

“The forest is gone bit by bit”

Deforestation and its impacts on indigenous communities in
Prey Lang, Cambodia

Marie Theresa Jürgensen

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Sustainability Studies



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Supervisor: Maryam Nastar, LUCSUS, Lund University

Abstract

Globally, deforestation is occurring at staggering rates and causing tremendous impacts on the planet. Indigenous people, in particular, have long depended on the forest, and their beliefs and ways of life are highly affected by the changes occurring around them. To explore these impacts, Kuy indigenous people living in Pneak Roluk, inside the Prey Lang forest in Cambodia, have been selected as a case study. The concepts of resource frontiers and frontiers of existence guided the analysis, and the findings from this analysis suggest that deforestation is negatively impacting the livelihoods and spiritual beliefs of the Kuy. Contemporary conservation efforts in Cambodia are attempting to address these changes, but fall short on affecting the main drivers causing deforestation, such as elite capture of natural resources. The research concludes that other strategies to limit deforestation and its adverse impacts on indigenous communities are needed.

Keywords: Kuy indigenous people, resource frontiers, frontiers of existence, Prey Lang, Cambodia

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1 Introduction

Currently, human activity affects 95% of the world's land surface (LePan, 2020). Forests, in particular, are greatly disturbed by land-use changes (FAO and UNEP, 2020). Deforestation is occurring globally at alarming rates, with previously forested areas being converted to other uses, such as plantations. This causes a wide variety of impacts, from less carbon sequestration potential to loss of biodiversity, as well as changes to the lives of forest-dependent communities (FAO and UNEP, 2020).

Indigenous people are particularly dependent on the forest (FAO and UNEP, 2020). Studies show that indigenous groups often live in harmony with nature and have sustained their surrounding ecosystems for generations due to their knowledge and practices (Sirina, 2021; Allison, 2017). Indigenous communities often have deep cultural and spiritual connections with the forest. The livelihoods and beliefs of their members, however, are not static, but change according to developments taking place in the world around them (Camara-Leret et al., 2019). One such development is the disappearance of forests, which is transforming the livelihoods of indigenous people (Schmidt, 2021), threatening their ways of life and beliefs (Camara-Leret et al., 2019).

A variety of players, such as governments, international and national organizations, local communities, and the timber trade industry, play an enormous role in deciding the future of the world's forests and of the populations that depend directly on them. One type of actor in particular, conservation agencies, determinedly attempts to limit deforestation and the negative consequences that it has on indigenous groups (FAO and UNEP, 2020). However, the outcome of contemporary conservation approaches has been widely criticized, with researchers pointing out that many conservation efforts instead lead to further marginalization of indigenous groups from the natural resources on which they are dependent (Howitt & Suchet-Pearson, 2006; Muller et al., 2019).

One group of people highly affected by deforestation is the Kuy indigenous people living adjacent to the Prey Lang Wildlife Sanctuary in central Cambodia. The Prey Lang forest is the last remaining lowland evergreen tropical forest in the Indo-Burma Biodiversity Hotspot (United Nations Development Programme, 2018). The Kuy people rely on the Prey Lang forest for their economic, cultural and spiritual activities (Turreira-García et al., 2017). However, deforestation in Prey Lang has been staggering - it has lost almost 10% of its forest cover, approximately 40,000 hectares, since 2001 (Global Initiative, 2021). To reduce the rate of deforestation, various bottom-up and top-down conservation initiatives have been attempted, but with little success. Meanwhile, the lives of the Kuy communities continue to be highly impacted (Work, 2015).

1.1 Aim and research questions

This study aims to explore the drivers of deforestation and its impacts on the traditions and beliefs of the Kuy indigenous people inhabiting the Prey Lang region. Furthermore, it intends to explore how conservation efforts either lessen or cause deforestation and its impacts. The following research questions have been drawn up, which will guide the study:

1. How does deforestation affect indigenous communities' livelihoods and their relationship to nature?
2. What are the main drivers of deforestation in Prey Lang?
3. How do contemporary conservation efforts either alleviate or contribute to deforestation and its impacts?

To address the research questions above and achieve the thesis aim, I draw on the notion of resource and commodity frontiers, which are framed as sites of natural resource and value-creation potential to be utilized for anthropocentric extraction (Kröger, 2021). Furthermore, the study utilizes the concept of frontiers of existence, referring to a site where the rights and practices of humans and other-than-human beings and species, including their interrelations, are impacted by resource extraction (Kröger, 2021). In this manner, the research sheds light on how indigenous livelihoods and their relations to nature are affected by the expanding resource and commodity frontiers.

The concept of frontiers of existence seeks to identify the key entities that decide on and contest the changes caused by resource extraction. The question raised by this concept inspires research into the drivers of deforestation. Furthermore, as the success of conservation agencies in creating tangible improvements for indigenous groups has been questioned, the research process focuses specifically on how conservation efforts either alleviate or worsen deforestation and its impacts.

The following section will introduce the issue of deforestation in Cambodia and Prey Lang in more detail while also covering the literature on Kuy indigenous people. Next, section 3 covers the theoretical approaches and specific concepts used in the thesis before section 4 explains the methodology applied throughout the research and analysis processes. Section 5 will present the research results, organized into themes that arose from the answers to the first two research questions. The discussion will focus on the third research question, and analyse how contemporary conservation efforts are addressing deforestation and its impacts on indigenous livelihoods and beliefs. Finally, the conclusion will provide some reflections and suggestions for further research.

2 Setting the scene

2.1 Deforestation in Cambodia and Prey Lang

Deforestation rates in Cambodia have since the 1970s been some of the highest worldwide and have been increasing in the past decade (Kresek, 2019). Even areas that are protected under Cambodian law have been severely impacted (Turreira-García et al., 2017). According to an estimation by Global Forest Watch, Cambodia lost 557 000 ha of tree cover in protected areas between 2001 and 2018, representing a 11.7% loss of the total protected area (Kresek, 2019). Some protected areas have been so greatly deforested that little or no natural habitat remains (Kresek, 2019), which poses detrimental risks to indigenous groups who depend on the forest for their livelihood (Global Initiative, 2021).

The deforestation in Cambodia is mostly associated with the granting of Economic Land Concessions (ELCs), a sort of government sanctioned territorial concession that can be granted to domestic or foreign investors (Global Initiative, 2021). In 2001, the National Land Law was passed, which allows ELCs up to 10 000 ha, while simultaneously recognizing the existence and land rights of indigenous groups (Beban & Work, 2014). The purpose of ELCs is national development – to create employment in rural areas and to restore “non-use” land (Neef et al., 2013). This is done through the conversion to productive forests, meaning monoculture plantations, such as rubber (Global Initiative, 2021). However, Global Initiative (2021) states that “many concession-holders do not even attempt to ‘develop’ the land for economic purposes according to the terms of the ELC, but simply log timber, leaving the land degraded” (p. vii).

Many ELCs are granted inside protected areas (Hayward & Diepart, 2021). As of 2013, around 14% of Cambodia’s protected areas were also ELCs (Forest Trends, 2015). Furthermore, there are reports of loggers associated with the ELCs entering protected forest areas outside of their concession to log valuable trees, such as rosewood and other luxury timber (Global Initiative, 2021; Hayward & Diepart, 2021). These trees are then transported back into the concessions and laundered into the legal timber supply (Global Initiative, 2021). The timber industry, especially logging of rare species, is a highly lucrative business that involves much of Cambodia’s elite, both within the government and the private sector (Global Initiative, 2021; Hayward & Diepart, 2021).

Deforestation in Cambodia is mirrored in what is occurring in the Prey Lang forest. The Prey Lang forest is approximately 530,000 ha (Turreira-Garcia et al., 2017), located in central Cambodia, and is the last remaining lowland evergreen tropical forest in the Indo-Burma Biodiversity Hotspot (United Nations Development Programme, 2018). It stretches over four provinces - Kratie, Kampong Thom, Stung Treng

and Preah Vihear. The forest is home to many endangered mammals and birds, as well as more than 200,000 people, mostly indigenous Kuy people (United Nations Development Programme, 2018). In 2016, 432,000 ha in Prey Lang were recognized as a wildlife sanctuary, but 4,700 ha of this area is affected by ELCs and Mining Concessions (MCs) (Turreria-Garcia et al., 2017).

2.2 Conservation in Cambodia and Prey Lang

Cambodia has 56 protected areas (PAs), covering over 7 million hectares, approximately 41% of the country's land surface (Department of Biodiversity, 2019). The management of protected areas in Cambodia use the same classification system as the International Union for Conservation of Nature (IUCN) (Open Development Cambodia, 2015). The Prey Lang forest is managed as a wildlife sanctuary, which is an area preserved in its natural condition to protect wildlife, vegetation and ecological balance (Open Development Cambodia, 2015).

Community-based forest management is highly prevalent in Cambodia, spanning approximately 800,000 hectares and 1400 villages (Hing & Riggs, 2021). There are two categories of community-based forest management in Cambodia; Community Forestry (CF) and Community Protected Area (CPA). CF is under the jurisdiction of the Ministry of Agriculture, Forestry, and Fisheries (MAFF), while CPAs and PAs are managed by the Ministry of Environment (MoE) (Hing & Riggs, 2021). CPAs and CFs are "intended to provide access rights for communities to meet livelihood needs through sustainable forest management, including harvesting of forest products for income and subsistence and the maintenance of cultural and spiritual values" (Hing & Riggs, 2021, p 3). CPAs are zones within protected areas that are dedicated to sustainable usage (Hing & Riggs, 2021).

