

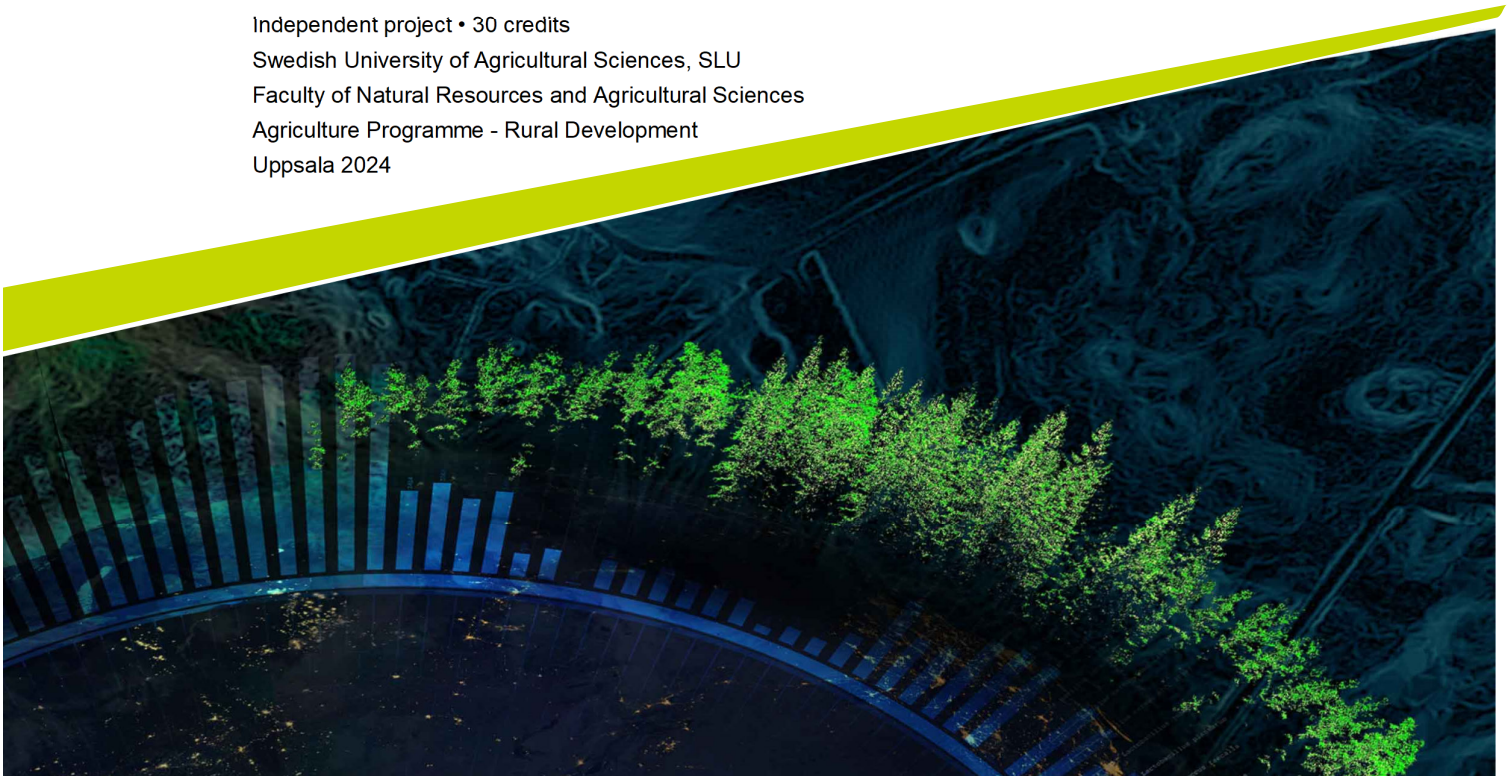


Monkeys and policies

A study of human-wildlife conflicts in the mid-hill districts of Nepal

Astrid Bornfeldt Persson

Independent project • 30 credits
Swedish University of Agricultural Sciences, SLU
Faculty of Natural Resources and Agricultural Sciences
Agriculture Programme - Rural Development
Uppsala 2024



Monkeys and policies. A study of human-wildlife conflicts in mid-hill Nepal

Apor och Policys. En studie av konflikter mellan människor och vilda djur i Nepals lägre bergsområden

Astrid Bornfeldt Persson

Supervisor: Kristina Marquardt, Swedish University of Agricultural sciences, Department of Urban and Rural Development
Assistant supervisor: Dil Khatri, Swedish University of Agricultural Sciences, Department of Urban and Rural Development
Examiner: Örjan Bartholdson, Swedish University of Agricultural Sciences, Department of Urban and Rural Development

Credits: 30 credits
Level: Second cycle, A2E
Course title: Master thesis in Rural Development, A2E - Agriculture Programme - Rural Development
Course code: EX0890
Programme/education: Agriculture Programme - Rural Development
Course coordinating dept: Department of Urban and Rural Development
Place of publication: Uppsala
Year of publication: 2024
Online publication: <https://stud.epsilon.slu.se>

Keywords: Human-wildlife conflicts, wildlife management, biodiversity conservation, community forestry, subsistence farming, rural livelihoods, policy-processes

Swedish University of Agricultural Sciences
Faculty of Natural Resources and Agricultural Sciences
Department of Urban and Rural Development
Division of Rural Development

Abstract

In Nepal, common wild animals outside of protected areas are under the same legal protection as rare or red-listed species. Meanwhile, monkeys, porcupines, deer, leopards and wild boars are causing extensive damage on crops and livestock, threatening the livelihoods of people depending on subsistence farming. This thesis presents an analysis of human-wildlife conflicts in the mid-hill districts of Nepal, using concepts within the field of political ecology. By examining key actor's understandings of causes and possible solutions to the conflicts, the study highlights that the perspectives and knowledge systems of actors oriented towards conservation dominates in processes of policy-making, while there is little space for local voices and insufficient intersectoral collaboration. The strict protection of all species means that conservation is prioritized over the needs of local livelihoods. Moreover, there is a lack of knowledge regarding the wildlife systems outside of protected areas in Nepal, and the management of common species is without objectives. Therefore, the thesis emphasizes the importance of adopting a more nuanced approach to wildlife management that balance the needs of both people and wildlife.

Keywords: Human-wildlife conflicts, wildlife management, biodiversity conservation, community forestry, subsistence farming, rural livelihoods, policy-processes.

Table of contents

List of tables	6
Abbreviations.....	7
1. Introduction.....	8
1.1 Aim and research questions	9
2. Background.....	11
2.1 Religion and wildlife	11
2.2 Community forests.....	12
2.3 Wildlife conservation in Nepal.....	12
2.4 Human-wildlife conflicts	13
2.5 Wildlife management	14
3. Conceptual framework	16
3.1 Critical political ecology	16
3.1.1 Technocratic solutions	17
3.1.2 Religion and political ecology	18
3.1.3 Biodiversity conservation and political ecology	18
3.1.4 Sustainable forest restoration	19
3.1.5 Wildlife management or conservation	19
4. Method.....	21
4.1 Data collection	21
4.2 Ethical considerations.....	22
5. Result	24
5.1 The policy process.....	24
5.2 The extent of and causes to the conflicts.....	26
5.2.1 Severity of conflicts.....	27
5.2.2 Management of fields and forests.....	29
5.3 Suggested solutions	31
5.3.1 Scaring techniques and warning systems.....	31
5.3.2 Vasectomy.....	32
5.3.3 Hunting, monitoring and objectives of management	32
5.3.4 Practices of farming and forestry	35
5.3.5 Relief funding and decentralization.....	38

5.3.6 Social programs.....	40
5.4 Roles and responsibilities	40
6. Discussion	43
6.1 Politics of strong interest groups	43
6.2 Forests, fields and local people	45
7. Conclusions	48
References	52
Acknowledgements	55

List of tables

Table 1. Interviewed actors..... 22

Table 2. Fictious names of the interviewed actors 22

Abbreviations

DOFSC	Department of Forest and Soil Conservation
DONPWC	Department of National Parks and Wildlife Conservation
SIAS	Southasia Institute of Advanced Studies
SLU	Swedish University of Agricultural Sciences

1. Introduction

Between the 1950s and 1970s, the Nepalese mid-hill districts were rapidly deforested. As a reaction to that development, afforestation programs supported by external funding were introduced, which initiated a major regrowth of forest. During the 1990s, the community forest program started and contributed further to an increased forest cover by supporting tree plantation (Gautam et al. 2003; Chhetri et al. 2023). After its implementation, traditional practices of grazing were prohibited while it was promoted to grow trees on private land (Khatri et al. 2018). Meanwhile, an accelerating number of people began to migrate from rural areas to cities, as well as to other countries (Gautam et al. 2003; Chhetri et al. 2023). These factors changed the management of the landscape in Nepal and led to a decreased amount of people working with agriculture and forestry. During the 2000's, agricultural lands were increasingly put into fallow (Khatri et al. 2018), leaving the forest to regenerate onto, and in length cover, the unused fields. As a consequence of the thicker, enclosing vegetation and fewer people working in the landscape, a growing number of wildlife started to approach human settlements (Marquardt et al. 2020; Baral et al. 2021). Today, severe human-wildlife conflicts are present in the mid-hill districts, resulting in extensive amounts of damage on crops and livestock caused by wild animals (Khatri et al. 2024). As an example, livestock for a value of 115,656 USD were reported killed by wild predators between 2015 and 2019 in the districts Tanahun and Kaski. During the same period, crops amounting to an approximate value of 80,000 USD were eaten and destroyed by wild animals (Baral et al. 2021). Food production, livelihood activities and the rural economy of Nepal is thus heavily affected by approaching wild animals (Bista & Song 2022).

The conflicts have posed challenges to poor and socially marginalized farmers who base their livelihoods on subsistence farming. A majority of them already deals with reduced lands, labour shortage because of outmigration and climate related stress, such as more frequent droughts (Khatri et al. 2024). Before the 1970's, hunting was traditionally practiced by villagers with the purpose of obtaining meat, but also to protect domestic animals and crops from wildlife (Kharel 1997; Khatri et al. 2024). Today, hunting of all animals except wild boar¹ is illegal in Nepal (*The Forests Act*,

¹ This is a temporary exception (*The Forests Act, 2019 (2076)*).

2019 (2076)), which means that common species causing damage in the mid-hills are under the same legal protection as rare species in protected areas.

Conflicts between humans and wildlife have previously been documented, particularly near protected areas. However, the focus of such research has mainly been on rare or red-listed species (Woodroffe et al. 2005) such as the royal Bengal tiger (*Panthera tigris tigris*), snow leopard (*Panthera uncia*) and common leopard (*Panthera pardus*). Recently conflicts have been increasing outside of protected areas (Sharma et al. 2021), and this thesis contributes to the literature on human-wildlife conflicts by focusing on conflicts between humans and common animals in such places. Moreover, it fills a gap by studying areas of human-wildlife conflict with declining human occupation, whilst previous research has related increasing human-wildlife conflicts to growing human populations (Nyhus 2016). It is important to examine negative interactions between humans and wildlife in different settings, since they may have significant effects on ecosystem health and biodiversity, but also human welfare, health and safety (Nyhus 2016).

1.1 Aim and research questions

Since people may perceive the role of wildlife, or the effects that wildlife have on themselves, their communities, society, agriculture, forestry and ecosystems differently, it is crucial that various interest groups are involved when solutions to human-wildlife conflicts are discussed (Danell & Bergström 2011). Furthermore, it is essential to understand the dynamics of conflicts in order to be able to mitigate them (Woodroffe et al. 2005). Human-wildlife conflicts are often complex, which means that the specific conditions of a situation and place where they are present needs to be considered (Dickman, 2010). Another important aspect to solve conflicts is communication between stakeholders. By sharing perspectives, they can discover where their understanding of the situation differ, are similar, and what values or knowledge that lies behind their perceptions (Saarikoski et al. 2013). Therefore, stakeholder's perspectives on the background, extent, causes and solutions to the human-wildlife conflicts in Nepal's mid-hill districts will be described in this thesis. In order to do so, the following research questions will be explored:

1. Which actors have prevailed in shaping policies related to wildlife conservation in Nepal and what are their roles in these processes?
2. How do actors with background within conservation, forestry and agriculture perceive human-wildlife conflicts outside of protected areas in mid-hill Nepal, and what do they think causes them?

3. Which solutions and mitigation methods do these actors believe ought to be used, and who do they think are responsible for creating and implementing them?

