

Landscape Modifications and Human Wild Conflicts in Chaliyar River Basin, Kerala

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Abstract

Human labour is responsible for landscape modification all over the world. The nature of human labour and the landscapes produced are largely determined by the power relations of production in which the labour is engaged. Modifications of the forest landscapes due to human interference is a great concern in the state of Kerala in the context of increased human wild conflicts in the forest fringe zones. The modification of forest landscapes by various activities such as the production of plantation landscapes, raw material extraction for industries, and forest encroachments in the state's forest fringe zones has resulted in an increase in human-wild conflicts. Every year, human-wildlife conflict results in the loss of many human lives, agricultural products worth billions of rupees, and built infrastructure. The current study attempts to examine forest landscape modification and the resulting human-wildlife conflict in the Chaliyar River Basin of Kerala.

KEY WORDS: Landscape modification, human wild conflict, forest fringe zone,

Introduction

The earth surface is continuously changing, various factors have contributed to this change.

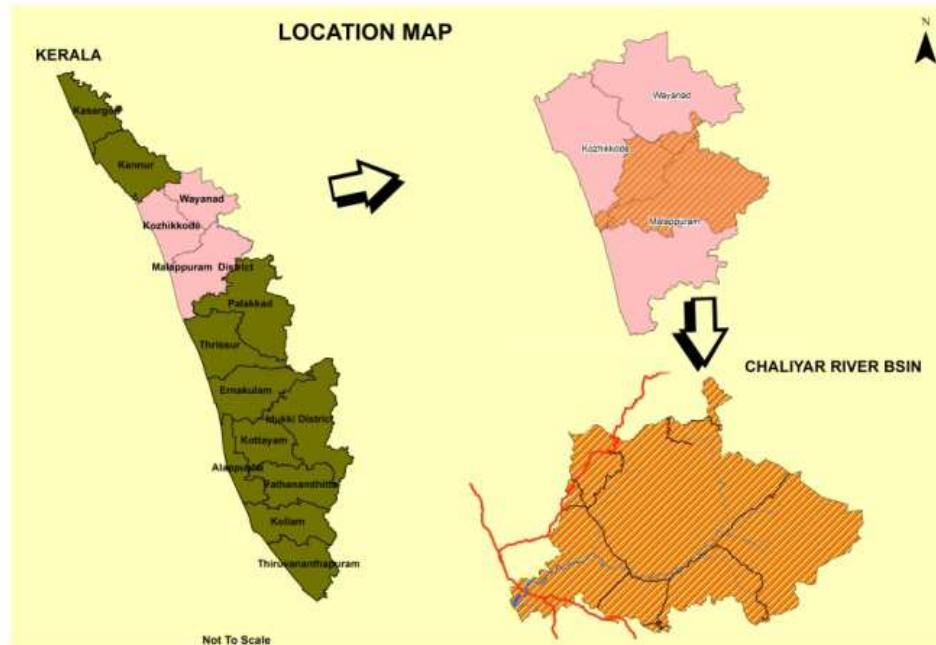
Land change, according to Arsanjani (2012), is a complex phenomenon caused by a variety of biophysical, socio-political, and economic factors. Human-caused changes have accelerated and become irreversible over the last 150 years (Battrick, 2006). Humans now dominate the entire planet, altering it in ways never seen before (Vitiusek et al. 1997; Steffen et al.2011). Human labour on the earth's surface, in various forms, have irreversibly altered it, it is an incessant process. In the last few decades, large-scale landscape modification has occurred all over the world (Farina, 2000; Foley, et al.2005; Meyappan and Jain 2012). Modern man has conquered the entire world by modifying it to meet his needs. According to World Bank data, 37.265 percent of the earth's land area was under agricultural land use in 2015, 2.7 percent was under urban land use, and 30.82 percent was under forest cover. Forest landscape change in the tropical developing countries are mostly the outcome of three factors, they are deforestation, agricultural expansion and infrastructural development (Davidar, et al. 2010; Geist and Lambin 2001; Lawrence 1998). Landscape is always multi layered entity, it encompasses the visible as well as the important invisible characters such as labour, power relations, social relations that are played behind its production (RatheeshMon, 2019). Kerala had a turbulent history marked by various ruling classes and dynasties. The state's distinctive landscape sets were shaped by feudal, colonial, and post-colonial rules, as well as the resulting socio-economic situations. The state's forest landscape modification has resulted in large-scale human-wildlife conflicts. The current study attempts to analyse landscape modification and the resulting human-wildlife conflict in Chaliyar River Basin, Kerala.