There are various international and national organizations working with conservation in Cambodia, including the World Wildlife Fund (WWF), the USAID, Conservation International (CI), and numerous small NGOs (Conservation International, 2022; Hing & Riggs, 2021; USAID, 2022). The MoE cooperates with various organizations to reach the alleged conservation goals, such as those related to community-based forestry (PP1). The WWF, for example, claims to assist CPAs in improving their livelihoods (Hing & Riggs, 2021), while the USAID is in the process of implementing a REDD+ zone in Prey Lang (USAID, 2022).

Indigenous people are, according to Cambodian law, required to be included in the management and conservation of natural resources (Department of Biodiversity, 2019). The Cambodian state has ratified the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), acknowledging the cultural and spiritual beliefs of indigenous people, as well as the claim of indigenous people to their

ancestral land (Amnesty International, 2022). Furthermore, it is stated in Cambodia’s last report to the Convention on Biological Diversity (CBD) that the practices and customary use of natural resources of indigenous groups are to be respected and protected (Department of Biodiversity, 2019).

2.3 Kuy Indigenous People

The Kuy reside in Cambodia, Laos and Thailand, and although no exact number is known, estimations point to about 250 000 individuals (Turreira-Garcia, 2017). In Cambodia, there are approximately 23,000 Kuy people (Swift, 2013).

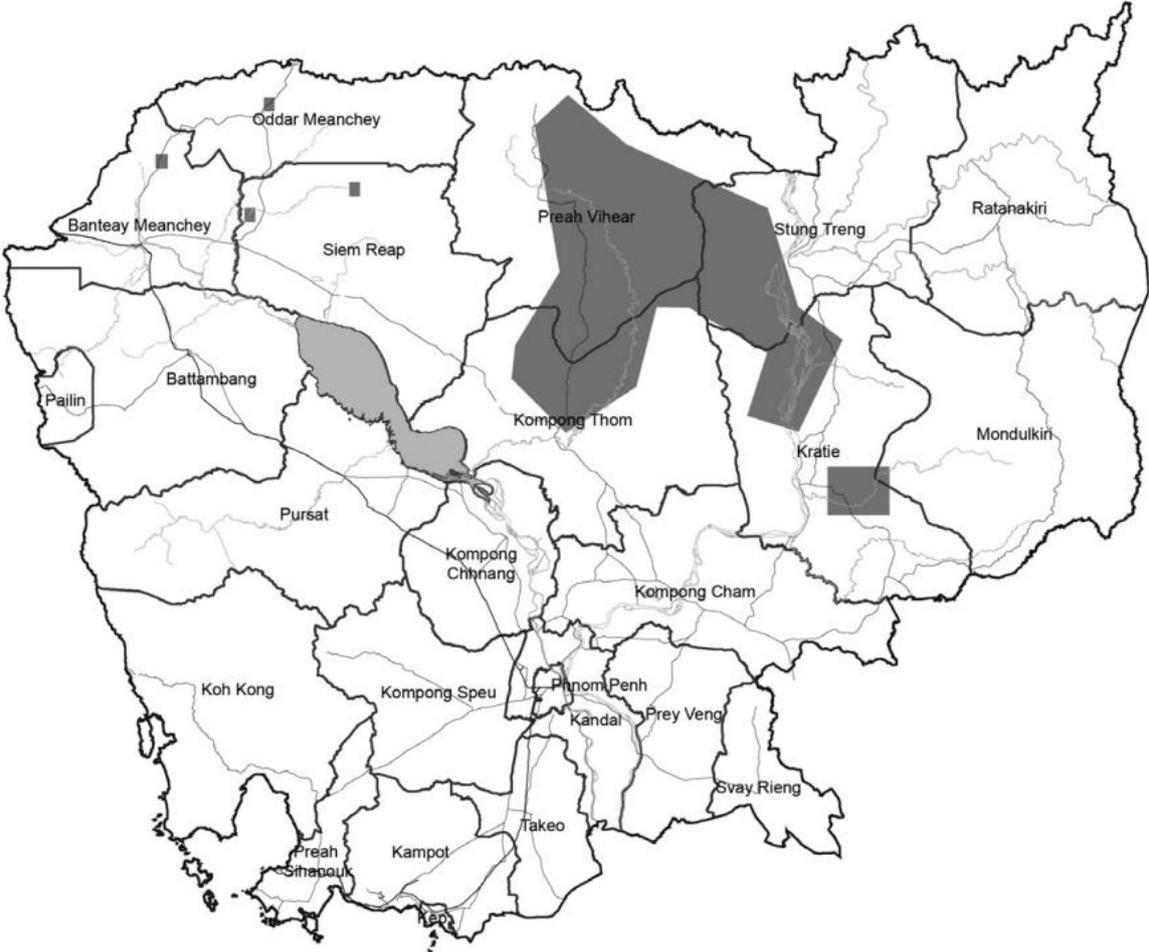


Figure 1. Approximate distribution of the Kuy population in Cambodia. Source: Swift, 2013.

The Kuy have their own language, also called Kuy, but most Kuy individuals also speak Khmer, while some Kuy do not speak Kuy at all (Swift, 2013). Due to assimilation processes and historic events, the Kuy are very similar to the Khmer (the main ethnic group in Cambodia), both linguistically, culturally, and spiritually. Their livelihood strategies are also very similar to those of rural Khmer people (Swift,

2013). Most Kuy individuals in Cambodia live in proximity of the Prey Lang forest, which in the Kuy language means “our forest” (Swift, 2013; Turreria-Garcia et al., 2017).

The Kuy, like many indigenous people worldwide, have a long tradition of belonging to and living from the forest and its resources. The Kuy rely on the forest for their livelihood and economic activities, as well as their spiritual beliefs (Swift, 2013; Turreira-Garcia et al., 2017). The Kuy have a long tradition of harvesting and collecting various non-timber forest products (NTFPs) for personal use (Turreira-Garcia et al., 2017). A historically central aspect of Kuy life is resin tapping, which is the collection of oleoresin from various Dipterocarpus trees growing wild in the forest (Swift, 2013), and which represents one of the biggest sources of cash-income for the group (Jiao et al., 2015).

2.3.1 Kuy worldview, culture and spirituality

Cambodia is a predominantly Buddhist country, but also highly influenced by animism (Swift, 2013). The spirits in which Cambodians believe have many names, most commonly Neak Ta, which roughly translates to guardian (Work, 2019). These spirits are non-human, social actors that can have different functions, such as village spirits or forest spirits, and they are often connected to a special geographical place. Spirits are seen as inherent in land; they are the original owners, protectors and guardians of territories, and humans share the land with them. Land is not seen as a resource where humans are the only users (Beban & Work, 2014).

Spirits are an important part of the Kuy cosmology (Work, 2018), with one study suggesting that spirits generally play a bigger role for Kuy than Khmer communities (Swift, 2013). Kuy people developed relationships with the owner of the land where they reside, grounded in fear, gratitude and respect (Work, 2018). People must ask for permission to take resources as well as thank the spirits by giving offerings (Work, 2018). If permission is not requested or people take too much, there are various consequences. The most common is disease, but people also experience blocked access to fish and animal stocks, bad harvests, accidents, storms, droughts, floods, and blights (Work, 2018).

Kuy, as well as Khmer, inhabitants in Prey Lang are tightly linked to the forest, both economically, culturally, and spiritually (Turreria-Garcia et al., 2017). The Kuy regard various places as sacred, often because they have a special connection to the spiritual world (Work, 2018). They believe that many spirits reside in the Prey Lang forest, such as forest spirits and village spirits. Each community takes care of a particular forest-spirit, or group of spirits, and sometimes different communities take care of the same spirit (Turreria-Garcia et al., 2017). This culture of respect for spirits is passed on through

generations, and it is believed that spirits can also have family members, such as parents or children (Turreria-Garcia et al., 2017).

The Kuy residing in Prey Lang also believe that certain trees have their own spirit (Turreria-Garcia et al., 2017). All species of resin trees are sacred, as they are believed to host spirits, while also having tremendous cultural and economic value to the people. However, some resin trees are also luxury timber that are being illegally logged. Spirit resin trees such as *Dipterocarpus alatus* are listed as endangered by the IUCN (Turreria-Garcia et al., 2017). See appendix 9.11 for a photograph of a sort of *Dipterocarpus* tree inside the Prey Lang forest that informants believe hosts a spirit.

3 Theoretical framework

3.1 Resource & Commodity Frontiers

The concept of frontiers is used in a variety of fields. A common use is the notion of resource frontiers, which refers to an “area in which nature is being framed as a source of ‘natural resources’ that can be utilized for anthropocentric extraction and processes of accumulation” (Kröger, 2021, p. 83). Kröger (2021) goes on to explain resource frontiers as “processes of appropriation where colonizers or other extractivist actors physically and dramatically reshape existing landscapes and lived environments” (p. 77). This process is also linked with the notion of commodity frontier, which refers to “value-creation processes and areas whereby commodities are produced for market consumption within global capitalist economies” (Kröger, 2021, p. 84). Resource frontiers and commodity frontiers often develop simultaneously in the same location, greatly transforming the landscapes and the lives of the inhabitants within that site.

Nature, and natural resources, can and are being converted into commoditized resource frontiers (Kröger, 2021). This is particularly true for those forests that are home to a tremendous wealth of resources, such as timber, carbon-sequestration potential and fertile land. Forest frontiers are sites in which “the advance of timber extraction, land commodification and industrial agriculture ‘eats into’ a non-capitalized and non-commodified forested world” (Milne & Mahanty, 2015, p. 6).

The expansion of resource and commodity frontiers have tremendous impacts on the people inhabiting these spaces, destroying landscapes in the process (Milne & Mahanty, 2015). These expansions are often conducted through “speculative, violent and often illegal process of turning state, public, protected, or others’ lands into sources of ‘natural resources’” (Kröger, 2021, p. 84). The transformations occurring in these areas provide both opportunities and risks (Milne & Mahanty, 2015). Some local actors may seize the new chances that come with the commodification of their land, while others will experience reduced resource access and exclusion (Hall et al, 2011).

