.

The foundations of this research design lie in the conceptual framework outlined in Chapter 2, in a networks approach. Thinking in terms of networks helps to illuminate the nature of the things that is otherwise hidden in strict theoretical frameworks, at least typical to a

Eurocentric tradition (Latour, 1991/1993). While it has been accused of overzealous relativism, a networks approach sees “reality” as emergent from contingent relations and thus is particularly useful in cases of ontological multiplicity. As noted in Chapter 2, the approach also recognizes the role of non- or more-than-humans in constituting reality.

In addition to this analytical utility, such an approach works well alongside the concept *partial perspectives* that recognizes that knowledge is always situated within one’s relations (Collins, 2000; Haraway, 1988). In other words, the world is constructed through individuals’ lived experiences but also in relation to broader societal and environmental systems. This insight is not only analytical but also ethical as it elevates the role and contribution of participants in a research project who are not explicitly identified as “researchers”. This point will be explored in the context of my project later in this chapter.

Adapting to the COVID-19 Pandemic

Original plan and the pandemic

My original research plan was to be exploratory in nature. An emergent research design would allow for a collaborative process with communities, in which elements of the design were to be flexible to account for participants’ perspectives. Remaining cognizant of my past experiences in which I often noticed that Karen community members would defer to my opinions (likely due to power imbalances), even though I wanted to hear from them, I was prepared to find ways to make sure the research was enriching their lives. To understand which aspects of the research or research process should be altered to meet participants' wants and needs, a researcher needs to be able to notice and navigate cultural subtleties (e.g., non-verbal cues that

indicate an underlying feeling or informal check-ins during mealtimes). Conducting fieldwork *in situ* is a notable asset in this process of noticing and navigating.

Over the course of three months, I planned on completing interviews in each community with a variety of different individuals, in addition to some notable stakeholders in nearby cities. I also planned to observe community members' day to day practices in and around their communities. To further triangulate the data, I intended to conduct visual-based participatory activities, including yearly food calendars, social mapping, and livelihood mapping, which would provide insights into the role of social networks and livelihoods, including food production, gathering, and consumption, on contemporary life in these communities.

However, the realities of the global pandemic ultimately precluded these research methods. National travel restrictions aside, the research participants refused to let outsiders potentially infectious with COVID-19 into their communities during the first several months of the pandemic, as well as during later "waves" due to outbreaks in Thailand. As a result of many factors, including their remoteness and historic marginalization by the Thai state, Ngao Karen communities lack access to the high-quality medical care needed to treat those who fall sick with the virus. Therefore, they took control of their situation by limiting the potential for exposure to the virus and denying outsiders access to their lands. The subsequent inability to conduct my research *in situ* required me to completely adapt to remote methods.

Adapting to remote methods

Adapting my research to remote methods was not straightforward. While many academics have been encouraging remote methods for scholars looking for new ways to conduct

research during the COVID-19 pandemic (for a comprehensive compilation of materials, see Samuels, 2020), most of these strategies do not apply to my research, as they rely on a stable and consistent internet or cell network connection. As mentioned above, in the mountain valleys of northern Thailand cell and internet connectivity are minimal, at best. Cellular networks (e.g., 3G or 5G) are only available in a few specific locations (e.g., on a mountain top) and are unreliable even in those locations due to factors such as weather conditions. There are some places with Wi-Fi connection (e.g., some schools in the area), but the connection can also be unreliable. This means that participants would have to drive far distances to access signal or Wi-Fi and the connection itself may not be strong enough for conducting research activities once they arrive. This is too heavy of a burden to place on them and it would also be very difficult to coordinate with more than a few participants.

Fortunately, I attended a conference at the end of 2019 in which Kimberly Roberts, a peer from my program and doctoral candidate who had completed her fieldwork, presented on working with local research assistants to access areas otherwise inaccessible to researchers.¹⁰ I reached out to her, and she became a vital source of support. I learned how to work with a local research assistant (LRA) who provided access that I would not otherwise have had. I then needed to adapt my planned research methods to work through an LRA, consider how to notice and navigate cultural subtleties from afar, and develop suitable practices for other logistical matters (e.g., funds transfers, contracts, and means of communication). Additionally, the conceptual

¹⁰ See Roberts (2019) for a recent publication from this fieldwork.

implications of research through an LRA had to be considered alongside the ontological and epistemological foundations of my research design to ensure that there was an appropriate match.

Logistical and theoretical implications of research through local research assistants

Ultimately, my research would not have been possible without an LRA. The combination of travel restrictions, community rules banning the entry of outsiders, and an inconsistent and unstable cellular and internet connectivity precluded all other explored options. However, it is important to note that there were particular circumstances that enabled this option in the first place and also that there were various logistical tradeoffs. Additionally, there are theoretical concerns that need to be addressed as well.

The process of identifying, connecting to, and building trust with an LRA was made possible through my prior experiences in and relationships with the Ngao communities. My time as a research assistant there meant that many people, including community leaders, had previous experience working with me and this built a foundation of trust. Additionally, I developed a close relationship with my former host family, which was essential as they could personally vouch for me. This is of special importance in relational cultures like that of the Karen. In fact, the matriarch of this family, Panee Phoemchatchai (“Timumo”), deserves all the credit for finding a suitable candidate to be a research assistant and facilitating the bidirectional trust required for him and me to have a comfortable working relationship.

Not only was my prior experience and relationships important for establishing a working relationship with an LRA, but they may have been critical for all the research participants to join the research project. It is likely that the communities would have been more wary of accepting a

research project from a total stranger. As mentioned before, relationships are very important for the communities, who deal with outsiders with apprehension. It is not possible to know whether the communities would have accepted my project without our prior experiences, but I believe that they were essential to establish access to the research sites.

Conducting research through an LRA was not without tradeoffs. Simply put, it can be very difficult to coordinate effectively from afar. This is especially true for first contact, in which first impressions are vital, but the researcher is not there to make sure that things are being communicated in the precise manner that the researcher intended. Thorough initial training, and extensive communication and coordination (e.g., with frequent check-ins and follow ups) was needed to ensure thorough research conduct. This is all further exacerbated when collaborative research is the goal. In this regard, *in situ* research is particularly useful to really try and get a sense for how the research could change to incorporate participants' input, what kind of outputs the communities would find helpful, among other things. When done remotely, the researcher must rely more on LRAs to gauge how best to adjust the research process. I found it particularly helpful to also consult the two Karen-to-English translators, Anochao Potjanathamrongpong ("Chao") and Sompoad Terngkae ("Poad"), for advice and guidance throughout the research process. Santi, the LRA, communicated with them directly from time to time as well, as they could sometimes communicate my thoughts on my behalf more effectively through Karen language, adding another layer of guidance for him.

On a personal level, conducting research through LRAs can be taxing. In addition to the challenge of working around time zone differences, researchers from the Global North may find it difficult to adjust to the slowness of the community-engaged research process. This will

inevitably vary by research context, but it is likely certain when collaborating remotely. In the Global North, neoliberal capitalist society places particular importance on “productivity”, which has essentially been reduced to the quantity of tangible outputs produced over time. In this context, many researchers may find themselves focusing on their rate of “production” at the expense of their relationships (whether to our self or others). However, this is at dissonance with communities such as the Karen. For Karen people cultivating relationships is often of higher priority than producing tangible outputs or optimizing time.

Adapting to a living and working style that places higher priority on relationship building would be much more straightforward during *in situ* research, where the immersive experience is bound to force even the most stubborn of researchers to adapt. When working remotely, however, this is not the case. For example, in my research, when communities were harvesting rice, Santi was not able to get any interviews done for the two weeks. If I were in Thailand, that would have been easier to adjust to, as I could have engaged with the community in other ways. However, being in Canada, I was stuck in the disconnect between physically existing in my immediate atmosphere of “productivity” and the relatively slow-paced world of the villages in Thailand, thereby decelerating my research outputs. Requiring patience and flexibility, I eventually adjusted to the situation.

While some of these logistical tradeoffs were challenging, they were nonetheless worthwhile to ensure access to the research sites. Knowing that the logistical challenges could be overcome, the theoretical implications must then be scrutinized. Again, there are tradeoffs, but I have found that there is epistemological value to conducting research through LRAs.

Perspective on the aptness of researching through LRAs largely depends on the ontological and epistemological foundations of the research project. From a postpositivist perspective, the practice of sending “untrained” (read as lacking a Western education) research assistants to conduct research activities without the researcher physically present would be questioned. Such a practice invalidates the perception of objectivity in research conduct and interpretation. However, as mentioned earlier, I follow in the footsteps of many postmodern, critical race, and feminist scholars in that I do not recognize the researcher as an objective outside observer.

When coming from an understanding of partial perspectives, the researcher, research assistant(s), and participant(s) all contribute to the research from their own partial perspectives, in which embodied subjectivities offer particular insights into the world contingent on their positioning (Collins, 2000; Haraway, 1988). When we view research as multiple subjectivities coming together, the involvement of LRAs then offers the incorporation of additional subjective lenses that can enhance the outcomes of research (Anwar & Viqar, 2017). Connecting and collaborating with local partners (as research assistants or in other capacities) helps to contextualize the theoretical insights made by academics (Hunsberger et al., 2017), in addition to providing their own unique insights. Chandra Talpade Mohanty (2003) highlights how the “particular is often universally significant” (p. 501). Local partners are uniquely sensitive to noticing the particularities of their own context. Additionally, the ways in which LRAs can enable or obfuscate results may lead to novel research insights (Anwar & Viqar, 2017). Anwar and Viqar (2017) describe how the open and honest reflexive discussions with their research assistants “exposed biases and hitherto unknown aspects of knowledge production in the field”

(p. 120). Coming from an understanding of partial perspectives, LRAs can enable new and deeper research insights rather than act as barriers to mythic objectivity.

Working with an LRA also helps my research contribute to social justice projects more meaningfully. By engaging local community members and other “insiders” in the research process, researchers can create opportunities “from the conception through the outcomes of the research” for local knowledges and priorities to be emphasized (Sharp, 2005, p. 307). In turn, collaborating with LRAs has the potential to disrupt the typical hegemonic paradigm of extractive and exploitative research and keep the research accountable to the communities we are studying. Thus, engaging with LRAs facilitates a more mutually beneficial and reciprocal type of research with greater potential for growth and transformation.

The potential benefits occur on multiple levels. On an institutional level, collaboration with local community members in the research process encourages ontological and epistemological multiplicity within academia. Additionally, research outcomes can have more material and immediately relevant benefits to the research participants and their communities. On a more individual level, LRAs develop a variety of skills and this in turn may lead to future benefits for themselves and their communities.

These claims can be grounded in some examples from my project. All my engagements with community partners were mediated by Santi, the LRA. This means that Santi’s input was provided at every stage, and he thus continuously shaped the project. With this comes the opportunity to include Karen ways of knowing and being, and to enable them to shape my work. Santi resides in these communities and, from his discussions with other community members, could tell me what kinds of research outputs will directly assist them in their self-identified

challenges, perhaps most significantly the challenge of insecure land rights due to the looming incursion of a national park. Additionally, Santi developed many new research skills that may help him and his community in the future.

Santi also expressed the joy and excitement that he and the participants felt when they discussed the importance of the river in their lives for project activities. The power dynamic typical to traditional in-person research was upheaved as I was not present for the interviews and other participatory research activities. The hopeful part of me imagines that this new dynamic may provide a compelling model to level power relations between the researcher and research participants in a transnational community-engaged research context. However, I must also acknowledge that, despite the fact I am not physically located there with the research participants, I remain a “non-present and yet highly powerful actor”.¹¹ Unfortunately, the implications of this new power dynamic are very difficult, if not impossible, to gauge and fully understand. Therefore, I may never fully comprehend the impacts of this methodology and whether it truly disrupts the typical researcher-research participant power dynamic. Nonetheless, I still have hope, and place value in that feeling.

Positionality of the LRA

It is also important to consider Santi’s positionality. To make sure I understood this for my project, I conducted an interview with him prior to undergoing research activities. While he is certainly an insider within these communities as a resident of one of Na Doi’s satellite

¹¹ For these insightful words I give credit to Dr. Sarah Rotz at York University and extend my deep gratitude for her guidance in helping me to navigate the tensions in community-engaged academic work.

villages,¹² he is also a relatively new arrival. Originally from Mae Chaem district, an area about halfway between the Ngao River basin and Chiang Mai, he married a woman from this village five months prior to the research commencing. After losing his occupation as a tour guide due to the COVID-19 pandemic, he moved into his wife's family home to help them with their agriculture. As a university graduate and competent English speaker, he stands out in communities where both accomplishments are rare. He also teaches English to some of the local children and is very involved in the church. His English is competent so that we could converse easily in the language, but he was not confident enough to do the official translations. When asked about his knowledge of river conservation in the area, it became clear that he had already learned much but was still eager to learn more. In fact, I was nervous that his prior knowledge would interfere in his interviews, wherein he may skip over questions that seem obvious to him. My concerns proved unfounded as he tended to keep to the list of interview questions. The extent of his knowledge proved helpful as he provided some insights in the process of designing interview questions. His continuing curiosity helped us dive deeper into the topics.

Over time I further understood Santi's positionality, and how it shifted throughout the research process, through regular check in's with me over the phone, and a research diary to document his experiences, along with his accompanying thoughts and feelings. Additionally, at the end of the data collection process, I conducted an exit interview with him. In this interview he reported that as a Karen man himself he could easily connect with new people by speaking

¹² In Thailand's administrative system, villages that are not large enough to be classified as an administrative village or "muban" are relegated as a "satellite village" of a nearby administrative village. The result is that they do not have their own formal headman and instead fall under the jurisdiction of the headman of this larger neighboring village.

their native language, even though he was a newcomer to the area. However, his educational attainment meant that some community members indicated a nervousness to talk with him about the project. He had difficulty scheduling participants given his tendency to work on a more rigid schedule like a Westerner given his tourism background while many community members take a more relaxed attitude to timing. He noted that some of the daily practices in the communities varied from his home village as well. For example, he found that Ngao communities go to the river to fish much more frequently, as people there go almost every day but only a couple times a month in his home village. So, while he certainly was an “insider” in some regards, in others he was an “outsider”, indicating the unique perspective he brought to the research project.

Overall, Santi indicated that the experience as a research assistant was very positive as he got to know many more people in the area, including the local leaders. He reported that people did not really know him before and now not only do more people know him, but he has made new friends through the project. It made him feel good that now people ask him more questions and really listen when he talks. This dynamic demonstrates how his positionality was constantly evolving throughout the research process.

Santi’s position within the communities is clearly complex, which highlights how researchers should never expect to find an LRA that can be a complete or static representation of the community—such person does not exist. Rather, the blend of commonalities and differences that an LRA has with research participants opens the possibility of unique insights otherwise unavailable to an “outside” researcher. Santi’s perspective has been invaluable throughout the research process.

Methods

Training the LRA

Prior to beginning research activities, I trained Santi on the details of the project and how to conduct qualitative research. In total, I facilitated four sessions, each one to two hours over the phone. The first session was more general and covered the basics of research and the research process. The second session was oriented to the specificities of the project, including the research goals and objectives, the methods, data management, and ethics protocols. The following two sessions were more experiential and involved interviewing practice. Santi conducted a practice interview with a friend and sent me the audio recording to provide feedback. Once this training was complete, all the materials were compiled in a “research guidebook” (see Appendix A) that would serve as a resource for Santi to consult throughout the research process. At this time, he held village meetings in each of the two research sites, Mae Lui and Na Doi villages, to come to agreements about the research process.

Overview

Empirical data was generated through semi-structured individual and group interviews, participatory mapping activities, and observations and Santi’s research journal. Over the course of three distinct rounds, 40 community members participated in either group or individual interviews, along with two outside key informants. Two groups of five participants completed a participatory mapping activity and eight participants were observed conducting riverine livelihood activities. By gender, 45% of participants were women and 55% were men. Ages of participants ranged from 27 to 70. Soliciting participants of different gender and age groups was

important because types of livelihood practices can significantly vary by these two groupings. Santi took audio recordings of interviews and oral presentations of the participatory mapping activities, which were subsequently sent to Chao and Poad, the two Karen-Thai translators, for translation and transcription. Additionally, Poad translated the observations notes and research journal, and Chao translated the project's introduction letters, Santi's training materials and contract, and the research guidebook. One key informant was interviewed by Chao in Chiang Mai, and the other was conducted by me. In its entirety, research activities were conducted from October 2020 to May 2021.

Interviews

Semi-structured interviews provided the most substantial source of empirical data for my research project. I follow Patricia Hill Collins (2000) who states that “knowledge claims are rarely worked out in isolation from other individuals and are usually developed through dialogues with other members of a community” (p. 260). Thus, interviewing is an effective tool to facilitate the dialogue necessary for researcher (including the LRA) and research participants to coproduce knowledge. A detailed list of interview questions (see Appendix B) helped guide the participants towards building an understanding of the significance and role of the river and river conservation in Ngao Karen communities' lives. I acknowledge that this understanding is coproduced by the research participants and the researchers. Knowledge coproduction recognizes that knowledge does not exist in isolation. Rather it understands knowledge as emergent through specific interactions, such as researchers asking participants specific questions that subsequently frame participant responses. Rivers and aquatic life also contribute to this coproduction because

the participants' knowledges are shaped by their interactions with these nonhumans (see Chapter 2 on nonhuman agency). Additionally, the question list provided an important resource for Santi as he conducted the interviews, providing, for example, options for follow up questions.

Interviews were conducted in Karen language.

Sampling

Research participants were identified either using snowball sampling (in Na Doi village) or randomly (in Mae Lui village). The village head in Na Doi village demonstrated much excitement about the research project and took an active role in helping to find research participants. Meanwhile, in Mae Lui village, Santi selected participants at random by walking around the village to see who was available and interested to participate. In the early interviews, we specifically looked for participants who described themselves as more avid fishers and with knowledge about river conservation, but for subsequent interviews we did not have specific qualifications, so that we could hear a wider range of perspectives.