Location of the basin

Chaliyar river basin covers an area of about 2923 Km² and it lays between

Kabani and Murat river basin in the north and Kadalundi river basin in the south. The basin is located between 11°06'07"N to 11°33'35"N latitude and 75°48'45"E to 76°33'00"E longitude. This area comes under the survey of India's (SOI) 58A and 49M Degree sheets. The basin constitutes parts of three districts Viz, Kozhikode, Malappuram, Wayanad of Kerala and parts of Tamilnadu. Chaliyar basin covers an area about 2542 Km² in Kerala, in which Kozhikode district covers about 636 Km² in the northwest, Malappuram district covers about 1794 Km² in the east and south, Wayanad district covers 112 Km² in the north.

Figure 2.1: Location of Chaliyar river basin



Source : prepared from SOI topographical map and administrative map

Forest landscapes

Forest landscapes are areas of natural vegetation that have remained relatively unchanged over time, with no significant human interventions or alterations. The forest landscapes of the basin are rich in biodiversity and home to a variety of Adivasi communities. Adivasi communities can be found in the interior as well as on the fringes of the forest, depending on their stage of socio-economic development. The forest landscape of the basin is primarily spread across the eastern and north-eastern highlands and rolling plains. The dense forest cover is mostly found on the western slopes of Western Ghats. The forest landscape covers a total area of 75907.986Ha, with the majority of it located in the Nilambur valley. The vegetation of the forest landscape is divided into four types: evergreen forest, semi-evergreen forest, moist deciduous forest, grasslands, and sholas. A large area of the basin is covered by moist deciduous forest.

Based on the difference in the material interaction between humans and the biophysical environment, the forest landscapes in the basin can be divided into two as interior forest landscapes and forest fringe zones (RatheeshMon,2019). The primitive gatherer Adivasi community Cholanaikkans live in the interior forest, which is unaffected by external society invasions. The interior forest landscape is Kerala's least altered human-inhabited landscapes. The socio cultural and economic activities performed by the inheritance of the interior forest landscape are highly in tune with

the functioning of the ecosystem. The only economic activity performed by this community is the collection of forest products. The absence of cultivation and domestication of animals make the life of this cave dweller community in harmony with the seasonal swings of the forest.

The forest fringe zone is a transition zone between the mainstream society and the natural undisturbed forest (RatheeshMon,2019). Human interference in the fringe zone is more prevalent in the form of grazing, firewood collection, poaching, forest land encroachment, raw material collection and plantation activities. This zone is inhabited by many Adivasi communities in an advanced stage of modern social and economic life. Migrant settlers from Travancore, as well as from Malabar's lowland and midland regions, make up a substantial portion of the population in this landscape. Colonial plantation activities, migrant settlers' agricultural development, and infrastructure development for tourism development have transformed this landscape into a transition zone between the forest and the mainstream society.