3.2 Frontiers of existence

In highlighting how resource and commodity frontiers impact the lives of humans and other-than-human beings inhabiting these spaces, Markus Kröger uses the concept of frontiers of existence (Kröger, 2021). A frontier of existence is defined as a site where the rights and practices of existence are reconfigured as beings change their interrelations because of resource extraction (Kröger, 2021). Through this concept, focus is put on the possibilities for humans and other-than-human beings to exist in radically transformed sites. Kröger (2021) argues that current research on frontiers does not

sufficiently focus on existences. As resource frontiers expand, the possibility for beings to live, as well as the quality of their lives, changes dramatically, and research should investigate this. Kröger (2021) points out that it is important to examine the transformations occurring at sites of change, as well as to explore what the broader consequences of these transformations are.

An important element of the concept is that it includes other-than-human beings such as plant species, animals or spiritual beings (Kröger, 2021). Previously, frontier scholars have primarily focused on cultural and political-economic transformations, but there has been little research on how other beings are impacted by frontier expansions (Kröger, 2021). However, considering the staggering rate of species extinction worldwide, research should consider how the existences of other beings are altered. At sites of resource or commodity expansion, a certain being, such as “a bird, mammal, insect, or other being—can no longer exist in the same place. Or, if they are still physically in the space, they cannot exist in the same way” (Kröger, 2021, p. 83). By focusing on the broader scope of existences in various places, it is possible to extend research to include other beings beside humans (Kröger, 2021).

A frontier of existence, thereby, is “a site of transforming existing ontologies, that is, a site where the rights and practices of existence are remade as beings (what Western science would call species) change their (inter)relations because of resource extraction” (Kröger, 2021, p. 83). Existences, in this regard, are referred to as “human and other-than-human beings and species, including their interrelations” (Kröger, 2021, p. 83). Frontiers of existence are thereby a combination of resource/commodity frontiers, but a combination which nonetheless does not merely focus on the changing economic, natural and cultural constitutions, but also on the very lives being lived at those sites, and how those lives are transformed by the ecological and climate crises occurring around the world.

The concept seeks to ask four questions that together capture how existences are transformed (Kröger, 2021). The first question is, who or what exists? Secondly, how do they exist (what is the quality of existence)? Third, during what time and/or how long do they exist? And finally, who are the key entities deciding on and contesting the above existences? These four questions are useful to understand the major, broad changes occurring in sites of frontier-making, where assemblages and relations are reconfigured (Kröger, 2021). They help in uncovering different scales of environmental change, such as when global dimensions have impacts on the local level. By answering the questions posed above, the various tangible changes to existences caused by resource or commodity frontier expansion can be investigated (Kröger, 2021).

The first question seeks to understand the variety of beings that exist at a specific site (Kröger, 2021). The question looks at who and what can exist as well as how this has changed over time. The second question focuses on how beings can exist, that is, on the quality of their existence. This question explores how their existences are impacted by the changes occurring at the site. The third question aims to shed light on the timespan of existences, in other words, for how long a being can exist. The question also explores how the rhythm of life of various beings is affected (Kröger, 2021). It builds on Marxist contributions to frontier theorizing, which argue that capitalism transforms time (Thompson, 1967).

Lastly, the fourth question seeks to investigate the politics at play around the other three questions (Kröger, 2021). Through this question, focus is put on which actors have the right to decide and have an impact on who can live at a particular site, how they live, and for what period of time they live. When attempting to answer this question, it is important to take into consideration the various social actors that are relevant at the site, such as government authorities, private companies, or civil society groups (Kröger, 2021). These four questions are highly relevant to explore the impacts of deforestation on indigenous livelihoods and their relation to the nature as they discern the very tangible changes that resource frontiers cause, both to humans and other beings inhabiting the space.

The various frontier concepts, including frontier of existence, are ideal to investigate the changes occurring in the Prey Lang forest. Prey Lang can be described as a resource frontier, commodity frontier as well as a forest frontier, where the existences of various beings are highly impacted by these expanding frontiers. By using these concepts, and asking the above four questions, this research will shed light on the ways that existences are transformed. Furthermore, specifically the last question, which seeks to identify the key entities deciding and contesting what and who can exist, will help to guide a discussion about the broader processes causing these expanding frontiers and altered existences, as well as attempts to contest them.

4 Methodology

4.1 Research design

In order to explore the changing existences of the Kuy indigenous people and the key actors contributing to or contesting these changes, a case study approach was chosen. The purpose of the case study design is to conduct an intense, detailed examination of a single case (Bryman, 2016). This approach allows the researcher to familiarize themselves thoroughly with the case and the factors surrounding it, and provides an opportunity to gain insightful knowledge about it (Flyvbjerg, 2006).

The case study approach promotes theoretical analysis and the development of conceptual ideas from the data (Bryman, 2016). While there are several ways of conducting case studies, the selected case is usually not a representative sample of similar cases, rather, it is a unique or revelatory case that helps to shed light on the particular setting from which the case is drawn. As Bryman (2016) puts it, “the case is an object of interest in its own right” (p. 61). Furthermore, Flyvbjerg (2006) points out that case studies produce concrete, context-dependent knowledge, and that “for researchers, the closeness of the case study to real-life situations and its multiple wealth of details are important” (p. 6). The purpose of this approach is to use the comprehensive data from a particular case to develop a theoretical analysis and to further advance conceptual ideas that may also be applied to other similar cases (Bryman, 2016).

For the above reasons, the case study approach lends itself well to answering the research questions. With the aim being to explore changing existences and the key entities deciding on and contesting these changes, fully understanding the particular case is critical. In every resource frontier, unique factors will influence how the impacts of resource extraction are felt. The case that is the subject of the present study is not representative of all other resource or commodity frontiers, but it may have parallels and provide insights into occurrences in other locations.

4.2 The case: Pneak Roluk

The case through which the research question will seek to be answered is the village of Pneak Roluk, located in Thmir commune, Chey Sen district, Preah Vihear province, Cambodia. Pneak Roluk is situated inside the Prey Lang forest, within the border that designates the wildlife sanctuary (see figure 2 below). The Chey Sen district has seen a high rate of deforestation between 2001 and 2020, losing approximately 13.6kha of tree cover, which is equivalent to a 20% decrease in tree cover since 2000 (Global Forest Watch, n.d.).

The following sections are mainly based on primary sources from inhabitants of Pneak Roluk, either through informal conversation or through interviews and focus group discussions. Due to lack of official statistics as well as research specifically mentioning Pneak Roluk, the information has not been verified by other sources unless specifically indicated.

According to informants, the community registered as a CPA in 2018. The CPA is officially referred to as Prasat Phnom Kreal (see figure 2 below). The CPA has a committee with 15 members, including the leader as well as an administrator. Most inhabitants of the village are members of the CPA, with the few exceptions being, for example, people that have recently moved to the village or have occupations unrelated to the forest.

According to informant PR17, the village is comprised of approximately 203 households with around 778 inhabitants, all of whom speak Khmer. Based on information from the interviews, most inhabitants are rice and cassava farmers. Some inhabitants also collect and sell non-timber forest products (NTFPs), such as honey, but often these are collected for household use. Most households have farms, and these are located either further inside the Prey Lang forest or outside of it. Until 2018, the inhabitants were subsistence farmers, but have since started to produce for local and global markets, in particular rice and cassava.

According to community members, they patrol the CPA 5-6 times a month and confiscate wood and equipment from illegal loggers if caught. The community receives USD 100 per month to facilitate the patrols, to be mostly spent on fuel and food. Prior to registering as a CPA, community members had already been conducting patrols in the forest to stop illegal loggers, but without official recognition of their stake in the forest, actions against the loggers were hard to enforce.

However, according to CPA committee members, the illegal loggers know when the patrols take place, and leave before the patrollers arrive in the forest. CPA committee members have also spoken of involvement by military officials in Preah Vihear, the provincial capital. Upon confiscating equipment from loggers, such as motor saws, military officials would request to have the equipment returned to the loggers.

A number of ELCs operate in and around the Chey Sen district, such as PNT and Thy Nga (see figure 2 below). The operators have largely deforested the area within their own concession with the intention of creating plantations (Global Initiative, 2021). Additionally, the Global Initiative (2021) report indicates that the companies buy timber from loggers who have logged beyond the concession boundaries, inside the Prey Lang Wildlife Sanctuary, and then transported the timber into the concession as a way of whitewashing the timber.

The village of Pneak Roluk is located near a temple called Phnom Kreal (thereafter the CPA name), which directly translates to Crane Mountain. This is a holy site where various religious ceremonies are held. The village also has a small shrine, where the village spirit, Lok Ta Khmaw (direct translation: Black Grandfather), resides. Before the CPA members conduct patrols, they give offerings to Lok Ta Khmaw to receive his blessing for the operation.