2. Background

Human perceptions of wildlife and damage they may cause can be influenced by inherent factors such as cultural norms, values, religious beliefs and societal experiences (Dickman 2010). Since these elements have impacts on human perceptions of wild animals, they also affect which approaches that are taken to the management of their populations and what related policies looks like. Thus, it is important to understand the cultural, religious, political and historical dynamics that sets the context for the human-wildlife conflicts in the mid-hill districts of Nepal. This chapter will describe these aspects. Moreover, the concept of human-wildlife conflicts is presented in order to give a sketch of common driving factors and mitigation methods. Finally, the process of active wildlife management is described. Approaches to this topic will be discussed by several actors in the result.

2.1 Religion and wildlife

Historically, culture and religion played a vital role in the protection of Nepal's nature (Heinen & Shrestha 2006). The Hindu and Buddhist populations in the Himalayas often considered it crucial to conserve natural areas and species (Krishna 2010). During the 13th century, social and legal frameworks based on Hindu principles were first introduced in Nepal (Britannica n.d.), and even today some animals and plants are protected for religious reasons (Krishna 2010). A great majority of the population in the country follows Hinduism, while the second largest religion is Buddhism (The Kathmandu Post, 2023). Religious beliefs therefore play an important role in how nature and specific animals are perceived by Nepalese inhabitants (Dickman 2010). One fundamental value according to Hinduism is that no violence should be conducted against animals:

The principle of the sanctity of life is clearly ingrained in the Hindu religion. Only God has absolute sovereignty over all creatures, thus human beings have no dominion over their own lives or non-human life [...]. The sacredness of God's creation means no damage may be inflicted on other species without adequate justification. Therefore, all lives, human and non-human, are of equal value and all have the same right to existence (p.89) (Negi 2005).

An additional aspect to this is the belief that humans may be reincarnated in animals (Negi 2005), while several Goddesses and Gods are presented as animals like monkeys, wild boars, tigers and elephants (Dash et al. 2024). Furthermore, non-violence towards all living beings is a Buddhist ideal. If one kills an animal, it detracts the person from the goal of reaching nirvana according to Buddhist beliefs (Negi 2005).

2.2 Community forests

Forests and agricultural land are the arenas for the human-wildlife conflicts in Nepal's mid-hill districts, and discussions about the role of the forests will be a central part of this thesis. These forests are community forests (Khatri et al. 2024), which means that they are managed through participatory forestry by local communities living close to the forests (Pokharel et al 2007). The community forest user program in Nepal involves District Forest Officers, rangers and local Community Forestry User Groups, which falls under the Department of Forest and Soil Conservation. Furthermore, the community forestry is governed through the Forest Act from 1993. According to this act, a District Forest Office is able to hand over sections of the national forest to a local user group, which entitles them to use, manage, develop and conserve the forest. The user groups also have the rights to distribute and sell forest products (Rutt et al. 2015). However, there are strict and detailed regulations on the activities. Community forest user groups are required to prepare forest management plans together with forest technicians. These forest bureaucrats decide the prescriptions of the management, such as the permitted quantity of annual harvest (Baral & Vacik 2018). Therefore, forest bureaucrats are dominating the practices of community forests in Nepal (Rutt et al. 2015).

2.3 Wildlife conservation in Nepal

The modern regulations of biodiversity conservation in Nepal are found in the National Park and Wildlife Conservation Act, which was enacted in 1973. It initiated conservation on a national level through protection of specific areas, and was based on the understanding that local people were causing environmental degradation. After its enactment, protected areas grew quickly in number nationally (Bhattarai et al. 2017). In the process of establishing protected areas, people who lived within them had their traditional user rights affected. Some were for example evicted, which led to protests and conflicts between park authorities and local communities (Aryal et al. 2020). During the 1970's, a law prohibiting hunting was also initiated (Khatri et al. 2024).

In the 1980's, the National Park and Wildlife Conservation Act was amended due to fundamental changes in global conservation, which recognized the importance of participatory approach in conservation. Protests by local communities and civil society demands were also driving forces behind the amendment, which meant that local people could collect thatch grasses (Bhattarai et al. 2017), timber, medical plants and forest products such as tubers, mushrooms and vegetables. Their livestock could also graze inside the protected areas (Aryal et al. 2020). From year 2000 and further, the focus of the conservation in Nepal were participatory management on landscape level (Aryal et al. 2020) since issues with fragmentation and habitat change were addressed (Franklin et al. 2003). The government also put efforts into species conservation action plans, to conserve iconic species such as Elephant (*Elephas maximus*), Rhinoceros (*Rhinoceros unicornis*), Gharial Crocodile (*Gavialis gangeticus*), Tiger (*Panthera tigris tigris*), Black Buck (*Antelope cervicapra*) and Red Panda (*Ailurus fulgens*) (Aryal et al. 2020).

Today, non-governmental organizations are taking a major role in conservation (Heinen & Shrestha 2006), and Nepal has signed international treaties and conventions for conservation. These include the Ramsar Convention, the World Heritage Convention, the Convention on Biological Diversity, and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (Aryal et al. 2020). Despite the official stance that the wildlife conservation has a participatory approach in Nepal, there is a growing number of voices saying that it is still not taking the perspectives of local people into consideration (Khatrri et al. 2024).

2.4 Human-wildlife conflicts

When discussing human-wildlife interactions, it is important to be aware of what factors that may drive conflicts and measures that are commonly taken to mitigate them (Dickman 2010). Due to the complex nature of aspects such as availability of natural resources, land use, human behaviour, wildlife ecology and ethology, demography and changes in society, drivers can be social as well as ecological or biological factors (Nyhus, 2016). In most cultures, animals have prominent roles in folklore. These stories can highly influence attitudes towards species, and be crucial parts of conflicts (Dickman 2010). Furthermore, relations between urban and rural areas and perceptions of inequality are suggested to be important factors affecting human's perception of wildlife-caused damage. Poverty is for example increasing people's vulnerability, and may thereby affect the degree of antagonism felt towards costs caused by wildlife damage (Linkie et al. 2007).

As for mitigation methods, policies and laws are important tools since they set the rules for the management of wildlife. Other methods can be processes aiming to

increase stakeholder engagement. These may focus on aspects such as information sharing, education, risk assessment or poverty alleviation programs (Nyhus, 2016). Another measure is economic incentives, such as compensation programs. In order for them to fill their purpose, it is important that they are given efficient and quickly to those affected (Woodroffe et al. 2005). Practices commonly used in field in order to decrease damage is hunting, scaring techniques using sounds, smells or visible impressions, supplementary feeding, cultivation of less palatable food and fencing (Widén et al. 2023). When it comes to fencing, both natural barriers such as planted vegetation or constructed ones can be used. Moreover, crops and livestock can be guarded by humans or animals such as dogs in order to reduce wildlife-caused damage (Nyhus, 2016). Other methods are usage of traps, poison (Proulx et al. 2012), or selective translocation of problematic animals (Linnel et al. 1997). Finally, fertility-control is a measure which can be used to regulate wildlife populations (Massei & Cowan 2014). These are all methods that will be discussed by the actors throughout the thesis, and to which they have different attitudes in the context of human-wildlife conflicts in Nepal.

2.5 Wildlife management

According to the authors of the book “Wildlife, human and society” (my translation) (Danell & Bergström 2011), the structure and management of a landscape in combination with the biology of the wildlife that inhabits it, sets the limits for wildlife systems. A landscape’s ability to provide resources such as food and shelter, stands in relation to the amount of wildlife it can carry. Wildlife populations are often fluctuating from year to year, and so does the landscape which holds them. Species may arrive to new places, and the climate is varying. Furthermore, human impacts may cause fluctuations in species distribution or numbers, while societal changes may affect the behaviour of humans. Nature, wildlife and humans are therefore inseparable. As a consequence, it is important to conduct an adaptive wildlife management.

The aim with adaptive management is to learn about the system and change the management actions based on its status. This can be achieved through a repetitive process according to the authors. In order to be able to conduct the management, it is vital to know the size of the wildlife populations in the area of interest. Therefore, the first step of the process is to collect knowledge about the resource system through inventories and monitoring. Commonly, a population’s spatial distribution, density, size and composition is covered. However, the habitat or the impact that one or several species has on the habitat can also be examined. The second step of the process is to formulate goals and aims for the system, using the knowledge collected in the first step. During the third step, actions are implemented based on

the established objectives. In the fourth step, additional information is gathered to assess the system's progress toward management goals. Finally, it is evaluated whether the management-goals were reached and if the planned actions were conducted. If not, it should be examined why. Subsequently, the entire process is repeated (Danell & Bergström 2011). In Nepal, diverse approaches to wildlife management are a central part of the human-wildlife conflicts.

3. Conceptual framework

Political ecology is a field which can be used to address connections between the nature and society. Impacts of societal, economic, and political processes on the environment and vice versa, can be studied. The main point is that environmental and societal states are intertwined (Tetreault 2017). In this thesis, a framework of political ecology will be used to analyse the data from the interviews. It will be examined how the actors understand properties of ecosystems, how they legitimize or why they question policies related to wildlife and why they think that wildlife populations, forest and farmland should be managed in a certain way. Furthermore, it will be used to describe which actors that prevail in the policy-process and what their roles are, how the actors perceive the conflicts and what they think causes them, and also in analysing why they suggest certain solutions, to be conducted by certain actors.

3.1 Critical political ecology

In his book “Critical political ecology”, Tim Forsyth (2002) argues that politics and environmental science are interdependent and coproduced. Scientific findings are stimulating politics, but politics are also present in the development and dispersal of environmental science. Therefore, scientific discourses on ecology are embedded within hidden politics, and social and political constructions are embedded in scientific explanations regarding the environment and suggested solutions to environmental problems and policy-making. Forsyth emphasizes that the objectives of this approach not is to deny that there in fact exist problems with environmental degradation or climate change, to undermine support for environment care or to legitimize an unsustainable resource management. Rather, Forsyth means that it is vital to critically review statements concerning the environment which justifies certain policies in favour of others:

Instead of approaching environmental debates as though the science is already agreed, scholars of environment need to focus more on the mechanisms by which knowledge about environment is produced and labelled, then used to construct “laws”, and the practices by which such laws and lawmakers are identified as legitimate in political debate. The objectives of this approach

are multiple. Science is undoubtedly used to legitimize a variety of environmental policies, yet there is often little appreciation of the biophysical uncertainties of political conflicts behind many supposedly well-known problems (p.10).

Forsyth also illustrates two separate approaches to the concept of ecology, what he calls the “orthodox” approach and the “critical” approach. From the orthodox point of view, ecosystems have an equilibrium and stability, he argues. Nature has a balance which human activities can disrupt, and changes within ecosystems are linear and gradual. Furthermore, statistics and evaluations that are cited or generated by leading agencies are seen as authoritative, and scientific methods used to model and assess environmental changes are considered to be value-free and neutral. Moreover, Forsyth means that the orthodox approach holds principles related to environmental protection which are universally accepted, and broadly can be seen as influenced by perceived impacts from population growth, technology and prosperity. According to the critical approach on the other hand, ecosystems does not have an equilibrium, Forsyth argues. Fluctuations over time and space are seen as important, as well as social influences on environmental processes and historical influences on present dynamics. Furthermore, Forsyth emphasizes that “citizen science” and “local” knowledge are valued as data sources, while influential statistics are scrutinized. This means that a certain environmental problem can be seen from several perspectives, all co-existing. These perspectives can represent various political and social positions or values, and be upheld by various institutions or people. The environment may also be valued or used differently by different social groups, who may define “degradation” of the environment in different ways.

Finally, Forsyth argues that it is important to re-examine predominant assumptions about what is causing environmental degradation in order to see if they match the perceptions that different social groups hold. If predefined explanations are accepted that does not address the underlying causes to the problems, social injustice might be caused. The livelihoods of poor and rural people may for example be restricted due to policies which reduces their access to land, which can increase their vulnerability. Furthermore, environmental degradation may increase if livelihoods are threatened (Forsyth 2002). The approaches to ecology described above will be used for the analysis of the interviews.

3.1.1 Technocratic solutions

What Forsyth (2002) writes about the orthodox approach to ecology can also be described as a technocratic approach. When environmental problems become mainstream, social inequalities and power dynamics that contributes to the problems are often forgotten. Instead, they turn into issue that can be solved with

technocratic solutions (Accetti 2021). Decision-making regarding environmental questions is often dominated by “technocratic” practices and values (Faye 2015; Scheba & Mustalahti 2015). This tend to mean that practices and knowledge of local people are overlooked, while science and technical knowledge is favored by bureaucrats, technocrats and scientists. Professional culture and academic training have shaped the tools and discourses adapted by these actors, which in turn shapes their worldview (Ojha et al. 2009).

