

**ETHNOZOOLOGICAL STUDY OF NYISHI,
MONPA AND APATANI TRIBES OF
ARUNACHAL PRADESH**

**By
PAVITRA CHUTIA**



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NORTH-EASTERN HILL UNIVERSITY
SHILLONG – 793022
INDIA**

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THE NORTH-EASTERN HILL UNIVERSITY
Shillong-793022


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DECLARATION

I, Pavitra Chutia, hereby declare that the subject matter of this thesis entitled "**Ethnozoological Study of Nyishi, Monpa and Apatani Tribes of Arunachal Pradesh**" is the record of work done by me, that the contents of this thesis did not form basis of the award of any previous degree to me or to the best of my knowledge to anybody else, and that the thesis has not been submitted by me for any research degree in any other University or institute.

This is being submitted to the North-Eastern Hill University, Shillong for the award of the degree of Doctor of Philosophy in Environmental Science.


Pavitra Chutia
(Candidate)


Dr. G. S. Solanki
(Joint-supervisor)


Dr. O. P. Singh
(Supervisor)

ForWARDED

Head of the Department

HEAD
Centre For Environmental Studies
N.E.H.U., Shillong

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PREFACE

The work recorded in this thesis is the outcome of the study undertaken during 2002-2005 on “Ethnozoological study of Nyishi, Monpa and Apatani tribes of Arunachal Pradesh”. The Arunachal Pradesh (83,743 km²) is located between latitude 26°28' to 29°30' N and longitude 91°51' to 97°30' E. The topography of the area is undulating with hilly terrain. The vegetation of the area varies from tropical to alpine with evergreen and conifers pine forests.

The thesis explains the manner and technique of extraction of different animal resources with special reference to birds and mammals, their utilization in various socio-cultural, magical and religious ceremonies and in traditional medicine system being practiced by different tribal groups in the state. Rate of the disappearance of animals, hence the loss of faunal diversity during the study period is recorded in the thesis.

The data pertaining to following aspects are included in this thesis:

- (a) Inventory of animal categories being used by different tribes
- (b) Mode of extraction of different animal categories
- (c) Frequency of extraction of animals
- (d) Purpose and mode of use of animals

The thesis begins with the General Introduction followed by Review of Literature and description the Study area. Extraction of animals and its impacts on biodiversity, animals used in therapeutics, socio-cultural, magical and religious practices have been described in following chapters. The results of the entire study have been synthesized and discussed in an integrated manner under General Discussion followed by Summary of the work. The thesis ends with the list of literature cited presented in References.

The results obtained during this study have been analyzed and the inferences drawn in relation to the various animal groups are discussed. Some conservational strategies are also proposed for the protection of threatened categories of animals.

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GENERAL INTRODUCTION

Ethnozoology is a discipline that deals with the animals and their uses through the indigenous knowledge system by the ethnic groups that has inherited in their culture. In other words, the traditional knowledge and customs of the people are based on the animals (Burchifield 1972). Different authors have defined ethnozoology differently. Jamir and Lal (2004) have defined it as a science that deals with role of commercially important animals in life and socio-cultural aspects of tribal people. Martin (1995) has defined it as ‘the local knowledge and use of animals’. It has relation with the other branches of science like ethnobotany, anthropology, linguistics, agriculture, archaeology, ecology, and geography and helps in understanding the cultural and biological factors that has been associated with the development of relationship and dependence of indigenous people on animals (Anon 1994a). Thus, the ethnozoology highlights the utility of animals and animal parts as food, pet, medicine, decorative items or ornaments, their role in cultural activities, rights and rituals, taboos, myths, beliefs and faiths, and other cultural relations coupled with them. Early human societies recognized the role of wildlife in human survival. For instance, the Stone Age had rock paintings depicting hunting scenes and the species important for food and other uses. Wildlife had been a great contributor since ages to human welfare not only to primitive hunter-gatherer societies but also to the modern ones. Wild species of animals and plants have been the source of food, medicine,

construction material, fuel and other products. Thus, the survival of wildlife and people are closely linked. Socio-economic conditions of ethnic groups are often dependent on good management of wildlife and other natural resources as well as the survival of many animal species on better understanding of use and their management (Bennett and Robinson 2000).