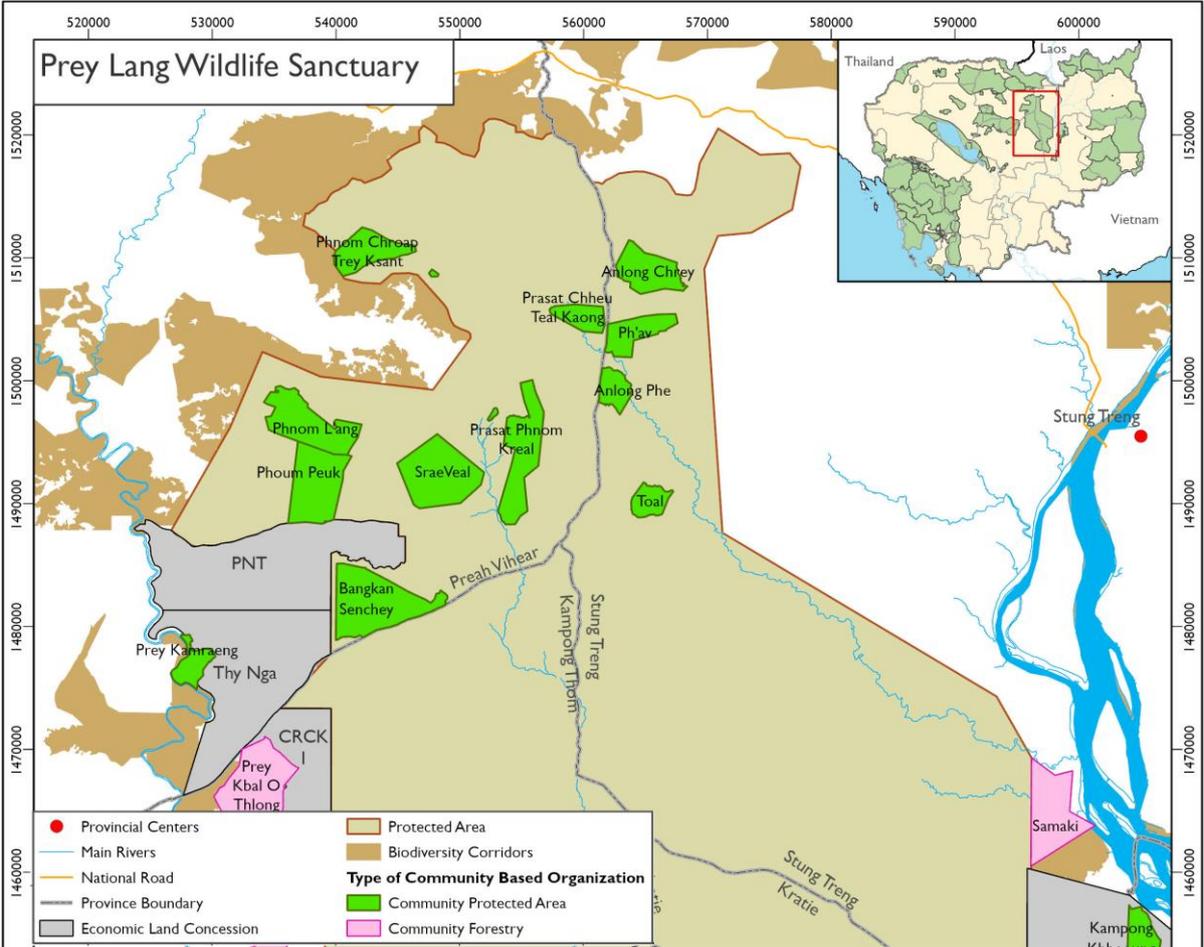


Figure 2. Prey Lang Wildlife Sanctuary. Map outlining the protected area, the placement of the Economic Land Concessions (ELCs), as well as the Community Protected Areas (CPAs), and Community Forestry (CF). Inhabitants of Pneak Roluk manage the Prasat Phnom Kreal CPA (center of the map), and Pneak Roluk is located to the west of it. The small, unnamed green shape to the left of the Prasat Phnom Kreal CPA is the Phnom Kreal temple. See complete map in appendix 9.10. Source: Informant PP2.

4.3 Data Collection

The data collection method used triangulation to obtain information from various sources in a variety of ways. The data collection was primarily carried out in two locations: Pneak Roluk and Phnom Penh, the capital of Cambodia.

The data collection in Pneak Roluk was inspired by Participatory Rural Appraisal (PRA) thinking and methods. PRA is a field-based, participatory method that aims to gain information while empowering the informants (Narayanasamy, 2009). PRA focuses on mutual learning between the researcher, or facilitator, and the participants, where both learn in an iterative process. PRA is exploratory in nature and highly flexible in the use of methods to conduct research. While PRA in this case inspired the research approach, it is also often used in rural capacity-building and development (Narayanasamy, 2009).

4.3.1 Academic articles and official documents

This body of data included a variety of academic articles, reports, and official documents. The Prey Lang area in general is very-well documented, both in terms of deforestation, biodiversity, livelihoods, and spiritual practices. Reports, such as by Global Forest Watch (Kresek, 2019) and Global Initiative (2021), detail illegal logging operations and the workings of ELCs. In addition, the research also covered official government reports such as the CBD (Department of Biodiversity, 2019). This part of the data collection helped to provide the context, as well as to answer to the second and third research questions. Furthermore, it helped to identify which informants were relevant for the interviews and focus group discussions.

4.3.2 Semi-structured interviews

One of the most important methods used within PRA, as well as in this research, is interviewing. PRA equates interviewing with dialogue, with the intention of people sharing their own perceptions, ideas, and opinions about problems (Narayanasamy, 2009). This research utilized semi-structured interviews, where topics and certain questions were predetermined, but kept open to allow for follow-ups to the informant's own thoughts. This type of interviewing is flexible and opens up for dialogue to occur, while also providing a frame and ensuring that the relevant topics are covered. The aim of the interviews was to explore the research questions, including how deforestation affect indigenous communities' livelihoods and their relation to nature, the drivers of deforestation, and the role of conservation efforts in addressing these drivers and impacts.

In Pneak Roluk, a total of 16 interviews were conducted. 8 of these were conducted with women and the other 8 with men. The age range was between 25 to 120 years old, according to the informants themselves. The majority of informants were rice and cassava farmers, with the exception of a primary school teacher, a shopkeeper and a Gru Khmer (equivalent to a shaman). In Phnom Penh, five stakeholders were interviewed, including an official from the MoE, two employees in a private conservation agency, and a representative from a national umbrella organization for NGO's working

with issues such as conservation and indigenous people's rights. One written interview was conducted with an international aid agency. Throughout the text, informants in Pneak Roluk are referred to as PRXX, while informants in Phnom Penh are referenced as PPXX. See appendix 9.1 and 9.2 for an overview of all the interviews.

Prior to the interviews, the informants were advised about their role in the study and gave consent to participating. This was done verbally, as many informants in Pneak Roluk were illiterate. All informants participated on a voluntary basis and were guaranteed anonymity and the right to terminate their participation at any time. An interview guide was created beforehand and inspired the data collection. However, the guide developed during the course of the interviews as new themes were identified, and each interview diverged slightly from the guide, depending on the knowledge and interest of the informants.

4.3.3 Focus group discussions

The research methodology also made use of focus group discussions, which can be described as group interviews (Narayanasamy, 2009). Similar to semi-structured interviews, the informants are introduced to various topics that they then discuss among themselves. The focus group discussions took place in Pneak Roluk, and utilized several methods present in PRA. The first was mapping, which was used to create a visual map of the village, the CPA, as well as important places, such as the Phnom Kreal, the Lok Ta Khmaw shrine and the primary school. The purpose of this method was to facilitate communication in the group, as well as to gain an understanding of the village and what places its inhabitants deemed important (Narayanasamy, 2009).

Another tool that was applied to gain a deeper understanding of the village was the generation of a historical timeline documenting important social, economic, cultural, political, and environmental events (Narayanasamy, 2009). This helped to explore the history of Pneak Roluk from its founding to more recent events, such as when the village received antenna coverage as well as when their CPA application was approved. The focus group discussions served as a compliment to the interviews in answering the first research question, especially in bringing up issues that were not included in the standard interview guide.

A total of four focus group discussions were held (see appendix 9.3 - 9.6 for details). The first, in which the map was created, consisted of six CPA committee members, four women and two men. The second focus group discussion involved four elderly women, while the third consisted of three younger women, all of whom were cassava and rice farmers and members of the CPA. The last focus group

discussion comprised four male CPA committee members, who helped to create a timeline of Pneak Roluk's development.

4.3.4 Observations

Another method for collecting data, which was used in Pneak Roluk, was observation. Observations were conducted in Phnom Kreal, as well as at the Lok Ta Khmaw shrine while informants were praying to the spirits. During interviews and focus group discussions, observations also played a valuable role in understanding power dynamics within the village, and helped to provide context to the various discussions. Lastly, observations were made while simply walking around the village. The observations did not follow any particular method, but were recorded in the research logbook together with thoughts and other notes. Using observation as a research tool helped to make issues available that were not brought up in the interviews or focus group discussions.

4.3.5 Translator

Throughout the research conducted in Pneak Roluk a translator was used to assist. The translator was a Khmer man, 38 years old, that currently works for an NGO that focuses on promoting human rights and environmental protection in rural Cambodia. The translator assisted in conducting interviews and focus group discussions, as well as helped with navigating the social space. Using a translator had several advantages, such as providing time to reflect and take notes during the interviews and discussions. It was also valuable to talk about observations and thoughts with somebody who is knowledgeable in the field. However, having a translator also had disadvantages. Research is always impacted by the perceptions of the researcher (Flyvbjerg, 2006), and in the case of using a translator, the data goes through even more filters. The perceptions of the translator have therefore also impacted the data analysis in ways that are difficult to assess. Furthermore, the transcriptions of the interviews are based on the English translations, but a transcription and translation of the original answers in Khmer was not done.

4.4 Data analysis

The data analysis was conducted iteratively as the data collection progressed. Each interview that was recorded was transcribed, while notes from the focus group discussions and unrecorded interviews were written out. Subsequently, a thematic analysis of the data was completed, where the main themes of the interviews and focus group discussions were brought out. This method enabled the data to speak for itself and for the most common themes to stand out (Bryman, 2016). By conducting a thematic analysis, the themes most frequently mentioned by the informants became clear and could be analysed through the chosen framework.