3.1.2 Religion and political ecology

Constructions of religion may significantly affect how people categorize and perceive the non-human world in relation to themselves and others. When it comes to connections between power and religion, this is especially relevant since religious identities can be used to exclude, marginalize and delegitimize certain perspectives (Wilkins 2021). With respect to this, public lobbying may be used by religious actors to stop or promote certain processes of transformation, and influence processes of decision-making and legislation. In order to do so, they can take part in protests, make public statements regarding environmental processes or try to influence decision-makers via collaboration (Koehrsen 2022). These aspects are all present in discussions regarding human-wildlife conflicts in Nepal, since religion plays a central role in the society.

3.1.3 Biodiversity conservation and political ecology

Practices implemented to conserve wilderness and landscapes may contribute to human-wildlife conflicts. Examples of such procedures in Nepal are removal of people and their livestock or introduction of changes in policies and legislations in order to restrict agriculture or prohibit hunting. These measures can have disastrous consequences for the livelihoods of communities based on subsistence farming. Displacement of local people from protected areas may be physical, but can also be restrictions of their access to resources, land or livelihood activities. By doing so, there is a risk of creating adverse socioeconomic effects. The procedure of displacement can be connected to material and discursive practices, aiming to create specific landscapes of conservation (Massé 2016). In order to conduct a sustainable management of nature, is essential to ensure that local communities and their livelihoods are included and involved in developing strategies (Oldekop et al. 2016). Furthermore it is vital that conservation is generated in collaboration between a wide variety of actors and disciplines (Mascia et al. 2003). Regarding the role of NGOs and INGOs within conservation and development, it is worth mentioning that they may be in a competition for income from aid donors, trusts and corporate funds (Chapin 2004). This may drive the organizations to work with conservation in a way that will be appreciated by the sponsors (Adams & Hutton

2007). This is relevant in Nepal, where non-governmental organisations are heavily impacting the conservation of wild animals.

3.1.4 Sustainable forest restoration

Since restored forests plays a vital role in the human-wildlife conflicts in the mid-hill districts, an account of the concept of sustainable forest restoration follows hereafter. According to the result of a discussion lead by IUCN and WWF, forest landscape restoration can be defined as a process where human well-being is enhanced while ecological integrity is regained in degraded or deforested landscapes. In these types of processes, both ecological and socio-economic aspects are important. The local conditions of a place need to be considered in each case, which means that one single solution cannot be used in all situations. It is also crucial that affected stakeholder are part of decision-making processes:

It involves a range of stakeholders in planning and decision making to achieve a solution that is acceptable and therefore sustainable. The decision of what to aim for in the long term when restoring a landscape should ideally be made through a process that includes representatives of different interest groups in the landscape in order to reach, if not a consensus, at least a compromise that is acceptable to all. (p.11).

Rather than restoring the forest cover as such, it has been widely acknowledged that forest restoration should aim to restore an array of values such as forest processes, services and goods. A number of elements such as soil stabilisation, animal species living in the forest, food, medicinal plants and nutrient cycling, are elements contributing to a healthy forest. The aim for forest restoration is therefore: “to achieve a landscape containing valuable forests, for instance partly to provide timber, partly mixed with subsistence crops to raise yields and protect the soils, as well as partly improving biodiversity habitat and increasing the availability of subsistence goods.” (p.11). If these aspects are balanced, both biodiversity and benefits of the people can be enhanced (Mansourian 2005).

3.1.5 Wildlife management or conservation

In this thesis, actors define wildlife management and wildlife conservation in different ways. Fryxell et al. (2014) describes the concepts as follows:

Wildlife management implies stewardship; that is, the looking after a population. A population is a group of coexisting individuals of the same species. When stewardship fails, conservation becomes imperative. Under these circumstances, wildlife management shifts to remedial or restoration activities. (p.2)

The management of wildlife populations can be custodial or manipulative. Custodial management means that external impacts on populations or their habitats are aimed to be minimized. Rather than stabilizing the wildlife system, it aims to letting natural ecological processes take their course. If the management goal is to preserve ecological processes in a national park for example, this method may be appropriate. Manipulative management on the other hand, influences a population either directly, or indirectly by modifying their habitat, food supply or density of predators (Fryxell et al. 2014).

4. Method

The methods used to answer the research questions of this thesis are semi-structured interviews with 11 farmers, five government actors focused on wildlife, forest and agriculture, two conservation NGOs, two conservation INGOs, one INGO directed towards agriculture and bioresources, one advocacy organisation and two research organisations. A field trip to a region in the mid-hills was also conducted. During the field work, farmers were interviewed and demonstrated their village, fields, forest and livestock. Furthermore, policy reviews on the following acts and legislations were conducted: National Park and wildlife conservation act (2016), National Park and wildlife conservation legislation, Forest act (2076), Forest regulation (2077) and Wildlife damage relief guideline (2069).

4.1 Data collection

The data which the thesis is based on was collected through semi-structured interviews with various actors. The aim was to interview stakeholders with backgrounds within wildlife conservation as well as forestry and agriculture, in order to get a range of perspectives on the human-wildlife conflicts represented in the data. The field work was conducted with support from the research project WildPest², Southasia Institute of Advanced Studies (SIAS), and forestry student Puspa Lamsal. Puspa translated between Nepali and English during the interviews and transcribed them afterwards. Contacts, connections and experience was vital in order to know which actors that are active within the fields of conservation, agriculture and forestry in Nepal, but also to be able to book interview appointments with them. The interviewed actors were therefore chosen and contacted with support from SIAS, Puspa Lamsam and the Wildpest research team. They also contributed to the analysis of the data with their knowledge and perspectives.

² Full title: Wild animals – biodiversity or pest? Creating local dialogues for dealing with farming-wildlife conflicts in rural Himalayan landscapes (Wildpest). My supervisors, Kristina Marquardt and Dil Khatri, are part of this research project.

Table 1. Interviewed actors

Type of actor	Number of persons interviewed
Advocacy organisation	1
Farmer	11
Government actor – agriculture	1
Government actor – forestry	2
Government actor – wildlife	1
INGO – agriculture and bioresources	1
INGO – conservation	2
NGO – conservation	2
Research organisation	2

Table 2. Fictious names of the interviewed actors

Type of actor	Fictious name
INGO – agriculture and bioresources	Bioresource Alliance
INGO - conservation	Unity for nature
INGO – conservation	Fauna Conservation
NGO - conservation	Nature Association
NGO – conservation	Ecological Foundation
Research organisation	Global Biodiversity Organisation
Research organisation	Sustainable Future
Government actor - forestry	Northern Forest Authority
Government actor - forestry	Southern Forest Authority

The interviews with the actors lasted between 40 minutes and 1,5 hours, and were conducted at their offices or homes. Some meetings were also held at SIAS office. Interviews with the farmers and government officers on local and district levels were conducted together with the Wildpest research team, in a district where they and SIAS had had contacts and been collecting data before. During the field trip, farmers guided us through the landscape and showed pictures of livestock that had been taken by leopards in their village.

4.2 Ethical considerations

Since human-wildlife conflicts may be a sensible topic to speak about, ethical considerations have been made throughout the field work and writing of this thesis. When the respondents were first contacted and appointments were booked, the background and purpose of the interviews were stated to them. In the beginning of

each interview, it was further explained what the thesis will cover and how the information from the respondent will be used. They were then asked for permission to record the conversations. Since I decided which questions to ask the respondents and how to analyse and mediate their answers, one could argue that it puts me in a position of power (Brinkmann & Kvale, 2018). This is something that I have been aware of throughout the interviews and the writing of this thesis, and I have therefore carefully considered how I present the data from the interviews.

Another aspect to consider is that the research could bear unintended consequences for the respondents, since the topic of human-wildlife conflicts in Nepal is controversial. The information presented in the thesis could be used in a way that affects them or the organizations that they represent socially or economically (Carpenter 2018). Furthermore, the interview situation could make them stressed or affect their understanding of themselves or the situation (Brinkmann & Kvale, 2018). In order to minimize harm, all the respondents are anonymized in the thesis. The aim with the study is to highlight a variety of perspectives on the human-wildlife conflicts in mid-hill Nepal. The results could be contributing to discussions about human-wildlife conflicts, which means that the thesis could be used to improve the situation for the respondents. When it comes to the analysis of the data, there are also some aspects to consider. One is that someone of the respondents could give me the data they think that I am seeking in order to please me, either unconsciously or consciously. Furthermore, my personal values or the values of those who I collaborate with in this research may affect my understanding of the material (Carpenter 2018). This, I have continuously reflected on throughout the process.

5. Result

In this chapter, the data collected through the interviews will be presented. First, it will be discussed which actors that are part of shaping the policies related to wildlife, forest and agriculture in Nepal. Second, the actor's views on the extent of and causes to the conflicts will be described. Next follows an account of suggested solutions to the conflicts, and finally a section describing which roles and responsibilities the actor's thinks that different stakeholders have in mitigation of the conflicts.

5.1 The policy process

Currently, the Department of National Parks and Wildlife Conservation are in charge of the policies which states the management of wildlife outside of protected areas in Nepal. They are collaborating with the Department of Forest and Soil Conservation who are responsible for the Wildlife Damage Relief Guideline. The impression given from the interviews was that the Department of Agriculture is not involved in policy-making processes related to wildlife. A number of INGOs and NGOs focused on conservation are working with development and implementation of the wildlife-related policies in close collaboration with the government. Several of the actors highlighted their good cooperation during the interviews. The officer from Unity for nature said that they have a policy department within their organization, and that they are frequently providing help and technical expertise to the government. He also said that they have drafted important policies produced by the government. The officer from Ecological Foundation meant that their organization plays an important role in the implementation of the policies, since they have capacity and human resources. By the officer from Fauna Conservation, it was also stated that they are key partners to the government. According to him, they have been "heavily consulted" in the development of guidelines, policies, action plans and strategies. Furthermore, they have been financially supporting some projects.

To others actors, their roles in policy-processes were more unclear. The officers from Bioresource Alliance, Nature Association and Sustainable Future all said that they are being consulted by the government sometimes. According to the officer

from Bioresource Alliance, everything is in hands of the government while he described themselves as “watch dogs”. The officer from Nature Association found their role in the policy-process confusing, since the government always will have the final say. Most critical against the policy-processes was the officer from the advocacy organisation, who stated that they are discussing the human-wildlife conflicts with the government but that they are not being listened to.

When the actors with a less prominent role in the policy processes spoke about the stakeholders that impacts the policies, it was emphasized that they all work with biodiversity conservation. The officer from the advocacy organisation argued that they are traditional conservationists, while the officer from Nature Association said that it is mostly people educated within forestry that works as officials at DNPWC and DOFSC. By several of the actors, it was argued that they do not have enough knowledge about wildlife or human-wildlife conflicts in order to deal with these questions adequately. The officer from Sustainable Future meant that their forest department is trained to protect wildlife and work with social forestry, but not to deal with human-wildlife conflicts or management of wildlife populations. He also said: “Our bureaucracies are too much engaged with paperwork and transferring documents from here to there”. This was emphasized by the officer from the INGO focused on agriculture and sustainable bioresources as well. Regarding the habitat management, he stated that even if the government had a budget for it, the implementation would not be good. The officers currently spend all their time on administrative work and do not have willpower to work with implementation. The officer from the wildlife authority on the other hand, emphasized that the laws and policies are very good, strong and progressive in terms of wildlife conservation. It provides a high level of protection for wild animals, and the population of the most threatened species are increasing over time. When asked if he thinks that the policies related to wildlife, such as the Wildlife act, is supportive in mitigating the conflicts, he answered: “Yes of course, because we are conserving.” However, he also said that there should be policy measures to address the human-wildlife conflicts and preventive or mitigating approaches on how to deal with the problems.

