REIMAGINING CONSERVATION LANDSCAPES: ADIVASI CHARACTERIZATIONS OF THE HUMAN-DIMENSIONS OF SOUTHERN INDIAN FORESTS

by

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Abstract

One of the most damaging consequences of forest management and wildlife conservation policies around the world has been their pivotal role in the long-term dispossession of Indigenous groups from their ancestral lands. Indigenous presence in, knowledge, and understanding of the natural world is perceived as a problem requiring the correction and intervention of the state. These wrongful assumptions are dominant in the treatment of Adivasi (India's Indigenous people) across post-colonial India. This dissertation empirically investigates the relationship of Kattunayakans, a hunter-forager Adivasi community of Southern India and protected area forest landscapes. It critically contrasts the ideology that defines India's forest policy with Adivasi views of human relationships with wildlife, forested land, forest fire, and forest food.

From all the above, chapter 2 characterizes Kattunayakan ways of engagement with wildlife as a form of 'deep coexistence' that describes wild animals as: rational beings in conversation with humans; as gods, teachers, and equals; and as relatives with shared origins practicing *dharmam* (alms). Chapter 3 contributes empirical evidence to the study of Adivasi-forest relationships by articulating socio-cultural meanings and values that Kattunayakans associate with protected area forests. Chapter 4 engages with Adivasi knowledge of forest fire as an agent, co-manager, actor, preserver, groomer, and enabler of socio-ecological functions. It contests the notion of a forest fire as a dangerous phenomenon that should be quickly extinguished and positions fire as a co-habitant being, on par with animal and human residents. Chapter 5 seeks to expand understanding of Adivasi food transitions and ensuing consequences for the socio-ecology of Indigenous peoples. It describes the food as a facilitator of knowledge, memories, identities, aspirations, reciprocities, relationships, and ways of living. It highlights the need to learn about Adivasi foodways beyond nutrition and have policies that bring an Adivasi inclusive take on food transitions.

What emerges is an interpretation of the forest that emphasizes coexistence over domination, highlighting the fluid agency of animal and non-animal entities over rigid policy prescriptions and broader notions of forest security as human security. Together these views remain central to Adivasi well-being despite decades of forced dislocation.

Lay Summary

Forests are central to the culture, wellbeing, security, and lives of India's Adivasi communities. Yet, despite their Indigenous identity, Adivasis in India are constantly struggling to demonstrate their long-term association and dependency on forests. Their perspectives on forests remain unheeded in the contemporary forest and wildlife policies. This dissertation explores how Adivasi people living in and around the protected areas characterize their relationship with the forest. Through Kattunayakans, a forest-dwelling hunter-forager Adivasi community of Southern India, I explain how community members live in, experience, and understand their forest landscape. And how their perspectives shape interactions with wildlife, forest landscapes, forest fire, and forest foods. All empirical evidence within this thesis highlights opportunities for contemporary strategies and policies to enhance conservation such that Adivasi are central to forest management and exclusionary practices end. Fundamental to that are Adivasi-Indigenous insights of the natural world, which encourages coexistence over dominance.

Preface

This is my original and independent dissertation. Chapters 2, 3, 4, and 5 are intended to be published in academic journals as discrete manuscripts. They are designed to stand alone, which results in some repetition across chapters, particularly in the methods sections and the research contexts. The research described in chapters 2,3,4, and 5 is based on my original empirical research conducted in 2018 and 2019 in collaboration with the Kattunayakan people of Wayanad and field partner agency MS Swaminathan Research Foundation (MSSRF).

I designed the study, collected, translated, analyzed data, and wrote the manuscript for all the chapters. My supervisory committee (Dr. Terre Satterfield, Dr. Milind Kandlikar, and Dr. Jeanine Rhemtulla) provided valuable feedback throughout the dissertation preparation. My advisor, Dr. Terre Satterfield, played an important role throughout my research and dissertation process, including research plans, interview protocols, data analysis, interpretation, revision of draft chapters, and presentation of the work. In 2018 as part of the scoping study Dr. Terre Satterfield accompanied me and helped identify the focus community and field sites. As co-supervisor, Dr. Milind Kandlikar supported the entire research process and helped revise all the thesis chapters. My committee member, Dr. Jeanine Rhemtulla, provided GIS tools, advice and provided feedback on research plans and chapters. Dr. Suma TR (formerly a social scientist at MSSRF) provided logistical support in identifying the research sites. She also conducted some interviews and accompanied the research team inside the protected area during transect walks. I collected the GIS data points, whereas the maps were developed in collaboration with Stephen Chignell using Arc GIS software. These contributions aside, all the work described in this dissertation was my own.

As part of the larger movement to decolonize field research in the Global South and make scholarship public, I produced and co-directed an ethnographic documentary Gidiku Vapathu **(2020)**. The film was co-developed through community participation and supported by the Institute for Resources, Environment, and Sustainability and the UBC's Public Scholars Initiative. The YouTube link to the documentary is provided here: https://youtu.be/AQ2EJrzvUco

University of British Columbia's Behavioural Research Ethics Board approved the use of existing data sources and the fieldwork I conducted in Wayanad (BREB number: H18-03104). This research was also permitted by the Kerala Forest Department and Tribal Authority of Kerala.

Table of Contents

List of Tables

List of Figures

List of Supplementary Materials

Gidiku Vapathu

List of Abbreviations

BREB	Behavioural Research Ethics Board
CBNRM	Community Based Natural Resource Management
FDES	Fire Driven Ecosystem Services
FRA	Forest Rights Act
GIS	Geographical Information System
HWC	Human Wildlife Conflict
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
MSSRF	MS Swaminathan Research Foundation
NTFP	Non-Timber Forest Products
PDS	Public Distribution Service
PVTG	Particularly Vulnerable Tribal Group
ST	Scheduled Tribes
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples
WWS	Wayanad Wildlife Sanctuary

Acknowledgements

I would like to begin the acknowledgement by paying my respect to the traditional, ancestral, and unceded territory of the xwməθkwəy̓əm (Musqueam) People where I conceived, developed, and wrote this thesis. I would also like to acknowledge the lands and people whose knowledge I shared in this thesis. The work presented here would not have been possible without the support, encouragement, and faith of so many different people that I had the fortune to meet, interact and learn from at different stages of my life. For all these people, I will be eternally grateful to the universe.

First, I am deeply indebted to the Kattunayakan community members of Wayanad who selflessly and fearlessly shared their time and knowledge. Without their support and encouragement, this work would not have existed. I would like to thank them for walking with me and accepting my presence in their forests and homes. I am forever thankful to each one of the Kattunayakan people.

I am incredibly grateful to my supervisor, Dr. Terre Satterfield, for the support, encouragement, independence she has given me since the first day of my research. `As a woman of colour, mother, and graduate student, the PhD process was challenging, but Terre made the entire process one of the most rewarding experiences of my life with her patience and kindness. Her encouragement and faith in my abilities showed me how the practice of diversity, inclusivity, and equity look like in real life. Thank you, Terre, for helping me learn to appreciate the small victories of life. I am a better writer, researcher, and human, thanks to your mentorship.

I am extremely thankful to my co-supervisor, Dr. Milind Kandlikar, who played a crucial role in my decision to pursue PhD at UBC. Words are not enough to describe how grateful I am for his support and encouragement. Thank you for being a champion of my work throughout and beyond. He taught me to look at challenges in a constructive way and to aspire high. Whenever I felt unsure, he always gave me the confidence to move forward. Thank you, Milind; if not for your backing and encouragement, I (and my family) wouldn't be here.

I extend my sincere appreciation for Dr. Jeanine Rhemtulla, my committee member, who provided valuable insights, enthusiasm, and inspiration throughout the process. Thank you for helping me with GIS instruments and guiding me through the process. As a woman academician with children, I look up to Jeanine. Thank you for being an inspiration for me.

I am deeply indebted to my field partner Dr. Suma TR (a former scientist with MS Swaminathan Research Foundation), who shared her time and knowledge with me. Being a scientist and resident from Wayanad, Suma chechi (as I fondly call her) gave my research relevant insights on the socio-political context. We have had several long and intensive conversations around my research themes, and every time it led to many beautiful inputs and thoughts. Thank you, Suma chechi, for being the best field partner that anyone can dream. I would also like to express my gratitude to the MSSRF director for giving me an office space during my fieldwork. I truly appreciate the safety, comfort, and company that MSSRF folks gave me. Thank you, everyone, at MSSRF.

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Dedication

To all the women scientists who were here before me, who mended the path of science for people like me. Thank you for blazing this trail in your big-little ways. For I see my path clearly because of you.

Chapter 1: Introduction

> *"The feeling of being inside the forest is beyond the words. It is like returning to mother's womb" [Kattunayakan, Ponkuzhi colony]*

Across the world, two things are far too common to policies that displace Indigenous people from ancestral lands for the sake of conservation or economic development: First is a poor characterization of Indigenous–forest relationships and their underlying meanings and implications (Bisht, 2020). Second is the reliance on contemporary forest and wildlife management policies that are fully steeped in colonial legacies, some of which are also reified by scientific practice (Adams and Mulligan, 2012). Both are noticeably true in the case of India, where forest-dwelling Adivasi communities for several generations have been displaced and dispossessed from their ancestral land (Domínguez and Luoma, 2020; Nikolakis and Hotte, 2020; Bijoy, 2017). Historically, forests in India have been central to the well-being, security, and socio-cultural continuity of Indigenous communities. Yet current policies categorically neglect Adivasi-forest coexistence and wrongly promote the idea of conservation as allocation of forest areas that are human evacuated. Such outlooks have led to the -- quite literally -- massive dispossession of Adivasi people, making them homeless and marginalized (Bandopadhyay, 2010; Agarwal and Redford, 2009; Bijoy, 2003).

Forest ecosystems are central to Adivasi lives where their identity, worldviews, and survival are closely tied to their interactions with forests (Rai and Madegowda, 2017; Aiyadurai, 2016; Bhagwat et al., 2014). Yet historically Adivasi's customary rights over forests have been a point of constant contention. Often positioned as having knowledge that is 'uncultured' and 'primitive,' Adivasi understanding of the natural world is not adequately integrated in India's natural resource management discourses (Rai and Madegowda, 2017; Münster and Vishnudas, 2012; Dowie, 2009). Until 2006, there was no official recognition of forest-dwelling communities - a blanket disregard for Adivasi associations, dependencies, and interactions with the forest (Bijoy, 2017; Patnaik, 2017; Münster and Vishnudas, 2012). Adivasi understanding of the natural world is discounted and disregarded in decision making, thereby generating flawed policies and programs, and increasing their socioeconomic marginalization (Nithya, 2013; Kumar and Kerr, 2012). Forests in India continue to be defined as state owned (Domínguez and Luoma, 2020;

Bijoy, 2017; Guha, 2007), wilderness (Rai and Madegowda, 2017), as tree-forest (Ratnam et al.,2011), and as a frontier (Kabra, 2019), and so exclude humans, including those that have lived in close association with them. Despite recent decentralization of forest governance, the creation of protected areas and the displacement of Adivasis from them, remain central to forest and wildlife management in India.

Dispossession and displacement of Adivasis people from their ancestral forest land has profoundly impacted their interactions between nature and natural resources (Kjosavik and Shanmugaratnam, 2021). Several of their practices, such as annual forest fires (Thekaekara et al., 2017), human-wildlife coexistence (Aiyadurai, 2016; Snodgrass et al., 2007), and subsistence-based hunting and foraging, are treated as 'knowledge that needs correction'. Most studies on conservation landscapes (or protected areas) in India have scant representation of the Adivasi understanding of forests (Bisht, 2020; Rai and Madegowda,2017). Little is known about how Adivasis associate with forests beyond livelihood engagement and there is only passing mention of the cultural associations that Adivasis have with forests. Many questions are simply not asked. These include: What does it mean to share space, resources and coexist with wild animals? How do human dimensions of fire play out in conservation landscapes? How do Adivasis perceive protected areas as ancestral lands, and how are these meanings reflected in their everyday interactions? What changes have Adivasi food systems endured because of forced transitions, especially those that impact well-being beyond questions of health and nutrition to ones about culture and meaning? All these questions remain broadly unanswered in the context of forest-near and forest-dwelling Adivasis in India.

While categorically, colonialism ended with India's Independence from British in 1947, the philosophy of European conservationism lingers to this day across Indian forest management policies and practices (Bandopadhyay, 2010; Kirchberger, 2008). With onset of the Indian Forest Act in 1927, large forest landscapes were converted to reserve lands as property of the Queen. The forced removal of Adivasis from forest thus became official and legal. Adivasis lost their rights to land and their rights became conferred by the state (British Raj). The present Indian Forest Service, which trains foresters, is in many ways the revived Imperial Forest Service that existed during the British Raj. The forest management practices of Independent India continue to

honor several of the colonial understandings of forests and often reference Adivasi hunting and foraging habits as a reason for degradation of the forest and loss of wildlife (Dowie, 2009)

In this dissertation, I worked with the Kattunayakan people, a hunter-forager community living in the Western Ghats of Southern India, to answer the questions referenced above. I argue that understanding Adivasi associations with the natural world offers a deeper understanding of the distinctions and complexities of forested landscapes that are the product of long Adivasi-forest relations. The four focal chapters of this dissertation thus address Adivasi understandings of: wildlife, forest landscapes, forest food, and forest fire. As described to me by a Kattunayakan member during a field visit, Adivasi life is hinged on these four components like *"the four legs of a table. if one of them falls, Adivasi falls too"* [IN 06].

Using theories and concepts from Indigenous scholarship more broadly, the empirical portion of this thesis highlights the significance of human inclusive conservation and so too rejects the notion of strict separation of humans and nature and the notion of a pristine wilderness -- a figment of colonial conservationists' imagination (Fernández-Llamazares et al., 2020; Baker et al., 2019). I argue that conservation scholarship needs to integrate human-related histories of local biodiversity as these too are often shaped by dispossession, racism, casteism and unequal socioeconomic and political power. The failure to narrate these systemically divert attention from the land's history. That history has long been entangled with humans who lived and shaped the places through their everyday engagements with the natural world (Petriello and Stronza, 2021; Bisht, 2020). The empirical evidence gathered in this dissertation supports these scholarly arguments and contributes to the collective knowledge of research studies that endorse moving away from pristine wilderness and toward an 'anthropogenic wilderness'[1] and it revalidates the idea that of wilderness without humans as a myth. The focus here on these human dimensions of nature represents a novel way of looking at forest governance and wildlife conservation and is an attempt rethink what forests in India (currently the conservation landscapes that are the protected area forests managed by the state) might look like if they were to be re-imagined from Adivasi perspectives.

[1] Term coined by Terre Satterfield to explain wilderness in conservation landscapes which are human inclusive

1.1 Dissertation Goals

The purpose of this dissertation is to provide insights on: (i) understanding the relationship between forest-dwelling Adivasi communities and forest ecosystems; (ii) the significance of learning and engaging Adivasi characterizations of human dimensions of nature; (iii) the implications of colonialism and contemporary policy mechanisms such as the (ostensibly progressive) Forest Rights Act (2006) for Adivasi lives. More specifically, I aim to understand what forest ecosystems from the perspective of Adivasi communities might look like, including analyses of Adivasi relationships with forests in general and as against some of the more durable assumptions of [colonial] conservation science. It rather necessitates acknowledging that people living in these forest spaces are part of the landscape and history, a fact that is elsewhere known as 'convivial' conservation (Büscher and Fletcher, 2019) and one that is starting to also influence scientific practice (Hoffman et al. 2021). It is written as well in the spirit that we transform conservation to this more convivial system and reinforces the idea that recognizing the Indigeneity of Adivasis is a critical step towards decolonizing conservation sciences in India.

1.2 Research Context

This dissertation explores relationships of Kattunayakans and forests of Wayanad Wildlife Sanctuary (WWS), a protected area in the state of Kerala, India. Wayanad is a mountainous region located within the global biodiversity hotspots of Western Ghats. The region of Wayanad holds a significant position both in the Indigenous and biodiversity map of India. It is the district with the highest percentage of Adivasi population in Kerala (with around five Adivasi communities) and is also home to a variety of endemic flora and fauna. This makes it a critical place to witness long term and extensive human- forest interactions. Between 1805 to 1947, Wayanad was under the direct colonial (British) rule and witnessed some of the largest incidences of Adivasi displacement from the forests (Kjosavik and Shanmugaratnam, 2021; Kalathingal, 2020; Kapoor, 2012). A region marked by decades of struggle and protests by the Adivasi people for their land rights, Wayanad is often recognized as a place of Adivasi resistance. In 1973, the Government of India, in accordance with India's Wildlife Protection Act (1972), established the Wayanad Wildlife Sanctuary. The approximately 344 km² sanctuary, is

connected to two National Parks, Nagarhole and Bandipur National Parks in the state of Karnataka to the northeast and the Mudumalai National Park in the state of Tamil Nadu on the southeast. This act reinforced previous colonial forest and wildlife policies and declared protected areas as spaces of wildlife significance and traditional Adivasi practices such as hunting was banned. They also systemically discounted the presence of Indigenous Peoples (Adivasi) across these landscapes and deemed human presence in protected areas as a problem for wildlife conservation. Like other parts of India, Adivasis of Wayanad suffered decades of displacement and dispossession from their ancestral land (Bijoy, 2017; Bijoy, 2003). And it is no surprise that Wayanad has witnessed several Adivasi protests and rebellions.

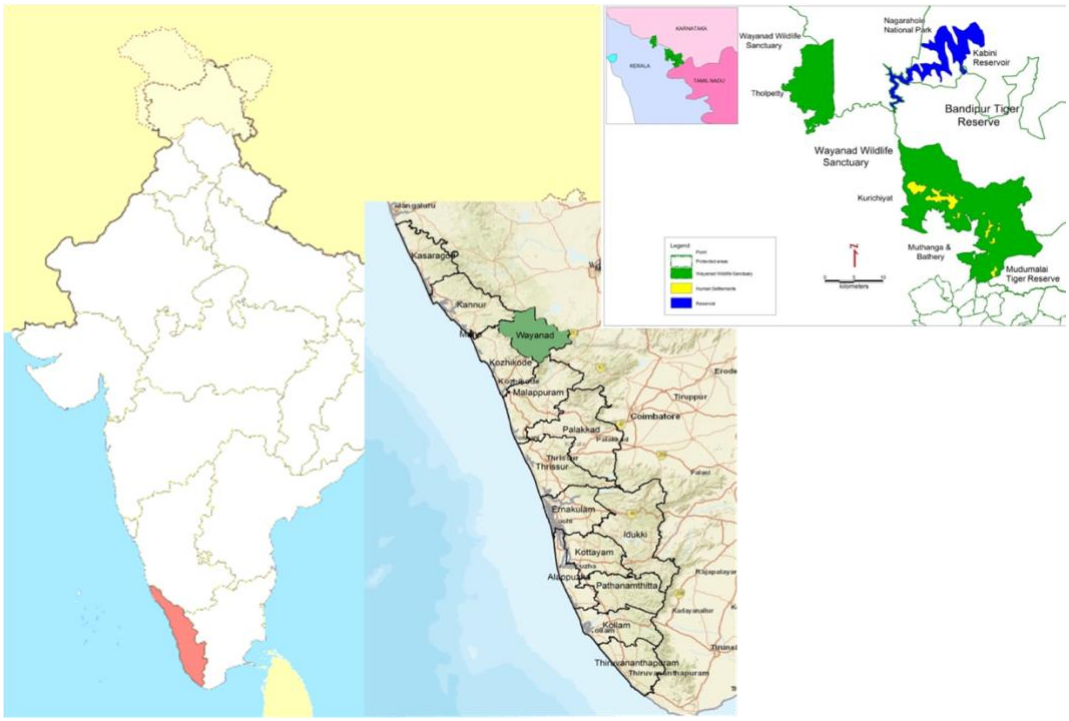

Figure 1.1 Location of Wayanad and Wayanad Wildlife Sanctuary

Among the Adivasi communities of Wayanad, forest policies singularly impacted the Kattunayakan people. With around 50,000 members spread across three the states of Kerala, Karnataka, and Tamil Nadu, the Kattunayankans form a unique group of hunter foragers in South India (Kakkoth, 2005). They are also regarded as *jenu* (honey) kurumbas and *thenu* (honey) kurumbas. Their membership number is debatable due to their semi-nomadic lifestyle.

The term Kattunayakan means 'leaders of the forest' and is derived from the Malayalam words - *kadu (*forest) and *nayakan* (leader). They are recognized for their non-sedentary life, animistic beliefs, early Dravidian language, and a lifestyle that requires proximity to the forest. Wildlife policies moved several Kattunayakan settlements to outside of the Wayanad sanctuary in the last decade, and so dispossession is relatively new in this part of the country. Many of the community members are currently living in forests' fringe and so outside the protected areas. Relocated Kattunayakans are not, consequently, economically self-reliant. Revenue from sale of Non-Timber Forest Products (NTFP) form their main source of income. In addition, they continue to depend on the government for Rural Employment Guarantee programs or engage as wage-labourers or construction workers in neighbouring farms and towns. The displacement induced restricted access to forest resources along with a ban on subsistence hunting has eroded traditional socio-economic and cultural engagements with forest.

When, in 2006, the Forest Rights Act was introduced as a kind of amnesty to reconcile historical injustices experienced by the Adivasi communities, the provisions within the act required Adivasi people to procure documentation of their use and engagement with forests to establish any conferred rights (Bisht, 2021; Bijoy, 2017; Padel, 2012). However, a large part of non-sedentary Adivasis, such as Kattunayakans, could not provide sufficient evidence for their long-term association with these lands (Kjosavik and Shanmugaratnam, 2015). Thus, a large group of Adivasis in Kerala, including the Kattunayakans, remain dispossessed and unrecognized. In 2019, the Supreme Court of India declared a forced eviction of undocumented Adivasis to be legal. Though decision has been put on hold, the continued struggles of the Adivasis like Kattunayankans are a constant reminder that India's forest and wildlife policies are based on conservation ideals that exclude humans, and remain rooted in British colonial legacy, even as India approaches its 75th year as a sovereign electoral democracy.

1.3 Theoretical Framework

I engaged with several interdisciplinary threads in the literature to develop a theoretical framework for this dissertation. This includes fields of inquiry that contributed to my understanding of the political ecology of Adivasi and forest relationships, and the human dimensions of nature, which together address coexistence with wildlife, forest land, forest fire,

and forest food systems. In addition, this dissertation also engages with the scholarly discourses challenging pristine wilderness and frontier forms of conservation. In the following section, I describe the central theoretical inspirations, concepts and scholarships that have contributed to my thinking as they apply to re-imagining protected areas of India.

1.3.1 Political Ecology of Adivasis in India

Understanding this thesis starts with learning the political ecology of Adivasis and forest relationships, as this is the theoretical thread that underpins the entire thesis. Leff (2015) defines *"political ecology as power dynamics, relations, and political conflicts primarily over ecological distribution and socio-economic acceptance of nature".* The political ecology of Adivasi – forest relationships begin with understanding of the origin and history of Adivasis. It also includes the forest (pre-colonial, colonial and post-colonial) theories and conflicts, which have determined how the forest is perceived and experienced in India (Bijoy and Raman, 2003).

Adivasis are the Indigenous communities of India (Faizi and Nair, 2016). A concatenation of two Sanskrit words *'adi'* (original) and *'vasi'* (inhabitant(s)), the word Adivasi directly translates as original inhabitants. Adivasis are a heterogeneous and ethnically diverse group that constitutes 8% of India's population (106 million), making them the world's largest indigenous population living within the boundaries of a single nation (Faizi and Nair, 2016). In pre-colonial times, Adivasis groups were self-governing nations (Bijoy, 2003) that lived close to the forest and engaged with local ecosystems through their traditional and customary rules. They saw the forest as the abode of gods and ancestors, the foundation of belief and faith, and the source of livelihood and identity (Mookherjee et al., 2020; Hembrom, 2018; Damodaran, 2012; Mandal and Madegowda, 2010).

The mutual coexistence of Adivasis and forests ended as British colonialism forced its way into India (Steur, 2011; Bijoy and Raman, 2003). Colonial forest policies predominantly focused on the extraction of forest resources for commercial purposes, mostly timber, classified forest areas as state property, and forest-dependent people as 'encroachers' or 'trespassers' (Kashwan et al., 2021; Patnaik, 2017). The establishment of the Zamindari system to collect revenue for the British Raj conferred control of territories, including Adivasi lands, to feudal lords, and Adivasi

presence in their ancestral forestlands was deemed a criminal offence (Bijoy, 2003). These events drastically changed the nature of Adivasi's relationships to their lands and with other settled communities. The extension of caste system and Hinduism more broadly into Adivasi lives further relegated them to the status of 'Scheduled Tribes' or STs a grouping that continues to be seen as the "lowest of the low" in India's brutal caste system. Legitimized by Hindu scripture, the subaltern existence of Adivasis became a norm and practice (Chemmencheri, 2015).

To encourage the centralization of forest governance, the colonial administration introduced several forest policies, namely the Indian Forest Acts of 1865, 1878 and 1927. These policies transformed Adivasi rights to the forest as mere privileges conferred upon them by the state. The colonizers cut down native trees, and forest lands were planted with timber-producing species. As observed by Adam and Mulligan (2012), British colonizers made no effort to understand local socio-ecology and imposed their own understanding of land management on India's vast forests. For the Adivasis, this meant that age-old and traditional forest interactions and practices such as annual forest burning (Thekaekara et al., 2017), foraging, or hunting (Aiyadurai et al., 2010) became illegal. Adivasis became victims of massive assault, subjugation, and domination by India's British colonizers, who saw forests as a source of income. This required alienating Adivasi people from their ancestral land, and sometimes creating an unequal conflict between small and localized indigenous communities and the powerful colonial state (Bijoy, 2017; Bijoy and Raman, 2003).

Independent India consolidated these statutes and kept colonial forest policies intact without any further rethinking. This meant that forest-dwelling Adivasi communities remained landless and so had no legal claims of ancestral lands. Mainstream conservation ideas from Europe and North America that separate humans and nature, were also dominant in the Global South, and fortress conservation approaches also became part of India's forest policies. For instance, in 1972, the India's Wildlife Protection Act (1972) established sanctuaries and national parks for the protection of wildlife, and subsequently banned subsistence-based hunting or foraging of wild animals inside these protected areas. Adivasi people were prohibited from entering forests without sufficient permission. These policies persist through to the present day with legislation

that can still be used to legally justify eviction and relocation of forest settlements (Bisht, 2020; Bijoy, 2017).

In 2006, after nearly sixty years of Independence, the Government of India enacted the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act 2006 or Forest Rights Act (2006). For the first time in the history of Independent India, a law formally recognized forest dwelling Adivasis and their forest rights. This landmark legislation was acclaimed nationally and internationally as it was intended to support the decentralization of forest governance in India. While it helped Adivasis gain recognition of their relationship with the forest (in policy papers), its implementation has suffered from several bureaucratic and implementation failures (Mookherjee et al., 2020; Sahu, 2019; Padel, 2018; Münster and Vishnudas, 2012).

The Government of India labels the Adivasis collectively as the Scheduled Tribes (ST). Ethnic minorities and marginalized groups are listed in the Indian Constitution and are granted a discrete class of benefits. During the colonial rule, those so scheduled were mostly identified as being hill and forest dwelling tribes, and later in 1950 these schedules were constitutionally adopted (Bose et al., 2012). While the categorization of ST is not based on standardized criteria, it loosely captures members of ST, as those who live in geographically isolated locations, speak ‘tribal’ languages, and follow animistic belief systems (Bose et al., 2012). The classification broadly defines Adivasis as a homogenous group and policies do not recognize cross-tribe diversity (Domínguez and Luoma, 2020; Kjosavik and Shanmugaratnam, 2015; Bijoy, 2003). While India is a signatory to the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), India's government rejects the Indigenous people's concept in India because they claim that ‘all Indians are Indigenous’ (Domínguez and Luoma, 2020; Nikolakis and Hotte, 2020). This hostility is particularly intense regarding the rights of Indigenous people to autonomy, self-governance, or self-determination. Despite the development initiatives and state support included in the FRA, Governments rarely support Adivasis in contests over land rights and in their resistance to natural resource exploitation more broadly. Indeed, in 2019, the Indian Supreme Court issued an order to evict 5-7 million forest dwelling Adivasis whose land claims

were rejected under the Forest Rights Act (FRA) of 2006. The order is currently on hold and communities continue to live in fear of eviction.

Understanding the political ecology of Adivasi-forest relationships extend to the entire thesis, although the thesis is more fully empirical than theoretical. I first engage with this literature in Chapter 2 to build an understanding of conservation landscapes in India. I ask how Adivasis portray human-wildlife relationships, and more specifically, how their interpretations support academic conversations about human-wildlife interactions that are not solely understood as conflictual. In Chapter 3, I engage the Adivasi-forest political ecology literature to examine Adivasi meanings of the forest itself. I ask how Adivasis perceive forests, which are mostly 'protected areas,' and whether existing forest management mechanisms adequately reflect these views. In Chapter 4, I reflect on Adivasi ideas on the use of fire to understand how forest governance has systemically overlooked the importance of traditional forest fires in Indian forest terrains. Lastly, in Chapter 5, I engage the political ecology of Adivasi-forest relationships to examine the hidden impacts of traditional food system now in transition.

The overall characterization of the political ecology of Adivasis, living in Western Ghat forests, is the critical premise and common thread in this dissertation. I apply the concepts of Adivasi and forest political ecology to highlight the effect of colonial and post-colonial state interventions on this relationship in general and in reference to specific facets in each chapter, as described above. Influenced by an array of compelling political, social, and economic factors, this political ecological characterization helps to highlight the distinctness of Adivasi-forest associations. It also, at times, references similarities to other indigenous worlds, already well characterized in the anthropological and political-ecological literature as well as scholarship known as critical indigenous studies. In sum, the political ecology of the Adivasi – forest relationship is fundamental to conceptualizing how these humans and more-than human dimensions of nature are positioned in India's contemporary forest governance dialogues.

1.3.2 From Pristine Wilderness to Anthropogenic Wilderness

A fundamental premise of modern human-nature relationships is that humans and nature represent two distinct and separate spheres. This idea of difference defines how people engage

with, interact with, relate to, and value their natural environment (Macnagten and Urry, 1998). Most mainstream conceptualizations of nature involve notions of "quests to tame" or "Edenic visions" of wild nature (Bourdeau, 2004, Simmons, 1993). The idea of nature as pristine wilderness (Nash, 2014; Muir, 2001; Cronon, 1996), wherein nature is distinct from, and without humans (Callicott and Nelson, 1998) also comes with a human responsibility to protect nature in its pristine form. Fortress conservation thus separated nature and humans (Kabra, 2019; Schulze et al., 2018) and led to the creation of large, protected areas as conservation strategies (Hayes and Ostrom, 2005; Brockington, 2002). These conservation approaches involved excluding people from forests and preventing forest use to minimize human impacts (Brockington and Igoe, 2006; Brockington and Schmidt-Soltau, 2004).

Fortress conservation approaches remain a dominant conservation strategy, though a growing number of studies has critiqued the socio-cultural impacts of this approach on indigenous and local communities (Stronza et al., 2019; West, 2006; Brockington and Igoe, 2006). That fortress conservation has led to the marginalization of millions of people around the world is also now well understood, and there are calls for a strong answer to the failed idea of nature as wilderness (Dowie 2009; Cernea and Schmidt-Soltau 2006). Scholars that explore and unpack 'beyond wilderness' theories of conservation discuss the role of human stewardship in preserving the natural world (Büscher and Fletcher, 2019; Ostrom, 1990). They are built on the understanding that humans have shaped most landscapes, and there are no existing areas of the earth without human footprint (Ellis and Ramankutty, 2008). These new approaches encourage the notion of what may be called an 'anthropogenic wilderness' that describes wilderness constituted through human participation (as is the case of most of the current protected areas in the world). Thus, this emerging scholarship also discusses conceptualizations of wilderness that does not necessarily exclude people. Instead, it is operationalized as a concept to identify areas with minimum or no industrial level of human disturbance (Fernández-Llamazares et al., 2020). This provides a more inclusive take on conservation that considers Indigenous people and their interaction with the local ecosystem, and so necessitates opportunities to collaborate locally.

Unlike fortress conservation, approaches such as community conservation (or community-based natural resources management, CBNRM), assume conservation and development’s compatibility

(Pretty et al., 2009; Jones, 2006). As new community-based conservation efforts emerge (Adams and Hulme, 2001; Murphree, 2001), so too do dualist notions of nature as not separate from society. The main fabric of this outlook is to better understand the co-producing facets of human and wildlife coexistence, and what then this might mean for conservation goals and the integration of human needs (Buscher, 2016; Adams, 2004). This extends into understandings of Indigenous people that incorporate human-nature relationships involving material reliance, respect, symbiosis, and kinship, where the natural world is also perceived as an "extended ecological family" with shared history and origin (Larsen and Johnson, 2017; Berkes, 2008, Salmón, 2000). Like many other parts of the world, in India conservation approaches have focused predominantly on fortress options, which has had significant implications for local people, Adivasis (Rai et al., 2019). Seeing conservation as equivalent to evicting people from forests is hard-wired into India's policy context (Johnson et al., 2018; Kabra. 2009), and re-thinking conservation through the lens of coexistence has been largely absent (Thekaekara et al., 2017; Snodgrass et al.,2007). For this reason, 'beyond wilderness' theories of conservation and re-imagining conservation landscapes are central to my thesis.

I first engage the literature on 'anthropogenic wilderness' in Chapter 2, where I introduce the concept of deep coexistence to make sense of human-wildlife interactions among forest-dwelling Adivasi communities. My goal there is to begin characterizing how Adivasis in this context understand anthropogenic wilderness and reference (in chapter 2) it to Adivasi-wildlife coexistence. I take up a parallel line of inquiry in Chapter 3 to demonstrate how historical associations between Adivasis and the land have shaped their perceptions of forest landscapes and of beings within it. This offers several fundamental challenges as to what a forest is and/or what a forest is comprised of. Similarly, in Chapter 4, I engage with the literature on re-imaging fortress approaches to conservation in reference to the use and portrayal of forest fire in the protected areas. Lastly, in Chapter 5, I examine anthropogenic wilderness concepts to understand Adivasi perceptions of traditional food systems and how the transition of communities out of these impacts their way of living.

1.3.2.1 Human Dimensions of Wildlife

Most studies on the human dimensions of wildlife focus predominantly on conflict. The perception of wild animals as a nuisance or hazard for people and their domestic animals shapes the premise of these studies (Margulies and Karanth, 2018; Madden, 2004). These narratives also build the foundation and act as a reference point for the existing wildlife and forest management policies that categorically emphasize conventional conservation. These policies discount or largely ignore human-wildlife interactions that manifest something other than conflict across a spectrum of outcomes (Frank and Glikman, 2019; Madden, 2004). At the same time, there is significant evidence among Indigenous communities demonstrating human-wildlife coexistence and tolerance (Baynes-Rock, 2013; Clark and Slocombe, 2009; Snodgrass et al., 2007). Yet, the principles of coexistence and tolerance (often significant for several Indigenous cultures) are neglected or discounted in contemporary conservation practices. Different studies demonstrate that Indigenous conceptualizations and perceptions of human-wildlife interactions are guided by the philosophies of respect (Clark and Slocombe, 2009), kinship (Snodgrass et al., 2007), animal agency (Bhattacharyya and Slocombe, 2017), and relational epistemologies of shared responsibilities (Bird-David and Naveh, 2008). Understanding the importance of these engagements and interactions with wildlife supports human inclusive and ethical conservation (Agrawal and Redford, 2009; West et al., 2006).

In the context of Adivasis in India, particularly for forest-dwelling communities, understanding human-wildlife coexistence is important. Prior interpretations see Adivasi people as disruptors of conservation landscapes, and so justifying their behaviour as criminal and practices that separate humans and wild animals as sensible. A more balanced understanding of Adivasi relationship with wild animals would interpret their interactions as wise and conducive to living in concert with one and other. A large part of the work on understanding human-wildlife interactions within the coexistence lens also remains focused on Indigenous communities in Canada, Australia, South Africa, and New Zealand, with very little work addressing Adivasis in India (Brockington and Igoe, 2006). As incidents of human-wildlife conflicts increase in India, where there is a growing competition for natural resources and forest spaces, understanding coexistence more fully, including the different ways and forms of its occurrences, will offer insights on wildlife

management practices. In this case, how Kattunayakan community members residing in Wayanad forests live well with wildlife large and small is crucial, as is all that we can learn as to what this means and how to pursue it well.

1.3.2.2 Meanings and Associations with Forest

Scholarly works on human societies and their associations with forest landscapes have predominantly discussed economic and utilitarian aspects. As the source of revenue and livelihood, forests have inspired conquest, governmentalities (Li, 2007) and control (Adams and Muligan, 2012). These outlooks contrast with most Indigenous understandings of forests where forest landscapes and their elements are perceived as by-products of relationships that foster kinships (Salmón, 2000), reciprocity (Anderson, 2005), coexistence (Bhattacharya and Slocombe, 2017), and gifting (Kimmerer, 2013). However, these understandings remain noticeably obscure in the descriptions of protected areas where the focus has always been forestland as spaces reserved for wildlife conservation. This is particularly so in the case of post-colonial states like India, where protected area narratives exclusively portray forest as spaces absent of reference to the shared and co-evolved histories of humans, land, and wildlife (Gadgil, 2018; Rai and Madegowda, 2017). They are overbearingly 'pinned' with topographic features, administrative borders, and wildlife habitat, abandoning Adivasi meanings of land. And the historical and long-lasting relationships of Adivasis and forests (now protected areas) are rarely spatially represented in maps.