5 Results and analyses

5.1 How does deforestation affect indigenous communities' livelihoods and their relationship to nature? (RQ1)

The first research question is answered through the following two themes: impacts on livelihoods and impacts on peoples' ontologies and belief systems. The four questions posed in the frontier of existence concept has guided the analysis, in particular the question of who or what can exist, and how they can exist (the quality of their existence). The duration and temporality of existences is also addressed when relevant. The fourth question, who are the key entities deciding on and contesting the above existences, is addressed when answering research question 2 and 3.

To answer the first research question, the effects of deforestation perceived by the inhabitants in Pnek Roluk are important to cover. Almost all informants expressed the view that they felt various impacts, ranging from irregular rainfall to a decrease in NTFP availability. When asked about the consequences of deforestation for the village, many said it led to climate change; most commonly to issues such as droughts, extreme weather, and irregular rainfall. Several informants expressed their observation that the weather had become too hot, sometimes with a lack of rainfall and sometimes with too much rain. Informant PR9 expressed the following regarding the changes in the forest:

"There are many changes in the forest. It lost a lot of big trees and only small trees still there. And the climate change a lot, like its become too hot, and sometimes the rain is very irregular. During this month, there shouldn't be any rain, but its rained. And maybe in rainy season, there might be no rain at all."

From the timeline of the village's history, it became clear that the informants perceived that these weather events had become more frequent after 2012, the same time as deforestation in Prey Lang began a period of rapid growth, according to the same informants. See appendix 9.12 for a photograph of the timeline. Generally, it was clear from the research that the informants' relationship to land had changed; from something that provided for them, to something unstable, which could not be depended upon.

5.1.1 Impacts on livelihoods

As nearly all villagers were rice and cassava farmers, and were dependent on rainfed growing methods, these changing weather conditions impacted them significantly. With regards to rice farming, they were dependent on a regular rainfall pattern to know when to plant the seedlings and for the seedlings

to grow properly. A disruption of the rainfall can result in a lost harvest. The cassava plantations were generally less affected by the changing weather conditions. The informants who discussed this said that they needed enough rain for a good harvest, but that cassava was less sensitive than rice.

These altered weather conditions greatly impacted the existences of the villagers. They were now unable to depend on the natural rhythm of the seasons, by which they were previously supported. Several informants felt worried about being able to provide for themselves and their families. Generally, the lack of stable, reliable weather patterns placed the villagers in a precarious situation where they were unable to predict how their coming harvest would turn out. Some informants, such as PR8 and PR13, expressed the view that life in the village was hard, and that it had become harder with the changing weather conditions. While the quality of their existences worsened, the rhythm of existence also seemed to change.

The ongoing deforestation in Prey Lang also greatly impacted their practices in relation to NTFP collection. Many inhabitants collected NTFPs, but several informants, such as PR8 and PR9, expressed the view that the deforestation has greatly decreased the possibility to harvest them. Generally, the number of NTFPs had declined and they were therefore harder to gather. Few informants in Preak Ruluk conducted resin tapping anymore. Informant PR4 explained that he used to tap resin, but that the trees from which he tapped had been cut down.

“Before I used to collect NTFP a lot, but now no more... Before I have a resin tree and I collect resin, I tap resin. But now my resin tree has been cut down almost all, and I have no more resin tree to collect.”

Other significant NTFPs for the inhabitants were wild vegetables and mushrooms, as well as big frogs and fish from a lake inside the Prey Lang forest. The informants still collected these, but a majority shared the opinion that they were less available and harder to find. While observation showed that various NTFPs were still present in the villagers’ cooking, they also largely relied on buying different produce from the nearby market. Based on the interviews it became clear that the impacts of deforestation were not limited to the existences of the inhabitants. A wide variety of species, ranging from animals to plants, were also affected.

The main, overall impact that became clear throughout the interviews and focus group discussions was that people’s relationship to the land had changed. Generally, this was evident from the altered rhythm of life, which in turn was a result of deforestation. Land, and nature, had become less reliable and could not always be depended upon.

5.1.2 Impacts on people's ontologies and belief systems

The expanding resource frontier and consequent deforestation in Prey Lang impacted people's ontologies and belief systems in various ways. A common thread throughout all interviews and focus group discussions was that people's perception of and relationship to the spiritual world adapted to the changes in the forest. There appeared to be a spectrum of change, from the evolution of the existing beliefs to a strengthening of beliefs, but also a weakening of beliefs. These impacts on people's beliefs will be covered in a subsequent section, following a discussion on the perceived effects on the spirits of the forest.

To understand what happened to the spirits residing in the forest, or what the inhabitants thought happened to them, informants in Preak Ruluk were asked to explain their beliefs. Based on these answers, it was apparent that people thought the spirits adapted to the changes happening in the Prey Lang forest. While many informants said that they did not know, because they could not see or speak to the spirits, a large number of other informants believed that when a spirit's tree home was cut down, it moved to another tree. When asked what happens to the tree spirit when its house is felled, PR11 stated that *"After Gru Khmer said where the tree is cut down, Gru Khmer go there [...] and give a small offering, and then tell the spirit to stay in another tree."*

Spirits were also highly impacted by the deforestation. When speaking of them, informants often used the word "angry" to explain how the spirits felt. Spirits were angry for various reasons, most commonly for their tree home being cut down. The timespan of their life did not seem to change, however. Informants from focus group 1 discussed that the spirits were their ancestors and had been in the surrounding forest before them and would continue to be there afterwards. It was unclear what would happen if all the trees were cut down.

Just like informants perceived that the spirits adapted to the changes in the forest, it was also clear that the biggest consequence that deforestation had on people's ontologies was that it made the beliefs evolve, to include new stories and new characteristics possessed by the spirits. Usually these new stories built on existing parts of the ontology, and contributed towards including the deforestation struggles experienced by the informants into their views.

As mentioned before, Kuy people believe that they must ask the spirits for permission to fell a tree or clear land (Work, 2018). This custom was, according to many informants, not followed by those who come to illegally cut down trees for money. During the creation of the timeline, the informants discussed that since 2020, both villagers and outsiders had begun to fall ill after engaging in illegal

logging. The tree spirits were said to have made them sick because they failed to properly ask for permission or give the right offerings. Sometimes the tree spirits would also bring illness to the family members of a logger as a way of punishing the logger. Informant PR4 told a story of someone who got sick, he said that:

“...because he cut down the tree so the spirit angry and make tree fall over him... So when he came to the Shaman in this village, and the Shaman just tell that he cut the tree which is the house of the spirit, so that one has to make offer to that tree and say sorry and then, get better.”

In that manner, stories developed that tied together existing beliefs with the ongoing struggles in the forest. The stories incorporated the sudden illness of certain people into the villagers' views and attributed the misfortune to angry spirits that took revenge on those who broke their rules. The possibility should also be considered that the stories served the extra purpose of scaring people who were considering participating in illegal logging practices.

One way in which some informants expressed changes in their relationship to the spirits was that their belief in them had been strengthened. They expressed a deeper faith in and respect for the spirits. This was often attributed to such stories as explained above, where informants experienced that the spirits made their presence and power more clearly felt. Informant PR17 from focus group discussion 1 said that the spirits showed themselves more often now because of the threats to their homes. The renewed presence of spirits in the village life, such as cases of unexplained sickness, as well as stories from other villages, meant that some informants had developed a stronger belief in the spirits.

Another tendency was clear in the interviews and focus group discussions with young people, across both genders. Generally, the informants in their 20s and 30s were less knowledgeable about the spirits residing in the village and the forest. Some of them referred to their knowledge of spirits as information they had gained through the elders in the village or through stories. When asked about the spirits in the forest, PR7 said that “I don't know, I only heard from others. I just follow the elders.” Furthermore, she explained that she did not understand the spirits, and that she did not believe in them. The younger informants not only knew less, but also appeared to show less interest and belief in the spirits.

5.2 What are the main drivers of deforestation in Prey Lang? (RQ2)

By asking what the main drivers of deforestation are, the research sheds light on the key entities that are deciding on the existences described above. Apart from assessing the elite-capture of natural resources as the primary cause of ongoing deforestation, attention will also be paid to the issue of small-scale logging and diminishing spiritual beliefs.

5.2.1 Elite-capture of natural resources

Deforestation in Cambodia is, as mentioned in the background, primarily driven by the granting of ELCs and the consequent logging within and outside their boundary (Global Initiative, 2021; Riggs et al., 2020). Global Witness (2007) has described the illegal logging network in Cambodia as a kleptocratic elite working as a syndicate to further the personal interests of its members. This syndicate is comprised of Prime Minister Hun Sen himself, his family members, other high ranking government officials, as well as military and police officers (Global Witness, 2007; Work, 2015). This situation of elite and state capture are also present in Prey Lang through the ELCs Think Biotech, Thy Nga and PNT (see Figure 2 in section 4.2), which have close connections to top government officials and have been accused of contributing to deforestation and other related problems (Global Initiative, 2021).

The elite capture of natural resources is facilitated by corruption networks which are present throughout Cambodia, ranging from national to local scales (Keating, 2013). The MoE has in various reports been linked to the ongoing deforestation in Prey Lang and the rest of Cambodia (Amnesty International, 2022; Global Initiative, 2021). The MoE is, rather than attempting to conserve the remaining natural resources, monopolizing the profit from forest crimes (Amnesty International, 2022; Global Initiative, 2021). When informant PP1, the MoE official, was asked questions about logging conducted by companies outside of ELCs or corruption, his standard response was “it is not perfect”, suggesting that he knew more than he was able to say.