Several of the actors, even those with power to affect the policy-processes, argued that the policies are not enough evidence-based. The officer from Bioresource Alliance said they have good research ongoing, but that the government is not accepting it, while the officer from Sustainable Future stated that their policies often are based on political and social pressure instead of “scientific knowledge”. Furthermore, the officer from the northern forest authority meant that other issues are prioritized before research in Nepal. The fact that there is no ongoing monitoring of common species such as monkeys, leopards, wild boar and deer in Nepal, government actors as well as INGOs and NGOs saw as a problem. They argued that knowledge about the size and status of the populations should be the

base for decisions on how to manage them, even though the actors did not agree on what management methods to use. However, all actors interviewed shared the idea that populations that are very high in numbers should be managed in a way that makes them decrease, while those that are stable in numbers should be maintained and those low in numbers should increase.

According to the officer from Bioresource Alliance, the inventories of common species need to be accurate so that plans and policies can be implemented the right way. “If you do not do anything properly, then results will be like this.”, he said regarding the extensive human-wildlife conflicts. The officer from Global Biodiversity Organisation was critical against the amendment of the policy which allows hunting of wild boar, and came into effect recently. He meant that there are no guidelines for its implementation. The policy says that you can kill wild boar if they come to your field, but not how to do it, when to do it or how many you can kill. Since the wild boar populations are not monitored, there is a potential risk that they will decrease too much, he argued. Several actors said that the explanation to why the common species are not monitored, is that there is no money for it. According to the officer from the wildlife authority, that is the case since it would require huge resources. This was further explained by the officer from Unity for nature, who meant that the government cannot effectively implement their policies since it requires a lot of money. According to him, Nepal’s government is very poor and has limited funding. Therefore, focus lies on development of infrastructure, electricity and education, while conservation is less prioritized. The officer from the northern forest authority enhanced this explanation, saying that they have given priority to monitoring of flagship species such as tiger, rhino and elephant instead of common species.

To recap, the policy-process related to wildlife in Nepal seems to be led by experts coming from a background of conservation, while local voices and concerns do not seem to be taken into consideration as much. Furthermore, there does not seem to be any intersectoral collaboration for the wildlife management.

5.2 The extent of and causes to the conflicts

Here, the actor’s perspectives on the extent and causes of the human-wildlife conflicts in Nepal will be presented and analysed. Two themes appeared during the interviews regarding the conflict’s background. One was outmigration from rural areas and how it affects the management of forest and fields, and the other one the shaping and implementation of policies in regards of democracy and access to data.

5.2.1 Severity of conflicts

During the interviews, all actors said that the farmers in the mid-hill districts are dealing with great losses of crops and livestock. They emphasized that it is happening all over Nepal and that the situation is severe, affecting the farmer's livelihoods and wellbeing. The actors meant that these human-wildlife conflicts are not a new phenomenon, but that they have been escalating the past 5 to 10 years. Monkeys were mentioned as the species causing the most damage, as they come in big groups and raid crops. They also take food from storages and sometimes attack people. Furthermore, conflicts with leopards were talked about a lot. According to some actors they kill livestock, and in certain areas even children below 10 years old. Furthermore, deer, wild boars, bears, porcupines, birds and rats were described as problematic to people. The officer from the advocacy organisation explained the situation as follows:

It is a wildlife attack rather than a conflict. It is wildlife terror. If it were on an equal level, we could have called it a conflict, but the wildlife numbers are higher. People are left with a scarcity of food and are displaced. That is why we cannot call it a conflict; we call it terror.

Farmers were supporting this picture, saying that they have almost stopped cultivating due to the severe damage caused by wild animals. One of them expressed worries regarding the future of farming in Nepal:

In our households we keep buffalo, cows, and goats. However, due to the monkey problem, our cultivable land has been left barren. We have to buy fodder like maize and *dhuto* (husk and fine grains from polished rice) from the market to feed the livestock. Even the leopards are now pressurizing us and causing damage. Although no human casualties have occurred yet due to the leopard, there has been livestock damage [...] We are known as an agricultural country, but nowadays, we hesitate to call ourselves one. Even *gundruk* (a locally fermented, leafy green vegetable), is imported from abroad. It feels very embarrassing to hear that.

Another aspect brought up by the farmers were that they monkeys are less afraid of humans now than before, and that at times people are attacked by them while working at the fields. The officer from Sustainable Future said the same thing, arguing that people are hardly surviving in parts of the mid-hill districts:

And the people who are surviving there, they are troubled by monkeys. People will have to leave their villages. It is difficult to stay with this level of monkey problems. They are really stealing everything, from their houses and even from their kitchens. They come to the bedrooms, they come to the stores and take things [...]. Sometimes the monkeys even attack people, especially when they see girls, women and when the monkeys are in a group and people are alone.

Traditionally, watchdogs have been protecting crops and livestock, but farmers argued that monkeys are not afraid of them anymore. Furthermore, they said that the dogs sometimes are killed by leopards. Farmers, as well as the southern forest authority, the wildlife authority, Ecological Foundation and Sustainable Future

stated that the wildlife populations in the mid-hill districts have increased in numbers. Speaking of the monkeys, farmers said that they used to come to the fields in groups of 20 to 40 individuals, but that they now sometimes reach numbers of 200 to 400. However, it was highlighted by several of the NGOs, INGOs and government actors, that they have no official data on the sizes of populations of “common” animals. On this topic, the officer from Unity for nature argued that it matters if conflicts are being reported or not. There might have been conflicts before he said, but it is possible that they are reported more often today due to media and awareness of compensations schemes. However, he also said that there might still be events of conflict which are not reported. Therefore, the level of conflict in the field is hard to determine from the reports.

Actors also talked about the conflict’s impacts in terms of food security, biodiversity and relations between stakeholders. The officer from the agricultural authority argued like the farmers, that the national food production is being reduced when damage rises and farmers abandon their land. Currently Nepal is dependent on imported food, only self-subsistent on milk, egg and poultry meat she said. The future of farming was also discussed by Ecological Foundation, who stated that the traditional subsistence farming is a culture and way of life which is negatively affected by these conflicts. By several of the NGOs and INGOs oriented towards conservation, it was highlighted how the conflicts may affect relations between humans and wild animals. In extent, conservation and biodiversity can be impacted by this, they argued. The interviews also highlighted that the conflicts affect interpersonal relationships. Some of the actors made a distinction between those who they thought understand the situation in the rural areas, and those who does not. The officer from Nature Association stated: “It’s mostly people whose livelihood does not depend on nature or agriculture who are oblivious to the conflict. Otherwise, everyone feels it.” Furthermore, he said:

There was a serious discussion about a ward chair making a program for cutting down trees to mitigate the monkeys. All the conservationists were saying that it was a very stupid decision. But to me it seems like we are not being sensitive enough to understand the problems of the communities [...] They are desperate now. Even though they know that this is not a long-term solution, they will try any option.

On the same topic, the officer from the advocacy organisation emphasized the difference in lifestyle between the people living in rural areas and the officials working with conservation. The officials receive salary, live in cities and travel abroad, he said.

In essence, the actor’s understanding of the extent of the human-wildlife conflicts differed in some aspects. Everyone highlighted the severity of the conflicts, but they focused on different types of consequences depending on which field they work

within. Actors who are not part of shaping the wildlife management in Nepal made a difference between people understanding the conflicts, and others living in urban areas and working with conservation.

5.2.2 Management of fields and forests

When causes to the increased conflicts between humans and wildlife were discussed during the interviews, outmigration was a driver mentioned by everyone. Currently, many people living in rural areas are migrating to cities and moving abroad for education and in search for job opportunities. Some actors also said that the wildlife damage is an additional factor driving migration. Less people living in the villages and managing the fields and forests affects the conditions for both humans and wildlife. One example was drawn by the officer from the northern forest authority, who argued that since fewer people are involved with agriculture today, the impact of damaged crops and livestock becomes huge for each individual household. Furthermore, several actors described how wild animals could be chased away easier when more people were present in the landscape. More people involved with agriculture also meant that a greater quantity and bigger variety of crops used to be grown on the fields. According to the officer from the agricultural authority, this meant that there was enough to eat for both humans and wild animals. If one type of crop was damaged by wildlife, the farmers could still harvest another one.

All actors described how land is being put into fallow due to the outmigration, and how bushes and trees regrows on land that used to be managed for agriculture. Now, it turns into forest instead. Since people are cultivating further away from the forest fringe and closer to the villages today, wild animals come closer to human settlements than before in search for food. Furthermore, the animals get cover to move in the landscape when trees and bushes grows on the fields. Until this point, the actors agreed on the relationships between causes and effects related to outmigration. From here on, however, their ideas of how the changed management of the landscape affects wildlife differed slightly. Some argued that the wild animals are eating crops and livestock since there are not enough food in the forests for them, while others meant that they do it since food produced by humans is good and easily accessible.

The farmers said that there is less fruit in the forest now than before, which could be one explanation to the increased human-wildlife conflicts. Their grandparents used to plant bar (*Ficus benghalensis*) and peepal trees (*Ficus religiosa*), which would give food to the monkeys and keep them distracted. Back in the days, they also used to have mango trees near the forest and river bank. Since the maize used to ripen at the same time at the mangoes, they could spot the monkeys in the mango

trees and alert the other villagers so that they could be ready to protect their maize. Now these trees are not planted anymore.

The officers from the wildlife authority, the northern forest authority, Unity for nature, Fauna Conservation and Ecological Foundation argued that the community forests are managed to produce timber, firewood and fodder for livestock. Since such forests consist of mono species today and lacks indigenous species, they are not suitable habitats for wildlife, and therefore animals come to fields and villages instead. On this topic, actors spoke about the undergrowth in the forest. According to the officer from Unity for nature, a majority of the forests consists of pine trees which makes the ground acidic. Therefore, there is a lack of undergrowth for herbivores to eat. The officer from the northern forest authority argued that species considered un-useful for livelihood purpose are removed from the forest floor, while they could have been food for wildlife. Related to this, the officers from Unity for nature and Ecological Foundation both stated that the forests are not supporting the leopard's prey species, which means that they take livestock instead. The officer from Ecological Foundation also argued that there are few predators to hold herbivore- and monkey populations down.

Some of the actors oriented towards conservation expressed a distrust of the community forest user group's ability to manage the forests in a way that fulfils the needs of the wildlife. According to the officer from Fauna Conservation, a lot of disturbances are created by local people while they are managing the community forests. He also stated that they do not have "technical knowledge" on how to manage habitats for wildlife. Furthermore, it was argued by the officer from the northern forest authority that the forest-users do not have a lot of knowledge about how to maintain ecological balance in the forest. The officer from the local authority was also negative about the management of the community forests. However, he thought that a lack of management activities creates habitat for wildlife in contrast to the previous actors:

The problems related to wildlife in the community forest arises because there are almost no activities carried out in the community forests today. The annual activities mentioned in the operational plans for forest management such as thinning and weeding, are not done by any community forest user group nowadays. As a result, bushes are increasing. If people have to extract fuelwood and fodder, they visit the forest. Visits in the forest for bush cleaning and weeding purposes are almost non-existent. Because of the absence of humans, a comfortable environment is created for wildlife, and they would not go to any other place. This leads to a potential increase in populations.

The officer from Global Biodiversity Organisation also brought up another perspective on the situation than the others, arguing that lack of food in the forest is not an underlying cause to the monkey-human conflicts. Monkeys are generalists

he said, and can therefore adapt to the environment and eat anything. Instead, he thought that the monkeys come to the fields since the crops are good food that is easily accessible to them.

To sum up, the actors agreed that increased outmigration from rural areas means that there are less people involved with agriculture and forestry. This affects the management of the land, which impacts the habitats of wildlife populations. However, the exact relations between changed habitats and wildlife behaviour were disputed among the stakeholders. A common basepoint for actors influential within conservation was that the conflicts are rising due to the way community forest user groups manage the forests.

5.3 Suggested solutions

In this section, potential solutions to the human-wildlife conflicts suggested by the actors will be presented. Often, measures advocated by one actor were argued against by another. Main themes that appeared on this topic was hunting, monitoring and objectives of management, vasectomy, scaring techniques and warning systems, practices of farming and forestry, trust and collaboration and social programs.