Interview participants

For the first round of interviews, one group of five men and another group of five women were interviewed in each community. The group interviews gave participants a chance to constructively build on each other's responses and allowed the research team to understand a range of perspectives early in the research process.¹³ Two key informants were also interviewed

¹³ However, I will note that this research activity was perhaps the most difficult in practice with a remote methodology. Chao and Poad found it difficult to translate an audio recording with multiple participants.

in each community during this first round, who were identified locally as an “expert” on river conservation, who had significant knowledge about the river, or as an “elder” who could elaborate on the historical details of river conservation in these communities. All four of these participants also completed follow-up interviews in subsequent rounds of interviews so that the participants could elaborate on key points from their initial interviews. In these subsequent two rounds, Santi additionally conducted another eight individual interviews (four men and four women) with new participants in each village to gain a further range of perspectives in the communities.

Other key informants outside the communities were also identified for possible interviewing. A local NGO, the Development Center for Children and Community Network (DCCCN), was identified as a key player in the adoption of formalized river conservation in the river basin. Each community cited DCCCN and its founder for having introduced the concept, facilitated the trainings, and guided the implementation. Though the founder proved elusive for some time, we were able to interview him as a key informant to provide more of the history and context of river conservation in the basin. Additionally, I interviewed Dr. Koning as the other key informant to hear his perspective after he had conducted research in the communities for many years. He had spent significant time living in these communities and visited more than 50 throughout the river basin. The perspective of the Mae Ngao National Park office would also have been beneficial to hear from. However, logistical and ethical barriers eluded this possibility. Given the continued marginalization and persecution of Karen peoples by the Department of National Parks, Wildlife and Plant Conservation (DNP), these communities do not have particularly amicable relations with the local DNP office. Despite this wariness, Santi was

willing to try to find someone who could speak with him. However, when he did approach a DNP official to discuss the research project and inquire about an interview, this official was quickly dismissive of him and the project. With the tensions between the communities and DNP in mind, it was clear at this point that an interview with them would not be possible without the possibility of causing further harm. Thus, the decision was made to not continue any further with attempting to talk with the Mae Ngao DNP office.

Other research activities

Of the remaining research activities, the participatory mapping activity (see Appendix C) was the most significant. This activity was completed in Na Doi village with two separate groups of five individuals, one with men and the other with women. For this activity, participants were asked to draw on a poster board using coloured markers a representation of their village and the nearby areas with all the places that are important to them. These places could be important for any reason, for example to get food, to make money, to live, for social relationships, among others. How to draw the map was left to the participants' discretion. The participants took about three nights to finish their maps due to busy schedules at the time. Once participants were satisfied with their maps, they were given the opportunity to orally present on what they had created. Santi also had some specific questions to encourage reflection on the importance of the river in their lives. These mapping activities were important given the history of cadastral surveys and mapping by the Thai state to control of upland peoples and the resources on which they depend (Vandergeest, 1996b). This activity resembles a “counter-mapping” project in how it seeks to understand spaces in terms of local people's perspectives, though not to the same

degree that some activist groups have created maps to directly confront those created by state governments (Peluso, 1995), and not without obscuring the relations that produce spaces (Roth, 2007). Additionally, Santi reported that the participants particularly enjoyed the process of this activity and articulating the importance of the river for their community. In his research journal Santi wrote,

After we finished the activity, [the women's group] were very excited that their presentation will be sent abroad. They were willing to help to make this work done. I really like this activity because I could see happiness from the villagers, and I could see that they are having fun with this activity without being shy. I feel like the activity makes me feel better with this job than these past two days. After the activity, we drank tea and had snacks together. I said goodbye and gave appreciation to them. I travelled back home with smile on my face and arrived home...

In fact, this activity was somewhat of a turning point for Santi. He reported feeling somewhat discouraged by the challenge of interviewing during the first round of interviews, but this activity helped him to realize how research could benefit their communities and be a joyful process.

For the observations, Santi followed two men and two women participants in each village to observe and take photos of various livelihood activities related to the river (see Appendix D). Each participant was observed conducting a different activity so that a breadth of activities could be documented. I asked Santi to keep a research journal for each day that he conducted research activities. While he was not able to do so every day, the notes he did take provided a more personal perspective on the research activities as he could communicate information that did not appear in the interview transcripts or in the observation photos. For example, he elaborated on the circumstances that could have influenced interviews, such as whether participants were busy that day, and therefore tired, during interviews. He also described how some participants were

very welcoming and offered him food, or if they continued to talk about fishing activity together after the interview was completed, indicating their excitement about discussing this subject. The journal allowed me to know more about participants' feelings during interviews as well, such as which participants were joyful and laughing, and which appeared frustrated with the perceived difficulty of the questions—Santi linked this perceived difficulty with the lack of education for many community members. Thus, the research journal was effective tool to help to virtually situate myself in the interviews despite the physical distance.

Ethics

I trained Santi in the appropriate ethics protocols and to always establish consent prior to conducting research activities. Referring to his research guidebook, he read out the consent script and requested oral consent, which is appropriate in this research context. Written consent would have not been appropriate because it increases the researcher-participant hierarchy due to the level of formality and therefore reduces trust in the researchers. Verbal consent is much more typical and valued in these communities. Santi recorded each aspect that a participant consented to in his research guidebook. While many participants consented to using their names, I decided to anonymize the data because using their names does not add any analytical value to this research. Participants were also given a separate handout in Thai language that included contact information for myself, my supervisor, the research assistant, and one of the translators in case the participants would like to follow up with anything after the research activities.

In the spirit of reciprocity, participants received financial compensation for the time and energy they put into the research project. In Na Doi village, the community elected to receive

one donation to their community church on behalf of all the volunteer participants. Meanwhile, Mae Lui village decided that each participant would receive an individual donation for the activity they participated in. Additionally, I plan on creating a research output that will be meaningful and helpful for the communities. This will most likely take the form of a short report that can be used by the communities and local NGOs as evidence of how they take care of the Ngao River, but further discussion remains to be had. In the future when travel is possible, I intend to travel to the communities to present my research and this report to them in person. This is the preferred form of dissemination for these communities.

Analysis

Data analysis formally began after the first round of interviews were completed, translated, transcribed.¹⁴ This allowed for the interview questions to be further developed given findings, successes, and failures from the first round for the next two rounds. For example, it was discovered that participants often answer questions in a straightforward manner, so additional follow up questions prompted further explanation in the subsequent rounds of interviews. Coding was also conducted in multiple rounds and will be further described below. The data were also considered within the wider context of Karen livelihoods and struggles since the creation of national resource management regimes in Thailand as outlined by academic and grey literature. Additionally, data were compared in reference to scientifically derived findings about the local riverine ecology (see Koning & McIntyre, 2021; Koning et al., 2020). Science is an effective tool

¹⁴ I include “formal” here to recognize the thought that analysis begins from the moment we choose a particular topic (MacKian, 2010).

to translate the traces left by nonhumans to understand their agency (Sundberg, 2011). In all, analysis was conducted iteratively throughout the research process.

To begin the coding process, I printed out all the transcripts from the first round of interviews (four groups and four individuals) and conducted *in vivo* coding to find recurring and important ideas, concepts, and themes. I also noted emerging connections, patterns, and analytical thoughts. Using these *in vivo* codes, I generated a list of hierarchical codes to use for all transcripts (including first round interviews with these new hierarchical codes) in the NVIVO software program (for Mac). I only created new codes from this original list as necessary, which was rare. I continued to take notes (memos in NVIVO) of emerging connections, analytical thoughts, and questions arising from the data. Here, I began to generate key narratives, discourses, and overarching themes. Once I completed the coding process, I reorganized the coded data a final time. While the hierarchical codes were referred to, I did not restrict the reorganization of data to these original codes so that I did not let my preconceptions or initial thoughts undermine the final analysis. Here, I categorized all coded data with the quotes in full to reference to throughout the writing process so that I could refer to the participants' "original" words in addition to my analysis.

I do need to note here that the research participants' words are *mediated*. This recognizes that it is impossible to accurately reproduce the voice of research participants. Their words have been mediated in multiple points throughout the research process including through the interview questions, translation, and analysis. Therefore, the ideas I present cannot be portrayed as directly from the participants. Rather, I portray interpretations of their words to reflect their lived realities.

I heed MacKian (2010) in recognizing the role of interpretation in qualitative research. That is, the mediation of participants' words is conducted through various acts of interpretation. For example, the data are interpretations of the world, the researcher presents their interpretation of the data in their writing, and so on. Drawing on Walcott (1994), it can be helpful to distinguish description, analysis, and interpretation as different "layers", although with the caveat that each of these necessarily shapes the others (in MacKian, 2010). While the remote nature of this project's research design hinders my ability to engage in deeper interpretation that would arise from *in situ* ethnographic research, I am fortunate to be able to draw on my prior experiences in the communities and in Thailand to facilitate my ability to analyze and interpret. For example, I do not simply read the words about fishing gears from translated interviews, but I can visualize the community members setting and checking nets, imagine the feel of the rocks under my feet as I stand in the river to observe them, and so on.

The next two chapters present the findings from my research process focusing on description, analysis, and interpretation to different degrees. Chapter 4, following this, is more empirical and emphasizes description and analysis. It aims to present a suitably comprehensive account of community-based river conservation in the Ngao River basin. Such an account has not been done before and thus is an important precursor to the more interpretative take in Chapter 5. These two chapters will then be tied together in the conclusion.

Chapter 4

Community-based Conservation of the Ngao River in Thailand: A Networked Story of Success

Introduction

This research project began with the aim of understanding how and why local communities initiate conservation programs through a case study of community-based river conservation along the Ngao River in Northern Thailand. The community-based conservation (CBC) of this river sustains fish populations for both biodiversity conservation and local food security purposes (Koning et. al., 2020; Koning & McIntyre, 2021). Since one community implemented formal institutionalized river conservation following its introduction by a local NGO 25 years ago, the program has spread to over 50 other ethnic minority Pga K'nyau (also known, and referred to here, as Karen) communities in the river basin. This case study is important because inland capture fisheries have remained relatively neglected by policymakers and development stakeholders despite their importance for livelihoods, food security, and sustainable development, particularly for marginalized peoples in the Global South (Allan et al., 2005; Bennett et al., 2018; Cooke et al., 2016; Funge-Smith & Bennett, 2019; Lynch et al., 2020; McIntyre et al., 2016; Opperman et al., 2020; Welcomme et al., 2010). In mainland Southeast Asia, national governments and development stakeholders have downplayed the viability of inland capture fisheries in favour of aquaculture, hydropower, and irrigation projects (Arthur & Friend, 2011; Bush, 2004; Sneddon & Fox, 2012). However, despite the lack of attention by

large-scale actors, local fishers have continued to shape physical and social landscapes (Radford & Lamb, 2020). Thus, smaller scale approaches, such as CBC, are more suitable for inland fisheries management.

CBC is lauded for its potential to meet both conservation and development objectives (Adams et. al., 2004; Berkes, 2004) and thus is a useful approach for inland capture fisheries management. Scholars have studied numerous examples of successful inland fisheries management by local communities, including for conservation (Baird, 2006; Baird & Flaherty, 2005; Islam et al., 2014; Khumsri et al., 2009; Loury & Ainsley, 2020; Loury et al., 2018). These studies identify how and why community-based management can be effective, including the importance of effective institutions that account for local people's needs. This study seeks to contribute to the highlighted literature by paying close attention to how and why communities *initiate* and *continue to implement* inland fisheries management programs, especially for conservation. It is important to understand such "bottom-up" CBC programs because they can more effectively contribute to local peoples' self-determination and to long-term conservation than programs controlled by state, nongovernmental, and private actors (Dawson et al., 2021; Reed et al., 2021).

In my analysis, I try to avoid falling into the trend in the social sciences of fisheries to focus on problem solving issues of "poorly defined property rights, mismanagement and institutional failures" (Sneddon & Fox, 2012, p. 280). Accordingly, I pay attention to the wider social, political, and economic trajectories and histories that shape and constrain community resource managers and the ecologies in which they are embedded (Cleaver & de Koning, 2015). Thus, this paper seeks to contribute to the social sciences literature on inland fisheries by taking

a critical institutionalist lens that centres the role of local communities and their institutions but locating them within broader networks of various actors, power structures, materialities, and place-based histories to better understand effective and socially-just inland fisheries management.

To understand the initiation, continuation, and spread of community river conservation in the Ngao River basin, this study examines the riverine fisheries management of the two villages that first started this program. I explore the river-oriented aspects of the communities' lives and livelihoods combined with broader material-discursive networks and socio-political histories. This analysis allows me to understand the conditions and connections that shape and constrain communities' decisions and actions. Additionally, I consider if and how the decisions and actions regarding river conservation effectively meet community needs. While individual interests and goals within a community may diverge due to their specific circumstances, broader socioeconomic, political, and ecological processes can marginalize community members collectively. I argue that Ngao communities initiated CBC when it improved community wellbeing by countering collective marginalization. In the Ngao River basin, community river conservation is helping communities to maintain food security¹⁵ and make progress towards self-determination.¹⁶ CBC programs are thus sustained long-term when these improvements are visible and clear. While in need of further research, I also find evidence that the visibility and

¹⁵ Food security refers to sufficient access to a quantity and quality of food to meet human needs (Rogers et al, 2013c). This may include purchasing affordable foods, but also food produced from livelihood practices, which may either be from agriculture or wild food harvest (including fishing and hunting).

¹⁶ Self-determination refers to the principle that people should be able to decide how they are governed (Rogers et al, 2013e). In other words, self-determination means that people have a meaningful level of autonomy over the direction of their lives, including managing resources and food security.

clarity of improvements due to CBC programs contributed to the spread of river conservation throughout the Ngao River basin through informal networks.

The following section outlines the framework for this study. I then introduce the research sites and explain the methods used to conduct this research during a global pandemic. The rest of the paper presents the findings on the institutions of community-based river conservation, how the institutions evolved in relation to networks, the key threats that river conservation helps address, and the extent that informal networks may explain how the CBC program continue to spread throughout the river basin. I then conclude with the implications of this case study for understanding CBC success and for inland fisheries management.

Conceptual framework

Place-based protected areas are a staple in conservation practice, including in both marine and freshwater aquatic systems (for an extensive review see Loury et al., 2018). Given the potential of conservation measures to harm local communities (Adams & Hutton, 2007; Dowie, 2009; Igoe, 2004), community-based conservation (CBC) has long been proposed by scholars and activists in Southeast Asia and globally as a viable option to meet conservation and development goals. As an alternative to state organized conservation that is perceived to be failing, CBC, like community-based natural resource management (CBNRM), is based on the idea that older or “traditional” management practices by local resource users can be mobilized and formalized, sometimes with scientifically informed intervention, to ensure the long-term sustainability of resources while providing for human needs (Agrawal & Gibson, 1999; Berkes, 2004; Ostrom, 1990).

Many of the insights into effective community-based approaches draw on the rich literature in the study of common-pool resources. Most prominently, the work of Elinor Ostrom (1990) brought attention to the many examples of local resource users forming institutions for collective action to avoid the “tragedy of the commons”. Ostrom’s original eight design principles have been extensively reviewed over the years and overall remain supported despite criticisms (Cox et al., 2010), one of which will be elaborated below. This support indicates the continued relevance of the original eight principles. Other frameworks specifically designed to evaluate aquatic protected areas often parallel Ostrom’s approach with focus on aspects such as clear boundaries, effective monitoring and data collection, and stakeholder participation (Domondon et al., 2021; Loury & Ainsley, 2020; Pomeroy et al., 2001). Some newer approaches are specifically designed to deal with even higher complexity (see Mascia et al., 2017).

A major critique of institutional approaches concerns how they often do not adequately account for the role of power in shaping local dynamics at multiple scales (Blaikie, 2006; Brosius, 1999; Cleaver & de Koning, 2015; Dressler et al., 2010; Ribot et al., 2006, Shackleton & Campbell, 2001; Suhardiman et al., 2021). Following this critique, critical intuitionism calls on analysts to “explain how institutions are animated by people, acting individually or collectively in particular spaces, in relation to others, and to the physical and material environment... [and show] how power works to sustain institutions and to shape participation, access and outcomes” (Cleaver & de Koning, 2015, p. 2). Accordingly, my approach starts from the basic premise that the world we inhabit is created through the endless web of connections between all its parts, or networks. Rocheleau and Roth’s (2007) *rooted networks* framework has emerged as a particularly salient tool to combine a nuanced view of networks with a critical

stance on power relations that is based in political ecology. A rooted networks framework helps us to understand “the terms of connection, about why actors make particular decisions, and why events unfold in particular ways” (Cantor et al., 2018, p. 970). Additionally, the framework pays particular attention to the role of territory that “roots” a network in place, although with varying degrees of fixity and mobility (Rocheleau & Roth, 2007). It also encourages a dynamic view of place-based histories, which has been shown to be critical to understanding the impact of conservation successes and failures on local communities (Lipton, 2014). In fact, some scholars argue that communities themselves must be understood in terms of networks (Igoe & Fortwangler, 2007; Ojha et al., 2016), acknowledging their coproduced nature. Roberts (2016) found *rooted networks* to be a helpful analytic to understand how another upland ethnic minority community in Thailand maintained forest access despite prospective land use restrictions resulting from a national park. Thus, the *rooted networks* framework is a potent tool to untangle the circumstances that lead to CBC success and proliferation.

In this paper, I centre community as an effective scale for conservation decision-making while simultaneously holding critiques of community. The idea of a singular community asserts that a monolithic and cohesive group of people exists and does not account for intracommunity heterogeneity (Agrawal & Gibson, 1999). Some CBRNM and CBC failures may be explained by programs that rely on this idea (Pagdee et al., 2006). Community is often used discursively in particular ways by various actors to achieve their goals (Li, 1996). However, I follow Rigg and Vandergeest (2012) who state that “it is possible to challenge the idea that village communities are natural and traditional, while accepting them as real to the extent that they are made by a variety of agents... all of whom construct communities by acting as if they exist” (p. 19).

Accordingly, in the rest of this paper I explore the evolution of effective community-based river conservation by focusing on the role of communities and how community institutions are shaped by broader rooted networks.