The ongoing deforestation, especially that conducted by networks of illegal loggers, is also enabled through cooperation with and protection from the ELC companies, government officials as well as local police and military officers (Work, 2015). Consistent with observations provided by informants, reports by Global Initiative (2021) also describe loggers leaving before patrols are conducted, while returning afterwards. Studies find that illegal loggers are being informed prior to the arrival of patrolling groups, obstructing the patrollers in catching the perpetrators (Global Initiative, 2021; Work, 2015). Furthermore, PR17 mentioned that military police sometimes request to have the confiscated chainsaws returned to the illegal loggers. This resonates with other reports describing harassment and threats to local communities that attempt to protect the forest (Amnesty International, 2022; Work, 2015).

Weak law enforcement is continuously mentioned as one of the greatest challenges to forest conservation in Cambodia (Beauchamp, 2018b, Singh et al., 2013). Informant PP1 said that both local and national law enforcement are needed to stop small-scale logging as well as to stop ELCs from

expanding beyond their designated concession area. However, improving law enforcement will be difficult as long as those charged with upholding the law benefit from breaking it.

5.2.2 Small-scale logging

Another driver of deforestation in Cambodia as well as Prey Lang is small-scale logging conducted by villagers in order to expand their farms (Hayward & Diepart, 2021). Most inhabitants in Pneak Roluk participated in small-scale logging to collect timber for firewood or house construction, as well as to expand their farms. Many inhabitants in the village had wood planks in stacks under their houses, and informant PR17 said that the planks were kept there for when their children married and needed a new house. Several informants expressed a similar view, that villagers cut down trees to build new houses for themselves or for their children when they move out. Other informants told of villagers who cut down trees to expand their cassava or rice farms. The felling of trees for these purposes was generally expressed as being acceptable and necessary for their livelihoods, especially in light of the impacts that deforestation is having on their farming.

Based on the interviews and focus group discussions, it was also apparent that some inhabitants in Pneak Roluk participated in illegal logging for the purpose of selling the timber. Informants, such as PR10 and PR12, spoke of villagers, as well as “outsiders”, that cut down trees in Prey Lang. Perhaps for reasons pertaining to the illegality of the practice, interviewing members of the village who said they engaged in illegal logging was not possible. Other sources were not able to verify that inhabitants in Pneak Roluk conduct illegal logging, but various studies show that villagers and CPA members often participate in it (Riggs et al., 2020). An observation made on several occasions was scissor-tractors arriving in Pneak Roluk during the night, which according to informant PR17 transported timber from the forest. This could not be accomplished during daylight hours and was therefore instead carried out in the night. Although informants often expressed thoughts about villagers who conducted illegal logging to sell the timber to companies in more negative terms, several informants, such as PR8, also expressed an understanding that it was necessary for villagers to do this in order to ensure their livelihood.

The instability of rice and cassava farming, as well as the unavailability of NTFPs, mean that people need a supplementary and stable source of income. For some, this was ensured by expanding their farms to produce more, while others turned to the logging and selling of timber. Informant PP5 expressed the view that “in many communities, harvesting of NTFPs is not as financially lucrative as illegal logging, converting forest to agricultural land, or working as a day labourer.” When people do not make a living from rice and cassava farming, for example, they instead turn to other sources of

income that can provide for them. Overall, the deforestation occurring in Prey Lang can be seen as a negative circle in which deforestation leads to climate instability and unavailability of resources, causing people to turn to other sources of income, such as logging, which in turn amplifies the deforestation.

5.2.3 Diminishing beliefs

Another driver of deforestation, which has received little attention in Cambodia, but great consideration globally is the diminished beliefs and connection to land experienced by indigenous groups and other local communities (see for instance Gómez-Baggethun et al., 2009 and Kai et al., 2014). The results discussed in 5.1.3 showed that in particular the younger generation had less knowledge of the spiritual world, and also expressed less interest in it. The loss of local ecological knowledge (LEK), which Kai et al. (2014) defines as the “cumulative body of knowledge and beliefs about the relationships of living beings (including humans) with one another and with their environment” (p. 1) has been widely studied (see Gómez-Baggethun et al., 2010 and Kai et al., 2014).

The drivers of this loss are many, ranging from globalization, transition into market-economies, industrialization, modernization, as well as limited access to ancestral land due to conservation efforts (Brosi et al., 2007; Gómez-Baggethun et al., 2010; Kai et al., 2014). Some of these drivers are also seen in sites of expanding resource frontiers, such as transition into-market economies and industrialization (Milne & Mahanty, 2015). Similar processes may be impacting the lives of the inhabitants of Pneak Roluk. The interviews with conservation stakeholders in Phnom Penh crystallised modernization and the transition into the market-economy as the two primary reasons for the changing relationship to the spiritual world.

Modernization was, according to PP3, altering people’s traditions and beliefs. According to him, people do not want to be viewed as being traditional, which is perceived as out-dated and backwards. The modernization occurring in Pneak Roluk was clear to see, especially during the creation of the timeline of the village. Solar systems were installed in 2012, smartphones arrived in 2014, the village received antenna coverage in 2017, and in 2020 the first scissor-tractors were brought in.

Another important factor driving the changing relationship to spirits, especially for the younger generation, was the transition into the market-economy. According to PP4, young people see what else is possible and come to desire that as well. This view resonates with other studies which found that young people are more interested in technology and have less knowledge of local traditions and beliefs than the older generation (Kai et al., 2014). According to PP2, competition between the younger

and older generation within the same household is common. The older household members want to manage the land sustainably, while the younger members want to sell it. The expanding resource and commodity frontier appears to influence the value that young people put on land and their relationship to it, viewing it more as a commodity instead of something with intrinsic value.

However, according to the informants in Pneak Roluk, many of the people who do illegal logging believe in the tree and forest spirits. Loggers may sometimes follow rituals and ask for permission, but at other times they cut without asking first. As mentioned before, informants told many stories of loggers becoming ill after felling a tree which hosted a spirit. According to the informants, loggers would then go to see Gru Khmer, who was able to speak to the spirits and ask about the reason for their sickness. The loggers would then need to make an offering in the place where they cut down the tree as a way to apologize to the spirit. However, according to the informants, the same loggers would still return to the forest to fell more trees after recuperating from their sickness. PR9 said that loggers:

“... believe there are tree spirits, but when they cut down a tree and when they get sick, they give offering and when they get better, they go and cut again. Some tree have no spirit and they can get it freely, but if they cut down another tree which has spirit, they come sick again and give offering again.”

The actual beliefs of the people who commit illegal logging are hard to know. When leaving after a very short interview with a man in Pneak Roluk, who was also the only informant who did not consent to being recorded, the translator said: “of course he doesn’t know about deforestation or spirits, look how much plywood he has under his house”. The illegality and controversy surrounding the logging made people reluctant to openly discuss this problem.

During many interviews, and especially while talking about people who participated in illegal logging, the informants seemed to think that the money that the timber could provide weighed more heavily than the value of a standing tree. The expanding resource frontier and commodification of the forest meant that people’s relationship to it changed. While previous research on Kuy ontology depicts nature, and in particular forests, as an integral part of the ontology (Beban & Work, 2014), the expanding frontier had also clearly led to the forest being seen as a commodity in Pneak Roluk.

6 Discussion

6.1 The role of conservation efforts in addressing deforestation and its impacts (RQ3)

As shown in the results section, the deforestation in Prey Lang has tremendous impacts on the livelihoods and beliefs of the inhabitants of Pneak Roluk. The following section will explore the last research question: the role of that conservation efforts play in either alleviating or contributing to deforestation and its impacts. Referring back to the concept of frontiers of existence, the fourth question seeks to identify the key entities deciding and contesting what and who can exist (Kröger, 2021). This question prompts an analysis of the politics at play around the first three questions. In the context of deforestation in Cambodia, a well-connected elite is the main entity holding the power to decide on the existences of other people, such as those in Pneak Roluk. Other social actors, such as conservation organizations, attempt to contest what and who can exist, and the extent to which they succeed at this is discussed in the next section.

6.1.1 Improving livelihoods

The challenges in Pneak Roluk described above, such as worsening quality of life and hardship due to changing weather conditions, are being addressed by conservation efforts all over Cambodia (see for example Conservation International, 2022; USAID, 2022). These challenges are mainly targeted through efforts to improve the livelihoods of indigenous and local communities, with the extra outcome of simultaneously conserving the natural resources surrounding these communities.

Market-based conservation approaches was discussed by several informants. Informant PP1 and PP2 focused in particular on how the incorporation of subsistence livelihoods and practices into the market-economy could contribute to improved livelihoods and conservation. One example that was brought forth from informant PP2 is the potential for long-term relationships with responsible private sector companies to provide such an opportunity. By for example linking NTFP collectors with companies that can market and sell the products for a fair price, indigenous and forest-dependent communities can maintain their traditional livelihood practices while at the same time securing an income that contributes to preserving natural resources.

This market-based conservation approach has been successful in various contexts (Zimmerman et al., 2020). In Brazil, for example, NGOs and the indigenous Kayapo community worked together to create a portfolio of sustainable forest products and services that provide an income (Zimmerman et al., 2020). The monetary benefits of participating in illegal logging was still higher, but these enterprises had other advantages, such as the conservation of natural resources and the preservation of the

communities' traditional beliefs and practices (Zimmerman et al., 2020). However, other studies suggest that achieving improved livelihoods through NTFPs is difficult to achieve (Nambiar, 2019). By commodifying NTFPs, conservation initiatives in Cambodia aim to provide a source of income that contributes to halting illegal logging. The expanding resource and commodity frontier is driving deforestation by turning previously untouched forest into valuable commodities that can be sold on the global market. Future research should further consider how contemporary conservation efforts also make use of the expanding frontier as a solution to deforestation and what the implications of this are.