Area under Forest 2018

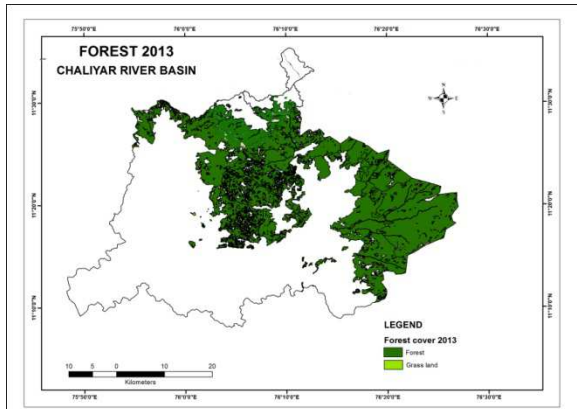


Table 3.1: Types of Forest in Chaliyar River Basin.

Types of forests in Chaliyar river basin (Ha)					Total area
Ever green	Semi ever green	Moist deciduous	Grass lands and shola	Plantation and Others types	
11519.768	15459.266	29332.542	5176	14419.91	75907.486
15.18%	20.37%	38.65%	6.8%	18.99%	100%

Source: Forest working plan 2011

Modification of the Forest Landscapes

Human labour is the basic force that makes landscape change possible, the nature of labour and the landscape it produces is determined by the power relations of production. The interior forest landscape of the basin is the result of primitive power relations based on community customs and beliefs rather than the capitalistic political economy. Therefore, the interior forest landscape in the basin is largely in pristine condition, it is inhabited by Cholanaikkans and are protected by the strict forest conservation laws as well as by the customs and believes of the community. Cholanaikkans leads largely a deterministic way life based on environmental conditions, without any cultivation, well-built houses, grazing animals, and colonies, so the landscapes they inhabit are unblemished. In an interview, 71.42 percent of Cholanaikkans responded that there have been no changes in their habitat during their lifetime, while nearly 9.5 percent believe that the number of Dammer trees in the

forest has decreased due to the temperature increase. Approximately 14.3 percent of respondents believe that there has been a change in animal behaviour, particularly among elephants, which have become more violent and dangerous in recent years.

The forest fringe zone exists like a transition zone between the interior forest and the main settlement area. It is a narrow belt that runs along the forest boundaries in the east and north-east. The zone is home to Adivasi communities as well as migrants from Travancore and the lowlands of Malabar. This area has undergone substantial changes since the colonial era. Human-wildlife conflict is extremely severe in this zone. Several factors, ranging from colonial plantation expansion to recent tourism development, have contributed to the modification of the forest fringe zone.

Factors of forest landscape modification

Various factors had contributed to the modification of forest landscapes in the basin. Human labour is the basic force that shapes any landscape over the surface. The nature of human labour and resulted landscapes are largely determined by the power relations of production that had sway over the area (RatheeshMon, 2019). The Chaliyar river basin had witnessed the transition of several power relations from feudal to neoliberal, each of which had its own impact on the basin's forest landscapes. The interior forest landscapes are the result of a primitive power relation in which no one had private property ownership and people lived in a premodern way. The feudal power relation had slightly modified the forest landscape of the basin. During the colonial period, forest landscape of the basin underwent significant change. The strict enforcement of forest conservation and wild life laws during the post-independence period also aided in the conservation of the forest landscape. During the neoliberal period, large areas of forest were used and converted for tourism promotion and revenue generation. All of these power relations, from feudal to neoliberal, left their imprints on the forest landscapes of the basin.

Colonial Invasion

The colonial power relationship had caused irreversible changes in the basin's forest landscape, which had a significant impact on both people's and wild life's lives. The colonial government implemented systemic governance and forest plantation to meet the timber demand of East India Company for industrialization and colonial expansion. Until colonial rulers intervened, the forest in the basin was largely natural and harmoniously inhabited by several Adivasi communities. Nilambur Kovilakom and Zamuthiri Raja of Kozhikode controlled all of the forestland in the study area. Prior to the colonial invasion, teak was a royal tree, and felling teak was a royal privilege in Malabar. Teak was only used to build temples and Namboothiri illams (Michael,2001). The introduction of plantations and the extraction of timber for shipbuilding were the two major interventions made by the colonial government in the the forest landscape of the area.

