

# **BIODIVERSITY, LIVELIHOODS & THE LAW**



**The case of the 'Jogi-Nath' snake charmers of India**



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**The case of the 'Jogi-Nath' snake charmers of India**

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**Bahar Dutt**



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**Wildlife Trust of India (WTI)**

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The Wildlife Trust of India (WTI) is a non-profit conservation organization committed to initiate and catalyse actions that prevent destruction of India's wildlife and its habitat. In the long run, it aims to achieve, through proactive reforms in policy and management, an atmosphere conducive to conservation.

WTI works through building partnerships and alliances and its strengths lie in its professional multi-disciplinary team, quick reactions, and its willingness to work with so far neglected issues like acquiring land for wildlife and rescue and rehabilitation.

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# FOREWORD



Dr. V.K. Bahuguna,  
Inspector General of Forests

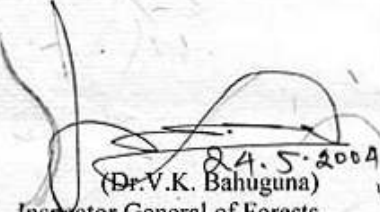
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## Foreword

A lot of literature is available these days on the subject of forests and wildlife resources in the country but so far no one has attempted to document the lifestyle and skills of the communities who use these resources or in this case of the snake Charmers of India. The famous snake charmers of India have always been a source of entertainment and curiosity for a large number of people particularly the western media which have portrayed them as symbol of exotic India. This report entitled "Biodiversity, Livelihoods and the Law" is not only interesting to read but its contents provide for the first time a well researched compilation of the snakes used by the snake charmers, the livelihoods of the community and their lesser known skills as traditional healers. The report is the result of intensive work undertaken by the author for one of the leading non-Government organisation working for wildlife, the Wildlife Trust of India.

The report brings into sharp focus the issue of livelihood of traditional communities whose claim to their profession and socio-cultural compulsions were ignored when the law was framed. For the long term conservation of natural resources and forests and in this case the snakes (who play a unique role in ensuring food security in the ecosystem), it is necessary that a framework for participatory conservation strategy is evolved. To ensure this, the author has recommended for creation of Sapera Centres where the knowledge of these people is utilized for conservation education, sale of herbal medicines is practised and rescuing snakes from agricultural fields where they are a potential threat during the harvest season or use their skills for generating awareness about venomous and non-venomous species of snakes. This report also brings into the limelight the poor health of the captive snakes. The author deserves the credit for taking up the cause of the snakes and snake charmers. The report can be a catalyst for action for researchers, wildlife administrators and policy makers. In a nutshell, the report is a fascinating reading material for all those who love the beauty of nature and who explore the hidden treasure of the skills and knowledge of people of India. Importantly, the report does not stop at just research but also depicts possible interventions and important recommendations to policy makers on the way out of this complex issue.

Date: 24.5.2004  
Place: New Delhi

  
24.5.2004  
(Dr. V.K. Bahuguna)  
Inspector General of Forests



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## PREFACE

The Wildlife Trust of India (WTI) was set up in 1998 in order to catalyze conservation actions that would positively affect wild species and their habitats. Although the clear focus of the organisation is its conservation of non-human life and the ecosystems in which they survive, it is clear that human beings play a vital and compelling role in this, thereby necessitating addressal of their needs as well. Human beings utilise an ecosystem in many ways that are similar to other life forms i.e. they extract resources from it for food, shelter, providing means of occupation and other survival needs. They also, unlike many other life forms, impact the world they live in for non subsistence needs based on greed, development based on human aspirations and luxury. They also impact other species and ecosystems in wanton way for sports, pleasure and life style that are in no way connected with subsistence. While the latter two categories are morally indefensible if they impact the survival of other species or individual animals, the subsistence needs of humanity can not be overlooked. This is especially so when a community draws on wildlife resources because their subsistence and identity has been based on such a lifestyle for many centuries. It is incumbent on modern day conservationists and policy makers to understand the needs of the local community as well.

Keeping this rationale in mind, WTI has worked with the shahtoosh weavers of the Jammu & Kashmir (see the report "Beyond the Ban"), the hornbill beak utilising Nyshis of Arunachal Pradesh and the Jogi-Nath Saperas among others. The project on Jogi-Nath Saperas focused on providing this community, which was inextricably linked with snake trapping and charming, with alternate livelihood models that preserved their identity but addressed the conservation and welfare concepts of snakes. The author of this current report, Ms. Bahar Dutt has worked with this community for over three years. "Biodiversity, livelihoods and the law" is a comprehensive report that documents the livelihoods of the Jogi-Nath Saperas and the alternate options that are present for this community. The recommendations need to be implemented both by the government and the NGO sector to ensure that the conservation and welfare of snakes go hand-in-hand with the smooth transition of the Jogi-Nath community to alternate livelihoods.

**Vivek Menon**  
Executive Director  
Wildlife Trust of India

## AUTHOR'S NOTE

I first became curious about snake charmers in 1999 when I visited Mollarbandh, a small settlement of 150 snake charmers on the outskirts of Delhi. Armed with a degree in wildlife conservation, I was sure that the only way to tackle problems of wildlife conservation, animal welfare and biodiversity issues was to work with the people who use wild animals, and, in some cases, exploit them to earn a living.

In the initial days, the going was tough. When I first visited the community of Jogi-Naths all I encountered was hostility. They were suspicious and they tried every method possible to drive me away - from being openly rude to putting snakes in my bag.

The Jogi-Naths are not an easy community to work with. Alcoholism and drug addiction are common among them and they do not accept outsiders easily. The process of getting to know the community has been slow, but today I have friends in snake charmer villages across India. Now, when I travel, I have a place to stay in hundreds of tiny hamlets of snake charmers.

Over the past one year I have been travelling - some

times alone, some times with other members of our project team - interacting with snake charmer families and living their lives with them. Perhaps, the most poignant picture that comes to mind is that of 70-year-old Mishrinath, whom we came across perched on the sand dunes of Rajasthan. Once a snake charmer, Mishrinath today weaves colourful bags, which he sells to members of the community for carrying snakes. Mishrinath cannot see very well, but he gave me some surma - a special herbal medicine made by the snake charmers - to improve my eyesight.

No community is perfect. The snake charmers, too, have their personal rivalries. Some look after their snakes well, some do not. This report is not an attempt to paint a romantic picture of a community. There are serious animal welfare concerns as well as poverty issues involved, both of which need to be addressed. I hope we have been able to give some suggestions for both stakeholders: the snakes and the snake charmer.

**Bahar Dutt**

April 2004



Rachel Kaletta

70 year old Mishrinath *sapera* from Rajasthan weaves bags for other *saperas*

## ACKNOWLEDGEMENTS

**M**r. Thomas Mathew, Chairperson, Board of Trustees of the Wildlife Trust of India (WTI), first encouraged me to take up work with the snake charmer community. I am immensely grateful for all the support he has given me over the years.

Fieldwork for the project was done under extremely tough conditions, especially since the villages of the snake charmers are usually tucked away deep in the interiors of agricultural fields at least 50 km from the nearest motorable road. The snake charmers were initially hostile and suspicious of our presence. But that gradually changed and I am grateful to the many families who let us into their lives and shared their food and homes with us. I am especially grateful to Guru Roshannath who kept vigil one whole night when dacoits entered the village where our team was staying. The project team worked under tough conditions, often with only one meal a day and walking miles in the desert sands of Rajasthan. I would like to thank Nilanjana Nag for assisting us with translations, Ramesh Kumar for his ability to handle difficult situations, Rachel Kaletta for her knowledge of plants and long hours of work without complaint, Rishipal Nath from the community who made sure we were fed and looked after and Vikram Hoshing who became so close to the snake charmers that they treated him like family.

I would like to thank Dr. C.R. Babu, Head of the Department of Botany at Delhi University, and Dr. Sanjay Kshirsagar, of the same department, for their advice and support in putting together the ethnobotanical section of this report. I am grateful to Suresh Babu for his inputs and assistance in the identification of plant species. I am grateful to all my colleagues at the WTI, especially Dr. N.V.K Ashraf; Arvind Krishnan for technical help; Rupa Gandhi for her advice on the layout and design of the report and Aniruddha Mookerjee for editorial inputs. I am grateful to Dr. Suresh Kumar for assistance in making the maps. I am extremely grateful to Sunrita Sen for her editorial skills and helping us in putting the document together and Surendra Varma Scientist, Indian Institute of Science, Bangalore

Romulus Whitaker and Harry Andrews at the Centre for Herpetology, Chennai, were a constant guiding force in this project. Rupali Ghose, Kedar Bhide and Gowri Mallapukar gave valuable recommendations.

I would like to thank Ms. Shiela Dikshit, Chief Minister of Delhi and Mr. Targe at the Delhi Scheduled Caste Financial Corporation for approving the loans under which snake charmers have started their own micro-credit business.

I would like to thank the Rufford Maurice Laing Foundation, UK, for facilitating a grant for me to undertake this project.

Last but not the least, I am grateful to Mr. Vivek Menon, Executive Director, WTI, for his guidance and organisational support for the project.

**Bahar Dutt**

April 2004



## EXECUTIVE SUMMARY

In India there are many communities who are dependent on wild resources for their life and livelihood. The Jogi-Nath snake charmers are one such community. Spread across tiny village hamlets in five states of northern India, the community today is at a crossroads. In 1972, the Indian Wildlife (Protection) Act was introduced in an effort to protect India's fast depleting wildlife. The Act imposed a strict ban on any use of wild fauna for commercial or subsistence purposes. While this has led to a very positive scenario for wildlife conservation in the country, the livelihood of thousands of snake charmers was rendered illegal.

The Wildlife Trust of India decided to research how modern conservation laws were affecting the livelihoods of the snake charmers and, conversely, how their use of snakes was affecting conservation of various species. The project also responded on a small scale to the livelihood needs of the *saperas*, a synopsis of which is presented in Chapter 5 of this report.

For the research component first hand data was collected by a multi-disciplinary project team. The data presented in this report has been generated over a period of one year, although informal contact with the snake charmer community has been ongoing for three years.

The research findings are organised under three heads:

● **Socio-economic status of the Jogi-Nath saperas:** Nearly three-quarters of the community members continue to use snakes to earn a livelihood. The average income per day from snake charming exceeds the minimum wage rates prescribed by the government in the states in which they reside. Thus, the snake charmers are still able to earn a major proportion of their household income from snake charming. Traditional knowledge related to the profession is still quite high: nearly four-fifth of the community members know how to catch a snake as they believe it is related to their caste identity.

● **Herpetology and condition of the snakes:** On an average seven snakes per year were caught by one snake charmer. In the absence of any baseline data on number of snakes found in the wild, we were unable to estimate if this use is at sustainable levels or not. Eight species of snakes were found to be kept in captivity by the Jogi-Nath *saperas* of which the maximum number were Common cobras followed by Rat snakes. Two species of conservation concern were also found, namely the Royal snake and the Indian python, but these were observed

only in a small percentage of the households sampled. Animal welfare concerns are high, as body condition of all species of snakes kept for more than one month in captivity was weak

● **Ethnobotanical information:** Snake charmers prepare their own herbal medicines and as many as 110 species of plants were mentioned. None of the plants mentioned are rare or threatened and most were common weed species. The snake charmers thus provide informal health services, in a country where access to primary health care facilities is low. But the efficacy of many methods used by them needs further research. Snakebite treatments were among the most frequently mentioned ailments, with any one healer treating up to fifty patients per year. However in the case of snakebites by venomous species the role of the traditional healer is limited to the psychological support that it may give to a victim especially in areas where anti-venom is not available

**Key recommendations:** The main results of this report have shown that snake charming, despite introduction of regulatory conservation laws, is thriving. The Jogi-Naths have over generations been able to create their own niche in village life: one of catching snakes, dispensing herbal medicines and of entertaining audiences with snakes. In a country, where unemployment rates are high and thousands of educated persons compete for jobs, snake charmers have carved their own niche in the employment sector. This niche is of relevance, especially in an agricultural economy where pressure on land is tremendous.

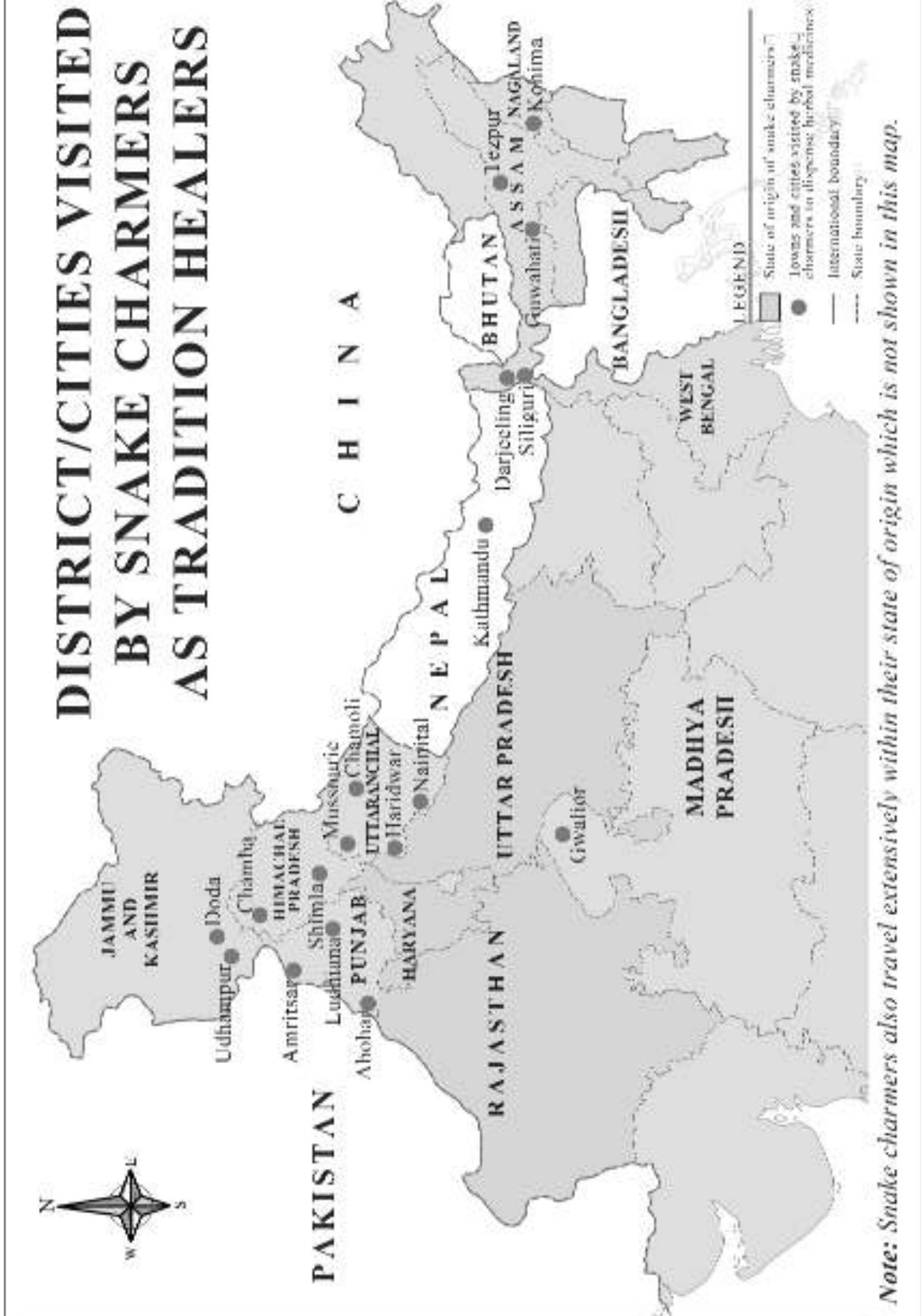
There is thus a disbalance between conservation regulatory laws and the traditional occupation of the snake charmers. In the final chapter, recommendations have been made to policy makers on how this conflict can be addressed. Amongst a number of recommendations it is urged that the skills of the community be used through the employment of snake charmers as '**bare feet conservation educators**' to educate people on venomous and non-venomous species of snakes. This would not only protect their culture and identity but also assist in the protection of snakes killed by ignorant people. It is also suggested that their musical culture be promoted through the formation of musical bands, sale of music instruments handcrafted by the community, and their role as traditional healers. A combination of these interventions can help in keeping the identity of the community intact without endangering the lives of snakes in the wild.