Informant PP4 discussed a central challenge to conservation efforts, which is the balance between long-term and short-term benefits. Poverty has instant consequences for the people who experience it, while the conservation of Prey Lang provides comparatively more long-term benefits. PP4 discussed that CPA members also commit illegal logging. When they do not feel the immediate impact of their conservation effort, they may be dissuaded and instead focus on activities that bring more direct benefits. Informant PP3, for example, brought up the predicament that "if I don't take it, someone else will".

Despite all the efforts to improve the livelihoods of indigenous and other local communities, these attempts do not address the core of the problem, but only focus on small-scale logging and farm expansions. Helping indigenous and forest-dependent communities enhance their livelihoods may be valuable for the targeted community and contribute to limiting deforestation in that particular area (Beauchamp et al., 2018a). According to the FAO and UNEP (2020), market-oriented solutions pertaining to sustainably produced forest products and services may be useful where the main driver of deforestation is subsistence agriculture or fuelwood harvesting. However, whether market-oriented solutions can halt deforestation on a large-scale is questionable.

An interesting question to consider, which was not addressed during the interviews, is whether those who exploited the opportunities created through the expanding resource frontier, and participated in illegal logging, were able to improve their existences. The quality of life of rice and cassava farmers clearly worsened due to deforestation and climate change, while the selling of timber continued to provide a more stable and less precarious source of income. With the expansion of the resource frontier, some people lost access to resources while others took it as an opportunity to improve their livelihood. However, participating in illegal logging must clearly come with both social and emotional challenges that also impacts their existences. This could be a subject for further research, informed by people that specifically conduct illegal logging for the ELCs, to understand how it impacts their existences.

6.1.2 Strengthening peoples' ontologies and beliefs

The changing value placed on spiritual beliefs, especially by the younger generation, resonated with all stakeholders in Phnom Penh working on conservation efforts. They saw the same tendency throughout Cambodia, especially in indigenous and rural communities. Although none of the stakeholders mentioned deforestation as the reason why they were losing interest in the traditional spiritual beliefs, they all agreed that the altered relationship to land and the eroding belief in spirits by the younger generation have impacts for conservation efforts and these issues are therefore targeted as part of various conservation projects.

Informant PP4 considered the value of engaging with the youth, especially the urban youth, to help them connect with nature and see its intrinsic value. All stakeholders discussed how young people saw nature more as a source of recreational value, a place for having picnics and taking photos, rather than viewing it in a similar way as the Kuy ontology, as the giver of life. While also drawing on the recreational value of nature to ensure its protection, conservation efforts leaned more towards encouraging young people see the value of nature in and of itself.

Other conservation efforts revolved around appealing to people's existing beliefs and traditions.

Informant PP4 discussed that many indigenous and forest-dependent communities view themselves as "guardians" of the forest, and when in contact with these local communities, conservationists would try to reinforce this image. By equating "guardianship" with protecting the forests, and felling them as the opposite, the goal was to appeal to people's own identities and belief systems.

However, whether spiritual revival of the youth and other people is the solution is questionable. According to informants in Pneak Roluk, those who cut down trees believe in the spirits, but choose to proceed anyway in order to generate an income. This suggests that maintaining the traditional beliefs by itself is not enough, and relates back to the need for livelihood improvements. One way of accomplishing it, as mentioned above, was through private sector relationships that place a monetary value on existing beliefs and practices so as to maintain them. Another option, discussed by informant PP2 and PP3, was eco-tourism, which has the same potential of monetizing natural resources so that their conservation is financially valuable. However, these approaches, while possibly providing benefits to the affected communities, also do not address the core issues causing deforestation in the Prey Lang forest.

6.2 Conservation as another resource frontier

Various social actors, ranging from international aid agencies to local NGOs, aim to stop deforestation while improving the lives of the communities that have hitherto been impacted by it (Conservation International, 2022; Hing & Riggs, 2021). However, scholars argue that development policy in Cambodia is also contributing to the expansion of the resource frontier (Work, 2015). Cambodia's development partners, such as the World Bank and USAID, encourage policymaking towards the intensification of industrial agriculture (USAID, 2010; World Bank, 2014) as well as support pro-business environments that foster the conversion of natural resources into commodities (Work, 2015).

Conservation organizations in Cambodia work under the premises established by the state (Milne & Mahanty 2015) and are also highly influenced by global ideas of conservation policy, often related to capitalist inspired monetary schemes (Work, 2015). According to Work (2015), the World Bank and USAID support “the environment of economic growth that gives rise to these ELCs (and to climate change)” (p. 4). Large-scale conservation efforts, such as REDD+ projects, are increasingly viewed as another form of land grab similar to ELCs, where elite interests weigh higher than those of the impacted populations (Work, 2017).

Informant PP2 believes that implementing REDD+ zones in Prey Lang will help to stop deforestation on a large scale. With an increase in the value of carbon stocks on the global market, he argues that REDD+ has the potential to give standing trees a higher monetary value. However, the Prey Lang area currently hosts two REDD+ projects (Work, 2017), with more in the planning stage (USAID, 2022). In particular one of the already existing REDD+ zones in Prey Lang has received heavy criticism (Work, 2017). Firstly, rather than being granted tenure rights and management responsibilities, community members were divested from these. Furthermore, although deforestation within the zone decreased, it contributed towards increased logging beyond the boundaries (Work, 2017).

In Cambodia, several obstacles remain before conservation efforts, such as REDD+ projects, can generate the intended outcomes. First of all, forests are commodified under premises that benefit the elite, leading to recentralization of natural resources in the hands of a captured state (Work, 2015). Lack of law enforcement and corruption are also part of the challenge – local communities, for example, find it hard to exercise the rights granted to them by conservation agreements, such as REDD+ safeguards, if they cannot report problems anywhere (Pasgaard & Chea, 2013; Work, 2017). The success of conservation projects depends on these challenges being resolved simultaneously (Riggs et al., 2020; Work, 2017).

6.3 State priorities

Ultimately, deforestation in Prey Lang and other parts of Cambodia boil down to divergent state interests between conservation and development, as well as the highly embedded practice of elite capture (Riggs et al., 2020). Cambodia has ambitious conservation targets, having ratified the Convention on Biological Diversity and adapted the Aichi targets to meet its own challenges (Department of Biodiversity, 2019). The targets include halving the rate of natural forest loss (which should have been reached by 2020), as well as ensuring that the public sector, private sector, and other stakeholders reduce their negative environmental impacts (Department of Biodiversity, 2019).

Economic development is another highly valued goal in Cambodia's long-term strategic development plans (Beauchamp et al., 2018b). Economic development is often pursued through the use of ELCs, with more than 2 million hectares of Cambodia's land being leased to private companies with the purpose being national development (Global Initiative, 2021; Riggs et al., 2020). However, as many studies have shown, ELCs do not contribute to sustainable practices, but instead greatly increase deforestation and create a variety of other negative impacts on the people who they displace or who are located next to them (Davis et al., 2015). The widespread use of ELCs as well as their concentration in the hands of the elite make them a powerful tool in deciding who and what can exist.

Cambodia has since 2013 experienced a shrinking political and civic space (Schröder & Young, 2019). Social actors, such as NGOs, social movements, and other civic society networks, have difficulty navigating in the political arena (Gemzell, 2017). Various organizations working in Cambodia continuously publish reports detailing human rights violations, harassment and intimidation experienced by civil society groups (Aho, 2017). International aid agencies and conservation agencies are failing to meet their goals of curtailing deforestation and improving the livelihoods of the affected populations (Amnesty International, 2022). Whether civic society actors can play a greater role in contesting the state's impacts on the lives of the Prey Lang region's inhabitants remains to be seen, and should be the focus of further research.

Global Witness (2007) have in their report criticized international donors for not using their influence in Cambodia effectively. International donors provide approximately USD 600 million per year in aid to Cambodia, but do not exercise this leverage appropriately. They fail to recognize the embedded corruption in the Cambodian government, and their financial support has not led to reforms that improve governance (Global Witness, 2007). In light of this, the extent to which international donors, and the conservation efforts they support, are contesting who and what can exist in the Prey Lang forest is limited.

7 Conclusion

The expansion of resource and commodity frontiers occurring worldwide in search of unexploited natural resources is highly visible in the Prey Lang region. The deforestation caused by this expansion has and continues to impact the existences of the beings that inhabit the Prey Lang forest. The growing resource extraction is limiting what can live in the forest (especially plants and animals), as well as affecting the quality of life of those who can still live there. Furthermore, the temporality of their lives is changing, being disrupted by the impacts of climate change on the local weather patterns. People's relationship to the spiritual world is also being altered, and although this transformation may not be directly attributed to deforestation, it is a consequence of frontier expansions, which affect how land and nature are valued.

The fourth question arising from the concept of frontiers of existence seeks to identify the key entities that decide on and contest what and who can exist, with the focus of this study being on conservation stakeholders. Conservation organizations are implementing various projects to tackle the changes occurring due to deforestation and illegal logging. However, they are failing to address the elite-capture occurring in Prey Lang, which is a key driver of deforestation in the first place. The role that international donors can play in addressing elite-capture and supporting conservation efforts in achieving salient progress is worth further investigation.

Cambodian authorities, as well as conservation agencies, are failing in their responsibility to protect the rights of indigenous people by not taking actions that are effective in stopping the deforestation (Amnesty International, 2022). Land grabbing in the name of development, and the consequent deforestation and illegal logging, leads to a loss of what it means to be Kuy, both in terms of sociocultural identities and practices that underpin the community's way of living (Keating, 2013).