Methods

Research sites

The location for this study is the Ngao River basin of northwest Thailand (Fig. 1a), approximately 200 kilometers west of Chiang Mai, Thailand's second largest city, near the border with Myanmar/Burma. The river is part of the Salween River basin that begins in the Himalayas and flows through China, Myanmar/Burma, and Thailand before emptying into the Indian Ocean. Many Karen communities reside here. While it is not exactly known when they moved into the Ngao River basin, a key informant stated that their ancestors likely arrived from other Karen villages to the east, where the roads to Chiang Mai city (the historical centre of the Lanna Kingdom) are older and more developed (Koning, personal communication, May 18, 2021). The Karen can be found throughout the mountainous areas between Thailand and Myanmar/Burma, and scholars believe that they have been settled in the north and west of Thailand for over 700 years (Keyes, 1979). A key informant reported that the Ngao River basin was historically very isolated, as access was limited to bamboo rafts. Logging roads, however, were constructed in the 1980s and, within the past 20 years, local authorities began to improve road conditions (Koning, personal communication, May 18, 2021). Many research participants reported that they moved into their current villages within their own lifetimes, but often from other communities in the river basin, highlighting their mobility.

Mae Lui and Na Doi villages (Fig. 1b) were selected for this study because they were the first two villages to implement formalized river conservation before this program spread to more than 50 others throughout the river basin. More villages were not incorporated into the study because of research challenges due to the COVID-19 pandemic (see Chapter 3). While not representative of every village in the basin, these two villages provide excellent case studies on why and how a rural Karen community may establish river conservation. Notably, these communities are subjected to resource use restrictions due to the delineation of a proposed national park, the Mae Ngao National Park (MNNP).

Data collection and analysis

Due to the interruption of fieldwork plans by the COVID-19 pandemic, qualitative data was gathered remotely via a local research assistant (LRA) recruited from a neighboring community from October 2020 to February 2021. Fortunately, I frequently visited a few Ngao communities from July 2018 through June 2019 as a research assistant for a project that sought to assess the effects of community-based conservation on the river ecology through daily fish harvest data.¹⁷ Thus, many people, including community leaders, had previous experience working with me. This foundation of trust facilitated access for my research project that may have been difficult otherwise.

My local contact, Panee Phoemchatchai, assisted the identification of, and trust building with, Santi Klanarongchao, a local community member, who was employed as an LRA. I

¹⁷ This project was conducted by Dr. Aaron Koning in affiliation with the Cornell Atkinson Center for Sustainability at Cornell University.

remotely trained Santi on the details of the project and how to conduct qualitative research over multiple training sessions. His lack of previous research experience was compensated for by the fact that local knowledge was emphasized using this methodology. Researchers are increasingly recognizing that LRAs and other local partners can provide unique and meaningful research insights (Anwar & Viqar, 2017; Hunsberger et al., 2017; Sharp, 2005). Santi and I communicated frequently throughout the fieldwork period. When fieldwork began, we talked over the phone a few times each week and messaged almost daily. Later, when Santi was more comfortable with conducting research activities, we communicated about once per week.

Semi-structured interviews provided the most substantial source of empirical data. A participatory mapping activity, observations, and Santi's research journal were used to triangulate data. A total of 40 individuals participated in either group or individual interviews. The interview questions helped the participants build an understanding of the significance and role of the river and river conservation in Ngao Karen communities' lives. One methodological concern arose in relation to understanding historical events through interviews as it is difficult (if not impossible) to separate out how contemporary knowledge shapes memory and thus the way that tradition is framed. Interviews with the founder of a local NGO and a foreign researcher helped to corroborate information and address this concern.

Data analysis began after the first round of interviews were completed, translated, and transcribed. Interview questions for the following two rounds of interviews were further developed based on findings from the first round. The data was initially open coded descriptively to determine recurrent and significant themes. Subsequently, hierarchical codes were developed to thematically organize the data for narrative and discourse analysis using NVivo software. The

data were also considered within the wider context of Karen livelihoods and struggles since the creation of national resource management regimes in Thailand, as outlined by academic and grey literature. The following sections detail the relevant research findings from this analysis.

Case study: The rooted networks of CBC in the Ngao River basin

Community-based river conservation in the Ngao River basin

Community river conservation in the Ngao River basin involves controlling fishing techniques and where fishing activity is allowed. I was not clear whether these rules apply to fish or all aquatic life. However, participants seemed to use the term fishing as a placeholder for the harvest of any aquatic life. This practice is also common amongst fisheries researchers (see Bennett et al., 2021). Thus, I do the same in this paper. Fishing methods determined to be destructive or overly exploitative are banned. Generally, these banned methods are electrofishing, dynamite fishing, and poisoning. Communities also designated one or more areas as river reserves, in which no fishing activity is allowed. These areas are also known as fish conservation zones (such as in Southern Laos, Baird & Flaherty, 2005) or areas (such as in Karen State in Myanmar/Burma, Paul et al., 2021).

River conservation rules vary by community. Some communities have additionally banned spearfishing (in its various forms) and the use of goggles or masks to assist with seeing underwater. The size and location of river reserves also varies by community. The length of reserves ranges from 250 to 2000 meters long (Koning et al., 2020). Some communities, like Mae Lui and Na Doi, preferred to locate their reserves near the community for ease of monitoring (i.e., everyone in the village can help notice rule-breakers). While reserve locations

were not necessarily selected to protect specific river habitat (e.g., deep pools), both villages' reserves are comprised of multiple types of river habitats, meaning that a variety of species are protected. Other communities selected the location(s) their reserve(s) for different reasons and reserves may be as far as three kilometers from the village through dense forest (Koning, personal communication, May 18, 2021). Additionally, the time of protection varies. For both Mae Lui and Na Doi villages, the reserve areas were designated for perpetuity, or at least there is no planned time for any significant changes besides possible enlargement. However, some communities, particularly those that are more remote and food insecure, designated reserve areas for a period of several years and then allowed some or all community members to harvest fish from the reserve for a limited period (Koning, personal communication, May 18, 2021). This allowed for the extensive harvest of fish during times of need, while also ensuring that fish populations can regenerate before the next harvest.

River conservation rules were created and agreed upon by the whole community. In Mae Lui village, for example, the whole community voted together in favour of beginning formalized river conservation and the subsequent decisions were also made with community approval and input. Much like for other community endeavors, a committee was created that is responsible for river conservation and creates proposals for the community to vote on by majority rule. Some participants (who had been on this committee) stressed that the committee tends to field ideas for proposals from other community members who are outside of the committee. This committee also manages river conservation activities, including equipment repairs and annual community prayer events. Not all participants were clear about who was involved in the committee, but key informants stated that it tends to have around five members, both men and women, although

skewed towards men. This committee undergoes membership changes about every five years depending on interest. The number of members and periods of membership vary in each community.

Community meetings are held either at the community meeting hall or at the village head's house. Every family is invited to send one representative to vote on their behalf. Both men and women attend, and all ages are invited, although youth do not typically join. Some participants reported that the community tends to vote in favour of a proposal even if they disagree. One participant believed that dissenters may not feel comfortable expressing their dissent openly. There appears to be pressure for the community to perform as a cohesive whole, exemplified by one participant who stated,

I think as we are one village, we must agree with each other to take care of the forest and to take care of the river very well. When someone presents a good way to do it, we as the members must agree on it. We must have unity amongst each other. (February 23, 2021)

This pressure may explain why the entire community tended to vote in favour of proposals.

There were dissenters, but they demonstrated their dissent in other ways. Dissenters of river conservation will be considered at the end of this section.

To spread awareness of the new rules, village heads made announcements at inter-community gatherings and placed signs at village entrances explaining the rules. Communities also placed indicators at the start and end of river reserves, such as a rope with flags strung across the river. The only government support of river conservation noted by participants was that the local subdistrict authority helped provide funding for this rope. Community members also spread awareness by talking to friends and family, including in other communities, to inform them about their river conservation rules.

Communities also determined penalties for rule-breakers, usually a cash or in-kind fine. For the river reserves, typically the fines are negatively correlated with the ease of enforcement. The further away and harder to reach a reserve, the higher the fine will be (Koning, personal communication, May 18, 2021). The committee has the authority to set the penalty and decide whether a perpetrator must pay the fine. In practice, it is common that first-time rule-breakers are let off with a warning or a reduced fine (Koning, personal communication, May 18, 2021). Participants reported that the most frequently broken rule was fishing in the reserve areas, which one participant noted can be very tempting as there are many large fish visible there. They additionally reported that rule-breakers rarely became repeat offenders.

Most rule breaking occurred soon after river conservation started. As noted earlier, dissenters did not make their opinions known in community meetings, but rather did so through their later actions. Participants reported that these individuals did not like losing the freedom to fish anywhere they pleased and were worried about being able to catch enough fish. Others were wary of an idea introduced by outsiders, believing instead that their traditions were sufficient. However, as time went on and the benefits of river conservation became evident, the dissenters changed their minds.¹⁸ Thus, the visibility and clarity of the benefits of river conservation have been essential to creating community unity around river conservation. These benefits will be elaborated in a later section.

¹⁸ The only exception is that some community members continue to disagree with the banning of spearfishing and masks

The formal institutionalization of river conservation

The contemporary CBC program was developed because of specific historical events aligned with broader socio-political changes in Thailand. Communities are part of broad networks of actors who both support and marginalize communities in particular ways. In particular, one networked relation to a local NGO, the Development Center for Children and Community Network (DCCCN), catalyzed the formal institutionalization of river conservation in the Ngao River basin. There were, however, many historical precedents that set a basis for formal institutionalized conservation. These precedents were based on cultural notions of reciprocity that were passed down through generations via traditional sayings and management practices. One example provided by a participant is translated as, “Drink water, protect the water; eat fish, take care of the cave where fish live” (February 18, 2021). Evident in this saying is people’s responsibility to take care of the ecosystem that provides for them in turn. A participant mentioned that this was why her community does not cut trees or do chemical-intensive agriculture along a stream meant for drinking water. Additionally, participants reported that a subsistence ethic was stressed by their parents’ generation. This was understood as only taking according to their own need and leaving some resources unharvested to ensure that there will be more in the future. One elderly participant recalled a traditional practice in which families carved symbols into trees along the river signifying that the area was temporarily claimed and that a family held responsibility there. This practice reduced fishing intensity in given areas but has since been abandoned by more recent generations.

These historical precedents provided a basis for the DCCCN to help formalize river conservation into a more clearly understood and enforceable institution for both outsiders and

community members. The DCCCN was founded in 1994 in Sob Moei, the local district centre. At that time there was a proposal by the Thai state to create a dam on the Yuam River (of which the Ngao is an upstream tributary) to ease perceived water shortages for agriculture in Central Thailand. While discussion of this potential dam keeps reemerging, no ground has yet been broken. Additionally, the Department of National Parks, Wildlife and Plant Conservation (DNP) was undertaking the mapping and planning of the Mae Ngao National Park (MNNP), which was formally announced in 1995 (สำนักอุทยานแห่งชาติ, n.d.). Participants reported that their communities were not adequately consulted prior to this announcement. They either did not recall any discussion with representatives of the DNP or noted that their communities were not adept enough at Thai language at the time to understand what the DNP intended to do. This problematic consultation highlights the unequal power relations between the state and local communities.

Both projects by the Thai state would have major impacts on local communities and were critiqued for not accounting for their interests, a common pattern of state-led projects for both water resource development (Matthews & Geheb, 2014; Lamb, 2014; Lazarus et al., 2012; Molle, 2009) and conservation (Adams & Hutton, 2007; Mollett & Kepe, 2018). Although the MNNP is not finalized and has remained in the proposal stage, the communities within its boundaries are still subjected to land use restrictions for agriculture and are banned from harvesting resources from the forest areas claimed by the DNP. The boundaries between the MNNP and the communities' lands are ambiguous and still undergoing re-mapping to alleviate on-going conflicts. Communities are anxious about the pending finalization of the MNNP given the prospect of even harsher restrictions or evictions. Additionally, the potential for any future

restrictions on river use is uncertain. Thus, the founder of the DCCCN created the organization to educate and support local communities to counter these government projects that were not adequately engaging local people.

Compounding these issues is the Ngao communities' lack of land documentation. Like many upland ethnic minority communities, they never received land documents from the Thai state before their territories were gazetted as "forest", which precluded the allocation of land titles for their agricultural land (Vandergeest, 1996a). Only within the last few years have some community members received an "agricultural registration booklet" that allows for crop insurance compensation after a natural disaster. However, this document provides no meaningful recognition of their claims to the land.

The DCCCN's main objective at the time was thus to empower local communities to participate in natural resource management decision-making, aligning itself with the broader Karen rights movement.¹⁹ Over the past few decades, many Karen communities, NGOs, and academics struggled for the legal recognition of community access to forest land and resources in Thailand. The struggle countered the longstanding marginalization experienced by Karen communities that was due, in part, to the Thai state's position that upland peoples cannot coexist with the forest (Delang, 2004; Forsyth et al., 2008; Vandergeest, 2003). The Karen rights movement made the case that Karen villages are communities that "live with nature" and are thus aligned with the conservation goals of the Thai state (Laungaramsri, 2001). Many scholars and activists highlighted how local knowledge systems, as well as Western science, support

¹⁹ Today the organization is more oriented to stateless persons in Thailand.

claims that traditional Karen livelihood practices are not only sustainable but also increase biodiversity and other indicators of ecosystem health (see, for example, Fox, 2000; Rerkasem et al., 2009; Wangpakapattanawong et al., 2010). Karen leaders and their network of allies mobilized a strong counternarrative that demonstrated the capacity of Karen communities to sustainably manage natural resources, effectively coproducing the village as “community” (Vandergeest, 2006) and forms of “Karen” environmental management (Laungaramsri, 2001). The formalization of forest management regimes with distinct zones that each contain their own set of rules governing use and nonuse replicated state conservation zoning rules. In essence, this movement tried to create an ideal environmental subject in the eyes of the Thai state. While there are certainly issues within this broader movement, for example in how it selectively highlights only certain aspects of Karen culture and identity, and how it limits the possibility of the development of commercial interests (Walker, 2001), it has nonetheless been both materially and symbolically instrumental in the process towards self-determination for Karen people in Thailand.

While the DCCCN believed that Ngao Karen communities could effectively steward natural resources, there were destructive fishing practices taking place that they sought to change. While these communities were historically very isolated, groups of people from nearby cities sometimes ventured up the river to fish and hunt. These non-Karen groups from the lowlands used destructive fishing methods, including electrofishing and dynamite fishing, that can kill large numbers of fish and other organisms and destroy habitat. Ngao communities never encountered such methods before, but some community members learned and began to use them because these groups of outsiders stayed in their communities to rest and hired locals as guides.

Participants reported that at that time they did not fully understand the implications of these destructive methods on the local ecosystem, although some people certainly disagreed with their use. Thus, when the DCCCN noticed these activities, the NGO decided to support the communities to develop river conservation practices.

The DCCCN introduced institutionalized river conservation to a group of six communities. The organization also facilitated trips for village representatives to learn about river-based CBC programs in other places throughout Thailand. After these trips, the DCCCN did not initiate any more activities regarding river conservation and rather only came to provide advice when requested. At first, only the village head of Mae Lui held a community meeting to discuss implementing river conservation. Participants reported that at this time they understood electrofishing, dynamite fishing, and poisoning fish to be problematic. Additionally, participants noted that village populations were increasing and, as a result, that fishing pressure was also increasing. Community members thus agreed that formal institutionalized conservation was necessary to protect a crucial, and at-risk, resource for their livelihoods and to assert their communities' ability to manage natural resources effectively.

River conservation for food security

The foremost contribution of river conservation is for community food security. The river is vital for a variety of community livelihoods, but research participants reported that the river is most important as a source of food. A women's group reported that approximately 80% their community's meals come from the river. A local self-identified expert explained that it is much easier to access the river than to trek long distances into the forest. While there is significant

personal and seasonal variation, participants reported that community members tend to go to the river to harvest food at least once per week. A few go every day. Some participants said that they do not engage in fishing activity because of other obligations, but they still go to the river to harvest other aquatic organisms or plants.

Community members harvest a large variety of food from the river (see Fig. 2). Notably, inland fish and other aquatic animals are great sources of protein and essential micronutrients (Funge-Smith & Bennett, 2019). In total, participants provided names for 47 fishes, 6 crabs, 7 mollusks, 7 turtles, 3 frogs and toads, 11 water insects, 26 plants, 1 snake, and 2 large-bodied predators (otter and monitor lizard). Many of these species are edible and are regularly consumed in the communities. Participants reported that they usually leave their house with certain target species in mind, but if they are unable to harvest them, they are often still able to find something to eat. Some participants framed the river as a backup food source if they do not have anything at home. Others emphasized their reliance further. For example, a man from Na Doi village said, “I think we have to look for food this way... if we don’t do it, we might not have food to eat” (December 4, 2020). Even for those who do not go fishing, they still eat fish from the river because it is common for other community members to bring them some to eat.

Participants reported that harvesting river products does not generate a significant source of cash income but rather that it enables families to save money for other things, such as children’s school fees. Given that hunting is prohibited in national park boundaries and families only have limited space for livestock rearing, the only other option for animal protein is to buy meat from nearby towns and cities, the cost of which is prohibitive for many families. Riverside plant availability also saves families from having to buy vegetables in between farm harvests.

Given limited household incomes, families may not be able to support adequate diets without foods from the river. The river is seen as so important that when asked what they would do if they could not access it anymore, a group of men replied, “We would suffer a lot if we could not go to the river anymore. We might no longer live in this area. Our way of life has been related to the river for a long time. No river, no life” (November 15, 2020).



Figure 2. Various food production activities: collecting riverside ferns (top left), fish caught on fishing pole (top right), various fishes caught spearfishing (bottom right), various aquatic life caught with a “swae” (bottom middle), and harvested snails (bottom left)

River conservation thus ensures the sustainability of this key source of food security. Communities understood this because their “rooted” practices and knowledges enabled them to observe the benefits of formalized river conservation. Primarily, river conservation is recognized

as responsible for increasing fish populations. While they recognize that the fish catch today is not as bountiful as it was in the distant past, they also recognize that many fish species may be extirpated today without river conservation. Some believed that there may have been no fish at all. However, fish populations have improved since the time conservation began. Many participants interpreted the fact that they can still catch fish today as evidence that conservation has been successful. This is especially important in the context of the decreasing availability of agricultural land due to MNNP restrictions, the introduction of destructive fishing methods, and increasing village populations and fishing pressure. Participants particularly emphasized how future generations will be able to rely on the river for food. The success they have seen has encouraged community members that this vision for the future is possible.