The animal population has been severely affected by the current extinction crisis and around a quarter of existing species is considered under the threatened categories with extinction (Hilton-Taylor 2000). The ecological processes in nature create the situation in which some species are prevented to grow and some others are encouraged to multiply faster. These may help to predict future growth pattern of species and their population and decide the degree of conservation efforts to be initiated for the species on priority. The underlying causes that are leading to the decline of animal species in recent times are the growth of human population and other associated factors such as habitat loss, hunting, and the rate of invasion by exotic species, etc. These activities vary in intensity across the surface of the earth. The species that inhabit in more heavily impacted regions are expected to have higher risk of extinction (Forester and Machilis 1996; Woodroffe 2000; Brashares *et al.* 2001; Harcourt and Parks 2001; Harcourt *et al.* 2001; McKinney 2001; Ceballos and Ehrlich 2002; Parks and Harcourt 2002 and Cardillo *et al.* 2004). The category and the degree of threat decide the rate of extinction of species and the biology of species determines how well it is equipped to withstand the threats. Biological traits that confer ecological flexibility and allow population to recover rapidly from depletion may offer some

degree of protection from external threats. A number of recent studies have linked with the amount of extinction risk or the rate of decline of species (Gaston and Blackburn 1995; Bennett and Owens 1997; Owens and Bennett 2000; Cardillo 2003; Fisher *et al.* 2003; Jones *et al.* 2003). Indeed, the biology of the species accounts for over a third of the variations with extinction risk among carnivores and primate species (Purvis *et al.* 2000). Here it presents a regional level analysis of biological and external factors that may lead to extinction of the mammals, birds and some species of reptiles as well as some keystone species such as the tiger (*Panthera tigris*), leopard (*P. pardus*), Himalayan black bear (*Selanactos thibetanus*), four species of hornbills (*Buceros bicornis*, *Anthracoceros malabaricus*, *Aceros undulates* and *A. nipalensis*). They are in general a good model taxon for the development of a predictive science of conservation. All impacts on wild animals are necessarily associated with high density of human population, increasing habitat loss and also the effect of hunting.

Bushmeat hunting threatens the survival of larger animals in general and mammals and birds species in preference. Indigenous people across the continents have been observing their unique socio-cultural and religious practices. The role of bushmeat hunting in the household economy is very crucial that has received very little attention in quantitative term (de Merode *et al.* 2004). However, the recommendations for the management of bushmeat hunting and the success of policies for management are dependent on the impacts that control the measures imposed on the hunting and farming of wild animals. The preventive measures for bushmeat hunting may include altering bushmeat prices, penalties for hunting of

threatened species, or raising agricultural prices. However, the bushmeat price of various category of bushmeat and economic status of bushmeat country are different. For instance, 100% indigenous people of Canada's North West Territories and in US \$ 4700/household/year (Roe et al. 2000) have consumed 200 kg/year of wild meat. In Cote d'Ivoire, an estimated 100000 tones per year of wild meat were harvested (Caspary *et al.* 2001). A recent TRAFIC study noted that 80% of rural Kenyan households depend on wild meat for meat protein (Barnett 2000).

Hunting in western or eastern ranges of Himalayas, which has traditionally been for subsistence, is continued now for trading. Although Wildlife (Protection) Act, 1972 has apparently succeeded in curbing open trade of animals and their body parts but the subsistence hunting continues at an unknown scale (Kaul *et al.* 2004). Therefore, the extent of hunting, the species hunted, the quantity extracted, and the possible reasons for hunt need are to be addressed. The international trade in bushmeat illustrates the importance that international markets for wildlife products can have for rural livelihoods. Meat is considered the most important commercial Non-Timber Forest Products (NTFP) for socio-economically weakened people in South East Asia (de Beer and Mc Dermott 1996). It is also the most important wildlife product in international trade in terms of economic value other than timber and fish (Fui and Noor 1994). In addition to the food and commercial value, the wildlife and their products also have social and cultural significance in indigenous communities. Sacred groves, the socially protected forests with spiritual, cultural and religious values, are found in many parts of the

world (Kothari *et al.* 2000) including India. Wildlife present therein reaffirms kinship ties within the community and with the land that indicates socio-cultural significance, which is deeply rooted in their traditions, cultures and religions (Bennett and Robinson 2000).