# MAP A



# MAP B

## DISTRICT/CITIES VISITED BY SNAKE CHARMERS AS TRADITION HEALERS



## CHAPTER 1

# INTRODUCTION

**According to one estimate, about 300 million people are dependent on forests and their products, of which 200 million people live below the poverty line**



Rachel Kaletta

**A traditional healer with plants collected from the forest**

### **1.0 Community use of wildlife in India**

Wild resources play a major, and often critical, role in the livelihoods of a high proportion of the world's population (Pimental et al., 1997). More than 70 percent of India's population is rural (Census 2001, GoI), but not all of them practice agriculture for a livelihood. A substantial proportion of the rural households depend on forest resources - both plants and animals - for subsistence and income generation. Some communities are directly dependent on wildlife for their livelihood, while a significant number depend on wildlife habitats for natural resources such as fuel-wood and fodder. According to one estimate, about 300 million people are dependent on forests and their products, of which 200 million people live below the poverty line (Saxena et al., 2000). Despite the obvious contribution of wildlife to the life of people, there are currently no reliable estimates on total supply, subsistence, trade and consumption of wildlife across India.

Even though accurate information does not exist on the exact scale of use of wildlife, the identity of some communities in Indian society is traditionally centered around the use of one or many wild faunal species. For instance, the Bahelias in northern Uttar Pradesh are famed for their skills of trapping birds, the Madaris for trapping macaques, the Badhlias for civets, foxes and jackals and the Irulas in Tamil Nadu for trapping snakes and rodents. (See Table 1). According to the Anthropological Survey of India there are as many as 196 communities in the country that are engaged in trapping of birds and animals for their livelihood (Singh, 1991). This report looks at how modern conservation laws have affected the livelihoods of one such traditional community: the Jogi-Nath *saperas* (snake charmers).

### **1.1 Who are the Jogi-Naths?**

*Every morning 45-year-old Aryanath sets out with a flute and two cane baskets flung across his shoulder on a bamboo pole. In the basket are snakes he has trapped: a cobra and an earth boa. As soon as he spots a busy corner of the street he sets up his wares. He plays his flute to draw the attention of passers-by, and once a group gathers, the snakes are let out of the basket.*

For their ability to charm deadly snakes, members of the Jogi-Nath community came to be known as the snake charmers or *saperas*. Different snake species are used by

**Table 1: Some examples of traditional communities using wild animals**

Community	Wild animals hunted	States
Badhiyas	Jackals, civets, mongoose	Uttaranchal, Uttar Pradesh, Rajasthan
Jogi-Naths	Snakes, hedgehogs, spiny-tailed lizards	Rajasthan, Haryana, Uttar Pradesh, Gujarat, Madhya Pradesh
Bawarias	Partridge, quails, small mammals	Rajasthan, Haryana, Uttar Pradesh, Delhi, Bihar
Irulas	Primarily snakes	Andhra Pradesh, Tamil Nadu
Sapuakelas	Snakes, primarily King cobras	Bihar, Orissa
Kanjars	Jackals, lizards and small mammal species	Uttar Pradesh, Rajasthan, Madhya Pradesh, Bihar, West Bengal
Bahelias	Various species of birds	Uttar Pradesh

*Note: This is not a comprehensive list but only indicative of the number of communities whose caste identity and livelihood is linked closely with wild animals.*

them to entertain street audiences and earn a living. This skill not only gave them an occupation but also a god-like respect in society. The skill to handle snakes is not new to the Jogi-Naths but is embedded in their caste identity. The knowledge of trapping and handling of different species of snakes is passed down over generations.

This reference to caste is crucial in our understanding of the Jogi-Nath community. Each caste in Indian society is a self-governing social unit with a hereditary prescribed mode of subsistence. Indian society comprises of 45,000 endogamous groups. Over 37,000 groups are structured in a system called the Hindu caste system. (Malhotra, 1984). Individually each group is called a *jati* or caste. The division by caste is the reason why the ancient profession of snake charmers survives till today with the knowledge and skills of the profession being passed down over generations from generation. To this day, snakes are intricately woven into all aspects of their lives - from the herbal medicines they prepare to treat snakebites to their marriage ceremonies in which snakes are offered as gifts. The Jogi-Naths are found in small village hamlets across the country. Map A shows the geographical spread of the community while Map B shows how far the Jogi-Naths travel for their livelihood. More details about the community and their demographic status are given in Chapter 2.

### 1.2 Existing conservation scenario in India and status of snakes

The use of wild animals for trade or subsistence purposes by communities was deemed illegal in the mid 20th century. A multiplicity of factors led to the introduction of regulatory conservation laws which aimed at putting an end to the use of wildlife, whether by local communities or organized industries. Till 1972, when the Wildlife

Protection Act (WPA) came into being, India was a major player in the international trade in reptile skins, cat skins, ivory, live birds, frog legs and live mammals like rhesus macaques. It was in response to the rapidly depleting wildlife that strict conservation laws, which sought to reverse this trend, were introduced.

The WPA is a comprehensive piece of legislation that lays down rules and regulations for the protection of India's biodiversity. Not surprisingly, the Act, with large-scale prohibitions on hunting and trade, was restrictive but in tune with the requirements of time (Misra, 2001). The Act prohibits any hunting of wild animals and trade in trophies, animal articles and derivatives.

As a result of tough conservation measures, the depletion of crucial wildlife resources has been slowed, though problems of poaching and habitat destruction still persist. Around 23 percent of the country's area is officially classified as forest land and India is recognized as one of the 10 mega-diverse countries of the world. With 45,000 plants (i.e 7 percent of the world's known plants) and 81,000 animal species (6.4 percent of the world's known fauna), India boasts of a rich biodiversity heritage.

### 1.3 The Jogi-Naths persecuted: Episodes of arrest and a fear psychosis in the community

In the effort to clamp down on rampant trade, the Jogi-Naths, who did not by tradition, trade in snakeskins but used snakes nonetheless, had to pay a price. A complete ban on trade of wildlife species and its derivatives impacted the livelihood of the Jogi-Naths but this fact was not addressed adequately by the state which focused on a complete clampdown on illegal trade.

- *In 1991 Pappunath was arrested from outside Surajkund, a tourist hotspot near Delhi. His crime: trapping of snakes from the wild in violation of the*

## Trade in snakes and the snakeskin industry in India

The Wildlife (Protection) Act, 1972, tough as it was, was much needed, given that in the past millions of snake species were killed for the snakeskin trade. Statistics for 1968 indicate that no less than 10 million snakes valued at Rs. 107 million were slaughtered for trade. It has been estimated that in 1932 about 2.5 million skins were exported from India. It was much later that conservation restrictions were introduced and finally a total ban was imposed on wildlife exports in 1976. The species commonly used in the snakeskin trade were the Rat snakes (*Ptyas mucosus*), the Common cobra (*Naja naja*), the Checkered keelback (*Xenochropis piscator*), the Russells viper (*Vipera russellii*), the Indian sand boa (*Eryx conicus*) and the Olive keelback (*Atractium schistosum*) (Inskipp, 1981). According to one estimate, the number of snakes that were caught for the snakeskin trade was so large that a tannery in southern India was handling 9000 skins in one day, which was reduced to 3000 by 1970 (Daniel, 1970).

*Wildlife (Protection) Act. Pappu's snake was seized, he does not know what happened to it. In the morning, people from his village secured his release in return for a bribe. Pappu is still fearful of the officials, but soon after he was freed he went out and caught another snake as he knows no other skills.* (Interview with Pappunath *sapera* from a village in Haryana, in May 2003)

● *In 2002, Jitanath was returning to his village in Uttar Pradesh after performing with his snakes in Agra. He was caught by the Forest Department who released his snakes in the wild and let him go after a stern warning. Jitanath now wanders in nearby villages with his snakes, as he is too scared of being caught by the enforcement authorities.* (Interview with Jitanath *sapera* from a village in Uttar Pradesh, in May 2003)

● *In 1998, a camera team arrived in a village near Delhi on the pretext of shooting a film on snake charmers. As the snake charmers displayed their snakes for the film, the camerapersons revealed their identity. They were from the Forest Department and arrested five snake charmers from the village for illegal possession of a python and a cobra.* (Interview with residents of a snake charmers village near Delhi, January, 2004)

The job of preventing illegal trade is monumental. Forest and wildlife authorities across India have been active in conducting raids on unlicensed dealers. Tribal and rural people, however, rarely understand the law and, in some cases, continue to flout it despite being aware of the repercussions. The Jogi-Naths, for instance, continue to use snakes more than three decades after the WPA was enacted despite the fact that sections of the WPA rendered this illegal.

Under Section 9 of the Wildlife (Protection) Act, 1972: '*No person shall hunt any wild animal as specified in Schedules I, II, III and IV of the Act.*' Almost all the species of snakes used by the snake charmers are included in the above mentioned schedules of the Act, thus virtually rendering any trapping of snakes from the wild as illegal.

Further, under Section 39 of the WPA '*wild animals are government property*' and

*'No person shall without the previous permission in*

*writing of the Chief Wildlife Warden or the authorized officer- acquire or keep in his possession, custody or control, or transfer to any person by way of gift, sale or otherwise or destroy or damage such government property.'*

Given these provisions of the WPA, the Jogi-Naths can no longer use snakes to practice their traditional occupation. Today the *Sapera Samaj* (snake-charmer community), a conglomeration of thousands of Jogi-Nath *saperas* from across the country, is worried. The raids against them continue but many of them still depend on charming for survival, practicing their craft even after serving jail sentences or paying fines. On the one hand the caste divisions in the country, their nomadic lifestyle and low levels of education have made it impossible for the *saperas* to shift to new occupations, on the other, strict enforcement of laws has made it difficult for them to practice their traditional occupation using snakes.

### 1.4 Scope of the project: Addressing the knowledge gap

Given this background, the Wildlife Trust of India decided to research how modern conservation laws were affecting the livelihoods of the snake charmers and, conversely, how their use of snakes was affecting conservation of various species. Queries central to the project were: How many people were still practicing snake charming, what were the snake species used by them and at what scale? Secondary literature, if any, was minimal, whether about the Jogi-Naths or the snakes they keep. First hand data was collected by the project team. The data presented in this report has been generated over a period of one year, although informal contact with the snake charmer community has been ongoing for three years.

Our work with the community had a strong research component, but it was difficult to collect data without responding to the needs of the *saperas*. Therefore, along with the study, the project aimed in small ways to promote their livelihoods and culture. We also wanted to make policy makers aware of the plight of the *saperas* and organized extensive meetings and dialogues between the community and government officials. Some aspects of our work with them is presented in Chapter 5.

The aims and objectives of the project are as follows:

1. To study existing livelihood strategies of the *saperas* and the impact of the ban on snake charming on their way of life.
2. To implement, on a small scale, the livelihood needs of select snake charmer families.
3. To examine the snake species being used, the scale of capture and the husbandry practices used by the *saperas* and how this affects the survival of the captive individual and long-term survival of the species.
4. To document the indigenous knowledge of the Jogi-Naths in relation to trapping and handling of snakes, ethnobotany and culture and traditions related to the use of wild resources.
5. Through workshops, meetings at local regional and national levels influence policy makers, government and nongovernment organizations about the plight of the *saperas* as a result of wildlife laws which have banned their occupation.
6. To create awareness amongst leaders in the *sapera* community about the need for conservation and protecting wild species and the reasons wildlife laws had been introduced.

### 1.5 Methodology

Research for this project was carried out in two parts. In the first half, contact was established with the snake charmer communities within Delhi to identify their counterparts in other states of India. On the basis of the villages that were identified, a reconnaissance survey was conducted in the months of May-June 2003. This helped the project team to physically verify snake charmer villages, estimate the number of people still engaged in this occupation and compare the problems of the snake charmers in rural and urban areas.

In the second phase of fieldwork, one village each in the states of Haryana, Rajasthan and Uttar Pradesh was identified for a more comprehensive, multi-disciplinary survey which was conducted in January-March 2004.

Two criteria were used in the selection of the village - that it should be remote (at least 50 km away from a city centre) and the *saperas* should be willing to have the project team stay with them and share information openly. This was crucial as snake charming is illegal and, therefore, the snake charmers are extremely skeptical of outsiders.

More details on the bio-geographical profile of the areas covered and the population of each village are given in Chapter 3. Once in the village, data was collected through a combination of questionnaires, community consultations, transect walks and extensive night halts

with families which helped us authenticate the primary data being collected.

Three types of information were collected: socio-economic, herpetological and ethnobotanical. For each type of information, a person skilled in that discipline was in charge of leading the survey and a separate questionnaire was devised for each subject. A sample of the questionnaire from each discipline is given in Appendix I, II and III. For the socio-economic survey, members of 100 households in all three states of Haryana, Uttar Pradesh and Rajasthan were interviewed. In the case of ethnobotanical information, ten key informants were selected from five of the study villages, to provide information concerning the traditional knowledge, social structure, and economics of the profession related to traditional medicines. Two generations of healers were sampled by interviewing at least one older (over 35 years of age) and one younger healer (under 35 years of age) in

each state. Due to the sensitive nature of the information gathered, informal semi-structured interview techniques were used, and interviews were often carried out over a period of several days (Bernard, H.R. 2001, Martin, G.J. 1997). This study focused on the wild harvested plant species used in herbal medicine. Two methods were used (see Martin, G.J. 1997 for methodology). Firstly, informants were requested to freelist the plant species they use for medicinal purposes. Information was then gathered on the source, preparation and utilisation of the plant. Secondly, the informants were accompanied on a walk in the

vicinity of the village. The informants led this walk, choosing the areas where they usually collected plants. Each walk lasted approximately two hours. Botanical specimens were collected of all the medicinal plants encountered which are used by the snake charmers. A total of 58 botanical specimens were collected. These specimens were identified by Dr. Sanjay Kshirsagar of the Department of Botany, University of Delhi, and have been deposited in their herbarium.

For the herpetological information, 50 households in the three states were interviewed and 135 snakes of different species were examined for their health conditions.

The survey was thus multi-disciplinary in nature in order to study all aspects of the lives of the *saperas* related to conservation.



A monocellate cobra

Vikram Hoshing

## CHAPTER 2

# SOCIAL AND CULTURAL LIFE OF THE JOGI-NATH SAPERAS

**Guru Gorakhnath had nav (nine) Naths and 84 Siddhas (accomplished beings as disciples). They are considered to be human forms created by Gorakhnath's yogic powers.**

The Jogi-Naths follow a culture of their own, unique to their community. This uniqueness is reflected in all aspects of their life, from the occupation they follow, to the local institutions that operate within the community. This chapter discusses the origin of the community and its close links with different religions and why the Jogis are perceived as god-men in Indian society

### 2.0 A short history of the Jogi-Nath *saperas*

The Jogi-Nath *saperas* are considered to be descendants of Guru Gorakhnath (Singh, 1991). There are innumerable legends about Guru Gorakhnath, though there are no records of when he was born, where he hails from, or any historical facts associated with events in his life. Gorakhnath is considered to be an *avatar* (incarnation) of the Hindu god Lord Shiva. Till today, Shiva is the predominant god that the *saperas* worship. Guru Gorakhnath had *nav* (nine) Naths and 84 Siddhas (accomplished beings as disciples). They are considered to be human forms created by Gorakhnath's yogic powers to spread his message of yoga and meditation to the world. (Briggs, 1938).