River conservation for self-determination

The contribution of river conservation for self-determination results from the increased visibility of fish. Large numbers of fish are physically visible in the river reserves from the riverbank. Participants believe that the fish consider the river reserves as “safe homes”. Some participants noticed that fish swim into reserve areas if they see humans on the shore. The increased visibility of fish due to river conservation also attracts outsiders to visit and learn about the communities. The Ngao River is well-known for its good ecological conditions and the communities are recognized for their contribution to these conditions. Some communities, like Mae Lui, have convenient overlooks on the river reserve (see Fig. 3). Visitors can purchase and throw in fish food to draw large amounts of fish to the surface. Less frequently, groups of sport fishers arrive to pay for access to the reserves for catch-and-release fishing. These tourism

activities generate income for the communities, some of which is put towards river conservation, and increase general awareness across Thailand of the communities' ability to manage natural resources effectively.



Figure 3. Fish visible from a river reserve overlook in Mae Lui village

The recognition that communities get from outsiders could help them to gain formal recognition by the DNP. As described earlier, the communities hope that their conservation efforts will demonstrate their environmental stewardship and help them to earn a role in local natural resource management regimes. Some participants posited that the recognition by outsiders explains why the MNNP has remained in the proposal stage to this day. If it were not for their widely recognized conservation efforts, participants thought that the current rules and penalties by the DNP would be stricter and harsher. However, not all participants felt confident about this, and all anxiously await the final decision about the MNNP's status.

The spread of river conservation

After Mae Lui village first started river conservation in the Ngao River basin, it took many years before this program reached all the villages practicing it today. This can be partially explained by the time lag between when communities start river conservation and when the benefits become apparent. Koning et al. (2020) found that biomass increases are apparent only after a few years. This time lag coincided with the establishment of neighboring communities' river conservation programs. For example, Na Doi village was part of the original training with the DCCCN but did not start river conservation until a few years after Mae Lui. Participants reported that the Na Doi village head went to Mae Lui to learn about the organization of their program. Participants also reported that Na Doi was then a role model for other communities. Villages near Na Doi then started river conservation five or six years after Na Doi. Most communities in the river basin started river conservation more recently, within the past eight to ten years (Koning, personal communication, May 18, 2021).

Communities did not intentionally encourage others to adopt river conservation and many participants could not recall a time in which another community had formally come to theirs to learn. Participants reported that the only direct engagements with other communities about river conservation tended to be when: (1) they needed to inform neighboring communities of new rules, and (2) someone from another community broke rules and they needed to address the incident with that individual's home community. There are, however, extensive informal networks that connect communities. Many participants reported that they have friends and family in other communities whom they regularly visit. Some participants also go to other communities

for day labour opportunities or holiday celebrations. These informal networks facilitate knowledge transfer, which was explained by one participant who stated,

It is normal to talk to people from other villages about fishing methods and things about the river. It happens in our daily life interactions and in conversations with other people. When we meet someone from other villages, we just have a normal greeting or conversation, sometimes we might talk about fishing, and sometimes we might talk about other things. This knowledge exchange has never happened because someone organized it. It just happens through our daily conversations with other people. (December 10, 2020)

Additionally, observation points on river reserves are common resting places along people's journeys to other communities (Koning, personal communication, May 18, 2021). As mentioned earlier, high quantities of fish are visible at these observation points and travelling fishers thus can observe the benefits of river conservation. While further research is needed, informal networks may account for how river conservation spread throughout the basin without formal intervention by the DCCCN or other communities.

Discussion and conclusion

Analyzing institutional arrangements is an important step towards understanding the success of CBC in the Ngao River basin. There are many parallels between formal institutionalized river conservation in the Ngao River basin and other community-managed aquatic protected areas (e.g., Baird, 2006; Baird & Flaherty, 2005; Loury et al., 2018). For example, clearly defined boundaries are evident in the design of river reserves, with the use of markers clearly designating the start and end of the reserve on the river. Effective monitoring results from all community members helping to identify rule-breakers. Community members' regular visits to the river also enable them to observe the relative state of fish populations, which

can help inform management decisions. The involvement of the entire community in decision-making is also notable as it indicates that every resource user has a stake and say in local management. These are just a few examples that demonstrate how institutional frameworks such as Ostrom's eight principles continue to be useful for analysts studying cases of community-based river conservation (Ostrom, 1990). However, understanding these issues with a critical institutional lens stresses that successful CBC programs do not materialize out of thin air, but rather serve to address specific issues contingent on complex rooted networks (e.g., Yong, 2020). The success of CBC in the Ngao River basin in conserving inland fisheries and meeting human needs must be understood through the complex and historically determined linkages between local communities, material ecologies, and state and non-state interests and actions.

The key to understanding river conservation in the Ngao River basin is that food security and self-determination were threatened by the incursion of outsiders who introduced destructive fishing methods, and by the proposed national park that endangers resource access. In other words, power-laden networked relations placed, and continue to place, communities and their livelihoods at risk. Networked relations also connected communities to the broader Karen rights movement through a local NGO that helped to coproduce formal institutionalized river conservation to counteract the marginalization threats. Intricate and "rooted" relations with the river ecology enabled communities to see and understand the benefits of river conservation and how it is helping to reduce the marginalization threats. This understanding explains why Mae Lui village was able to unify around river conservation despite initial dissent. It also explains why river conservation continued to spread throughout the river basin, given that all Ngao River basin communities collectively experienced this marginalization. In other words, communities'

situated understanding of the benefits of river conservation to reduce threats of marginalization has been critical to the perseverance of river conservation in the Ngao River basin.

These findings resonate with other CBC literature influenced by political ecology that emphasizes the role of external actors and threats in shaping CBC programs (see, for example, Dressler et al., 2010; Igoe & Fortwangler, 2007; Kongkeaw et al., 2019; Ojha et al., 2019; Yong, 2020). This paper contributes to this discussion by emphasizing the importance of taking into account situated and entangled relationships within complex networks to show how CBC programs ensure that communities can counter threats of marginalization by powerful actors, such as by providing food security and asserting rights to self-determination. Doing so may help guide new opportunities for establishing formalized CBC programs that can successfully meet conservation and development goals. While the role of the state has generally been framed as antagonistic to communities throughout this paper, the state can contribute positively by formally recognizing successful CBC programs that emerge out of particular networked arrangements and finding ways to support them. Given that Ngao communities' river conservation has no legal basis and could be easily challenged by other interests, the DNP's or local government's formal acknowledgement of this program would provide significant long-term benefits (Cox et al., 2010; Ostrom, 1990). Additionally, this case study demonstrates how CBC can successfully manage inland capture fisheries. This resource is incredibly important for marginalized rural communities, such as the Ngao communities who get 80% of their meals from the river. CBC is vital to protect an important resource for the world's rural poor that is otherwise underemphasized by larger-scale actors.

Chapter 5

Ontological Politics and Conservation in Northern Thailand: Communities Making Rivers and Fish Matter

Introduction

Ontological multiplicity, and the politics that result when ontologies clash, helps explain the origins of environmental conflicts between groups of people and why many such conflicts continue to persist despite mediation efforts (Acuña, 2015; Blaser, 2013; Chapman, 2013; Carolan, 2004; DePuy et al., 2021; Goldman et al., 2016; Gururani, 2018; Lubilo & Henbinck, 2019; Petitpas & Bonacic, 2019; Theriault, 2017; Wilson & Inkster, 2018; Yates et al., 2017). One consequence of ontological politics is that the dominant group may create “ontological foreclosures” that preclude other ways of being and knowing (Burow et al., 2018). This process determines the possible range of “legitimate” practices and the types of solutions that are deemed viable in addressing environmental conflicts. If solutions are to be found for conflicts that do not preclude the possibility of other ways of being and knowing, bringing ontology to the forefront of the debates is critical (Blaser, 2009).

For this paper, I examine an environmental conflict in the Ngao River basin of Northern Thailand where ethnic minority Pga K’nyau (also known, and referred to here, as Karen) communities initiated successful river conservation programs (see Chapter 4; Koning et al., 2020; Koning & McIntyre, 2021). Community-based river conservation in the Ngao River basin

must be understood in the context of decades of struggle between Karen communities and the Thai state concerning access to forest ecologies. Livelihood restrictions and evictions of communities in areas delineated as protected forest have been justified using conservation discourse. Specifically, in the Ngao River basin, communities face forest-based livelihood restrictions due to the proposal of a national park. The finalization of this national park could lead to further restrictions or evictions of the communities.

Understanding this contestation over resource conservation in Northern Thailand as a case of ontological politics helps to explain the persistence of this conflict. Despite Karen ontologies of conservation having been demonstrated to be effective for resource management (for example, see Paul et al., 2021), their community-based conservation (CBC) arrangements are either not recognized by the Thai state or are nominal in nature. I argue that shifting the focus of conservation discourse from forests to rivers and fish could present opportunities to make new worlds in which some state agencies could formally recognize and support Karen conservation, in effect legitimizing Karen ontologies for resource management and conservation throughout Thailand.

Inland fisheries are incredibly important for local livelihoods across Southeast Asia, including in Thailand. Despite their importance, scholars have argued that only the physical water, devoid of any life, is legible to states across the region (Arthur & Friend, 2011; Sneddon & Fox, 2012), which differs from how state agencies concerned with administering terrestrial resources pay attention to the biodiversity of flora and fauna for conservation. In the face of large-scale state-led water development projects—which have devastating impacts on, or restrict local access to, inland fisheries—local communities cite the importance of river ecologies for

their livelihoods when resisting these projects (Foran & Manoram, 2009; Lamb, 2014; Yong, 2020). Many communities devise complex governance arrangements to manage inland fisheries to support local livelihoods (Baird, 2006; Baird & Flaherty, 2005; Khumsri et al., 2009; Loury et al., 2018; Loury & Ainsley, 2020; Yong, 2020). By examining river management and conservation in the Ngao River basin, I consider how local fisher communities, like the Ngao Karen, make fish and other aquatic life²⁰ visible through their knowledges and practices. By making them visible, Ngao Karen communities demonstrate that they can account for and conserve aquatic life in inland waters in ways that the Thai state has been unable to do, thus legitimizing their ontology of conservation. Additionally, while community-based initiatives are usually framed as either community resistance or subsumption to state power, the case of river conservation in the Ngao River basin demonstrates how CBC can occupy an alternative space in which new collaboration and cooperation between these entities is made possible.

In the rest of this paper, I first lay out the paper's conceptual framework by expanding more on the ontological politics approach and the way I trace out collectives to highlight worldmaking possibilities. In the next section, I detail the methods and research sites. Following this, I provide an overview of the history of state-led forest conservation and Karen community resistance. The collective of aligned forest conservation agencies is juxtaposed with the diversity of agencies and approaches with jurisdiction over inland waters. Subsequently, I shift focus to community-based river conservation programs and draw on fieldwork in the Ngao River basin. I

²⁰ Throughout this paper, there is slippage between the use of the terms aquatic life and fish. Some academics (e.g., Bennett et al., 2021), as well as the research participants in this study, appear to equate the terms, using fish to refer to all aquatic animals. I also follow this pattern at times, and I often thought in terms of fish when conducting the research. In this paper, I try to use the appropriate term where possible but acknowledge that there is some inevitable slippage.

discuss of the implications of these community-based river conservation programs for making new worlds that avoid the ontological dominance in forest conservation discourse.

Conceptual framework

Ontological politics scholarship is rooted in the work of postmodern, postcolonial, and Indigenous thinkers who seek to critique the superiority complex of Eurocentric modernity and to foster space for alternatives within academia (Blaser, 2009; Cameron et al., 2014; de Castro, 2015; Escobar, 2007). This has become especially important given that the dominance of human impact on planetary systems that defines the Anthropocene²¹ can be traced back to the industrial era (Steffen et al., 2015), which was in turn spurred by the inception of a modernist ontology in Europe (Latour, 1991/1993). Thus, paying more attention the alternatives to a Eurocentric modernist ontology is key to identifying other ways of being and knowing that could offer ways forward through the Anthropocene, to make new worlds.

As noted by Latour (1991/1993), the development of the Eurocentric modernist ontology was founded in a Cartesian dualism between Nature and Society.²² Therefore, alternative ontologies that are not based in this dualism are of particular interest, and thus labelled as “nonmodernist” to signify this key difference. Ontological politics in environmental conflicts are often due to this difference. Identifying these conflicts, and finding opportunities to elevate

²¹ There are strong arguments for alternative terms such as Capitalocene, Plantationocene, and Chthulucene, but all these terms point to a common understanding of the planetary-transition-defining extent of human impact, though only specific dominating groups may be culpable (Haraway, 2015). I use the term Anthropocene as a stand-in for all these terms and due its wider use both inside and outside of academia.

²² I capitalize Nature and Society to acknowledge that these terms are only made “real” by specific ontologies, such as a modernist ontology.

nonmodernist ontologies, can enable new spaces to find and develop alternatives to humanity's current trajectory. This is particularly salient for conservation, which has often been used to subsume communities and ecologies into capital circuits (Büscher et al., 2014; Igoe & Brockington, 2007) and entrench (neo)colonialism (Agrawal, 1997; Neumann, 2002) within a modernist ontology.

In this paper, I attempt to characterize the ontologies enacted by various groups, but I recognize that any given group's identity and the ontology they enact is always contested and in flux. However, characterizing these ontologies, while flawed, is critical to make any kind of analytical claim. To minimize essentialization, I narrowly locate the ontology that different groups enact. For example, I characterize a Ngao Karen ontology rather than a singular ontology enacted by all Karen peoples across Southeast Asia. Karen ontologies may share differences and similarities across different communities or even within communities. Similarly, I characterize ontologies enacted by specific agencies rather than the entire Thai state. I attempt to provide a "good enough description" (de Castro, 2015) to demonstrate the major difference(s) between a Ngao Karen ontology of conservation from that enacted by the Thai state's forest conservation agencies. This will clarify how conservation in Thailand is a case of ontological politics to explain the lack of progress in recent decades.

In trying to identify ways forward through the ontological politics in conservation, I follow Blaser (2009) in understanding ontologies as formulated in relation to networks of humans and nonhumans through practices and as manifested in stories. Thus, to understand the ontologies of conservation of different groups I consider their environmental practices as well as their discourses and sayings. I also look to the networks of humans and nonhumans in which

these different groups are embedded and consider the practices that connect them. Sundberg's (2011) use of *collectives* is an effective analytical tool to group humans and nonhumans together. The term is similar to the terms network or assemblage in that agency is conceptualized as "doing-in-relation" to these interconnected groups of humans and nonhumans but differs in its consideration of differential power between different groupings and how it holds "the range of actors compelled into action at specific moments" (Sundberg, 2011, p. 330).

To identify various collectives, I draw on the concept of *rooted networks* to trace them for Ngao Karen communities and Thai state agencies. The rooted networks framework takes the analytic of networks and inserts attention to power relations and territories and encompasses both the social and the natural (Rocheleau & Roth, 2007). The framework also accounts for both the power of metastructures and the unpredictable momentary expression of performative agency, the constant "making and un-making of socio-ecological networks through continuous interactions" (Rocheleau & Roth, 2007, p. 436). While I found that the terrestrial bias of the framework's use of roots as a metaphor caused some frictions in my study of river ecologies, it proved useful as the process of tracing networks highlights the forms of engagement of various human actors with nonhuman agents, including rivers and fish. Understanding the varied forms of engagement exposes the plurality of these nonhumans (Todd, 2014). In turn, understanding the engagements with and pluralities of nonhumans sheds light on how these agents actively shape the world and thus the importance of fully accounting for them in governance regimes (Todd, 2017, 2018).

By tracing networks in relation to multiple human and nonhuman agents, my approach differs from the literature that typically considers how various agents enact different ontologies

in relation to one element in a network, whether it be fish, or forests (Theriault, 2017), animals (Lubilo & Henbinck, 2019; Petitpas & Bonacic, 2019), water (Wilson & Inkster, 2018; Yates et al., 2017), among others. In other words, this literature highlights the multiplicity of a particular nonhuman. I build on these works by applying their insights in reference to *multiple* elements within a network. I argue that drawing attention to particular collectives of humans and nonhumans within broader networks may reveal worldmaking opportunities to move forward through ontological conflict.

Research design

Due to the interruption of fieldwork plans by the COVID-19 pandemic, qualitative data was gathered remotely via a local research assistant (LRA) recruited from a neighboring community from October 2020 to February 2021. Fortunately, I frequently visited a few Ngao communities from July 2018 through June 2019 as a research assistant for a project that sought to assess the effects of community-based conservation on the river's ecology through daily fish harvest data.²³ Thus, many people, including community leaders, had previous experience working with me. This foundation of trust facilitated access for my research project that may have been difficult otherwise. My local contact, Panee Phoemchatchai, assisted the identification of, and trust building with, Santi Klanarongchao, a local community member, who was employed as an LRA. I remotely trained Santi on the details of the project and how to conduct qualitative research over multiple training sessions.

²³ This project was conducted by Dr. Aaron Koning in affiliation with the Cornell Atkinson Center for Sustainability at Cornell University.

Empirical data was generated through semi-structured individual and group interviews, participatory mapping activities, and observations and Santi's research journal. The interview questions and activities helped the participants build an understanding of the significance and role of the river and river conservation in Ngao Karen communities' lives. Santi took audio recordings of interviews, which were subsequently sent to Anochao Potjanathamrongpong and Sompoad Terngkae for translation and transcription, who also translated the observations notes and research journal. In total, 40 participants spoke in either group or individual interviews, with the two key informants in each community interviewed twice. Santi observed four participants from each community conducting different livelihood activities at the river. Santi also conducted a participatory mapping activity twice in one village, once with a group of five men and another with five women to account for gendered perspectives. By gender, 45% of participants were women and 55% were men. Ages of participants ranged from 27 to 70. Soliciting participants of different gender and age groups was important as these groupings significantly determine types of livelihood practices. The research team also interviewed the founder of the local NGO that helped start the river conservation programs and a foreign researcher.