Certain indigenous groups of people in the world protect certain categories of animals through their cultural and religious beliefs. These animals in the particular habitat are regarded as sacred. Different tribes value the category of animals differently in particular sacred grooves. Indigenous tribal communities in African countries are also strongly influenced by their association with wildlife. The deer hunting festival in Winneba, Ghana act as a social fabric that holds the community together. It draws the natives of Winneba back home for the celebration, which involve the capturing of the bushbuck, *Tragelaphus scriptus* with their bare hand (Ntiamoa-Baidu 1997). Such practices in tribal groups facilitate conservation of biological resources in order to keep their social traditions alive.

Various ethnic groups in the north-eastern region of India have preserved and protected the several forest patches and even individual trees and animals due to their belief and the worship of Mother Nature. However, some taboos are also associated with meat eating habits in some of the Naga tribes in north eastern region of India (Jamir and Lal 2005). The Anaal Naga in Manipur do not consume turtle or tortoise meat, the Maram Naga do not eat pork and Thangkhul Naga do not eat meat of any species of the cat family. Contrary to the belief, certain forces

are influencing the traditional communities to discard the community-oriented protection to this Himalayan region and they are now exploiting certain threatened animal species such as Himalayan black bear, musk deer and hornbills in eastern Himalayan region (Kalita 2004; Choudhury 1997a; Datta 1998, 1999, 2000).

The state of Arunachal Pradesh in the north-eastern India is known for its ecologically distinctive and rich biological and cultural diversity. It being a part of the 'Hotspot' in Indo-Burma region embodies diverse endemic flora and fauna. Large-scale destruction of forests due to anthropogenic activities has altered the natural habitat, composition of species and bio-diversity of the region (Solanki 2002; Solanki *et al.* 2004), which has lead to a depletion of many species including rare and endemic ones. 26 major tribes and 110 sub tribes constitute the indigenous population in Arunachal Pradesh. The tribal population stays close to nature and depends upon forest for their daily need such as food, fuel, medicine, shelter and fodder for their live-stock. Animals have a distinct place in the life of the people of Arunachal Pradesh and it is more so in socio-cultural and religious festivity. Their knowledge about the availability and utility of animals is immense. The use of this knowledge for commercial purposes is posing serious threats to the wildlife resources *in-toto*. At the same time, this knowledge is not properly documented so far. Increasing trends in population and increasing level of education and acquaintance with the know-how of the modern weaponry have posed a serious threat on the total wild fauna. Considering the animal resources in the light of their scientific, ecological and utilitarian value, it has become

obligatory to adopt sustainable use pattern. Hence, the conservation of the faunal resources has become the need of the time.

Conservation biology draws attention on religious and philosophical traditions. The human outstrips all others in the complexity due to its variety of socio cultural and religious behaviors in different human populous across the world (Gadgil 1987). The traditional and applied disciplines of natural resource management alone were not comprehensive enough to address the critical threats to biological diversity. Hence, a strong need was felt to attract community participation in conservation policies by understanding people's own age-old special knowledge and skill of utilizing wild resources. Thus information on ethnozoological aspects can be applied to biological conservation and community development as well.

Entire tribal population of Arunachal Pradesh is divided into three cultural groups on the basis of socio-politico-religious identify. One group has faith in Buddhism, second group believes in magical and religious practices and the third group practices head hunting. All the tribes in this region are associated with these three groups on the basis of their closeness with the group. One dominating tribe from the group was chosen to represent the entire group for ethnozoological activities. The work recorded in this thesis has been conducted on three major tribes namely, the Nyishi, the Monpas, and the Apatanis. These tribal communities are distributed in different parts of Arunachal Pradesh and observe their unique traditional customs, beliefs and faiths in all walks of life. All three tribes have

been utilizing the different category of animal resources according to their socio-cultural traditions.