Guru Gorakhnath is mentioned in reference to Adi Shankaracharya who lived in the eighth century<sup>1</sup>. He is also associated with Kabir in the 15th century. References to him have been found in the Vedas (5000-year-old Hindu scriptures); the prophet Mohammad is reported to have met him; so reportedly has Lord Buddha (6th to 7th century). While he does

not seem to have a *samadhi* (tomb), the caves where he meditated - Gorakh Gufa (in Nepal), Gorakh Tilla (in Pakistan), and Girnar (in India) still exist - are places of worship.

Different legends account for his birth (Eliade, 1987). In Bengal, the legend goes that he emerged from the matted hair of Mahadeva (Shiva). One account gives his place of birth as the Punjab, another Kathiawar, while Nepalese tradition says he lived in a cave at Gorakhnath, the cave and town being named after him. The name Gurkha is sometimes said to be derived from Gorakhnath. Another account claims he was an inhabitant of Gorakhpur in Uttar Pradesh.

In his life, Gorakhnath is said to have traversed the length and breadth of South Asia - from Afghanistan, parts of Pakistan, Nepal, Sri Lanka and within India the states of Uttar Pradesh, Assam, West Bengal, Maharashtra. This, perhaps, explains the nomadic nature



Vikram Hoshing

**A Jogi-Nath *sapera* teaches his child how to handle snakes**

<sup>1</sup>Guru Gorakhnath is thought to have authored several books including the *Goraksha Samhita*, *Goraksha Gita*, *Siddha Siddhanta Paddhati*, *Yoga Martanada*, *Yoga Siddhanta Paddhati*, *Yoga-Bija*, *Yoga Chintamani*.



## Relevance of snakes in Indian religion and scriptures

Fascinating, frightening, sleek and virtually deathless, snakes have a role in almost every culture and religion. In Jainism and Buddhism, the snake is regarded as sacred and having divine qualities. It is believed that a cobra saved the life of Buddha and another protected the Jain saint Parshwanath. In medieval India, figures of snakes were carved or painted on the walls of many Hindu temples. In the caves at Ajanta in central India, the walls have images of the rituals of snake worship. Kautilya, in his Arthashastra has given detailed description of the cobra.

*Nag-Panchami* is an important Indian festival and is celebrated on the fifth day of the moonlit-fortnight in the Indian calendar month of Shravan (July/August). This is also the time of the monsoon rains, when snakes invariably come out of holes inundated with rain-water to seek shelter in gardens and, often, houses.

In ancient India, there lived a clan by the name of Naga whose culture was highly developed. The Indus Valley civilisation of 3000 BC gives ample proof of the popularity of snake-worship amongst the Nagas, whose culture was fairly widespread in India, even before the Aryans came. After the Naga culture got incorporated into Hinduism, the Indo-Aryans themselves accepted many of the snake deities of the Nagas in their pantheon and some of them even enjoyed a pride of place in Puranic Hinduism. The prominent cobra snakes mentioned in the Puranas are *Anant, Vasuki, Shesh, Padma, Kanwal, Karkotak, Kalia, Aswatar, Takshak, Sankhpal, Dhritarashtra and Pingal*. Some historians hold that these were not snakes but Naga Kings of various regions with immense power.

In Bengal and parts of Assam and Orissa, protection from snakes is sought by worshipping Mansa, the queen of serpents. During *Mansa puja* (worship), snake-charmers are requisitioned to invoke the Snake Queen by playing lilting tunes on

their flutes.

In Punjab, *Nag-Panchami* is known by the name of *Guga-Navami*. A huge snake is shaped from dough, which is kneaded from a contribution of flour and butter from every household. The dough-snake is then placed on a winnowing basket and taken round the village in a colourful procession in which women and children sing and dance and onlookers shower flowers. When the procession reaches the main square of the village, religious rites are performed to invoke the blessings of the snake

The most fantastic celebrations of *Nag-Panchami* are seen in the village of Battis Shirale, about 400 kms from the city of Mumbai in Maharashtra. Here people pray to live cobras that they catch on the eve of this pre-harvest festival. About a week before the festival, people dig out live snakes from holes and keep them in covered earthen pots. These snakes are fed with rats and milk. Their poison-containing fangs are not removed because

the people of this village believe that to hurt the snakes is sacrilegious. On the day of the festival, villagers, dancing to the tune of a musical band, carry the pots on their heads in a long procession to the sacred temple of goddess Amba. After the ritual worship, the snakes are taken out of the pots and set free in the temple courtyard. Then every cobra is made to raise its head by swinging in front of it a white-painted bowl filled with pebbles. The priest sprinkles *haldi* (turmeric) and flowers on their raised heads. After the *puja*, the snakes are offered milk and honey.



A cobra kept in a mud pot

After the rituals are completed, the snakes are put back in the pots and carried in bullock-carts in a procession through the 32 hamlets of Shirala village where women eagerly wait outside their houses for a *darshan* (glimpse of a holy one) of the sacred cobras. Vast crowds arrive from Kolhapur, Sangli, Pune, and even from foreign countries to see this wonderful spectacle. The following day the snakes are released in the jungle.

of the community. The religious association of their founder also explains why the Jogis wear saffron-coloured clothes usually worn by holy men in the Hindu religion. Till this day, Jogi-Nath *saperas* travel to different parts of the country, or beyond, to Nepal and Myanmar, on pilgrimages displaying their snakes along the way. The connection between the Jogis and snake worship is a close one and on the festival of *Nag-Panchami* people come to the homes of the Jogi-Naths to offer prayer and food to captive snakes.

## 2.1 Demographic status of the Jogi-Naths in contemporary India

The Jogi-Nath *saperas* refer to themselves by various regional names. In Rajasthan they are the *kalbeliyas*, in Punjab *jogis* and in Haryana, simply *saperas*. If we club these different names together the total population of the Jogi-Nath snake charmers is 48,838 persons according to the 'People of India' project of the Anthropological Survey of India. (Singh, 1991) However, it must be stated here that these figures are over 20 years old and the population of the community would have increased manifold since then. Further, due to their nomadic way of life it is difficult to estimate their exact numbers. Perhaps, this may be the reason why, when we shared these population estimates with the snake charmers, they considered them very low. According to the snake charmers, their population is at least 2-300,000 persons spread across the states of Haryana, Rajasthan, Uttar Pradesh, Madhya Pradesh and some pockets of Gujarat and Punjab.

## 2.2 The modern day Jogi-Nath: Old traditions, new laws

What was snake charming all about before conservation laws were introduced? Or when modern means of entertainment like television or radio did not exist?

A snake charmer's tools were his snake basket, a *been* (flute) made from bottle gourd, and he could be distinguished by his saffron-coloured garments and turban. The snake charmer would set out in the morning with the snake basket flung over his shoulder and find a bustling street corner to set up shop. The flute was used to gather the attention of passers-by. Once a large-enough audience had gathered, the snakes were let out of the basket. The creatures seemed to be hypnotized by the music of the flute and would raise their hoods. The snakes were also useful for gathering the attention of potential clients for the herbal medicines that the Jogi-Naths prepare and sell. A *sapera* would carry tiny bottles of liquids, ointments and powders which he had prepared himself. (See Chapter 3 for ethnobotanical knowledge gathered from snake charmers). These would be sold at the end of the performance to the audience that had gathered. Performance over, the snake charmer would head back home. In addition to the money from the

performances, people would offer them foodgrains as alms. While the *saperas* could not be called rich, they earned enough from this profession to sustain themselves and their family.

Today, however the situation is quite different. The Jogi-Naths have settled down near villages or on the fringes of agricultural fields. Women and children no longer travel and usually stay back in the village while the men tour extensively to return only at the end of the month, or sometimes after two to three months.

Before the introduction of the Wildlife (Protection) Act in 1972, the snake charmers would roam freely in big cities like Delhi, Mumbai, Mathura and Meerut with their snakes. With increasing awareness of wildlife laws, snake charmers found their snakes being seized and many were even arrested. Today, a fear psychosis has gripped the community. As Dinanath *sapera* states: "We dare not venture out into the big cities, we go to nearby villages and streets far from the watchful eye of the Forest

**The Jogi-Naths have settled down near villages or on the fringes of agricultural fields. Women and children no longer travel and usually stay back in the village while the men tour extensively to return only at the end of the month, or sometimes after two to three months.**

Department or animal welfare people found in big cities." (Interview conducted with Dinanath *sapera* on impact of laws on snake charmers in Haryana.)

## 2.3 Jogi-Nath culture and other livelihoods

The Jogi-Nath community has responded in its own way to changing times. While some have adapted well by turning to new livelihoods, many still continue to practice their old occupation that is snake charming. Some of the new livelihoods they have taken up are close to their culture and traditional skills. In this section we present some of the features that are unique to the culture of the *saperas*.

### 2.3.1 The *Been* Party: A unique musical ensemble

A *been* party usually consists of a musical band of seven snake charmers, with each person playing a specific musical instrument. The *been* party is popular not just in rural, but also in urban areas, and people come from far to make bookings for the *sapera* to play at weddings and social functions. The phenomenon of the *been* party is quite recent and according to the community has become more popular only in the last 20-30 years. The snake

charmners have increasingly started relying on the *been* party as a source of income especially due to the ban on snake charming. The different instruments used, are handcrafted by the *saperas*. These are the *been* (flute), the *tumba* (small drum-like object with one string), the *khanjari* (tambourine) and the *dhol* (big drums). The *been*, *tumba* and *khanjari* are all made by the snake charmners themselves after drying the fruit of the bottle gourd plant that they grow close to their homes.

The wedding season lasts for almost seven months of the year and the snake charmners are able to earn a reasonable amount of money from their performances. The *been* party has thus emerged as the community's attempt to adapt to changing times as it utilizes their musical skills and does not require the use of the snakes. The better-off members of the community have developed the concept into big business with loudspeakers, horses and a carriage which is hired out during weddings. The musical bands provide only seasonal employment and are popular only in specific states. For instance, in



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**The Jogi-Naths with their traditional medicines**

Rajasthan this project found no *been* party in any of the villages. The snake charmners continue to practice snake charming.

### **2.3.2 Snake charmners as traditional healers**

A little-known fact about snake charmners is their extensive knowledge of herbal medicines which they dispense to customers as they travel from village to village. A detailed listing of the plants collected by the snake charmners and the medicines prepared by them is given in the section on ethnobotany in Chapter 3.

The role of snake charmners as traditional healers is still intact in rural areas and during stay of the project team with members of the community, they found many people from other castes coming to them for treatment of their ailments. A snake charmer in one village in Haryana has even opened a clinic where he sits surrounded by rows of bottles and powders much like a modern-day doctor. Of particular relevance are the medicines prepared for treating snakebites. These are especially useful

during the monsoons when snakebites are common and in far-flung areas where the nearest hospital is hundreds of kilometres away and primary health centres are not equipped with anti-venom injections. The local snake charmer, in such cases, takes on the role of neighbourhood doctor and treats snake bite victims. The efficacy of the medicines has been examined in the next chapter

### **2.3.3 Community-based institutions:**

#### **The Sapera Panchayat**

*"The members of the Sapera Panchayat will sit and deliberate on a matter, sometimes for many days, or may dispense with a case within a few hours. They are very much like your courts. The verdict of the Panchayat is respected by all the saperas. We never go the police or the courts to resolve our problems. Institutions like the court and the police came much later. Our panchayat is much older. Even the younger saperas don't dare defy the decision of the Panchayat."* (As told by Pritamnath sapera in a personal interview)

As unique as their livelihoods are the community-based institutions of the *saperas*. The *Sapera Panchayat* usually consists of the elders of the village. While many villages in rural India have a *panchayat* (local self-government), the role that the *Sapera Panchayat* assumes is far greater than any formal institutions of government. The *Panchayat* consists of five male members of the village, who are from the Jogi-Nath community, whose advice and expertise is used to resolve disputes. The structure of the *Panchayat* is as follows: Each *sapera* village will have five leaders or *Panch* who constitute the *Panchayat*. From the *Panchayat* one person will be selected as the leader or the *Sarpanch*. The role of the *Sarpanch* is not restricted to one village. He is often called to another *sapera* village as a neutral observer if their own *Panchayat* is not able to resolve local disputes. The expense for his travel and stay is paid by the host village. Quite often we found that a *Sarpanch* would travel quite far from his own village, even to another state, to resolve disputes of the Jogi-Naths. His skills in settling disputes may thus be used by *saperas* from another village.

All kinds of disputes are brought to the *Panchayat*: they may be disputes between two families over property, personal disputes or altercations which may have resulted in physical violence between two individuals, or even cases where a snake charmer has run away with the wife of another snake charmer. Punishments meted out by the *Panchayat* usually consist of a public apology or a monetary fine depending on the seriousness of a crime. For a *sapera*, in case of a dispute, the first institution to approach would be the *Sapera Panchayat*. The role performed by the *Panchayat* shows how strong the caste affiliations are and how they have not been weakened by geographical space or by the introduction of modern institutions.

## CHAPTER 3

# RESULTS OF THE MULTI-DISCIPLINARY SURVEY

In this chapter we present the findings of the multi-disciplinary survey conducted in the three states of Rajasthan, Haryana and Uttar Pradesh of the Jogi-Nath community. The research conducted with the snake charmers was of three types and has been presented in the following three sections:

- Section A:** Socio-economic status of the Jogi-Nath *saperas*
- Section B:** Herpetological information and condition of snakes in captivity
- Section C:** Ethnobotany and role of traditional healers

### 3.0 Administrative and bio-geographical profile of the area surveyed

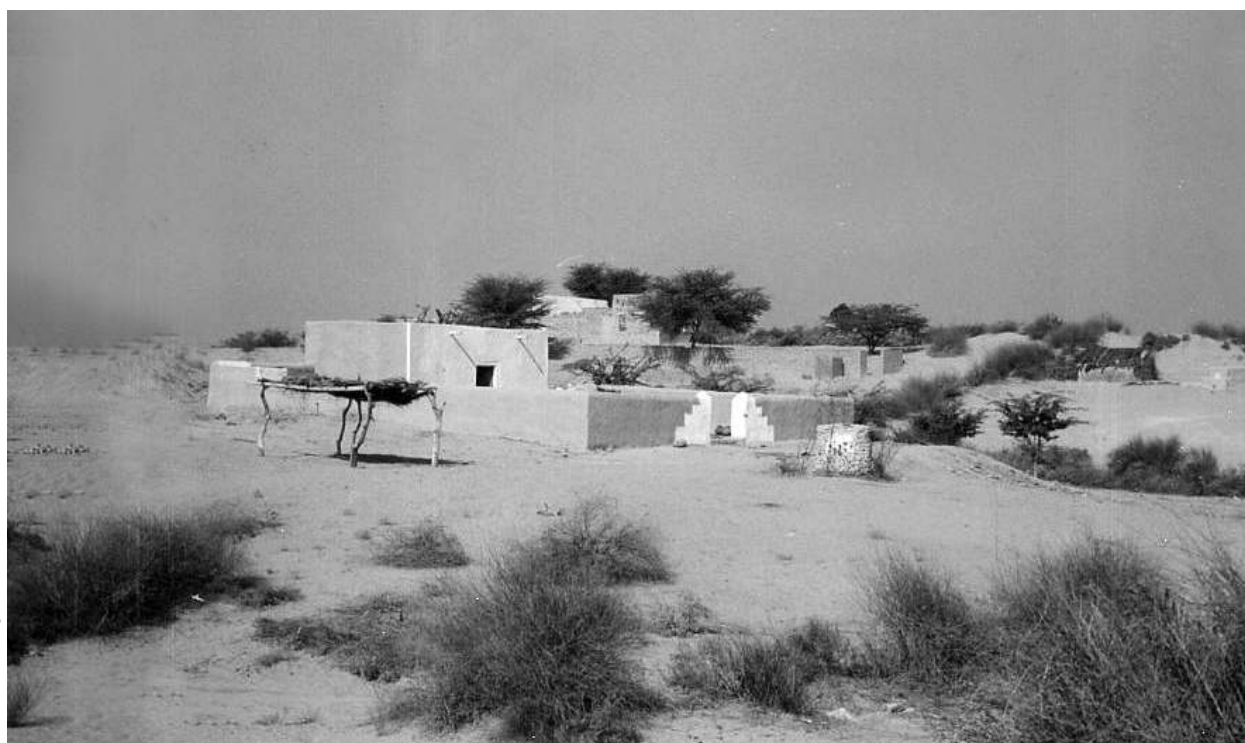
We start this section with an introduction to the area where the primary data was collected, the climatic condition and the bio-geographical profile of each district and state.