This is most markedly evident in the case of non-sedentary Adivasi communities whose interactions with forests are often wrongly interpreted as unproductive or destructive (Gadgil, 2018; Rai and Madegowda, 2017). Evidence that demonstrates their long-term relationship with the land is not substantiated or fully ignored. Scholars observe that these tendencies are particularly disadvantageous for non-sedentary forest-dwelling communities as there exists limited documentation of their land and history, which then also impacts their pursuit of rights to land (Lee and Wolf, 2018: Münster and Vishnudas, 2012). Acceptable forms of human-land engagements tend to only involve agricultural cultivation, and it fails to account for non-sedentary Indigenous activities in forests (Bisht, 2020). By denigrating non-agriculture-based associations with the forest as unproductive and irrelevant, land associations of non-sedentary

Adivasis are classified as examples of ‘tenure failures’ (Hendli, 2014). This often makes displacement and dispossession of Adivasi communities ‘easy’ through the characterization of their worlds as failed agricultural experiments with land use practices as neither legitimate nor acceptable.

Emboldened by the colonial and Western outlook on nature, many existing studies on protected areas simply fail to recognize Adivasi identity or their lands as ancestral. Scholars argue that Indigenous understandings of land is necessary for *all* forest and land management policies that operate within Indigenous territory and so too in reference to ecological knowledge in place (Kshettry et al., 2020; Dominguez and Luoma, 2020; Lele et al., 2010; Sekhsaria, 2007). Chapter 3 seeks to understand Adivasi depiction of protected areas beyond their conventional role as habitat for wildlife conservation. I engage with insights from this literature to expose protected areas as spaces that share history with Adivasis not only as conservation landscapes, but as ancestral settlements, site of burial and memorial, night stay places, temples, animal territories, wild animal trapping sites, fishing areas, and honeybee homes that Adivasi admire and cultivate. It questions the conventional understanding of what constitutes forest (as wildlife habitat only) and argues against the disregard of the sheer scale of physical and metaphysical human and nonhuman networks and interactions that function within these conservation spaces.

1.3.2.3 Socioecology of Forest Fire

In several examples of the Indigenous understandings of fire, the practice of setting forest fire is a celebrated form of land management (Bilbao et al.,2019; Kimmerer and Lake, 2001). These studies describe the role of fire as enabling cultivation of crops by aiding seed germination and plant sprouting (Kimmerer and Lake, 2001), as enhancing of ecosystems (Anderson, 2005) and wellbeing (Welch and Coimbra Jr, 2021). Most such claims do not resonate with a more conventional perception of fire as a threat to the forest (Minor and Boyce, 2018). Indeed, Pierotti (2018) and Nikolakis et al. (2020) refer to these as colonial resentments towards Indigenous knowledge, which has in turn transformed the fundamentals of land management in places across the world. Quite simply, this has resulted in support for fire prohibitions or in the banning of fire in the forest areas, especially the protected areas (Thekaekara et al., 2017; Pyne 2016).

Consistently, in India, where forest and wildlife policies are built on the remnants of colonial understanding of the natural world, most foresters still perceive ‘all forest fires as bad’ (Pyne 2016). Rejection of traditional fire from the forest landscapes of India also reflected extreme disregard for Adivasi relationship with the forests and their historical contribution to landscape management (Ratnam et al. 2019; Thekaekara et al., 2017). Even though there is historical evidence of coexistence between fire and human societies in forest landscapes of India (Ratnam et al., 2019; Thekaekara et al., 2017), these narratives are absent in contemporary forest and wildlife policies (Arnold, 2021). Therefore, in Indian terrains, fire is still a focus of concern as a cause of forest degradation, and biodiversity and wildlife loss (Kodandapani et al., 2009). To date, much of the empirical work on forest fire in India discusses the risks of fire (Attri et al., 2020; Kalaranjini et al., 2020) and prediction models to mitigate fire (Bar et al., 2020; Renard et al.,2012). There are some isolated references to the ecological, social, and economic impacts of fire bans (Kodandapani et al., 2009; Schmerbeck et al., 2015) and to how fire benefits local communities (Schmerbeck et al., 2015). Yet, positive, and constructive portrayal of fire in the environmental history of India is almost non-existent, with little or no reference to fire’s socially and ecologically productive significance.

In the context of Adivasis of India, there is a need for more empirical studies that document traditional knowledge of fire and the Indigenous motivations, timings, and conditions for burning forest landscapes (Schmerbeck et al., 2015). Thus, chapter 4 examines Adivasi's coexistence with the forest fire and how communities living in pyroscapes understand and mitigate fire and mourn the implications of its suppression. I also ask how Kattunayakan community members residing in Wayanad forests characterize forest fire, specifically how understanding these features of fire informs their relationship with the forest more broadly. I explain how fire preserves the integrity of the ecosystems and how the burning of the forest renders the landscape relevant and familiar to community members. I argue that blanket fire bans contradict Adivasi understanding of fire and disregard traditional fires' specificity and sophistication, which in turn deeply affects Adivasi rights and freedom.

1.3.2.4 Traditional Food Transitions

Due to urbanization, modernization, and cultural homogenization, Indigenous foodways are transitioning world-wide (Fazzino et al., 2013; Kuhnlein and Receveur, 1996). Studies describe how these transitions affect Indigenous people's identity (Casi, 2020), relations (Jones and Clarke, 2018; Marten, 2018), traditional knowledge (Daigle, 2019), access to social and cultural practices (Hitchcock et al., 2011), and social bonds and connections (Ibara et al., 2011). A few works also highlighted the consequence of these food transitions on well-being (Strong and Silva, 2020) and culture (Jernigan et al., 2020). However, within the broader context of food transition research, these intangible dimensions of food remain comparatively less studied (Egeland et al., 2011; Kuhnlein et al., 2004). This is profoundly visible among Adivasis in India (and many other Indigenous peoples) where prohibition on subsistence-based hunting, foraging, and traditional forest fires, has contributed to direct and indirect barriers to nutritionally and culturally significant foods (Petriello and Stronza, 2021; Nikolakis et al., 2020). This, over time, introduced considerable impediments to Adivasi foodways and associated human-forest interactions (Edison and Devi, 2019; Mundoli et al., 2016; Patnaik, 2017).

To date, most empirical studies in the field of traditional food transitions in Adivasi societies have focused on health challenges that discuss nutrition (Rohisha et al.,2019; Ghosh-Jerath et al.,2016; Shrinivasa et al.,2014), infant and child mortality (Abdul Kareem, 2019; Sahu, 2018). Studies that do describe some of the cultural dimensions of Adivasi food are often restricted to ethnobiological studies on medicinal plants (Sreekumar et al., 2020; Wagh, 2017; Das et al., 2012), or plant-based food products (Das et al., 2012). Some fairly extensive taxonomical studies of local biodiversity do also exist (Narayanan et al., 2017; Mishra and Padhan, 2011). However, none of these studies characterize or detail Adivasi foodways as driven by an underlying set of relationships and interactions with forest foods.

Ideally, more empirical studies documenting Adivasi foodways are needed to deepen our understanding of the consequences of the Indigenous food transitions. Adivasi food is often also perceived as backward or uncultured, concurrently assuming that the transition into modern food is legitimate progress. In this last empirical chapter, I thus engage with the Indigenous food

system in transition to ask how do Kattunayakans perceive their traditional forest-based food? And what some of the underlying worldviews that guide their relationship with these foodways are? I highlight not only the loss of nutrients but also the loss of their biocultural food system. The latter is comprised of the physical qualities of food, embedded memories, experiences, relationships, reciprocities, aspirations, and conviviality among humans and more than human beings. I conclude with a discussion of the need for appropriately accounting these losses in food transition dialogues and question how that transition might otherwise look and what it might also ideally entail.

1.4 Overview of Methods and Approaches

All the work reported in this dissertation has been informed by a multi-year study (between March 2018 and June 2019) in collaboration with Kattunayakan community members of Wayanad. I researched this thesis predominantly through an inductive ethnographic approach where research framework was co-produced with the community members. This meant that I did not approach community members with a particular set of hypotheses (Hodkinson, 2008), but instead engaged in deliberations with the community members to agree on the primary questions to be explored. The themes of my research emerged organically from the community as a reflection of their needs and interest and their own experience and knowledge. The key objective of my work was to acknowledge that Adivasi experiences of the forest was valuable knowledge that needs to be respected and represented well. Often during the interviews community members would comment *"We feel happy answering your questions, since you are interested in knowing our customs and culture. Outsiders think we have nothing to offer, and we are just poor people, drunk and careless".* This element of my research helped establish and cement my relationship with Kattunayakan community members.

The research component of this thesis developed over two phases, the first was a scoping study conducted in 2018, and the second a field data collection study that was completed in 2019. The scoping study involved formal and informal conversations with different Adivasi groups (including Kattunayakans, Paniyans, Kurichyas, Kurumars), visiting their villages, interactions with forest department officials and NGOs. During the scoping study, I established field partnership with the MS Swaminathan Research Foundation (MSSRF). My co-supervisor Terre

Satterfield also visited the site during this period. During these meetings, the Kattunayakan community members directed the conversations towards specific topics and themes that mattered to them. After several discussions with the community members mediated through MSSRF, we (Terre and I) received approval from 8 Kattunayakan villages to conduct the research. The eight Kattunayakan villages (settlements or colonies) were Ponkhuzhi, Anacyamp, Kolooru, Kuzhimoola, Alathoor, Kalamkandi, Kumuzhi, and Chukkalikunni, located in and around Wayanad Wildlife Sanctuary. After I was given approval from Kattunayakan community members, I secured official permission from Kerala's forest and tribal authorities. [The entire process took about eight months that required multiple documents, several phone conversations, and follow-ups].

Wayanad is a region with frequent incidents of insurgency, so there are several protocols for outsiders during visits to Adivasi settlements. In addition, increased human-wildlife conflict around the protected areas, meant that the local forest department is cautious about people visiting Adivasi sites near the sanctuary. Each day prior to my visit to a Kattunayakan village, I was required to report to the forest range officer and corresponding station officer. I was then given contact details of each colony's local tribal promoters (field engagement personnel). Promoters are functionaries of the Kerala government whose job it is to support the functioning of each Adivasi settlement. They help Adivasi members secure documentation, address medical concerns, and financial aid. This promoter accompanied me to the village and remained with me during the entire day. Early in the study, promoters paid close attention to my research questions and objectives; however, over time they started to ease up as we developed a good rapport. Gradually, I acquired more independence from such oversight during individual visits to villages.

The field data collection part of this research included 10 open-ended interviews, 60 semi-structured interviews, 5 transect walks inside the protected areas (each about a 4-hour walking conservation inside the forest), GIS mapping of 70 culturally important sites in the protected areas, and 120 days of participatory observation. These methods are also described in each of the individual chapters as relevant. The participants in this study were chosen in consultation with the field partner agency MSSRF, community elders, and other members. Much of the knowledge

represented here of the local area, socio-economic context and political situations were derived from our interactions with MSSRF, informal conversations with Kattunayakan community members, other NGOs, and local forest department officials.

Open-ended interviews (n=10, Appendix B) discussed the generic context of human-forest relationships. During the discussions on human-forest interactions, I observed the saturation of themes, namely wildlife, forest landscapes, forest fire, and forest food. These appeared as prominent points of interest among the community members. The semi-structured interviews (n=60, Appendix C) involved a more focused set of questions specifically on the four research topics/themes. In addition to interviews, I also conducted around 5 transect walk discussions (Appendix C). Each walk consisted of 4 – 5 hours inside the protected areas with one or two community members. The walk inside the forest gave me first-hand experience of observing wild animals, Kattunayakan cultural places, and various other illustrations of human-nature associations. During the walk, I used GIS tools to map culturally significant areas inside the forests and highlighted the landscape feature. And in the discussions that followed during the transect walks and participatory observations, I continued to ask community members a similar set of questions. These tactics provided an opportunity to triangulate interview responses.

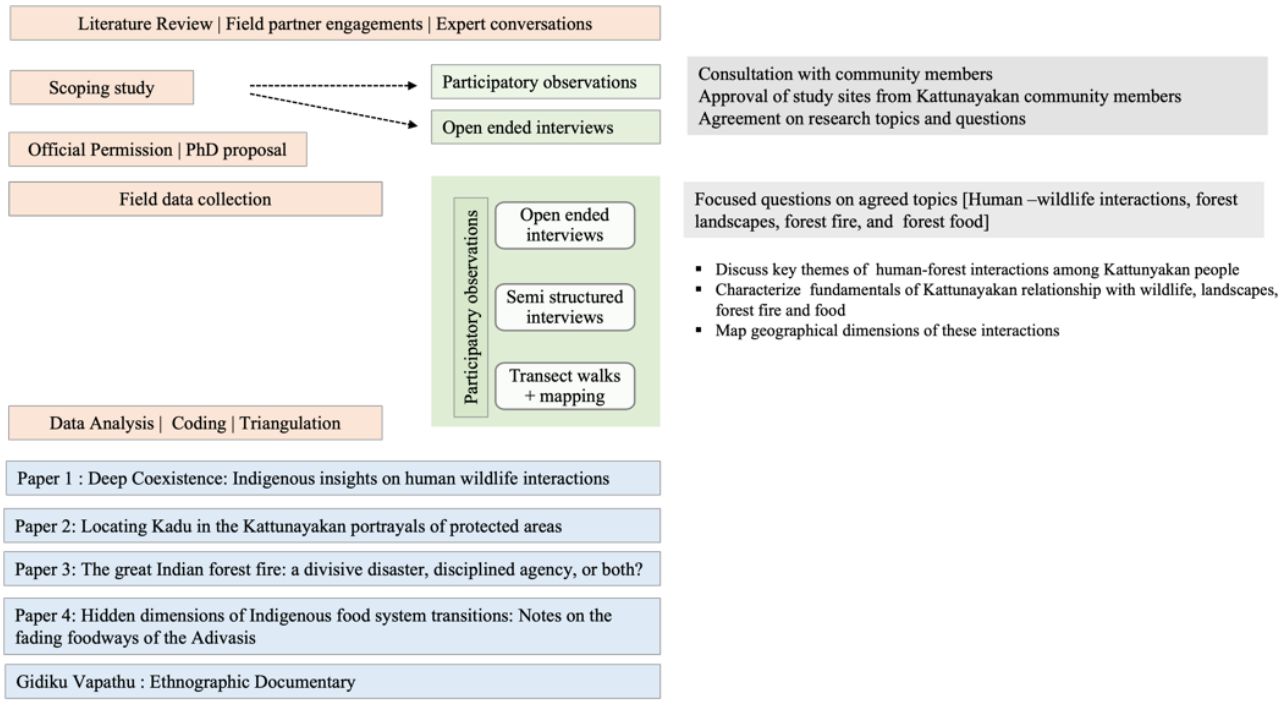

Figure 1.2 Overview of Research Approach and Methodologies

The research developed from this study is described in four chapter [2,3, 4, and 5] of the thesis. I conducted the interviews in Malayalam, a language fluent for most community members living in Wayanad. Malayalam is also my mother tongue, which helped me understand the local context of several words and phrases. It also aided the research analysis and interpretations to bring more details and particulars. To validate my research results, I relied on MSSRF and their interpretation of my communications with the community members. I incorporated this feedback throughout the thesis.

1.5 Position

I was born in Kozhikode (a district adjacent to Wayanad), Kerala, India. I have visited Wayanad several times during my childhood. I also worked with researchers in the region during my BSc Zoology training as a student at Kerala University. Later, when I started working on the Government of India's biodiversity projects, I had the opportunity to visit several of the Adivasi settlement areas throughout India. MS Swaminathan Research Foundation was one of the field partners for some of the projects I managed, and the engagement turned into a good friendship.

My doctoral research grew out of the insights I gathered during my work through interactions with various Adivasi people in India. A zoologist by training, this research took place within my process of unlearning the academic training that shaped my understanding of the natural world. Through my work, I attempted to pay my closest attention to things that I heard from my research participants, above all else. For me it is my way of expressing my respect for their knowledge and experiences.

1.6 Chapter Overviews

In my dissertation, I investigate the anthropogenic nature of forests as understood by Kattunayakans of Southern India and/or how this has changed as the function of India's forest and wildlife policies. The four key themes that define this work are referenced above and recur here as a part of brief chapter overviews.

Chapter 2, 'Deep Coexistence: Indigenous insights on human-wildlife interactions' examines Kattunayakan people's relationship with key animals by drawing on insights from studies on Indigenous dimensions of wildlife, anthropogenic wilderness, and human-wildlife coexistence. In this chapter, I ask the question i) how do the Kattunayakans perceive wildlife? And ii) what can we learn from their definition of coexistence, including what this means and how to pursue it well? Findings suggest that Kattunayakan engagements with wild animals are rooted in forms of 'deep coexistence,' which explains tolerance towards wild animals as an interspecies relationship that is convivial without ignoring the realities of fear and conflict. It argues that distorted characterization of the human-animal association will encourage exclusionary conservation and, therefore, displacement of marginalized human societies from the forest landscapes that they call home.

Chapter 3, 'Locating *Kadu* in the Kattunayakan portrayals of protected areas: Indigenous views of Forest in Southern India,' seeks to understand how Kattunayakans' spatial relations, practices, and encounters with the forest facilitate their living in forested landscapes. Findings suggest that Kattunayakan understanding of *'kadu'* (forest) recommends understanding forests as an all-encompassing entity that fosters interconnectedness between its biological, physical, and

metaphysical elements. It contributes to an understanding of what cultural continuity, sense of place, and identity means to the Kattunayakan people. The findings of this chapter argue that for policies to coexist with Indigenous ecological knowledge successfully and appropriately, there is a need to understand and reassess how humans position themselves spatially, culturally, and geographically in the natural world.

Chapter 4, 'The great Indian forest fire: a divisive disaster, disciplined agency, or both?' examines Kattunayakan dimensions of traditional land management practices based on intermittent, intentional burning. The chapter describes the implications of forest-fire bans and how Kattunayakans navigate forest spaces without fire. In this context, I ask the question of how Kattunayakans characterize forest fire and what prohibition of fire in their ancestral landscapes' entails. The findings suggest that Adivasi portrayals of fire depict fire as an inhabitant and extension of the landscape as a being like all the other beings such as wild animals, humans, Gods, and deceased elders. As a being and actor of the ecosystem, fire is perceived as an indication of a healthy ecosystem and as a means to a good life. Traditional forest fires are also enablers of ecosystem functions and relations, facilitate relationships, communications, and function as key to human – forest coexistence. For ethnically marginalized societies such as Kattunayakans, fire suppression remains an expression of of colonial violence. The discussions in this chapter reiterate the need to bring forward positive and alternate perspective of fire post suppression and as a reflection of Adivasi understanding of Wayanad forests.

Chapter 5, 'Hidden dimensions of Indigenous food system transitions: Notes on the fading foodways of the Adivasis', explores Indigenous food transition among Kattunayakans people. Here, I explore the characterizations of traditional Adivasi foodways to ask how might government policies that seek to tie the Kattunayakans to sedentary lifestyles impact their well-being? It takes a closer look at the ecological and cultural dimensions of hunting and foraging practices and suggests that Kattunayakan traditional forest foods occupy a central position in the socioecology of the Adivasi people, and that a change from forest foods to market food results several losses ascribed to how Adivasis function, behave, relate, and organize their interactions with the forest. These are poorly accounted for in the process of resettlement and related food transition policies, bringing forward the question on whether these changes make Adivasi lives

better or worse. A closer look at the Adivasi food ways we argue offers opportunity to revisit biases against forest-based food systems, and to recognize their role in integrating culture, ecology, and place. The chapter asks how food policies might be made more inclusive and supportive of traditional Adivasi lifestyles.

In addition to chapters 2,3,4 and 5, as part of my dissertation, I also created a knowledge mobilization product in the form of an ethnographic documentary - Gidiku Vapathu, let us go to the forests [link - https://youtu.be/AQ2EJrzvUco]. In Kattunyakan language, ‘Gidiku Vapathu’ means 'Going to the forest' (*Gidiku* - Forest; V*apathu* - Going) and is a term commonly used by the community members to invite their friends and family as they start their daily forest walk. Set in Kattunayakan settlements in and around the Wayanad Wildlife Sanctuary in rural Kerala, the documentary is an attempt to understand how Kattunyakan residents perceive and interact with forest and non-human beings. It unfolds through the storylines of a Kattunyakan child, an octogenarian knowledge expert, and a middle-aged chief. The purpose is to allow them to speak about the joys of living in and with forests, interlaced with their anticipations and anxieties about the future. Gidiku Vapathu also brings forward 'uncomfortable' conversations on 'what constitutes development and conservation' by acknowledging how several Indigenous and traditional societies across the world continue to live in fear of being displaced from their lands. It highlights the different ways in which Indigenous people perceive their local ecosystems, both as their home and as the means to understand lived experiences, memories, and future aspirations. The film has been screened on multiple occasions, including the Portland Ecoflim festival (2020). It was co-directed and produced by me with support from Institute for Resources, Environment and Sustainability and UBC Public Scholar's Initiative. I prepared the storyboard, co-directed it, and made it with support from my co-director Ms. Priya Thuvassery. The production and dissemination of the documentary were approved by the University of British Columbia 's Behavioural Research Ethics Board as listed above.

1.7 Dissertation Summary

This dissertation examines human dimensions of wildlife, forest landscapes, forest fire, and forest food from an Adivasi perspective to establish what is missing across contemporary

understanding of Indigenous- forest associations and related policy dialogues in India. It contributes to and is informed by the disciplines of ecology, geography, anthropology, policy analysis, and Adivasi studies both empirically and theoretically. In this sense, it is an interdisciplinary work, though one that also considers key dialogues on decolonizing conservation in South Asia, anthropogenic wilderness, and human-inclusive conservation. In concluding this work, I also highlight the key findings of this thesis, the limitations, and its implications. Together the insights of this dissertation encourage and prompt its audience to re-imagine protected areas and urge policy, research, and advocacy measures that recognize Adivasi understandings of human-forest landscapes -- of what they are made, and why they matter.

1.8 Notes on Terminology

Throughout this dissertation, I use the terms 'Adivasis,' Adivasi people,' or tribal interchangeably to refer to Indigenous people of India. I use the word 'Indigenous peoples' more broadly to emphasize Adivasi identity as Indigenous. Although in India, officially Adivasis are referenced as Scheduled Tribes (ST) as there is no legal recognition of the Indigeneity of Adivasi people. Similarly, terms like land, landscapes, forest, and forest landscapes are used interchangeably to represent the notion of forest and its elements throughout the thesis.

Chapter 2: Deep Coexistence: Indigenous insights on human wildlife interactions

> *"Our people talk about animals and their behaviour frequently and we make observations and discussions about them. When I have gone to forest, I have never been chased by an elephant. For some people who are not careful, they are attacked or chased by elephants. We cannot outrun the animals, so we are extremely careful in forests. If we disturb them (elephants) by making them angry and annoyed. Then they will come and chase. If we do not disturb us them, they will leave us in our way". [Kattunayakan, Ponkuzhi colony]*

Summary

As human-wildlife conflicts escalate worldwide, concepts such as tolerance and acceptance of wildlife are becoming increasingly important. Across the world, Indigenous Peoples have a long-established history of living in nature, recognizing what interactions with wild animals can mean, and thinking of these as being well beyond the realm of conflict. Yet, contemporary conservation studies have limited understanding of such positive human-wildlife encounters, which has lead to an inaccurate representation of relationships with wild animals. Failure to address these limitations contributes to the design and implementation of poor wildlife and landscape management plans, and the dismissal of Indigenous views of ecology. This paper interrogates Indigenous perspectives on human-wildlife coexistence in India by drawing empirical evidence from Kattunayakans, a hunter-forager Adivasi community living in the Wayanad Wildlife Sanctuary in Kerala. Using open-ended interviews and transect walks in the protected area, we document how Kattunayakans engage with wildlife. Drawing parallels with the ways of understanding animals prevalent in diverse Indigenous societies across the world, we characterize these as forms of 'deep coexistence.' Such co-existence involves three central ideas about human-animal relations that can explain Kattunayakan forms of tolerance and acceptance of wild animals: animals as rational conversing beings; animals as gods, teachers, and equals; and animals as relatives with shared origins practicing *dharmam*. We argue that understanding

these ideas will support broader efforts to bring Indigenous perspectives into the management of human-ecological systems and contribute to the resolution of human-wildlife conflict more broadly.

2.1 Introduction

Globally, human population growth and societal demands for natural resources has driven the decline of natural habitat for wild animals and has also generated negative encounters between humans and wildlife, affecting both local people and animals (Kala and Kothari, 2013). Increasingly perceived as a 'nuisance,' wild animals have also become victims of poaching, illegal wildlife trade and retaliatory deaths (Margulies and Karanth, 2018). Local people also suffer direct socio-economic losses due to pressures at the human-wildlife interface, such as crop-raiding, livestock depredation, injuries, and deaths (Karanth et al., 2018; Kala and Kothari, 2013), in addition to hidden costs, which include compensation failures, psychological or social impacts, and loss of well-being (Barua et al., 2013). Conflicts are problems that involve multiple stakeholders, diverse interests, and often convoluted mitigation approaches (Mason et al., 2018). Rooted in theories of human needs and competition over natural resources, some scholars caution that examining human-wildlife only through a conflict lens may overlook the positive encounters and associated opportunities to advance conservation targets (Frank, 2016; Glikman et al., 2019; Nyhus, 2016a). Along with other scholars, they recommend focusing on human-wildlife interactions that reflect constructive associations with animals rather than only on the negative outcomes (Frank and Glikman, 2019; Glikman et al., 2019).

Human-wildlife coexistence emphasises tolerance towards animals and acceptance of their behaviours (Frank and Glikman, 2019; Madden, 2004). It is defined as a state where humans practice tolerance of wild animals, often facilitated through cultural understanding (Treves and Bruskotter, 2014), institutions (Brown, 2003), and the perceived benefits from wildlife (Bruskotter and Wilson, 2014). Local case studies also explain why some human societies moderate their resource competition, share habitat with wild animals, and endure losses from negative encounters (Inskip et al., 2016; Madden, 2004; Soulsbury and White, 2019). Similarly, community experiences that support the social legitimacy of wildlife protection have also

enabled positive human-wildlife interactions (Carter and Linnell, 2016). However, much focus remains on managing human-wildlife coexistence through 'conflict in need of mitigating' approaches. More blatantly, some contexts are referenced as 'landscapes of fear,' (Gaynor et al., 2019; Miller et al., 2019) which emphasize animal experience and stress in response to threatening or predatory human behaviour (e.g., hunting). Such characterizations have also produced a solution-agenda focused on encouraging people in situ (or adjacent to conversation areas) to be more tolerant, through fiscal compensation schemes for damages (Treves et al., 2009) or revenue sharing from eco-tourism (Wardle et al., 2018). Studies show that while in some cases payments do encourage coexistence, they do not necessarily improve individual tolerance or people's long-term willingness to live in proximity with the wildlife (Chapron and López-Bao, 2020; Naughton-Treves et al., 2003).

Directly or indirectly, a vast proportion of wild and/or protected areas managed for wildlife involves Indigenous People. Roughly 40% of terrestrial protected area globally is held in tenure or managed by Indigenous peoples (Garnett et al., 2018). Indigenous lands are estimated to contain roughly 80% of the planet's biodiversity, while representing only 4% of the planet's human population (Garnett et al., 2018). Similarly, Schuster et al. (2019) also highlighted that Indigenous-managed places have equal-or-higher biodiversity than state-managed protected areas. Historically, Indigenous Peoples have long been documented as having a reciprocal relationship with wildlife, sharing natural resources and habitats with one another, and respecting each other's existence therein. Examples of human-wildlife coexistence, such as hyenas with Oromo People in Ethiopia (Baynes-Rock, 2013), leopards with Bhils in India (Snodgrass et al., 2007), grizzly bears with Champagne and Aishihik First Nations in Canada (Clark and Slocombe, 2009) and Sumatran tigers with Kerincinese, Minangkabau and Melayu people in Indonesia (McKay et al., 2018) emphasize that successful human-wildlife coexistence is predominantly associated with Indigenous communities. It is also widely recognized that the understandings of animals in Indigenous societies are shaped by culturally informed knowledge that is typically co-evolved and co-produced through human interactions with the wild animals (Arrows et al., 2015; Bone, 2013). Among these types of knowledge, ideas about kinship (Snodgrass et al., 2007), respect (Clark and Slocombe, 2009), animal agency (Bhattacharyya and Slocombe, 2017), and relational epistemologies of shared responsibilities (Bird-David and

Naveh, 2008) describe practices of interaction and engagements with the wildlife. However, conventional wildlife management continues to use simplified understandings of coexistence to describe Indigenous practices of tolerance, without addressing their deeper and more complex forms or their specific (and perhaps widely applicable) principles and practices (Banerjee et al., 2013; Kideghesho, 2008).

Further, a large proportion of studies characterizing coexistence focuses predominantly on Indigenous communities in Canada, Australia, and New Zealand, with fewer references from Asia and Africa. The bulk of these studies also continue to be concentrated in humanistic disciplines such as anthropology and human geography (Clark and Slocombe, 2009; Nadasdy, 2007; Salmón, 2000; Todd, 2014) with a siloed existence and fewer collaborations. Moreover, a limited understanding of how coexistence functions in these societies has led some scholars to vaguely equate it with passive cohabitation with wildlife or incentive-driven tolerance (Hiedanpää et al., 2016; Veríssimo et al., 2019). This tendency is compounded by the fact that the academic disciplines with which these scholars engage (such as ecology or biology) often simplify and narrow Indigenous concepts to adhere to human-wildlife relationships that characterize humans as predators or animals (especially apex species) as aggressor competitors (Booth and Skelton, 2011; Pooley et al., 2017).

Indigenous insights into coexistence have also been silenced in Asia and Africa by the sheer fact that Indigenous existence itself has often been denied, due to long histories of human habitation or because many forest dwelling communities are officially not acknowledged (by their governments) as Indigenous (Domínguez and Luoma, 2020; Nikolakis and Hotte, 2020). This restricts Indigenous participation in wildlife management across their ancestral lands (Kabra, 2009; Saravanan, 2009). Inadequate understandings of Indigenous relationships with wildlife in these regions have fueled several biased assumptions, for example that Adivasis are illegal encroachers in forests, that they practice exploitation of natural resources, and that they weaken wildlife conservation. This has in turn encouraged the displacement of millions of people from their ancestral land (Agrawal and Redford, 2009; West, 2006). Restricted opportunities to maintain traditional livelihoods or receive adequate compensation has led many of these communities to become economically impoverished (Brockington and Igoe, 2006). At the same

time, dispossessed populations often lose their security, identity, knowledge systems, and wellbeing, as they adapt to contemporary (and often economically marginal) land-based alternatives — such as being day labourers on proximate farms (Domínguez and Luoma, 2020; Kjosavik and Shanmugaratnam, 2015).

Understanding the complexity of Indigenous-driven coexistence and the objectives that guide it is essential, both ethically (because peoples continue to be moved from protected areas) and because it is and can further become the basis for more successful wildlife management strategies. Conversely, a narrow interpretation of Indigenous practices of human-wildlife coexistence may generate a fundamental oversight in understanding how human-animal relationships function. With the hope of advancing our collective knowledge of human-wildlife coexistence in Indigenous societies, we look at the case of Kattunayakans, a hunter-gatherer society in India, and ask: i) how do the Kattunayakans perceive wildlife? and ii) what can we learn from their own definition of co-existence, including what this means and how to pursue it well?

2.2 Materials and Methods

2.2.1 Study Area

The study reported here is derived from sustained fieldwork in the Wayanad district of Kerala, a Southwestern state in India (Figure 2.1). Wayanad has a mountainous forested terrain situated in the Western Ghats, a Global Biodiversity hotspot (Bossuyt et al., 2004). It is home to several Adivasi communities, constituting 18.5 % of the total population of Wayanad (Census, 2011). The Indigenous Peoples of India are commonly referred to as Adivasis constitute 104 million people, forming the world's largest Indigenous population (Faizi and Nair, 2016; Kjosavik and Shanmugaratnam, 2015). While India has endorsed the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) 2007, it has not yet conferred Adivasis with self-determination rights and access to land (Nikolakis and Hotte, 2020). Following the establishment of an independent Indian state in 1947, millions of Adivasis have been forced from their ancestral lands under policies aimed at protecting wildlife. Much of the displacing of Adivasis from protected areas in India was based on the rationale of separating humans and animals, similar to

the forced dispossessions of Indigenous Peoples in other parts of the world (Brockington and Igoe, 2006). These were seen as measures to protect ecosystems from humans and resolve the increased incidents of Human-Wildlife Conflict (HWC) in these areas.

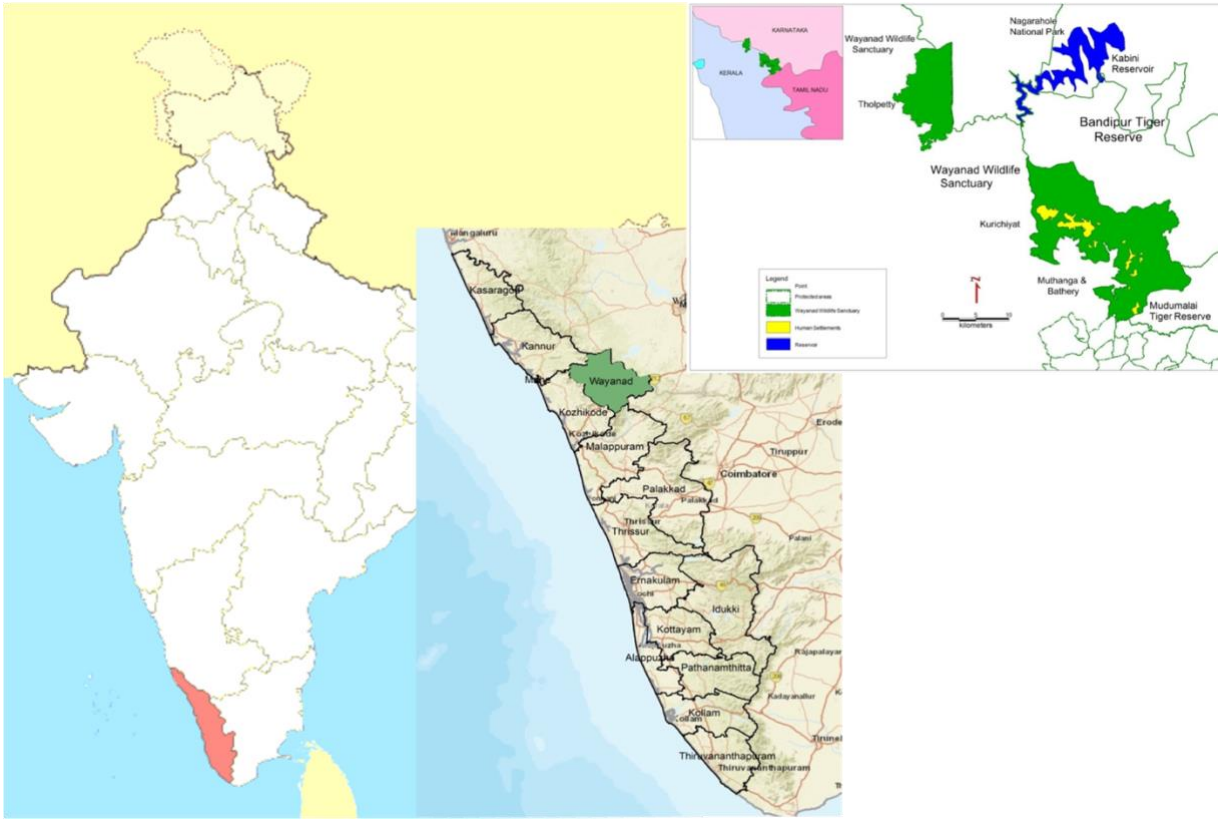

Figure 2.1 Location of Wayanad and Wayanad Wildlife Sanctuary

In 1973, India's central government established the Wayanad Wildlife Sanctuary (WWS) under the Wildlife Protection Act of 1972. Connected to three National Parks, Nagarhole, Bandipur and Mudumalai, WWS is located in a region with high human population density (384 persons per km²). It also supports several populations of large mammals such as the Indian tiger (*Panthera tigris tigris*), Asiatic elephant (*Elephas maximus*), and the Sloth bear (*Melursus ursinus*), making it an area with frequent occurrences of human-wildlife interactions. As a designated protected area, the sanctuary upholds the forest and wildlife policies of India. However, like many other wildlife parks worldwide, it has also systemically overlooked the

Adivasis, who had a long-standing association with the land (Bijoy, 2017). With the proliferation of protected areas in India, many displaced Adivasis continue to live in and around their ancestral homelands in extreme deprivation and poverty (Domínguez and Luoma, 2020; Bijoy, 2017). At present, 40% of Wayanad's land area is forest area that is designated as protected area (John et al., 2020).

Between 1990 and 2003, approximately 50,000 families of various forest-dwelling Adivasi communities were involuntarily moved from the Wayanad Wildlife Sanctuary to adjacent fringe forested areas (Kaushik and Kaushik, 2006). These displacements, which were justified by wildlife protection, particularly affected the forest dwelling Kattunayakan People. Recognized for their animistic beliefs and older Dravidian dialects, Kattunayakans form a unique group of hunter-foragers who live in the forests of Kerala, Karnataka, and Tamil Nadu (Bird-David, 2017). Their livelihood primarily depends on the forest for food (honey, mushrooms, tubers, fruits, medicinal herbs, honey) and revenue (from the sale of Non-Timber Forest Products) (Kakkoth, 2005; Ramachandran, 2006). To address historical injustices experienced by Adivasi societies, the government of India established the Forest Rights Act (2006). The act recognizes forest-dwelling people as original custodians of the land and grants them some legal access to forest resources (Agrawal and Redford, 2009; Saravanan, 2009). However, the process of formally gaining recognition has been characterized by discriminatory requirements by the Indian state, and most Adivasi communities are unable to produce the supporting evidence need to establish their land claims; hence most have lost their right to land (Chemmencheri, 2015; Münster and Vishnudas, 2012; Kabra, 2009).