Timber Trade

The history of timber trade in the basin is intertwined with the history of shipbuilding. Baypore was a major shipbuilding centre on the Malabar Coast from the 15th to the 18th centuries. During the colonial period, timber trade in the region went through two stages, the first with local timber trade and the second with the colonial monopoly over timber trade. Until the end of the 18th century, the forest in the area was privately owned by a few Rajas, and the region's timber trade was almost entirely controlled by local Mappila merchants (Mann,2001). Mr. Macknochy's suggestion in 1799 to divide Malabar's the forest of Malabar into two regions as forest and jungles kicked off colonial intervention in the timber trade of the region. During the colonial

administration, timber extraction from the forest fringe zone was at its peak. Around 1000 teak trees were brought down through the Chaliyar river in 1799 alone, at a cost of 9 or 10 rupees per candy (James 1981). Between 1802 and 1810, a survey for classifying forest timber was conducted in the region. As a result of the survey, the British government declared a monopoly over teak on the Malabar coast in 1807. (Mann,2001). The colonial government's monopoly over the forest resources began in 1806 with the appointment of Captain Watson as forest conservator. The colonial government abolished all private property ownership in the forest resources of the basin in 1807. By the 1820s, the British government's timber monopoly had been abolished due to an insufficient supply of timber from the area to meet the needs of the Bombay Dockyards, as well as a relative decrease in supply due to monopolistic extraction. Between 1823 and 1833, there was a massive increase in timber extraction, export, and price. The colonial intervention in the timber trade resulted in widespread destruction of forest landscapes in Nilambur and surrounding areas.

Introduction of Teak Plantations

Forest landscapes in the study area constitute natural as well as plantation forests, Nilambur valley, and Amarambalam region have well developed plantation forest. The shortage of timber in the Mumbai dockyard compelled the colonial government to think about forest plantations in the forest fringe zones of the basin. In Nilambur, the plantation was first suggested in the 1840s, by the Madras collector Conolly. As the first step towards opening up of plantations, the colonial government acquires natural forest land from Thrikklayur devaswam on 10th December 1840. After acquiring this forest area they obtained the present Nellikkuth block from Zamorins of Calicut for plantation in 1841. The new Amarambalam forest was acquired for the opening of teak plantation in 1887, this forest became the absolute property of colonial government (Krishnan,1995). The first teak plantation in the river basin opened in an experimental basis in the year of 1842 on the west banks of Chaliyar river near Nilambur(Lushington1907). A portion of this oldest teak plantation plot accounting an area of 5.7 acres is preserved as a monument in the name of Canolly at Nilambur on the banks of Chaliyar. After starting plantation experiments in the land, they acquired more forest land in 1877 from Wandoor Namboothiri. Until 1862 about 1512.71 Acres of forest were cleared in the forest fringe zone of the basin to plant teak (Krishnan,1995). By 1876 about 3100 acres of forest land came under teak plantation. Several roads and buildings were built in the forest area during this period. Moist deciduous and semi evergreen forests of Nilambur south division form the natural habitat of teak. In such forest areas teak accounts about 10 percentages of the tree species. Such forests were clear felled and replanted with teak from 1917 in Karulai range. Final felling of the teak plantation that has attained rotating age was started in 1966 and from 1967 onwards series of second rotation teak plantations were raised in the basin. As per the forest working plan during 1999-2000 about 6365397 rupees were spent in the south division in various heads, and an amount of 1533672 rupees were collected as revenue from timber sale from the division (Forest working Plan,2001). This reveals the extent of the economic importance of the forest landscape in the region.