#### HANUMANGARH

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##### RAJASTHAN

Rajasthan is the second largest state in India, covering an area of around 342,274 km. Geographically, the north-western region of the state represents the eastern extent of



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Shifting sand dunes of Rajasthan



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### Forests of Hastinapur, Uttar Pradesh

the Thar desert and is characterized by shifting and fixed sand dunes. The monsoon months are July to September, when over 90 percent of rainfall occurs. Annual rainfall is highest in the south-east at 500-600mm/year, and decreases to less than 250mm in the western desert areas. **Hanumangarh**, the northernmost district of Rajasthan, lies in a region of unstable to stabilised dunes, with a sparse vegetation cover of mostly stunted, drought resistant thorny shrubs and perennial herbs. Average annual temperatures vary widely, ranging from -5° C in December/January, to 47° C in June. Construction of irrigation facilities has permitted the spread and intensification of agriculture in the area, but this occupation is still marginal.

### MEERUT

#### UTTAR PRADESH

Slightly smaller than Rajasthan, Uttar Pradesh covers an area of 294,411 km. It is India's most populous state, with around 166 million inhabitants. The climate of the state is tropical monsoon, with average temperatures in the plains ranging from 30°C in January to 45°C in May/June. The monsoon season runs from June to September and is responsible for widespread flooding in many areas of the state.

The villages surveyed lie in Meerut district in the Gangetic plains region of Uttar Pradesh. While Meerut is a bustling industrial town, the villages of the snake charmers were far from the urban centre, in the interiors of agricultural fields. Two of the three villages surveyed were surrounded by the Hastinapur wildlife sanctuary. The Hastinapur sanctuary is home to the chital (*Axis axis*), nilgai (*Bocephalus tragocamelus*), wolf (*Canis lupus*), leopard (*Panthera pardus*), , swamp deer (*Cervus duvauceli*) and wild boar (*Sus scrofa*).

### PANIPAT

#### HARYANA

Haryana is a small state covering an area of 44,212 km. Largely situated in the Gangetic plains, the state is bordered to the north by the Shivalik Hills and to the southwest by the Aravalli Hills. The temperatures range from 45°C in the summer months to -1°C in winter. Rainfall is low and erratic over most of the state, and around 80 percent of the annual rainfall occurs in the monsoon season from July to September.

More than 80 percent of the land in this district is under cultivation. The villages surveyed were in the district of Panipat, which is an area of intensive agriculture with wild flora largely restricted to field edges and roadsides. Today Panipat is an industrial town and is known for its handloom products. The villages of the snake charmers were found away from the industrial town, in the interiors of agricultural fields.



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### Agricultural fields of Haryana

SOCIO-ECONOMIC STATUS OF THE JOGI-NATH SAPERAS

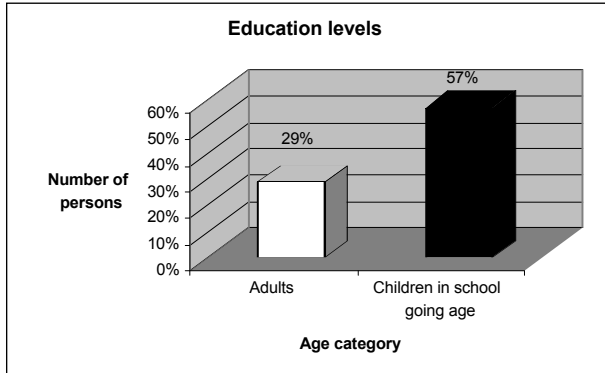


Figure 3.2: Education levels in surveyed households

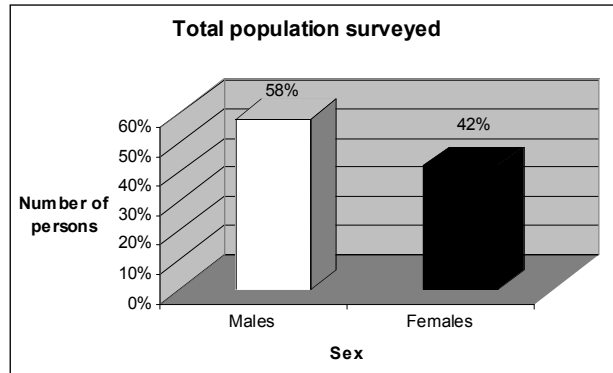


Figure 3.1: Percentage of males and females (N=537)

The results of the socio-economic survey are presented in this section. Primary data was collected using the questionnaire method (see Appendix I) and 105 households of Jogi-Nath *saperas*, across three states of Rajasthan, Haryana and Uttar Pradesh were surveyed.

**3.1 Average size of a family was five persons**

The total population surveyed was 537 individuals. The sex ratio was biased in favour of the males who formed 58 percent of the population while females constituted 42 percent. The average size of a snake charmer family was 5.1 persons.

**3.2 Education levels are higher in the current generation**

Persons who were in the age group of 14 and below were considered as being in the 'school-going age' bracket. Persons who were above the age of 18 were considered adults. A comparison of these two age groups shows that

as many as 57 percent of children in the age group of 14 and below were enrolled in schools. This was higher in the adult population of which only 29 percent had gone to school. The education level among females was significantly lower. In the case of adults who had gone to school, 96 percent were males while only 4 percent were females. In the current generation too, only 15% of those enrolled in schools were females.

**3.3 Traditional knowledge about catching snakes was high but that of playing the *been* (flute) was low**

Along with education, the snake charmers were also questioned about their traditional knowledge. Two indicators were used to gauge how much they knew about their traditional occupation. The first indicator was whether they knew how to play the *been* (flute) which is the traditional instrument of the Jogi-Naths. The second indicator used was whether they knew how to catch

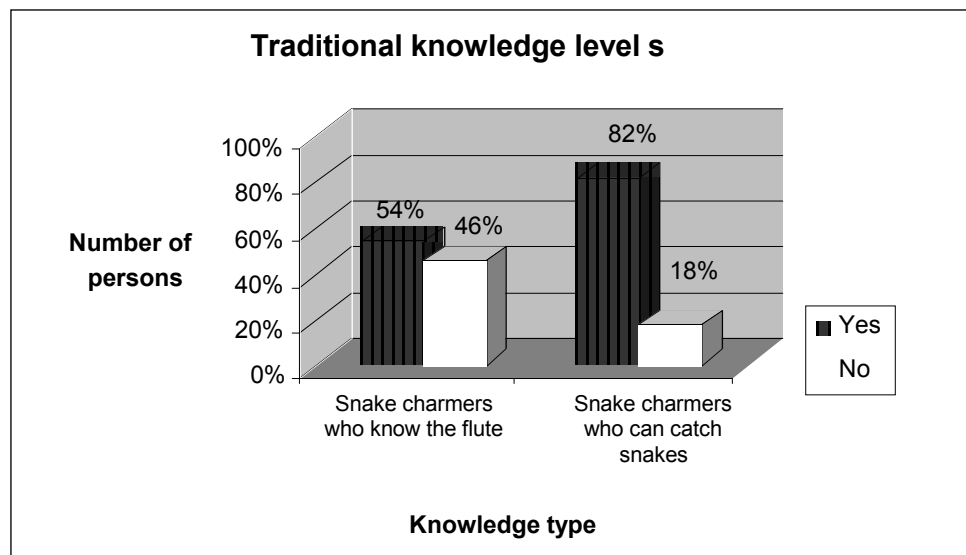
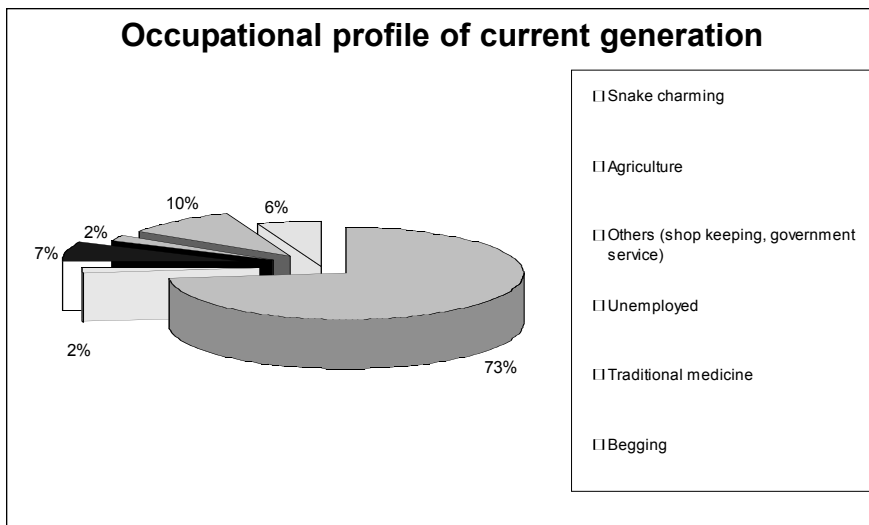


Figure 3.3: Traditional knowledge levels



**Figure 3.4.1 :**  
**Occupational**  
**profile of**  
**current**  
**generation**

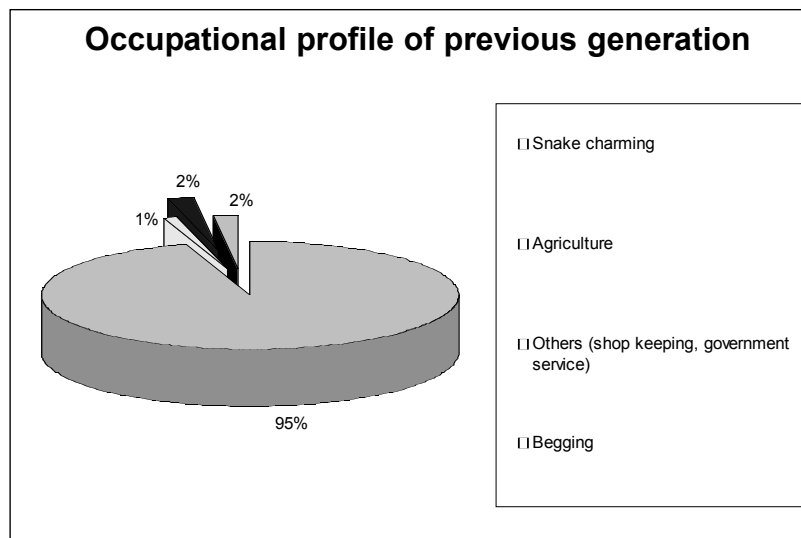
snakes. These questions were asked specifically of those in the age group of 18-35 in order to find out how much of the traditional knowledge was being passed on to the next generation. While only 54 percent knew how to play the *been*, as many as 82 percent of the *saperas* who are still practising snake charming could catch snakes. The rest said they could catch snakes with the assistance of the elders in the community.

### 3.4 Snake charming is the main occupation for a majority of the population surveyed

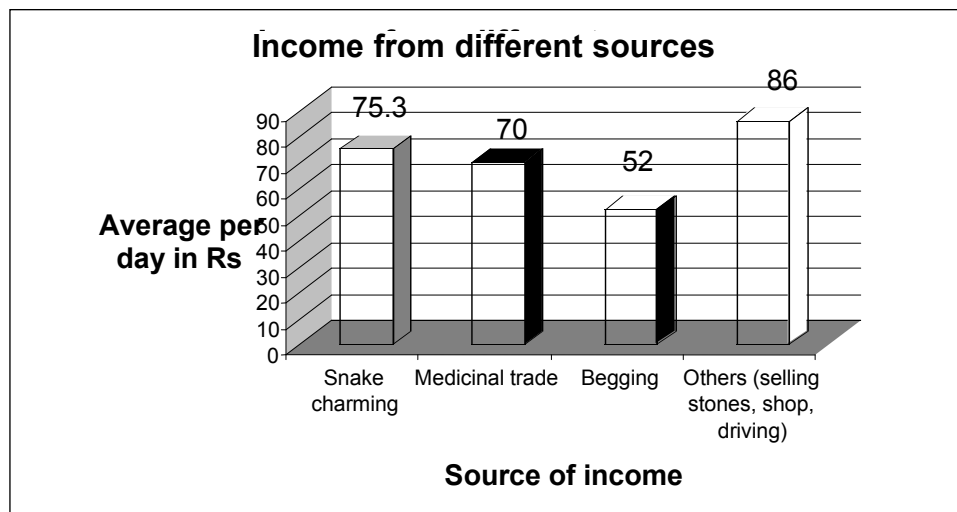
An occupation was considered to be the main occupation of a person if he/she was practising it for more than six months in a year. It should be mentioned here that since the questionnaire was administered to persons in the age-group of 18-35, they were representing the current generation. In the current generation, it was found that as many as 64 percent were practising snake charming as their main occupation. Further, as many as 10 percent of the population surveyed were supplementing snake

charming with the business of preparing herbal medicines and selling these in urban and rural markets. If we add these two categories, nearly 73 percent of the population surveyed was dependent on snakes to earn a living. The rest was engaged in other occupations such as shop-keeping or selling semi-precious stones (7 percent), selling herbal medicines (10 percent) while 6 percent recorded 'begging' as their main occupation. Nearly 2 percent of persons interviewed said they were unemployed and another 2 percent were engaged in agriculture

The occupational profile of the previous generation was quite different with less diversification in livelihood strategies. None from the previous generation reported to be unemployed or involved only in the sale of traditional medicines. Nearly 95 percent of the persons from the past generation were practising snake charming and supplemented snake charming with selling traditional medicines. The rest were engaged in other occupations such as agriculture (1 percent), government



**Figure 3.4.2:**  
**Occupational**  
**profile of**  
**previous**  
**generation**



**Figure 3.5:**  
Average income from different sources

service (2 percent), while 2 percent recorded begging as their main occupation.

Many snake charmers supplemented their main occupation with other livelihoods. These included occupations like: been party, daily wage work on agricultural fields or construction sites and selling semi-precious stones.