This research concludes that other strategies are needed to contest the ideologies and entities driving the ongoing deforestation, thus limiting its impact on indigenous groups. The complexity of forest loss occurring in Prey Lang, as well as in the whole of Cambodia, requires the cooperation of actors at all scales, ranging from international organizations to NGOs and local communities (Riggs et al., 2021). Further research is needed to shed light on the role that other agents, especially civil society organizations, can play in the protection of the Prey Lang forest, as these organizations have previously been successful in mobilizing support, but are being limited in their activism as a result of the shrinking political space.

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9 Appendices

9.1 Interviews conducted in Pneak Roluk

Reference code	Date	Age	Gender	CPA involvement
PR1	9/3	120	Female	Member
PR2	9/3	52	Female	Committee member
PR3	10/3	77	Male	Not member
PR4	10/3	61	Male	Member
PR5	10/3	31	Female	Member
PR6	10/3	25	Female	Member
PR7	11/3	31	Female	Member
PR8	11/3	58	Female	Not member
PR9	11/3	39	Male	Committee member
PR10	11/3	35	Male	Member
PR11	11/3	27	Male	Member
PR12	11/3	27	Male	Member
PR13	11/3	26	Male	Member
PR14	11/3	32	Female	Member
PR15	11/3	28	Male	Member
PR16	11/3	34	Female	Member

9.2 Interviews conducted in Phnom Penh

Reference code	Date	Position/affiliation
PP1	2022-03-16	Official from the Ministry of Environment (MoE)
PP2*	2022-03-18	Representative from a private conservation agency
PP3*	2022-03-18	Representative from a private conservation agency
PP4	2022-03-19	Representative from national NGO umbrella organization
PP5**	2022-04-01	Department from an international aid agency

* This was conducted as a group interview, but the informants are referenced separately.

** This was conducted as a written interview.

9.3 Focus group discussion 1

Date: 2022-03-09

Task: creation of a map of the village, Phnom Kreal and the CPA area.

Reference code	Age	Gender	CPA involvement
PR9	39	Male	Committee member
PR18	41	Male	Committee member
PR2	51	Female	Committee member
PR19	62	Female	Committee member
PR20	65	Female	Committee member
PR17	49	Female	Committee member

9.4 Focus group discussion 2

Date: 2022-03-09

Reference code	Age	Gender	CPA involvement
PR21	61	Female	Member
PR22	68	Female	Member
PR23	69	Female	Member
PR24	55	Female	Member

9.5 Focus group discussion 3

Date: 2022-03-10

Reference code	Age	Gender	CPA involvement
25	31	Female	Member
26	23	Female	Member
27	26	Female	Member

9.6 Focus group discussion 4

Date: 2022-03-11

Task: creation of a timeline of the village's history

Reference code	Age	Gender	CPA involvement
28	52	Male	Committee member
29	37	Male	Committee member
30	59	Male	Committee member
31	29	Male	Committee member

9.7 Interview guide used in Pneak Roluk

This interview guide is a general example of the questions that were asked. However, the order and number of questions varied, while questions not present in the guide arose based on the knowledge and interest of the interviewee.

Introductory questions

What is your name?

How old are you?

How many people live in your household?

What is your occupation?

Theme 1: Changes in the forest

What changes have you been seeing in the forest?

How does that affect your rice and cassava farming?

Do you collect NTFPs in the forest?

Are they affected by the changes in the forest?

How do these changes affect your life in the village?

Theme 2: Spirits

Are there any spirits here in the village?

Are there spirits living in the forest?

How are the tree spirits affected by the changes in the forest?

What do the tree spirits do when the trees are cut down?

Theme 3: Logging in Prey Long

What is causing those changes in the forest?

Why do they cut down the trees?

Do those who cut down the trees believe in the spirits?

Are you a member of the CPA? Do you go on patrols?

How has the illegal logging changed since Pneak Roluk became a CPA?

9.8 Interview guide used in Phnom Penh

This interview guide is also an example of the questions asked. However, specific questions were asked to the various interviewees depending on their area of expertise.

Theme 1: Supporting local communities

How does your organization support local communities who face deforestation threats?

How do you support local communities so that they do not participate in illegal logging?

How do you support NTFP collection and usage?

What are the challenges to this?

Theme 2: CPA support

What benefits do communities gain from registering as a CPA?

How does your organization support CPAs?

How are local communities being helped with adapting to the impacts of climate variability?

Theme 3: Introduction into the market-economy

In what ways has the recent introduction of many forest-dependent communities into the market economy impacted conservation efforts?

What kind of opportunities and challenges has this brought?

Theme 4: Illegal logging

How does the controversy around illegal logging impact conservation efforts? Particularly regarding CPA members who also participate in illegal logging.

How does the silencing of local communities that speak up against illegal logging impact conservation efforts?

Theme 5: Belief systems

Do the belief systems of the local communities, such as that of tree spirits, play a role in conservation efforts? If yes, what?

What potential might it have to enhance conservation efforts?

9.8 Focus group discussion guide

This guide is a general example of the themes as well as some common questions that were brought up during the focus group discussions. However, depending on the informants present, as well as whether the focus group discussion had a particular task, other specific questions pertaining to that task were asked.

Introductory questions asked to each participant

What is your name?

How old are you?

How many people live in your household?

What is your occupation?

Theme 1: Changes in the forest

What changes have been occurring in the forest?

How does that impact the people in Pneak Roluk?

How does it impact farming and NTFP collection?

Theme 2: Spirits

How are the spirits impacted by the changes in the forest?

What happens to the spirits when the trees are cut down?

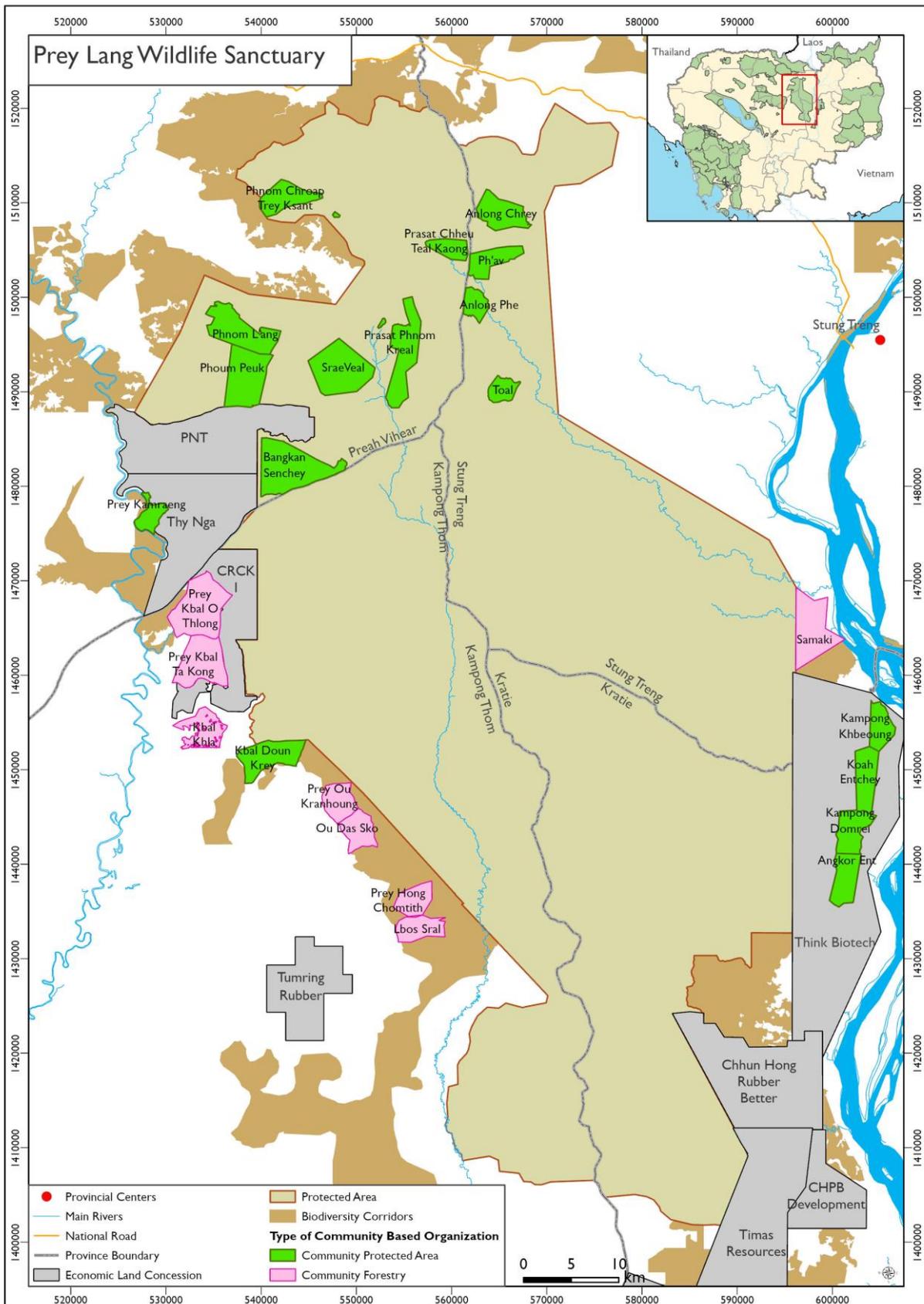
Theme 3: Logging in Prey Long

What is causing the changes in the forest? Why?

Do the individuals logging the trees believe in the spirits?

How has becoming a CPA impacted the logging occurring in Prey Lang?

9.10 Map of the Prey Lang Wildlife Sanctuary



9.11 Photograph of a sacred tree inside the Prey Lang forest



9.12 Photograph of timeline