Travancore-Malabar migration

High population pressure, Second World War and resulted food scarcity and high pressure on agricultural land in Travancore worked as a push factor for the Travancore-Malabar migration (Joseph ,2008). Massive movement of people from Travancore to Malabar happened between 1930-1980, majority of the migrants were

Christians. The migrant community settled in the highland region of the basin by deforesting an ample amount of forest cover. They settled along the forest fringe zone and began to expand their cultivation in the cleared forest. By the arrival of Travancore migrants, people from the low lands and midlands of Malabar also began to migrate to the forest lands of the highlands in search of more arable land. The migrant settlers were mainly interested in cash crop cultivation. They began to grow crops like rubber, pepper, ginger and so on, in the cleared forest. The spread of plantation agriculture by the migrant settlers was a major modification in the natural forest cover of the fringe zone. More than 70% of the rubber plantations in the forest fringe zone belongs to the migrant settlers. Therefore Travancore-Malabar migration and the migration from the low and Midlands of Malabar played major role in the transformation of the forest fringe zone in to the present condition.

Industrial development

The post-independence Nehruvian development strategy had a significant impact on the forest landscapes of the basin. Kerala's first elected government invited the industrial behemoth Birla to establish a forest resource-based fibre industry in the Chaliyar river basin, with the goal of bringing economic development through industrial development. The Mavoor Gwalior Industry, which started on the banks of the Chaliyar River in Mavoor, wreaked havoc on the forest landscape of the basin. During the first few years of operation, the government provided 2 lakh tonnes of bamboo per year at a cost of one rupee per tonne to the factory. Between 1984 and 1998, the company consumed nearly 20 lakh tonnes of bamboo from various forest divisions throughout the state. Up to 1998, the company and the state forest department had planted 29489 ha of eucalyptus in the state's forest and non-forest lands. Between 1963 and 2001, the factory's ruthless collection of bamboo, reeds, and other soft woods put the bamboo resource of the basin in grave danger, and the factory frequently faced severe raw material shortages. The massive extraction of bamboo, canes, and reeds by the factory resulted in severe food shortages for many animals within the forest area. Elephant trapping was another significant issue associated with the Mavoor Gwalior industry's bamboo extraction in the region. Increased human intervention within the forest in the form of labour for bamboo extraction and transportation for industry has resulted in an increase in the issue of man-environment conflicts within the forest, particularly with elephants. There was a significant increase in elephant trapping in the area during the period of bamboo extraction for the Mavoor Gwalior Industry. Approximately 96 elephants were trapped in and around the basin between 1960 and 1998. (Sreedhar,2000). Almost all wild animals were increasingly threatened during this time period as a result of hunting and increased human intervention in the forest.

3. Forest Encroachments

Forest land encroachment is a serious problem in almost all forest divisions of Kerala. According to data provided by the forest and wildlife department in 2016, the basin has 684.53 Ha of forest land encroachment. According to the same data, the state has 7801 Ha of forest land encroachment. Several plantations in Nilambur North Division have been reported as unlawful and are subject to recovery. Newspapers reported over 2000 illegal plantations on forest land in the forest fringe zone of the basin. Several illegal granite quarries are also operating in this zone. Along with the larger encroachments, thousands of small-scale forest encroachments are appearing throughout the basin.

Overgrazing

As per the opinion of forest officials, overgrazing is another important factor which modifies the forest landscape. Livestock ranching is the major economic activity of many Adivasi and non-Adivasi communities living on the forest fringe zone. Their herds are completely depended on the natural pastures in the forest fringe area. Overgrazing destroys the pastures by suspending the grass growth, the absence of a recovery period between grazing cause desertification of the land. Overgrazing caused soil erosion and biodiversity loss in the region. The forest fringe zone is a transition zone with remarkable modification. The most important factors which influenced the forest fringe zone include the colonial invasion and the Travancore - Malabar migration. The landscapes are modifying at local levels because of several regional factors.