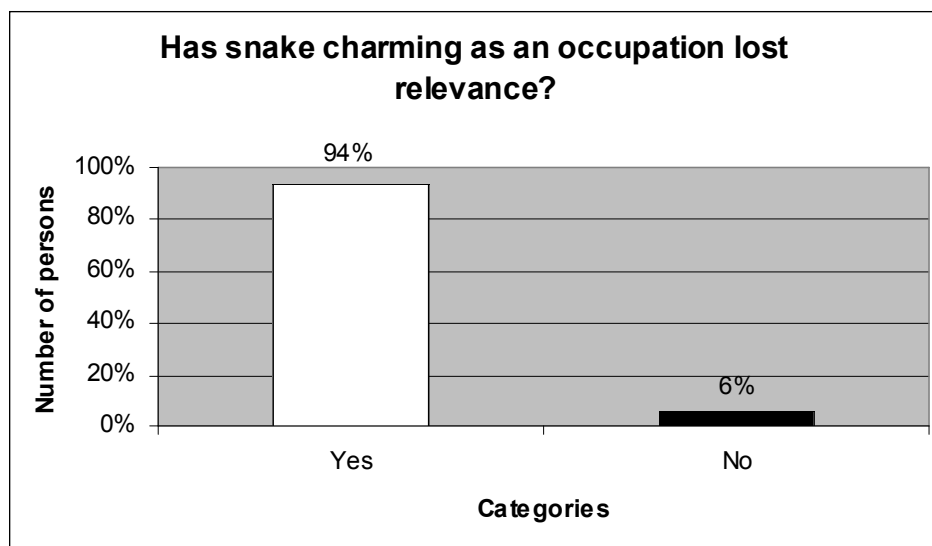
### 3.5 Average income from snake charming was more than the minimum wage rates in many states

The income of the snake charmers on a daily basis was recorded. It may be noted that while income may differ from day to day, the results below show an average. Income of the snake charmers may increase on days of festivals such as *Nag-Panchami* (festival of snakes). The graph shows the daily income from different sources. The maximum income per day was from those engaged in shop-keeping (about Rs. 86 per day). It may be noted that only a small percentage of the population was engaged in shop-keeping. The average income per day from snake

charming was Rs. 75, from selling herbal medicines was Rs. 70 and from going out in their saffron clothes and begging for alms was Rs. 52. These figures can be compared with the minimum wage rate of many states that is the wage rate applicable to workers in the unorganised sector. The minimum wage in Haryana for instance ranged between Rs. 51-55 per day in 1995. (Subrahmanya, 1995). Thus, the snake charmers are able to earn a much higher amount from snake charming, than they would if they turned to daily wage labour, for instance.

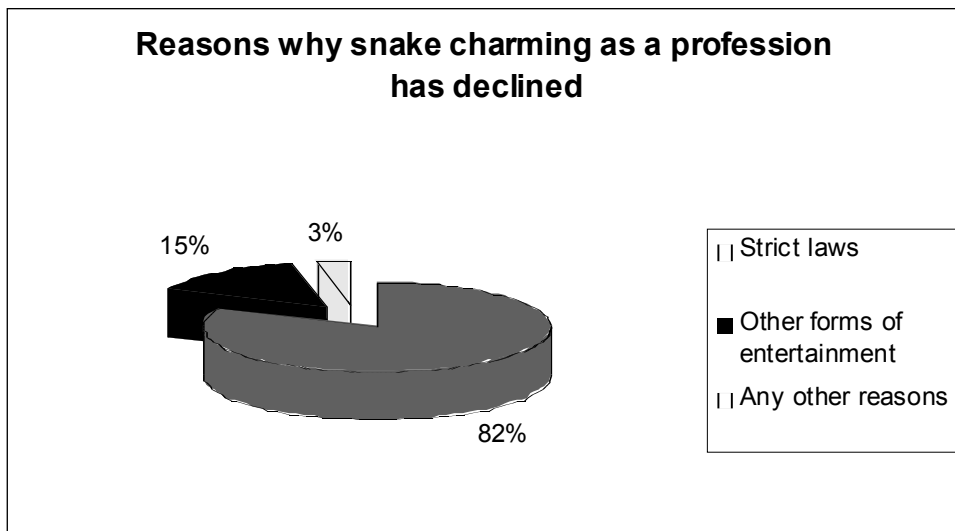
### 3.6 Majority of snake charmers feel snake charming as a profession has lost relevance

In this section we asked the Jogi-Naths a series of questions related to their perception of their traditional occupation that is snake charming. Nearly 94 percent of the population surveyed felt that the scope of snake charming as an occupation had declined. This question was used to gauge the relevance of the traditional occupation for the younger generation. Of those who



**Figure 3.6:**  
Relevance of snake charming as an occupation





**Figure 3.6.1:**  
Reasons why snake charming as a profession had declined

said yes to the previous question, we asked further the reasons why they thought the profession was no longer relevant or a viable one. As many as 82 percent felt that the ban on the profession was the reason, while 15 percent felt that the development of other means of entertainment had resulted in a decline in the relevance of their occupation, while 3 percent gave other reasons such as embarrassment in following an archaic occupation.

#### 3.6.1 Snake charming continues as snake charmers know no other skill

We asked those who were still practising snake charming why they were in this profession. As many as 58 percent said they were still following their traditional occupation despite a ban on it, as they did not know anything else, 30 percent said they did it because it was part of their caste identity, while 12 percent said they engaged in snake charming because they liked their job.

Those who were not practising snake charming gave several reasons for not doing so. While 68 percent cited

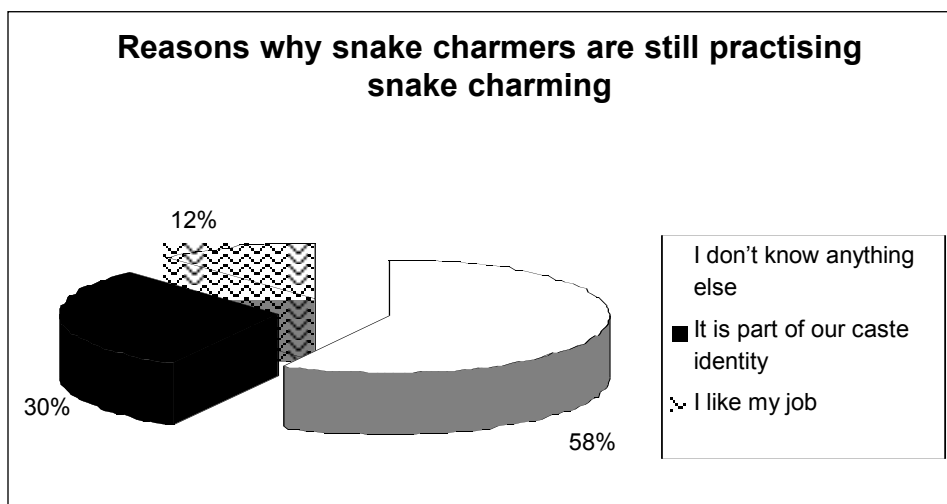
not knowing the traditions related to their occupation such as catching snakes as a reason for not practising snake charming, others cited embarrassment (21 percent) and fear of getting caught by the police (18 percent).

#### 3.7 Only a small percentage of snake charmers felt unaffected by the ban on their occupation

In this section we asked the Jogi-Naths how the ban on snake charming had impacted their profession. We first asked them the reason why this ban had been introduced. While 47 percent felt that an eminent politician who is an animal activist had directed the police to arrest them, 30 percent had no idea why the ban had been introduced. As many as 19 percent stated that snake species were dwindling as the reason behind the ban, 4 percent stated there was no ban and this was just an excuse for the police to harass them and extract money from them.

##### 3.7.1 Loss of income as a result of the ban

Finally we asked the Jogi-Naths how the ban had affected



**Figure 3.6.2**  
Reasons why snake charmers are practising their profession

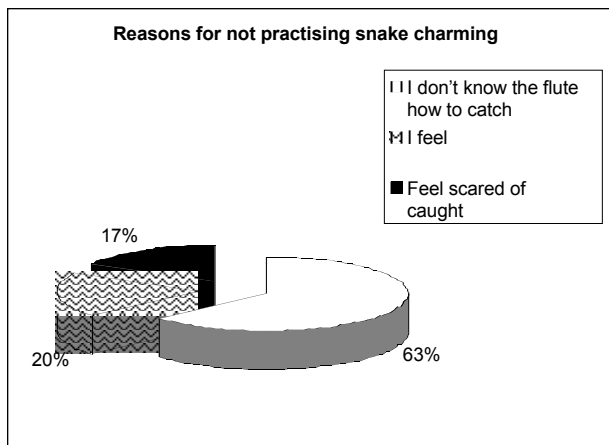


Figure 3.6.3: Reasons why you do not practise snake charming

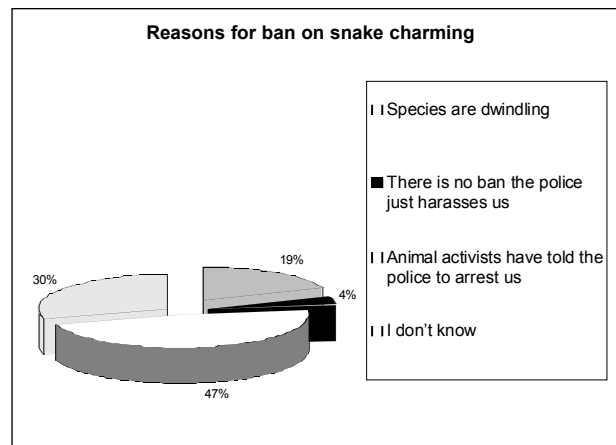


Figure 3.7 Reasons why snake charming has been banned

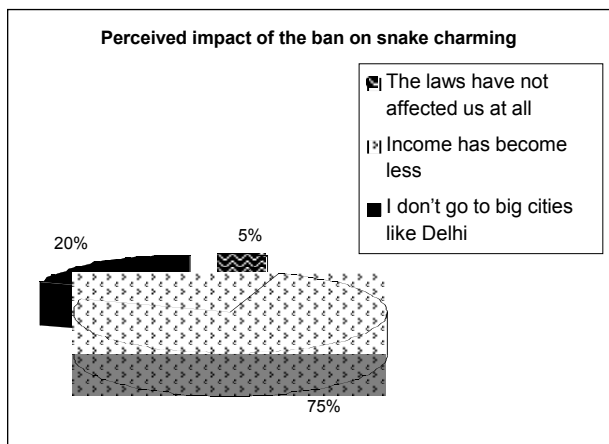


Figure 3.7.1: Impact of the ban on snake charming on your profession

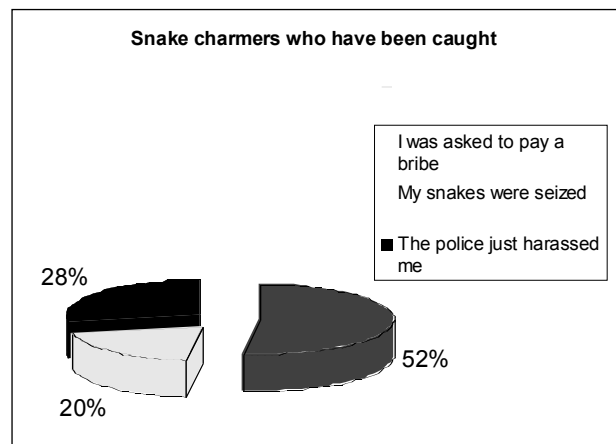


Figure 3.7.2: Consequences of being caught by enforcement authorities

their occupation. While 75 percent of the population surveyed reported a fall in their income levels as a result of the ban, 20 percent stated that they had stopped going to big cities like Delhi where the chances of being caught were more. A mere 5 percent of the population surveyed felt that the ban on snake charming had not affected their occupation at all.

### 3.7.2 Corruption amongst enforcement agencies was rampant

Of those who had been caught by the enforcement agencies, 52 percent were let off after paying a bribe, 28 percent were roughed up or questioned by the police and 20 percent had their snakes seized from them. None of the snake charmers knew what happened to their snakes after they had been seized by the police.

#### To sum up this section:

1. The average size of a *sapera* family was 5 persons, with the sex ratio biased in favour of males
2. Nearly 73 percent of the snake charmers in the age group of 18-35 are still dependent on snakes to earn a living. In the case of the previous generation, as many as 95 percent were practising snake charming.

3. Average income from snake charming is Rs. 75 a day, which is more than the minimum wage rate in most states. Snake charming, then, despite all restrictions is still quite economically viable.

4. Education levels were high when compared with the previous generation with as many as 57 percent of children in the age-group of 14 and below enrolled in school. It should be added that enrolment did not necessarily indicate regular attendance in school. Interviews with school teachers in fact indicate a high drop-out rate for children from this community.

5. Only 54 percent of those who were still practising snake charming knew how to play the *been* while 82 percent of those who were practising snake charming, were able to catch snakes with confidence.

6. As many as 75 percent of the people interviewed admitted that the ban on snake charming had led to a fall in their income levels, 20 percent no longer went to big cities for fear of being caught and 5 percent said the ban had not impacted them at all.

7. Less than one-third of the respondents knew the reasons why the ban has been imposed

8. Levels of corruption as reported by respondents by enforcement agencies was high.

### 3.8 Introduction

In this section we analyse the species of snakes kept by the snake charmers, their health in captivity and the area from where the trapping is done. It should be mentioned that information about the snakes and physical verification was extremely difficult to obtain given the ban on snake charming. Nonetheless, a total of 135 snakes were observed in 50 households.

### 3.9 An average of seven snakes per snake charmer were caught annually with as many as eight species snakes observed in captivity

The total number of snakes observed in captivity was 135 in 50 households spread across different villages in the three states of Haryana, Rajasthan and Uttar Pradesh. Thus on an average, the number of snakes per household was 2.7. In addition to the snakes observed by the project team during data collection, the snake charmers admitted that many snakes were caught by them and released in the wild periodically. Therefore, using the recall method, we additionally recorded how many snakes they caught in one year. By this method, on an average, the results show a snake charmer caught 7 snakes per year although species-wise information was not available for this.

Of the snakes physically observed, there were eight species that were observed in captivity and, for each, the snake charmers had a local name. These are shown in Table 2.

The three most commonly observed species was the Common cobra, *Naja naja* (57%), the Earth boa, *Eryx johnii* (16%) and the Rat snake, *Ptyas mucosa* (13%). These are species that are efficient rodent killers and found quite close to human habitations (Whitaker, 1978). Other species observed were the Sand boa, *Eryx conicus* (1%) and Royal snakes, *Spalerosophis diadema* (5%). Less common species such as pythons, *Python molurus bivittatus* and Red spotted royal snakes, *Spalerosophis*



Vikram Hoshing

**A Red-spotted Royal snake in captivity**

*arenerius* were observed only in 2% of the households. The King cobra, *Ophiophagus hannah* was also observed in 3% of the households surveyed

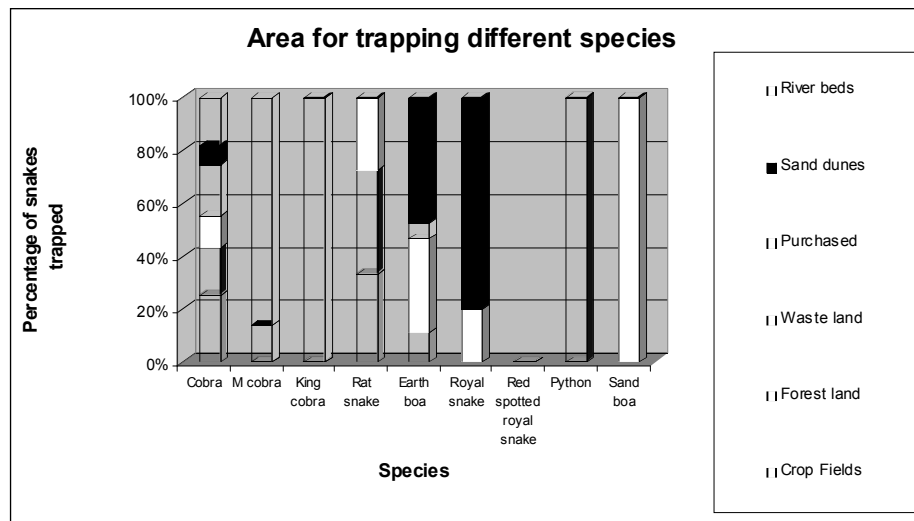
### 3.10 Trapping occurs in all seasons

There was no fixed time period chosen by the charmers to trap snakes. No specific traps were laid or bait set. Snakes were trapped as and when the charmers encountered them especially during their travels to different regions of the country. They did admit that the monsoon season from July -September was more favourable for trapping due to easy sightings of snakes at this time of the year. The commonly trapped snakes were the Common cobra (*Naja naja*), Rat snake (*Ptyas mucosa*) and Earth boa (*Eryx johnii*).