During field visits in 2018 and 2019, the department official at the time mentioned that the resettlement process was incomplete, and that there was future to move the remaining Kattunayakan people from their residences in the forest (personal communication, 20th April 2019). In addition, human-wildlife conflicts in the area are listed as the reason to support resettlement of Adivasi people from the forests. Relocated Kattunayakans remain economically poor and continue to depend on the government for Rural Employment Guarantee programs, availability of wage-labour, or construction work in neighbouring farms and towns (Chemmencheri, 2015; Ramachandran, 2006). Restricted access to the forest and the ban on

subsistence hunting has led to the erosion of traditional and cultural engagements with the forest (Kakkoth, 2005).

2.2.2 Field Methods

In 2018, a preliminary ethnographic study at the Wayanad Wildlife Sanctuary was conducted for three months (March, April, and May). Terre and I visited Adivasi colonies/villages and conducted open-ended interviews with members of several Adivasi groups to understand their concerns. This groundwork identified study sites as eight Kattunayakan settlements — Ponkhuzhi, Anacyamp, Kolooru, Kuzhimoola, Alathoor, Kalamkandi, Kumuzhi and Chukkalikunni — located in and around the Wayanad Wildlife Sanctuary. In 2019, upon securing permission from the Forest Department and the Scheduled Tribe Development authority, I returned to the field site and spent four months conducting further qualitative research (March through June 2019). This included open-ended interviews, semi structured interviews, and transect walks inside the wildlife sanctuary with community members, along with participatory observation. While the discussions in 2018 did not explicitly focus on human-wildlife interactions, those in 2019 discussed Kattunayakan perceptions of wild animals in detail. During interviews, community members preferred to elaborate on stories of encounters, including important explanatory and contextual detail about Kattunayakan worldviews and experiences.

Interviews were conducted with Kattunayakans at their houses. All participants were community members over 18 years old. Interviews were carried out in Malayalam and recorded with permission from the participants. Since the answers provided by male and female participants on the topic of wildlife interactions did not reveal a perceivable difference, we did not distinguish responses based on gender. While interviews were planned for individuals, often two or more community members would join and transform conversations into a group discussion. While the assigned interviewee answered the key questions, the other community members often provided additional points. Sometimes, they debated and argued before agreeing on answers.

Based on the recommendations from Kattunayakan people, I conducted five visits inside the wildlife sanctuary, each 3-4 hours long with 2-3 community members. During the transect walks inside the forest, community members participated in semi structured interviews following the same interview protocol. It gave an opportunity to experience the forest with Kattunayakan people, which included observing wild animals' behaviour, getting chased by Elephants, gathering wild honey, and visiting culturally significant sites. The participants were given honoraria to acknowledge their expertise, and to thank them for their time and for sharing their knowledge with us. Kattunayakans living in Wayanad conversed well in Malayalam and so all the interviews were conducted in Malayalam. I transcribed and translated the audio recordings of the interviews and conversations into English. The transcribed data was stored, managed, and coded through NVIVO; analysis involved identifying themes inductively (Saldaña, 2021). I translated interviews and conversations to English as accurately as possible and used Malayalam words with explanations to avoid diminishing the value of the insights provided by Kattunayakan people.

Research results were communicated with the local partner agency and Kattunayakan communities. During the data analysis and writing phase, we continued engagement and interaction with community members through two research assistants. The MS Swaminathan Research Foundation (MSSRF), the local collaborator, also offered support, and provided documents and reports in Malayalam about the communities written by Adivasi experts but not otherwise available in online platforms. All fieldwork was approved by the University of British Columbia's Behavioural Research Ethics Board (BREB number: H18 -03104).

2.3 Results

2.3.1 On the Nature of Coexistence

At the center of all the results reported here are perceptions and explanations that Kattunayakans use to characterize the nature of human-wildlife co-existence within the Wayanad Wildlife Sanctuary. Due to their limited ownership of physical assets (such as livestock, farms, or land), the losses they endure from wildlife encounters are often considered inconsequential by government officials and the public. However, we observed during fieldwork that while

Kattunayakans are materially impacted by undesirable animal encounters (especially in terms of their food security, health, and livelihood), they continue to uphold and even take for granted their practices of tolerance and acceptance toward wild animals. Kattunayakans report the least number of formal complaints against wild animals, compared to the other communities (including other Adivasis) (Forest official, pers comm, 01 May 2019). Based on the analysis of all field research, we identified three key principles along with descriptions of appropriate behaviour that were relevant to human-wildlife relationships in Kattunayakan society (Figure 2.2). These are: a) animals as rational conversing personalities; b) animals as gods, teachers, and equals in the forest; and c) animals as relatives with a shared origin that practice *dharmam*. Each of these are explained below.

Permeating each is also a broader sense of Kattunaykan views of the forest itself. The *kadu* (forest) was most frequently described as a parent that offered them protection, and as an entity that embodied trust and *"would never abandon or deceive them."* Hence, entering the forest for these participants is comparable to returning to their parents' place, which provided them with food, comfort, and safety. This does not mean that Kattunayakans do not fear wild animals or express concern about getting attacked or killed by them, but rather that how they interpret events that do occur and what this reflects about their understanding of wild animals is key. In an interview, a *muthali* (tribal chief) in the Ponkuzhi colony was very explicit about both the concept of forest as family and about the trust so endowed:

> *"Even back from the early days, we knew that our forest would never abandon us. Our forefathers have told us about this. For Kattunayakan, the forest is in the same position as our father and mother. We were born and brought up in forests. It is the same forest that has protected us until now. So even if we are alone, we do not fear spending the night in the forest. However, that is not the same for outsiders. They will probably stay alone in the forest if they get access to arms or weapons. We do not need any such things. We trust the forest and enter with that faith, maybe even spend a week or more inside the forest. Nothing will happen to us". (IN 11)*

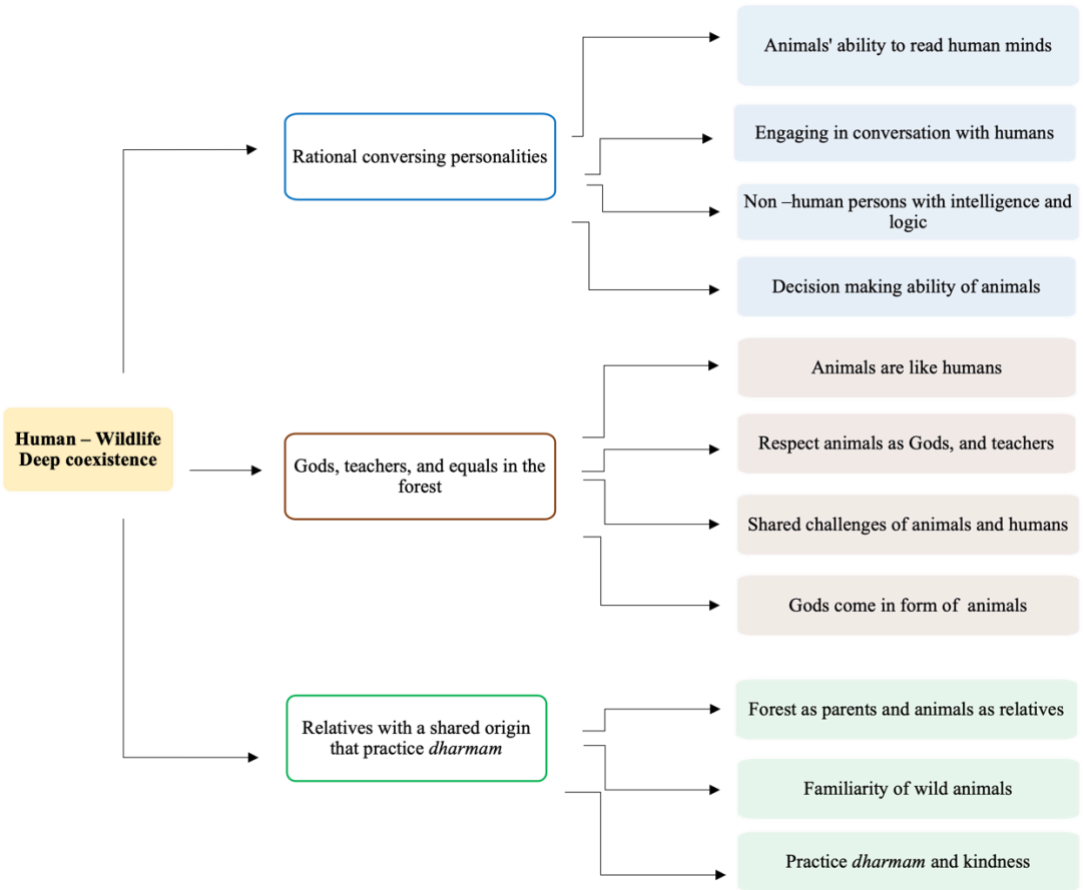

Figure 2.2 Themes of Human-Wildlife Deep Coexistence

2.3.2 Rational Conversing Personalities

In the interviews and transect walks, Kattunyakans narrated at length their understanding of animals such as elephants, bears, tigers, and snakes. In every case, they them regarded as logical individuals who communicated (through actions) and displayed distinct personalities. They described them as social actors, who made effective decisions on the use of forest resources and expressed appropriate ways of interacting with other animals, including humans. Animals are multifaceted beings, and the majority of Kattunayakans described the challenges they face during face-to-face encounters with wild animals and the necessity of compassion for (and from) their non-human forest companions. Prevailing assumptions were bi-directional; animals were said to display an innate ability to read human intentions, and vice versa. Behaviorally, this was most often expressed as the essential need to have honesty and enter the forest with good intentions. Dishonesty was dangerous — as opposed to choosing words that are an honest

reflection of one's thoughts. *"Speaking well"* implies that your words should be an honest reflection of your thoughts; if animals detect honesty and truth in human language and intentions, they will not inflict harm. A woman from Chukkalikunni colony described one such intentional communication, in the context of an encounter with an *ottayaan* (lone tusker):

> *"I have kids. Please leave me. Let me go to my children. Don't stamp on me. Don't beat me; I stood there and kept saying. After some time, the Elephant went away. It didn't harm me. Neither did it hurt my husband. This was my prayer, my only prayer. With all honesty, I prayed." (IN 22)*

Although a few of the young Kattunayakans dismissed the notion of engaging in a conversation with wild animals, they all invariably agreed on the importance of having a *nalla manasu* (good heart) in the forest. They described it as a quality of mind free from wrongful thoughts — such as planning an attack on a wild animal, hoarding forest resources, or verbally abusing a fellow Kattunayakan. Hence, *nalla manasu* for these people symbolizes their connection with forests and the significance they place on human-animal conversations that occur there. On being asked if animals reciprocated their requests and avoided conflicts, a Kattunayakan elder said:

> *"When we talk... Even if it is to an elephant, a tiger, a leopard, a bear, a snake, or a lizard, all we do is talk to them freely and honestly. We tell them - I will not interfere with you. Please do not interfere with my way -. That is all. Then they will go their way." (IN12)*

When asked whether animals will listen to them when they make this request, he answered with explicit reference to the animals having agency in considering that request.

> *"No, they won't listen immediately. They will also think about our request. Then they will make their decision. Our tone of voice is the most critical part of the request. Understand that you are talking to a powerful animal of the forest. If you speak in the wrong tone, then you will get it [punishment] from them. After you speak angrily to them, then you cannot walk in the forest peacefully. Even outside the forest, we talk calmly to people,*

don't we? Will they like it the other way? It is the same for wild animals. We must speak with love and patience. Then they [wild animals] will listen." (IN12)

Community members also stressed the importance of submissive body posture and respectful tone of speech, reflecting humility and earnestness during their meetings with animals. Considering Kattunayakans rarely become aggressive with the wild animals, it is patently evident that living convivially without getting into frequent and non-deliberate confrontations is by far the expected norm. When asked to explain their understanding of wild animals, Kattunayakans described them as non-human persons with the ability to think, evaluate and respond as beings that hold a significant position in the Kattunayakan socio-ecological order. This is best demonstrated by descriptions of animals as having *budhi* (intelligence) and *vivaram* (logic), and consequently as having rational decision-making ability. Speaking about Elephants' decisions on migrating outside the forest to neighbouring plantations and farmlands, a septuagenarian Kattunayakan man from Kuzhimula explained:

"If it was a human doing that [taking jackfruits from your farm], will you go and attack them? Sometimes, you must wait and patiently watch what happens next. Animals are bhudiulla jeevikal (intelligent beings); they will also do things that are based on their shari (right) and sathyam (truth)." (IN 30)

Participants described animal intelligence as based not only on their rights and truths, but also as guided by experiences and moral sensibilities – as opposed to the more conventional notion of instinct. The understanding that animals act rationally justified every animal behaviour, even behaviours that may not have a favourable consequence for community members. Hence, it was clear from interviews that encountering a wild animal in the forest might well involve a consequential decision: *"Animals can decide to either kill us or make some sound and leave without hurting people."*

The decision-making ability of wild animals is a given and so people do not also feel accountable for the fate of animals, animal's actions, or associated consequences. That is, Kattunayakans do not perceive wildlife protection as their responsibility. Instead, every animal is

personally liable for their own safety. According to their status as thinking beings, animals act based on their observations and experiences — primarily focused on protecting themselves in the same way as any rational person would do. The rare exception to this is young Kattunayakans employed as forest guards and watchers by the forest department, who spoke of the human role in protecting wildlife, thereby deviating from the opinions of their contemporaries who were not employed by the state in wildlife management. Regardless, all agreed unequivocally that wild animals are rational beings with intentionality.

While encounters were not necessarily passive, all the community members observed specific behavioural protocols when dealing with wild animals — focusing on not being *"disturbing," "troubling,"* or *"interfering."* These behavioural protocols evidence further how wild animals are seen as individuals rather than a species or group. They spoke about animals as individuals who display distinct personalities and temperaments, guided by individual intelligence, experiences and subjective emotions.

> *"There is a difference between nalla (good) elephants and others. The good ones will not harm us, but the others that are shalyam (trouble) disturb humans and bring damage". (IN 20)*

> *"[….] We have five fingers, but all the fingers are not the same. That is how the wild animals in forest or elephants in forest are. Every person in the forest has a different nature. Some elephants are angry, and some are not. " (IN 13).*

An elephant involved in a conflict is never assumed to mean that other elephants in the forest will behave that way. For Kattunayakans in the forest, animals are always discrete individual beings who might be *nalla* (good) or *shalyam* (troublesome) animals, whose nature can only be understood through the behaviour of the specific animal. Further, misbehavior or a specific conflict between a human being and an animal being were invariably seen as isolated incidents; any thinking to the contrary was an unnecessary act of judgment, which had its own consequences: *"If we continue to fear all animals, how will we ever enter the forest?".*

2.3.3 Gods, Teachers, and Equals in the Forest

Extending the recognition of animals as social actors who possess agency, Kattunayakans perceived wild animals as their equals. It is common for community members to move and give way to large mammals – gesturing respect but also indicating Kattunayakan acceptance of an animal's equal right to physical space or ecological requirements. This is most often expressed as non-confrontational respect for every animal's 'personal space.' It is common to hear people explaining incidents such as bear attacks by saying: *"We did not realize we were in the bear's area. The animal felt threatened. So, it was not the bear's mistake; it was ours."* Such comments cast into relief the assumption that their encounter would have been avoided if the Kattunayakan individual had been aware of Bear in the area or vice versa. Fundamentally, what determines the ease of sharing landscapes between Kattunayakans and wildlife is that Kattunayakans inherently believe that animals are part of the forest, just like them.

> *"We like wild animals of the forest more than humans outside the forest. We have been living with these animals for such a long time. For us, we want animals in the forest. We do not want them to be captured and taken away. If we see animals every day, there is another set of happiness. We must go and see everything in the forest. We believe animals are also part of the forest just like us." (IN 9)*

Again, this does not preclude fear. Rather it assumes that Kattunayakan's relationship with wildlife engenders fear and acceptance of their fellow non-humans in the landscape. They speak of their concerns in the same breath as the normality of living with them.

> *"We are afraid of elephants, and that does not mean we cannot live with them. Yesterday, when I was walking to my aunt's house on the way I found an elephant herd, there was also a tusker. It looked at me. We looked at each other and continued walking. It didn't do anything." (IN 15)*

During transect walks in the wildlife sanctuary, Kattunayakans mentioned that wild animals are gods and teachers of their landscape. They ascribed reverence to these fellow forest co-dwellers. *"When we see one, we will bow and remember our gods in our hearts. Move away from their*

path, and we both go our ways." Such highly common and general comments are given by many when asked about their face-to-face encounters with wild animals. Deep-seated reverence for animals is reflected in Kattunayakan behaviours such as bowing to animals and displaying trustful submission. A Kattunayakan bee gatherer who is frequently in the forest explained:

> *"We can't trust a human and walk inside the forest, but we can trust an elephant. An elephant is a valiya (big/elder) aallu (person), so they may hurt us, but they will never chatikila (cheat). Having elephants in the forest is not a problem for us. Elephants are our daiva (God), and we pray to them. If we go into the forest with belief, even if we don't see elephants, they will make noise to alert us, so we will know they are around. Then, we can move on a different path without confronting it." (IN 13)*

According to Kattunayakan's belief, *hethan*s (deceased elders who are God-like) assume animal shapes to communicate with them. Thus, disrespectful behaviours towards animals may lead to negative consequences and conflicts if that potential animal-God is not offered the appropriate deference. However, they caution that not all animals are gods, and they will know one when they see one. The quote includes the observation that Kattunayakans recognize some elephants as *valiya* (big/elder) individuals. This acknowledgment meant community members are expected to give way to these elephants in the forest. When asked to describe *valiya*, Kattunayakan members mentioned that *valiya* does not always mean just physically big, sometimes it also said to reference a socially significant person. Kattunayakan follow similar respectful behaviours on meeting with other animals such as snakes, bears and bison, and so such norms are not only limited to large charismatic mammals in the area such as elephants or tigers.

Kattunayakan people also regard knowledge about landscapes as derived from their fellow non-human persons. Unlike gods, animals are not directly referred to as teachers, but the lessons that they gain from animals are implicitly valued and acknowledged in Kattunayakan society. During one of the transect walks, a Kattunayakan member explained, as an example, the importance of Karimaruthu tree (*Terminalia elliptica*) in elephants' diets. He explained that a small dose of the juice from its sap cures stomach ailment. This is something that they learned

from elephants, and they also use elephant's presence and activities to enable their own practices – making their (human) job more comfortable.

> *"The majority of the things that elephants eat; we can also consume. It leaves marks on things it eats. It will dig, scratch and mark barks of trees, branches; these tree barks and plants if we eat nothing will happen to us, or we will not suffer from several illnesses. Most of the wild foods that elephants eat are medicines. We cannot eat a lot of what they eat. Maybe a small portion. Also, taking these medicines from the trees that are already eaten by elephants makes our job of gathering them easier since they would break the hard bark and chew and soften it. We can only consume a tiny portion of it; elephants are physically big, and we are small." (IN 24)*

Similarly, when Kattunayakans learn about forests, they point in particular to animal identification of changes in the landscape. Quite literally, wild animals inside the forest are an indication of the availability of forest products such as honey and tubers. The forest without animals is considered barren and lacking in food resources. They perceive the presence of wild animals inside the forest as an indicator of the forest's health. Without animals, a forest is considered unproductive.

> *"If we enter a forest without animals, then we don't like it. In those forests, there won't be anything. Plantation forests such as teak and eucalyptus are different from the real forest. Inside these places, you won't find anything like honey, no deer, bears. We do not prefer going to teak forests." (IN 5)*

Given the mutuality of presumed human-animal and non-human-animal thinking, Adivasi also perceive displacement of people from the forest in the same way as they do animals. Kattunayakans frequently complain that their forest has changed as a function of Adivasi displacements. They draw evidence for this by referring to the migration of wild animals outside the forest and questioning why else animals would do that.

2.3.4 Relatives with a Shared Origin that Practice *dharmam*

Kattunayakans, in their interviews, regularly refer to the forest as *acchan-amma* (father-mother) and believe that all animals originated from there. They claim a cultural and biological relationship with the forest, so wild animals who occupy that forestland are direct relatives to Kattunayakans. Within the forests, *wayal* (marshy wetlands) are culturally significant to them. They consider *wayal* as *petta amma* (birth mother/ biological mother) and perceive it as sacred. During our transect walks, we visited several of these wetlands in the forest, which Kattunyakan people treat with reverence. According to Kattunayakans of Wayanad, every animal inevitably will go to *wayal* at least once a day, which also manifests the importance of *wayal* as a landscape feature that symbolizes the shared origin of forest beings (including gods, wild animals, and Kattunayakans).

> *"Wayal is like petta amma (biological mother) in the forest. So, all animals will visit her to drink water or get their food. It is like 'mother' calling out and dragging their children into water… That is what we observe in wayals. Wherever in the forest they (animals) are, they will reach there, is the belief." (IN 18)*

In another interview, a female respondent viewed wild animals as kin and used words such as *bandhukal* (relatives) to describe them. Similarly, in conversations with Kattunyakans, they often refer to animals as *swantha ala* (our own people). This extends to Kattunayakan kinship narrations. Tolerance towards wild animals is justified by the rationale that since animals are their relatives, they must meet them frequently in the forest. Unlike outsiders (non Kattunayakan people), they cannot keep ill-feeling toward animals. Again, the perception of wild animals as relatives does not obscure everyday challenges of living with them. Instead, they are predictably vocal about the difficulty of living well with relatives when navigating the shared landscapes with their forest relatives. Yet, they explicitly agreed that they do not benefit from harming animals precisely because they are perceived as kin. So, for Kattunyakans, upsetting or hurting wild animals is the same as distressing their own people. A Nayaka woman further explained:

> *"See, look at the forest now. It is so thick with high grass. Even then, we go and stay inside the forest. We are not scared of wild animals. We have been here for ages; still, no*

elephant has ever harmed anyone in the forest. Elephants are like our mothers and fathers. Elephants live inside the forest; we also live inside the forest. They are like our bandhukal (relatives)." (Transect Walk, IN 10)

Similarly, drawing parallels between Kattunayakans and wild animals is common across these Adivasi communities. They describe animals as *njangale polle* (like us). These parallels extend not only toward certain culturally significant animals or large charismatic animals but also toward animals such as snakes and bees with whom they observe similarities in foraging and migratory habits. Referring to wild animals as *"Adivasi like"* also means people socio-rationalize several animal behaviours. A Kattunayakan elder replied, when asked about his opinion on wild animals raiding jackfruits in the backyard - *"Why would I be sad? It is only the elephant who took it. Why should I be sad? It is also a living being like us. If it had food elsewhere, it wouldn't have to come to our place."*

Kattunayaka people themselves engage in foraging endeavours into neighbouring Tamil Nadu and Karnataka forests, where they are legally forbidden from entering due to forest policies. Hence, they quickly rationalized animal behaviours such as migration from the forest to human settlements in search of food by stating the limitations of territory and animals therein. Another elder in the Alathoor colony further explained this.

"Like honeybees, the same goes for elephants too. They are found in every area of the forest rather than in specific forest spaces. Every animal, including elephants, have their tribal colony (territories). Even if this area lacks food, it will continue to stay in these places. [Why do they move to nadu? (human settlements)] They are also like us. Like we go to our relatives' houses for virunnu (feasting visits to relatives), elephants will also go to different places in the forest. Wild animals are njangale polle (like us). So that is why they go here and there. They will go anywhere, so will Adivasis. In our forest, we search for things. Today we are here, the next day we are in a different area, like them." (IN 30)

During our discussions, Kattunayakans displayed consideration towards wild animals, but they did not demonstrate an explicit concern or care for them. They articulated this kindness through

the moral responsibility of all animals to give *dharmam* (alms) to one another. *Dharmam* is a common word used for alms (given to poor) in South India. The practice of giving *dharmam* recognizes the limitations and strengths of one another, where individuals with means are expected to give to the poor. According to Kattunayakans, the practice of *dharmam* is visible in the way animals in the forest share resources with each other. A woman from the Ponkuzhi colony described the habit of *dharmam* between Kattunayakans and bears. During the honey harvesting season, bears often follow Kattunayakan people. They wait around the base of the tree while Kattunayakans gather honey from the tree branches. In this case, the woman explained that her people recognize that the bears do not have the skills to climb a tall tree and gather *kombu thenu* (big wild honey), so some of the community members often share some parts of the harvest with the bears as *dharmam.*

> *"In the night when we go to collect honey, sometimes we find bears waiting under the tree. Both of us love honey. The bee larvae and section of comb with larvae both bears and Kattunayakans love to eat. After we gather honey, we drop parts of comb to the ground for them or leave behind some honey and larvae at the base of the tree so that the bears get to eat." (IN 42)*

Since Kattunyakans see the sharing of forest resources with animals as their moral responsibility, they are not upset about sharing their food or other forest resources with wild animals. While some people in interviews explicitly mentioned the term *dharmam*, others explained the concept of limitations, strengths, and shared responsibility without apparent use of the word. According to Kattunyakans, providing *dharmam* is not exclusive to humans, but rather it is a moral responsibility of all living beings in the forest. Instead, every animal is accountable to it, and so the non-aggressive stance of Kattunayakans toward an elephant in their backyard eating their crops and fruits makes sense. Understanding that lack of food availability in the forest makes this elephant's action an expected behaviour of a hungry animal is to owe the animal alms when one has more. Kattunayakan tolerance and acceptance of such animal behaviours is assumed to be normal, not something for which they must be rewarded.

"Even if humans, dogs, or chicken, everyone should do their sacred duty - giving dharmam. Whatever we eat, it should be shared with others." (IN 30)

Kattunayakans similarly describe how tigers understand human limitations in gathering meat in comparison to their capability to hunt animals. So too, a Kattunayakan does not feel guilty while taking leftovers from a tiger's hunt as sharing food is the tiger practicing *dharmam*. Kattunayakans acknowledge the reduced availability of food in the forest and inadequate skillsets of animals (such as bears to climb trees). They believe that in many ways, animals also acknowledge human limitations (e.g., tiger recognizing human limitations with regard to hunting skill).

"We sometimes take the' meat' from the leftover of the tiger's hunt. We would get it without the tiger noticing. After the hunt, the tiger doesn't eat immediately. They let the meat decompose a bit before eating. We will not take the full hunt but rather leave behind some for the animal. They also have to eat, right? We do this, not because of our love for animals, but we need to be considerate. They worked hard to gather it, and they are hungry too. If we take everything for ourselves, it is unfair on the Tiger." (IN 29)

2.4 Discussion

Our study results suggest that to seek a more in-depth understanding of human-wildlife coexistence, we need to comprehend deeply the ways in which Indigenous People engage with wild animals. Kattunayakan understanding of wild animals has much in common with worldviews and belief systems of other Indigenous societies. Their practices and ways of living with animals are also complex, dynamic, and distinct from coexistence defined as a function of tolerance (which implies benign leniency) and acceptance (as indexed simply by positive attitudes and behaviours) (Hiedanpää et al., 2016; Nyhus, 2016). Hence, misunderstanding Indigenous-driven coexistence, we argue, can cripple conservation measures on their lands. We recognize the need to reconceptualize human-wildlife coexistence in Indigenous societies and suggest a fuller engagement with the forms of ‘deep coexistence’ described here. Fundamentally, this might involve rejecting anthropocentric notions of the intrinsic value of all living beings, and instead move toward an understanding of animal beings as rational thinkers in their own

right (Buckner, 2017; Safina, 2015), and as relatives and agents gifting and receiving alms as part of that co-existence (Naveh and Bird-David, 2014; Clark and Slocombe, 2009; Snodgrass et al., 2007; Salmón, 2000). Understanding of deep coexistence, we argue, can help foster the kinds of reciprocity and responsiveness that animals and humans exercise towards one another in the vast volumes of territory they share. This may lead to an improvement in their visibility in conventional wildlife management, and enable the continuity of healthy shared territory, as some level of rebuilding shared territory is likely essential to future landscapes (Buscher and Fletcher, 2020).

Several studies of human-animal kinship in Indigenous contexts have also characterized animals as rational beings with agency and intentionality (Bhattacharyya and Slocombe, 2017; Bird-David, 2017; Nadasdy, 2007). The research described in this paper complements such work and argues that the deep coexistence expressed by Kattunayakans recognizes that animals possess the autonomy to make their own decisions. Kattunayakans assume that animals act based on their intelligence, not instinct, as they hold *budhi* (intelligence) and *vivaram* (logic). This by no means indicates that human-animal interactions are considered trivial affairs, rather that they are handled earnestly and conscientiously. Co-existence might well mean that wild animal behaviour is understood as intelligence-driven, but more importantly it anticipates and might also minimize negative outcomes. A wild animal attacking out of fear should be observed as a normal and expected behaviour from an intelligent individual. Deep coexistence also extends to a view of animals as kin and to the recognition that harming or distressing an animal is hurting their own people within an extended ecological family (Bhattacharyya and Slocombe, 2017; Salmón, 2000). Such assumptions challenge explanations that tend to view all humans as competing for physical space in conserved areas, as part of a zero-sum game that leads to the continuation of long-debunked ‘fortress’ conservation. These two attributes of deep coexistence might also explain the non-aggressive stance that Kattunayakans take towards animals (validated by the low number of complaints they register against wildlife).

While conservation discourses often position wildlife protection as an outcome of pursuing coexistence between humans and wild animals (Frank and Glikman, 2019; Nyhus, 2016; Woodroffe et al., 2005), the conditions of such end results are often speculative. Kattunayakan

practices of tolerance do not view the protection of wild animals as its outcome; nor does it assume an altruistic or ecologically noble stance (Nadasdy, 2005). Instead, community members spoke extensively about their behavioural protocols, which extend to listening for presence, avoidance of unnecessary interference and troubling of animals, attributing qualities that we ourselves have, and finding absence of wild animals more troubling than presence. Deep coexistence may be intentional, but conservation as its outcome is merely coincidental. Indigenous practices of subsistence hunting have been driven to legal battles over what subsistence means (Talbot, 2016) but coexistence and custodial hunting may warrant revisiting in conservation circles, among other practices long dismissed (Petriello and Stronza, 2021).

By this way of understanding, deep coexistence also questions the human centrality in mediating the outcome of human-wildlife interactions (Frank, 2016; Madden, 2004). It deviates from the outlook of tolerance towards wild animals as a by-product of local people's emotional dispositions (Jacobs and Vaske, 2019), perception of loss (Goodale et al., 2015) and positive experiences (Dorresteijn et al., 2016). Instead, it describes wild animals as equal partakers, as already witnessed in studies of elephants in Botswana (Songhurst et al., 2015), leopards in India (Dhee et al., 2019), and grizzly bears in Canada (Clark and Slocombe, 2009). Kattunayakans recognize well that animals also practice risk avoidance, reduce resource-use overlap and moderate conflict by avoiding human settlements. While the sheer act of factoring in animal judgments in human-wildlife encounters is likely considered too radical by most, it is likely important to challenge the notion that cash incentives alone will encourage coexistence, as opposed to longer-term possibilities for living in proximity with the wildlife (Nyhus et al.,2016; Naughton-Treves et al., 2003). What might conservation come to look like should animals be seen as having knowledge about landscapes, and discrete personalities as individuals or non-human persons with distinct life experiences?

Displacement of human populations out of their ancestral settlements has likely damaged the viable human-wildlife co-existence. In addition, the resentment toward conservation’s political economy and failed resettlement has lead conservation measures to suffer some profound blows (Domínguez and Luoma, 2020; Witter and Satterfield, 2019). Drawing encouragement from theories of human-animal coexistence or what Tsing (2012) refers to as unruly edges (the spaces

where species interdependence exists), deep coexistence might also explain that tolerance toward wild animals is an interspecies relationship that is convivial, without also ignoring the realities of fear and conflict. *Dharmam*, in this context, is not a variant of love or care for animals; it is the ability of animals (including Kattunayakan-humans) to relate to each other and know well their limitations.

2.5 Conclusion

Conservation and human-wildlife encounters remain focused on conflict studies, while references to positive encounters are often overlooked, given inconsistent definitions and conceptualizations (Knox et al., 2020; König et al., 2020). The results of this study suggest that the Indigenous understanding of human-animal relationships can offer lessons on coexistence. Although this is perhaps overly hopeful, given the sheer scale of the human population globally, we might, however, revisit still naïve notions of coexistence as positive attitudes and behaviours alone. This could involve new possibilities that arise from challenging ideas about human centrality, wildlife conservation goals, or simply thinking of animals as herds, however much they may exist as a collectivity of individuals. Positive stories of human-animal associations are a start, however, distorted representation of these relationships might, we fear, augment its misinterpretation, and encourage the displacement of vulnerable communities as failed experiments in coexistence. Romantic notions of ecological nobility run deep, leaving co-existing worlds excessively vulnerable to claims of the opposite. While recognizing Indigenous-driven human-wildlife existence in modern conservation studies is still a work in progress and relatively new in many parts of the world, it would certainly bring hope to conservation puzzles and visibility to Indigenous voices. This, we find, is indeed an excellent place to start.

Chapter 3: Locating *Kadu* in the Kattunayakan Portrayals of Protected Areas: Indigenous Views of Forest in Southern India

"If you want to learn about our forest, look at us and if you want to learn about us, walk in the forest and understand about it." [Kattunayakan Kuzhimoola colony]

Summary

The longstanding association between Indigenous Peoples and forests have shaped and sustained the world's landscapes for centuries. The contemporary conservation literature has also begun to recognize these societies' roles in land management. Yet, positioning human communities outside forested areas, endures as concerns within accepted forest policy norms. Several progressive forest policies, for example, encourage Indigenous engagement, but also face implementation challenges due to disrespectful or inadequate knowledge of Indigenous Peoples' interpretation of their natural world. This in turn perpetuates colonial outlooks and misrepresents Indigenous relationships with the forest. This paper focuses on Kattunayakan communities living within the Wayanad Wildlife Sanctuary in Kerala, India and describes how this Adivasi community characterizes *kadu* (forest). Using interviews, transect walks and GIS mapping in the protected area, we document how Kattunayakans understand *kadu* as the convergence of "good places and God people," as populated by human and non-human kinfolk with fluid identities and porous boundaries, and as a complete and all-encompassing entity with its own agency. When engaged appropriately, these understandings can bolster equity in natural resource management and strengthen collaborative governance, which is mandated in policies such as the Forest Rights Act (2006), and advance human rights and biodiversity conservation goals more broadly.

3.1 Introduction

In 2013, Dongria Kondh, a small Adivasi[2] community in the Indian state of Orissa, gained international recognition when they rejected a $2 billion offer made by Vedanta, a London-based company seeking to mine bauxite from their land. In this landmark verdict, the Supreme court of India referenced the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 or FRA (2006)[3] and ruled in favour of the Dongria Kondh people's right to protect and worship their sacred Niyamgiri Hills (Singh et al., 2018; Mohapatra, 2017). Globally, Indigenous resistances such as those of the Dongria Kondh people are not isolated events. Protests such as the Wet'suwet'en hereditary chiefs of the British Columbia First Nation against a gas pipeline through their territory; efforts by the Baka Peoples of South Cameroon to remain in the ancestral territory when it was converted to national 'parks and safari reserves; and Brazilian Guarani demonstrations against displacement due to ranching and farming are all cases in point (Claxton and Price, 2020; Ioris, 2019 ; Carson et al.,2018). Indigenous dispossessions, often justified by conservation or economic development, have led to the loss of livelihoods and social marginalization for millions (Cernea and Soltau 2006; West and Brockington, 2006).

Studies on Indigenous protests against the extraction of natural resources or establishment of protected areas have identified several common themes (Bisht, 2020; Dlugoleski, 2020; Singh et al., 2018). First, most of these involve years of resistance and mobilizations. For instance, Bisht (2020) documented the minimum duration of Adivasi protests in India as being between 5 to 12 years. The extended periods of these protests contributed to a massive loss of human and financial resources. Such demands for sustained resistance further impoverish people everywhere, particularly when many such protests involve small populations that are socially and economically marginalized at the outset (Dlugoleski, 2020; Domínguez and Luoma, 2020). Second, these protests occur in spite of progressive policies. This highlights that it is not the

[2] "Adivasi" literally means original inhabitants and is the term used to describe India's indigenous groups. They are classified as Scheduled Tribes in the Constitution of India. The Government of India does not consider any specific groups as 'indigenous' since it claims all citizens to be indigenous (Bisht, 2020)

[3] The FRA (2006) was enacted to recognise rights over land to forest dwelling scheduled tribes and other traditional forest dwellers after nearly sixty years of India's independence.

insufficiency of the policies that retards the progress of human rights. Instead, it is the implementation gap co-produced by insufficient knowledge and understanding of Indigenous people's association with the natural world (Bisht, 2020; Mandal et al., 2010; Lewis and Sheppard, 2005). For instance, in India, the Forest Rights Act (2006) recognizes Adivasi people and their right to land, whereas protests like Dongria Kondh demonstrate that only strong judicial intervention assures that Kondh people's rights will be conferred (Mukherjee, 2020; Pandey, 2018). Third, the economic development model proposed as a solution to these protests presumes that largely economic or financial compensation can substitute for Indigenous well-being, often obliterating or deeply undervaluing histories of inequality and damage to the natural world (Singh et al., 2018; Kothari and Das, 2016). Indigenous well-being rooted in the security of enduring forest health and in the connections, people share with their natural environment are not easily influenced by industrial growth models overlaid on them (Singh et al.,2018; Dockery, 2010).

These recognized problems are compounded for societies such as Adivasis, whose Indigenous identities have been historically subdued in a manner that has invariably misattributed their association with forests as illegal or criminal (Kashwan et al.,2021). Including more than 700 ethnic groups and an estimated 104 million people, Adivasis (or the original inhabitants) of India form the world's largest Indigenous population (Faizi and Nair, 2016). They share a deep and longstanding relationship with forests (Kalathingal, 2020; Hembrom, 2018) and depend primarily on forest ecosystems for their livelihood and subsistence. Their perception of the natural world is guided by worldviews constituting cultural and spiritual systems supported by and inseparable from their territory (Mishra and Berry, 2017; Bhagwat et al.,2014). While India endorsed the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) in 2007, it has not yet conferred Adivasis with self-determination rights (Nikolakis and Hotte, 2020). Instead, current forest policies continue to position Adivasi ecological knowledge, for example, as outside the realm of accepted knowledge -- in particular, by upholding long-observed colonial and imperial definitions of wilderness as area absent of humans (Gadgil, 2021; Dlugoleski, 2020; Münster and Vishnudas, 2012). Conservation aside, many of India's biodiverse and mineral-rich areas fall within the traditional Adivasi land, further motivating the

kind of economic growth enabled only by the displacement of Adivasi people from their forests (Kabra, 2019; Sahu, 2019; Hembrom, 2018).