5.3.1 Scaring techniques and warning systems

By some of the actors, hunting was suggested as a scaring technique. One of the farmers explained that they used to guard the fields day and night with fire guns before. But after the Maoist insurgency, they are not allowed to use or keep guns anymore. In the past, farmers also used to kill monkeys and hang them up in trees close to the fields, in order to scare other monkeys. The officer from the agriculture authority also suggested this as a measure, and said that it is currently done by some farmers in Nepal. However, she argued that the monkeys would get used to it after a couple of months. She also said that the same thing goes for machines making tiger sounds, which was a mitigation method mentioned by several stakeholders. The officer from Sustainable Future were on the same page, but meant that sounds or drones to scare the animals could be a short-term solution since he did not believe in hunting or vasectomy. According to the officer from the local authority, the villagers sometimes use firecrackers and produce sounds in order to scare monkeys, although it only keeps them away for a couple of days. In general, the actors did not think that scaring techniques would be effective for the monkeys since they would get habituated to them. The officer from conservation INGO nr 3 argued that warning systems could be used for monkeys. If a large group of them are approaching a village, the authorities could be warned and go there with dogs and

chase them away. However, he said that these measures would not solve the entire conflicts, but could help to reduce them. The farmers on the other hand, said that monkeys would just go and create problems for someone else if they were scared away.

5.3.2 Vasectomy

Some of the actors thought that vasectomy could be a way to manage the monkey populations in order to mitigate the conflicts. The officer from the southern forest authority argued that it would be a great solution, but was unsure whether it would be feasible or not. The officer from the local authority had also heard that vasectomy can be used as a management method, but was pensive on how it would be conducted in practice. By the officer from the agricultural authority, it was brought up that India are performing vasectomy on their monkey populations in order to decrease them. She therefore suggested that the same thing could be done in Nepal. According the officer from Ecological Foundation, the best long-term solution to the human-monkey conflicts would be to control the reproduction of the monkeys. If the dominant alpha male in a group was captured, vasectomy conducted and he was released in the same place, the number of monkeys in that area would decrease the officer argued. The advocacy meant that vasectomy may work if it would be carried out extensively in the nation, while the officer from Sustainable Future argued that vasectomy could be used to slowly control the size of the monkey populations without killing them. However, he said that they do not have the human- or institutional resources needed to organize this. Some of the actors did not believe in vasectomy as a mitigation method. The officer from the INGO focused on agriculture and sustainable bioresources said: “What a silly idea. I do not believe that this is going to be the permanent solution.”, and the officer from Global Biodiversity Organisation agreed. By government officer nr 2, it was questioned how all the monkeys should be captured since they have big populations and high production rate.

5.3.3 Hunting, monitoring and objectives of management

Actor’s attitudes to hunting as management method differed a lot. The farmers said that they would kill monkeys if it would be allowed, in order to solve their severe situation. Currently some villagers kill animals such as deer, foxes and *kalij*³ (*Lophura leucomelanos*) even if it is against the law, and eat what they can. However, they made a distinction between hunting of common animals and threatened species. On of them told the following story:

³ A pheasant bird.

One time we saw a porcupine in the forest, and some people were trying to capture it while others were saying we should let it go. Some species, like pangolins, feed on poisonous insects and do not harm humans. They are beneficial for our environment, so we should not kill them. But now pangolins are on the verge of extinction. They do not harm humans, damage crops, or harm livestock. Instead, they eat pests harmful to farmers. They are now only found in zoos.

He continued by saying that there should be strategies to identify and conserve these animals. The officer from the advocacy organisation emphasized several times that the human-wildlife conflicts will not be solved unless it becomes legal to kill monkeys. He said:

We should be permitted to cull them. After all, why do we keep goats and hens at home? To consume them, right? If goats and hens are not depleted by consumption, then monkeys will not be eliminated by culling them. If their numbers are perceived to be declining in the ecosystem, then the local community itself will take steps to increase their population.

The officer from Nature Association and the officer from the northern forest authority also argued that hunting of monkeys should be allowed due to the big problems, but stressed that they need to know how big the populations of common animals are in order to be able to decide how many to kill. The forest officer explained:

So, if the population is increasing, how should we maintain the population? Because in our case, there is no provision of culling the animal [...]. For some pests, like wild boar, there is a provision. But for the majority of these pests, there is no provision. We get punished for killing the animals. So, that policy-wise also, we have to revise. If the animal is problematic, there should be the provision to cull the animal.

The officer from the agriculture authority was a bit more hesitant on the topic, but said after some talking that it might be a solution to kill monkeys if the size of their populations is known. Even the officer from Fauna Conservation argued that wildlife populations should be managed through culling in order to decrease and said:

For monkeys, we have to take more bold decisions. We cannot have more monkeys at the cost of people's life and their property [...] We do not want to eliminate all the monkeys, but we have to manage them. We can see that kind of practices in other countries.

He also emphasized that there should be management plan for wildlife. The officer from Global Biodiversity Organisation mentioned culling as a method to manage wildlife populations as well, but did not define what techniques to use. He said: "I would not use the word hunting directly. But I use culling as a management tool. Culling is removing, okay?" He then explained that when speaking of conflicts with elephants or tigers, it is possible to be quite straightforward. But when it comes to monkeys, it gets very complicated. Related to this, he said that animal welfare

activists do not want hunting of monkeys to be legal. The officer continued by saying that they need to know the status of the populations in order to be able to manage them, at least for specific areas. If there is conflict in a certain place, they need to know the status there:

We do management for three reasons: to increase, to maintain, or to decrease. If we do not know the size of the populations, how can we decide what to do? Because we need the animals, but we also need to control the conflict.

He argued that proxy such as number or incidents could be used in order to estimate the size of the populations. Furthermore, the officer said that they do not have any species-specific plans for common animals outside of protected areas. In order to be able to decide how to manage them, this would be needed he argued.

The officer from the wildlife authority was also perceived as careful when speaking of hunting. He said that they have not talked about culling of any animal, since it is not the government's principle of conservation and that they only talk about certain kinds of conservation. However, he mentioned that it is a one measure for population management, and that they have been studying the theory of it. When asked which animals that could be managed through culling in the mid-hill districts, he said:

Right now, I do not want to state that culling would be one measure. I just respond to you [...]. Academically, we know the pros and cons for culling of any species when we talk about conservation.

Regarding the new amendment which allows hunting of wild boar if they come to agricultural fields, the officer said that if there are problems, the local communities will apply the measures. And if there are no wild boars causing crop depredation, people will not hunt them, since conservation is important to them and not the killing in itself. That is why the permission to kill wild boar are granted periodically by the government, on request from the people. When asked if he thinks that this law could apply on other animals such as deer, leopard or monkey for example, he answered that that wild boar occurs in all ecosystems in Nepal, has high breeding and is not categorized as threatened. If species are under that category and would decline over time if their distribution would decrease, they should not be killed. But if populations are too big, hunting could be a solution, he said after some talking. In order to be able to address the management of wildlife populations and decide what approach to go for, monitoring of them is important, the officer stated. For that reason, monitoring should be conducted in the mid-hill districts.

Some of the actors argued strongly against hunting of common animals. The officer from Ecological Foundation thought that if all monkeys are taken from one place, another group of monkeys will occupy that place instead. For that reason, he did

not believe in hunting. Furthermore, he meant that it is against animal welfare. The officer from Sustainable Future were on the same page, saying that it is unethical to kill wildlife. Another argument was that there may be uncontrollable demands to kill other animals of hunting of monkeys would be allowed. This may have far-reaching consequences not thought of, and lead to illegal activities such as trading with wildlife. He also spoke about the Hindu mythology, where monkeys are described as the army of God. Due to this belief, problems would rise if it would be legal to hunt monkeys. Furthermore, he said that some people see the monkeys as their ancestors and thinks that they should not be killed because of that. However, he was not negative about the amendment which allows hunting of wild boar if they come to agricultural fields, since wild boars regenerate very quickly and grow fast. He also stated that people would kill them even if it was not legal. The officer from Unity for nature shared some of his ideas, and argued that if hunting would be allowed without proper regulations, there could be high levels of killing and more guns in circulation. He also said: “If people go and start shooting Maccas, I am pretty sure that all the religious leaders will take into streets.”. Therefore, he argued, would it be better to make the compensation for wildlife-damage more efficient than to go for lethal management. The officer from Bioresource Alliance did not believe in hunting as a management method either, and said that it might create unbalance in the ecosystem. Other actors arguing against hunting was the officer from the southern forest authority, who meant that wildlife should be managed by humans without any harm caused to them, and the officer from the local authority said solutions other than hunting should be used if possible. However, he also explained that farmers would kill wildlife if it was allowed.

Evidently, hunting was a key issue that divided the actors. Those that argued for it emphasized the severe conflicts in the rural areas and that populations of common animals are unacceptably high in numbers. Those that argued against it all worked with biodiversity conservation, and referred to the balance of the ecosystems and political pressure from religious leaders. Some of the actors meant that hunting could be solution if the sizes of the wildlife populations were known.

5.3.4 Practices of farming and forestry

Speaking of mitigation methods, several actors mentioned measures related to farming and forestry. Plantation of fruit trees in the forest and along agricultural fields was a debated topic among them. The officer from the agricultural authority and the officer from the southern forest authority argued that it could be a part of the solution, while the officer from forest authority nr argued that agroforestry could be a mitigation method. If trees were integrated with the agricultural crops he said, the wildlife would get food and farmers would have more yield. However, a majority of the actors meant that plantation of fruit trees would not be feasible due to the amount of work needed to take care of the trees. One of the farmers said:

If we plant fruit trees, it would take ages for them to mature enough to produce fruits. They would require care like a new born baby, and there are only old people of more than 60 years in the village now days. So, who would go to the forest, take care of those plants and water them?

The officer from the advocacy organisation were on the same line:

There is a logic that if we plant fruit trees in the forest, monkeys will not enter the village. I do not think that is a reasonable logic. This kind of logic is often suggested by those who live in urban or city areas, not by the villagers themselves.

According to the officer from Sustainable Future, there is another reason to not plant fruit trees as well. He thought that if they would plant fruit such as mango, humans would harvest them and there would be more human-wildlife conflicts.

Other mitigation methods suggested by actors was plantation of alternative crops that are unappealing to the monkeys, such as lemon, medical plants or nuts that are difficult to open. The officer from the agricultural authority, the officer from Ecological Foundation, Sustainable Future, and Global Biodiversity Organisation argued that this could be a long-term solution. However, the officer from Sustainable Future emphasized that these crops are not sufficient alone since they make the farmers dependent on the external market, which they might not have control over or access to. Therefore, they need to grow crops that they can consume at home as well. The office from Global Biodiversity Organisation also argued that it is important to have business plans in order to make sure that there is a market for these types of crops. Furthermore, bio-fencing was suggested by the officers from Ecological Foundation and Bioresource Alliance. The later meant that alternative crops should be cultivated as an outer boundary on the fields, with the conventional crops inside of the boundary. Their organization had tried to grow timur⁴ (*Zanthoxylum armatum*) in small scale and found it successful. The officer also suggested cultivation of pepper, cinnamon, chamomile, mint, moringa, citronella and turmeric. Moreover, some of the actors suggested bigger transitions of Nepal's agriculture. The officer from the northern forest authority believed that agriculture in general should be performed in larger scale:

It should be in large scale. If we are planting maize, it should be in a vast track of land. We could hire some manpower for that, to roam around that land so that they could protect their field from these animals. And if it is in large scale, then the per unit cost is also low. It becomes more efficient and there will be some return from it. It will be more economical; it will go to the market.

⁴ A shrub used for medicine and cooking (Agnihotri et al. 2022).

It was also argued by the officer from the agriculture authority that the subsistence farming should develop. Organic farming can be seen as a modernized concept of subsistence farming, which young people may be interested in she said. It would also be good if new techniques and new types of crops could be introduced.

Speaking of the community forests, habitat management was often mentioned as a way to mitigate the human-wildlife conflicts. If the forest would provide a good habitat for the animals, they would not come as close to the human settlements as today, some argued. Speaking of leopards killing livestock, the officer from the southern forest authority said that in order to decrease these attacks, the leopard's natural prey species in the forest should be maintained. However, he saw one obstacle against this: "Unfortunately, people illegally hunt deer for their meat consumption, which unknowingly affects the leopard's food source". The officer from Ecological Foundation also argued that a long-term solution could be to conserve and increase the leopard's prey species. Since deer are spread all over Nepal, he thought that they should be of special focus. The officer from Fauna Conservation said that the forest should be managed with more focus on wildlife, while the officer from Sustainable Future suggested restoration of pine forests into natural forests with native trees. In that case, a diversity of fruit would be available for the monkeys there throughout the seasons. The officer from the INGO focused on agriculture and sustainable bioresources said that habitat management may be a possible solution. However, he also said that the government's budget allocation for habitat management is very small: "Then can you imagine the things that we are proposing is going to be implemented"? The officer from the local authority said that according to his understanding, they have deliberately been conserving the habitat for the monkeys. If the forests were managed, cleaned and bushes were removed, the wildlife would also be managed. One actor that did not believe in habitat management as mitigation method was the officer from Sustainable Future, who said:

As an animal biologist, what I can say is that if you implement more habitat improvement measures to keep them inside, it will actually increase their population rather than decrease it. This is because they will come for better food and better nourishment, leading to rapid and robust breeding. So, the population will increase.