The snake charmers in Haryana described the following method for trapping snakes: "When the women go out early in the morning to the fields for their ablutions they spot the snakes. The entrances to the burrows are blocked by using bricks and stones. The period between spotting the snake and actual trapping can vary (could

**Table 2: Percentage of snakes of different species in captivity**

COMMON NAME	LOCAL NAME	SCIENTIFIC NAME	% IN CAPTIVITY (N=135)
Common Cobra	Kala saanp	<i>Naja naja</i>	57%
Monocellate cobra	Pondarai	<i>Naja kaouthia</i>	1%
Rat snakes	Ghoda pachad	<i>Ptyas mucosa</i>	13%
Earth boa	Dumai	<i>Eryx johnii</i>	16%
Sand boa	Dhusan	<i>Eryx conicus</i>	1%
Royal snake	Ghurav	<i>Spalerosophis diadema</i>	5%
Red spotted royal snake	Ghurav	<i>Spalerosophis arenerius</i>	2%
King cobra	Elahad	<i>Ophiophagus hannah</i>	3%
Python	Ajgar	<i>Python molurus bivittatus</i>	2%



**Figure 3.11: Area for trapping of different snake species**

be a few hours to days). The snake is dug out from the marked spot. It is immobilized by placing a stick on the head and restrained by grasping its head in one hand and then the rest of the snake is dug out from the burrow. Implements like shovels and *baisakhi* (stick with an iron spade at one end) are used for digging. If it is venomous, the snake is defanged at the site of capture with the blade of the *baisakhi*. We then place it in a cotton bag and carry it home." (Interview with Rajunath *sapera* Haryana, January 2004).

In Rajasthan the snake charmers trap snakes by following the trail of the reptile on the sand dunes. The trails were used to locate the burrow and the snake was then dug out using a spade or a *baisakhi*.

We further observed in all three states that hunting dogs were kept by the snake charmers who accompanied them during their hunting trips. The hunting dogs in addition to sniffing out trails were used to catch smaller mammals such as rodents or hares or hedgehogs for the evening meal.

### 3.11 Trapping location varied according to species and micro-habitat

The areas for trapping varied according to the micro-habitat: from agricultural fields in Uttar Pradesh and Haryana to sand dunes in Rajasthan. Rat snakes were

generally caught from wastelands on the outskirts of agricultural fields in Uttar Pradesh and Haryana. The maximum number of snakes (58%) were caught from agricultural fields which included species such as the Common cobra and the Rat snake. As many as 16% of the snakes were trapped from wastelands or village commons which were ideal for species such as the Earth boa. The sand dunes and river beds were ideal for species such as the Royal snakes from where 7% of this species were caught. From forest land the species that were caught were Indian pythons and Common cobra. About 10% of the snakes were not trapped by the snake charmers but purchased. These included species like the Common cobra and the King cobras. The King cobras were purchased from a community in Cuttack in Orissa known as the *Jhulias*.

### 3.12 Snakes kept for more than one month were unhealthy

For a rapid assessment of the health of the snakes in captivity, three criteria were used as shown in Table 3. On the basis of these criteria the snakes were classified as 'healthy' or 'unhealthy'. If even one of the indicators mentioned were present then the snake was classified as being 'unhealthy'. The health of the snake was further related to time spent in captivity. If it was more than one month, the snake was classified as 'old' and if it had been caught less than a month ago it was classified as 'recently caught'. One month was chosen as the cut-off period as this was the time after which the body condition of a snake caught from the wild is likely to deteriorate, although there may be inter-species or intra-species differences.

Based on this classification, we found that across all species, the general trend was that the snakes were unhealthy if they had spent more than one month in captivity. Especially in the case of venomous snakes, like the Common cobra, we found that 80 percent of the snakes that had been caught more than a month ago were weak and only 20 percent were healthy. Since the venom apparatus has been removed, the ability of such snakes to survive in the wild is significantly reduced. In the case of



**An example of a weak cobra**

**Table 3: Indicators of health of the captive snakes**

Indicator	Type of condition
If the snake had a tent like appearance, showing prominent ribs or	Poor body condition
The snake had not shed its skin properly or	Poor housing conditions
The snake was passing smelly stools with yellow-green bile or	Indicator of probable digestive disorder
The snake was showing mucous in nose and mouth	Indicator of mouth rot or removal of venom apparatus

the Rat snake, 89 percent of the snakes kept in captivity for more than a month were weak while only 11 percent were healthy. For the Earth boa it was observed that 63 percent of those who had spent more than a month in captivity were weak and only 37 percent were healthy. For the ones that had been recently caught, the trend was reversed. None of the cobras or the earth boas that had been recently caught were unhealthy. In the case of the Rat snake, too, only 11 percent of those recently caught were unhealthy.

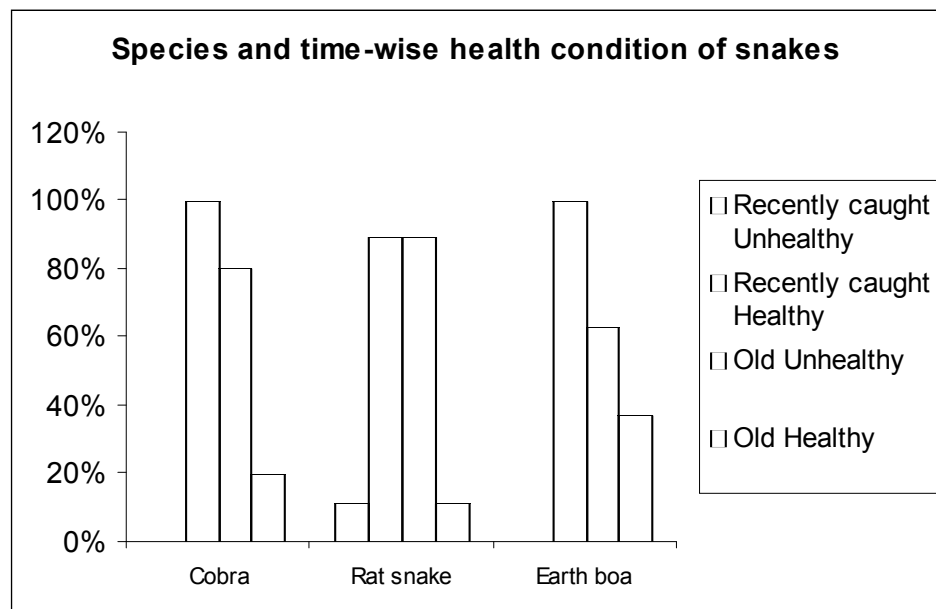
Information on how many snakes die in captivity was not attained as the snake charmers follow a customary law by which a fine is imposed by the *Panchayat* on any *sapera* caught with a dead snake in his house. The tendency therefore was to release the snake back in the wild as soon as a *sapera* observed it was too weak to perform.

### 3.13 Procedures for removal of venom apparatus

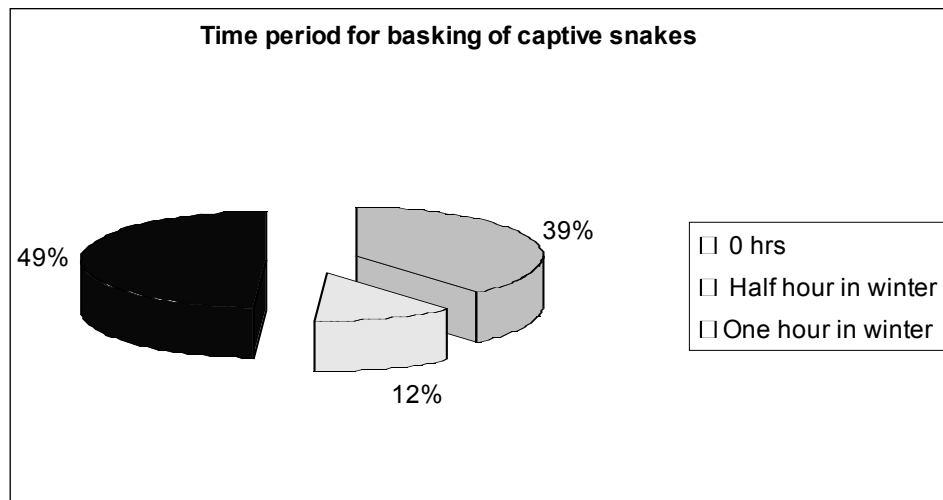
In two venomous species of snakes (Common cobra and King cobra), the venom apparatus was removed by the snake charmers. At the time of trapping, the snake is

defanged with a *baisakhi*. The removal of the venom apparatus is done once the snake has been brought back to the house with the help of a sharp needle. As many as 39 percent of the cobras had an infection in the mouth due to the removal of the venom apparatus. The infections may have occurred because of harsh practises of removal with a needle (which may or may not be sterilised) leading to inflammations and open wounds in the mouth. With King cobras, the procedure was to break the venom fangs and sever the venom duct, as the fangs can grow back. One possible reason why the venom duct was not completely removed in the case of King cobras was that the venom glands are big, so when it is removed its mouth looks smaller, thus reducing the attraction of the snake. In Common cobras, the practise is to break the fangs and remove the duct completely. In other non-venomous snakes, such as the Rat snake, the teeth are not broken, but they maybe deprived of food and water for the first few days after trapping so that the snake becomes dull and loses its aggression.

Nearly 72 percent of the snake charmers have knowledge



**Figure 3.12:**  
Health condition of snakes in captivity



**Figure 3.15: Time period for basking of captive snakes**

of how to remove the venom apparatus. Others rely on the elders in the community for this. The knowledge about removal of the venom apparatus was thus quite commonly known by the snake charmers.

### 3.14 Snake charmers retrieved snakes from human habitation or agricultural fields

We observed that snake charmers were often called by local farmers to remove snakes from agricultural fields or their homes. The most commonly rescued snakes are cobras and Rat snakes. While these two species were kept by the snake charmers for performances, species such as the Krait (*Bungarus sp*) and the Russels viper (*Vipera russelii*) were generally killed. The reason may be a lack of expertise in catching these snakes. Especially in the case of the Russels viper, the danger is that the fangs are long and can penetrate the skin of the snake handler through the lower jaw, during trapping. Nevertheless, retrieving snakes from human habitation was a frequent service performed by the snake charmers and as many as 71 percent of the snake charmers said they responded to such calls from nearby villagers



Vikram Hoshing

**Only a few snakes were well looked after**

### 3.15 Feeding and husbandry conditions

All the snakes were kept in round baskets called *topris*. These were made out of dry bamboo or stems of *Typha sp*. The snakes of different species were kept together, except for King cobras, which were kept in separate baskets. Basking in natural sunlight was carried out for a maximum of an hour as and when possible. We found that 39 percent of the snake charmers did not let the snakes out of the basket at all for basking while 49 percent let the snakes out of the basket for one hour and 12 percent let them out of the basket for half-an-hour. The snakes were kept in baskets all the time, except when they were being fed or had been put out in the sun for basking. Basking is an essential activity for reptiles especially in winter for thermoregulation.

In winter each basket was lined with blankets to protect the snake from cold weather and also to prevent injuries. In Rajasthan, where night temperature tends to dip, we observed that the baskets were wrapped in two to four blankets throughout the winter nights. The baskets were kept in sunlight for four to five hours during the winter months.

In summers, the charmers keep the snakes in the baskets without a lining and this leads to injuries to the snout and skin. The water sprayed to reduce the temperature may also lead to increase in humidity. The charmers force-fed the snakes with uncooked chicken and mutton. In almost 80 percent or more of the houses, the snake charmer himself fed the snakes. Feeding was repeated after the snake had defecated at least two to three times. As per availability, the snakes, except King cobras, were fed with chicks, rats and squirrels. The chicks, rats and squirrels were killed first and their feet were disarticulated before being fed to the snakes. The Monocellate cobras (*Naja kaouthia*) were an exception as they were force-fed solely with sole fish, a variety of fish available locally. In winter they were not fed due to the unavailability of this fish. The King cobras were force-fed with snakes like Checkered keelbacks (*Xenochropis piscator*) and Rat snakes, which were first killed.

In winter, the snakes were fed less frequently and with raw eggs. Force-feeding was done with the help of a rubber tube or a hollow bone. A charmer in Uttar Pradesh force-fed his snakes with whiskey to raise its body temperature. Water was given to the snakes to drink only during summer months and just prior to moulting. In winter no water was offered to the snakes as the snake charmers believe that the drop in temperature in winter prevents dehydration of snakes in captivity.

### 3.16 Captive snakes are usually fed once a week

Out of the total households surveyed, 65 percent people said they fed the snakes once a week, 24 percent said after

**Table 4: Health status of snakes according to time spent in captivity**

SPECIES	Recently caught		Old	
	Unhealthy	Healthy	Unhealthy	Healthy
Cobra	0%	100%	80%	20%
Rat snake	11%	89%	89%	11%
Earth boa	0%	100%	63%	37%

**Table 5: Percentage of snakes rescued in 2002-2003 from agricultural fields (N=355)**

Species	Percentage of snakes
Cobras	48%,
Rat snakes	31%,
Earth boas	2%,
Royal snakes	3%,
Kraits	15%,
Russels viper	1%.

two weeks and 10 percent said that they followed no regular pattern for feeding i.e. the time interval of feeding was changed according to the season: in summer the time interval was less and in winter more.

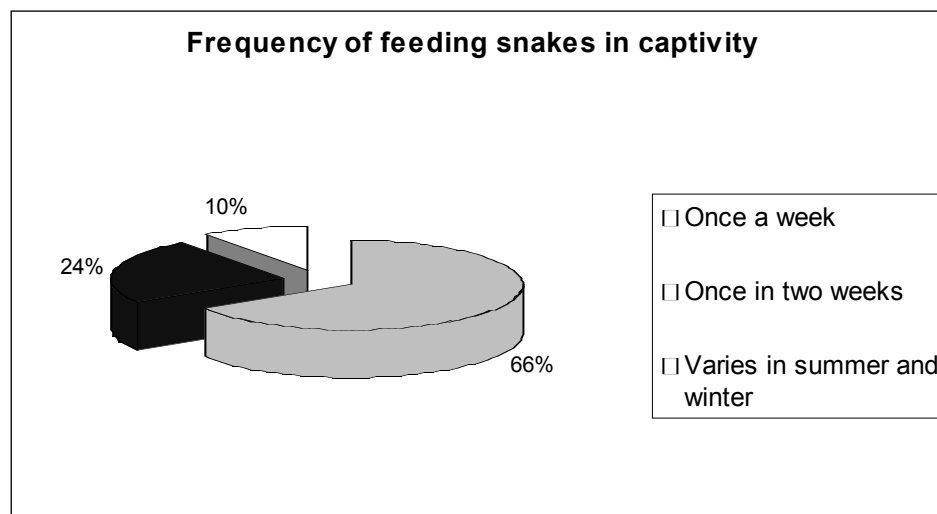
**3.17 The Common cobra is the most favoured species**

The snake charmers were asked to rank the snake species that they favoured for their occupation on a scale of 1 to 5 with 1 representing favourable and 5 representing least favourable. Nearly 71 percent of the persons ranked the Common cobra at number one, and 29 percent the King cobra. The King cobra, though larger and more impressive in appearance, was more difficult and expensive to procure. Earth boas as a species are hardy and can be easily trapped due to their sluggish behaviour,

but they lacked the magnificence and size of either the cobra or the Rat snake. Perhaps, that is the reason why 43 percent of the persons gave this species a ranking of two. The Rat snakes were large in size but the magnificence of the hood was absent. This explains why it was given a rank of two by 16 percent of the persons, rank three by 29 percent and rank four by 31 percent. The graph thus shows that the Common cobra was the snake most favoured by the snake charmers.