Labour engagement

Forest fringe zone is produced and modified largely by the migrant labours from the 'mainstream' society. Human labour is the major force which modifies landscape in any area. The nature of labour and landscape produced by the labour is largely controlled by the power relations of production under which the labour is employed (Ratheeshmon,2019). In other words, the landscape which is produced by human labour in any time period will reflect the political economic interest of the power relation under which the landscape is produced. The forest fringe zone of the basin began to transform by the colonial period onwards, the labour engagement as plantation workers, timber collectors during the period altered the landscape considerably. The Adivasi community living in the forest fringe zone were gathers, hunting guides and timber workers until the Travancore-Malabar migration. By the development of forest plantations and rubber plantations, they became agricultural labours. Most of the Adivasi people living in the forest fringe zone are now plantation workers. In some colonies, timber work in the government timber depot is main occupation. Agricultural activities and livestock ranching is the main occupation in some places. Seasonally they became gatherers and basket weavers, they practice fishing at a subsistence level. In recent years NREGA is providing ample amount of employment to the Adivasi communities living on the forest fringe zone.

Human - Wild conflict

Human-wildlife conflict, which take many forms and vary greatly in intensity, is one of the most serious threats to India's wildlife (Gureja et al.,2003). Human-wildlife conflicts have an impact on the lives and security of both humans and animals. It has a long history, but its intensity and complexity have grown exponentially over time and will most likely continue indefinitely (Gureja et al.,2003). Elephants, wild boars, monkeys, and snakes are the most common wild species that enter settlement areas and cause conflict; carnivorous animals such as leopards and tigers are also causing significant tension in the forest fringe zone (Nameer and Mohan,2019). According to Kerala Forest Department statistics, 173 people were killed in human-animal conflicts between 2010 and 2020. During the same time period, 64 elephants were killed as a result of various human actions (Bose,2020). As per the data compiled from forest departments, news reports, and primary surveys, approximately 50 people were killed by wild elephants. Elephants are one of the most problem making wildlife species in the forest fringes of India, it has caused extensive crop and human-life damage (Rohini,2016). Aside from this nearly 27 by tiger attacks, eight bear attacks, and six leopard attacks on human were reported in the river basin between 2000 and 2010.

The forest fringe zone is in a transformation for the last few decades, it is transforming from forest landscape to intensively cultivated areas with many other economic academic activities. This transition has made far-reaching changes both in the ecosystem and the life of people directly and indirectly. According to the natives, one of the most serious issues associated with the transformation involving significant human intervention is the rise in human-wild conflict. Every day, the news is filled with reports of human-wildlife encounters in the area. The major conflict that occurred in the area are discussed in detail below.

Animal attack on humans

Animal attacks on humans have increased in the state in recent years. In 2020, 20 people were killed in elephant attacks in various parts of the state. In the first five months of 2021, 14 people were killed. According to forest officials and residents living on the forest fringe zone the human-animal conflict is on the rise in the state. Animal attacks on humans have become a common occurrence in the forest fringes. According to data gathered through interviews, there were 64 incidents of serious wild animal attacks on humans, in which 66 people were seriously injured and 14 were killed. The increased number of wild animal attacks on humans restricts people's freedom of movement in their natural habitat, causing considerable tension between natives and forest officials. As the major in habitance of the forest fringe zone, Adivasis are the most affected people by the attack of wild animals, with women being the most vulnerable. Elephants are the main cause of casualties in the area, but wild boars and leopards are also rise considerable threat to human lives. Leopard and Tiger attacks have also increased in recent years.

Attack on domestic Animals

Because of the decline in edible plants, many herbivorous animals have moved into human settlement areas. Food plant scarcity can be seasonal or caused by the spread of invasive plants and by the commercial extraction of plants from the forest. Carnivorous animals primarily enter settlement areas in search of prey. Leopard attacks on domestic dogs and livestock are a common incident in the region. In the basin area, nearly 43 incidents of leopard attacks on domestic animals have been reported in the last ten years. Cows, dogs, goats are the major animals attacked by leopards in the basin. When animals like tigers and leopards get old, they lose their ability to chase and find prey in the forest, so they move into settlement areas to find prey more easily. Many such cases have been reported from the study area in recent years. some animals like fox and wolves also congregate near the settlement area in search of prey. Such incidents are common throughout the basin's forest fringe areas.