The multiple data sources proved helpful to triangulate data for narrative and discourse analysis using NVivo software. The data was initially open coded descriptively to determine recurrent and significant themes. Subsequently, hierarchical codes were developed to thematically organize the data for narrative and discourse analysis. Data was also considered within the wider context of Karen livelihoods and struggles since the creation of national resource management regimes in Thailand provided by academic and grey literature. The following sections detail the relevant research findings from this analysis.

Research sites

Mae Lui and Na Doi villages were selected for this study because they were the first two villages to implement formalized river conservation before this program spread to more than 50 others throughout the river basin. More villages were not incorporated into the study because of research challenges during the COVID-19 pandemic (Duker, 2021). While not representative of every village in the basin, these two villages provide excellent sites for understanding why and how rural Karen communities establish river conservation. Notably, these communities are subjected to resource use restrictions due to the delineation of a proposed national park, the Mae Ngao National Park (MNNP, see Fig. 4). Land documentation in these communities is limited to agricultural registration, which entitles farmers to compensation for crop failures from natural disasters but does not provide any meaningful recognition of their claim to the land. Research participants reported significant uncertainty about what will happen to them once the MNNP is officially finalized.

Forest conservation and the dominance of a modernist ontology in Thailand

To properly situate the significance of Ngao communities' river conservation, I must first consider the legacy of forest conservation in Thailand. Tracing networks of forest ecologies reveals how a powerful collective emerged, associating these ecologies with Thai forest agencies and conservation discourse. The program to create protected areas in forests, mainly wildlife sanctuaries and national parks, began in the early 1960's. These spaces were administered first under the jurisdiction of the Royal Forestry Department (RFD) and then under the Department of National Parks, Wildlife and Plant Conservation (DNP) beginning in 2002. Both agencies used

conservation discourse to justify measures determining most livelihood practices by upland peoples as degrading to natural resources.²⁴ By the year 2000, these forest management regimes displaced an estimated 200 communities (Srimongkontip, 2000). The evictions have largely halted since the turn of the century but the remaining at-risk upland communities in forest spaces continue to be subject to severe uncertainty and ambiguity concerning the legality of their livelihood practices. In 2010, an estimated 635,916 people remained at risk (Kriyoonwong, 2015 in Bunditderdsakul, 2019). While the discretion of individual RFD and DNP officials often leads to relatively acceptable circumstances for some communities, the lack of land ownership and constantly shifting rules of legal resource use continues to marginalize their way of life.

The halt in evictions was due in large part to resistance by a coalition of Karen and other upland ethnic minority communities, sympathetic NGOs, state agencies, academics, and international actors that sought to develop and advocate for solutions to these problems. The coalition began to use conservation discourse on their own terms, albeit with mixed success. They did so by mobilizing certain essentialized ethnic characteristics and cultural practices to create a counternarrative of the Karen as “forest guardians” (Forysth et al, 2008; Santasombat, 2004; Walker, 2001), “benign environmentalists” (Buergin, 2004), or “ecologically noble savages” (Laungaramsri, 2001). However, these labels reify the idea that upland forests are vulnerable spaces from which people need to be excluded unless they preserve an idealized Nature (Forysth et al, 2008; Vandergeest, 2003). The authority to permit specific practices of

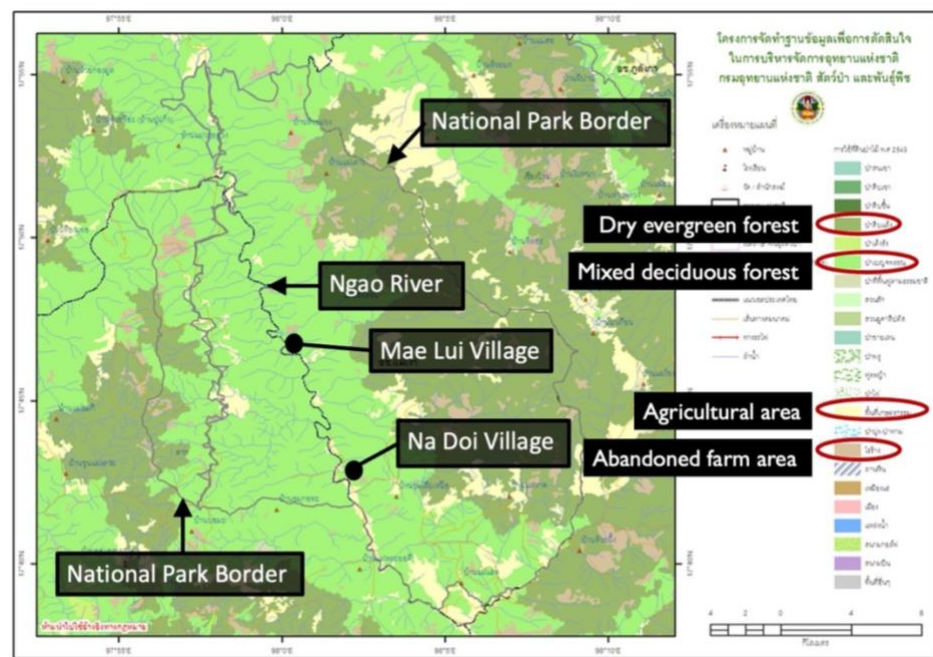
²⁴ This does not necessarily mean that no human activities can occur in these spaces, but only those deemed permissible by these agencies. The restriction of activities tended only to occur on those practised by local peoples rather than those by rich and influential people or activities that directly benefit the agencies themselves, such as tourism (Vandergeest, 1996b). See the controversy over the shooting of a black panther in a Wildlife Sanctuary by a wealthy business owner for a recent example (“Thai tycoon,” 2019).

Karen communities as legitimate or not lies with Thai state. This is a precarious state for communities because their homes and their livelihood practices are always at risk of being deemed illegitimate and illegal.

To avoid this situation, I first consider how the Thai state enacts a modernist ontology of conservation in forest management practice. This ontology is inextricably linked to the ways in which the individuals that act on behalf of the Thai state—the well-educated urban elite and middle-class—relate to and engage with the world, particularly those spaces delineated as protected areas.

Conservation decision-making is centralized in Thailand, meaning that many of the decisions are made in Bangkok, the capital city and largest urban centre. The RFD and DNP officials thus invoke urban middle- or upper-class conceptions of nature as spaces without people (Forsyth, 2007). They also are spatially separated from the ecologies they hold jurisdiction over. In fact, this distance has been heralded as the key to making proper resource management decisions by Thai forestry officials (Laungaramsri, 2017). The RFD and DNP officials' direct interaction with these ecologies is limited to mapping and classifying spaces, and for those granted enforcement power, patrolling in search of rule-breakers. Many of the former activities can now be accomplished using satellite imagery, GIS, and other spatial technologies, thereby creating further separation, and none require detailed hands-on knowledge of the landscape (Leblond, 2014). For example, the socio-ecological complexity of the Mae Ngao National Park (MNNP) is reduced to four categories (see Fig. 4). There is a clear differentiation between spaces of Nature (dry evergreen forest and mixed deciduous forest) and spaces of Society (agricultural

area and abandoned farm area). The spatially-distanced and class-informed practices that connect the RFD and DNP with forest ecologies effectively enact a modernist ontology of conservation.



The Thai state, inland waters and fisheries

only the water itself, devoid of any life, as important. However, tracing networks of inland waters reveals the diversity of state agencies with jurisdiction over inland waters that have varying perspectives and degrees of engagement. Tracing these networks also reveals the positioning of inland aquatic life and explains why these nonhumans remain conspicuously absent from state agency discourses.

The two key state agencies in inland waters are the Royal Irrigation Department (RID) and the Electricity Generating Authority of Thailand (EGAT). These two agencies frequently target one or more of the following goals: (1) increase agricultural output through increased irrigation, (2) mitigate flooding, and (3) increase electricity availability through hydropower development (Molle, Foran, et al., 2009). Problems with meeting these goals tend to be framed as issues of water quantity (Apipattanavis et al., 2018) that can be solved with large-scale development projects (Hoanh et al., 2009; Middleton et al., 2009; Molle, Flock, et al., 2009). These agencies perpetuate this narrative despite evidence that water issues are caused by an “overcommitment of water resources, thereby artificially generating water scarcity” (Molle, 2007, p. 364).

Notably absent in these agencies’ discourse on water development is any serious recognition of inland aquatic organisms. Governments in the region, including Thailand, tend to downplay the significance of inland fisheries and frame them as a “doomed resource” or as part of a “backwards livelihood” that are a reasonable tradeoff for the benefits of large-scale water development projects (Arthur & Friend, 2011; Sneddon & Fox, 2012). Large-scale projects have serious repercussions for river ecologies. The “barrier effect” of dams disrupts fish migrations and destroys key fish habitats due to changes in water quantity and quality (Sarkkula et al.,

2009). These impacts were some of the key arguments in local resistance to the Pak Mun Dam. Local communities relied on inland fisheries for livelihoods, but the Thai state undertook significant efforts to downplay this importance and resorted to extremely generous compensation schemes to reduce the resistance (Foran & Manorom, 2009).

The third state agency to consider is the DNP. The DNP have waterways within its jurisdiction in protected areas, such as in the MNNP, but the extent to which its jurisdiction covers aquatic organisms is not clear. The National Park Act of 1961 states that rivulets, marshes, canals, swamps, and waterways within national park boundaries are under the jurisdiction of the DNP. However, the document defines “animal” vaguely and does not specify any aquatic organisms. The only apparent enforcement of national park regulations in fisheries in the Ngao River is the ban on electrofishing (Koning, personal communication, May 18, 2021).

The fourth relevant player to consider is the Department of Fisheries (DOF). The DOF is responsible for both marine and inland fisheries. In theory, this agency should be the most important agency for inland fisheries management. However, it places much more emphasis on its marine domain and aquaculture. In both past and recent fisheries laws, much of the text is focused on rules and regulation concerning marine fishing and aquaculture (both marine and inland). In fact, many of the specific regulations in inland capture fisheries on aspects such as gear and seasonal restrictions came out piecemeal in specific notifications following the 1947 Fisheries Act, implying that inland capture fisheries did not receive the same level of dedicated attention as marine fisheries or aquaculture.²⁵ Additionally, the DOF’s enforcement of inland

²⁵ It should be noted that many of the changes implemented in the most recent Fisheries Act were in direct response to economic sanction from the EU in 2015 following accusations of IUU Fishing and labour abuses in marine fisheries. This partially explains the most recent Act’s emphasis on the marine.

fisheries regulations is relatively weak. Marine fisheries are much higher value than inland fisheries and provide important inputs for industrial seafood processing and animal feed production, two major Thai exports. Marine fisheries can also be more readily monitored because seafaring vessels have limited options to port and unload catch, unlike for inland fisheries which are notoriously diffuse (Fluet-Chouinard et al., 2018; Foran & Manorum, 2009). Given that inland fisheries are low value, diffuse, and mostly consumed locally, there is low opportunity for value appropriation in inland fisheries and thus not considered worthwhile to monitor. Research participants did not report knowledge of any visits from DOF staff, nor any knowledge of national laws related to the river, indicating that there has not been much oversight in the river basin.

This lack of attention by the Thai state to inland fisheries can also be explained by the materiality of inland fish. Fish are not readily *visible*, unlike trees. As discussed earlier, the RFD and the DNP can use remote technologies, such as satellite imagery and GIS, to measure and monitor forests and trees. In terms of fish, however, to my knowledge there is no accurate way to monitor inland fish using these technologies. Thus, the agency of inland fish precludes their management by the Thai state agencies' typical means. For inland waters, Thai state agencies tend to instead focus on the water itself, absent of any life, and emphasize hydropower development, irrigation, and flood control while undervaluing fish as an important source of livelihood.

Making fish visible: Ngao community livelihoods, knowledge, and conservation

While inland fish remain largely invisible to the Thai state, Ngao Karen communities' riverine practices make fish visible. Their direct relationship with local ecologies, as they rely on it for their livelihoods, means that they have regular interactions with aquatic life. Primarily, the river is a vital source of food and is key for food security (see Chapter 4). A group of women participants reported that about 80% of community members' meals come from the river. Inland fish are a great source of protein and essential micronutrients (Funge-Smith & Bennett, 2019).

The target organisms and fishing practices vary by season (see Fig. 5). In the rainy season, when the current is strong, only hardy traps or fishing poles are used and in the dry season community members commonly set multiple gillnets. Fishing practices are also gendered, and women often use a “swae”, a handheld net, to collect small fish, shrimp, insect, and mollusks in the dry season when the water level is low, and the current is slow enough to wade in the river. Women prefer “traditional” style fishing poles, the local way to refer to a bamboo or other natural material pole with a fixed line, as they do not catch very large fish. Men use throw nets in the dry season. Men also use long dragging gillnets when the water is still murky in the early dry season. Some men use a variety of types of spears if their community allows this practice. Many community members, especially women, also collect riverside and aquatic plants throughout the year.



Figure 5. Community members conducting various fishing practices: woman using a “swae” (top left), two men using a long dragging gillnet (top right), man setting gillnet (bottom right), man using a throw net (bottom left)

The river is an important source of water as well. It is used to irrigate crops in the paddy fields, for livestock, and as a backup household water source if the village water system fails. In the dry season, many community members go to the river to wash clothes, bathe, swim, and relax to shelter from the heat. Accordingly, some participants likened the river to a community “centre” or “heart”. The river brings much joy to the community, and this was emphasized by one woman participant who stated, “I enjoy going to fish in the river so much. It is like I am addicted to fishing even if I only catch one fish or I don’t catch any” (February 18, 2021).

Ngao community members' activities at the river have helped them to develop extensive ecological knowledge. Knowledge held by different participants was diverse, indicating the importance of individual experience in knowledge generation. Gendered divisions of labour were also important, evident in how women participants listed more riverside plants, water insects, and small fish species than the men participants. In total, participants provided names for 47 fishes, 6 crabs, 7 mollusks, 7 turtles, 3 frogs and toads, 11 water insects, 26 plants, 1 snake, and 2 large-bodied predators (otter and monitor lizard). Identifying scientific species names based on the local names in this area is challenging and some of these may not have been named by biologists yet.

Community members also have extensive knowledge of the behaviour of fish and other aquatic organisms. Participants used nine different words to indicate specific habitat types within the river to describe where to find different organisms and, if found in multiple types of habitats, the organisms' behaviour when they are in them. For example, snails can be found hiding in the "jweh" (the part of the river where the bottom is very rocky) and the fish *labeo dyocheilus* can be found in the "tee nee tee" (along the riverbank) in the afternoon. Some participants noted how some fish species seemed to flip themselves around often during the day, particularly in the mid-afternoon, reflecting sunlight off their white underside scales. The habit of some fish to blow bubbles at the surface of deeper waters in the morning was noted by one participant who also posited that they are hungry at this time and ready to eat any food that falls to the surface (such as bugs or vegetation that falls from trees). Movement patterns were noted by nearly all participants. This included their observations that fish tend to venture into shallow areas at night

when there is less disturbance from people, and that in the rainy season fish will venture further up smaller tributaries.

Local ecological knowledge included fish spawning behaviour. Participants listed some species that spawn in the rainy season and others in the dry season. Participants linked certain species' spawning cycles to community seasonal calendars. For example, *garra sp.* spawn at the time when community members plant rice. Participants learned about spawning behaviour by either seeing fish eggs in the water, such those belonging to *scaphiodonichthys acanthopterus* which were seen in the rocky “jweh”, or because some fish species have eggs on their belly when they are caught during a specific time. Participants also noted that some fish will use rocks to help release eggs from their bellies and that the male fish will then follow to fertilize the eggs.

Other notable local ecological knowledges included trends and patterns in changing aquatic organism populations and behaviour over time. A new snail species was recently introduced into the area from the nearby Yuam River, but unfortunately it is not considered pleasant eating for community members. Overall, however, participants noted a general decrease in fish populations and biodiversity over the longer-term. Some species, like turtles, are rare to see, and others, such as the fish *mastacembelus alboguttatus*, may be extirpated already. One participant reported that fish appear to be smarter in recent times, meaning they are more difficult to catch, but that the adoption of “modern” fishing poles (which is the local way to refer to a composite rod and reel with spooled line) helps with this. Additionally, more community members fish at night than in the past, in order to adapt to these changes in behaviour and population.

Net population decreases of aquatic organisms are not the entire story. While populations have decreased when compared to the distant past, they have begun to increase in recent years. Participants attribute this to community conservation efforts that began over 25 years ago in Mae Lui village, and which then subsequently spread to more than 50 in the river basin (Koning & McIntyre, 2021; Koning et al., 2020). Conservation programs vary by community (see Chapter 4), but in general include the creation of one or more river reserves, which are no-take areas, and the restriction of specific fishing techniques determined to be destructive or overly exploitative in river areas outside of reserves. Community livelihoods and local ecological knowledge set the foundation for effective community-based conservation programs (see also Baird & Flaherty, 2005; Saenyabud et al., 2010).

Community members' memories about the state of aquatic organism populations and behaviours provided a baseline to gauge the impacts of community-based conservation. Communities witnessed changes from this baseline over time because of regular visits to the river to harvest aquatic life, bathe, and wash clothes, among other community riverine activities. Participants reported that catches have increased, or at least maintained, since initiating river conservation. Given that fish populations had been declining prior to conservation and that fishing pressure has also been increasing due to human population increases in the communities, the fact that fish catch has since been maintained, or even increased, indicates a notable recovery in fish populations. Community members also see fish population increases in reserve areas despite not being able to fish there. Rather than fishing, people throw in fish food and observe many fish surfacing to feed. Additionally, participants reported that they have seen the size of fish increase in the reserves. This is important because this means that fish are living and of

breeding age longer. Participants believed that fish understand that they are safe in the reserves because when the fish see people on the riverbank they will retreat into reserves. They also reported that fish consistently lay their eggs in the reserves. Through this knowledge of fish population and behaviour changes, the communities demonstrate an understanding of how fish express agency. Fish contribute to community conservation programs by acting in response to community actions. Successful community-based river conservation emerges collectively through the actions of communities and fish.