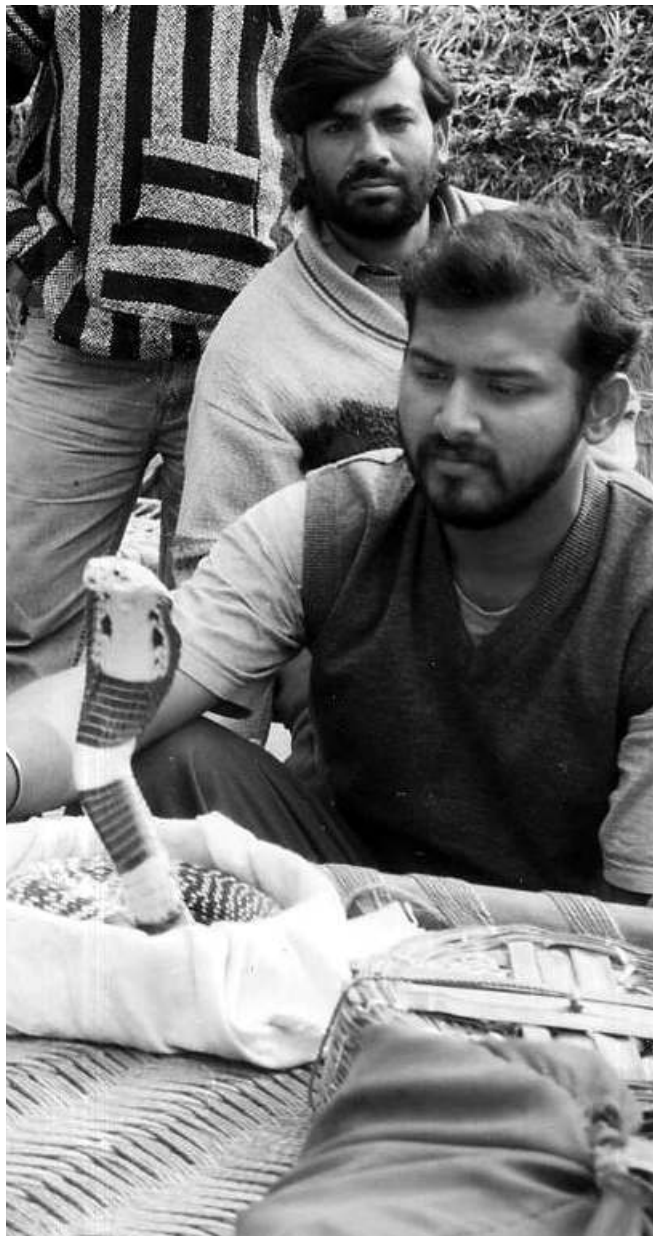
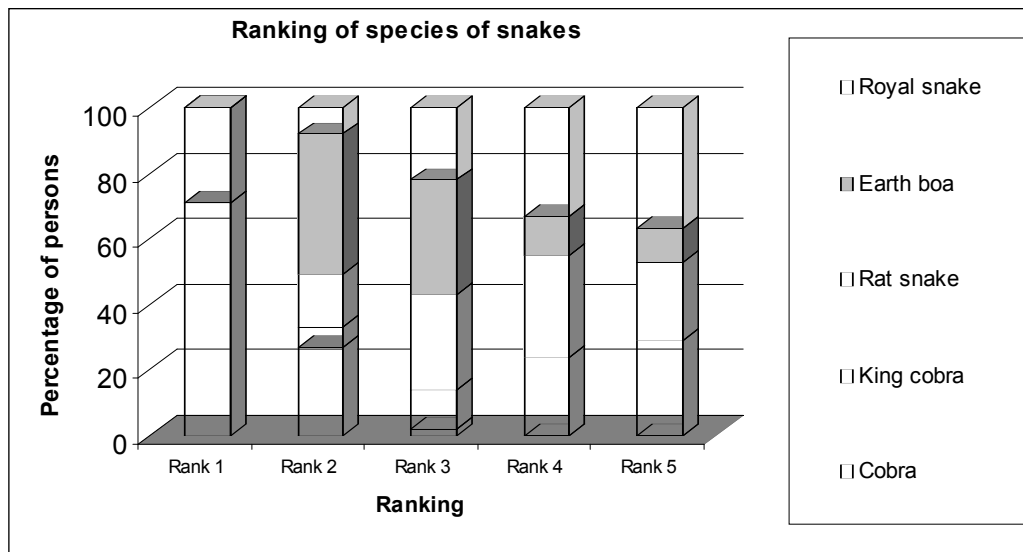
**To sum up this section:**

**1.** In one year, on an average, one snake charmer caught seven snakes. Eight species of snakes were kept in captivity, of which the maximum numbers was the Common cobra followed by Rat snakes. Two rare species were also found, namely the Royal snake and the Python,



**Figure 3.16: Frequency of feeding**

**Figure 3.17:**  
**Ranking of**  
**snake species**  
**preferred by**  
**snake charmers**



Rachel Kaletta

**Team member Vikram Hoshing assessing the condition of a cobra**

but these were observed only in 2 percent of the households sampled.

**2.** Across all species, the general trend was that the snakes were unhealthy if they had spent more than one month in captivity and, therefore, had less chance of survival when released back in the wild.

**3.** The death rate of the snakes in captivity could not be measured as the tendency for the snake charmer was to release the snake back in the wild if it was too weak to perform. Obviously there was not much chance for survival of the weak snake in the wild

**4.** A small percentage of snakes were observed to be healthy and good husbandry practises were being followed.

**5.** In the case of venomous species, the venom apparatus was removed or damaged. As many as 39 percent of the snakes had an infection in the mouth due to removal of the venom apparatus. This greatly reduced the ability of the snake to survive in the wild.

**6.** The species that were favoured for performances were generally the cobra, which was considered to be a charismatic species because of its hood.

**7.** The snakes are fed usually once a week when in captive condition

**8.** 71 percent of the snake charmers responded to calls by local farmers to remove snakes from agricultural fields or human habitation with the cobra and the rat snake being the most common species encountered.



## ETHNOBOTANICAL KNOWLEDGE OF THE JOGI-NATH SAPERAS

**3.18 Snake Charmers as Traditional Healers**

The image of the snake charmer and his snakes is a familiar one. Less familiar is the role of the snake charmer as a medicinal healer. When a snake charmer sets out for a performance, he also takes with him a briefcase containing dried herbs, roots and animal parts, prepared medicines, and lucky stones. At the end of a snake performance, once an audience has gathered, the charmer will sell herbal remedies for common ailments. Many snake charmers also have an established client base, consisting of individual patients who contact the snake charmer if they require treatment for an illness. These clients may live in the snake charmers' home village, or in distant states, and one snake charmer in Haryana had even set up a clinic where patients could visit him.

To date, no attention has been paid to this practice of traditional medicine and its importance to the snake charmers' livelihood. Moreover, it is not known how the recent changes in the law have affected this profession, if at all. Studies of other nomadic tribes have revealed the impact of changing lifestyles on traditional occupations. One example is the *Vaidus*, a nomadic tribe in Maharashtra who practice traditional medicine. Over 50 percent of this tribe have given up their traditional profession as the result of the increase in primary health care centres in rural areas, which has caused a corresponding decline in demand for their medicine (Malhotra, K.C. and Gadgil, M. 1988).

The World Health Organisation (WHO) estimates that four billion people - 80 percent of the world population - rely to some extent on herbal medicine in primary healthcare. The use of traditional medicine in developing countries is increasing. Hence the question: what is the contribution of snake charmers, if any, to primary healthcare?

India is one of the 12 mega-biodiversity countries in the world, with an estimated 40,000 plant species (Chowdhary, H.J and Murti, S.K. 2000). Not surprisingly then, it is the largest user of medicinal plants<sup>2</sup> in the world, using an estimated 7000 species. The medicinal systems of India are many and ancient. The first written records of medicinal plant use are found in the *Rig Veda* (3500 to 1800 BC) (Jain, S.K. 2001). However, around 95 percent of medicinal plants are wild collected, and there is little or no regulation of harvesting methods and levels. This has led to the over-harvesting of some species and the Botanical Survey of India has estimated that around 1500 plant species in India are rare or threatened. The main factors contributing to the decline in wild populations are thought to be anthropogenic, such as



Rachel Kalelta

**A traditional healer with roots and herbs**

habitat destruction and over exploitation (Chowdhary, H.J. and Murti, S.K. 2000). It is known that snake charmers use wild harvested plants in their medicines. However, it is unknown as to which plants are used and in what quantities, and the impact of harvesting on wild populations.

**3.19. Inventory of Medicinal Plants: Most plants used are from the wild**

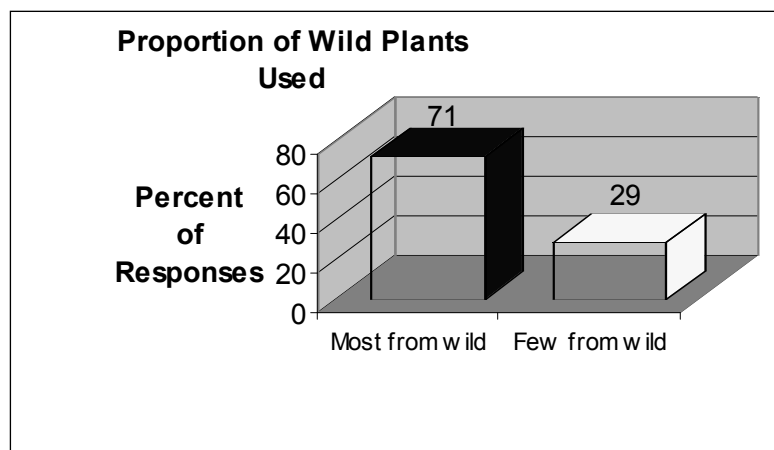
The greater proportion of plants used in treatments were harvested from the wild as opposed to purchases from the *pansari* (traders), and for many informants this proportion was close to 100 percent. Wild harvested plants were preferred as, despite the greater labour costs involved in collecting and processing the plants, the profit from the medicines was greater as there were no purchasing costs. One healer estimated that the sale price of the medicine must be at least twice the price of the cost of the ingredients in order to make a profit. The *pansari* was, therefore, used mainly for species that were very difficult to obtain, because they did not grow in the local area.

**3.20 More than a hundred plant species are used by the *saperas* in medicines**

The number of different species known and used by

<sup>2</sup>Definition of medicinal plants according to FAO (1999): "Medicinal plants may be defined as those plants that are commonly used in treating and preventing specific ailments and diseases and that are generally considered to have a beneficial role in health care."

**Figure 3.19:**  
Proportion of wild medicinal plants used by healers



individual informants ranged from 10 to 250. A complete list of the plants mentioned and their uses is given in the questionnaire in Appendix 1.

A total of 58 different plants were identified to genus or species level, with 106 mentions by the informants. In addition to the identified plants recorded, a further 53 local plant names were documented. It was not possible to collect specimens of these plants, either because they do not grow in the locality of the study villages, or because they cannot be found in this season. Identified specimens are referred to in this report by their Latin name, and unidentified plants are referred to by their local or Hindi name. The snake charmers use their own dialect, so plant names may not necessarily match with Hindi names.

If the number of identified species, as well as local names of plants is combined, a total of 110 different plants were mentioned. There were 170 different mentions of these plants, with roughly equal numbers of mentions in each state (Uttar Pradesh 36.4%, Haryana 32.7%, and Rajasthan 30.9%). This suggests that levels of knowledge of medicinal plants is similar in each state.

However, with the identified species there is more variation between states: 38.7 percent of mentions were from Uttar Pradesh, 34 percent from Rajasthan, and 27.4 percent from Haryana. As the specimens were those found close to the villages, these differences may represent the range of wild flora available in the local area. Haryana, with the lowest number of mentions was an agricultural area with a corresponding low diversity of wild flora. In contrast, the villages studied in Uttar Pradesh were adjacent to a forest sanctuary, resulting in a comparatively high local biodiversity.

There was little repetition of mentions of individual plant species. Three quarters (75%) of plants were only mentioned once, and 13.4 percent were mentioned twice. There was also marked difference in the plant mentions between each state; 88.4 percent were mentioned in one state only, and 10.7 percent were mentioned in two states. Only one species, *Azadirachta indica*, was mentioned in all three states. This is expected considering the ecology of each state was different. Rajasthan was dominated by semi arid habitats, Haryana by intensive agriculture, and Uttar Pradesh by forest. The presence of usage of

*Azadirachta indica* can be explained as this tree is commonly planted near habitation and on roadsides.

### 3.21 A range of ailments were treated by snake charmers

Treatments were classified into 34 groups (see Appendix IV). Informants were asked to list and rank what they considered to be the five most frequently treated ailments. The most frequent treatment was ranked five, and the least frequent treatment ranked one. The rank scores were then summed up. The informants' perception of most frequently used treatment was very similar to the actual number of mentions of each ailment, with eight of the ailments occurring in both lists. This suggests that healers have a very good understanding and awareness of common illnesses. Snakebite was recorded as the most frequently mentioned ailment and ranked the fifth most common ailment by informants, indicating the important role of healers in treating snakebite victims. Other commonly treated ailments include colds and flus, aches and pains, skin ailments, and female sexual diseases.

Over half of the plants mentioned were only used for one treatment (58.3%), and a further 14.6 percent had two uses. There are three possible explanations to explain why these particular plants have many treatments attributed to them:

1. Medicinal plant knowledge is handed down through generations, so knowledge systems may evolve separately in different areas. It is, therefore, possible that these species are used for different treatments in each state. However, all except one species were used in only two states.
2. These medicinal plants are commonly found with a wide geographical distribution. Healers are likely to encounter the plants more, so will use them more often. Three of the plants (*Cocculus villosus*, *Cuscuta sp.*, and *Nagdaun*) are not commonly found.
3. These plants are medically more effective at treating different diseases.

**Table 6 : Most frequently mentioned plant species**

Latin Name	Local Name
<i>Cocculus villosus</i>	Kalipahad
<i>Boerhavia repens var. diffusa</i>	Nirvani
<i>Citrullus colocynthis</i>	Kaurtumba
<i>Azadirachta indica</i>	Neem
<i>Calotropis gigantea</i>	Aakh (green)

**3.22 Most plants listed have medicinal qualities attributed to them**

A brief literature review revealed that 41 of the 58 plants identified have medicinal qualities. Another indicator of efficacy of their methods was the fact that the traditional healers had established clientele in different cities to whom they dispensed medicines on a regular basis. Thus, there does appear to be then a medical basis for the traditional knowledge. We further observed that many traditional healers had also received certificates from established Ayurvedic colleges as a formal recognition of their skills

It should be stated that in some cases the actual uses of the plant did not always agree with those cited in the literature review. Further investigation may be required to determine the exact medicinal qualities of the plants mentioned and may be an area of future research.