Unusual Animal Deaths

Another issue associated with human interference in the wildlife area is the death of wild animals. Unusual wild animal deaths are common in the forest fringe zone. Until recently, hunting was very common in this area. The strict protection and conservation laws play vital role in saving the animals from hunting to a large extent. Anyhow occasionally there are news coming out about hunting practice in the forest landscape. Elephants are the animal mostly found dead in the forest fringe zone. Nearly 40 elephants were found dead in the forest areas of the basin in last ten years. Other animals include spotted deer, sambar deer, monkeys and wild boar. Hunting, poisoning, eating plastic, and electric shock from fencing are the leading causes of animal deaths in the area. The Kerala government recently granted permission to kill wild boars that cause crop damage.

Crop Raiding

Crop raiding is a major source of conflict between farmers and wildlife around the world, and it is increasing tensions between forest officials and local communities living on the forest fringe zone (Hill et al., 2002). Crop depredation by elephants has been recognised as the most serious human wild conflict issue in most of the Indian states (Sukumar & Gadgil 1988; Ramakumar et al. 2014). Both summer and winter seasons are marked by animal depredation in the forest fringe zones of the state. In Kerala higher incidents crop raiding by elephants are found in rainy season (Easa & Sankar 2001). The summer season is also marked by animal infringement due to a lack of edible plants and water within the forest (Ratheeshmon,2019). The agricultural calendar has a significant influence on patterns of wildlife conflict in areas with large seasonal crops in forest fringes (Wilson et al. 2013). Plantains, which are grown on the forest fringe zones, attract wild animals such as elephants to the cultivated areas. Animal depredation in the agricultural field is a common incident in the basin's forest fringe zone. Farmers lose crops worth crores of rupees every year due to animal attacks. The main animals that cause losses to farmers in the region are wild boar and elephant. Fruit crops, tuber crops, plantains, paddy, coconut plants, and rubber are the most vulnerable to animal predation.

Infrastructural loss by animal attack

Wild animal attacks have also resulted in widespread infrastructure damage in the basin. In this regard, elephants are the most destructive animal. During the summer, elephants become more aggressive and enter human-inhabited areas in search of drinking water and food. According to the majority of respondents and data from the newspapers, elephants are the animal that causes serious infrastructure loss in the forest fringe zone. During summer elephant troops destroy the water tanks, pipe lines and other water sources in the area. Elephant attack on houses, compound walls, water tanks, electric posts are a common problem in this region. The increased incidents of elephant attack on people and their property created a strong negative attitude towards elephants among the forest fringe dwellers.

Factors responsible for Man wild conflict

Interviews with different forest officers and peoples living in forest fringe zones of Nedumkayam, Karulayi, Munderi, Edakkara, Vazhikkadavu revealed that, the following are the major factors responsible for the increased incidents of man wild encounters in the forest fringe zone of the basin.

Loss of habitat and spread of invasive species.

Deforestation and human interventions in the forest as plantations, raw material extraction and other manner have caused the loss of habitat to several animal species in the forest. Large areas of natural forest have been cleared in the Nilambur region for monoculture teak and rubber plantations (Kakkoth 2001). Bamboo extraction for Mavoor Gwalior Industry caused the loss of habitat and shortage of food for several animals in the region (Sreedhar,2000). Because of the loss of habitat and edible plants caused by this process, animals have moved into human-inhabited areas in the forest fringe zone. The government has established several teak and rubber plantations in the forest, resulting in the destruction of several species' habitats. The use of organic manures and fertilisers in plantations has resulted in the spread of invasive plants throughout the forest. This eventually spread across the forest, reducing the availability of edible plants. The main causes of the increase in human-