Therefore, information on ethnozoological aspects of the Nyishi, the Monpa and the Apatani tribes have been collected and collated in this study. Such information will facilitate the programmes on conservation of species and sustainability of animal resources. At the time of taking stock of the natural resources in the hilly states like Arunachal Pradesh, in Northeastern region of India, the wild faunal resources have not been given due considerations and often neglected. In spite of the ban on hunting, wild animals continue to be hunted for trading and consumption locally as well as globally. The domestic livestock is the major source of meat in the country as a whole and it is more so in north eastern region. Live stock meat production is estimated at 9.5 gram/head/day in India during 1999-2000 (Anon. 2000). The tribal people utilize wild plants and animals in majority of their socio-cultural, magical and religious and in traditional therapeutic practices. Wildlife (faunal resources) is the renewable resource and the quantity of meat consumed directly relates to the number of animals exploited and the faster rate of exploitation may lead to change the renewable character of wildlife into non-renewal characters that ultimately lead to extermination of species (Das 2000). Therefore, uncontrolled exploitation of wild resources has become a cause of concern for environmental protection and conservation of biodiversity in the region. These priorities at present need to be addressed with a well thought management plan to be implemented with the sole aim to conserve the wildlife (faunal resource). However, developing sustainable forms of faunal

resource management and finally choosing a specific approach involving the local population require adopting a rational utilization of faunal resources.

The focus of this study is to understand the use pattern of faunal resources in selected tribes of Arunachal Pradesh and to discuss on people's integration into the regional wildlife management programme. The 'jhum' cultivation system and arbitrary occupation of land by rural population have resulted in the fragmentation of natural habitats and loss of biodiversity in Arunachal Pradesh, which jeopardize conservation efforts and sustainable use of natural resources. Often left to cope on their own, the rural population tends to over-use the available natural resources. The reasons for wild animal exploitation by the rural population are: access to protein in diet, use of indigenous traditional medicine (folk medicine), and use of animal species in cultural and religious traditions. But the same does not hold appropriate for urban population. The effective wildlife management and rational utilization of resources may contribute to the alleviation of rural poverty and consolidation of development in rural area.

The concept of health in the tribal groups and their folk medical (therapeutic) system are always multidimensional, which involve social, cultural and religious issues. People in every society adapt to their environment by way of combining various biological and socio-cultural resources. The fact is that diseases are also related with biological and socio-cultural dimensions of the society that has resulted in the convergence of medical and anthropological interests. Anthropologists are in a position to explain to the health personnel working at

grass root level and to the administrators how the traditional beliefs and practices conflict with western medical assumption, how socio-cultural factors can take care of health and illness, which may change the socio-cultural comprehensive set up. This traditional system of medical anthropology would have impact on the existence of biodiversity associated with it. Therefore it became imperative to work out the animal species which are closely related with the medical system of tribes in the region and its impacts on the biodiversity.

One of the main aims of present study is to compare wildlife utilization made by forest dwelling people at varying degrees of their subsistence economy: from the hunting gathering stage to the more recent phase of the resident cultivators in deforested areas particularly. Traditional hunting of mammals, birds and reptiles have been investigated in different kinds of habitats in order to describe the cultural dimensions adopted by natives in responses to environmental and social changes. Traditional hunting is practised not only by hunting gathering people such as the Nyishi tribe but also by shifting or settled cultivators namely the Apatani and the Monpa tribes. Though the animals such as mithun, pig and livestock farming system is practised, the parts of meats supply in hotels and restaurants done by many agriculturalist groups come from wild animals which may be either directly captured or killed by means of guns or snares or by other indigenous traps. The availability of wild faunal resources, used as food from the natural habitat has led to the development of their own of way hunting and

trapping techniques, selected food habit, and ways of utilizing animal products that exhibits a prey-predator ecological relationship by each group.

Such important aspects have not been comprehensively looked into to deal with the complex issues where society, environment and biodiversity need to be given proper weightage. Therefore, the present study is to evolve viable means to address the issues related to ethnozoology, their impact on biodiversity and to scarce for mitigating measures for biodiversity conservation in Arunachal Pradesh.

The study presented in this thesis covers the following aspects:

1. To make an inventory of animal resources by the Nyishi, Monpa and Apatani tribes of Arunachal Pradesh.
2. To study the magnitude of use and utilization pattern and its impact on biodiversity of the region and on the population of selected species.
3. To study the use of species for life support system of the selected tribal groups.