The success of community conservation programs has attracted attention from outsiders in other parts of Thailand and around the world. Visitors arrive to enjoy the opportunity to interact with fish, often either by feeding and viewing fish from observation points or by paying to partake in catch-and-release fishing in the reserves. Thai and international academics (like myself) also visit the communities to learn about their river conservation. The visits from tourists and other groups to view the river and fish produce a growing recognition across Thailand of the presence and importance of inland aquatic organisms. Without these communities' efforts, inland fish would probably remain invisible and unaccounted for by state agencies. Tracing this network of communities, fish, and (inter)national tourists and academics reveals the growing power of this community-fish collective to reshape conservation discourse in Thailand.

Featuring a Ngao Karen ontology and opportunities for legitimization

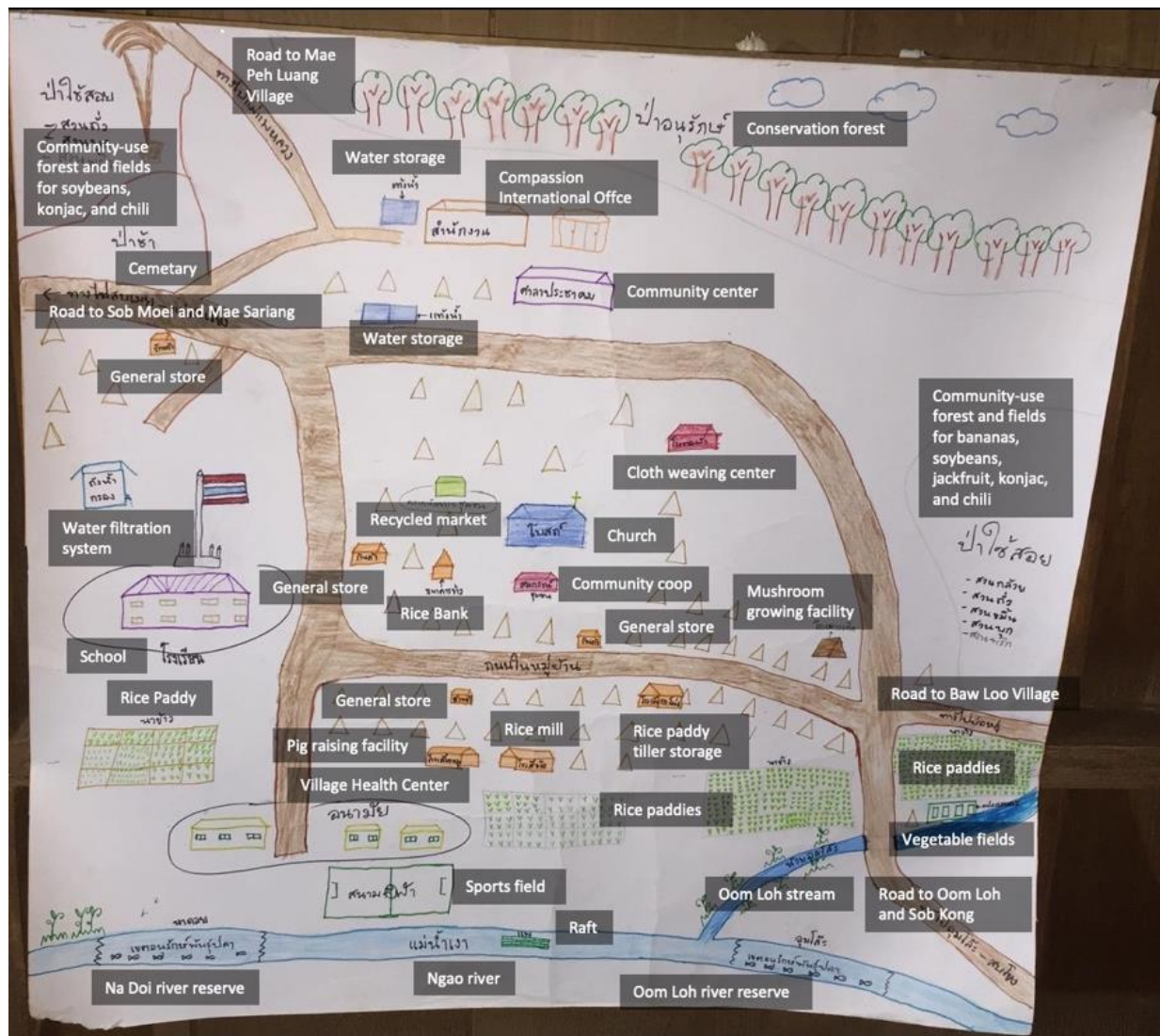
Reshaping conservation discourse means that a Ngao Karen ontology of conservation is elevated from its subordinate status in forest conservation discourse. A Ngao Karen ontology of conservation is fundamentally different from a modernist ontology. This difference can be seen

in community livelihoods and through traditional sayings that are based in, and enact, a holistic understanding of Nature and Society.

Communities' diverse livelihood practices shape how they ontologically conceptualize their position in the world. This is due, in part, to the level of integration of community livelihoods and ecologies, such as with rivers as highlighted in the prior section. Thus, I follow Paul et al. (2021) who note how the ontologies enacted by Karen communities in Karen State in Myanmar/Burma are coproduced through their livelihoods that require a deep understanding of local ecologies. This coproduction in turn enables communities to understand their embeddedness within and reliance on these ecologies (Paul et al., 2021; Roth, 2009).

The integration of community livelihoods and local ecologies is evident in the community maps made by groups of men and women in Na Doi village. These maps highlighted the importance of different areas of the forest, rivers, and streams (see Fig. 6). Notably, both groups drew fish inside of the river reserves, making fish visible. While two-dimensional maps cannot portray the complex socio-ecological dynamics of Karen resource management, community maps can provide a helpful starting point (Roth, 2007). There are minor differences in the two maps. For example, in the two areas labelled as community-use forest in the women's map, the men's group delineated soybean fields and upland rice fields (see the upper-left and middle-right sections of the maps in Fig. 6). These differences may be explained by gendered differences in relations with community ecologies. However, I did not collect detailed information on the communities' agricultural practices, so there may be a more nuanced explanation. Overall, the maps demonstrate that communities are integrated into various ecological niches with diverse livelihood practices. The men group underscored the magnitude of

this integration in a reply to a question about what they would do if they could not go to the river anymore by saying, “We would suffer a lot... We might no longer live in this area. Our way of life has been related to the river for a long time. No river, no life” (November 15, 2020).



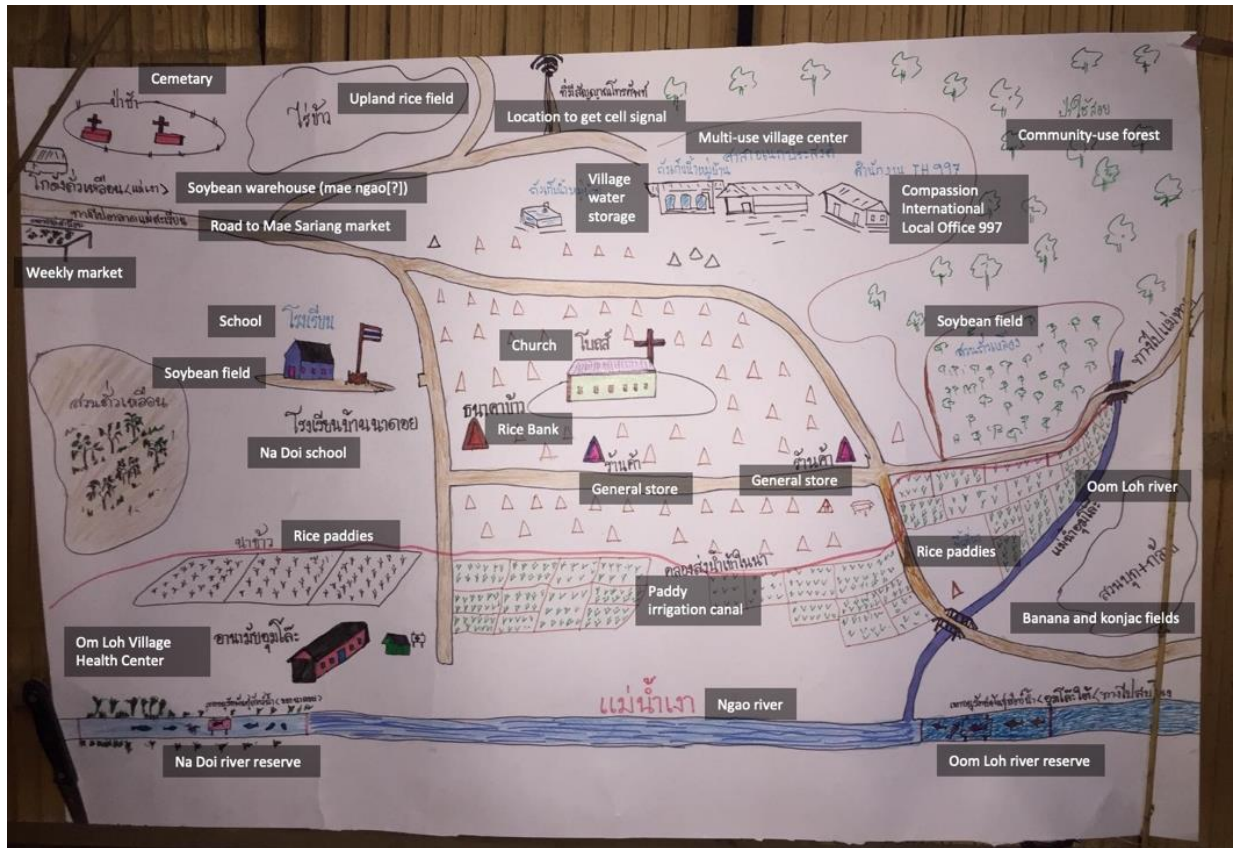


Figure 6. Community livelihood maps: the top was created by the women group and the bottom by the men group

Traditional Karen sayings highlight the importance of reciprocity in community relations with ecologies. One example provided by a participant is translated as, “if we live in the forest, we must take care the forest, and if we eat fish, we must take care the river” (October 9, 2020). Research participants also emphasized the importance of responsibility and moderation. Some traditional sayings stress that if they consume a resource, they should also leave some unconsumed. This ethic has been compounded through lessons learned in community conservation programs. One participant stated, “The reserve made people realize that conserving fish is very good... It is also like a tool to limit people's greediness. Conservation made people

realize that if they are too greedy, there won't be fish for them in future" (October 10, 2020). Community members compare their relations with the river with other communities that do not practise river conservation. One participant stated, "For those villages that do not have conservation, they will catch more fish but only in a short period. Those villages that have conservation might catch less fish but will maintain them for the long term" (February 18, 2021). These sayings elucidate the ontology of conservation that both underlies and is enacted by community-based river conservation. The spaces the communities have designated as no-harvest zones are relatively small; this is important because the zones do not majorly disrupt any person's home or livelihood. For the Ngao communities, conservation is not about enacting rules to force the displacement of people or the banning of livelihoods, as this presumes that people are separable from Nature in the first place. Rather, conservation is about enacting rules to determine *how* and *how much* people are allowed to harvest, emphasizing that it is the kind of relations that is important. Ethics of reciprocity, responsibility, and moderation are emphasized through community conservation practice.

Both practices and stories underscore the relationality of a Ngao Karen ontology of conservation. This ontology demonstrates how conservation does not preclude communities' existence and livelihood practices in these spaces and ecologies, unlike the modernist ontology enacted by the RFD and DNP. A Ngao Karen ontology thus redefines effective conservation practice. Given that the Thai state's modernist ontology of conservation has not adequately accounted for fish, by making fish visible, Ngao communities are demonstrating that this relational ontology is more suitable for conservation in inland waters.

The increased visibility of fish also offers an opportunity to bring about a new state-community dynamic. As discussed earlier, Ngao Karen communities, like other upland groups throughout Thailand, have often disagreed or conflicted with Thai state agencies, namely the RFD and DNP. While the DOF has been a relatively minor player in inland waters, this agency could become aligned with the goals of Ngao Karen communities, creating an opportunity to further legitimize a Ngao Karen ontology of conservation. Thus, I continue to trace networks to explore how the community-fish collective could be broadened to become the community-fish-DOF collective.

For there to be beneficial cooperation between a government agency and local communities, priorities must be aligned. There is certainly indication that this is the case with Ngao communities and the DOF. The DOF's mission and vision includes fisheries conservation, although their priority has been the maximization of fisheries production (Koning, personal communication, May 18, 2021; Department of Fisheries, 2020). However, this blend of conservation and production goals more closely matches Ngao communities' ontology of conservation. Additionally, practices of cooperation may allow both to further achieve their goals. The difficulties that the DOF faces in enforcement of fishing regulations have two important implications for local communities. Firstly, responsibility is largely delegated to provincial officials and these local officials can exercise discretion in enforcing laws. Sometimes officials allow local communities to carry out activities that the Fisheries Act deems illegal, such as using restricted gears (Khumsri et al., 2009). While this is not a concern for the Ngao communities (whose livelihood practices are legal), this discretion indicates that the DOF can be flexible and open to negotiation with communities. Secondly, the DOF could devolve

enforcement power to local communities, pending the creation of additional legislation. Given the inherent challenges of enforcement over large areas, working with local communities can extend their reach while also bringing benefits to communities.

In such an arrangement, Ngao communities could be legally empowered to enforce conservation rules. Additionally, because of community knowledge of fish presence, fish conservation legislation potentially offers a powerful legal tool to use by communities seeking to leverage their conservation actions against other river interests. For example, if communities are aware of the presence of fish species protected by endangered species regulations, the communities could use this as an argument against the imposition of a new dam, as a dam could harm these species. However, the DOF's association with Ngao communities also poses risks as the DOF may use this opportunity to regulate the communities' fishing activities more strictly. Thus, this arrangement deserves more consideration. However, I argue that if the increased awareness of the presence of fish is facilitated through local communities, then they are key for achieving the DOF's goal. Thus, a new era of cooperation between the Thai state and ethnic Karen communities may be enacted through fish.

Conclusion

The ontological politics approach has emerged as a salient tool to understand the origin and persistence of environmental conflicts. In Thailand, state forest conservation agencies enact a modernist ontology of conservation that clashes with those of upland communities, such as the Karen of the Ngao River basin. The key difference lies in the modernist ontology's separation of Society and Nature that produces, and is produced by, the spatially distanced engagement with

forests. Meanwhile, Ngao communities' livelihoods are intertwined with local ecologies which produces, and is also produced by, a more relational ontology. The conflicts are thus perpetuated by the Thai forest conservation agencies' "ontological closures" that undermine and subsume the efforts by communities and allies to resist the assault on Karen livelihoods and residence in the uplands. Additionally, many community-aligned NGOs, academics, and other actors reproduce the dominance of a modernist ontology in their efforts to assist communities. This undermines their ultimate goals of achieving Karen communities' self-determination. Thus, Karen communities and their allies must bring ontology to the forefront of their efforts to make progress towards self-determination.

The Thai state's stance on inland waters, as enacted through the water management agencies, both RID and EGAT, also is based in an ontological separation of Society and Nature. This separation enables the justification of large-scale water development projects. However, these narratives have not dominated to the same degree as in forest conservation discourse, given the differing interests and priorities in the DOF that also has jurisdiction over inland waters. Therefore, there is still space to push forward alternative ontologies in this domain.

In this paper, I highlight one possible pathway forward for marginalized communities like the Karen by tracing "rooted" networks of human and nonhuman agents to identify collectives that make new worlds. By making fish visible, Ngao communities demonstrate that their ontology of conservation is more fit to account for inland aquatic organisms. The role of fish cannot be overlooked as the success of community-based river conservation emerged collectively through the actions of communities and fish together. This community-fish collective gains power as (inter)national tourists and academics visit and contribute to a broader

recognition of community efforts and conservation success. This collective also opens the possibility of a new connection and alliance for Ngao communities with the DOF, an agency of the Thai state that enacts an ontology that is less based on the separation of Nature and Society than the RFD, DNP, RID, and EGAT. The DOF's mandate to conserve aquatic organisms while also maximizing production does not preclude Ngao community relations with fish as a more-than-resource, not simply to be conserved from people nor to be utilized solely for maximum productivity for people—both of which are premised on an explicit separation of Society and Nature. Ngao communities in turn can support the DOF in fulfilling its mandate, given that it faces difficulties in enforcing its jurisdiction over inland capture fisheries. Shifting conservation discourse from forests and trees to rivers and fish can legitimize a Ngao Karen ontology of conservation within Thailand and make new, just worlds for Karen communities.

This study offers an example for people in other parts of the world who are seeking to address the complex interplay of economic, social, and environmental issues manifested by the Anthropocene without reinscribing a “business as usual” approach. The key point is that it is necessary to pay attention to ontologies. By examining the materiality and agency of nonhumans, and highlighting how they shape and empower human actors, I find that community-based practices enable relations with inland aquatic life and that inland aquatic life thus privileges nonmodernist ontologies in Thailand. While the remote techniques used by state agencies can account for terrestrial ecologies, local communities are uniquely positioned to account for inland aquatic life. Following this insight, I argue that inland waters and fisheries offer a path forward to feature and legitimize community-based programs and that these programs can be mutually beneficial, rather than antagonistic to, or subsumed by, the state.

I do, however, need to heed a key argument by Burow et al. (2018) that it is virtually impossible for a marginalized ontology to neatly replace over a dominant one. Rather, that the path forward will require a “hybrid assemblage of ontologies” (p. 67). In the case of conservation in Thailand, this implies that even if my proposition makes headway, that the future of resource conservation of fish and forests in the uplands will consistently shift through the dialectical tension of the ontologies enacted by state agencies and local communities. While this contentious path forward is perhaps not the most ideal outcome for marginalized local communities, nonetheless it offers a hopeful future towards increased self-determination.

Chapter 6

Conclusion

Introduction

When I was first introduced to the Ngao River basin prior to the global COVID-19 pandemic, community leaders were always excited to talk about and show me their community's river conservation. We would grab bags of fish food to bring down to the riverbank by the reserves to lure many large fish to the surface. To be ready for curious visitors like myself, communities often kept these fish food bags at their houses and in community centres, or had them for sale in nearby shops. While I have visited many Karen villages throughout Northern Thailand who proudly exhibit their community projects, the Ngao communities were the first to boast about projects related to the river and fish. Although they knew that I was there to see the river, there was something about *how* these leaders went about this “show and tell” that spoke to the unique significance of community river conservation. Clearly, something special was going on in the Ngao River basin.