wildlife conflict in the forest fringe zone are habitat destruction and food scarcity within the forest habitat (Sarkar et al. 2013). During the field visit, it was discovered that the ground in the forest plantations is entirely covered with invasive plants and most of them are not edible to the animals. Major invasive plants identified in the forest area during the field visit are *Mucua bracteata* (Nalumani poovu), *Chromolanea odorata* (Communist appa), *Merremia vitifolia* (Manja kolambi valli), *Mimosa diplotricha* (Aana thottavadi), *Pueravia phasecoloides* (Nilapayar). As per the study conducted by Kerala Forest Research Institute the plants identified above are highly problematic in the forest ecosystems and they badly affect the food availability of the herbivorous animals in the forest (TK. Hrideek, Scientist KFRI).

Increase in animal population

As per the opinion of both tribes, forest officials, and local people the number of many wild animals has increased in the forest in last few years. Nearly twenty five percent of respondents have the same opinion. Strict wildlife conservation rules and prevention of hunting helped in maintaining the wildlife population in the area. Increase in elephant population and migration from the nearby forests is considered as the major reason for increased man wild conflict in India ((Karanth & Nepal 2012). As per the opinion of Hamza lives near the forest fringe at Karulai “the number of animals has increased alarmingly, elephant, wild boar, spotted deer has increased several times, it is mainly because of the banning of hunting”. Bharathan a cultivator at Pothukallu opined that “the animal population was far larger when we migrated to this place, then cultivation was very difficult with wild boars and elephants, we resisted their attack mainly through hunting and use of guns, dogs, crackers, etc, now again their population began to increase, and they are not afraid of our traditional preventive measures, animals seem more violent in these days”. As per the opinion of Mani Adivasi forest watcher “our wild life laws also has major role in increased incident of man wild conflict. Strict monitoring of hunting resulted in population explosion in many species. Farmers and planters in hilly region have the opinion that, permission should be granted to shoot the pigs and other destructive animals to reduce the problem of man-wild conflict.

Injured and old animals

Carnivorous animal attack on human and domestic animals are very common in the forest fringe zone. As per the opinion of Nilambur forest Ranger Raveendran, only injured and age-old animals will enter into the human inhabited area in search of food. When the animals became weak to chase and find the prey they will enter into the human inhabited area. Seven leopards and two tigers caught from the human settlement area of the basin during the period was either age old or injured.

Forest Encroachments

In Nilambur north division several plantations have been reported as unauthorized and are under recovery by the forest department (Madhyamam daily, 23/10/2014, 25/07/14.). Newspapers reported more than 2000 forest encroachments in Nilambur north division (Madhyamam, 20/03/15). There are several illegal granite quarries also functioning in the forest land of the fringe zone. (Madhyamam,26/11/2014. Malayalammanorama daily 02/02/15). All this illegal forest possession and usages paved the way for creating disturbances to the wild animals. The evacuation of animals from their traditional habitat is cited as the main cause for conflict between man and animals.

Conclusion

Human labour, under various power relations, had transformed a large portion of the basin's forest landscapes into a transition zone between main stream society and forest, known as the forest fringe zone. Different power relations of production from colonial to neoliberal, had played a role in the transformation of these landscapes. Increased human interference in the forest has resulted in increased conflict between wild animals and humans. Many wild animals in the region have lost habitat as a result of plantation development, deforestation, industrial raw material extraction, and forest encroachments. The spread of invasive species in the forest has resulted in a scarcity of edible plants. Human-wildlife conflicts in the study area had increased due to a lack of water, edible plants, and habitat loss. Human wild conflicts in the region, in particular, and across the country in general, are the result of the political and economic interests of the region's and country's powerful actors. The well-being of poor forest dwellers and wild animals was excluded from the political and economic interests of the powerful actors in all the power relations that had played out in the region from feudalism to neoliberalism. Solutions to problems such as increased human-wildlife conflict cannot be found in regional forest plans and policies; the intensity of such problems can only be reduced by restructuring the larger political and economic policies that directly and indirectly affect the lives of poor forest dwellers and wild life.

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