Millions of Adivasis were forcefully displaced from their ancestral lands following the establishment of an independent Indian state in 1947, which included policies aimed at enhancing economic progress and protecting wildlife. After independence, successive forest policies further usurped from Adivasis their traditional forest access and use rights via the Forest Policy of 1952, the Wildlife Protection Act of 1972, and the Forest Conservation Act of 1980 (Jain and Das, 2019; Bijoy and Raman, 2003). One of the consequential impacts of such policies was the formal acquisition of forests by the state, a move that rendered a large population of Adivasi people marginalized and dispossessed (Padel, 2018; Rycroft, 2014). Forest areas were categorized as protected areas, with Adivasi peoples' traditional rights converted to mere limited-use concessions granted by the state. The defining feature of these policies was that forest dwelling Adivasis were not allowed to gather resources or access the forest without providing a valid reason (Belaidi et al., 2018; Bhattacharya et al.,2017).

The first open recognition of this state-sponsored abandonment endured by Adivasis occurred nearly sixty years after India's independence and came through the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act of 2006 (hereafter, FRA 2006). The policy was meant to redress the historical injustice imparted on Adivasi communities by recognizing them as rightful owners of forests and granting them their access and use rights (Münster and Vishnudas 2012). Yet, in 2019 only five years of Dongria Kondh's famous judicial ruling, around 5-7 million Adivasi people were accused of illegal forest encroachment and faced the threat of eviction from their ancestral land. This incident again gathered international attention and brought to light the limitations of existing forest policies (Thekaekara, 2019). It highlighted those progressive policies alone could not and were not preserving Adivasi rights to their land. Instead, the policies failed to indicate, comprehend, represent, or utilize Adivasi knowledge and co-existence within forests.

Specifically, scholarly works on Forest Rights Act (2006) highlight some of its systemic imperfections (Sahu, 2021; Domínguez and Luoma, 2020). While the policy provides Adivasis

with an opportunity to exercise their customary and cultural rights to land, details on what those rights entail is deeply inadequate. Scholars critical of the act point to the inseparability of Adivasi customary rights and explain some of the FRA's enabling problems (Dlugoleski.,2020). First, spiritual associations with forests are difficult to measure or characterize as often this is a somewhat intangible construct lacking concrete indicators and so beset with evidentiary challenges. Second, as with many animistic traditions, which most Adivasi follow, no formal religious categorizations exist to recognize these. Broadly grouped as Hindus or converted Christians and Buddhists, they are left with limited legal support for animistic cultural relationship with the land, which are primary (Sengupta,2021; Donald,2018). Third, while the policy highlights non-monetary interactions of Adivasis and forests as key to their longstanding relationship with the land, there are few references of this fact in contemporary conservation literatures (Bisht, 2020; Temper & Martinez-Alier, 2013). Moreover, most Adivasi knowledge systems are poorly documented, predominantly non-textual, exist as oral histories and knowledge more broadly, and yet are also linked to distinct Adivasi languages (Sahani and Nandy, 2013). Thus, any presence in conventional scholarship is restricted or non-existent. This necessitates studies that extensively document the intangible, non-monetary features of their knowledge about, and interactions with, forests.

The absence of these has led to poor and misconstrued representations of Adivasi relationships with forests and has contributed to very slow progress in the context of seemingly 'progressive' policies such as the FRA (2006). Instead, colonial legacies — particularly those which regard forests as human-evacuated territory — prevail, be that in reference to forest policy or to related conservation policies (Bandopadhyay, 2010; Jain and Das, 2019). Ultimately, these norms embolden the structural discrimination of Adivasis, a problem even more challenging given that several Adivasis are already considered a Particularly Vulnerable Tribal Group (PVTG) because their remote locations (as well as religious and linguistic reasons already referenced). Non-sedentary engagements with forests that are neither documented nor spatially designated further render their forest territory as 'unproductive and unoccupied land' deemed exploitable for plantations, mines or even protected areas (Domínguez and Luoma, 2020; Ongolo et al., 2018; Hendlin, 2014; Home, 2013).

This paper addresses Kattunayakan people living in Southern India's Wayanad forests (now a protected area). It considers how Kattunayakans spatial relations, practices, and encounters with the forest facilitate their living in forested landscapes, but also — by inference — characterizes the losses that Adivasi currently face as dispossession continues (Temper & Martinez-Alier, 2013). Our findings counter many emerging forest policies, which continue to advance species protection and wildlife conservation as contrary to human presence in forested areas (Kshettry et al., 2020; Dominguez and Luoma, 2020; Lele et al., 2010; Sekhsaria, 2007), except when revenue generation from tourism is anticipated (Steven et al., 2013). Our premise is that a better understanding of how Kattunayakans perceive their forest will situate this groups of Adivasis as representative of similar Indigenous societies, as culturally significant, as a rightful presence in India's forests, and as demonstrative of their deep and long connection with forests. Doing this fundamentally changes what the forest itself is and what constitutes. Ultimately, this is a right that the FRA (2006) appears to acknowledge but has done little to articulate or advance.

3.2 Methods

3.2.1 Study Area

The study reported here is derived from sustained fieldwork in the Wayanad district of Kerala, a Southwestern state in India (Figure 3.1). Wayanad is a mountainous forested terrain situated in the Western Ghats which is home to several Adivasi communities. In 1973, India's central government established the Wayanad Wildlife Sanctuary (WWS) under the Wildlife Protection Act of 1972. In aggregate, 40% of Wayanad's land area is forested and designated as protected area (John et al., 2020). However, like many other wildlife parks worldwide, it has also systemically overlooked Adivasis, long associated with these lands (Bijoy, 2017). With the proliferation of protected areas in India, many displaced Adivasis continue to live in and around their ancestral homelands in extreme poverty (Domínguez and Luoma, 2020; Bijoy, 2017).

Between 1990 and 2003, approximately 50,000 families from various forest-dwelling Adivasi communities were involuntarily moved from the Wayanad Wildlife Sanctuary to adjacent fringe forested areas (Kaushik and Kaushik, 2006). These displacements, justified by wildlife protection, particularly affected the forest dwelling Kattunayakan People. They form a unique

group of hunter-foragers who live in the forests of Kerala, Karnataka, and Tamil Nadu (Bird-David, 2017). Their livelihood is primarily derived from food (honey, mushrooms, tubers, fruits, medicinal herbs, honey) and revenue from the sale of Non-Timber Forest Products (Ramachandran, 2006; Kakkoth, 2005).

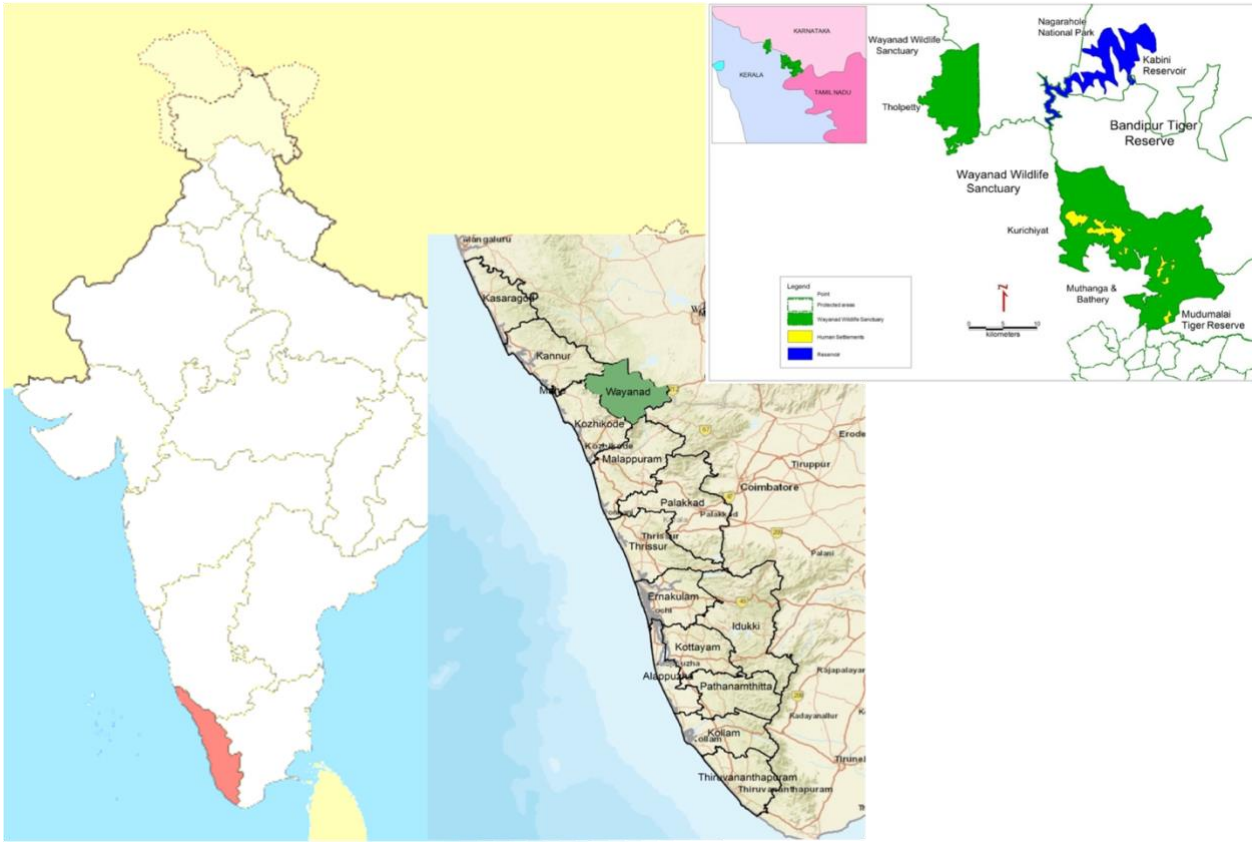

Figure 3.1 Location of Wayanad and Wayanad Wildlife Sanctuary

Being a hotspot of Adivasi communities, the Wayanad landscape is no stranger to tribal protests. In the years 1960, 1975 and 2003, Adivasis in Wayanad displayed their discontent with the forest and wildlife policies of India. In 2003, Wayanad witnessed a large-scale protest by Adivasi against the state's delay in allocation of land to Adivasis through the joint forest management program, when many Adivasi families built makeshift tents inside the Wayanad Wildlife Sanctuary. Ultimately, they were forcefully removed by the State, but the event is

considered a landmark moment in Adivasi resistance. In 2006, to address the historical injustices against Adivasis, the Government of India established Forest Rights Act. The act recognizes forest-dwelling people as original custodians of the land and grants them some legal access to forest resources (Agrawal and Redford, 2009; Saravanan, 2009). However, the process of formally gaining recognition is characterized by discriminatory requirements by the Indian state, and most Adivasi communities are unable to produce the supporting evidence needed to establish claims. As a result, most have lost their right to land (Chemmencheri, 2015; Münster and Vishnudas, 2012; Kabra, 2009). Relocated Kattunayakans remain economically poor and continue to depend on the government for Rural Employment Guarantee programs, availability of wage-labour, or construction work in neighbouring farms and towns (Chemmencheri, 2015; Ramachandran, 2006). Restricted access to the forest and the ban on subsistence hunting has led to the erosion of traditional and cultural engagements with the forest (Kakkoth,2005).

3.2.2 Field Methods

To better understand the position of Kattunayakan as forest dwelling Advasi, a preliminary ethnographic study at the field site was conducted for three months in 2018 (March, April, and May). Terre and I visited Adivasi colonies and conducted open-ended interviews with members of several Adivasi groups to understand their concerns. This groundwork identified eight Kattunayakan settlements as study sites, namely Ponkhuzhi, Anacyamp, Kolooru, Kuzhimoola, Alathoor, Kalamkandi, Kumuzhi and Chukkalikunni, located in and around the Wayanad Wildlife Sanctuary. In 2019, upon securing permission from the forest department and the Scheduled Tribe Development authority, I returned to the field site and spent four months conducting further qualitative research (March through June 2019). This included open-ended, semi-structured interviews, transect walks inside the wildlife sanctuary with community members, GIS mapping, and participatory observation.

Interviews were conducted with Kattunayakans at their houses. All participants were community members over 18 years old. Interviews were carried out in Malayalam and recorded in agreement with the participants. I also conducted half-day walks inside the wildlife sanctuary with 2-3 community members at a time; individuals were chosen based on recommendations

from Kattunayakan community members. During these walks inside the forest, interviews followed the same protocol (Appendix C), with the added effort of mapping sites where people highlighted location and meaning of culturally significant sites. At these locations, I engaged in conversations with the community members discussing Kattunayakan understanding of the land. These also gave the opportunity to observe and learn about aspects of their relationship with the land. All participants were given honoraria to acknowledge their expertise and to thank them for their time and knowledge sharing. Roughly 70 locations within the protected area were mapped. We then digitally mapped all points using Esri GIS ArcMap software (versions 9.3/10). These coordinates were categorized into one of seven biocultural landscape units identified by the study participants during the interviews and walks.

I transcribed and translated the audio recordings of the interviews and conversations from transect walks into English. Malayalam words are used where possible (with definitions) to avoid diminishing the value of Kattunayakan insights. The transcribed data was stored, managed, and coded through QSR International NVivo software; analysis involved inductively identifying codes, categories, and themes (Saldaña, 2021). The codes were in English with the use of Malayalam words to give more details when required. Research results were communicated with the local partner agency and Kattunayakan communities. We continued engagement and interaction with community members through two research assistants during the data analysis and writing phase. The local collaborator MS Swaminathan Research Foundation (MSSRF) also offered support in building local contacts, provided ground truthing to the research observations, helped in several field engagements, and provided documents and reports in Malayalam about the communities — written by Adivasi experts but not otherwise available in online platforms. All fieldwork was approved by the University of British Columbia's Behavioural Research Ethics Board (BREB number: H18-03104).

3.3 Results

The most common answer from community members when asked why they choose to live close to the forest was to say: *"At least once a day, every Kattunayakan has to enter the kadu (forest)"*. Walking in the forest is a fundamental form of security and well-being as it is a way of living and learning. The Kattunayakan sense of well-being stems from activities like gathering honey, collecting mushrooms, fruits, tubers, or occasionally trapping small animals. A deep appreciation for the forest as a livelihood source and as the anchor to their spiritual and cultural existence is patently evident. Participants in the study, frequency state unequivocally that: *"Kadu is our home. It is where our ancestors and gods live, and it is where we all return upon death."* While their livelihood-based relationship with the forest was apparent, these cannot be decoupled from the cultural and spiritual engagement with the forest in their everyday life. These are not services people 'acquire' from the forest but are, rather, fundamentally about what comprises the forest — in a linked physical and metaphysical sense of the word.

Hence, we focus the results below on Kattunayakan interpretations of *kadu* with a lens of seeing it as their ancestral land and not as a protected area per se. Equally important are Kattunayakan characterizations of and engagement with the forest as: 1) a convergence of good places and God people, 2) kinfolk with fluid identities and porous boundaries, and 3) a complete and all-encompassing entity with its own agency. This fundamental classification of what the forest is, is summarized in figure 3.2.

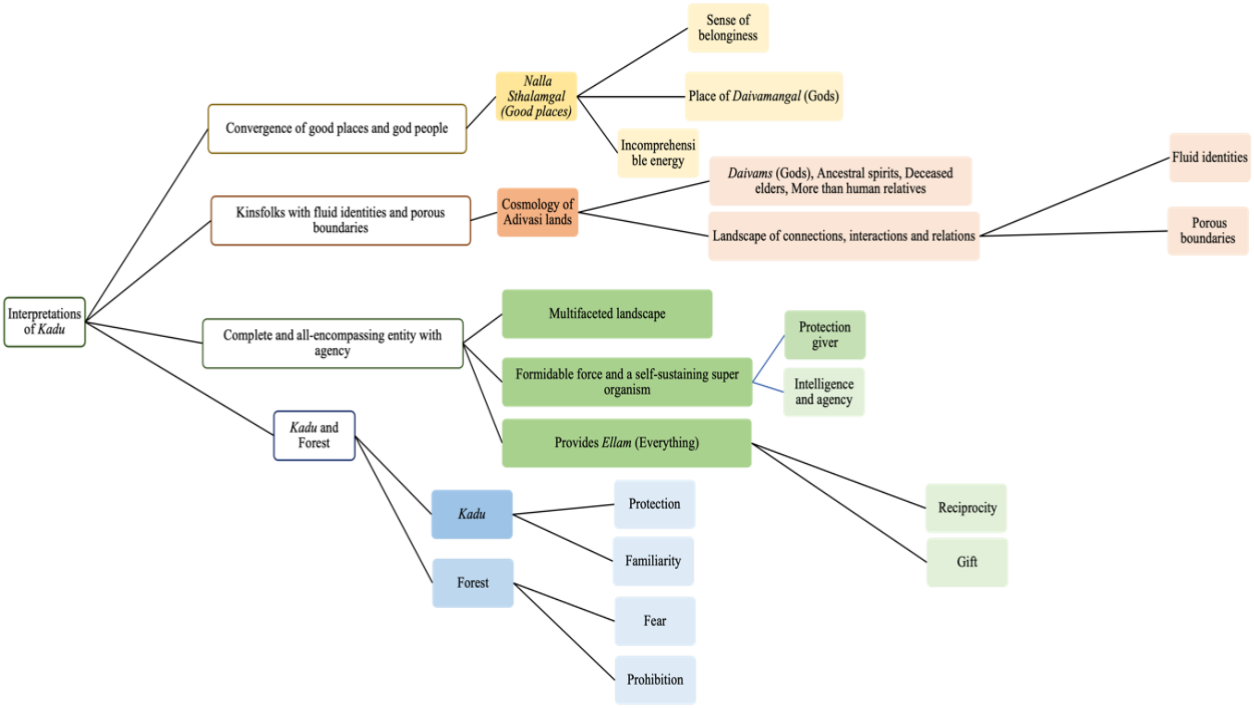

Figure 3.2 Themes Indicating Values/Meanings of Forest Landscapes

3.3.1 Convergence of Good Places and God People

While the word *kadu* roughly translates as forest, our conversations with community members revealed that it was much more than forest in the conventional understanding. They did reference the English term 'forest' as a protected area, usually with an added sense of foreboding, thus also referencing forest departments, forest regulations, forest strictness, and forest prohibitions. One community member would thus say: *"We are scared of the forest (meaning the forest department), we cannot enter the forest (as protected area) whenever we want"* whereas another individual said: *"In the forest we have to listen to their rules and regulations."* "Forest," in this meaning, was a contemporary term that largely referenced new governing rules of use. In contrast to these, the word '*kadu'* represented freedom, trust, reverence, strength, and belief. An elder from Chukalikumnni explained this as, *"Kadu is in the same position as our father and mother. It has been protecting our ancestors; we know it will protect us too". Kadu* included not only the term *maram kadu* (tree forest) but also *kunnu* (hill), *wayal* (marshy wetlands), *thodu*

(stream), p*uzha* (river), *kulam* (pond), and *kolli* (low valley creek), which we speak to below as biocultural landscape units. These are largely sheltering places that offer Kattunayakans spiritual solace, protection, food, livelihood, and water. People acquire knowledge of these places from their elders, from personal experience or as linked to different ritual practices. As a group, sheltering places are frequently referred as '*nalla sthalamghal'* (good places) and were also considered sacred (Figure 3.3).

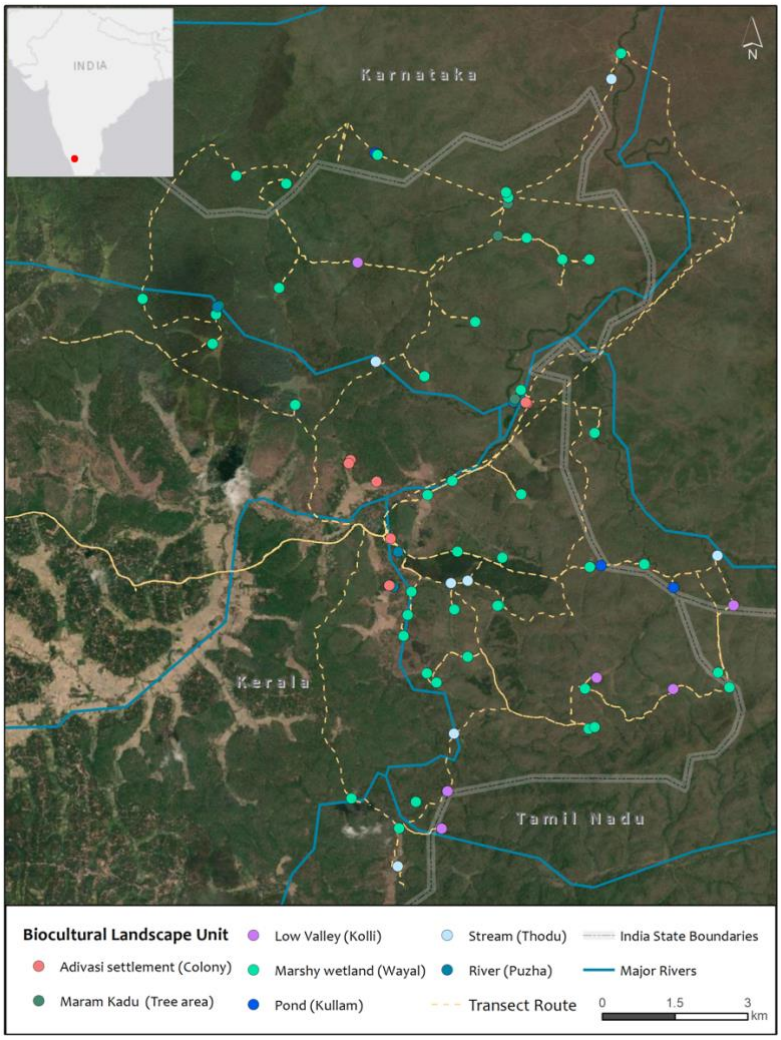

Figure 3.3 Location of *Nalla Sthalamghal* (Good Places) with Landscape Units

These *nalla sthalamghal* offer Kattunyakans safety and sanctuary, making them common areas for community members to camp during the foraging season. Additionally, Kattunayakan understand many of these sites as places where *daivangal* (gods) reside. *Daivangal* (gods) are often invisible, and their presence can only be sensed or felt. So, it is common among community members to practice *shudham* (pure) habits during their visitations to sites or *nalla sthalamghal.* Expected behaviour include *"absence of conniving thoughts about forest, animals and fellow Kattunayakans," "following instructions from gods and ancestors during foraging and hunting,"* and *"practising coexistence with other forest elements,"* among others. During a transect walk an elder summarised this with the following:

> *"Nalloor, Maragdha, Daivahalla…these are all our nalla sthalamghal (good places). These are places where our gods reside. These places are our swantham (own) and since our ancestors' time. We treat them as ambalam (temples). We cannot go there whenever we want. We need to be shudham (pure) to go there."* [IN 19]

While many people described that visiting these places evoked memories and emotions that contributed to their sense of place and well-being, some stated that they experienced an 'incomprehensible energy' at these sites. When asked to explain the 'energy,' some respondents outlined partially tangible environmental elements like crispness of the air, the freshness of the water, and the presence of their ancestors and wild animals, which together takes their fatigue away. This is, quite simply, why people find and need to find their way to the forest. They observed reduced access to *nalla sthalamghal* as a direct consequence of relocation from the forest and it was also cited as a reason why community members are less inclined to move away from their ancestral forests. As explained by a Kattunyakan woman from Ponkuzhi:

> *"Inside the kadu, in some places, I get a special feeling. I get an incomprehensible energy that I don't get outside. If we are not allowed to go inside the kadu, we will be sad. We will still find a way to it, either by hiding and avoiding them (forest department). They won't always be looking out; we will jump through a different route. [Hush tone] Many times, forestukar (forest department) have told us that we will give you money to*

move. But we told them, it is not possible for us. We were born here, and we want to die here only". [IN 12]

Repeated movements, encounters, and exchanges inside *kadu* make it a familiar space that is often attributed a familial status. The characterization of *nalla sthalamghal (good places)* and its significance is almost always linked to the story of how the place got its name:

"Our people call this place Mavinhalla Thodu. You can see a narrow thodu (stream) here. Earlier, this place had several mavu (mango trees). That is how the site got its name. Our grandfathers named these places. They told us about it. Even now, forestukar (forest department people) continue to use the names our people gave." [IN 23]

Respondents spoke with a profound sense of pride and contentment that the forest department still uses Kattunayakan place names. This sense of belonging is reflected in other statements, such as *"we know our kadu well"* and *"we understand it better than outsiders."* In some conversations, community members spoke proudly of how they navigate forest landscapes without the support of any cartographic tools. When asked how *kadu* is navigated without a map, a community member from Anacyamp said:

"We have it all in our 'manasu' (mind). Like people in nadu (outside forest) have roads and names of places. We also have distinct places. We don't read or write. So, it is not written anywhere, but we know it. We grew up in this kadu. Our ancestors lived here. We know every nook and corner of the kadu." [IN 35]

3.3.2 Kinsfolks with Fluid Identities and Porous Boundaries

Kattunayakans, in their conversations, also described how *nalla* (good) places embody connections, relations and interactions between different forest elements. These included relationships between Kattunyakans and their gods, deceased ancestors, and more-than-human relatives. While some of the interactions were place-bound and long term (like those with deceased elders and some *daivangal*), the others occurred in multiple places and were relatively

transient (e.g., non-verbal communications with wild animals or the passage of ancestors' spirits). A Kattunayakan woman in an interview highlighted this:

> *"We have groves in kadu that are sacred. There is passage of gods through kadu. Some trees in kadu are gods. We will be able to identify that. When we spot one, we will feel it from inside. There is some strength inside this. So, we will pray to them and give some offering. If someone provides an offering, then next person who comes will also do that. Slowly it becomes an important place for us."* [IN 40]

While spirits of their deceased ancestors roam the forest and are usually not restricted to a specific area, this is not the case with their *mala daivangal* (forest gods). These forest gods have clear and well-defined areas with distinct markers such as *thara* (platform), *kallu* (stone) or *maram* (tree). Kattunayakans offer *adakka* (areca nut) and *vettila* (betel leaves) to show respect, and the sites are smeared with vermillion. They came to know of these places from their elders, as revealed in dreams, or experienced by people during their visits to the forest. They detailed events that signify the importance they attribute to each place, such as escaping from a wild animal or finding honey unexpectedly. Kattunayakans also actively distinguished themselves from 'outsiders,' for whom the *kadu* holds only flora and fauna; for Kattunayakans it also contains gods, deceased elders, and spirits. Consistently, elaborate descriptions were provided for forest trails that facilitate the passage of these beings:

> *"Our sathavaru (deceased ancestors) are sacred for us. We communicate with them frequently. After death, our ancestors return to the forest. That is our faith, so we pray to them when we enter the forest. They were forest people, so after death, they would be around; where else would they go? So, we believe that after death, we return to the forest just like them."* [IN 41]

Upon death, the *kadu* is where every Kattunayakan eventually resides. Although community members living along the borders of the Wayanad Wildlife Sanctuary recognize the protected areas' physical boundaries, in everyday conversations among themselves, these rigid frontiers seem nonexistent. For example, people provided vivid details as to how their *daivangal*,

ancestral spirits and more-than-human relatives travelled across the forest and on special occasions even accepted their invitation and visited them in their villages. This porosity of boundaries is suggestive of how fully people perceive *kadu* as not separate from them. During these visits, gods communicate with people through mediums like a village shaman to answer questions, provide guidance, and feedback on any misconduct. Kattunayakan gods take the shape of animals, humans, rocks, or trees, supporting the observation that elements of *kadu* possess fluidity, changing shape and forms. During a ceremony, an elder from Chukkalikunni described it thus:

> *"From the time of our grandfathers, they have talked about these places in the forest. These are the places from which our mala daivangal (forest gods) came. Devi, Kuliyan, Mari……. [names of the gods]. We are not supposed to say the names of our gods out loud. During the puja (ritual) in the Adivasi settlements, we beat the drum, sing songs, and invite them from the forest to our settlements. During their visit, we speak to them about our troubles. They give us the solutions. After the ceremony, they return to the forest".* [IN 34]

Drawing analogies from the *kadu*, community members identify the connectedness among forest elements with statement like *"A woodpecker that pecks the tree also aids the honeybees in building their hives inside the tree trunk."* Similarly, for Kattunayakans, humans, animals, and gods originated from the forest and hence they are kinfolk. This encourages them to practice generosity and consideration towards forest beings during their encounters and engagements. Sharing of honey with the bees and bears, tubers with boars, and meat with tigers are some examples of these considerations. Similarly, they rationalized the actions of forest beings, even the negative ones such as incidents of wild animal attacks: for example, the general notion among Kattunayakans that animals attack only when they feel threatened or troubled (Chapter 2). Also, the possibility of wild animals functioning as a medium for gods in some ways has elevated their socio-cultural status within Kattunayakan society. Hence, they exhibit coexistence while navigating their relations in the forest landscape. Drawing references to these observations, a young Kattunayakan who accompanied me to the forest said:

"That is what they (elders) told us. They said that these places in kadu are ours and we owned them from early days…very early days. This is from where they would come to our house. That is what they have told us. From early…very early days. Our grandfathers have told us how our gods originated in these places. Our animals and our people also originated from these places. So kadu is like a bandhu (relative) to us." [IN 43]

3.3.3 A Complete and All-encompassing Security and an Entity with Agency

For Kattunyakans, *kadu* is a complete and all-encompassing entity that provides them with *ellam* (everything). The term *ellam* signifies the capabilities of *kadu* to deliver everything that necessitates a good life. Their claim that *kadu* provides *ellam* extends to their trust that it will never deceive or harm them. They spoke about places in the forest that held this *sathyam* (truth). For example, many *wayals* (marshy wetlands) in the forest possess *sathyam* and Kattunyakans believe that in these places, water will not dry out, even in the driest season. They describe *sathyam* in context of *ellam* as a reflection of their cumulative self-reliance on *kadu* in general and as consistent with elders' experiences and knowledge. There also exists a collective understanding that if they reciprocate appropriately with *kadu*, then it responds accordingly. A Kattunayakan woman described her experience of *ellam* as:

"In the early days, we spent every moment of life in the kadu. We remained in the kadu all the time and never came out of it, even searching for work. So, kadu will never break our trust or forsake us. Nights and days, we remained in the kadu and gathered whatever food is available. That is our life even now. Nothing has changed. We continue to depend on the kadu, then and now. If we go to the forest, we will never come empty handed. Kadu provides us with ellam." [IN 38]

The reciprocity that *kadu* and Kattunayakans are expected to observe includes binding rules for being considerate to the needs of fellow Kattunayakans and non-human relatives. Unsurprisingly, younger Kattunayakans, who received conventional educations, do not always agree with the notion of *ellam* as their needs are often not entirely met within the forest.

However, they agree that the *kadu* is a strong entity with whom they shared an intimate connection. A young Kattunayakan explained his disagreements as:

> *"We cannot say that forest provides 'ellam', but we do agree that the forest is powerful. It has countless temples. If we start counting, it will never end. To name a few, Naradhi, Muthappankolli, Bedumavvu, Begur Odichi, Maragadha, Bajagadha, Anakallu, Daivallaha. They are mostly wayal (marshy wetland), kolli (creek), puzha (river) spread across the hills inside the forest. When we reach such a place and clear the grass there, we will wash our legs and go there, bow down, and pray. All these temples have existed for a long time since our grandfathers and ancestors. They are the place of our gods. Our fathers and grandfathers have told us this. Those waters do not dry up even in the hottest summer. When we are at these places, we feel their [ancestors and gods] presence. We trust in such waters. And in these waters, we will not enter with our sandals; rather, we keep them away from water. To drink water from these places, we must bow and pay our respects. Even now, also we do that. We take them off before drinking water from these places. We will not even use hand to take water. Make a scoop by joining leaves together and gather water. Even now, our people do that."* [IN 18]

During the interviews, respondents described how *kadu* endows them with gifts in unexpected ways, especially during challenging times. Receiving gifts from *kadu* necessitates returning the favour by being respectful, offering prayers, sharing forest produce and being considerate with forest relatives. A Kattunayakan father and son shared their experience of accepting a gift from *kadu*:

> *"Once, my father and I went to search for honey. We were carrying a kallam (earthen pot) with us. The whole day we searched but couldn't find a single beehive. We could hear the bees and see them, but there is no hive or honey anywhere. Then we went to this place where there are spirits of our deceased elder. My father offered a piece of dried local pukayila (tobacco leaves) and spoke a few kind words to him. Then, as soon as we took few steps, we heard a bee buzzing and followed it to find a beehive. The sound of the bees was so loud that we couldn't walk towards it. A large kombu thenu (big wild honey)*

was our gift… We slowly smoked and then gathered the honey. It filled up our whole container. This is our faith. kadu will never betray us…nadu (outside forest areas where villagers reside) may betray but not kadu."[IN 13]

They acknowledge that activities in *kadu* are never planned and therefore the outcomes of *kadu* visits may never be predicted. But this sense of an agentive entity without the will to betray is key. When asked questions on how they planned their foraging schedule in the forest, community members unanimously answered that forest visits must never be objective driven or strategized; instead, they should be driven by faith and gifting from the *kadu*. This also partially explains why it was difficult to plan and schedule a meeting with community members during field work. They would never promise their availability, every interview was an opportunity or unplanned occurrence. A Kattunayakan answered on how they plan their foraging:

"Today we go this direction so tomorrow we may go onto the other side. We don't plan our trips to forest. Someone who returned from kadu might tell that there are some bees in that side of the kadu. So maybe we will give a visit there. What we get from kadu is not in our hand, so we will pray to the daivangal before entering kadu. And hope that we get something and won't go hungry" [IN 30]

During the honey harvesting season, community members did not competitively pursue the gathering of honey. Inside the forest, we often saw trees with *kombu thenu* [wild honey*]* marked with a bunch of leaves, or a bamboo ladder placed next to the tree as an indication that someone has already marked it. On seeing that, Kattunayakans respectfully avoid that tree and continue searching for another. Respecting these indicators were also their way of respecting and trusting *kadu*. When asked why they didn't just take those markers away and gather the honey, a community member answered by describing an incident:

"Kadu gives us ellam, but it gives us things only when it decides. So, if we connivingly try to take someone else's honey, we will be punished. They have also walked inside the forest and worked hard to find that beehive. There was a boy in my colony [Adivasi settlement colony] who once removed the markers from a tree and climbed it. It was a

tall tree and during the climb, he slipped from the tree, fell on the ground, and broke his bones. We knew immediately what must have caused this and so we performed some puja and prayers at the site, returned the markers and apologized to the daivangal and ancestors. The boy survived. This is our belief." [IN 30]

Kadu, according to the Kattunayakans, is a formidable force and a self-sustaining super organism that possesses intelligence, memory, and decision-making authority. For instance, *kadu* detecting the presence of outsiders and making intelligent decisions after assessing the actions and intentions of the forest beings. This means community members accept the decisions of *kadu* (e.g., when to give or when to punish). This might imply physical damage to people, an empty-handed return, or a negative encounter with a non-human relative during a visit to the forest. Several of the interviewees explained how networks of connections and relations between forest beings moderated the activities in the landscape based on the instructions from kadu. For Kattunayakans, the *kadu* does not induce any evil, rather it assesses human intentions to reward or punish humans; this is accepted by community members since they perceive *kadu* to have superior intelligence (more than humans). Hence, Kattunayakans are expected to demonstrate honesty and earnestness. A woman from Anacyamp described this as how with *kadu*, good behaviour precedes good consequences.