Objectives and goals

The objective of this master's thesis was to portray and explore this significance. The research questions were oriented around how and why the Ngao communities initiated formalized river conservation, and the importance of this conservation thus far and for the future of these communities. The extent to which this project achieved my goal of collaboration with

the Ngao communities is certainly contestable given the challenges of using remote methods, but nonetheless represents an ongoing commitment to share their stories with new audiences. This research also brings literature on inland fisheries into conversation with literature on conservation and development. I take a critical institutionalist approach that recognizes the usefulness of an institutional lens in conjunction with consideration for socio-ecological and political histories to study community-based conservation (CBC) arrangements. I also draw on insights from political ecology, science and technology studies, posthumanism, and Indigenous scholarship to consider further the role of materialities and nonhuman agency in these debates. By using frameworks such as rooted networks and collectives, I find that attention to the relations and engagements of different groups with aquatic life can reveal worldmaking opportunities. Through my study of community-based river conservation in the Ngao River basin, it is clear that inland waters and capture fisheries are a salient focal point for considering how CBC programs can address the multiple goals of conservation and development in ways that augment marginalized communities' struggles for self-determination.

Reflecting on remote methods

Remote methods enabled this research to occur despite the many challenges brought on by the COVID-19 pandemic (see also Chapter 3). There were, however, several aspects that I inevitably missed out on due to the use of remote methods. By relying on the textual translations of interviews and observations, I was deprived of a greater sensory understanding of place. For example, it is one thing to read about community decision-making meetings and another thing to sit amongst the hundred(s) as they bicker over subtleties of village rules and whisper to their

neighbours about the latest gossip concerning the active speaker. I was not witness to such community dynamics that could have reshaped my understanding of community life. Such a greater sensory understanding could have also provided new insights into fish agency. Rather than relying on participants' perspectives, I could have witnessed the liveliness of fish and other aquatic life. Additionally, conducting research *in situ* could have allowed for more follow-up on insights from participants that merited further clarification or elaboration. For example, it was not clear where and when spearfishing is allowed in the Ngao River basin. I also found an inconsistency in village land rules, as members in one community pay a land tax but those in the other do not. Some shortcomings in this thesis are due to such remaining ambiguity.

Without minimizing the shortcomings, I believe that my methods proved viable and resulted in an emphasis on the role of the communities in knowledge production. By working through a local research assistant from a nearby village, research conduct was placed entirely in the hands of the communities. While I gave directions and intentions for research activities, it was ultimately up to the community members, either as research assistant or research participant, to carry out the activities and thus they inevitably shaped the research process. Additionally, given that I was not *in situ*, I understood Ngao River conservation through the situated partial perspectives of the research participants. This understanding was somewhat shaped by my earlier experiences in the communities, but all the data came from the participants' words in interviews and from Santi's (the local research assistant) observations. These remote methods, while of course imperfect, offer a potential model of collaborative research.

CBC of rivers and inland fisheries for food security and self-determination

The importance of inland fisheries tends to be ignored by large-scale actors (Allan et al., 2005; Cooke et al., 2016; Funge-Smith & Bennett, 2019; Lynch et al., 2020; McIntyre et al., 2016; Opperman et al., 2020; Welcomme et al., 2010), including in Thailand. This reflects the tendency of governments in the region to ignore the importance of fisheries for local livelihoods, or to frame them as a “doomed resource”, or as part of a “backwards livelihood” that is a reasonable trade-off for the benefits of large-scale projects for hydropower and irrigation (Arthur & Friend, 2011; Sneddon & Fox, 2012). This has played out all over the country, most famously in the case of the Pak Mun Dam (Foran & Manorum, 2009). However, inland fisheries are not all in decline, as is clear in the results of this study of river conservation in the Ngao River basin. While effective management of inland fisheries has remained elusive for policymakers (Welcomme et al., 2010), Ngao communities showcase the potential of CBC programs to maintain fish populations despite continued fishing activity to support local livelihoods.

This study makes clear that communities create and maintain effective CBC of inland fisheries when these programs support community needs. This can occur with minimal training and support from outsiders like NGOs. While understanding community needs is complicated as identities and interests are diverse (Agrawal & Gibson, 1999; Li, 1996; Pagdee et al, 2006), an entire community may collectively experience marginalization by outside actors. This is seen in the Ngao River basin through the threats to food security and self-determination posed by fishers from the lowlands who use dynamite fishing and other destructive methods, and by the delineation of the Mae Ngao National Park (MNNP) by the Royal Forestry Department (RFD). Ngao communities formally institutionalized CBC of inland fisheries when they understood that

this program could maintain fish populations and thus enhance food security. Communities also understood that this CBC program could demonstrate the ability of communities to effectively manage resources to the DNP. They hoped that national park restrictions would be reduced, or abolished, because of this recognition.

Mae Lui village, the first community to implement formal institutionalized river conservation, took this initiative as a leap of faith. The community's intricate relations with river ecologies enabled them to make observations that confirmed the effectiveness of the program. The knowledge of the program's effectiveness subsequently spread throughout the river basin and river conservation was formalized in other communities, including the other study site, Na Doi village. I propose that this knowledge was transmitted through informal networks to other communities. Other communities are likely to have adopted the program because they also experience marginalization by outside fishers from the lowlands and by the proposed national park. However, my current dataset cannot confirm these claims about the spread of the program beyond Na Doi village. Notably, Koning et al. (2020) argue that river conservation is more effective when multiple communities in the river basin institute the program, highlighting the significance of this spread for conservation goals. Thus, situating conservation programs within broader networks and socio-political histories is key to understanding CBC success.

CBC of rivers and inland fisheries for new futures of conservation in Thailand

This thesis also highlights the discursive role that Ngao community river conservation can play for increased self-determination moving forward. Conservation is often a means of dispossession, reproducing colonial practices (Agrawal, 1997; Neumann, 2002), and it can

subsume communities and ecologies into capital circuits (Büscher et al., 2014; Igoe & Brockington, 2007). Issues often arise from ontological differences between communities on one hand, and large-scale national and international actors, on the other, with the latter enacting modernist ontologies of conservation. In this way, conservation areas are sites of ontological politics wherein modernist ontologies are dominant, while nonmodernist ontologies enacted by local communities are marginalized (Blaser, 2009; 2013; Carolan, 2004). I argue that by shifting conservation discourse to rivers and fish, Ngao communities circumscribe the domination in forestry of the modernist ontology of conservation enacted by the RFD and the Department of National Parks, Wildlife and Plant Conservation (DNP). Ngao communities assert an alternative nonmodernist ontology as legitimate by implementing conservation of aquatic life inland waters.

Nonmodernist ontologies, such as that enacted by the Ngao communities, conceptualize conservation in a way that does not preclude local livelihoods and residence in places deemed to have conservation value by state and other large-scale actors. In other words, these nonmodernist ontologies of conservation may shine a light on a way forward for the conservation and development debates. Conservation programs that enact nonmodernist ontologies can uphold, rather than infringe upon, the self-determination of peoples that inhabit spaces deemed to have conservation value. By itself, this insight is not particularly groundbreaking, as scholars have been looking to the environmental management practices of rural and marginalized communities for their ability to meet conservation and development goals for decades (Adams et al., 2004; Berkes, 2004). Using an ontological lens provides new insight by highlighting the importance of the agency of the nonhumans that these practices connect communities to and the kinds of human-to-nonhuman relations that these practices produce. The materiality of nonhumans, such

as forests, trees, rivers, and fish, and the relations that humans have with them, reveal the agency of these entities, and thus their participation in worldmaking. In Thailand, fish and other inland aquatic organisms remain invisible to the Thai state, while local communities are in the better position to properly account for them. For example, in the Ngao River basin, fish and local communities collectively created successful CBC programs. If the Thai state is to meet its mandate to manage and conserve inland fisheries, as outlined in the Fisheries Act, then it must do so through local communities. This will require that “bottom-up” community-based conservation programs are recognized and legally empowered, thus legitimizing nonmodernist ontologies of conservation. For upland communities like those in the Ngao River basin, this is incredibly important given their history of marginalization and current precarity.

Looking to the future

Moving forward, it will be important to monitor the situation in the Ngao River basin as the issues concerning the Mae Ngao National Park (MNNP) and the Yuam River Dam continue to play out. The MNNP continuously remains in the proposal stage and the future of the park is unknown. Research participants reported that they fear that current restrictions will be made even more severe. The Yuam River Dam will be particularly important to pay attention to as the project picks up momentum (see Chapter 3). Due to the potentially devastating impacts on local communities, it will be important to see how the narratives and discourses around conservation and development play out through this state-led project. Will we continue to see a continued push of the development discourse highlighted in Chapter 5 to justify the project? Will conservation, and even forest conservation, be pushed aside in the name of national

development? What will be the future of inland capture fisheries and local communities in the area? This thesis sheds further light on the importance of paying attention to local communities' voices. The Thai state would stand to benefit from greater and more thorough consultation with local communities because they are best situated to account for the otherwise invisible nature of inland fisheries.

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Appendices

Appendix A: Research Guidebook

This document was created after consultation with Kimberly Roberts. The “tips for success” section and the questions for the research journal were borrowed from her “Village Research Guidelines and Interviews” document. The “how to make interview questions” section in the extra resources was adapted from her “Nam Khone School Methods Training Agenda” document. The question lists for interviews are not included below but can be found in Appendix B. This guidebook was finalized on 15 September 2020 by Peter Duker and was subsequently translated into Thai language by Anochao Potjanathamrongpong (contact Peter Duker for the Thai language version).

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How to use this guidebook

This guidebook is meant to help you during the project. I recommend that you consult this frequently to help make sure you are doing everything properly. You can bring this with you whenever you do research activities. It has places for you to keep track of consent from the participants as well.

It contains much of the material from our training as well as other things you will need such as interview questions, consent scripts, tables to keep track of consent, an observations guide, a copy of the contact information handout, a research journal guide, and others. At the end is some extra materials from training that you can read for your own information.

Overview of project

Topic

This study project will look to understand how and why the community created a river reserve, how the reserve is important today, and what is the importance of the reserve moving forward into the future. Key concepts include resource management, livelihoods, networks, and local knowledge.

Objective

The objective of the study project is to work with the community members in the Mae Ngao river basin to come to a collective understanding of and to form a representation of the river reserves and the networks in which these communities are a part of. This project will consider how river reserves are a unique strategy to meet the competing demands for both local food security (i.e. self-sufficiency) and environmental conservation. Additionally, this project will find ways to support the communities in their conservation projects.

Tips for Success

Your Job as Researcher: BE CURIOUS and always ask WHY?

Ask not just about what is happening, but ask about the absences. Why isn't something happening? What if a woman did this instead of a man? Why did this change? What happened? Question the differences. If this one thing happens like this in one community, why doesn't it happen in this community?

Be transparent

Make sure that everyone you talk to know why you're there and get their permission to interview them and permission to record them. Let them know that it is their choice to be interviewed or not and that we will not share their names or the name of the village.

Never record someone without their permission and always use the consent scripts.

Finding Participants

Research participants should be from different genders, age groups, etc as much as possible. For group interviews, will want people of one group to be together (i.e. women's group or men's group). For in-depth personal interviews, we need people who know a lot about the topic.

To find participants, you can start by contacting the village headman or other community leaders. You can also talk to anyone in the community to ask their own suggestions. You may also know someone from your own personal experience who you know would be a helpful participant.

You can schedule a time that is convenient for both you and the research participants. Try to consult Peter before, because sometimes Peter might want to ask you to include new interview questions or to pay attention to certain things.

Consent Scripts

Make sure to read the appropriate consent script before each research activity (i.e. read the interview consent script before group interviews or in-depth personal interviews; and read the observation consent script before observations).

Please make sure that you write the name of the participant, date, and each box that you check off for them. You can use the tables here to keep track of each person and what they consent for. Write in the name and date; and then put a check mark or an X in each box that they verbally consent to (using the consent script to guide you here). You can separately include each participant from a group interview in the table, but you can mark which persons were together for me please.

Interview Consent Script

Table for Interview Participant Consent

Name	Date	Consents for Activity	Consents to the use of all (or some) indirectly identifiable information	Consents to the audio-recording of the activity	Consents to the use of images	In academic articles	In print, digital and slide form	In academic presentations	In media	In thesis materials

Observation Consent Script

What You Will Be Asked to Do in the Research Observation:

The researcher will observe the participant in whatever activity(s) that the researcher and the participant agree on beforehand. The role of the participant is to do the activity (i.e. fishing) as they normally would have on that day. The time commitment for the activity is whatever duration the activity would normally take as well as the potential for a few minutes afterward for the researcher to ask some questions if asked.

Table for Observation Participant Consent

Name	Date	Consents for Activity	Consents to the use of all (or some) indirectly identifiable information	Consents to the audio-recording of the activity	Consents to the use of images	In academic articles	In print, digital and slide form	In academic presentations	In media	In thesis materials

Interview Guide and Questions

The goal of the interviews is to let the participants talk as much as they feel comfortable about a topic.

There are two main types of interviews for the project: group interviews and in-depth personal interviews. For group interviews, there will be around five people per group. You will ask questions to the group and anyone can answer. It can be good to hear from everyone and discussion amongst the participants is also good. For in-depth personal interviews, there will only be one person. In these interviews, you can get more detailed and specific information than in group interviews. Usually in-depth personal interviews are for people who know a lot about the topic.

There are lists of questions below, but these are just for guidance! If you do not answer all that is ok. If the participant takes the interview in a different direction but is related to the topic, that is ok. When in doubt, use the questions for help.

Some questions have follow-up questions. You do not need to ask but are meant to help get the participant to say more about a topic.

When thinking about where to do the interviews, you can do them in any place that the participants feel comfortable. It is just important to think about noises that might make the audio recording not clear. You could always do a short test just to make sure that you can hear the audio when you play it.

Group Interview Questions

In-depth Personal Interview Questions

Questions for a Community Member

Questions for a Village Elder (Oral History)

Questions for an Outside Organization Representative

Observations Guide

Observation is a helpful tool to understand people in places. Through observation we can better understand the everyday life of research participants, how and why they do the things they do, and what matters to them. Observation will also help to compare with the data from interviews

In general, for this activity you will follow someone as they do an activity related to the river. There may be other interesting activities we want to take observations of as well.

Take notes of everything! Questions to help you think of what to take notes of:

What are they doing?

Where are they doing it?

What time of day?

Are they alone or are there other people? Are they interacting with them?

What is happening around them?

What do you notice about how they look while they are doing it?

Handout for Participants

After each research activity is completed (for example: 1 interview or observation) you may provide a handout with the contact information. You should have it printed to give to them, but you may also consult the information here to speak to them.

Research Journal Guide

Every day that you do research activities, you should write in the Research Journal. The journal has many benefits: (1) Helps you to improve your abilities as a researcher, (2) Helps me to understand more about what happened in the research activities, and (3) Helps me to get more data! Your perspective is valuable as well.

In the Journal, write (English/Thai/Karen) about what happened that day, your own ideas about what you heard and experienced, your own ideas about the research process, etc. Some possible questions to help you include:

1. What did you do that day?
2. Who did you talk to?

3. What did you learn?
4. Did something someone said or you observe not make sense? Explain.
5. Did you observe or see something interesting happen in the village?
6. What challenges are you encountering?
7. Any other thoughts or impressions?

Extra Resources: Other Materials from Training

How to make interview questions

1. Avoid closed questions (yes/no) but sometimes useful to start before another question.
Always ask why?
2. Avoid leading questions (ie. How has the National Park negatively affected your livelihoods?)
 - a. Instead ask more general (i.e. How has the National Park affected your livelihoods?)
3. Be careful of taboos – don't ask anything that would be inappropriate
4. Order questions:
 - a. Easy (name, age, occupation)
 - b. Medium (What foods from the river do you get every week?)
 - c. Hard (How do changing laws affect your livelihood?)
 - d. End with open ended
 - i. Is there anything else you'd like to share?
 - ii. Is there something else I should have asked
 - iii. Is there anything you'd like to ask me?
5. Categorize questions. River questions with river, livelihood with livelihood, etc. (helps with the analysis later and can otherwise be confusing for the interviewee)

What to do with the Data?

1. Chao will transcribe and translate
 - a. May need to follow up to clarify some things
2. I will read for themes/topics/ideas that the research participants stress are important
(important to read without bias at this stage)
3. Find similarities, differences, patterns, etc
4. Try to identify key points in summary and compare to the research questions
5. Compare to other knowledge – i.e. from my own experience, reading books and articles
6. Write something meaningful – both for me and for the communities (i.e. report)

Ethics

1. Many things to think about: Who will benefit from this research? What risks are there with the research? Is the research following all the proper rules (related to research norms, cultural norms, etc)?
2. Have to think about this before, during, and after research

3. Risks from this study: social risks (although this is mostly defined from a Western/Canadian perspective)
 - a. “The social risks are due to the small size of the communities. While the data will be coded so that participant names are not included, participants may be indirectly identifiable due to the small sizes”
4. How to mitigate risk
 - a. Consent: asking for permission before research activities are conducted (i.e. interviews, observation, photos)
 - i. Sometimes written is needed but for us verbal is ok
 - ii. I will give you a script that you can use
 - iii. If recording an audio file, get the consent process recorded. If not (for example for observations), then make sure you write down if consent was given or not
 - iv. I will also give you a handout for participants
 - b. Coding data (I will make sure that true names are not written in the final documents) – this is based on a Western/Canadian understanding of ethics
 - i. We need to be careful to make sure that other people cannot know what someone said for the research (unless they want to be named)
 - c. Keeping data secure
 - i. Written notes should be kept away from where others can read
 - ii. Do not let others listen to the audio files
 - iii. Later, I will ask you to delete or destroy the data. But not until the end and everything is done!
5. Compensation
 - a. Small tokens of appreciation for participants during activities (i.e. food and drink)
 - b. Donations – hopefully to the community development fund

Appendix B: Interview Questions

Group Interview Questions

Introductory Questions

1. Can each of you please share some information about yourself? (i.e. age, where you were born)
 - a. If you moved to the village from elsewhere, how long have you lived here and why did you move?
2. What type of work do you do?
 - a. Outside the home? Inside the home?