In summary, several actors suggested a management of forest and land that would require a lot a labour in the rural areas, while the farmers emphasized that the problem is that there are not enough people living in the villages. Furthermore, it was highlighted by actors that the government of Nepal lacks budget for implementing solutions related to increased management themselves.

5.3.5 Relief funding and decentralization

All actors except the officer from the wildlife authority argued that the policy-processes and policy-implementation related to wildlife need to be decentralized in one way or another. The process of providing relief-funding for wildlife damage on crops and livestock was especially important, since the procedure currently is complex. When the interviewed farmers were asked about the process, they said that they do not know how to claim compensation for wildlife damage. By other actors, the process was explained as follows: first, a *muchulka* (written bond) is created within the community. The next step is to get a recommendation for relief provided by the community forest committee and the ward, and finally, a recommendation from the veterinary department is needed. By the officer from the local authority, it was argued that the process is adequate enough without the recommendation from the veterinary department. He also said that it would be good if the money could be distributed through the District Forest Office rather than the national level government. For people living in rural areas distant from the District Forest Office, it would be even better if the ward could manage the funding. Several actors explained that farmers are spending a lot of time and money in the procedure of getting the relief today. “It is as if people have to spend more money collecting the necessary documents for obtaining relief than the actual relief amount itself.”, the officer from the northern forest authority said. This statement was reinforced by the officer from Sustainable Future who meant that the process is very frustrating and people need to put a lot of work into documents and visits to different offices in order to get their damage certified. Actors saying that the relief guidelines should be improved, also said that ward offices should be able to pay the funds directly. It was argued that since the local governments are efficient and closely connected to the people, they should be provided with resources and given authority in rural areas.

However, stakeholders emphasized that the relief funding is a mitigation method rather than solution to the conflicts. The officer from Global Biodiversity Organisation said that the relief funding will neither control the wildlife populations, nor the conflicts. Therefore, he argued that they are not a long-term solution. A lot of money is spent on the relief guidelines according to the officer from Unity for nature, but they also know that it is not sufficient to support the farmers livelihoods. The officer from Unity for nature stated that the relief for wildlife-caused damage has increased compared to a couple of years ago. New species such as monkeys are included in the guidelines as well. However, he argued that the fundings are a curative measure rather than preventive, and that it would be better if the government could help people before conflicts have appeared. The officer from Bioresource Alliance were on the same page, saying that the government should focus on preventing the conflicts before they happen, instead of

investing a lot of money in compensation. Furthermore, he explained why the process of getting relief funding is this complex:

We are a mistrust-society. We do not trust each other. That is why we produce a lot of unnecessary barriers. Then we need a lot of paper checks.

The officer from the northern forest authority argued as others that local government should be trusted so that the relief can be distributed on local level. However, he argued that it is important that they are fair and that the money is not misused. Therefore, there should be some control mechanism for the local governments. Some of the actors argued that the process of collecting evidence of occurred damage needs to take time. According to the officer from Fauna Conservation, the compensation mechanisms are really good. The officer from the wildlife authority did not think that the process should be simplified any further, and emphasized that the guidelines have been revised three times already. He meant that the relief guidelines are supportive in mitigating the human-wildlife conflicts, and that the cash-compensation is higher than in other Asian countries. Even though he agreed with other actors that it is a problem that it takes time to compile all papers when claiming relief, he argued that they have to make sure that no one fakes documents in order to get the money.

On the topic of de-centralization, actors argued that an extent collaboration with local people and stakeholders from sectors other than wildlife conservation is needed. The officer from Unity for nature said that in order to mitigate the conflicts, collaborations with people from outside of the environment sector is needed, since the conflicts are transdisciplinary. Moreover, the officer from Global Biodiversity Organisation argued that an integrated approach is needed in order to solve the conflicts, where local governments, the agricultural sector, the forest sector and others are involved. The officer from Nature Association said the following regarding the policies related to wildlife:

I might be biased here, but I think it is time to put democracy into practice in wildlife policy as well. At the moment, it is very centrally controlled in my opinion. Division forest officers and wardens have a lot of power, and even though community forest user groups might seem decentralized, they are not. I think we should empower local communities more.

The officer from Bioresource Alliance emphasized a need of evidence-based policy making. He suggested that research on how to solve the conflicts should be carried out in collaboration with universities and research institutions.

To recap, the relief for wildlife caused damage is a response meant to mitigate the human-wildlife conflicts. However, actors argued that the bureaucratic process of claiming it is tedious, ineffective and therefore not serving its purpose in several places. Furthermore, the importance of increased intersectoral collaborations were highlighted by stakeholders.

5.3.6 Social programs

Social aspects of mitigation methods were also discussed throughout the interviews. The officer from Fauna Conservation saw for example poverty-reduction as a way to mitigate the human-wildlife conflicts. However, he argued that local dependency on the forest resources needs to decrease:

If they get a proper education and a good job, they do not have to rely on forest resources. We should reduce their dependency on forest resources. And then we should have projects that supports that line, so that they do not have to collect resources for their subsistence livelihood. But they can go there and enjoy the wildlife. We should have community-based tourism-focused activities. So that they value the animals and if the animals are coming there, they invite tourists to see: these are the animals we have preserved, projected, and then out of that, they will get some resources.

According to the officer from Sustainable Future, the human-wildlife conflicts are part of a complex social and economic system, connected with the priorities of their government. The government plays a role in Nepal's increased outmigration of young people by supporting it. If there would be more people in the villages, the human-wildlife conflicts there would be less severe, the officer argued. Therefore, facilities such as schools should be provided for the youth in rural areas in order to create an environment where they can and want to stay. The officer from forest authority was thinking similarly, suggesting subsidies and programs for activities generating local income and improving livelihoods. Furthermore, the officer from Unity for nature said that if kids play outside while their parents work somewhere else until late, the threat of them being taken by leopards is greater. In order to decrease that risk, childcare could be built up by local agencies. Connections between rural policies, people's livelihoods and the ways in which wildlife is perceived can be found in these suggestions.

5.4 Roles and responsibilities

In this section it will be described who the actors think should be responsible for mitigating and solving the human-wildlife conflicts, and what roles different stakeholders should take. During the interviews with the farmers, they emphasized that the government should take initiative in providing a solution. One of them said:

We organized protest rallies in hot and sunny summer days, wearing garlands made of corn cobs with slogans calling for the resignation of the agriculture minister. People did that because they were unable to bear the pain of crop loss. We pay taxes to the government, so it is the responsibility of the agriculture minister to initiate some solution measures.

Along with the agricultural minister, he thought that the Department of Forest and Soil Conservation should take responsibility. Another farmer continued by saying:

The Ministry of Forest should recognize the importance of farmers near the forest land for the conservation of the forest itself. The forest is not just the asset of the farmers; it is also the asset of the government. So, the government should bridge the gap and be in close coordination with the farmers.

The officer from the local authority on the other hand, stressed the role of the community forest user groups:

I do not think that the government has much interest in the community forest. It is more the community's responsibility. The communities continue to acquire benefits from the forest, utilizing wood and timber whenever necessary, but they are not very involved in the management activities [...] The users also need to be conscious; they need to find solutions when problems like this arise. The most troubled group of people are the users themselves. The government is not affected much by this. So, the user group should be responsible for managing the forest, for which the government should allocate appropriate budget.

A similar perception was held by the officer from the southern forest authority, who said: "their role as a village is to be involved or contribute to the programs we bring. For example, if a fruit tree plantation program is introduced, we can implement that program with the participation of local people. We have not heard of anything done by themselves on their own." Furthermore, he said that the primary concern for his authority is wildlife conservation, while the sole concern of the farmers is how to get rid of wildlife. According to the officer from the agriculture authority, the farmers are responsible for diversifying their crops and adopt new technology, while the government should provide them with training, compensation and subsidies. By the officer from the northern forest authority, it was stated that the farmers are victims and that the government should take action. The officer from the wildlife authority also said that the main responsibility to mitigate the human-wildlife conflicts lies on the government.

The officer from Fauna Conservation said that the villagers are part of a system and should support the authorities in the management of it. For example, they could plant alternative cash crops that are non-palatable to the wildlife. Regarding the responsibility of the government, he said that they should support the farmers in finding and adapting to a new crops system and give them compensation for losses caused by the transition. The officer from Global Biodiversity Organisation argued that it is a government duty to develop the policies related to wildlife and conservation. He also said that the government has the main responsibility in conducting the monitoring of the wildlife populations, while the buffer zone development committee, community forest and local government can provide advice on how it can be conducted.

By the officer from Sustainable Future, it was argued that government has the main responsibility to mitigate the human-wildlife conflicts since they have money and

legislative power. Therefore, they are responsible for providing reliable and fast compensation, support in restoration and to monitor and manage populations. Speaking of the villager's responsibility, the officer meant that they should cultivate alternative crops or guard the crops while they are ripening. Since these actions may not be effective if they are conducted individually, the collaboration is important. According to the officer from Ecological Foundation, the farmers have a responsibility to manage the community forest, waterholes, samplings to clear bushes. The responsibility of the government is to form the community forest user groups. Furthermore, he said that the government is responsible for controlling illegal hunting. The officer from Bioresource Alliance argued that the government should take responsibility for implementing evidence-based policies in Nepal. They should also feel the farmer's situation and work faster in order to improve the situation, by identifying problems, prioritize them and revise the policies based on action research. Then, local units should be empowered to implement these policies. Regarding the responsibility of the villagers, he said that they need to accept the policies. Therefore, the government should consult them and have them participating from policy-planning to implementation.

To sum up, some actors argued that the policy approach to wildlife management in Nepal has fundamental problems and needs to be re-shaped so that the perspectives of local people are taken into consideration. Some actors influential within the policy-processes insinuated that the farmers need to change their behavior according to suggestions of experts and bureaucrats. At the same time, they are expected to take responsibility and act on their own initiative.

6. Discussion

In this chapter, the data from the interviews will be analysed through the lens of critical political ecology. The actor's prominent ideas related to wildlife conservation and management of forest and land, their understanding of each other's roles in the human-wildlife conflicts and perceptions of the policies related to wildlife will be discussed.

6.1 Politics of strong interest groups

As described, the actor's perceptions of the human-wildlife conflicts in the mid-hill districts differed in certain respects. Some thought that hunting of monkeys should be legalised while others argued against it. Some meant that a sustained local access to natural resources is important, while others said that local people should be less dependent on them. The actor's understandings of which factors that might have caused the conflicts and which measures that can be taken to mitigate them, can be derived to certain ideas related to the environment and environmental protection. Some of the interviewed actors described ecosystems as inherent of balance and stability which human activities can interrupt. This understanding of the environment can be seen as based on an "orthodox" approach to ecology (Forsyth 2022), and was for instance expressed by the officer from Bioresource Alliance, who argued that hunting may cause unbalance in the ecosystems. It is also visible when the officer from the Northern Forest Authority said that the forest users does not have much knowledge on how to maintain the forest's ecological balance.

Hunting was not a management method included in the universally accepted principles related to wildlife conservation in Nepal, and seemed to be controversial for officers influential within conservation to talk about. The impression was that they were not sharing all their thoughts on the topic during the interviews. One example of this is that the officer from Global Biodiversity Organisation did not say directly that hunting could be a management method for monkeys. However, he insinuated that it could be a solution if their populations were monitored. During the interview with the officer from the wildlife authority, the principles of conservation within Nepal's government was laid out. He strongly emphasized that conservation is their most important priority and that hunting is not a management

method that fits in their idea of conservation. Moreover, he said that they only talk about certain kinds of wildlife conservation, and that they have not discussed whether culling could be a solution to the conflicts since it is not according to the government's principle. Some of the actors that opposed hunting often used conservation and wildlife management as synonyms, while they promoted a custodial management where external impacts on populations and their habitats should be minimized. Meanwhile, they also described an indirect manipulative management as desirable, where the animals habitats, food supply or density of predators would be modified (Fryxell et al. 2014). In accordance with these descriptions, an orthodox understanding of the ecosystems may be one aspect affecting how different management methods are perceived in Nepal (Forsyth 2002). Apart from the fact that hunting is not accepted, it also seems to be slightly unclear to actors influential within wildlife management what methods that fits under their definitions of conservation and management.