"Kadu can sense the presence of outsiders. There is coordination between every element of the kadu. Each step we take is observed by the animals in the forest. The monkeys, birds, snakes, elephants, and tigers…everyone communicates. From the forest, we do not have any dosham (evil). Kadu is a special entity. It will show nalla (good) humans nalla sights. Kadu is more intelligent than humans. Suppose an elephant comes running towards us. Then it will suddenly stop, change its mind and go back." [IN 15]

Community members acknowledged the multifaceted nature of *kadu* by describing in myriad ways how its value (let alone its very constitution) is not solely a site for human consumption and benefits. This value includes the forest having agency in its own right and not being a service exclusive to humans. Interpretations of *kadu* are imbued with narratives of forest uses and opportunities, some exclusive to humans and some for other non-human entities. However,

these outlooks do not directly translate as a forest's intrinsic or service value; instead, community members discussed the existence of reciprocal transaction in forest encounters such that *"everything in the forest is useful to someone"* (plants, animals, humans, gods, ancestors). The forest is not only an interconnected entity (as most ecologists would argue), but also a mutually beneficent and sustaining entity with the capacity to direct, gift, punish, receive, and distribute its bounty across human and nonhuman beings. Going beyond the conventional understandings of the forest as a provider of uses, one Kattunayakan elder said:

> *"Not all things that grow in kadu need to be useful for humans. There are other things also, that grow in kadu. We need everything in the kadu - not only things useful for humans. We don't eat this flower or its fruits, but some bees take nectar from them, and some animals eat these fruits, you see."* [IN 07]

3.4 Discussion

Kattunayakans perceive the *'kadu'* as a multifaceted, all-encompassing being that possesses agency, saturated with the presence of gods and ancestors, be those in general or in reference to named physical features (e.g., a wetland) or kindred animal beings. For Adavasi living in and around the Wayanad Wildlife Sanctuary, *kadu* elementally and fundamentally contributes to their material and immaterial well-being, identity, and security. It elicits neither foreignness nor the need for conquest nor subjugation -- as distinct from Adivasi understanding of the more colonial translation 'forest' (Sluyter,1999). While a simple etymological translation of the word *'kadu'* in English is forest, Kattunayakans' use of words *'kadu*', and 'forest' evoked consistently distinct meanings. The word *kadu* expressed a more complex idea of the ecosystem that suggested inclusiveness and familial and familiar qualities, as compared with the term 'forest,' which suggested separation, fear, and prohibition. Forest (often used in reference to the protected areas) meant external spaces reserved for wild animals. In conversations that used the term *kadu*, participants positioned themselves as not only part of the ecosystem, but also as part of a constantly reciprocal and interactive system of co-present earthly and other-earthly beings, qualities which together make up what is otherwise referred to as 'forest.' *Kadu* also meant familiarity and comfort, particularly as Kattunayakans reflect deeply on the contrast of how non-Adivasis perceive forests. This also explains people's almost routine assertions against protected

areas and associated prohibitions through dialogues such as *"we know our kadu well;" "we understand it better than outsiders."*

While it is easy to dismiss such conversations as pedantic or naïve, Adivasi people's sustained relationships with forests have been historically overlooked in policies and practices. For subaltern societies like the Kattunayakans, who usually have had limited opportunities to explain their understanding of the natural world, these statements could be interpreted as an implicit assertion of their ownership and relationships (Chemmencheri, 2015; Kjosavik and Shanmugaratnam, 2015; Mandal et al., 2010). Further, Kattunayakan descriptions of *kadu* resonates with the Indigenous conceptualizations of land where land embodies well-being (Burkhart et al., 2019), identity (Neeganagwedgin, 2015), resilience (Hatala et al., 2020). The Kattunayakan portrayal of *'kadu'* is distinct from how current land policies understand and position it. Kattunayakan understanding of *kadu* remains invisible in forest discourses in contemporary Indian land management practices that are predominantly informed by Western scientific knowledge (Dominguez and Luoma, 2020), These practices continue to situate the notion of 'forest' as spaces reserved for the wild that advance species protection with a heavy focus on wildlife conservation (Kshettry et al., 2020; Lele et al., 2010; Sekhsaria, 2007). Therefore, they disproportionately focus on identifying strategies for strengthening protected areas through revenue generation (Steven et al.,2013) and fiscal compensations (Johnson et al., 2018). Any dialogue that digresses from discussions in support of protected areas is viewed as an ignorance that needs to be amended.

Kattunayakan people interpreted *kadu* as spaces that indicate the ontological convergence of culture and nature. The maps and discussion of our study, demonstrates that *kadu* comprises of entities and topographies that facilitate interactions between humans and the ecosystem. While the Forest Rights Act (2006), with its progressive and human-inclusive outlook, permits Adivasi people to practice their customary rituals in the forest, there is no clear indication of what does and doesn't constitute traditional activities, let alone what the forest is or isn't comprised of. Further, the policy also necessitates communities to provide evidence and documentation to validate their right to express their culture and spiritual associations with forests (Lee and Wolf,

2018: Münster and Vishnudas, 2012). This is particularly disadvantageous for non-sedentary Indigenous societies like Kattunayakans. Unlike sedentary agriculture-based communities, Kattunayakans have a semi-nomadic pattern of engagement with the land; hence they have limited documentation and corresponding geospatial units that are ‘tenure-like’ indicating histories of presence in forest territory.

As most knowledge of ecosystem derives from and is communicated through oral histories and narratives and other non-written forms, converting this into dissemination units or policy is limited and challenging. Our study brings empirical evidence and narrative explanation of Kattunayakan people's longstanding association and engagement with the land. Like other post-colonial states, maps of protected areas in India represent the land as spaces that preserve wildlife, with no reference to shared histories of land, humans, and animals (Rai and Madegowda, 2017). The historical and long-lasting relationships of Adivasis rarely make its way into maps. Instead, most forest maps contain topographic features, administrative borders and wildlife habitats that are the basis for institutionalized land management (Gadgil, 2018; Rai and Madegowda, 2017). Adivasi-Kattunayakans described here also refer to similar landscape features, but these are invariably physical and metaphysical or alive with properties and meanings that are neither captured nor understood in conventional forest management in the region.

Our work extends to the observation that the relationship of non-sedentary Adivasi with the forest is an equally viable engagement, as is the more common practice of agricultural settlement. As relatives, Kattunayakans extended mutual generosity and consideration during their encounters and interactions, be that while hunting, gathering honey, fishing, foraging tubers or simply while conversing with other forest beings. As explained by the community members, these compassionate engagements in many ways encourage human-wildlife coexistence (Chapter 2) and sustainable gathering of natural resources. Aligning with Comberti et al. (2015) and Blackman et al. (2017), our study highlights that these considerate reciprocities between humans and the natural world not only maintain but are the essence of what we might call a ‘local’ ecosystem. Through such efforts, we might rethink (quite literally) what a forest is and question many forest policies. These will invariably have implications for how forests are managed and

owned by the state, are human-evacuated and/or perpetuate land ownership that requires cultivation. Any other form of engagement is deemed backward (Dominguez and Luoma, 2020; Boisen, 2017). Forest governance approaches that denigrate non-sedentary Indigenous land activities as irrelevant or consider them tenure failures (Hendli, 2014) ultimately defy the law. And it does so at the very moment when scholarship that describes positive human contributions to ecosystems, fire regimes, or other resources uses are most needed (Reyes-García et al., 2019; Blackman et al.,2017; Thekaekara et al., 2017) or more pervasive than we have even begun to recognize.

Returning to the Forest Rights Act (FRA 2006), these insights offer a partial means for strengthening Kattunayakans rights and claim to 'the land'. This includes both a global understanding of *kadu* as family and forest beings. Nor is this claim metaphorical. In this study, Kattunayakans are keen to uphold their custodial rights and reciprocities with the forest, but they understand that upholding as not a system of anthropogenic management but as a deferent acceptance to *kadu* as an entity with decision agency. They described how forest communities (including humans) foster interconnectedness between the biological, physical, and metaphysical elements of *kadu*. And they discussed how *kadu* is more than wildlife; it is also *nalla sthalangal* where their gods and ancestors reside. The map of *nalla sthalangal* captured here provided geospatial character to Kattunayakan biocultural knowledge of the Wayanad forest. Providing geographic representation to their safety, spirituality, and livelihood displays how tangible and intangible features of the forest as a constantly animated and interactive space, where human lives and histories are always present whether people are 'in' the forest or not. *Nalla sthalangal* is, by this definition, an alternate model for protected areas that returns place and people to the forest landscapes. *Nalla sthalangal* in this study also brings forward a rationale for Adivasi people's reluctance to relocate from the protected areas.

In other words, according to Kattunayakans, *kadu* fosters interactions and associations between the beings that occupy its spaces and places. Humans, animals, deceased elders, and Gods in *kadu* frequently cross its physical frontiers. Interactions do not follow the legally constructed boundaries of protected areas but instead involve deceased elders and *daivangal* visiting Adivasi

settlements and then taking the form of animals to communicate with humans. This too contradicts conservation efforts that focus on species protection by preserving sites from human activity as they erroneously assume that processes and activities in the natural world supposedly respect the socially constructed boundaries of authority. These viewpoints are increasingly rejected, and there is a growing demand for collaborative, pluralistic and all-inclusive landscape management (Wyborn, 2012). Drawing encouragement from 'connectivity conservation paradigm' (Crooks and Sanjayan, 2006), our study recommends recognizing the spatial scale of the networks and interactions that function in these conservation spaces.

Forest management policies, including the FRA (2006), support the creation of protected areas (Rai et al., 2019) and are primarily built on the narratives that the natural world demands protection, and it does. But what then is protected from whom? Kattunayakan understanding of *kadu* as an all-encompassing entity that does not seek protection but instead provides safety and security. Kattunayakans see *kadu* as a complete and all-encompassing entity with abundance, prosperity, safety, self-discipline that provides them with *ellam* (everything). Their understanding of *ellam* corresponds closely to Indigenous *"Everything"* that constitutes *"their identity, connection to ancestors, home to the non-human kin fold, pharmacy, library, source of all that sustained us"* (Kimmerer, 2013). Like land interpretations of other Indigenous people, *ellam* includes opportunities from *kadu* that are not purchased but rather endowed to them as gifts (Kimmerer, 2013, Nadasdy, 2007). Receiving *ellam* from the forest also necessitates reciprocating it with gratitude and expected behaviours. For Kattunayakans, opportunities and services from the forest are never taken for granted but are best understood as *"relational gifts"* with underlying obligations such as sharing with relatives (Manson,2018; Nadasdy,2007).

In the Indian context, the FRA (2006) offers Adivasi communities the right to choose voluntary relocations from forests, alongside some supporting compensations. However, as with observations of Gregory et al. (2020) and Turner et al. (2018), assessment of loss incurred by Indigenous communities displaced from ancestral land is often poorly compensated due to insufficient understanding and guidance in their relationship with the land. It is well established that the natural world contributes to cultural continuity, sense of place, and Indigenous people's identity (Marques et al., 2018). Adivasi interactions and related ecosystem functions *are* the

essence of that system and will only degrade that whole (Temper & Martinez-Alier, 2013), which is a very different category of system than the simple suggestion that ‘people used to live there.’ It is thus not just a matter of better knowledge of their losses and the capability to articulate these during voluntary relocation and compensation discussions, but also of what the forest itself *is* and the rights of coexistence that might follow. We mean not an argument against Indigenous people's urbanization aspirations but a recommendation to position them as actors and agents of the landscape rather than spectators from the outside alongside a few rights within.

3.5 Conclusion

The existing forest and wildlife policies, which are said to reflect India’s obligations under the Forest Rights Act (2006) do not reference the multifaceted identity of land and fail to portray how relations and interactions are often coproduced by human and forest (Aiyadurai, 2016; Lorimer, 2010). Drawing references from the protests of Dongria-Kondhs of Orissa, Ho and Mundis of Jharkhand, Kattunayakans of Wayanad we argue that, following Gadgil et al. (2021), *"recognition is not enough."* The need to find ways to document, understand and utilize this knowledge in existing forest governance initiatives is paramount. For progressive forest policies such as FRA (2006) to coexist with Indigenous ecological knowledge, the need to recalibrate the position of humans in studies of the natural world (Büscher and Fletcher, 2019). This has included a growing body of work on anthropogenic change in this epoch and more broadly, but it has not included with any substance forests and forests worlds that are vastly more than their material parts. Nor is it enough to suggest that these can be captured by counting the cultural services that forests provide. This only serves to misconstrue the forest as a storehouse of material and nonmaterial goods, which Adivasi people (who live forest-near) extract from time to time. Instead, it is an entity with force and presence and agency and is best understood as comprised of many interrelationships -- of kinship, reciprocity, coexistence, and gifting exchanges, which are far from tokenistic asides. Without this, Adivasis will remain passive onlookers witnessing forest policies that promote unethical marginalization and socio-cultural misrepresentations. Moreover, Indigenous forms of engagement with plants and animals that have sustained forests for centuries still offer all manner of insight as the relational qualities of ecosystems start to be understood.

Chapter 4: The Great Indian Forest Fire: A Divisive Disaster, Disciplined Agency, or Both?

> *"Fires were created and managed by humans. No other being can create fire. Now our people cannot practice putting fire in the forest. We are scared to go into the forest during fire season. Our grandfathers would make a hat with few green leaves and cover their head and go inside the forest to put fire. It is such a beauty to look at a well burnt and cooked forest. Now it is not there. Now it is hard to even walk in forest. The scare of going inside the forest is a recent thing." [Kattunayakan, Alathoor colony]*

Summary

Adivasis (Indigenous people of India) historically practiced seasonal burning of forests to manage their local ecosystems. This practice shaped the forest terrains of India and established a purposeful association between humans and fire. Fire facilitated Adivasi mobility, and access within and interactions with the forest ecosystem, that is crucial for Adivasi way of living. Yet, perceived as a threat to wildlife and biodiversity, burning forests is legally banned, and fire remains a point of disagreement between forest managers and Indigenous people around the world. Such conflicts are more conspicuous and persistent in post-colonial regions where the human dimensions of fire are decisively ignored in forest management. Through a combination of open-ended and semi-structured interviews and transect walks in the Wayanad Wildlife Sanctuary in the South Indian state of Kerala, we examined Kattunayakan knowledge of and relationships to forest fires, in terms of their operation, purpose, benefits and risks. In these discussions, community members positioned fire as (1) a preserver and groomer of landscape identity, (2) a co-manager and actor within specific forest terrains, and (3) an enabler of socio-ecological functions and relationships. The Kattunayakan understanding of fire suggest that traditional burning practices enhance their capabilities to access, engage, use, and experience their home ecosystem. We conclude with a discussion on how fire suppression erodes Adivasi knowledge, culture, capabilities, and rights. We argue that alternative fire dialogues provide opportunities for land management policies that better reflect distinct fire ontologies, and for the

practices that might then follow. Additionally, as forest fires increase, revisiting Indigenous perspectives can offer lessons for coexistence with fire in future landscapes.

4.1 Introduction

The discovery and use of fire have been celebrated as a demonstration of human intelligence and ingenuity and of the process of becoming as distinct from other natural beings (Gowlett, 2016). While the discovery of fire was likely serendipitous, humans soon learned to use it for light, warmth, protection, nourishment, and production (Gowlett, 2016; Burton, 2011). With time and practice, fire became an integral part of human life that transformed landscapes and societies. But fire continues to remain an element that requires constant management and control. Massive fires witnessed globally in recent periods are a constant reminder of the sheer power of unabated fire and how rapidly fire evades control (Coogan et al., 2019; Bowman et al., 2017). These catastrophic events often light up large forest areas, involving devastating consequences for ecosystems and people (Kramer et al., 2019). The return of fire to landscapes in the Anthropocene is frequently seen as a problem and an indication of how fully human relationships with fire have deteriorated over time (Pyne 2016). Given how fire has driven many of the earth's ecosystems and has shaped flora, fauna, and human societies, it is worth examining how this coveted human discovery has today become a source of immense desolation causing massive forest fires, loss of lives, livelihood, and biodiversity (Doerr and Santín, 2016; Kimmerer and Lake, 2001).

For millennia, Indigenous societies have used and, in some places, continue to engage with fire to manage their local ecosystems (Hoffman et al., 2021; Nikolakis et al., 2020). They practiced traditional burning to enhance local biodiversity and restore ecosystem health (Bilbao et al.,2019; Miller and Davidson-Hunt, 2010). Fire also strengthened the cultural connection of people with land, ensured food abundance and subsequently their well-being (Welch and Coimbra Jr, 2021). Most European colonizers transformed these fundamentals of land management and deemed it illegal to burn forests (Nikolakis et al., 2020; Minor and Boyce, 2018). Forest and fire management exported to colonized countries reflect a strong condemnation of fire as a flawed, hazardous, and destructive process (Welch and Coimbra Jr,

2021). Similarly, Indigenous explanations for burning forests did not resonate with colonizer understandings, and so fire suppression (like the prohibition of other Indigenous practices) became the norm in many post-colonial landscapes.

Decades of deforestation and agriculture expansion, and in recent years climate change have aggravated forest fire vulnerability globally, and scholars argue that the present-day uncontrolled fires are a direct consequence of the prolonged fire suppression in historically fire-prone landscapes (Nikolakis et al., 2020; Pierotti, 2018). A detailed study of these landscapes reflects an apparent correlation between the prohibition of fire and suppression of Indigenous rights (Ratnam et al.,2019; Sundaram et al., 2012; Ratnam et al.,2011) For example, Adivasis (Indigenous peoples of India), who practiced burning forests as a tool for land management for more than 50,000 years, knew how to coexist with fire (Ratnam et al. 2019; Thekaekara et al., 2017). However, with the onset of colonization, forests that are perceived primarily as a source of timber made fire a threat to commercially valuable trees (Thekaekara et al., 2017). Consequently, like in other parts of the world, British colonizers banned setting the forest on fire and deemed Adivasis involved in the activity as criminals (Arnold, 2021). Unfamiliar people, landscapes, and knowledge are often used to justify conquest and subjugation – a stance inherited by many post-colonial states, and extant in most stratified social systems (e.g., caste-based ones). Section 26 and 33 of the Indian Forest Act of 1927 considers it a criminal offense to burn or fail to put down a fire in reserved and protected forests. Studies that discuss causes of forest fire In India primarily categorise it as accidental, negligent, and deliberate -- as a method of wildlife deterrence, and natural resource collection. In independent India these policies (Forest Act 1865, 1878 and Indian Forest Act,1927) persisted, and so preserved the colonial legacy and continued to position fire as inimical to good forest management. No mention of fire as a category of use, or reference to fire as a ‘traditional forest management tool’ exists in Indian forest policy.

Conversely, understanding human dimensions of fire-driven systems provide opportunities to learn about the natural systems as part of and beyond local ecology. Schmerbeck et al. (2015), in their work in Andhra Pradesh, discussed how fire-driven ecosystem services (FDES) contribute to local livelihoods. They highlighted the need for policies to recognize the contribution of forest

fires to the supply of ecosystem services. Moreover, fire practiced by indigenous communities is known to fortify land by recycling nutrients, reduce wildfire risks, promote the growth of medicinal and food plants like mushrooms, tubers and to maintain ecosystem functions (Nikolakis et al.,2020; Bilbao et al., 2019; Jones, 2012). In Indian terrains, fire is still a focus of concern as a cause of forest degradation, biodiversity, and wildlife loss (Chandra and Bhardwai, 2015; Kodandapani et al., 2009). Fire suppression is legally mandated across India's forests, with policies extensive and sterner in protected areas. The clash between worldviews on use and understanding of forest fire have led to conflicts between forest managers and Adivasis, with Adivasi access and use of the forest as the point of contention (Schmerbeck et al., 2015; Kodandpani et al., 2009). Inadequate recognition of Adivasi Forest burning as appropriate forest management further aggravates these disagreements.

This paper seeks to address the fact that indigenous fire practices in India have received little or no consideration across contemporary discourses or policies pertaining to natural resource management. Understanding these more human dimensions, uses, and knowledge of fire in India requires, firstly, a move beyond narratives that view fire as both hazard and problem to be managed. Even though fire is no stranger to the Indian forest, studies of the human dimensions of fire are scant or limited to specific themes. They tend to focus on the risks of fire (Attri et al., 2020; Kalaranjini et al., 2020) and prediction models to mitigate fire (Bar et al., 2020; Renard et al., 2012). Unequivocally, most of India's fire discourses position forest fires as a disaster that demands mediation and mitigation. Thus, any discussions that attempt to bring fire into central debates of natural resource management are solely about the negative impacts of forest fires (Sharma et al., 2014; Kumar et al., 2013; Joseph, 2009). Constructive conversations about fire in the environmental history of India are scant, and discourses on Adivasi and fire coexistence in Indian landscapes are similarly thin or non-existent (Gadgil et al., 2021; Thekaekara et al., 2017). A few discuss ecological, social, and economic impacts of fire (Schmerbeck et al., 2015; Kodandapani et al., 2009), yet make no reference to fire's cultural-ecological significance. Ultimately, moving beyond these colonial constructions necessitates an understanding of Adivasi way of knowing fire and learning about the motivations and benefits that foster burning of the forest (Schmerbeck et al., 2015).

Toward this end and in what follows, we characterize Kattunayakan understandings of their pyroscapes in southern India. We find that fire suppression has transformed their relationship with the Wayanad (and Western Ghats) forests, particularly their ability to use and manage forest resources. We explain the role of fire in preserving the identity of the forest landscapes and how the burning of the forest renders the landscape relevant and familiar to community members. Lastly, we find that fire -- as an actor in the landscape of human and non-human beings -- facilitates relationships, communications, and functions key to ecological coexistence. We close with discussion as to what a different approach to fire could mean for forest regimes more broadly.

4.2 Materials and Methods

4.2.1 Study Area

The study reported here is derived from multi-year fieldwork in the Wayanad district of Kerala, a Southwestern state in India. Wayanad is part of the Western Ghats Mountain range, a global biodiversity hotspot. In 1973, India's central government established the Wayanad Wildlife Sanctuary (WWS) under the Wildlife Protection Act of (1972). As a designated protected area (Figure 4.1), the sanctuary continues to uphold India's forest and wildlife policies, and therefore all the traditional fire practices in the area are banned. The area is prone to forest fires during the summer seasons (February to June). Several massive fires have been reported in the last decade. Like many other wildlife parks worldwide, Wayanad Wildlife Sanctuary has also systemically overlooked forest-dependent Adivasi communities, which have a long-standing association with this region (Bijoy, 2017).

Following the proliferation of protected areas in India, many displaced Adivasis continue to live in and around their ancestral homelands in extreme deprivation and poverty (Domínguez and Luoma, 2020; Bijoy, 2017). These displacements -- justified by wildlife protection -- particularly affect the forest dwelling Kattunayakan People, a unique group of hunter-foragers who live in Kerala, Karnataka, and Tamil Nadu (Bird-David, 2017). Their contemporary livelihood primarily depends on the forest for food (honey, mushrooms, tubers, fruits, medicinal herbs, honey) and revenue from the sale of Non-Timber Forest Products (Kakkoth, 2005).

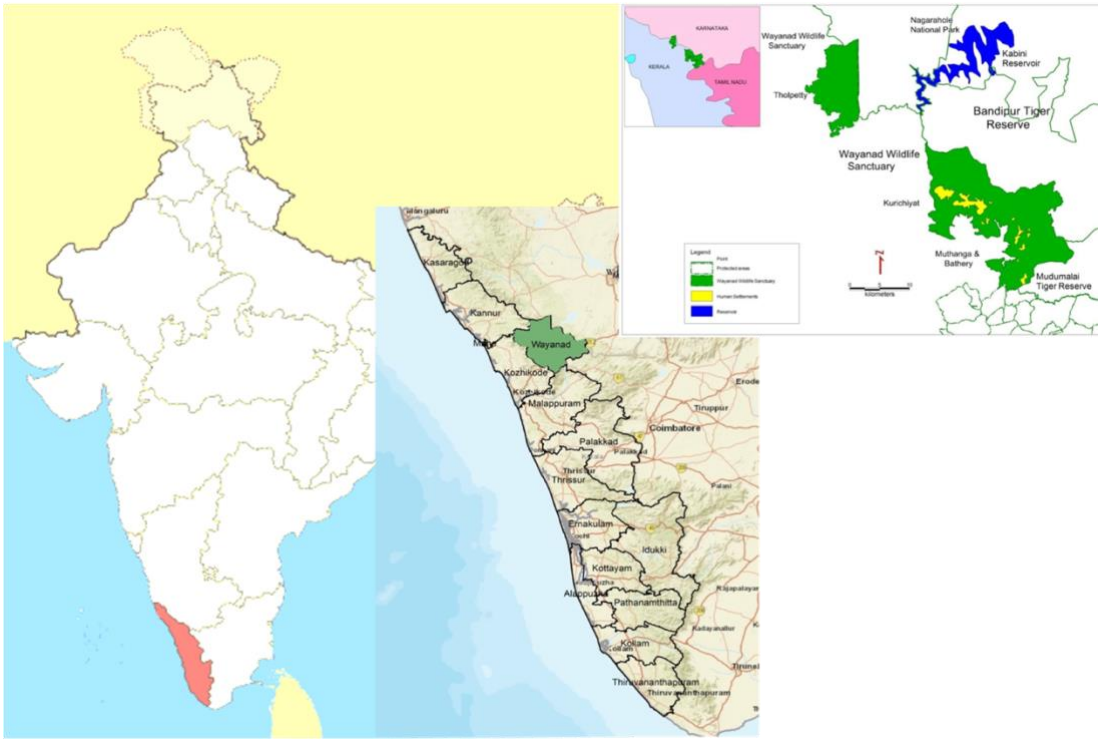

Figure 4.1 Location of Wayanad and Wayanad Wildlife Sanctuary

For millenia, Adivasi people in India have lived in the forest and practiced burning vegetation for forest management. A part of the Western Ghat mountain range, the Wayanad sanctuary is in a dry deciduous landscape that would benefit from seasonal drought and fires (Ratnam et al., 2019). Moreover, several ecosystem services such as grazing, hunting, Non-Timber Forest Products (NTFP), which are essential for the local communities, are often fire driven (Schmerbeck et al., 2015; Mistry et al., 2005). To address historical injustices and policy-based oppressions experienced by Adivasi societies, the government of India established the Forest Rights Act (2006). The act recognizes forest-dwelling people as original custodians of the land and grants them some legal (restricted) access to forest resources (Agrawal and Redford, 2009). Yet, the Adivasi practice of forest burning remains outside the realms of FRA, constantly monitored, and controlled by forest and wildlife policies (Schmerbeck et al., 2015). As noted, earlier Adivasi people's access to the sanctuary is often restricted. Further, the ban of fire in the Wayanad landscapes has meant that forest managers regulate Adivasi entry into the forest.

Consequently, fire in these landscapes remains a point of contention between the managers and Adivasis.

4.2.2 Field Methods

In 2018, a preliminary ethnographic study at the field site was conducted for three months (March, April, and May). Terre and I visited Adivasi settlements and conducted open-ended interviews with several Adivasi groups to understand their concerns. This groundwork identified eight Kattunayakan settlements, Ponkuzhi, Anacyamp, Kolooru, Kuzhimoola, Alathoor, Kalamkandi, Kumuzhi and Chukkalikunni, located in and around the Wayanad Wildlife Sanctuary as study sites. In 2019, upon securing permission (from the forest department and the Scheduled Tribe Development authority), I returned to the field site and spent four months conducting further qualitative research (March through June 2019). This included doing open-ended interviews, semi - structured interviews, transect walks inside the wildlife sanctuary with community members and participatory observation. During interviews, community members discussed changes they observed in the landscape due to fire suppression, including explanatory and contextual information about Kattunayakan fire ontologies and lived experiences.

Interviews were conducted with Kattunayakans at their houses (Interview protocol, Appendix C). All participants were community members over 18 years old. Interviews were carried out in Malayalam and recorded in agreement with the participants. The answers provided by male and female participants on the topic of fire did not reveal a perceivable difference, thus we did not distinguish responses based on gender. Based on the recommendations from the Kattunayakan people, I conducted five visits, each 3-4 hours long, inside the wildlife sanctuary to show places inside the protected areas with 2-3 community members. During the trek inside the forest, community members participated in semi-structured interviews following the same interview protocol describing the forest fire by referencing places inside the protected area.

The participants were given honoraria to acknowledge their expertise, thank them for their time, and share their knowledge with us. I transcribed and translated audio recordings of the interviews and conversations from transect walks into English. The transcribed data was stored,

managed, and coded through NVIVO and analysis involved identifying themes inductively (Saldaña, 2021). I translated interviews and conversations to English as accurately as was possible and used Malayalam words with explanations to avoid diminishing the value of insights Kattunayakan people provided. The author communicated research results with the local partner agency and Kattunayakan communities. We continued engagement and interaction with community members through two research assistants during the data analysis and writing phase of this research. The MS Swaminathan Research Foundation (MSSRF), the local collaborator, also offered support and provided documents and reports in Malayalam about the communities written by Adivasi experts but not otherwise available on online platforms. All fieldwork was approved by the University of British Columbia's Behavioural Research Ethics Board (BREB number: H18-03104).

4.3 Results

Kattunyakans living in the Wayanad forest described the fire as an inhabitant of the landscape. They gave detailed accounts from the past of human-fire coexistence when forest fires were celebrated as events that brought growth and prosperity to the forest. Even though current forest policies primarily built on the negative perceptions of fire prohibit traditional fire practice, Kattunayakan community members portrayed fire as a positive and beneficial part of the ecosystem that brought energy and freshness to the landscapes. An elder from Ponkuzhi explained.

> *"Earlier times, the forest used to burn. That was when the forest was fresh and energetic. Now it is not easy to go through the thick forest. Now it isn't easy to move in the forest. Due to ponda (undergrowth), we cannot detect wild animals like elephants, bears, or tigers. Even it is difficult to cross the rivers or reach a wayals (marshy wetlands). In forests that do not burn, even the animals will not have enough food. Earlier every year, there were small fires that turned the forest bright and clear with plenty of grasses. The animals had enough food back then. Such forests you will find more animals and more food" [IN 15]*

The fire created a clear and bright forest with food, grasses, and animals- characteristics that made Wayanad forest familiar. In addition, clearings facilitated by fire guaranteed access to the *wayals* and rivers which are culturally important sites for Kattunyakans. Although setting fire in Indian forests is illegal and many young community members have not likely witnessed an intentional traditional fire, they spoke of fire in a manner similar to older members of the community. The fact that they chose to speak about fire despite the legal prohibition reflects their firm conviction of the knowledge, understanding and perception. However, the fear of being blamed by the forest department for fire incidents in the protected areas frequently punctuated these conversations. A community member from Chukalikunni said:

> *"So, the forest department monitors that forest does not burn. Yesterday, around 3 pm, I went to the forest in the evening, and I was lying down there for a long time. Then I saw a forest fire watcher coming. He asked me what I was doing there, searched my bag and asked me to return to the colony". [IN 30]*

He continued:

> *"30 years ago, the forest used to burn in small patches. We have heard that during my father's time, there were beautiful seasonal fires. After the fire, everything comes alive, plants, animals, and humans. Some animals like deer know to escape the fire. They will jump through the fire; they know that on the other side of the fire, there will be no fire left. Our fathers have seen it all." [IN 30]*

On asking why they are not sharing this information on forest fire with the forest department, he quickly replied:

> *"No… if we say something like this. They [forest department] will quickly blame us. If someone else puts a fire, we will be counted [numbered] and put in the jail. So, we remain quiet, isn't it better." [IN 30]*

While legally banned in Wayanad landscapes, we observed that fire has an active presence in the everyday expressions and conversations among community members, conversations dominated by fear, nostalgia, and helplessness. Community members also referenced fire suppression to

describe lost opportunities such as their access to forest and availability of food, medicines, and Non-Timber Forest Products. Along with these direct losses, community members also discussed mistaken ideas of fires held by the authorities, which in turn legitimize legal prohibitions in the Wayanad forests and the perpetuate state-control and the fear that accompanies it. They made strong and frequent references to how existence of a functional forest depended on fire. The annual burning of the undergrowth, for example, was seen as an essential process that ensured that forests continue to "stay" functional and alive. Fire, they recalled, maintained Wayanad forests such that it did not cause damage to the trees and beings, emphasizing that the Kattunayakan people knew how to manage fire. A woman from Anacyamp reminisced about earlier days and explained:

> *"Earlier in my young age, during this time of the year, all forest would have burnt. No forest will stay without burning. For the last 15 – 20 years, the forest department did not let us burn. We cannot even mention the word thiee (fire) now. If the forest burns now, the plants, trees, and grasses all go away. That is why the forest department is not allowing fire. Back in the early days, forest fire does not damage the trees. There were no restrictions on putting fire, not like these days. Only the adikadu (undergrowth) will burn, and it will burn every year. It will burn year after year after year. Adikadu burning process involves only the burning of patches of forest. It is because our people back then knew how to manage fire. They were not afraid of thiee (fire) or nari (tiger)." [IN 28]*

Burning within the forest was a familiar event and necessary for the health of the ecosystem. Kattunayakan people acknowledged that, as with other occurrences in the forest (e.g., human wildlife interactions), they did not fear fire. In fact, many participants described that both fire and Kattunayakans share a history of oppression and displacement from their ancestral land. In several interviews, community members gave details on how the current fire suppressed forest landscape has 'nothing' in it. Their understanding of 'nothing' mostly referenced absence of traditional food (for both humans and animals), medicines, grasses, and metaphysical beings. The prohibition of fire from the forest has led to profound sense of loss, and a clear indication of fire as a presence whose identity is entangled with the local social ecology. Legal prohibition of fire in Wayanad forests not only criminalizes a traditional practice, but blame is automatically

assigned to Kattunayakans for any accidental fire in the area. Community members observe this as highly problematic. During an interview, a young Kattunyakan from Ponkuzhi explained how fire suppression changed fire from a celebration to a human-deterring force fence, leaving the forest itself a sad being:

> *"That is because they want the forest to be covered with undergrowth. They [Forest department] do not want anyone there [in the protected area]. They want us to stay here only [outside in the Adivasi colony]. They don't want a fire in the forest anymore. Now the forest has nothing. The forest department and environmental conservationists have damaged the forest. They are not letting people [Kattunayakans] live in the forest. The place where we lived, walked, and prospered early days. We are not allowed to enter those places anymore. They have asked us not to enter. Then what should we do? In fire season, we are now not allowed to go into the forest. Yes, our swantham kadu (own forest) will be sad when they do not allow it. We avoid going during the fire season, even if it is someone else who puts the fire. If they see us, they will blame us for putting fire." [IN 45]*

It is difficult to convey fully how often forest fire was mentioned as a topic of fundamental importance during our work with Kattunayakans. Across these frequent mentions, three themes were prominent [Figure 3.1] and arose in interviews, transect walks, and field observations. These include how fire is positioned in Kattunayakan socio-ecology as the: 1) Preserver and groomer of the landscape identity; 2) Co-manager and actor of the forest spaces, and as 3) Enabler of socio-ecological functions and relations.

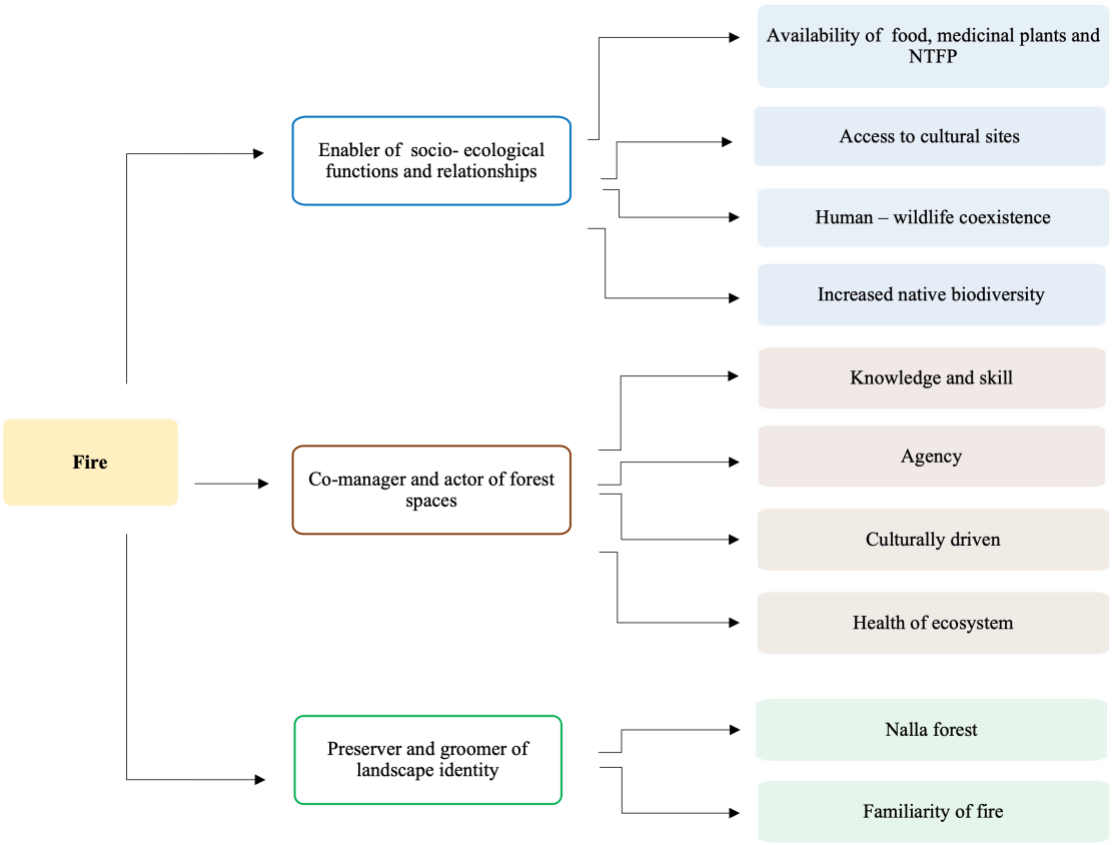

Figure 4.2 Themes of Human-Fire Coexistence

4.3.1 Preserver and Groomer of the Landscape Identity

Often noted by Kattunayakan participants in this study was fire as an indispensable presence that groomed the land and so gave the landscape its characteristic identity of a *"nalla"* (good) forest. When asked to explain the changes that occurred to Wayanad forests, an elder from Anacyamp said: "*Earlier times it was nalla (good) forest. The time when forest burnt, it was a nalla forest".* A popular term used when discussing forest fire was the notion of a *"well-cooked"* forest landscape, indicating an active and functional ecosystem. Later, the same elder speaking here, offered more detail during our walk inside the Wayanad Wildlife Sanctuary. He invoked childhood memories and so described the features of a *"nalla"* forest:

> *"My happiest memories of Kadu were walking into the forest after the forest fire. When it rains, the fresh grass sprouts; it feels so good to walk on it. The clear and well-lit forest is beautiful. Now new wild animals are born in the forest, but they do not have sufficient*

food there. If there is kadu thiee (forest fire), it will be beneficial for the forest. The debris, undergrowth and dry invasive grasses from the forest will burn. Then forest becomes clear with increased visibility." [IN 52]

A *nalla* forest for the Kattunayakans of Wayanad is a "*well-cooked"* one with visibility and sunlight. They spoke of how fire cleared away the thick *adikadu* (undergrowth), tall shrubs and grasses that improved the accessibility to forest spaces. Fire also helps to recycle soil nutrients and brought many benefits to the ecosystem. He recollected the days when the forest was allowed to burn as a happy memory. Similarly, the absence of fire in the landscapes meant reduced availability of food for humans and animals. Fire in the forest is observed as a necessary feature for lives to thrive in the ecosystem. The suppression of fire brings losses. *"Without the fire, nothing can live in these forests. Both of us (Kattunayakans and animals) have lost forest and our food. We lost our food and our animals."* Another community member from Chukkalikunni added further details, explaining the past (roughly one generation) as:

"During those days, the forest used to burn every year. Our people put the fire every year back then. Forest would cook and turn into a beautiful area just like a mezukiya (plastered with cow dung or clay) muttam (front yard). Fire will burn the thick grass, and it will leave behind only trees. It is so beautiful then. Yes, back then, the forest burnt well. There was no ponda (undergrowth). After the burn, there was fresh ash, nutrients in the soil and forest are bright, clear, and visible. It felt so good walking through such open spaces. We can watch several animals while walking. Now it is not the same…" [IN 35]

It is common among community members to plaster and smear their house's front yard with clay and cow dung. A well-burnt forest with scattered tender grasses and a tree ecosystem resembled a *"mezukiya muttam,"* which indicates a clean and beautiful space. It is a demonstration of how forest fires added aesthetic qualities to the local ecosystems. Forest fire ensured open spaces to walk and opportunities to watch wild animals, which comprises of Kattunayakan definitions of a good life. A young Kattunyakan recollected a forest fire narration he heard from his grandparents and further explained their characterization of fire.