River Reserves

3. Do you go to the river for any types of your activities throughout the year?
 - a. How often?
 - b. Does this change by season?
 - c. If you go fishing, or harvest other creatures or plants from the river, what do you get?
 - i. Is it to eat, for sale, sharing with others, or for something else?
4. What do you know about the fish and other animals and plants in the river?
5. What do you know about the river reserve?
 - a. What do you think about the river reserve?
6. What kinds of benefits and drawbacks results from the river reserve?
 - a. For you personally?
 - b. For the community?
 - c. Do you think the reserve has been good for the fish and other life?
 - d. Why or why not?
7. Do you think the community will keep the river reserve into the future?
 - a. Why or why not?

Decision-making and Coordination with Other Groups

8. Are you involved with the decision-making about the river reserve?
 - a. If not, do you know what others do?
9. What community organizations make decisions related to the river or the reserve?
10. How is the local government (i.e. ABT or Provincial Fisheries Department) involved with decisions related to the river or the reserve?
 - a. How are national government agencies involved (i.e. National Park)?
 - b. Is there any coordination between these groups and community organizations?
 - c. Do their actions support community organizations' decisions about the river or reserves or are they different?
 - i. How?
11. How frequently do other outside organizations or individuals get involved with decisions related to the river or the reserve?

- a. Do their actions support community organizations' decisions about the river or reserves or are they different?
 - ii. How?

In-depth Individual Interview Questions (Round 1)

Questions for a Community Member:

Introductory Questions

1. Can you please share some information about yourself? (i.e. age, where you were born -- can take written note of gender)
 - a. Have you always lived in this village?
 - i. If not, where else have you lived?
 - ii. If you moved to the village from elsewhere, how long have you lived here and why did you move?
2. What type of work do you do?
3. What other activities do you do in the community?
 - a. In your household?
4. What type of work do your family members do?
 - a. Other activities?

River Reserves

5. Do you go to the river for any of your activities?
 - a. How often?
 - b. Does this change by season?
 - c. Has this always been the case or has this changed over time?
 - d. If you go fishing, or harvest other creatures or plants from the river, what do you get?
 - i. Is it to eat, for sale, sharing with others, or for something else?
6. What do other people in the community go to the river for?
 - a. Has this always been the case or has this changed over time?
 - b. What do you think about those activities?
7. What do you know about the fish and other animals and plants in the river?
8. What do you know about the river reserve?
 - a. What do you think about the river reserve?
9. What kinds of benefits and drawbacks results from the river reserve?
 - a. For you personally?
 - b. For the community?
 - c. Do you think the reserve has been good for the fish and other life?
 - d. Why or why not?
10. Do you think the community will keep the river reserve into the future?
 - a. Why or why not?

Decision-making and Coordination with Other Groups

11. Are you involved with the decision-making about the river reserve?
 - a. If not, do you know what others do?
12. What community organizations make decisions related to the river or the reserve?
13. How is the local government (i.e. ABT or Provincial Fisheries Department) involved with decisions related to the river or the reserve?
 - a. How are national government agencies involved (i.e. National Park)?
 - b. Is there any coordination between these groups and community organizations?
 - c. Do their actions support community organizations' decisions about the river or reserves or are they different?
 - i. How?
14. How frequently do other outside organizations or individuals get involved with decisions related to the river or the reserve?
 - b. Do their actions support community organizations' decisions about the river or reserves or are they different?
 - i. How?

Contextual Questions

15. Do you have family in other villages?
16. Do you go to any other villages or cities? If so, what do you do there?
17. Who comes from outside the village to do activities here? What do you think of these activities?
18. What kinds of challenges do you face? Are these the same as other community members? What other kinds of challenges does the community face?
19. What helps with these challenges?

Questions for an oral history of the river reserves (likely from a village leader or elder):

1. Can you provide a general history of this village?
2. When was this community's reserve created?
 - a. Was some person(s) especially involved in the creation of the reserve?
 - i. Why?
 - b. Were there others that were especially important
 - i. Why?
3. What groups or committees were involved?
 - a. Were any new groups made?
 - b. What (if any) new roles were created?
4. Who else was involved?
 - a. If others were involved, how?
 - b. Other communities?
 - i. How?

- ii. Was there any coordination between the communities?
 - c. ABT?
 - i. How?
 - ii. Other local government agencies (i.e. Provincial Fisheries Department)?
 - d. Outside organizations?
 - i. How?
 - e. National Government agencies (i.e. National Park)?
 - i. How?
- 5. Why did the community choose to locate the reserve where it is?
- 6. What problems were the community facing at that time? How did the community decide which problems were most important?
- 7. Did the reserve help with any of these challenges?
- 8. What motivated action within the community to create the reserves and what did they expect to achieve?
- 9. What structure was created to maintain or change the reserves, rules, or relevant institutions and groups?
 - a. Do outside organizations or individuals, ABT, and/or other government agencies continue to be involved?
 - i. If so, how?
 - ii. Do their actions support community organizations' decisions about the river or reserves or are they different?
 - 1. How?
- 10. What were the challenges in creating the reserve?
 - a. In maintaining the reserve?
- 11. How does the community know if what they have been doing has been effective?
- 12. What do you know about the fish and other animals and plants in the river?
- 13. What do you know about the river reserve?
 - a. What do you think about the river reserve?
- 14. What kinds of benefits and drawbacks results from the river reserve?
 - a. For you personally?
 - b. For the community?
 - c. Do you think the reserve has been good for the fish and other life?
 - d. Why or why not?
- 15. Do you think the community will keep the river reserve into the future?
 - a. Why or why not?

In-depth Individual Interview Questions (Rounds 2 and 3)

Introductory Questions

1. Can you please share some information about yourself? (for example, what is your age, where you were born -- can take written note of gender)
2. Have you always lived in this village?

3. If not, where else have you lived?
4. If you moved to the village from elsewhere, how long have you lived here and why did you move?
5. What type of work do you do?
6. What other activities do you do in the community?
7. In your household?
8. What type of work do your family members do?
9. Other activities?
10. Do you have family in other villages?
11. Do you go to any other villages or cities? If so, what do you do there?
12. Who comes from outside the village to do activities here? What do you think of these activities?

River Reserves

13. Do you go to the river for any of your activities?
 - a. How often?
 - b. Does this change by season?
 - c. Has this always been the case or has this changed over time?
 - d. If you go fishing, or harvest other creatures or plants from the river, what do you get?
 - i. Is it to eat, for sale, sharing with others, or for something else?
14. What do other people in the community go to the river for?
15. Has this always been the case or has this changed over time?
16. What do you think about those activities?
17. What do you know about the fish and other animals and plants in the river?
 - a. How many different species of fish do you know about? Snails? Crabs? Plants? Other animals or plants?
 - b. What do you know about fish behaviour? For example, do they tend to be in different places of the river at different times of day? Do you know where different kinds of fish spawn (lay their eggs)? If so, where?
 - c. What do you know about the behaviour of other animals in the river?
 - d. What other kinds of local ecological knowledge (phumpanya niwed witaya or rabop niwed) do you know?
18. What do you know about the river reserve?
 - a. What is your perspective on the river reserve?
 - i. Do other people in the community agree with your perspective? Why or why not?
 - b. What are some of the other perspectives on the river reserve in the community?
19. Do you know what motivated the creation of the river reserve when it was first made (in the past)?
 - a. Who was supporting the creation of the river reserve?
 - i. What was their perspective?

- b. Who disagreed with the creation of the river reserve?
 - i. What was their perspective?
- 20. What kinds of benefits and drawbacks results from the river reserve?
 - a. Do you personally get a benefit from the reserve?
 - b. Have you personally been negatively affected by the creation of the reserve?
 - c. What benefits does the community get from the reserve?
 - d. Has the community been negatively affected by the creation of the reserve?
 - e. Do you think the reserve has been good for the fish and other life in the river?
 - i. Why or why not?
 - f. Do you think the reserve has increased the numbers of fish inside the reserve?
 - g. Do you think the reserve has increased the numbers of fish outside of the reserve?
 - h. Do people in the community catch more fish now than before the reserve was created?
- 21. What is the biggest fish you ever caught?
 - a. What species was it?
 - b. How large was it (in kilos)?
 - c. When did you catch it?
- 22. What do you think is the biggest threat to the fish in the Mae Ngao River right now?
 - a. What do you hope the river looks like in the future?
- 23. Do you think the community will keep the river reserve into the future?
- 24. Why or why not?
- 25. Has the ever been conflict in the community about the reserve?
 - a. If yes, how was the conflict resolved?
 - b. Decision-making and Coordination with Other Groups
- 26. Are you involved with the decision-making about the river reserve?
- 27. If not, do you know what others do?
- 28. Is there a community organization (or multiple community organizations) that makes decisions related to the river or the reserve?
 - a. For example, are there any committees that meet to talk about the river reserve?
 - b. How many people are in the organization or committee? Is it men and women?
 - i. Is it always the same people in the organization or committee, or does the membership of the organization or committee change?
 - c. Does the organization or committee talk to any other organizations or committees in the community when it makes a decision?
 - d. Are there any decisions that the organization or committee needs to get approval from the whole community for (such as expanding the size of the conservation area)?
 - i. How many people in the community have to agree for this to happen? Everyone? More than half?
 - 1. What other types of things about the river does the whole community have to come together talk about to change?
 - 2. How do community members discuss these things?
 - a. Is there a meeting?

- b. Where is the meeting?
 - c. Who is in charge of the meeting?
 - 3. Who are the community members that come to discuss these things?
 - a. Is it both men and women?
 - b. How about ages, do people of all ages come?
 - c. Is it all community members in the village that come? Or only some who have interest?
- 29. Are people or groups from outside of the community involved in the community river reserve?
 - a. If so, who else is involved? And how are they involved?
 - i. Is the local government (i.e. ABT or Provincial Fisheries Department) involved with decisions related to the river or the reserve?
 - ii. Are national government agencies involved (i.e. National Park)?
 - iii. Are there other groups involved? For example, community development groups and NGO's?
- 30. Is there any coordination between these groups and community organizations?
 - a. If so, how frequently do these outside organizations or individuals get involved with decisions related to the river or the reserve?
 - b. Do their actions support community organizations' decisions about the river or reserves or are they different?
 - c. How?
- 31. Are there any rules about what the community members are allowed to do in the river that are set by the central government? Or some other government agency?
 - a. If so, what are they?
- 32. Do the different villages in Mae Ngao area meet to talk about their river reserves?
 - a. If so, do all the villages meet? What are the names of the different villages? What happens at these meetings?
 - b. Challenges or Problems
- 33. What kinds of challenges do you face?
 - a. Are these the same as other community members?
 - b. What other kinds of challenges does the community face?
- 34. What helps with these challenges?
- 35. Are there any issues about land in the community?
 - a. What type of land documents do the community members have?
 - b. How long have community members had these types of documents?
 - i. Was there ever a change? If so, why?
 - ii. Have you always had to pay tax on the land or has this changed over time?
- 36. Have the river reserves helped with any of the challenges that you or the community face?
 - a. Do any other conservation projects help with these challenges?

Interview Questions for Development Center for Children and Community Network (DCCCN)

1. What is the mission of DCCCN?
 - a. What are DCCCN's goals?
2. What is your role in this organization?
3. Can you tell me anything about yourself?
 - a. Why are you working for this organization?
4. What does DCCCN do in villages along the Ngao river?
 - a. What types of activities does the organization do?
 - i. For each activity, why is it important?
 - b. Have the activities changed over time?
5. We have heard from the villages along the Ngao river that DCCCN helped to start the river reserves, can you tell me more about this?
 - a. Why did DCCCN decide to help the communities start river reserves?
 - i. How does this project fit with DCCCN's goals and mission?
 - b. Which villages did DCCCN help to start river reserves?
 - i. In what years did this happen?
 - ii. Why these villages and not others?
 - iii. Did all of the communities that DCCCN introduced river reserves to go on to create them? Or did some not adopt the project right away?
 1. If some communities did not take up the idea at first, why not?
 - c. Were these communities doing any kind of river conservation activity before DCCCN introduced river reserves?
 - d. What was the process of starting the river reserves in these communities?
 - i. What was involved in the training?
 - ii. Did DCCCN help the communities to make any decisions about the river reserve?
 - iii. Did DCCCN help the communities to pick the location of the river reserves?
 1. What are the things that are important when picking a location for the river reserve?
 - e. What kinds of ideas and suggestions did DCCCN include in the training about river reserves?
 - f. Has DCCCN done any follow-up activities about the river reserves since they were created?
6. What does you think of the river reserves?
7. Why do you think so many communities have also started their own river reserves since DCCCN introduced the idea?
 - a. Do you know about how the idea spread to other communities?
 - b. Does DCCCN talk to any of these other communities about their river reserve?
8. What kinds of benefits and drawbacks result from the river reserve?
 - a. Do you think the reserve has been good for the fish and other life?

- b. Why or why not?
- 9. Do you think that river reserves are achieving the goal that DCCCN had hoped they would when they started them?
 - a. Why or why not?
 - b. Has anything about the river reserves and the communities that started them surprised you?
- 10. Do you think the communities should continue managing the reserves into the future?
 - a. Why or why not?
- 11. Where did DCCCN first learn about river reserves?
 - a. When was this?
 - b. What did DCCCN learn at that time?
- 12. Does DCCCN do any other activities or projects related to the river?
 - a. If so, what activities?
 - b. Has this changed over time?
- 13. Does DCCCN help the communities about land issues?
 - a. If so, what does DCCCN do?
 - i. Why is this important to do these activities?
 - b. Do you know about the kinds of land documents that they have in Na Doi and Mae Lui villages, if any?
- 14. Do you know anything about the current status of the Mae Ngao National Park?
 - a. Do you know what is going to happen in the future with the Mae Ngao National Park?
- 15. We have heard some talk about the Thai government being interested in a dam on the Mae Yuam near the Mae Ngao, do you know anything about this?
 - a. What information can you share with us about this?
- 16. Do you have any knowledge about the laws of how the communities can use the Mae Ngao or other rivers (including fishing)?
 - a. If so, what can you tell us?
 - b. Would any of the laws or rules change when the National Park is finalized?
 - c. Are there any other laws or rules about river use in Thailand that would be helpful for us to know about?
- 17. Do you think that river reserves help the communities with the land issues?
 - a. Why or why not?
 - b. What other issues do the river reserves help with?
- 18. What are the projects that DCCCN thinks are the most important today?
 - a. Why?
 - b. What kinds of projects does DCCCN want to do in the future?
 - c. If DCCCN has a very high budget so it could do any project it wanted, what kind of project or projects would you want to do?
- 19. We hope to make our study project helpful for the Mae Ngao communities. Do you have any advice for us about what we can do to make the project helpful for the communities?
 - a. Is there anything that this study project can produce that would be helpful? For example, some kind of document, brochure, or map?

Appendix C: Social and Livelihood Mapping Activity

Activity Guide

Materials:

- One large poster sheet per group
- Colourful markers

Directions:

- Participants should draw in all of the places that are important to them (important for any reason: to get food, to make money, to live, for social relationship, for other activities)
 - We want to know about important things in the community and the surrounding area: i.e. the church, the sala for village meetings, the rice paddy, swidden fields, the river, community use forest or other kinds of forest?
 - We also want to know about what is outside the community: i.e. does anyone in the group go to Sob Moei or Mae Sariang to sell soybeans or other things to a middleman or market? Does anyone in the group go to Sob Kong to get seeds from the Royal Project? Does anyone in the group go to other villages to visit family? Where are those villages?
 - How to draw the map depends on the participants, it is their choice
 - It is good to think about different seasons, can include everything on the map and then describe in more detail later (during the talk at the end)
- At the end, Santi can record audio and ask about why each place is important – give each person a chance to talk about it (i.e. for producing food to eat at home, to produce or find things for sale, for spending time with relatives or friends, to go to a village meeting, to go there to sell something, etc)
 - Participants can also mention how things are different in different seasons
 - For example: in the beginning of the rainy season I go to the rice paddy every day for planting and weeding, but then later in the dry season after harvest, I only go sometimes (maybe 2 times per month) to go and collect frogs to eat
 - Also, ask this question to the participants at the end:
 - When you look at this map, how important do you think the river is for you? How important is it for your community? What would happen if you could not go to the river anymore, what would you do instead?

Notes:

- If someone cannot write, someone else can write for them and they can just speak about what they would like to have on the map
- We are not concerned about spatial accuracy (i.e. distance or size)

Example Script

At beginning:

Welcome, today we are going to make a social and livelihood map for your community. You will use one large poster sheet and markers to represent places that are important to you. The places can be important for any reason, including but not limited to: getting food, making money, for social or community life, or for living. We want to know about important places both in the community as well as outside of the community. (Some examples inside the community include: the church, the sala for village meetings, the rice paddy, swidden fields, the river, community use forest or other kinds of forest. Some examples outside the community includes: some place to go sell your produce, other villages to visit family). How to draw this map is up to you, we are not worried about the size or distance, it can just be general. When you are thinking about the important places, it is good to think about different seasons, such as rainy season, cold season, and dry season, and later at the end you can explain to me why some of those places are more or less important in those different seasons.

After the map is complete:

Ask about why each place is important – give each person a chance to talk about it.

Then, after everyone has had a chance to explain, also ask: when you look at this map, how important do you think the river is for you? How important is it for your community? What would happen if you could not go to the river anymore, what would you do instead?

Appendix D: Observations Photos



Man setting gillnet



Placing stake for gillnet



Man setting gillnet



Removing fish from gillnet



Successful catch from gillnet



Set gillnet



Man fishing with “modern” rod



Successful catch rod fishing



Successful catch rod fishing



Woman harvesting snails



Successful snail harvesting



Men dragging long gillnet



Man using a throw gillnet



Woman using a “swae”



Successful catch with a “swae”



Successful catch with a “swae”



Woman collecting riverside plants



Women collecting riverside plants



Men spearfishing



Success spearfishing