Furthermore, interests of religious leaders seem to impact the national wildlife management. Several actors stressed that monkeys are seen as the army of God according to Hindu mythology, and that it is unethical to kill wildlife. By the officer from Unity for nature, it was highlighted that religious leaders would protest in public if hunting of monkeys would be allowed. Animal welfare activists were also mentioned as strong forces, and that they do not want monkeys to be killed. However, the Hinduist farmers did not mention religion when they spoke about management of the monkeys. Instead, they emphasized that they would kill them if they were allowed, due to the severe damage that they are causing. Therefore, this does not seem to be an intrinsic religious question. Rather, religious norms may shape societal norms, which affects how people perceive wildlife and hunting of monkeys (Wilkins 2021). The religious leaders hold a lot of power in Nepal, and influential actors may be cautious about saying something that would upset them or their followers. Thereby, religious leaders are influencing the processes of decision-making and legislation (Koehrsen 2022), while the religious identity is used to delegitimise hunting (Wilkins 2021). This may be another explanation to why hunting was such a sensitive topic to talk about during the interviews.

It is also possible that financial aspects affect the current methods of wildlife management in Nepal. Nearly all the actors highlighted that there is a lack of knowledge regarding the wildlife-systems in Nepal, and that they have no data on the size of the populations for common animals. Furthermore, there are no objectives of their management of common wildlife. According to the stakeholders, this is the case since such management is not prioritized in the limited, national budget. Instead, Nepal needs to concentrate on development of infrastructure and schools. The amount that is dedicated to wildlife management is used for

conservation of endangered species. This is also stated to be the priorities of the INGOs and NGOs which financially supports most project in the wildlife sector. As previously stated, since these actors are in competition for income from donors (Chapin 2004), they need to align their conservation approaches with the sponsor's (Adams & Hutton 2007). If the sponsors wish to see a conservation of wild animals in Nepal, it is therefore likely that efforts are not put into other types of management than conservation.

With these aspects in mind, it can be argued that when actors debate management methods with references to properties of the ecosystems, religious values, economics or other ecological or societal aspects, the arguments are based upon political and social constructions. Thus, political and social positions or values may be upheld when stakeholders suggest certain causes or solutions to the human-wildlife conflicts (Forsyth 2002).

6.2 Forests, fields and local people

As an alternative or complement to hunting, it was suggested by several actors that a changed management of forest and land could mitigate the conflicts. Solutions brought up was for example tree plantation, enhanced management of the community forest and alternative livelihood strategies for local people so that they would be less dependent on natural resources. The suggested management methods showed different perceptions of what options that would be feasible in the mid-hill districts. Furthermore, it became evident that the actors had different understandings of how the forest ideally should be managed and what roles local people should play in this management (Forsyth 2022).

Some described a forest and land managed for both livelihoods and wildlife as desirable. One example of this was when the farmers spoke about how generations before them used to plant fruit trees that would bring food to wildlife as well as humans. The officer from the agricultural authority were on the same page, saying that crops were grown in bigger scale and with greater variety before, which meant that there was enough food for both humans and wild animals. Other actors emphasized that the forest should be managed for the needs of wildlife, and that local usage of forest products is seen as a problem. The officer from Fauna Conservation for instance stated that there is a lot of disturbances created by local people while they manage the community forests, and argued that local dependency on natural resources need to decrease. Instead, they could work with wildlife-tourism for example. These statements insinuated that rural livelihoods should adapt to the wildlife in order to solve the conflicts, while several other actors stated

that the Wildlife Act prioritises wildlife at the cost of the livelihoods of local communities.

This approach to management of wildlife and landscape, where the importance of the forest and fields for rural livelihoods is not acknowledged (Ojha et al. 2009), and where practices and knowledge of local people is overlooked, can be connected to technocratic values (Faye 2015; Scheba & Mustalahti 2015). Instead of discussing social inequalities and power dynamics contributing to the human-wildlife conflicts, technical solutions such as tree plantation or increased management of the forests are suggested by actors (Accetti 2021). Furthermore, paradoxical technocratic values were visible when actors discussed what roles different stakeholders should take in conflict mitigation. Those influential within the policy-process often insinuated that farmers on one hand should change their behaviour and do as bureaucrats and experts tells them to do, and on the other hand take action and responsibility on their own (Ojha et al. 2009). This was particularly emphasized in discussions regarding the management of the community forests, when actors said that the humans-wildlife conflicts are happening since the community forest user groups are not managing them in a way that benefits wildlife and biodiversity. However, the management of the forests is to a large extent governed though management plans decided by forest bureaucrats. The possibilities for the community forest user groups to take own initiatives are therefore limited (Baral & Vacik 2018; Rutt et al. 2015).

It can be argued that the technocratic approach to landscape- and wildlife management in Nepal is unsustainable since socio-economic aspects, local conditions and local livelihood strategies are not taken into consideration (Mansourian 2005; Oldekop et al. 2016). In order to sustainably manage them, collaboration between a wide variety of actors and disciplines is crucial, so that compromises acceptable to all interest groups can be made (Mansourian 2005; Mascia et al. 2003). Currently, the technocratic wildlife management is led by experts whose professional culture, education and training have shaped the tools and discourses adapted by them, thereby forming their worldviews (Ojha et al. 2009). Since a majority of the actors shaping the policies related to wildlife comes from the field of conservation, and since there is no intersectoral collaborations in these matters, their worldview, perspectives and knowledge prevails (Forsyth 2002). As several of these actors have the perception that rural people cause environmental degradation and should be less dependent on natural resource, the risk is that farmers access to resources, land and livelihood activities would become even more restricted if some of their suggested mitigation methods would be implemented. This could increase their vulnerability (Forsyth 2002) and have disastrous consequences for their livelihoods (Massé 2016), which could further

exacerbate the human-wildlife conflicts (Linkie et al. 2007). In order to avoid this, it is therefore important to highlight which knowledge systems that prevails within the policy-process, and what spaces there are for contrasting voices to be heard.

7. Conclusions

In this thesis, a political ecological analysis of the perceptions behind Nepal's wildlife management has been provided. Through concepts related to politics and environmental science, it has been examined which knowledge systems that prevails and what spaces there are for local voices in policy-making processes related to human-wildlife conflicts. In order to do so, three research questions were answered.

The first one was which actors that have prevailed in shaping policies related to wildlife conservation in Nepal and what their roles are in these processes. The Department of National Parks and Wildlife Conservation currently are the ones deciding the policies which states the management of wildlife outside of protected areas. They are collaborating with the Department of Forest and Soil Conservation who are responsible for the Wildlife Damage Relief Guideline. The impression given from the interviews was that the Department of Agriculture is not involved in policy-making processes or implementations related to wildlife. A number of influential INGOs, NGOs and research organizations oriented towards conservation works with the development and implementation of wildlife-related policies in close collaboration with the government. Some of them are financially supporting projects as well. Since these organizations get their income from donors who favor conservation efforts in Nepal, the management of the common species who cause damage in the mid-hill districts lacks priority and funds. Furthermore, religious leaders inherent of political power seem to influence the wildlife management in Nepal, using religious identity to delegitimize hunting.

Other INGOs, NGOs and research organizations expressed that they are consulted by the government sometimes in the policy-processes, but that they do not know to what extent their opinions are valued. According to the advocacy organization, they are discussing the human-wildlife conflicts with the government but are not being listened to. The government on local levels seem to have a low level of impact on the policy-making process compared to the other actors, and the farmers have no direct influence in the policy-processes. Evidently, the actors mainly working with the policies are all focused on conservation. This means that they come from a certain disciplinary angle and holds a certain knowledge system. Since there is no

inter-disciplinary collaboration and since local voices are not heard in the policy-making processes, their world views prevail in the wildlife management of Nepal.

The second research question was how actors perceive human-wildlife conflicts outside of protected areas in Nepal's mid-hill districts and what they think causes them. All actors emphasized that the conflicts are severe and widely spread, affecting farmer's wellbeing and livelihoods. Monkeys were described as most problematic since they come in big groups and causes extensive damage on crops, but also takes food from storages and attacks people sometimes. Furthermore, leopards, deer, wild boar, bears, porcupines, birds and rats are damaging fields and livestock. In certain areas, leopards even kill young children. Speaking of underlying causes to the conflicts, all actors mentioned outmigration as villagers move from rural areas to cities or abroad for jobs and education. Less people involved in farming and forestry means that the local people are unable to use their usual methods to defend themselves, their livestock and crops against wildlife. It is evident that practices of farming and forestry have changed, which affects the behaviour of wildlife. It was also explained how the conflicts intrinsically were a factor pushing people away from farming

Several actors argued that an additional reason to the conflicts is that the forest lacks native species, and therefore cannot provide a good habitat for the wildlife. Others claimed that there is enough food in the forest but that the animals prefer crops or livestock since it is good and easily accessible to them. Some actors focused on conservation argued that the human-wildlife conflicts are happening since the community forest user groups are not managing the forests in a way that benefits wildlife and biodiversity, and that local people create disturbances in the community forests. Actors taking the opposite perspective on the other hand, thought that the wildlife act prioritises wildlife at the cost of the livelihoods of local communities, and that the conflicts are happening since the policy-process is governed by a narrow range of actors all working with conservation.

The third research question was which solutions and mitigation methods the actors see and who they think are responsible for shaping and implementing them. Regarding the management of the wildlife populations, all actors thought that those that could be determined larger than wished for should decrease, while those smaller than wished for, such as vulnerable species, should increase. However, their perceptions of which management methods that would be acceptable differed. Hunting was a key issue that divided the actors. Those that argued for it emphasized the severe conflicts in the rural areas and that populations of common species are unacceptably high in numbers. Those that argued against it were all oriented towards conservation, and referred to the balance of the ecosystems and religious

values. Some of the actors meant that hunting could be solution only if the sizes of the wildlife populations were known.

As alternatives or complements to hunting, vasectomy or displacement of problematic animals was suggested by some of the actors, while other said that it would never work. Furthermore, different scaring techniques using drones or sounds of tigers were suggested by actors. However, many said that it would only be a short-term solution, since the wildlife would get habituated to it. Other suggestions were plantation of fruit trees so that there would be more food for the monkeys. This idea was frowned upon by many of the actors, who meant that there is not enough labour in the rural areas in order to take care of them. Some said that a solution could be to plant alternative crops such as herbs, spices or lemon which animals would not want to eat, or that could be used as bio-fences around the more traditional crops used in subsistence farming. It was also argued by actors that farmers should start to grow cash crops and adopt to the market. Some of the actors oriented towards conservation said that people living in rural areas need to be less dependent on natural resources for their livelihood, and suggested that they should get other jobs or work with tourism instead. Furthermore, several actors argued that more native species should be planted in the community forests and that leopard's prey species need to increase in order to mitigate the conflicts. Other suggestions were increased investments in schools or infrastructure, which could support people to stay in rural areas. Generally speaking, the actors focused on conservation often proposed technical interventions as solutions, such as changing crops, plantation of trees or increased management of the community forests. They thought that the farmers should adapt in ways that experts would consider useful, and did not acknowledge the practices and knowledges of local people. Other actors thought that a solution would be to introduce intersectoral collaborations to policy-making processes and make sure that the perspectives of local people are taken into consideration.

In conclusion, this thesis finds that the arena of wildlife management in Nepal is a controversial one, containing widely differing perspectives and values. The outline of the policy process and management interventions related to wildlife fails to acknowledge social complexities. Currently, certain perspectives prevail while other voices are not heard and taken into account. Therefore, rural livelihoods have to adapt to an extensive amount of damage caused by wildlife without much support from the government agencies. In order to decrease the vulnerability of people living in rural areas, the practices and policies of conservation need to respond more to the problems of local people. Moreover, there is a knowledge gap regarding the populations of common animals in the mid-hills. In order to be able to conduct an adaptive wildlife management that takes both ecological and social dimensions

into account, this gap need to be bridged. However, that would require that someone is able and willing to invest money and resources in management of common species in Nepal.