"The forest used to burn before. After it burns, it usually rains. After the forest burns, it is like the forest has taken a bath. Like humans take a bath, if forest burns, it is like a bath. Everything is clean with light and visibility. Then several plants will grow with regained strength. Then next year, in the same season forest will burn again, and then plants grow back. So, everything is plenty for us. Now we don't get anything. "[IN 12]

This reference to the forest as the landscape taking a bath invokes too their definition of a healthy and clean ecosystem. Resplendent with visibility, well-lit and hygienic spaces. Fire also strengthens the growth of plants, primarily through the supply of nutrients and sunlight, which symbolizes a forest of abundance. In contrast, contemporary fire suppression in the Wayanad forest is a landscape of scarcity.

In addition, those participants who had witnessed forest fires often provided elaborate forest fire stories and perceived fire as part of the landscape, just like Adivasis, wild animals and trees. They extend this to quality to plants, humans, and animals in Wayanad forest, all of whom are familiar with fire so have the ability and knowledge to adapt to fire.

"Forest fire is not a new phenomenon in these landscapes. Wayanad and neighbouring forests used to burn every year. Unlike now, if it is burning every year, then it will not create large undergrowth and litter. So, forest fire will not be intense. That time forest did not remain 'stagnant' like this. Every year it was burning, so grasses will not grow and become ponda (undergrowth). Hence, fire does not damage or kill the animals. It is only when grasses are thick and tall that fire brings more significant harm. During traditional fire practicing seasons, animals are aware of it, and so they often escape. It is not harming them. Like us, they are also prepared for fire every year. Suppose there are newborn animals or any tiny animals who are hurt, only those who die. Even slithering snakes won't be harmed and killed." [IN 42]

Dismissing the usual narratives that forest fires are dangerous for ecosystems, Kattunayakans indicated that fire is entirely common if not essential to Wayanad landscapes. Every year the forest in these areas burnt, which kept undergrowth under control. The animals knew to escape

the low-intensity fire that visited Wayanad landscapes every year, and so, it did not create any threat to their ecosystem as it had come to be cultivated. Like Kattunayakans, animals in the forest also prepared for fire every year. Familiarity of fire extends to the observation that community members in the interviews and conversations also positioned fire as *'like us'* -- as having the right to exist in the forest. Accepting fire as part of the landscape reflects their familiarity, knowledge, and understanding of coexisting with fire, unlike forest officers who see forest fire as a hazard for the ecosystem. Positioning forest fire in the same socioecological order as fellow Kattunayakans reflects how integral forest fire is to the Wayanad forest's identity. An elder from Ponkuzhi spoke of this perception of fire as part of the ecosystem, as "like them":

> *"Fire is something that Kadu needs, but that does not mean it is not dangerous. Forestkaranmar (forest officers) tells us that forest fire damages Kadu, so do not burn Kadu. They think, Kadu when it burns, creates problems. But we have heard of stories of beautiful forest fires since our childhood. We knew fire from our childhood; it is part of the forest just like us." [IN 34]*

4.3.2 Co-manager and Actor of the Forest Spaces

Much discussion of fire also included older members sharing their expertise on *"where, when and how* they would deliberately set/place fire inside the forest during in earlier days. They understood well the requisites for controlled fire engagement. These places where fire was set often interspersed with Kattunayakans culturally important sites in the protected areas. The majority of these were water spaces dispersed in the landscape, which created mosaic hydrospaces such as rivers, ponds, low valley creeks. According to the community members, these patterned water spaces played a significant role in regulating and managing fire, ensuring that forest fires during the early days did not become aggressive, as articulated by a community member from Chukalikunni. She drew on the soil with her fingers to help us understand how how fire pathways (through which fire advanced) and waterways (that facilitated control of fire) in the forest are related.

> *"Fire will be hot, so these animals will not wait up. They will go to the water areas and stay there. I have gone inside the forest during such fires; I have never seen any snakes*

die or any other small animal dies. The small and low-intensity fires were stopped by water spaces in the forest. So, these places become important refuge areas for small mammals' during and post-fire. During the fire, plants with chappu (green leaves) will not burn out. The dry ones will burn." [IN 15]

Community members also emphasized the benefits of fires, and how they had a significant role in regulation of ecosystems. This included details on how fire slowly cleaned the forest and helped add to soil nutrients in the same way as do fertilizers. Management of forest fire for community members in the days before fire suppression involved controlled use of fire. Ideally this involved, the creation of a forest fire that protected the forest from decay while appropriately directing the trajectory of fires:

"It is usually Feb and March, which is the fire season. The fire was placed[4] during those days by the Kattunayakan people only. It was our way of protecting the forest from decay. Fire needs a path of dry leaves… Back then, our ancestors knew if you put [5] fire here in this place, then it will spread and reach this part of the forest. They used to make those calculations while making the decision." [IN 29]

For Kattunayakans, the anthropogenic origin (Adivasi directed origin) of the forest fires is a profoundly honoured way of highlighting their knowledge and engagement with fire. They perceive the practice of fire not as a rogue force but product of human ingenuity that requires experience, knowledge of the landscape and ecosystems, the seasons, and the dynamics fire behaviour. An indicator of a well-managed forest is also a *well-cooked* one with low pest load (vectors like ticks and bugs), rendering landscapes and their inhabitants healthy. A community

[4] Placed: Closest translation for the Malayalam word “ettu”. It describes the process of Kattunayakans placing fire in specific fire pathways of the forest. It is to emphasise that traditional fires in Wayanad forests are anthropic.

member during the walk referenced, for example, Monkey fever[6] incidents in Wayanad to elaborate their point about health:

> *"If a forest burns yearly, it will remain clean. These infectious ticks will not be there. They will all be killed. Incidents such as monkey fever are new to Wayanad; it started because of fire's absence. Earlier, when our people lived in the forest, we never had these diseases. So, we know it. If the forest burns, then only the forest will come in its complete form. Then only it will be nalla (good). Little by little, the forest should burn." [IN 40]*

Similarly, community members also discussed fire suppression and its correlation with increased problems of invasive species such as *Lantana camara* and *Senna spectabilis*. A woman from Ponkuzhi, while walking around the forest filled with invasive *Lantana camara*, said:

> *"Earlier forest had several endemic plants like Cassia fistula. Now it is all Senna and Lantana. Our forest had several kinds of grass' payi, 'maani,' 'tarippa.' Now, these are all gone in quantity. Back in my father's time, there was bamboo. Now it is not there and so we cannot enter the forest easily as before. Back then, people only required some inherent strength to go inside the forest. Now fire is not there and so we cannot enter the forest easily as before." [IN 35]*

Fire enhanced and preserved the growth of several endemic plants and grasses, which made the movement inside the forest easier. The above quote also addresses the physical characteristics of *Lantana camara* and *Senna spectabilis*, which are dry, prickly, and dense, rendering walking inside the forest challenging. Hence also the reference to requiring more than just inherent strength. Kattunayakans regard fire as an element in the forest and a *being* capable of intentional actions and decisions. This is similar to the way community members discuss the agency of animals, water, bees, spirits and other more-than-human elements, and so to frame the Wayanad

[6] Monkey Fever, also known as the Kyasanur Forest Disease, is a viral disease endemic to the forests of Southern India. The disease is transmitted by ticks to humans and primates from small mammals and rodents that serve as an intermediate host for the virus.

landscape as a product of actions and interactions of multiple sentients, including fire. This is most evident when Kattunayakans are speaking of fire ‘knowing its path’ as expressed by an elder from Ponkuzhi:

> *"When I was a child, I have seen forest burning. Back then, it burnt for a long time. All the grasses burnt in the fire, and then everything grew back. Now forest fire is not allowed, so the forest is decaying. It is usually during February and March that we usually place fire. The fire knows its path. It decides what will burn and what will survive. We give it direction. Since the fire was small and every year forest burnt, there was only a little litter and dried leaves and grasses. So, there was nothing to be done. It will burn and break away as it reaches the kolli, wayals, thodu… It self-managed…" [IN 37]*

The idea of fire as an actor that possesses agency is also evident in community conversations and narratives describing its tendency to go "out of control" in certain circumstances, which they describe as its most characteristic behaviour. On the one hand, fire is a source of life and brings balance to the forest, but it can transform into a destructive force. For these reasons, fire, according to our study participants, necessitates regulation and reverence. Community members also understand well why fuel load in the forest requires regulation, and a few years of fire suppression may generate a massive fire. When asked if Kattunayakans are afraid of forest fire, community members explained affirmatively, and when probed further on their preference for fires:

> *"Extensive and dangerous fire will happen only when you curb and control the original nature of fire for two or three years. In that case, the fire will be massive, but traditional fire practices are not like that. If a forest burns every year, then it is not damaging" [IN 52]*

The local forest department employs several young Kattunayakans as fire watchers, an irony not lost on community members. A Kattunayakan youth from Ponkuzhi commented sarcastically: *"The Forest Department is trying to manage the forest without fire. They [forest department]*

have enrolled us as fire watchers to clean the forest by taking away the dry leaves and sticks". The young Kattunayakan continued to describe how community members like him struggle to position traditional fire management in reference to current forest policies:

> *"I think when I was a child and youngster, I could not think like educated people. I remember my mother and father saying, "I wish there were a fire." I was not aware of things back then. So maybe that is why I thought forest fire is good. Now that the forest department and NGOs have [become] trained and educated, I feel maybe I can think better like them. But honestly, the earlier forest used to burn every year. Now we cannot enter the forest. It is thick and dark with undergrowth. It usually burned around Feb to March. Kattunayakans used to put fire in the forest as much I can recollect from my memory. After the fire, all kalasu (tubers) will sprout and grow better."[IN 53]*

4.3.3 Enabler of Socio-ecological Functions and Relations

Lastly and importantly, fire was also referenced as a strong indicator of forest biodiversity, expressed as abundant native flora and fauna. Fire-dependent ecosystem services such as germinating specific seeds and the growth of endemic plants, especially medicinal, fruits plants and grasses, were discussed in the interviews. Many community members described multiple plants as fire-dependent -- as requiring *"burning"* and *"cooking"* for the seeds to sprout. The presence and cultivation of native plants was often a noted sign of a functioning ecosystem, with specificity on which plants did well in the aftermath of fire: A Kattunayakan woman from Anacyamp listed native plants that grew better with only fire, for example:

> "*Fire also supports the growth of native plants. The seeds of these trees will sprout and grow with vigour when it is exposed to heat. Some plants, especially endemic fruit trees, grow it requires fire. Grillika, teaku, kalasu, chembu, kotta, jeru, vencheel, veeti, maruthu, vendeeku. Some of these only sprouts when there is a forest fire. Some of these are creepers and they grow better (both in quality and quantity) after fire. Many endemic plants like karimaruthu and veeti seeds will sprout and grow better. Without fire, these plants will not have strength in their growth." [IN 29]*

Some of the benefits of forest fire explicitly discussed included fire-induced seed germination of native plants. Reference to fire as an enabler of growth of local flora also included the observation that fire increased strength and vigour in the growth of plants. Therefore, community members observed an increase in the abundance (quantity and quality) of certain plants after the forest fire. Agreeing with her, another community member spoke about how fire increased the availability of medicinal plants. As or more important is the idea of a desirable forest as one in a constant state of renewal and thus the cultivation of new growth, as compared to a maturing and dense forest:

> *"Unfortunately, now we cannot find those medicinal plants. If it burns properly, then only will we get pachha marunnu (green medicines or forest medicines). Medicines for fever, stomach pain, headache and for everything."*
>
> *[When asked whether these medicinal plants will grow back after it rains?]*
>
> *"Even after rains, it will not grow since the forest is moothatu (mature, thick, dry, old). These are tiny plants, and they need sunlight. With forest so thick and dense. It is covered with a huge ponda; there is no light reaching the ground. So, these plants (medicines) cannot sprout." [IN 33]*

A well-burnt landscape with fresh grass sprouts and scattered trees portrays Kattunayakan's fundamental notion of 'nalla' or a good forest. Annual forest fires facilitated the constant renewal, ensured tender shoots, and prevented the tree forests from becoming overly mature. A mature forest is characterized by a dense and dark canopy that prohibits the sunlight from coming to the ground, thereby inhibiting the growth of grasses and other plants.

Fire's benefits to biodiversity and people also spoke to the role fire plays in the fostering of human-wildlife coexistence and relationships across Wayanad landscapes. A 'fire cleaned' forest provides space for animals and humans to move around comfortably without troubling each other. Community members also detailed how fresh grass sprouts came out in the forest after a

seasonal fire, which are key foods for several herbivores. A Kattunayakan woman from Ponkuzhi spoke with particular attention to fire's role in elephant well-being and so too to human-elephant relations:

> *Without fire, the forest is impossible to access. We cannot see anything or surroundings. If there is an animal near us, we won't recognize it, so we cannot hide or avoid them. Earlier in my young age, I used to walk next to an elephant herd, and they would continue to eat their grass without harming me. Elephants back then had a love for us. Now without fire and food, elephants are always agitated and angrier. There are more invasive species like Konkani (Lantana) and Konna (Senna). It is what the animals try to consume, and they lose their lives." [IN 58]*

> *"Nowadays forest is full of chulli (dried mature undergrowth) how can people save themselves from running away from such things. It is troubling for both us and elephants. The thorns hurt all of us. It is elephants that make the path for us through the thorns. It is through that path that both small animals and humans go. If the forest burned traditionally as our ancestors' time, then there will be good visibility in the forest. It will help us in respecting the forest spaces of wild animals. Now, most of the traditional or pathways in forest familiar to the communities have been covered with ponda (thick undergrowth) so Adivasis has difficulty walking in the forest." [IN 26]*

Along with peoples' relationship with wild animals, the annual practice of fire's clearing capacity also negatively influences access to the culturally essential sites inside the forest. As forest dwellers, Kattunayakans are familiar with the pathways inside the forest, which they learned from their ancestors. During the walk inside the forest, people referenced several culturally important sites [like Nandikallu] that were physically impossible for me to reach due to the thick undergrowth that crowded the path. The agony associated with the physical inability to reach these sites was reflected in the tone and words of several of the interviews. A woman from Anacyamp mentioned it as below:

"Now most of the traditional or pathways in forest familiar to the communities have been covered with ponda so Adivasis has difficulty walking in the forest. Access to cultural spaces near kolli, streams, rivers, wayal. These are water bodies, and we know the way to reach these places. However, now with thick undergrowth, these paths are not visible. The forest is different now" [IN 52]

In the current period, fire season is when community members most fear entering the forest both because they might be blamed for any accidental fire; and because they cannot access areas and food in a manner previously available. The justification for this restriction is bolstered by the forest department's premise that commercially valuable NTFP (like honey, poopal) is low during fire season. A woman from Ponkuzhi articulated this as follows:

"During the fire season, we are not allowed to go inside the forest. They also mention it is a season when there is no honey, so we don't have to enter. If someone enters, then forest watchers will catch us. We are not allowed to roam around the forest even simply or look out for trees where the honey hive is forming. It is sad for Kattunayakans since we want to visit the forest at least once a day. If there is fire now, then the accumulated debris and undergrowth will create intense flames that are harder to fight. These flames will eat away the trees and forest. Earlier days, it was not like this. Every year forests used to burn with small-scale fires that were not intense and large. Now, by forest department law, the forest should not burn." [IN 19]

4.4 Discussion

In this study, Kattunayakans living in Wayanad forests portrayed fire as an integral part of their socioecology. Through lived experiences, memories, and recollection of forest fire accounts, a clear picture emerges as to how the forest used to 'behave' prior to fire bans, and how traditional uses of fire created multiple benefits for the human and more-than-human world. Perspectives are sufficiently strong to equate fire's absence with a degraded ecosystem. They considered a *"well burnt"* or "well cooked" forest as a *"nalla"* (good) forest. Fire, in Kattunayakan conversations, is seen as positive, complex, and dynamic. By contrast, contemporary forest

management in southern India, is primarily shaped by western opinions, and forest policies in India position fire as illegal in large part due to its threat to wildlife (Thekaekara et al.,2017). This is directly contradicted by Kattunayakan principles of human and animal forest fire coexistence, which is endangered by forest fire suppression.

Positioned frequently as “other knowledge,” by forest officials Kattunayakan understanding of fire remains unrecognized, indeed invisible, in the context of forest policy in India. Welch and Coimbra Jr. (2021) observed these policy proclivities often perpetuate misconstrued notions of fire and help promote prejudicial assumptions about indigenous groups. Drawing encouragement from the “Fire Otherwise” paradigm (Fowler and Welch, 2018), our study recommends an inclusive take on forest fires, one that embraces a pluralistic understanding of human dimensions of fire. This involves recognition of fire as key to co-management but also as an active agent in forest health (Miller and Davidson-Hunt,2010). Fire is understood, here as preserver and groomer of landscape identity (see also Butler et al., 2018; Ratnam et al., 2011) and as an enablers of ecosystem functions and relations (Bilbao et al.,2019; Nyongesa and Vacik, 2018).

Specifically, Kattunayakan's portrayal of a good forest is the one that burns annually and produces a landscape that is open, visible, abundant with fresh grass sprouts and absent of thick *adikadu* (undergrowth). Through interviews, all expressed some version of the claim that "without fire, our forest is not the same" – a description that contradicts the contemporary notion of a forest as being only comprised of only trees (Tedim et al.,2015; Ratnam et al., 2011). Kattunayakans also prefer forests with constant renewal of flora over *'moothakadu,'* (mature old woods). Annual burning of forest preserved the grass-tree ecosystems of Wayanad landscapes, the categorization of forest that resonated with the desires of the community members. Unlike the conventional idea of a "dark and deep" forest, Kattunayakans described a good forest as one that appeared clear and clean *"mezukiya muttam*"(plastered front yard).

Similarly, we observed that the traditional practice of cultivating fire in Wayanad forests gave the landscape a particular identity and familiarity. For instance, a *"nalla"* forest ensured people's access to landscapes with known pathways, access to spiritual and cultural sites, as enabling coexistence with wildlife and as producing abundant food for humans and animals. Our study

concurs with the observations of Butler et al. (2018) that landscape identity entails knowledge of surroundings and relations that it fosters. When the landscape changes as the function of fire suppression policies, it disrupts existing identities and creates novel subjective perceptions. This directly affects local people's fire-driven relationships with the ecosystem. The angst and helplessness witnessed in our interviews (IN 28 and IN 30) are likely reflections of the people's desire to bring fire back to their landscape. Hence, it reasonable to argue that fire suppression in Wayanad overlooked several of Kattunayakan's ecosystem interactions especially those centred on their access, use and experience of the ecosystem.

Fire, when recognized as a component of the landscape, fundamentally rejects the notions of "pristine" and "wilderness" and instead endorses the role of humans in modifying ecosystems (Bowman et al., 2011; Pausas and Keeley, 2009). Kattunayakans refer to the burning of the forest as equivalent to "forest taking a bath" that kept the forest clean and healthy. They understand fire as an extension of the landscape just like humans, animals, and other beings; these sanctions it with liberties to exist in the forest spaces (just like all the other beingsAlong with these, having a shared history of oppression and pattern of subjugation, Kattunayakans frequently drew similarity with forest fires. For them, fire ban in the forest sand restriction of Adivasis in protected areas are both unfair. By citing uncontrolled growth of invasive plant species and frequent occurrences of massive forest fires (IN 35), they explained how the dispossession of Adivasis and fire from Wayanad landscapes disrupted the ecosystem. We observe that these comparisons reflect a certain intimacy they express towards forest fires analogous to their kinship towards wild animals (Chapter 1) or Indigenous respect for water (Wilson and Inkster, 2018). These outlooks often elevate fire from being a chemical construct to an attribute of the ecosystem that possesses a superior position in Kattunayakan socioecology. And these attributes possibly explain the positive and non-confrontational stance they take towards the fire; thus, traditionally fire in Wayanad was perceived as a by-product of human-nature interactions and thus a subset of the local ecosystem's natural history (Pyne, 2016; Miller and Davidson-Hunt, 2010). The legal suppression of fire debilitates its right to exist and belittles Indigenous people's fire ontologies living in these pyroscapes.

According to Kattunayakans, fire as a being and actor in the ecosystem has its own agency that transformed and shaped the land. It decides "what dies and what lives" in Wayanad forests. The knowledge that fire can make decisions indicate that the human-fire relationship is not a trivial affair for Kattunayakans. Since there is always an element of uncertainty or in their words: *"fire can choose to become uncontrollable"* and thus necessitates respect. We interpret that Kattunayakans' attempt to manage fire as not motivated by fear but rather a pre-emptive action consistent with human-wildlife coexistence more broadly[7].

As actors in the landscape like water, animals, and humans, we observe that Kattunyakan interaction with fire always necessitated certain focus and intentionality. In addition, practice of setting fires requires community members to act in tandem with fire and other agents (like wind, water, and land) as "co-managers" (IN 29 and IN 37). Acknowledgement of the agency of multiple beings, including fire, water, animals, and humans indicated historically dictated norms and interactions in the Wayanad landscape. Forest policies that disregard these also discount the ability of these forest beings including forest fire to actively care for and respect the forest (Loivaranta, 2020). While it is arguable that one does not need to believe in the agency of fire to fully recognize that the practical implications of Kattunayakan view of fire had great value, however understanding the sentient nature of fire is necessary to fully comprehend Kattunayakan ways of coexistence with fire.

A *"well-cooked"* forest, according to community members, indicates a healthy ecosystem (Bilbao et al., 2019; Nyongesa and Vacik, 2018) with access to clear forest spaces (Heydari et al., 2016; Trauernicht et al., 2015) and availability of food, medicinal plants, and NTFP (Schmerbeck et al., 2015). In addition, forests that experience fire have an abundant supply of food for wild animals and lower pest presence. According to the community members, these attributes of a *"well cooked"* forest contributes to a satisfactory life. It is broadly comparable to the conventional understanding of human well-being (Bilbao et al., 2019; Nyongesa and Vacik., 2018) and includes 'nalla' (good) relationship with animals, the ability to visit the Gods and deceased ancestors in forest, and to experience the aesthetics of a familiar landscape. The

[7] In Chapter 2, Deep Coexistence: Indigenous insights on human wildlife interactions

research described in this paper brings empirical evidence to assert that forest fires in Wayanad landscapes are a fundamental feature that helps Kattunayakan's pursue a good life, and that the lack of fire in forest management has had severe consequences on their well-being.

Historically, Kattunayakan people living in Wayanad forest have cultivated fire in the landscape as a management tool hence fire can be fittingly perceived as a knowledge, culture, and experience-driven practice. Additionally, Indigenous practice of setting and managing fire is a culturally driven activity (Bilbao et al.,2019; Kimmerer and Lake, 2001), and culture by being passed on from one generation to another can be suitably a reflection of the expression of a community's customs and ethos. So, an inability to perform traditional fire is observed as an impediment of Kattunayakan knowledge and culture that directly risks eroding their way of understanding nature. Consequently, fire suppression in Wayanad forests is profoundly damaging to Kattunayakan ways of living and interacting with nature.

In protected areas, forest and biodiversity policies primarily serve to protect wildlife. As such, forest fires, mainly human-produced, are considered unnatural and threaten wildlife (Rodriquez et al., 2017). Scholars like Smith and Dressler (2020); Welch and Coimbra Jr (2021) note such an outlook frames human presence in forests as oppositional to the protection of wildlife. Hence, people in protected areas are often wrongly perceived as harming the environment, and whose presence like the fires must be suppressed. By this way of understanding, positive fire conversations by Kattunayakans (as feared by community members) may be misconstrued as evidence of them starting fires (as indicated by IN 30) and used to legally prosecute them. Moreover, such outlooks that dismiss local socio-ecological realities perpetuate cultural shaming (Welch and Combra. Jr, 2021). This stigmatizes Indigenous people who have historically managed forests by setting fires. In Wayanad Wildlife Sanctuary, Kattunayakan people are denied the right to access forests during the summer season. The forest department uses an economic justification based on the low availability of NTFP during the season, but it vastly overlooks their non-tangible associations with nature (IN 19). We interpret this as a direct heist on people's rights and freedom.

In ethnically marginalized societies like Kattunayakans, fire suppression can aggravate pre-existing social and economic injustices (Welch and Coimbra Jr., 2021) like caste taboos and poverty and forced displacements from ancestral forest lands. This research builds on these discourses and claims that suppression of traditional fires in Wayanad landscapes preserves colonial violence. Building on observations from this study, we argue that fire-prone landscape policies that reject the burning of vegetation overlook experiences, knowledge, and positive socio-ecological opportunities (Ratnam et al., 2019; Sundaram and Hiremath, 2012).

This work documents the perspectives on fire of Kattunayakan communities living in the Wayanad Wildlife Sanctuary. The Kattunayakan observation that "all fires are not bad" stands in stark contrast to present-day catastrophic fires that are an outcome rigid and authoritarian policies. A blanket ban of fire contradicts their more sophisticated understanding of fire and disregards the multiple specific roles that fire has traditionally played. However, the positive reflections of the human-fire relationship in this paper should not be taken as evidence for community members' lack of concern for a forest fire. On the contrary, Kattunayakans always prefaced their fire conversations with the dangers of massive uncontrolled fires. They recognized that a forest that has not burned for decades will likely be a site for large-scale disastrous fires and significant ecosystem harm. We hope our study results disrupt current ideas about fire and to instead introduces Adivasi perspectives of fire.

4.5 Conclusion

Analyses of the human dimensions of forest fires in Wayanad, and in India more broadly, expose the need for alternate perspectives on forest fires that challenge state dogma. However, any attempt to bring these fire positive conversations into contemporary forest management discussions would also require revival of Adivasi self-determination and their increased participation in forest governance (Sletto and Rodríguez 2013). Over the years, Adivasis have been forced to discontinue traditional fire practices. Returning fire to Wayanad landscapes would first require recognition of Adivasi relationship to fire and the knowledge of, and respect for, how they characterise it. This in turn would necessitate increased Adivasi access to forest ecosystems and to strengthening their traditional ties with the landscapes. Because Adivasi rights

have limited political and policy support in India, forest departments rarely take Adivasi perspectives on fires into account. This work seeks to compel further research on forest fires in India from an Adivasi standpoint; and more globally to bring awareness to the importance and value of routine burning in forested landscape.

Chapter 5: Hidden Dimensions of Indigenous Food System Transitions: Notes on the Fading Foodways of the Adivasis

> *"Hunting was not only subsistence, but it was also a cultural ritual. Early morning, we enter forest. Then we meet gods and ask permission. We would pray that we get some food. When we get some meat, we usually offer a portion of it to people inside the forest. [Who are people inside the forest]. Our mountain gods, we give them a share. A good piece is offered to them, and we call their name out. Then only we will get more next time. That is our belief. After offering only we will eat. Till that no one will touch it." [Kattunayakan, Chukkalikuni, colony]*

Summary

Indigenous communities often have extremely diverse food baskets. However, decades of colonial policies, assimilation, economic development, urbanization, and inimical forest and wildlife management policies have often changed their traditional food systems drastically. This is notably evident among the Adivasis of Wayanad in India, where dispossession from ancestral forest lands has led to drastic changes in traditional foodways. While scholars have discussed the impacts of these transitions on nutritional health, few studies have examined the impact of dietary transitions on the socio-cultural fabric of Adivasi lives, because there is little comprehensive understanding and documentation about Adivasi foodways. This paper focuses on the foodways of Kattunayakans, a hunter-forager community living within the Wayanad Wildlife Sanctuary in Kerala, India and describes how they characterize their traditional food systems. It reveals that for Kattunayakans, food gathered in the forest represents preferences, memories, identities, knowledge, reciprocities, relationships, and interconnectedness. We argue that the dismissal of these features of Kattunayakan foodways even in well-intentioned food security policies can impact their world in profoundly negative way. We argue that studies of Adivasi foodways and their transitions such as this can inform the design of more inclusive food and forest management programs, thereby improving Adivasi nutritional, social and cultural well-being.

5.1 Introduction

Traditional food systems/ways are fundamental to the health and well-being of Indigenous peoples. They occupy a central place in their socio-cultural relationships, worldviews, gathering techniques; food is a primary marker of group identity (Kuhnlein and Receveur, 1996). Traditional foodways are determined by local biodiversity and as well as socio-cultural norms embodied in sustainable harvesting practices (Anderson, 2005), and reciprocities and responsibilities to species and others (Salmón, 2000). Several studies explain how in Indigenous societies, people share a close relationship with their food such that the act of gathering, hunting, harvesting, trapping, or fishing involves seeking permission of animal kin (Kimmerer, 2013; Nadasdy, 2007; Anderson,2 005). Indigenous food system also consistently reveals values, traditions and habits that perpetuate active, responsible, and reciprocal engagements with their natural world (Nadasdy, 2007; Anderson 2005; Salmón, 2000). Therefore, Indigenous food systems are socio-ecological systems (Olsson et al., 2004) that embody traditional knowledge, relationships, and reciprocities that connect people and nature (Adelson, 2000).

Globally, Indigenous foodways are being threatened by urbanization, modernization, and cultural homogenization. While several historical, socio-economic, and political factors also serve to changes these traditional foodways, forest management practices have arguably played the most critical role in colonial and postcolonial states where conservation and economic development mandates led to widespread dispossession of Indigenous people from their ancestral land, which critically compromised their access to traditional food (Domínguez and Luoma, 2020; Rai et al., 2019). Forest areas categorized as protected areas led to gradual dissociation of their sociocultural connections with the foodways (Cidro et al., 2015; Egeland et al., 2011). This -- a forest-policy and protected-area driven food transition -- is also the case for Adivasis. Wildlife protection being the central mandate, policies sponsored dispossession and displacement of millions of Adivasis from their homelands. Furthermore, they also prohibited subsistence-based hunting, foraging, and traditional forest fires, which often contributed to direct and indirect barriers to the access to nutritionally and culturally significant foods. Over time, these introduced considerable impediments to Adivasi foodways and associated human-forest interactions (Edison and Devi, 2019; Mundoli et al., 2018; Patnaik, 2017). While the government of India introduced governance mechanisms such as the Forest Rights Act (2006) to reconcile

the historical injustices imposed on Adivasis, these policies do little remedy the scale of the problem or to protect already weakened Adivasi foodways.

While dietary changes are not unique to Indigenous societies, impact of such forced transitions on them have been quite pronounced. Studies on Indigenous food system transitions describe their effects on people's relationships, identity, knowledge, well-being, culture, and relationship with the natural world (Casi, 2020; Strong and Silva, 2020; Jones and Clarke, 2018; Martens, 2018; Daigle, 2019; Jernigan et al. 2012; Vliet and Mbazza, 2011; Loring and Gerlach 2009; Salmón, 2000). In South Africa, Hitchcock et al. (2011) observed how a ban on hunting wild animals impacted Indigenous People's access to social and cultural practices. Similarly, Ibarra et al (2011) demonstrated that hunting restrictions in a protected area in Oaxaca, Mexico affected the socio-cultural elements such as their social bonds and connections (Sylvester et al., 2016). Yet, most scholarship addressing food system transitions largely focuses on nutrition and dietary impacts (Chee et al., 2019; Egeland et al.,2011; Kuhnlein et al., 2004).

The emphasis on biomedical impacts is equally true in studies that examine Adivasi food transitions in India, as these too predominantly discuss its consequences for diet and nutrition, including anemia among pregnant Adivasi women (Rohisha et al.,2019; Ghosh-Jerath et al.,2016; Shrinivasa et al.,2014); increase in infant and child mortality (Adbul Kareem, 2019; Sahu, 2018), and incidents of nutritional deficiency (Ghosh-Jerath et al.,2016). These studies also highlight how Adivasis' nutritional profile (especially the micronutrients) is one of the poorest in India. Given that traditionally Adivasis sourced several of these micronutrients from forest-based food, the transition of these foodways into modern food is one of the critical reasons for the poor nutritional baseline of Adivasis. While such studies are clearly important, little or no attention is given to imposed food transitions as they have affected Adivasi knowledge, culture, practices, and way of living. Ethnobotany research conducted with and about Adivasi communities does exist (Sreekumar et al.,2020; Wagh, 2017), including robust attention to forest-derived food preparations like rice beer (Das et al., 2012). While these studies are essential and significant, failure to empirically document the socio-cultural elements of Adivasi foodways leaves our understanding of how these food transitions affect other human dimensions (especially the intangible ones) of forest-based livelihoods inadequate at best.

Scholarship tends to characterize indigenous foodways as having co-evolved with local ecosystems, although some shared attributes across food systems do point to high-level commonalities in human-forest relationships across groups (Settee and Shukla, 2020; Huambachano, 2018; Turner et al., 2013). Foodways, as noted in these studies, represent the intersection of human societies, their more than human worlds and the knowledge systems that support these. Therefore, knowledge of Indigenous foodways and their workings offers the opportunity to learn about the history, geography, local ecosystem, and people. Lack of comprehensive learning on Adivasi food system means many Adivasi associations with the forest, related to harvesting, foraging, fishing, and hunting, go unobserved without any documentation about their role as a central medium for sustaining larger Adivasi worlds. These may perpetuate an inadequate portrayal of a society and its coupled human-nature engagements (Sylvester et al., 2016; Ibarra et al., 2011; Aiyadurai, 2007).

Contemporary subsidized food security intervention like Public Distribution System (PDS), in India provides free food to poor and marginalized people (including Adivasis) aim to improve health outcomes. Yet, that can also be very effective in reducing people's forest dependencies (Malhotra et al., 2021). And employment guarantee policies such as the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) encourage communities to take up cash economies such as wage labour, cattle-rearing, and cash crop agriculture (Muralidhar, 2013). These progressive policies aimed at reducing poverty also encourage acceptance of settled agriculture lifestyle among Adivasis. There is a real danger in positioning these policies as unambiguously positive, if the enormous socio-cultural consequences of these changes are not taken in account (Bose, 2020; Edison and Devi, 2019). Program designs rarely consider or integrate food practices and preferences (Malhotra et al., 2021; Edison and Devi, 2019; Garcia, 2006), and favour the government's cultural homogenization and urbanization mandates (Menon and Nigam, 2007), and in so doing perpetuate further dispossession of already marginalized peoples.

This paper is a first assessment of what we currently know about the ecological, cultural, and socio-political aspects of a single Adivasi group in India. It addresses traditional food systems of

the Kattunayakan people living in Kerala's Wayanad forests (now a protected area) to demonstrate human-food associations. We ask the question, how do Kattunayakans perceive their traditional forest-based food? What are some of the characterizations and underlying worldviews that guide their relationship with these foodways? And finally, how might government policies that seek to tie the Kattunayakans to sedentary lifestylse impact their well-being? We take a closer look at the ecological and cultural dimensions of hunting and foraging practices to describe how a break from these practices directly impact human-forest associations, memories, aspirations, reciprocities, relations, preferences, and efforts. Through this field-based empirical work, we characterize the direct and implicit losses Adivasi have faced as a result of the loss of hunting and foraging privileges. Our findings also reflect on the importance of food beyond 'diet and nutrition', to include a robust understanding of these meanings to help benefit the food policies and government interventions currently underway through the inclusion of the Adivasi understanding of, and preferences for, forest food.

5.2 Materials and Methods

5.2.1 Study Area

This study draws on fieldwork conducted in the Wayanad district of Kerala, a Southwestern state in India. Wayanad is a mountainous forested terrain situated in the Western Ghats. It is home to around five Adivasi communities, constituting 18.5% of Wayanad's total population (Census, 2011). In 1973, India's central government established the Wayanad Wildlife Sanctuary (WWS) under the Wildlife Protection Act of 1972 that displaced many Adivasis who continue to live in and around their ancestral homelands in extreme poverty (Bijoy, 2017; Domínguez and Luoma, 2020). These displacements were justified as a means of wildlife protection and particularly affected the forest dwelling Kattunayakan People. Policies restricted their access to the forest and prohibited subsistence hunting, which has led to a massive erosion of traditional and cultural engagements with the forest (Kakkoth, 2005).

Kattunayakans are among a small number of hunter-forager group who live in and around the forests of Kerala, Karnataka, and Tamil Nadu (Bird-David, 2017), and are recognized for their animistic beliefs. They have historically depended on the forest for food (in the form of honey,

meat, fish, mushrooms, tubers, leafy vegetables, fruits) and medicines (Bird- David, 2017; Bird-David and Naveh, 2008). In the last few decades, Kattunayakan food systems like those of other Indigenous people in India are rapidly shifting toward modern food systems (Malhotra et al., 2021; Edison and Devi, 2019). Relocated Kattunayakans remain economically poor and continue to receive support from government from government employment program or availability of wage-labour or construction work in neighbouring farms and towns (Chemmencheri, 2015; Ramachandran, 2006). Many continue to depend primarily on forest-based livelihoods or prefer to do so where possible.