References

- Accetti, C.I. (2021). Repoliticizing Environmentalism: Beyond Technocracy and Populism. *Critical Review*, 33 (1), 47–73. <https://doi.org/10.1080/08913811.2021.1908023>
- Adams, W.M. & Hutton, J. (2007). People, Parks and Poverty: Political Ecology and Biodiversity Conservation. *Conservation and Society*, 5 (2), 147–183
- Agnihotri, S., Dobhal, P., Ashfaqullah, S., Chauhan, H.K. & Tamta, S. (2022). Review of the botany, traditional uses, pharmacology, threats and conservation of *Zanthoxylum armatum* (Rutaceae). *South African Journal of Botany*, 150, 920–927. <https://doi.org/10.1016/j.sajb.2022.08.038>
- Aryal, K., Dhungana, R. & Silwal, T. (2020). Understanding policy arrangement for wildlife conservation in protected areas of Nepal. *Human Dimensions of Wildlife*,
- Baral, K., Sharma, H., Kunwar, R., Morley, C., Aryal, A., Rimal, B., Ji, W., Weihong@massey, J. & Nz, W. (2021). Human Wildlife Conflict and Impacts on Livelihood: A Study in Community Forestry System in Mid-Hills of Nepal. *Sustainability*, 13. <https://doi.org/10.3390/su132313170>
- Baral, S. & Vacik, H. (2018). What Governs Tree Harvesting in Community Forestry—Regulatory Instruments or Forest Bureaucrats’ Discretion? *Forests*, 9 (10), 649. <https://doi.org/10.3390/f9100649>
- Bhattarai, B.R., Wright, W., Poudel, B.S., Aryal, A., Yadav, B.P. & Wagle, R. (2017). Shifting paradigms for Nepal’s protected areas: history, challenges and relationships. *Journal of Mountain Science*, 14 (5), 964–979. <https://doi.org/10.1007/s11629-016-3980-9>
- Bista, R. & Song, C. (2022). Human-wildlife conflict in the community forestry landscape: a case study from two Middle Hill districts of Nepal. *Human Dimensions of Wildlife*, 27 (6), 554–570. <https://doi.org/10.1080/10871209.2021.1980158>
- Carpenter, D. (2018). *The SAGE Handbook of Qualitative Research Ethics*. SAGE Publications Ltd. <https://doi.org/10.4135/9781526435446>
- Chhetri, R., Yokying, P., Smith, A., Van Den Hoek, J., Hurni, K., Saksena, S. & Fox, J. (2023). Forest, agriculture, and migration: contemplating the future of forestry and agriculture in the middle-hills of Nepal. *The Journal of Peasant Studies*, 50 (1), 411–433. <https://doi.org/10.1080/03066150.2021.1978983>
- Danell, K. & Bergström, R. (2011). *Vilt, människa, samhälle*. Liber, Stockholm.
- Dash, B., Narasimham, G.L. & Jinde, P. (2024). Animals in Hinduism: Exploring Communication Beyond the Human Realm in Sacred Texts and Practices. *Journal of Dharma Studies*,. <https://doi.org/10.1007/s42240-024-00181-0>
- Dickman, A.J. (2010). Complexities of conflict: the importance of considering social factors for effectively resolving human–wildlife conflict. *Animal Conservation*, 13 (5), 458–466. <https://doi.org/10.1111/j.1469-1795.2010.00368.x>

- Faye, P. (2015). Choice and power: Resistance to technical domination in Senegal's forest decentralization. *Forest Policy and Economics*, 60, 19–26. <https://doi.org/10.1016/j.forpol.2014.10.004>
- Forsyth, T. (2002). *Critical Political Ecology: The Politics of Environmental Science*. Taylor & Francis Group. <http://ebookcentral.proquest.com/lib/uu/detail.action?docID=215025> [2024-08-04]
- Franklin, S., Betts, M. & Taylor, R. (2003). Interpretation of landscape pattern and habitat change for local indicator species using satellite imagery and geographic information system data in New Brunswick, Canada. *Canadian Journal of Forest Research*, 33, 1821–1831. <https://doi.org/10.1139/x03-104>
- Fryxell, J.M., Sinclair, A.R.E. & Caughley, G. (2014). *Wildlife Ecology, Conservation, and Management*. John Wiley & Sons, Incorporated. <http://ebookcentral.proquest.com/lib/slub-ebooks/detail.action?docID=1701392> [2024-11-04]
- Gautam, A., Webb, E., Shivakoti, G. & Zoebisch, M. (2003). Land use dynamics and landscape change pattern in a mountain watershed in Nepal. *Agriculture, Ecosystems & Environment*, 99, 83–96. [https://doi.org/10.1016/S0167-8809\(03\)00148-8](https://doi.org/10.1016/S0167-8809(03)00148-8)
- Heinen, J.T. & Shrestha, S.K. (2006). Evolving policies for conservation: An Historical Profile of the Protected Area System of Nepal. *Journal of Environmental Planning and Management*, 49 (1), 41–58. <https://doi.org/10.1080/09640560500373048>
- Kharel, F.R. (1997). Agricultural Crop and Livestock Depredation by Wildlife in Langtang National Park, Nepal. *Mountain Research and Development*, 17 (2), 127–134. <https://doi.org/10.2307/3673827>
- Khatri, D., Paudel, D., Poudyal, B.H., Khatri, S., Poudel, D.P. & Marquardt, K. (2024). Examining socio-ecological transitions and new human–wildlife relations in farming landscapes of the Nepal Himalaya. *Journal of Agrarian Change*, 24 (4), e12594. <https://doi.org/10.1111/joac.12594>
- Khatri, D.B., Marquardt, K., Pain, A. & Ojha, H. (2018). Shifting regimes of management and uses of forests: What might REDD+ implementation mean for community forestry? Evidence from Nepal. *Forest Policy and Economics*, 92, 1–10. <https://doi.org/10.1016/j.forpol.2018.03.005>
- Koehrsen, J. (2022). Chapter 20: Religion and ecology. <https://www.elgaronline.com/edcollchap-oa/book/9781839100673/book-part-9781839100673-28.xml> [2024-11-04]
- Krishna, N. (2010). *Sacred Animals of India*. Penguin Books India.
- Kristina Marquardt, Adam Pain, Dil Bahadur Khatri (2020). Re-reading Nepalese landscapes: labour, water, farming patches and trees. *2020*, 29 (4), 238–259
- Linkie, M., Dinata, Y., Nofrianto, A. & Leader-Williams, N. (2007). Patterns and perceptions of wildlife crop raiding in and around Kerinci Seblat National Park, Sumatra. *Animal Conservation*, 10 (1), 127–135. <https://doi.org/10.1111/j.1469-1795.2006.00083.x>
- Linnell, j.d.c., aanes, r., swenson, j.e., odden, j. & smith, m.e. (1997). Translocation of carnivores as a method for managing problem animals: a review. *Biodiversity & Conservation*, 6 (9), 1245–1257. <https://doi.org/10.1023/B:BIOC.0000034011.05412.cd>
- Mansourian, S. (2005). Overview of Forest Restoration Strategies and Terms. I: Mansourian, S., Vallauri, D., & Dudley, N. (red.) *Forest Restoration in Landscapes: Beyond Planting Trees*. Springer. 8–13. https://doi.org/10.1007/0-387-29112-1_2

- Mascia, M.B., Brosius, J.P., Dobson, T.A., Forbes, B.C., Horowitz, L., McKean, M.A. & Turner, N.J. (2003). Conservation and the Social Sciences. *Conservation Biology*, 17 (3), 649–650
- Massé, F. (2016). The Political Ecology of Human-Wildlife Conflict: Producing Wilderness, Insecurity, and Displacement in the Limpopo National Park. *Conservation and Society*, 14 (2), 100. <https://doi.org/10.4103/0972-4923.186331>
- Massei, G. & Cowan, D. (2014). Fertility control to mitigate human–wildlife conflicts: a review. *Wildlife Research*, 41 (1), 1. <https://doi.org/10.1071/WR13141>
- Negi, C.S. (2005). Religion and biodiversity conservation: not a mere analogy. *International Journal of Biodiversity Science & Management*, 1 (2), 85–96. <https://doi.org/10.1080/17451590509618083>
- Nyhus, P.J. (2016). Human–Wildlife Conflict and Coexistence. *Annual Review of Environment and Resources*, 41 (1), 143–171. <https://doi.org/10.1146/annurev-environ-110615-085634>
- Ojha, H.R., Cameron, J. & Kumar, C. (2009). Deliberation or symbolic violence? The governance of community forestry in Nepal. *Forest Policy and Economics*, 11 (5), 365–374. <https://doi.org/10.1016/j.forpol.2008.11.003>
- Oldekop, J.A., Holmes, G., Harris, W.E. & Evans, K.L. (2016). A global assessment of the social and conservation outcomes of protected areas. *Conservation Biology*, 30 (1), 133–141. <https://doi.org/10.1111/cobi.12568>
- Proulx, G., Cattet, M.R.L. & Powell, R.A. (2012). Humane and efficient capture and handling methods for carnivores. I: Boitani, L. & Powell, R.A. (red.) *Carnivore Ecology and Conservation: A Handbook of Techniques*. Oxford University Press. 0. <https://doi.org/10.1093/acprof:oso/9780199558520.003.0005>
- Rutt, R.L., Chhetri, B.B.K., Pokharel, R., Rayamajhi, S., Tiwari, K. & Treue, T. (2015). The scientific framing of forestry decentralization in Nepal. *Forest Policy and Economics*, 60, 50–61. <https://doi.org/10.1016/j.forpol.2014.06.005>
- Saarikoski, H., Raitio, K. & Barry, J. (2013). Understanding ‘successful’ conflict resolution: Policy regime changes and new interactive arenas in the Great Bear Rainforest. *Land Use Policy*, 32, 271–280. <https://doi.org/10.1016/j.landusepol.2012.10.019>
- Scheba, A. & Mustalahti, I. (2015). Rethinking “expert” knowledge in community forest management in Tanzania. *Forest Policy and Economics*, 60, 7–18. <https://doi.org/10.1016/j.forpol.2014.12.007>
- Sharma, P., Chettri, N. & Wangchuk, K. (2021). Human-wildlife conflict in the roof of the world: Understanding multidimensional perspectives through a systematic review. *Ecology and Evolution*, 11 (17), 11569–11586. <https://doi.org/10.1002/ece3.7980>
- Widén, A., Cromsigt, J., Dreßel, S., Felton, A., Singh, N. & Widemo, F. (2023). Direct and indirect effects of food, fear and management on crop damage by ungulates. *Ecological Solutions and Evidence*, 4. <https://doi.org/10.1002/2688-8319.12266>
- Woodroffe, R., Thirgood, S. & Rabinowitz, A. (2005). *People and Wildlife: Conflict or Coexistence?* Cambridge University Press.

Acknowledgements

This thesis was made possible thanks to support from a number of persons. I would therefore like to express my gratitude to all those who have contributed to its completion.

First, I want to articulate my heartfelt thanks to all the individuals who participated in the interviews. Your willingness to share your experiences and perspectives has been essential to this research.

I am grateful to my supervisors, Kristina Marquardt and Dil Khatri for their guidance, support and expertise throughout this process.

I would like to thank the research team at SIAS for their assistance, warm welcome and inclusive approach at the office.

A special thanks to Puspa Lamsal for her exceptional guidance, support and translation services. But also, for being my cherished friend.

To my friend Anna, who visited Nepal for her own master thesis at the same time as me. Your efforts in reading and suggesting revisions for this thesis, as well as your emotional support, have been invaluable. I am so happy that we experienced this together. It would not have been the same without you.

Dinesh and Rashmi's warm hospitality made me feel like part of their family and gave me a true home in Kathmandu. Thanks for taking care of me!

Furthermore, I would like to thank Malin Beckman and Örjan Bartholdson for their support and encouragement during the writing of this thesis.

I also want to express my gratitude to Fredrik Widemo and Anna Widén for sharing their knowledge within the topic of wildlife management.

Last but not least, I am deeply grateful to Agronomerna, KSLA, and SLU for their financial support which made this research possible.

Publishing and archiving

Approved students' theses at SLU are published electronically. As a student, you have the copyright to your own work and need to approve the electronic publishing. If you check the box for **YES**, the full text (pdf file) and metadata will be visible and searchable online. If you check the box for **NO**, only the metadata and the abstract will be visible and searchable online. Nevertheless, when the document is uploaded it will still be archived as a digital file. If you are more than one author, the checked box will be applied to all authors. You will find a link to SLU's publishing agreement here:

1. <https://libanswers.slu.se/en/faq/228318>.

YES, I/we hereby give permission to publish the present thesis in accordance with the SLU agreement regarding the transfer of the right to publish a work.

NO, I/we do not give permission to publish the present work. The work will still be archived and its metadata and abstract will be visible and searchable.