5.2.2 Field Methods

To better understand the area of the study and social context Terre and I conducted a preliminary study at the field site for three months in 2018 (March, April, and May). Our efforts focused on the Wayanad Wildlife Sanctuary (Figure 5.1). We visited Adivasi communities' tribal colonies, conducted open-ended interviews with members of several Adivasi groups to understand their concerns. This groundwork identified eight Kattunayakan settlements, Ponkhuzhi, Anacyamp, Kolooru, Kuzhimoola, Alathoor, Kalamkandi, Kumuzhi and Chukkalikunni located in and around the Wayanad Wildlife Sanctuary as study sites. In 2019, upon securing permission from the forest department and the Scheduled Tribe Development authority, I returned to the field site and spent four months conducting further qualitative research (March through June 2019). This included open-ended interviews, semi-structured interviews, transect walks inside the wildlife sanctuary with community members, and participatory observation.

All participants were community members over 18 years old. Interviews were carried out in Malayalam and recorded with consent from the participants. I also conducted half-day walks inside the wildlife sanctuary with 2-3 community members at a time; individuals were chosen based on their availability. During these walks inside the forest, interviews followed the same protocol (Appendix C), but the walks gave firsthand access to observe and learn about aspects of Adivasi relationship with the land, opportunity to observe some of their traditional food in the wild and witness their foraging practices. All participants were given honoraria to acknowledge their expertise and thank them for their time and knowledge sharing.

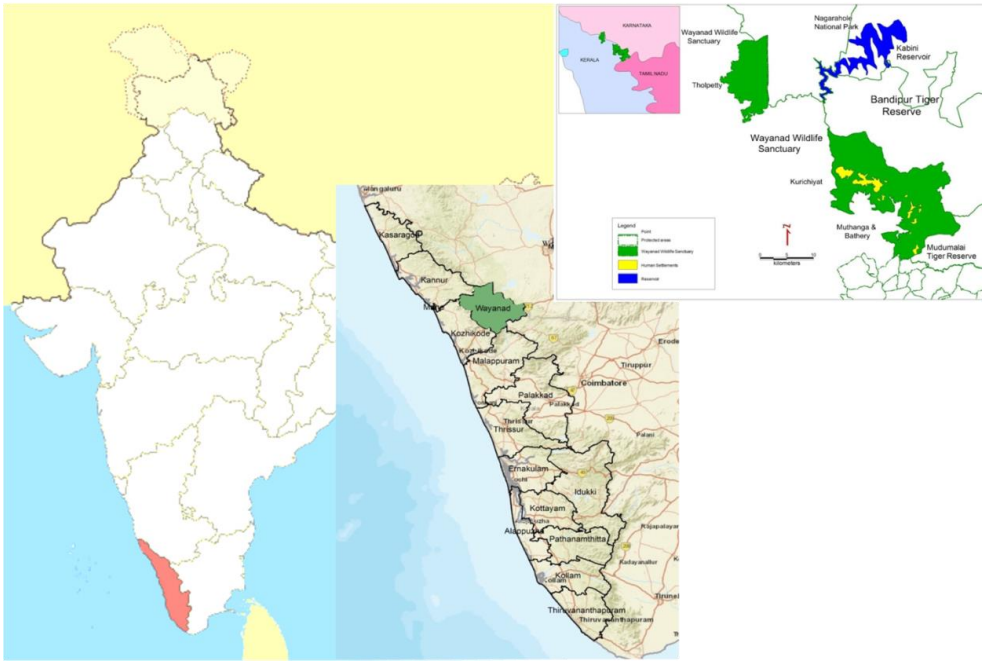

Figure 5.1 Location of Wayanad and Wayanad Wildlife Sanctuary

The audio recordings of the interviews and conversations from transect walks were transcribed and translated into English. Malayalam words with definitions are used where possible to avoid diminishing the value of contextual Kattunayakan insights. The transcribed data was stored, managed, and coded through QSR International NVivo software; analysis involved identifying codes, categories, and themes inductively (Saldaña, 2021). The codes were in English with use of Malayalam words when required. Research results were communicated with the local partner agency and Kattunayakan communities and necessary changes were integrated. The engagement and interaction with community members continued through two research assistants during the data analysis and writing phase. The MS Swaminathan Research Foundation (MSSRF), the local collaborator, also offered support in building local contacts, provided ground truthing to the research observations, helped in several field engagements and provided documents and reports in Malayalam about the communities written by Adivasi experts but not otherwise available in

online platforms. All fieldwork was approved by the University of British Columbia's Behavioural Research Ethics Board (number: H18-03104).

5.3 Results

5.3.1 The Kattunayakan Food System

Kattunayakans source their food traditionally from the forest, and they often engaged in foraging, hunting, trapping, and fishing activities. In the past, they were strictly hunter-gatherers, whereas more recently they also derive their livelihood from the sale of Non-Timber Forest Products, and working as labourers in neighbouring farms, or working as forest guards in the wildlife sanctuary. Kattunayakan people living in Wayanad classify their food into two groups (a) *kattil ninolla bakshanam* (food from the forest) and (b) *kadayil ninolla bakshanam* (food from shops /market food). The food from the forest is described as *namma* (our) food and includes honey, tubers, mushrooms, leafy greens, crabs, and occasionally meat and fish. The food from shops, also described as *purathu ninolla bakshanam* (outside food), includes tomatoes, onion, potato, okra, grains, rice, and other condiments purchased from the market. Occasionally, it also includes fish and meat (like poultry chicken). Names of some of the Kattuanayakan forest-based food referenced during the interviews are listed in Table E.1 and Table E.2. At the same time, this list is only a small subset of the foods foraged and consumed by the community members. Narayanan et al. (2017) list 43 species of leafy greens, 21 varieties of yam, 60 species of fruits and seeds, 35 varieties of mushrooms, 5 varieties of honey, 5 types of crabs, 36 edible fishes as part of a typical Kattunayakan food basket.

Across interviews, community members stated that forest and wildlife policies of the government significantly changed their food consumption baskets. They disliked in particular the government's policy on the legal prohibition of wild meat consumption and older generations showed an apparent disapproval of outside food. They perceived the shift in diet from forest to outside food as an outcome of dispossession resulting from forest policies, and as loss of a way of life that has resulted in forces urbanization. During the visits to the Kattunayakan settlement colonies, we observed that community members often ate tomato curry and rice. When we enquired about the popularity of tomato curry, a community member noted.

"Tomatoes are cheap. Government gives us rice for free. Nowadays we cannot get meat from the forest. So, we eat only tomato curry and rice. We are tired of eating tomatoes and onions" [IN 30]

While the older generation indicated strong preferences for forest food, the younger generation's interest aligned more fully with contemporarily introduced foods. Yet, they often agreed with opinions of their elders that forest foods are superior in quality. A young Kattunayakan described:

"We went to school, and we grew up eating outside foods. Our fathers and mothers are not like that you know? They knew nalla (good) forest foods and continue to prefer those. To tell the truth, forest foods are healthier and tastier. But we have forgotten its taste. Our children like only bakery food and demand sweets all the time" [IN 23]

Although the older and younger generation of Kattunayakans had different food experiences, they both unilaterally agreed that forest foods are more than just consumable. They were forthright in their arguments that availability and access to specific forest products determine the success of every event in an Adivasi's life. A young Kattunayakan agreeing with his grandfather thus said:

"In our lives, every important event requires some forest food or the other. Like in marriage we need turmeric, bamboo, grass, and betel. And, in death ceremony we need rice, crab, bamboo, water from a forest river. Our ancestors taught us all these. We know we have to follow it for nalla (good) life" [IN 33]

In our discussions, Kattunayakans elaborated their understanding of forest food and its more than consumable role in their lives. Analysis of the interviews resulted in the identification of five key themes that better describe the Kattunayakan food ways which is summarized below in Figure 5.2. For them, food acts as (1) Communicator of preferences and inclinations, (2) Keeper of memories and knowledge, (3) Custodian of identity and aspirations, (4) Facilitator of relations and reciprocities, and (5) Assessor of effort and nurture.

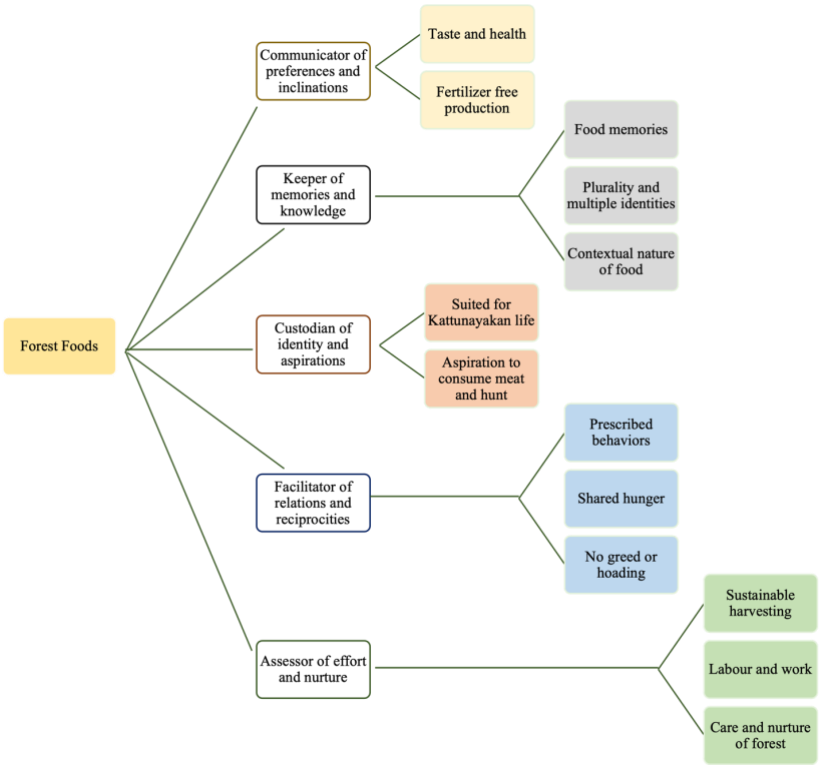

Figure 5.2 Themes Indicating Values/Meanings of Kattunayakan Foodways

5.3.2 Communicator of Preferences and Inclinations

According to Kattunyakans, the *swadu* (taste) of forest food make it far more superior to market-based food. In their discussions on food attributes, we observed a particular deep-seated fondness towards forest food and a profound contempt towards outside food especially among the elders. Explaining the rationale for their preference for forest food, an elder from Ponkuzhi said that forest foods taste "healthy" and outside food, when cooked, looks like "garbage." He explained it as below.

> *"Food in forest and those of outside from shops are different. You see, food from market like cheera (spinach) are not tasty and it looks like chandi (garbage) in one boil only. The leafy greens from forest are not like that. It is tasty and solid. We will not even throw away the water in which it is cooked. It tastes healthy" [IN 34]*

Community members referenced the physical features such as taste and visual robustness of the food to gauge its freshness. They often mentioned that outside food wilted quickly, and forest food remained fresh for long durations. For Kattunayakans, this lack of freshness makes food unappetizing to consume. While conversations on forest food led to excitement, the discussions on outside food often ran into dissatisfied grunts and snubs. Some Kattunayakans disliked outside food to the extent that they preferred to go hungry rather than eat the outside food. A Kattunayakan from Chukalikunni explained this by showing us the vegetables they got from the shop versus the ones they gathered from the forest.

> *"See those vegetables (shop food) are lying there. This Sunday (yesterday), I got those from the market. I cooked a little bit of it since I did not have food from forest. Otherwise, I only cook chappu (leafy greens) collected from the riverside. Last night I got churli chappu. I do not like to eat this (pointing to shop food). If I get some chappu, I will have my kangi (porridge) with it. Otherwise, I will not eat. It has not been several days since I bought it. But see, it is s lying there wilted. We do not prefer to eat them. Market food does not suit me. I do not prefer food from shops. I want things from forest only. For me, chappu, chembu (yam) or whatever it be, it must be from the forest. That is why those food from market is still lying there all wilted. I used it only once. Just used it only once. This (Takara) chappu is what I am eating today. I got these from forest trees when I went to collect honey. These leaves produce solid pigment, and they have medicinal values. This is the chappu that we eat the most." [IN 24]*

The perception that forest-based food produces better health, and a disease-free life is established knowledge among all community members. They often expressed that forest food derived from local landscapes is free of fertilizers and chemicals. Kattunayakans perceived fertilizers with contempt and stated that being fertilizer-free made forest foods tastier and healthier. According to some of them, this explains the "rock-solid " health of their grandparents. A body which is lean, muscular, and without body fat is commonly perceived as a sign of good health among Kattunayakans. A community member from Kuzhimoola, during the transect walk, discussed this:

"The food back then and now has changed significantly. Back then everything we ate was a medicine. Now the food from the shop is injected with 'English' medicines. Now our people have more diseases. Earlier we used to eat only wild foods like mushrooms, chembu, tubers, honey, meat. That time people didn't have this sickness. Now every food has poison in it. Now to treat disease we must go to the hospital. Earlier we would get some root or some green medicines. That time our health was like kallu (stone) Now we are filled only with air." [IN 45]

During our interviews with the older people, sometimes the young Kattunayakans joined our conversations and indicated their agreements and disagreements. For example, a young Kattunayakan remarked: *"It is easy for older generation to say these things. They have the knowledge and skills. Younger people like me don't have those. We would like to get forest food but harvesting it is time consuming. And we don't have time. Several of us are wage labourers. So, when will we have time"?* However, their opinions on the superior taste of forest foods aligned well with that of their elders. They added details by citing that consumption of outside food loaded with fertilizers often made them sick. A Kattunayakan from Kuzhimoola compared forest and outside food as:

"The taste of wild foods and shop foods are different. Tubers cultivated in the farms outside tastes less than the wild ones. The wild tubers if we eat only a small piece our hunger will go. The outside food, we need to keep eating more. Also, these outside foods are grown in large quantities since they feed them with 'English' medicines. But after you eat those, your health will go away. Sometimes after eating this, we get stomach pain or headaches" [IN 18]

5.3.3 Keeper of Memories and Knowledge

Food also brings memories of specific experiences, events or encounters in the forest. While consumption of wild meat is illegal, community members often reminisce about hunting experiences by rereferring to the taste of meat. Their recollections of the taste of forest food were often coupled with nostalgia and longing for that food. A Kattunayakan woman in Ponkuzhi

described how the taste of *manali poovu* (flower) and deer meat brought back the memory of her parents.

> *"In my childhood, our mothers and fathers used to bring many things from forest. Fruits like Eachil, Chadachikkaya, Njara Pazham, and Pindichakka which are sweet and good. My mother knew some edible flowers too. Manali, a purple-coloured flower was her favourite. I still remember it tasted so when cooked. I haven't seen it in a while. I don't know where those trees have gone missing. Back then we had all kinds of meat like squirrel, rabbit, boar, deer, and birds. Deer meat was my favourite [laughing]. We usually cut, smoke, and dry it. Sometimes we crave these foods and whenever I get some to taste [in hushed tone], I think about my parents and time we spent in the forest." [IN 34]*

Most experiences or stories about the forest referred to food. That is, community members constantly referenced to food as an opening to describing events or knowledge. Thus, most narrations about forest started with statements such as, *"When I was in the forest looking for honey," "When we were hunting deer," or "That day after rain, we went looking for mushrooms."* For instance, a Kattunayakan discussed annual forest fire practices by referencing their childhood memories of trapping wild pigeons.

> *"Every year forest used to burn, back then. The thick shrubs are all gone. Many birds like wild pigeon would come down on the ground to find insects. We would smear sticks with gum and place them concealed across the ground. Pigeon wings would get glued to the stick and they wouldn't fly. Then all of us kids would run and catch them" [IN 41]*

Consistently, forest food is a common theme for the celebration of all major life events -- so much so that the forest is often seen as a critically important reserve for these. Forest foods also play a crucial role in childbirth, transitioning into adult life, weddings, and death. According to community members, the ability of forest foods to have a plural existence guaranteed them a good life and afterlife. Referencing *nelli /njali* (crab), a community member explained the forest

food plurality. Crab is a preferred source of food as well as a significant ingredient of after death ritual. According to the community members, the multiple identities, and roles that traditional food, hint at the non-substitutable features of food learned from elders.

> *"In forest we find several kinds of njali (crab), we bring them home. Everyone likes it. Sometimes we roast it or cook it as curry. Njali is also important in our ceremonies. In our after-death ceremonies, we need a special njali from forest, we call it kottra njali. The muthali (head of the Kattunyakan village) will place njali in the palm of a deceased person's relative. Along with that he will put water from the river in forest and turmeric. These are mixed. Performing this is important for the passage of our deceased to our ancestors." [IN 28]*

The plural and contextual nature of forest food also mean that significance of foods is not limited to just consumables, but it is also a medicine, an ingredient of a ritual and sometimes a reserve (or critical) food that help during a famine, drought, or to address a specific craving. Unlike the conventional notion of forest foods as plant or animal based, Kattunayakans asserted that even soil could be food in times of need. Mud/soil consumed included shiny riverbank soil and termite hill soil. Inside the forest, there are certain places (usually near the water sources) the soil is soft, and shiny. The Kattunyakan's knowledge on this edible soil/mud is derived from their ancestors. It is frequently referenced as critical food, and craving food. They can consume it directly or sometimes by slightly roasting it on a pan. An elder from Ponkuzhi explained their mud eating practice as one such scarcity strategy:

> *"Elephants also eat the shiny mud on the sides of the river. Our grandmothers have told us that if we are very hungry and there is nothing then we can eat this mud. It is a special kind of mud which is a mixture of several soils like clay, sand, and few other things. It has a specific taste. This mud is eaten by younglings of deer also. In forest, this mud is eaten by elephants, deer, and humans. Maybe that is because we know at the end, we are all returning to soil. There is no-one who hasn't eaten mud… everyone in some form or the other have eaten mud. I have heard my ancestors eating the mud from termite,*

roasting it. The taste is like some sour candy. It is rich in nutrients and sour taste is often to manage pregnancy cravings." [IN 50]

5.3.4 Custodian of Identity and Aspirations

Given that forest-based food preparation requirements are minimal, Kattunayakans also explained that forest food is better suited for a hunter-forager lifestyle. On the contrary, shop-based food preparation require an array of condiments, oils, and a combination of other vegetables. This, according to community members, brings additional expense, and during foraging season, when they are allowed to spend days inside the forest, that would mean carrying an extra bag of condiments. This, according to some community members, is difficult and makes it challenging to spend long hours in the forest. A Kattunayakan from Ponkuzhi elaborated this by referencing instances from his childhood.

"Back then our diet didn't require tomato and onions like now. Most of the food was roasted and boiled. The spices were local ones like chilli, ginger, turmeric from the forest. The people back then didn't eat so much food and associated condiments like people now. If they have uppu (salt) and mulaku (chilli), that was sufficient." [IN 14]

According to community members, forest foods such as tubers, edible leaves, meat, fruits, and berries also help regulate hunger. Unlike outside food, which demanded frequent consumption, the forest food allowed them to stay without food for a longer duration. While community members did not discuss the nutritional aspect of forest food, their common reference to how forest food consumption leads to reduced hunger and gives them the ability to spend long hours inside the forest demonstrates the nutritional value offered by forest foods. This is critical since their non-sedentary lifestyle involves threading long distances without taking regular breaks. According to the Kattunayakan people, the non-forest foods don't support their foraging and harvesting practices sufficiently.

"Forest food, if we eat once we won't be hungry for a long time. Back in my childhood I remember having forest food, once in the morning. Then till around night, I wouldn't be hungry. We usually ate less food even my grandfathers and their fathers I have heard that

they ate only once or twice a day. Back then if we roast a tuber eat it and drink a glass of water, we will not have hunger. That would have been enough. Now we are craving for these wild foods. The taste of wild foods and shop foods are different. Tubers cultivated in the farms outside it tastes less than the wild ones. The wild tubers if we eat only a small piece our hunger will go. The outside food, we need to keep eating more" [IN 48]

In the context of forest food being better suited for the non-sedentary Kattunayakan lifestyle, community members also expressed their aspirations and desires for certain forest-based foods. In several of their accounts, community members described their helplessness about and desire to forage for meat. Often these conversations involved criticism of existing forest and wildlife policies and how they have changed Kattunayakan lives. Food transition thus appeared as powerful statements of sadness, pain, and vulnerability.

"Now we cannot take mamsam (meat) from forest. It definitely makes us sad. When we are inside forest and if we see meat and we must leave it and return. It is a really sad thing for us. Bigger pain is when we return from forest empty handed. Our children will ask us, what did you bring for us. Then we think of that meat we left in forest. These things make us sad… We will say we didn't get anything. "Didn't you get anything?" No, I didn't. Forest is not the same as before. Now even if we find anything dead in forest also, we must report it to the forest department. … [sad facial expression] Now we buy chicken from the market". [IN 54]

Community members, while discussing policy-induced food transitions, also described the concomitant erosion of many cultural elements. When the Wildlife Act (1975) came into force, it required hunter-gatherers like Kattunayakans to surrender their traditional harvesting tools (e.g., bow and arrow). Thus,conversations of food and attributes such as taste, flavour, or aroma were also always conversations the loss of one's bow and arrow.

"My favourite food from forest hekku kalasu (a kind of tuber). It is powdery and tasty. It is not big but long. You know, wild goat is the tastiest meat from the forest. Earlier, we used to catch them with a bow and arrow. Now, we cannot do that. Earlier every

Kattunayakan used to have a bow and arrow. One day, forestkar (forest officers) asked us to surrender our bow and arrow. They took it away. It has been 10 years or more since we were asked to take away the bow and arrow." [IN 15]

During interviews, we observed that meat remains relevant for the community members despite the long-established prohibition against wild meat consumption. This is true for both older and younger Kattunayakans. There were many references of secret attempts to get wild meat from the forest, irrespective of the risk involved. Some others explained that while they would like to consume wild meat, they are worried about forest officials and the evident criminalization of even small game hunting. A Kattunayakan described the fear and strange feeling of being watched that they experience while currently in the forest.

"We don't take meat anymore. We are constantly watched inside the forest. There are cameras there trying to capture images of people and what we are gathering. Where we are going when we are coming and what we are bringing everything it captures. That is why people don't bring meat. We don't even touch it these days. There are cameras everywhere. We are okay but sometimes we feel a desire to eat wild meat when we see a deer or boar. If we are allowed, then it would be nice." [IN 36]

5.3.5 Facilitator of Relations and Reciprocities

Kattunayakan food-generating activities like hunting and foraging require community members to spend considerable time inside the forest, during which they constantly engage and interact with wild animals, plants, and local landscapes. According to conversations underpinning this work, they need to have a respectful and thankful frame of mind to get food from the forest successfully. Consequently, seeking permission from the land, Gods, deceased elders, and plants or animals is common before any gathering or hunting. An elder from Ponkuzhi described approval seeking to land, gods and ancestors as reverent 'calling out':

"Sometimes when we are inside forest, we find small animals. We will take them. When inside forest, we bow to forest. Then we seek permission from land to take the things.

Call out our fathers and mothers. You have given us this, we are accepting it with both hands. It is for our food we are asking" [IN 20]

Permission seeking and expressing gratitude to other animals or plants often involves a song or a monologue that implores forgiveness, and empathically explains their actions. During a transect walk, while gathering honey, a community member described their bee song for example. It began with acknowledging the hard work bees have put in to making honey and how the Kattunayakan feels sad for breaking the bee nest. The monologue concludes with the community member pleading with the bees to accept his apologies in the form of his tears since he is gathering honey to feed his family and children. Kattunayakans are skilled in climbing trees and harvesting honey. They believe there is a cultural agreement between bees and their ancestors, so bees do not harm them.

"Small bees came once to save us. Our hungry stomachs searched for the trees with flowers across the world. Our grandfathers and great grandfathers would say that if you are courageous, climb the tree. We survive on honey. This is how we live and there is nowhere we can survive. We cannot live away from forest. I know you have worked hard to make honey. I apologize for breaking your house to feed my children. Please forgive me, I present my tears." [IN 34]

According to the Kattunayakan view, not only humans but all wild animals also engage in such permission-seeking behaviour. As a fundamental forest ethic, every forest resident must follow the act of requesting and thanking food as nothing in the forest can be taken for granted. In parallel is the deep-rooted belief that no animal seeks food or hunts without reason. Community members consistently agreed that successful food gathering requires mutual agreement between the giver and the receiver. A Kattunayakan described how even a powerful animal like a tiger must follow this ethos.

"Earlier times when we had good relationships happening in the forest, the animals in forest never came out and hunted domestic animals. In forest, animals cry when they are hungry and ask permission from its food. Both food (prey) and animal (predator) must

agree. The food agrees to get eaten, that is when the animal gets his food [after seeking permission]. Even if the food (prey) is going in front of it, it will not be caught unless they mutually agree" [IN 22]

Kattunayakans abide by the principle that individual ownership of resources is an anathema and that everything in the forest belongs to everyone. In interviews, they often mentioned the principle of "watching out for other fellow beings," which includes sharing food and resources with other humans, and animals. For Kattunayakans, food generating engagements with forests are never transactional; instead, they are reciprocal. A honey gatherer explained this during a walk inside the forest.

"Our mountain gods are there with us all the time. When we are inside the forest, we remember them and pay our respect. Then wherever we walk in forest, we will get whatever we need. We always leave behind some of our harvest or wild foods that we gather. It is as we were instructed by the gods. So again, it will grow up and it will not die off. When we gather honey, we leave behind one or two pattams (quality equivalent of a medium sized tin) for the bees. Their children also need honey to grow. Otherwise, how will they survive. Till they find a new place to move, and children need something to eat, isn't it? [Laughing] people back then were also intelligent ones. There are no such intelligent people these days." [IN 32]

Sharing food also extends to their worldview of giving *dharmam* (alms) by being considerate to the capabilities and strengths of fellow forest beings. For instance, community members described their practice of sharing honey with black bears since they recognize that bears cannot climb tall trees to gather honey. An elder explained this from his personal experience.

"When we are inside the forest walking around looking for honey, bears also follow us. They know that we will find the honey on tree branches. When we are on top of the branch taking the kombu thenu (big wild honey), these fellows (bears) will be lingering around looking at us. So, after we take our share of honey, we drop some crumbs for

them. Poor animals they cannot climb up the tree like us. So, we share some of the honey with them" [IN 23]

The notion that "forest offers food for everyone's need" is embedded deep in the minds of Kattunayakans thereby also discouraging greed or hoarding. Successful foraging and hunting necessitated respect for someone else's need for food as your own. We often observed Kattunayakans walking past several beehives that other community members already marked during the transect walks. They did not display any anxiety or angst. And they did not even try to remove the markers and secretly harvest the honey. During the transect walk, a Kattunayakan described what makes them act without greed and how it plays out.

Elder: When we go inside the forest for walk, sometimes we look out for wild foods like honey, tubers. During the walk we will identify things and mark it in our mind " Interviewer: So if you don't mark it physically as yours won't someone else own it? Elder: Yes, someone else might take it… Things in forest including food belongs to everyone, not just for me. Anyone in this world can take it. I might see honey during my walk. But sometimes, there will be someone who has more needs than me, if they see it, they will take it. We believe forest will never cheat us or abandon us on food. If I tell 'forest' that the one I identified is already taken. Then when I look in a different place, I will find food for us. [IN 38]

Harvesting practices among Kattunayakans are always a group activity. Therefore, in Kattunayakan societies, food consumption is also communal activity rather than an individual one. They perceived the objective of food gathering and hunting as an empathetic engagement that focused on community food security. It did not involve any competition or hostility. If someone ran short of provisions, other community members would share, protecting all from hunger. In Chukalikunni, an elder thus explained Katatunayakan foodways as, by definition, distributional across all in need.

"Back in the early days, our people did not go hungry. Food that we got from forest was shared with people. Hunting, fishing, or foraging we did in groups. And the forest food was always shared among everyone" [IN 09]

5.3.6 Assessor of Effort and Nurture

Food generation activities in the forest are hard work and are routinely described as such. Foraging, hunting, fishing requires skill, knowledge, practice, and preparation. In contrast, getting food from a shop is an undemanding activity. In the interviews, the older generation accepted that, the younger generation, especially children, have no interest in forest food. But they were unwilling to overlook the effort involved in harvesting forest food and wanted to communicate this explicitly and drew comparisons indicating the complexity and hardship of forest food harvest. These narrations indicate that the forest isn't just a place of abundance for community members but a system of engagements, prescribed behaviours, and intense labour. An older community member described this.

"Our children want curry and other things from shop. They say they are tired of wild foods. We understand them. The only thing they like are thallu (leafy greens) but they do not like kalasu (tuber). Do you know how hard it is to get these tubers in the forest? Sometimes we dig the whole day. To dig these kalasu it takes a lot of time and work. Sometimes the holes that we dig are deep enough to cover a person sitting in it. That much work, you know" [IN 33]

Along with intense labour, forest food harvest also requires extending nurture and care towards the forest. According to community members, foraging necessitates considerate harvesting. That includes gathering only those required and leaving behind portions of food for both the next person and for the well-being and continuity of bees. Citing honey gathering, a community member articulated this consideration:

"Even if we take honey from the tree, we make sure to close the hole and respectfully engage in the honey gathering process. Even now we do that. Since, we live behind some

beehive with the bees, by covering the hole we ensure that bears do not come and capture the remnant bees, which we know do not have strength to fight bears since majority of their house is damaged by our action. Traditionally we kept a portion of the hive for the bees. The bee younglings need honey to grow. So, we leave it behind for them. Otherwise, the bees won't return next year." [IN 19]

Similar practices are also common in fishing and hunting activities. Unlike shop-based food consumption, which situates food as a final consumable product, forest food reminds the Kattunayakans that they are part of the entire forest and its processes (including food production). In discussions, they often referenced themselves as both consumers and stewards of the food system simultaneously. This also brings accountability to their actions as part of the ways in which they engage with the forest. A Kattunayakan woman from Chukalikunni regarded this as an important and necessary wisdom:

"Our ancestors were intelligent people. Nowadays people do not have that much intelligence. Same goes for fishing also. We traditionally never used poison to damage the eyes of the fishes. We used our traditional hooks and traps to catch the fish. But now days some people poison fish and poison the river. Even larvae inside the river dies. We won't catch the small fishes, we let them grow" [IN 58]

For Kattunayakans, food-based engagements in the forest are not to be taken lightly. Rather these actions, when performed wrongly, can carry dire consequences. Sometimes, it may come in the form of life-threatening outcomes such as an encounter with an angry elephant, a random snake bite or incidents such as an accidental fall from treetop during the honey gathering. Or sometimes, it may result in famine, drought, or unavailability of forest food. For example, an elder from Kuzhimoola explained how careless harvesting of tubers might lead to the unavailability of food in the future.

"Near the Kolli, these tubers are usually found. When we take the kalasu we will only take the lower portion and leave the upper portion back and cover it with soil. So next year also, it will be available to gather. Our life is based on these wild tubers. These

tubers are our life. We take everything from the forest carefully. Wild yams and tubers when we take [them], we dig deep and take the lower portion. The ones attached to the stem and leaves are left behind and covered with soil. This way it will grow back next season. If we take the whole thing, it won't be available later. And we will go hungry" [IN 10]

5.4 Discussion and Conclusion

Kattunayakan forest-based food connects people to their natural world directly and fundamentally. They maintain the continuity of their food-based forest interactions through a specific body of knowledge, prescribed behaviours, practices, principles, and worldviews. In this study, community members emphasized their engagements with forest foods as integral not only to nutrition and diet but to all the accompanies the many acts of gathering and understanding foods species. And that these interactions, long a part of anthropogenic stewardship, are critical determinants for their good life. Drawing encouragement from the works of Tremblay et al. (2020), Kimmerer (2013), Anderson (2005), Turner (2006) and Kuhnlein et al. (2004), our study discusses how *'Kattil ninolla bakshanam'* (food from the forest) communicates preferences and opinions; holds meanings and memories; corresponds to identities and aspirations; facilitates relations and reciprocities; demands work and nurture. These describe how Kattunayakan people characterize traditional foodways. It also reflects on the significance of forest-based food in the Adivasi -forest relationship. Any transition, therefore, brings severe changes to how Adivasis interact and associate with the forests.

In this study, Kattunayakans, especially the older generation, disliked the transition from traditional foodways and displayed a strong preference for forest foods. Their selection of *churuli chappu* over shop-bought *cheera* (spinach) or reference to outside food as tasteless *chandi* (garbage) demonstrates these disapprovals. Often denigrated as 'backward' and 'uncultured' (Garcia, 2006) by mainstream society, Adivasi food transition to modern foodways is considered by the Indian state to be progress, and traditional Adivasi foods do not enjoy a respectful place in contemporary food baskets. We interpret the defiance towards market-based food among the older generation as a sign of an intentional opposition against their status as subaltern and related mistreatments (Chemmencheri, 2015; Kjosavik and Shanmugaratnam,

2015). Indigenous foodways and preferences in this study are quite simply a marginalized society's reluctance to modern foodways. Kattunayakan people's assertion for *kattil ninolla bakshanam* (food from the forest) over *kadayil ninolla bakshanam* (food from the shop) is also consistent with their disdain for colonial legacies, and the discrimination that shaped and perpetuated the marginalization of Adivasi societies (Edison and Devi, 2019; Joseph, 2018; Patnaik, 2017). Thus, any closer look at Adivasi foodways and the impacts brought by this transition may also offer a basis by which to strengthen Indigenous foodways and revisit biases against forest-based food systems.

First and foremost, people repeatedly observed that food attributes such as *swadu* (taste), smell, and texture are essential to them, as Kattunayakan people, and as they signify their memories and experiences with forestland. Our study results align with Naidu and Nzuza (2017) who characterized traditional food as emotional artifacts, replete with food-based memories offering a deeper understanding of intrinsic associations between human societies and landscapes. These memories represented in food are known to produce personal narratives that strengthen collective cultural and social identities (Abarca and Colby, 2016). Hence, when appropriately explored, food attributes can provide valuable insights into a community's past. Food transitions into modern (dominant) food like tomatoes, onions, and potatoes do not reflect such memories and experiences. And contemporary studies of Adivasi foodways scarcely discuss or engage with these aspects of human-food relationships such as memories and lived experiences (Malhotra et al., 2021; Edison and Devi, 2019). These, we suggest, are critical for Kattunayakans, where traditional food systems are rapidly changing without being appropriately or fully understood.

According to Kattunayakans, unlike *kadayil ninolla bakshanam (*food from the shop), the *kattil ninolla bakshanam* (food from the forest) have multiple identities and performs several roles and functions. Forest-based foods are versatile, multifaceted and have plural identities. In interviews, community members gave detailed accounts of how forest-derived foods remedy ailments, facilitate rituals, and serve as famine-critical food. For Kattunayakan food (like crab, soil, medicinal plants) contributes in the pursual of a good and satisfactory life with each food having multiple roles to play in it. Fundamentally the knowledge that forest food possesses plural identities that contradicts the prevailing dominant understanding that food simply equates to

food-poverty alleviation and is thus easily substitutable (Rohisha et al., 2019; Ghosh-Jerath et al.,2016; Shrinivasa et al.,2014). There is evidence that forest dwelling communities are nutritionally better off in their traditional ways of living (Neelakantan, 2019). In our conversations, Kattunayakans did not directly discuss nutritional benefits of forest-based diets. However, they frequently referred to the benefits of a forest diet. For example, they often spoke to how it aided the body like a *kallu* (stone) and satiated their hunger. From a Kattunayakan perspective forest foods play an important role in maintaining nutrition, and their reluctance to change trade a hunter-forager lifestyle to a sedentary one also has an underlying nutritional rationale, in addition to social and cultural ones.

While scholarship discusses features of Adivasi foods such as geophagy (soil as food and remedy for hunger) (Traugott et al., 2019), and medicinal values (Kalla and Joshi, 2009), these studies predominantly reference these as Adivasi use of biodiversity. While interpretation of foods as part of biodiverse systems is important, but failure to reference these dimensions necessarily as fundamental features of Adivasi food systems is short-sighted. This omission, we argue, is hugely detrimental, and it is reasonable to say that if overlooked, Kattunayakan food transitions in Wayanad will contribute to the loss of traditional knowledge alongside a rich basis of underlying meanings and values. Longing for wild meat or nostalgia of traditional weapons like the bow and arrow evidences the sheer effort of Kattunayakans to continue practices only recently criminalized. Their fear of being constantly watched as they consume forest food (especially meat) indicates a deep food grief and disruption of a familiar food system. Food transitions in this context appear as sentiments of pain, separation, sadness, and vulnerability.

Food engagements in the forest often require prescribed behaviours and a considerate frame of mind. They are both rooted in their understanding that nature is not a thing but a universe of sensate and kindred beings where nothing is taken for granted and food is, only, the product of right relations. This includes the importance of celebrating food gathering as a respectful activity guided by philosophies of permission seeking, sharing, mutually responsible cultivation and, especially, gratitude (Kimmerer, 2013; Anderson, 2005). Food transitions threaten Kattunayakan understandings of their anthropogenically healthy and natural world, including all foraging ethos and associated worldviews. Unlike modern foodways and related practices, which are

transactional determined primarily by wealth, Kattunayakan food practices necessitate a mutual understanding between the giver and taker as beings involved in an interdependent economy. Kattunayakan food system, when recognized as an enabler of human-nature relations, positions the forest itself as a biocultural system (Petriello and Stronza, 2021; Argumedo et al., 2020; Trembeley et al., 2020; Johns and Sthapit, 2004) -- one that integrates culture, ecology, and place.

As observed through the lens of this Kattunayakan food system, hunger is itself different -- a collective challenge rather than an individual's failure. This also explains why Kattunayakans engaged in limited resource competition and enforced sustainable harvesting habits as captured by *"things in the forest including food belong[ing] to everyone, not just me."* Our analysis of Indigenous food systems in Wayanad suggests also that community members do not perceive the forest as a place of absolute abundance. This they would likely find is nothing more than idealized discourse or romanticism. Instead, their food-based engagements in the forest necessitate generosity, respect, and care towards wild animals and plants alongside the hard labour of harvests that must leave behind portions of tubers to ensure continuity of foods across time. Kattunayakan food systems reject fully the idea of the 'forest as a grocery store' where people walk in and forage for food effortlessly. This too contradicts often inaccurate portrayals of hunter-forager engagements as "hand to mouth existence" or "lowest dregs of humanity" (Bird-David, 2017; Anderson, 2005), whose interactions with forest are transient, random, easy, and temporary. We fear that a lack of a comprehensive understanding of the Kattunayakan foodways will make their transition to agriculture or market-based society misinterpreted as rational and progressive – and not instead as the fundamental basis of forests long anthropogenic and productive of Indigenous foodways.

While the attributes of Adivasi foodways described and characterized in this study may be specific to the Kattunayakan community living in Wayanad forests, they do as well provide a framework or starting point for other Adivasi societies in India given prevailing attention to agricultural and pastoral communities at the expense of those long extant in forest landscapes. Ultimately, policies with inadequate or misguided information can directly impede people's access to traditional food (Sylvester et al. 2016; Ibarra et al. 2011. Understanding of

Kattunayakan management of the Wayanad landscapes has barely begun, and food is perhaps the most direct understanding of how and why that system has long linked to Adivasi well-being. It is a given that traditional foodways of Kattunayakan people living around Wayanad are changing. The resettlement from forest promised with the prospect of economic development seldom turn successful, often leaving behind a frustrated community with limited opportunity to access traditional food. Many community members in these situations resort to alcoholism, smoking and drug addiction to handle their disillusion. Yet, the dominant policy narratives treat this transition, as a successful adoption of development and lifestyle progress without realizing the impacts of these changes on the local socio-ecology (Malhotra et al., 2021; Edison and Devi, 2019; Garcia, 2006).

Studies show that the transition from a hunter forager to a settled farming or a wage labourer lifestyle facilitates access to modern food that can quantitatively improve access to calories; however, alienation from traditional food also results in micronutrient poverty or create hidden hunger (Ghosh-Jerath et al., 2018; Nandal and Bhardwaj, 2014). Moreover, as demonstrated by this study, the food transitions lead to loss of several intangible human-forest associations such as knowledge, memories, identities, relationships, and ways of living. And in most cases people resettled from the forest areas remain nutritionally, socially, and psychologically worse (Neelakantan, 2020; Snodgrass et al., 2016) off than in the past. The pertinent questions are whether food security and state social supports can be more supportive of Adivasi lifestyles? and what would an Adivasi inclusive food transition look like? There is a need for more empirical studies that focus on understanding Adivasi foodways ‘beyond nutrition’ and that critique food policies that exclude the invisible losses of these food transitions. This work is a step in that direction.

Chapter 6: Conclusion

> *"Our birth, death and celebrations are all linked to forest and presence of forest around us. Our beliefs are connected to forests. Even in the rituals of burial we require things from forests. We are never separate from forest. Always together from birth to death" [Kattunayakan, Chukalikunni colony]*

Throughout history, humans have shared a deep and intimate relationship with nature. The diversity and complexity of these relations have been an inspiration for great social and sociocultural progress. For Indigenous people, the relationship they share with nature has also been fundamental to their livelihood, culture, tradition, spirituality, identity, and security (Sahu, 2019; Studley, 2018; Skinner et al., 2013). Colonization, economic development, conservation, urbanization, and industrialization have all led to widespread disruption of these human-nature associations, which are felt most acutely by Indigenous communities (Agarwal and Redford, 2009; Kabra, 2003). As 'green' colonial ways of seeing human-nature relationships became the basis for forest and wildlife management policies, Indigenous understanding of the natural world was subordinated (Brockington and Igoe, 2006; Brockington, 2002) to this dominant frame.

These observations are widespread and perhaps more noticeable in India where forests are typically state-owned conservation landscapes and Adivasis do not have a right to Indigeneity or self-determination as conferred upon similar groups in other places (Nikolakis and Hotte, 2020). Therefore, Adivasi Forest interactions and associations in India remain a point of contention despite new and seemingly progressive forest governance mechanisms like the FRA (2006), which aims to decentralize forest management (Kjosavik, and Shanmugaratnam, 2021; Dlugoleski, 2020). This thesis has explored India's Adivasis–forest interactions to bring Adivasi history and understandings of the forest to the forefront and to help voice Adivasi perspectives on why state-induced ways of separating humans and nature are profoundly damaging (Dominguez and Luomo, 2020). Toward this end, this thesis has involved:

1. Learning about 'deep' human-wildlife coexistence and the underlying Adivasi worldviews, practices, and mechanisms that enable this.

2. Acknowledging that forests as protected areas are both wildlife habitats and spaces that hold history, meanings, and culture for Adivasi.
3. Understanding that "all fires are not bad" and that coexisting with forest fire entails many prescriptions about which Adivasis are clear.
4. Recognizing intangible human-forest relationships lost through traditional food transitions and what that means to Adivasi people.

All the studies described as empirical work in this thesis are original contributions that seek to advance the understanding of Adivasi - nature relationships in India.

6.1 Strengths

A significant strength of this thesis is the flexibility and openness that research methodologies provided in integrating Adivasi perspectives and feedback at each study stage. From the start of this study, my committee and I agreed that the research would not test a predetermined hypothesis. Instead, we wanted people living in and near this forested landscape to be able to collaboratively set the themes and pace of the study. This allowed the study to provide for the primacy of participant's views including a greater say in what was studied and how. For me, this is a vital strength of this thesis. The themes that emerged inductively from these interactions enabled me to position this work as a sincere attempt to capture Adivasi perspectives and practice research that upholds decolonization objectives. The interdisciplinary nature of the research is another important strength of this work. As with other such work, this dissertation was also challenged by the absence of a specific theoretical and disciplinary home base. Yet, this lack of a disciplinary anchor also gave me the flexibility to draw conceptual references from across multiple disciplines such as anthropology, ecology, geography, other social sciences, and so made the thesis conceptually more reflective and responsive to ideas as they emerged.

6.2 Findings and Implications

The thesis examines how these forest-dwelling communities navigate the conservation landscapes of Wayanad and whether these are appropriately represented in Indian forest and wildlife policies. Through the conceptual groundwork of Adivasi political ecology and the idea of an anthropogenic wilderness, I conclude that current forest policies like the Forest Rights Act (2006) do not accurately portray Adivasi understandings of the natural world. I highlight that despite 'recognition' of Adivasi dependence on the forests, policies fail to integrate Adivasi knowledge of human-wildlife interactions, land meanings, forest fires, and food transitions.

I argue that a lack of understanding of Adivasi–forest relationship also means the existing forest and wildlife policies continue to engage in colonial practices of land management that perpetuate an utter disregard for Adivasi worldviews, ontologies, and ways of living. As observed in this thesis, Adivasi knowledge and lived experiences of the natural world continue to be viewed as 'other knowledge' that requires correction and needs validation from mainstream science to be seen as worthy of discussion. At the same time, I find that there is much expertise and knowledge that Adivasis can offer, especially on critical issues such as human-wildlife conflict, land rights, forest fire management, and traditional food transition. More specifically, this thesis provides understandings that encourage revisiting ongoing Adivasi development programs to bring inclusivity and diversity into them. These insights are advanced by the four empirical chapters in this dissertation in the following ways:

Chapter 2 explains the relationship between Kattunayakans and Wayanad forest by characterizing human-wildlife interactions in Wayanad Wildlife Sanctuary. I found that Kattunayakans perceive and interact with wild animals through the outlook and practices of deep coexistence. They portray animals as rational conversing beings, gods, teachers, equals, and relatives with shared origins who practice *dharmam*. Deep coexistence explains tolerance towards wild animals as a convivial interspecies relationship that also involves the realities of fear and conflict. Most contemporary narratives on human-wildlife interactions overtly discuss conflicts and make limited references to coexistence. I argue that delving into an understanding of deep coexistence might offer insights and lessons on inclusionary conservation approaches. I propose that Adivasi characterizations of

human-wildlife interactions through deep coexistence, when appropriately explored, will strengthen the notions of anthropogenic wilderness, and so offer a convincing rationale against policies that displace Indigenous people from protected areas.

Chapter 3 describes the meanings and values that Kattunayakan people associate with the conservation landscapes of Wayanad Wildlife Sanctuary. I found that protected areas, when seen as ancestral Adivasi Forest landscapes, offer an understanding of these spaces beyond conservation sites, wildlife corridors, and forest management units. This analysis reveals Kattunayakan protected areas as all-encompassing entities with the agency, which hold "good places and God people", and where human and non-human kinfolk with fluid identities and porous boundaries reside. Overall, this work suggests that for forest policies to sincerely integrate and coexist with Adivasi knowledge and worldviews about kinship, reciprocity, coexistence, and gift exchanges, there is a need to position Adivasis as active participants of the landscapes instead of passive onlookers. This will help support Adivasis as a rightful presence in India's forests rather as encroachers whose legitimacy is constantly questioned, and who are routinely required to prove the legality of their relationship with the forest.

Chapter 4 contributes to conversations that advance Adivasi knowledge and relationships to forest fires in conservation landscapes, particularly its operation, purpose, advantages, and threats. While forest fire is perceived as a threat and is prohibited in India (especially in protected areas), our findings highlight that Kattunayakans fundamentally understood fire as an actor, enabler of relationships, and preserver of landscape identity. This analysis suggests that Kattuanayakans perceive forest fire as a fundamental landscape feature that aids their pursuit of a good life. For Kattunyakans, forest fires are not a chemical construct, but rather an integral part of a forest where "all fires are not bad”. Policies that promote a blanket ban on forest fire reflect a poor understanding of traditional fire and a purposive disregard or direct infringement on Adivasi rights and freedom. Overall, this work suggests that bringing forward 'alternate' perspectives on forest fires provides an opportunity to raise awareness on Indigenous fire practices that disrupt contemporary colonial notions of fire.

Chapter 5 addresses the traditional food systems transition long underway among Kattunayakan people living in Wayanad forests (now a protected area) to demonstrate their human dimensions of forest food. The analysis reveals Kattunayakan 'food' as a communicator of preferences and inclinations, keeper of memories and experience, custodian of identity and aspirations, facilitator of relations and reciprocities, and assessor of effort and nurture. While modern food systems primarily pertain to nutrition and diet, these findings suggest that traditional foodways include knowledge, prescribed behaviours, practices, principles, and worldviews. This analysis also provides insights into how traditional foodways' transition into modern food systems affects the Adivasi-forest relationship. Overall, this work highlights that Adivasi's understanding of foodways remains invisible in current food policies. It also suggests that a comprehensive knowledge of Adivasi foodways and the need for their integration into food policies.

6.3 Limitations

The more than 700 distinct groups of Adivasis in India are diverse with heterogeneous cultural, historical, and identity-based interactions with forests. Yet, Adivasis are often perceived as a homogenous group with little mention of their distinct and diverse ways of living well within local ecosystems. The lack of sufficient studies that discuss Adivasi–forest relations, especially highlighting the heterogeneity of these interactions, has been a limitation for this study. Several of the findings here are specific to Kattunayakans, who participated in this study. However, the comparative political ecology of Adivasi among forests in India makes these research findings applicable to other Adivasi groups to some degree. This is particularly so in reference to the implications of misguided policy and the importance of macro-level observations that suggest that scholar push to better understand India's Indigenous people within the nation and in reference to other post-colonial states. We know well that settler nations face similar impacts from colonial forest and wildlife policies, and thus this study is also relevant to Indigenous communities worldwide.

6.4 Future Research Directions

Future research from this work suggests two key areas: First, there is a need for more comprehensive empirical studies on cataloguing and understanding various features of Adivasi relationships with forest. Forests in India are often positioned either as protected areas for wildlife conservation or as a source of livelihood without acknowledging its history as Adivasi landscapes (Johnson et al., 2018; Lakerveld et al., 2015; Joshi and Negi, 2011; Kabra, 2009). This is a key limitation in our understanding of India's forests as these studies fail to recognize the history of forest landscapes as entangled with humans. These limitations extend more specifically to our current and largely incomplete understanding of human-wildlife interactions (Kabra, 2009), to the meaning of land and forests (Mukherjee, 2020; Pandey, 2018), the anthropocentric nature of forest fire (Thekaekara et al., 2017; Schmerbeck et al., 2015), and to forest-food transitions (Malhotra et al., 2021; Edison and Devi, 2019). In short, many Adivasi understanding of forests and their underlying worldviews remain unexplored. Detailed research on Adivasi – forest interaction would have meaningful applications for the Adivasi pursuit of land rights, Indigenous identity, and sovereignty in protecting forests within their territories.

Second, further research is needed to explore the implications of economic development across non-agricultural Adivasi societies. Scholars refer to countless studies to demonstrate that economic development in the conventional sense may not be helpful for Adivasis (Bisht, 2020). They provide evidence for how economic and conservation-induced development have led to cultural erosion (Kalathingal, 2020), socio-economic marginalization (Johnson et al., 2018) and acute malnutrition and poverty (Stiller et al., 2020). Several studies also detail the benefits of resettlement of Adivasis from the forest areas, which invariably discount losses incurred in this transition, especially when considering intangible values and relationships that are lost in the process. While studies of Adivasis could lead to the romanticizing of their relationship to forests (Nadasdy, 2005), there is considerably greater danger of silencing Adivasi voices and aspirations in the absence of such work and admittedly academic fears.

6.5 Final thoughts

The first day….

I still remember the first day of my field research in Wayanad. It was a rainy and cloudy morning, and the Western Ghats' verdant landscape looked like a polished spread of emeralds. And with all the inherent naivety and excitement of a PhD scholar, I walked early in the morning into a Kattunayakan settlement. As soon as I entered the village, people closed their doors and shut their windows. They strongly demonstrated their preference to avoid interacting with me. It didn't take long for me to realize that I wasn't welcome. And for all the right reasons – I was an outsider in almost every sense of the word. So, I waited for several days, notebook in hand, trying my best to introduce myself. Then one day, an elderly Kattunayakan lady walked up to me and asked what I was doing in their village. That was my first conversation with a community member, and I was thrilled. And this is what she said to me: "If you are here to ask us if we have documents to stay in this place or force us to go to hospitals to get injections, then none of us will talk to you. But if you are willing to hear what we want to say. Then you will get our answers.". We went on to have some long conversations about the forests, and she introduced me to several other community members. To honour her wishes, when I returned from the field, I designed and developed this thesis as a place to narrate Kattunayakan people's understanding of the forest.

At every stage of my research, lessons were waiting to be learned, unlearned, and relearned. Below I list three key ones.

A step back is sometimes the best way forward.

When the forest department rejected my request to video record the Kattunayakan honey harvesting, I was disappointed and upset. The community member who accompanied me to the forest transect walks comforted me and said: "Nobody owns the forest. If it decides to show you honey, it will. Nobody can control the wishes of what forest decides to show". And as indirectly predicted, on the last day of my visit to the Sanctuary, we found a beehive. This was the opportunity to witness the beautiful and intricate honey harvesting process. Along with learning

something about all that honey entails, I also learned the importance of sometimes taking a step back, of patience.

Coexistence comes with that patience.

When community members described human-wildlife coexistence, little did I know how large the spectrum of ideas this interaction involved? They explained that this would also include waiting for hours in a jeep to let the elephants graze without feeling irritation or annoyance towards the animals. As I stayed in the jeep, a community member would often say: "Those are poor animals, no? Don't hurry them. Let them eat and go." Every wild animal I encountered in the field reminded me of the meaning of slowing down, and community members explained that coexistence with any person (including animal persons) comes with patience.

Acceptance doesn't make it right.

During discussions on the prohibition of wild meat consumption, forest fire bans, or resettlement processes from the forests, the conversations would often narrow into questions about their acceptance of the 'status quo.' Community members inevitably answered thus (or with variants of this): "Acceptance of the status quo and approval of the majority doesn't always make it right.". And rightly so, for these hunter-gatherers' -- relationship with the forest is multi-faceted. And they taught me that in research (and life), even voices of the outliers matter.

The more I think about this dissertation, the more I see how much I have learned from the Kattunayakan people of Wayanad. I will continue to take these lessons to heart and hope to make them part of my research journey, regardless of where the path ahead takes me.

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Appendices

Appendix A Community Members Consent Form

The University of British Columbia
Institute for Resources, Environment and Sustainability
4th Floor, 2202 Main Mall
Vancouver, BC Canada V6T 1Z4
Phone: 604-822-9250, Fax: 604-822-9250

Participant Consent Form

Project Title - De-mystifying the relationship of Adivasis and forests in India among the Kattunayakan communities of Kerala (India)

Principal Investigator: Professor Terre Satterfield
Institute for Resources, Environment and Sustainability

Co-Investigator(s): Helina Jolly
Institute for Resources, Environment and Sustainability

The research is conducted as part of a graduate degree and collected data will be part of a thesis.

Purpose - This study aims to improve understandings of Adivasi communities of Wayanad and their relationship to local forest ecosystems. To do this we are working with the Kattunayakan communities of Wayanad forests

Invitation- You are being invited to take part in this research because you are member of Kattunayakan communities of Wayanad and you have a long-standing association, knowledge of and work with Adivasi communities in Wayanad. Specifically, we want to understand the forest relationship fostered by Kattunayakan people.

Description of participant activities - If you say Yes, the study will occur as follows:
We will ask you about your observations and understanding of relationship between Adivasi communities and local forest ecosystem along with a few related questions (such as which plant and tree species do you particularly prefer and why or what are the main growing seasons as you define them?). The interview will be conducted at your home, workplace (such as tribal honey collection centers and tribal development office depots), forest or farm. The interview will be audio-recorded, and the duration is expected to be 2-3 hours. Notes will be written during the interview. Your participation is completely voluntary. You may withdraw from this study at any time without penalty.

Results of the study- Your interview will be added to a project database and may be included in reports and related educational materials, publications, and/or conference proceedings arising from the project. You are most welcome to request a copy of the results of the project should you wish. Please provide a mailing address we can send a report on the findings to.

Potential Risks- No potential risks are expected, although topics may arise in the course of the interview conversation that you may not have intended to include. Should you feel uncomfortable at any time during the interview, you do not have to answer questions, you have the right to stop the interview and/or inform the researcher about information you do not wish to have included in the final documentation.

Potential Benefits - The study is not expected benefit you immediately and directly however it will help to enhance the existing knowledge on Adivasi communities and their interaction with Wayanad forest ecosystems. Conclusions relevant for policy are anticipated, and as such, may result in indirect benefits for you, or for the community.

Confidentiality- Your identity will be kept confidential. Generic names and code numbers will be used to identify participants on all reports and to all external parties. While we intend to collect demographic information for the purposes of the analyses, we will not disclose names or any personal information in any of the reports or articles written as a result of this study. Under no circumstances will participants be required to divulge personal information that they do not feel comfortable sharing. All records will be kept in a secure location at UBC. Audio-video recording will be uploaded to a portable laptop and will be password-protected. Original records will be destroyed following the upload. The recordings will then be stored for at least five years in a safe location that is only accessible to our research team (see above). Paper documents will be protected. Data will be stored electronically, mainly in audio, MS word and excel formats, on the researchers' laptops and desktop hard drives. All such electronic files will be password protected and/or on encrypted machines. Access to the computer hard drives themselves will also be password protected. All documents will be identified only by code number and kept in a locked filing cabinet. Only the PI and co-investigators will have access to the raw data. The data will be discussed with our local partner agency MS Swaminathan Research Foundation (MSSRF) for the purpose of co-authoring scientific publications and preparing knowledge products for the local communities.

Compensation- In appreciation for your participation in our study, we are offering a 300 INR ($5) honorarium.

Contact for Information - If you have any questions or concerns about what we are asking of you, please contact the study leader or me. The names and telephone numbers are listed at the top of the first page of this form. If you have any concerns or complaints about your rights as a research participant and/or your experiences while participating in this study, contact the Research Participant Complaint Line in the UBC Office of Research Ethics at 604-822-8598 or if long distance e-mail RSIL@ors.ubc.ca or call toll free 1-877-822-85

Consent - Your participation in this study is entirely voluntary and you may refuse to participate or withdraw from the study at any time without any disadvantage to yourself of any kind.

NAME: _____
ADDRESS: _____
SIGNATURE: _____
WITNESS: _____ DATE: _____

Appendix B Open Ended Interview Protocol

Note: The exact wording was modified as needed in conversation and as directed by the interests and knowledge of members of the community. I began with some idea of framing my questions in reference to the ecosystem services, "the services" were quickly converted in the interview to broad discussions on human- wildlife relations, meaning of forest landscapes, forest fire, and forest food. As per earlier stating research approach, community members specifically requested to ask questions that interests them. I followed their lead.

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Open – ended Interview Protocol

Project Title - De-mystifying the relationship of Adivasis and forests in India among the Kattunayakan communities of Kerala (India)

Before Interview

- Make sure the recorder is working

The interview starts with

- Introduce yourself and the project.
- The consent form and confidentially agreement.
- Overview of the discussion.
- A reminder that this is an exploration and there are no right or wrong answers.
- Thank the participant in advance.
- Start the digital recording device.

1. What is your name? Where were you born?
2. How long you have lived in Wayanad?
3. Are you a member of Adivasi community? If yes, what tribal community do you consider yourself part of? What is your relationship to the Adivasi community? [Will prompt for both history of working/professional relationship, but if they are also Adivasi, that will come up and I will discuss that as well.]
4. What is your occupation and what are the responsibilities of your job?
5. Is your 'job' involved in activities associated with use and/or management forests services (resources)?

6. In your opinion, in what ways Adivasi communities depend on Wayanad forests? Could you mention some of the services with direct and indirect use offered by forest that are important to these communities?
7. How aware are the Adivasi communities about the importance of local forests, kindly illustrate the answer with some of your observations?
8. With regard to access of forest and use of forest resources by Adivasis, could you explain the forest areas legally (also illegally) accessed by the members of Adivasi communities?
9. According to you explain how the historical alienation of Adivasi communities from forests has impacted them. At present what are the key challenges of Adivasi communities in Wayanad?
10. Can you describe for me some of the key challenges faced by Wayanad forests? Has deforestation or forest deregulation been a problem here. Can you describe that and/or any of the things affected by that?
11. Finally, is there anything else you'd like to mention? Anything at all, whether that's about perceptions not covered yet or ecosystem relations or values not covered?

Appendix C Semi - structured Interview Protocol

Note: The exact wording was modified as needed in conversation and as directed by the interests and knowledge of members of the community. I began with some idea of framing my questions in reference to the ecosystem services, "the services" were quickly converted in the interview to broad discussions on human – wildlife relations, the meaning of forest landscapes, forest fire, and forest food. As per earlier stating research approach, community members specifically requested to ask questions that interests them. I followed their lead.

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Semi- structured Interview Protocol

Project Title - De-mystifying the relationship of Adivasis and forests in India among the Kattunayakan communities of Kerala (India)

Before Interview

- Make sure the recorder is working

The interview starts with

- Introduce yourself and the project.
- The consent form and confidentially agreement.
- Overview of the discussion.
- A reminder that this is an exploration and there are no right or wrong answers.
- Thank the participant in advance.
- Start the digital recording device.

Part I – Introduction

1. Were you born in Wayanad and how long you have been living here?
2. As a member of Kattunayaka community what is your relationship to other Adivasi communities? [*Will prompt for both history of working/professional and relationship*]
3. What is your primary occupation and what are the key responsibilities of your job?

4. Is your 'job' involved in activities associated with use and/or management forests resources?

Part II – Adivasis and ecosystem services

1. What, to you, is unique about Wayanad forest and its landscape?
2. Based on your experience and observation what are some of the things that Adivasi communities receive from Wayanad forests [*Prompt for things that are positive or negative.*]
3. [*Explain the concept of direct and indirect community benefits from forests*]. Please list some of the direct benefits that your community get from the Wayanad forests?
4. If we took this list and grouped into different kinds of things or ideas about how the forest works, which things listed would you group as similar and why? Which as different and why? [*Explore/prompt for what is similar or different to my own notion of conventional ecosystem services classification?]*
5. Also, when thinking about these different uses or 'benefits', are there things that you do to ensure that these things continue over time? Or does that matter? Why? Why not?
6. What about obligations you have to different aspects or places in the forest? [*reference of prayer sites, ancestral burial grounds or areas of forest that yield more honey*] Do you have or feel obligated to or responsible for different parts of the forest? If so, what and why?
7. [*Local Adivasi communities are known to exhibit several emotions and feelings towards the forest and natural landscapes*]. What are some of the significant feelings or emotions that you associate with Wayanad forests? [E.g. *Communities often describe a yearning to return back to forests]* Explain.
8. What about other things that the forest enables? For example, when moving through a normal day in the forest, what else are you doing or thinking about that might explain or illustrate your relationship to the forest?
9. Are there certain uses, practices or things within the forest that you think of as particularly important to you and who you are as a member of this community?
10. What about plants or animal species that are important to different ceremonial practices? [Prompt for dance occasions, life events, seasonal ceremonies, teaching childing about the forest?]
11. You rely on forest for various things such as food, honey, firewood, water. In addition to these material benefits Adivasi culture and people often tell stories about forest and forest beings. [*Give some examples from other Indigenous communities for better understanding of the non-material association of people and ecosystems]*. According to you what are some of the connections [*in form of gods, belief system, sense of belonging etc*] or reasons that Kattunayakar people have towards the forest and forest beings?
12. How would you classify these enlisted indirect ecosystem services-based Adivasi knowledge, experience, use and perceptions?

13. Do you consider any plants or animals in forests as *'swantham'* (your own)? List the name of those forest beings and why do you ascribe the designation of community members to these beings?
14. [*Local Adivasi communities are known to exhibit several emotions and feelings towards the forest and natural landscapes*]. What are some of the significant feelings or emotions that you associate with Wayanad forests? Explain.

Part III - Bi-directionality and disservices

1. [*The Adivasi way of living is based on the principles of sustainable harvest and coexistence with nature*]. Please illustrate some of the ways your ancestors contributed to the maintenance of local forests?
2. List some of the activities of Kattunayakar communities that help in the maintenance and conservation of the local forest and biodiversity in Wayanad.
3. [*Forests and wildlife contribute to services as well as disservices*]. From your experience and observation what are some of the negative services from Wayanad forests that affects Kattunayakar life?
4. What are some of the ways in which your community members are overcoming these challenges?
5. Do you think of the forest or parts of the forest as part of your world, family or relations? If so, how and why?

Part IV- Adivasi security

1. *[Adivasi elders often say that Adivasi life is to be experienced]*. What forest interactions and lifestyle are integral to Adivasi life experience?
2. If you were to rank the different species or things that you do or depend on in the forest, the things listed above, which do you see as most important Adivasi life? Why?
3. Do you recall some of the names of products/goods that your ancestors harvested from the forests? [Provide the names of few forest products commonly used by Kattunayakar people]
4. Imagine you had unrestricted access to forests, what other things would you do, or species would you harvest? What would you use these for? Do you mind, or do you have a sense of loss about not being able to do these things or does it not really matter?
5. How would these additional activities, if possible, enhance or improve the Adivasi life and experience?
6. At present, what steps are you taking to keep the forest healthy?
7. What other products do you think should be harvested or available in mainstream markets or farms?

8. What would the critical challenges be if trying to develop or meet these alternative options? Has forest policy as it has changed affected your life? Can you describe the most important changes and how you responded to those? Do you think of these changes as good or bad? For what or whom? [*Prompt also for forest policies are known the impact the supply of ecosystem services adversely by restricting access of communities to forests*].

Part V- Ecosystem services trends

1. Over the years have you observed changes in the number and availability of different resources or products from Wayanad forests?
2. If you were to mark the trends (*increasing, decreasing or stable*) of different things, what would that be? [*Walk through previous list one-by-one].*
3. According to your experience and observation has there been any change in the supply of particular resources since the Forest Rights Act, (FRA) 2006.
4. How would you explain the trends of ecosystem disservices before and after FRA 2006?
5. After FRA 2006, were the demands for ecosystem services among the Adivasis adequately met?

Part VI – Forest policies and ecosystem services

1. The removal of Adivasis from the forests have impacted the communities in multiple ways. Tell me how the restricted access to forest and ecosystem services affected Kattunaykar life and identity?
2. At present, how often do you go to forests and which areas of Wayanad forests do you go? Are there specific procedures or permits you need to secure before you access the protected areas?
3. How has restricted forest access impacted the relationship between different Adivasi communities?
4. Have you observed any changes in the Wayanad forest landscape change due to restrictions of forest land use for Adivasis?

Part VII – Adivasi resettlement and ecosystem services

1. Have you or members of your community been resettled from the protected areas? Please elaborate how the resettlement procedures are carried out by the forest department.
2. What according to you are the key reasons why Adivasi communities are resettled outside the protected areas?
3. Describe the effects of resettlement within the Adivasi societies? How has resettlement policies affected the Adivasi experience of forests and Adivasi way of living?
4. [*Living in or near forests will have its challenges, yet Adivasi still prefers living close to forests*]. What are the reasons why Adivasi has a strong preference for proximity to forests?
5. Has the resettlement benefited the Adivasis in any way? Elaborate.

Appendix D List of Nalla Sthalamghal (Good Places) with Landscape Units

Name	Landscape unit
Thavalaputhoor	Marshy wetland (Wayal)
Chakkaputhoor	Marshy wetland (Wayal)
Narimunda	Marshy wetland (Wayal)
Kakkapadam	Marshy wetland (Wayal)
Karadimunda	Marshy wetland (Wayal)
Karadimunda	Pond (Kullam)
Nalloor	Marshy wetland (Wayal)
Nalloor	Pond (Kullam)
Mavin Halla (Margatha thodu)	Stream (Thodu)
Maragatha(basavan kallu)	Low Valley (Kolli)
Nagappan Wayal	Marshy wetland (Wayal)
Muthappan Kolli (Daivahalla)	Low Valley (Kolli)
Bhajagadha	Marshy wetland (Wayal)
Bhajagadha	Low Valley (Kolli)
Vattampara	Marshy wetland (Wayal)
Ayamangalam	Stream (Thodu)
Amkutti chappathu	Stream (Thodu)
Valli padav	Marshy wetland (Wayal)
Narathi Bhatta	Hill (Kunnu)

Mudumala kallu	Marshy wetland (Wayal)
Vajagatha	Marshy wetland (Wayal)
Mooror Wayal	Marshy wetland (Wayal)
Valiya vengoor	Marshy wetland (Wayal)
Cheriya Vengoor	Marshy wetland (Wayal)
Kurichi thodu	Stream (Thodu)
Mangalankolli	Low Valley (Kolli)
Cheerodumkolli	Low Valley (Kolli)
Chettiyalathoor	Marshy wetland (Wayal)
Panamkunnu	Hill (Kunnu)
Venna thodu	Stream (Thodu)
Vatta Wayal	Marshy wetland (Wayal)
Manjal thodu	Stream (Thodu)
Menmanattu Wayal	Marshy wetland (Wayal)
Thalukolli Wayal	Marshy wetland (Wayal)
Machikudi Wayal	Marshy wetland (Wayal)
Nallathanni Wayal	Marshy wetland (Wayal)
Chundakolli	Low Valley (Kolli)
Peralmukku	Marshy wetland (Wayal)
Chekuttan para	Maram Kadu (Tree area)
Neeralthalam	Marshy wetland (Wayal)
Kolambi kallu	Marshy wetland (Wayal)
Sodalakallu(chodalakallu)	Maram Kadu (Tree area)

Kattihalla Wayal	Marshy wetland (Wayal)
Kattihalla thodu	Stream (Thodu)
Moolahola	Marshy wetland (Wayal)
Ponkuzhi Wayal	Marshy wetland (Wayal)
Thakarappadi Wayal	Marshy wetland (Wayal)
Marurhuvadi Wayal	Marshy wetland (Wayal)
Koundan Wayal	Marshy wetland (Wayal)
Sallithodu Wayal	Marshy wetland (Wayal)
Ayamangalam	Marshy wetland (Wayal)
Chekidimoola	Marshy wetland (Wayal)
AmboothiWayal	Marshy wetland (Wayal)
Kottikappu Wayal	Marshy wetland (Wayal)
Kadukkakuni Wayal	Marshy wetland (Wayal)
Puthanchiramoola	Marshy wetland (Wayal)
Arakunji	Marshy wetland (Wayal)
Edavambam	Marshy wetland (Wayal)
Manchal puzha	River (Puzha)
Kathiapalam	Marshy wetland (Wayal)
Kattichakalam	Marshy wetland (Wayal)
Kolachi	Pond (Kullam)
Udimaram	Marshy wetland (Wayal)
Machikudi	Marshy wetland (Wayal)
Kumizallam	Marshy wetland (Wayal)

Ponkuzhi puzha	River (Puzha)
Ponkuzhi Burial site	Maram Kadu (Tree area)
Ponkuzhi temple	Maram Kadu (Tree area)
Alathoor Kavu	Maram Kadu (Tree area)
Alathoor Temple	Maram Kadu (Tree area)
Amboothi Wayal	Marshy wetland (Wayal)
Anacyamp river	River (Puzha)
Kuzhimula River	River (Puzha)
Chukalikunni River	River (Puzha)
Chukalikunni Temple	Maram Kadu (Tree area)
Kuzhimoola Colony	Adivasi settlement (colony)
Ponkuzhi Colony	Adivasi settlement (colony)
Alathoor Colony	Adivasi settlement (colony)
Kuzhimoola Colony	Adivasi settlement (colony)
Alathoor Colony	Adivasi settlement (colony)
Anacyamp Colony	Adivasi settlement (colony)
Chukalikunni Colony	Adivasi settlement (colony)

Appendix E List of Kattunayakan forest-based food

Table E.1 List of Kattunayakan forest-based food referenced in the interviews
[*Note: The scientific or common name of these items were not identified]

Kattunayaka Name	Scientific Name	Common Name
Anavae	**Mushrooms**	
Hullanave	*Lycoperdon Sps*	Puff balls
Nayetanave	*Termitomyces Sps*	Termite fungus
Monchanave	*Phellinus Sps*	Jackfruit mushrooms
Uppihuyanave	*Macrolepiota Sps*	Parasol mushroom
Kolanave	*Termitomyces Sps*	Termite fungus
Chappu	**Leafy Greens**	
Chuvappu Cheera	*Amaranthus Spinosus*	Spiny amaranth
Cheera Chappu	*Amaranthus Viridis*	Green amaranth
Churuli Chappu	*Diplazium Esculentum*	Vegetable fern
Kattucheera	*Amaranthus Caudatus*	Pendnt amaranth
Thavara	*Cassia Tora*	Sickle senna
Pazham	**Fruits**	
Eachil	*Aporosa Lindleyana Baill*	Aporosa, Kodali
Chadachikkaya	*Grewia Tiliaefolia Vahl.*	Unnam, cross berry
Njara Pazham	*Syzygium Cumini*	Indian blackberry
Pindichakka	*Randia Uliginosa*	Indigo berry
Kalasu	**Dioscorea**	
Venni Kalasu	*Dioscorea Hamiltonii*	Venni
Hekku Kalasu	*Dioscorea Belophylla*	Air yam
Nara Kalasu	*Dioscorea Wallichii*	
Noora Kalasu	*Dioscorea Pentaphylla*	Fiveleaf yam
Korana	*Dioscorea Pentaphylla*	
Thenu/Jenu	**Honey**	
Kombu Jenu | Daddanjen	*Api florea*	
Puttu Jenu | Dojjan	*Apis cerana*	
Cherujen	Trigona or sting-less bee	
Kothukujen*		
Njali/Nelli	**Crab**	

Gundranelli*		
Karinjendu*		
Vayalnjendu	*Scylla serrata*	Mud crab

Table E.2 Forest foods Images (a) Tubers (b) Leafy greens (c) Honey hive (d) Fish [left to right]




Appendix F List of Kattunayakan words

Kattunayakan word	English translation (closest)
Aallu	person
Aana	Elephant
Acchan - Amma	Father - Mother
Adakka	Areca nut
Adi	Original
Adikadu	Undergrowth
Ambalam	Temples/ God places
Bandhu	Relative
Bandhukal	relatives
Bhudiulla Jeevikal	Intelligent beings
Budhi	Intelligence
Chandi	Garbage
Chappu	Green leaves
Chatikila	Cheat
Cheera	Spinach
Chulli	Dried mature undergrowth
Daiva	God
Daivanghal	Gods
Dharmam	Alms

Dosham	Evil
Ellam	All encompassing
Forestkaranmar	Forest department officials
Hethan	Deceased elder
Kadayil ninolla bakshanam	Food from shops /market food
Kadu	Forest- Includes other topographic features like wetlands, ponds, valleys, hills within it.
Kadu Thiee	Forest fire
Kalasu	Tuber
Kallu	Stone
Karadi	Bear
Kattil ninolla bakshanam	food from the forest
Kolli	Low valley
Kombu thenu	Big wild honey
Kunnu	Hill
Mamsam	Meat
Manasu	Mind/Heart
Mezukiya	Plastered with cow dung or clay
Moothatu	Mature, thick, dry, old
Mulaku	Chilli
Muthali	Tribal chief
Muttam	Front yard

Nalla	Good
Nalla Manasu	Good heart
Nari	Tiger
Nayakan	Leader
Njangale Polle	Like us
Njeli/ Njali	Crab
Ottayaa	Lone tusker
pachha marunnu	Forest medicines
Pattam	Quantity equivalent of a medium sized tin
Petta Amma	Biological mother/birth mother
Ponda	Undergrowth, usually made of dried and mature invasive plants like Lantana Camara, Senna
Pukayila	Tobacco leaves
Puzha	River
Sathavaru	Deceased elders/ancestors
Sathyam	Truth
Shalyam	Troublesome
Shari	right
Shudham	Pure
Swantha Ala	Our own people
Swantham	Own
Swantham kadu	Own forest

Thallu	Leafy greens
Thiee	Fire
Thiee	fire
Uppu	Salt
Valiya	Big/elder
Vasi	Inhabitant
Vettila	Betel leaves
Virunnu	Feasting visits to relatives
Vivaram	Logic
Wayal	Marshy wetland