**3.23 Preparation of Medicines**

The most common type of treatment involves drying the plant to be used, and grinding it to form a powder. Other dry ground ingredients are then added, and the powder may be mixed with ghee to form a pellet. The powder or pellet is taken with water or milk like a pill. A second common treatment is to boil the plant in water, strain, and

drink it. For illnesses such as burns, skins problems, and aches and pains, plants are boiled or heated in oil or water, and the resulting liquid applied to the affected area. These basic recipes vary in the quantities and combination of different plant and mineral ingredients.

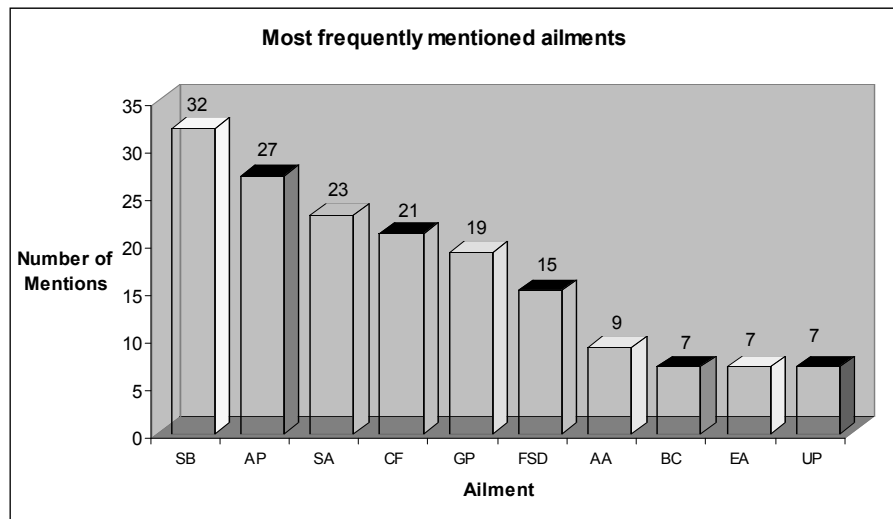
A wide range of ingredients bought from the *pansari* is used in the preparation of medicines. Examples of plant-based ingredients include dried black tobacco, peppermint, and *reetha* (probably *Sapindus trifoliatus*). Mineral ingredients include boric acid, edible soda, potassium permanganate and common salt. A variety of animal parts are also used. Not surprisingly, parts of snakes are commonly used for treatments, reflecting the importance of snakes in folk knowledge and beliefs.

**3.24 Role of plant based medicines is limited for treating venomous snakebites**

Nineteen plants are used in the treatment of snakebite, and there are two main methods of treatment. The first is to make the patient drink a concoction of boiled plants to induce vomiting and diarrhoea, and 80 percent of the plants mentioned were used in this way. Informants stated that any bitter plant can be used, depending on what is available.

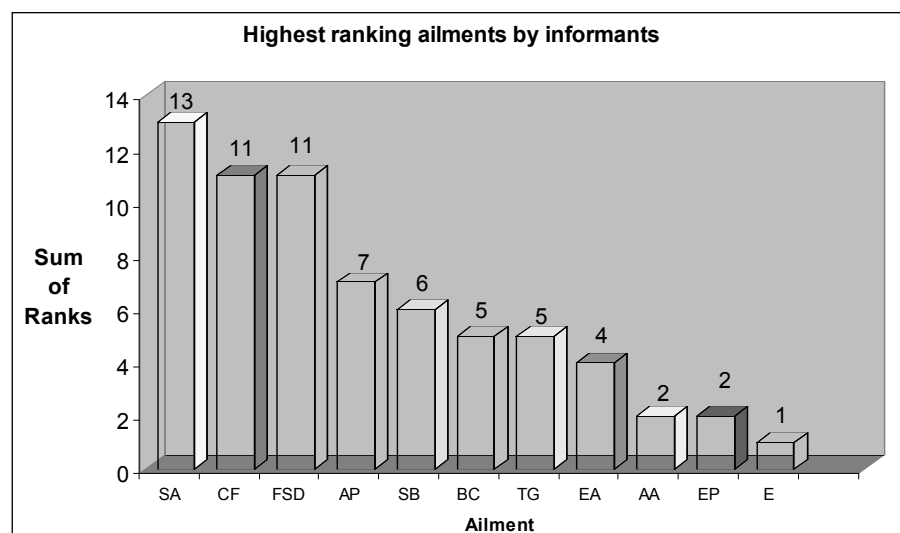
For the second treatment, a tourniquet is tied around the upper arm (in the case of a bite to the hand). Longitudinal cuts are made, usually around four in number, between the bite and the tourniquet. A paste containing a mixture of plant extracts and minerals is applied directly to the wounds to increase bleeding. A range of *pansari* ingredients including salts, ghee, tobacco, and *sankiya* (a poison), may be added to the paste. It is believed that the ghee will remove heat in the body produced by the snake venom. *Sankiya* is used in the belief that "poison counteracts poison".

No instances of death from snakebite were recorded from the informants, although one informant mentioned a snake charmer in their village who had died from



**Figure 3.21: The 10 most frequently mentioned ailments.**

Key: SB = Snakebite, AP = Aches & Pains, SA = Skin Ailments, CF = Colds & Flu, GP = Gastric Problems, FSD = Female Sexual Disease, AA = Asthma & Allergies, BC = Blood Conditions, EA = Ear Ailments, UP = Urinary Problems.



**Figure 3.21.1 :**  
Highest ranking ailments by informants

Key: SA = Skin Ailments, CF = Colds & Flu, FSD = Female Sexual Disease, AP = Aches & Pains, SB = Snakebite, BC = Bone Cancer, TG = Teeth & Gums, EA = Ear Ailments, AA = Asthma & Allergies, EP = Eye Problems, UP = Urinary Problems, E = Epilepsy.

snakebite despite having treated himself. Recovery rates of patients varied from 20 minutes to three hours. The only complication mentioned was the case of one young man who had been bitten by a Russels viper while cutting sugar cane. He was successfully treated by making cuts on his arm and applying a paste made from some of the plants mentioned above. He recovered in three hours. However, he was taken to hospital for a tetanus injection for the cuts. In extreme cases, where there is no treatment available, a bitten limb may be amputated. One example was given of a man who chopped off his own finger after it was bitten by a cobra (*Naja naja*).

Medicinal healers estimated that they treat, on average, 40 to 50 snakebite victims a year. As many as half of these cases occur in the rainy season, when snakes are more commonly encountered. There is a common belief among victims that the standard anti-venom treatment given in the hospitals is more dangerous than the snakebite, so victims often prefer treatment by traditional healers.

Snake charmers, therefore, potentially can play an important role in the treatment of snakebite, but their role is limited as plant based medicines cannot be used for treating a person who has been bitten by a venomous snake and needs urgent administration of anti-venom injections.

Nonetheless we found that people preferred to come to a snake charmer for treatment for snakebites and an intricate system is followed by him by first identifying the species of snake, the location of the wound and then administering medicines accordingly.

The ability of the plant species mentioned to induce vomiting and diarrhoea has been confirmed. However, inducement of vomiting and diarrhoea does not impact the effect of snake venom in the body. No evidence has been found to suggest that any of the plants are effective for counteracting snake venom. *Azadirachta indica* has been previously recorded for the treatment of snakebite by the Database of Medicinal Plants, India. However, this

**Table 7: Plants used for traditional healing**

LATIN NAME	LOCAL NAME	STATES MENTIONED
<i>Cuscuta sp.</i>	Amarbel	H / R
<i>Citrullus colocynthis</i>	Kaurtumba	H / R
Unidentified	Nagdaun	H / R
<i>Cocculus villosus</i>	Kalipahad	H
<i>Boerhavia repens var. diffusa</i>	Nirvani	H / UP
<i>Calotropis gigantea</i>	Aakh (green)	R / UP
<i>Azadirachta indica</i>	Neem	H / R / UP
<i>Cissampelos pareira</i>	Banchuri / Nirbashi / Jaljamnibuti	H / UP
<i>Convovulus arvensis</i>	Arnabuti	R

Species with the highest number of different treatments attributed to them, and the states in which they were mentioned.

Key: R = Rajasthan, H = Haryana, UP = Uttar Pradesh.

## Common treatments and methods of preparation

### **Ailment: Boils**

**Treatment:** Take *Ficus Elastica* (Patharchat) leaves and boil them in mustard oil. Tie the leaves onto the boils. If the boils are unripe, then place the underside of the leaf against the skin and the boils will subside. If the boils are ripe, place the upper surface of the leaf against the skin and the boils will burst.

### **Ailment: Joint pains**

**Treatment:** Take a 0.5m<sup>3</sup> bundle of *Capparis decidua* (Kairbuti). Burn it, and then grind into a powder. Take one *puria* (a small slip of paper containing around half a teaspoon of powder) each morning for 2 to 4 months.

### **Ailment: Gum infection**

**Treatment:** Take two fruit of *Wrightia arborea* (Doodhi). Dry and grind them in mustard oil. Soak a betel leaf (*Areca catechu*) in the oil and bandage around the neck with a cloth.

### **Ailment: Indigestion, stomach ache, constipation**

**Treatment:** Take the fruit of *Citrullus colocynthis* (Kaurtumba). Break the fruit open and leave it to dry for six days, or place the fruit in a fire overnight. When dry, remove and discard the seeds and grind the flesh. Add black salt and a little ghee to form small pellets. Take one pellet with cold water. If the patient passes a lot of stools, then take a second pellet with hot water.

### **Ailment: Indigestion in buffaloes**

**Treatment:** Take the fresh leaves of *Calotropis gigantea* (Aakh) and tie them around the mouth of the sick buffalo. As the animal eats, it will consume the juices from the leaves which will cure the stomach ailments.

database also states:

*"It is hard to believe that any plant product can actually confront any venom in the blood and neutralise any of its components. But plants certainly have a role to play in the management of the symptoms such as inflammation, pain, affected tactile sense, etc., and in keeping the victim in better comfort, in addition to giving the very essential psychological support."*

Most snakebites are dry bites, where little or no venom is injected. This is especially so in winter when low temperatures cause the venom to solidify in the ducts. Consequently, the greatest danger in many snakebite incidents is from shock, which can lead to a heart attack. The importance of plant treatments may, therefore, be in their placebo effect rather than any anti-venom qualities. Further, if the bite is from a non-venomous snake, plant-based medicines can be useful insofar as they heal the wound.

### **3.25 Surma an indigenous medicine for eye ailments**

One medicine, which is held in high esteem by all snake charmers, is *surma*. *Surma* is a powder made from dried ground plants and minerals, which is applied around the edges of the eyes like kohl. *Surma* is used both for beauty purposes, and to treat eye complaints such as watering, cataracts, infections and irritation. Several healers also claimed that the use of *surma* is the reason why no

member of the snake charmer community needs to wear spectacles.

*Surma* is found in three varieties - black, white, and yellow, depending on the exact ingredients. Commonly mentioned ingredients used for making *surma* are: *Sonmarchi* and *Ratanjoth* (two wild harvested plants), *Inderjo* seed, *samundari jhaj* (solidified sea foam), mint, and boric acid. Each healer may have his own personal recipe, and these are jealously guarded.

There is a great deal of mysticism surrounding *surma*, and healers will make unrealistic claims of ingredients in order to impress patients. Perhaps, the most intriguing myth is that of snake venom. Four healers admitted to using cobra snake venom in *surma* preparation, but there were many more who denied its usage. Before use, the venom must be 'purified'. This involves placing the venom in a clay pot, which is either placed over a fire, or it is buried in the ground and a fire kept alight above it for 11 days. The dry venom is then mixed with the other dried ingredients. It was not possible to observe the preparation of *surma* using snake venom, so these accounts remain unverified.

### **3.26 Ecological Sustainability**

#### **3.26.1 Most plant species used are common**

None of the plant species identified are recorded as rare or endangered as per the IUCN Red List (IUCN 1998).

**Table 8: Examples of animal parts, their uses and treatment**

Animal Part	Use	Preparation & Treatment
Snake moult	Skin disease, antiseptic for wounds	Grind with pansari ingredients and wild plants to make a paste, which is applied to the affected area.
Snake skeleton	Swollen glands	Take seven vertebrae and tie around the neck for several days.
Snake oil	Skin disease, scabies	Heat the snake in a clay pot with a hole in the bottom. The oil is collected in a pot below and is applied to affected area.
Dried hare ears	Ward off illnesses	Carry as an amulet
Indian Pangolin scale	Piles	Cut a ring from the scale and wear it for 21 days.

Many of the species, for example *Calotropis gigantea*, are common weed species. Others are considered agricultural weeds, which, if not collected by healers would be uprooted and removed by farmers. One example is *Citrullus colocynthis*. This species has been recorded as under threat from over exploitation in desert regions (Shetty, B.V. and Singh, V. 1987). However, in the study area it was found to be extremely common, and the edges of agricultural fields were littered with piles of this vine, weeded out by the farmer. Farmers did not mind when healers took a few fruit from these piles. Further study would be required to assess the long-term impact on the plant, but any detrimental effect is more likely to be from farmers removing them, as opposed to snake charmers. When informants were asked about the distribution of wild populations, they estimated that 73 percent were common or very common (Figure 3.26.1). Only 8.1 percent were described as rare and this figure included species that were locally rare due to the absence of suitable habitat requirements. Healers were also asked to comment on whether there had been any changes in wild populations over the past 20 years. Nine species were thought to have declined in the past 20

**Table 9: Identified plant species used for snakebite treatment**

Latin name	Local name
<i>Alternanthera paromychioides</i>	Nevlabuti
<i>Azadirachta indica</i>	Neem
<i>Boerhavia repens var. diffusa</i>	Santabuti
<i>Calotropis gigantea</i>	Aakh
<i>Citrullus colocynthis</i>	Kaurtumba
<i>Cocculus villosus</i>	Kalipahad
<i>Cuscuta sp.</i>	Amarbel

years. The main reason given was loss of forest, followed by an increase in agriculture. Only two species, *Euphorbia antiquorum* and *Launaea coromandelica*, were said to have decreased because of high demand. Interestingly, according to local perceptions two plants, *Launaea sp.*, and Kamalbuti were perceived by healers to be increasing in population size due to the spread and intensification of agriculture. This, of course, would need to be scientifically verified.

### 3.26.2 Source of Wild Plants

Medicinal plants are gathered from a variety of habitats. Wild lands are taken to be any wild area under no obvious ownership or use, and includes uncultivated sand dunes, roadsides, and canal banks. Agricultural land consists of all areas under current cultivation, and includes field edges and the banks of small irrigation channels. The village common in Haryana was an open access pastureland. Gardens are taken to be private land surrounding a habitation.

Although plants are harvested from each habitat type in similar quantities (excepting gardens, from which only one plant was collected), there was a marked difference in the source of plants between states. These differences reflected the local dominant habitat type. In Rajasthan, the majority of plants were harvested from wild lands and agricultural land; in Haryana, from agricultural land and the village common; and in Uttar Pradesh, from the Hastinapur wildlife sanctuary. No permission was required to gather plant material from agricultural land or the village common. The Indian Wildlife (Protection) Act (1972) restricts the removal of any plant material, whether dead or alive from wildlife sanctuaries. Therefore, plant harvesting from the sanctuary was illegal and a compoundable offence as per the Wildlife (Protection) Act, 1972.

### 3.26.3 Removal of plants and parts that are used

In this study, actual volumes of how much of each plant

## Utilisation of Black *Surma* to treat Scorpion stings

Take small quantities of *Cocculus villosus* (Kalipahad). Dry and grind them with dried Black cobra venom and sea foam. Apply the *surma* to the eyes twice in an hour. If the sting is on the left hand side of the body, apply the *surma* to the right eye, and vice versa. The explanation given for this treatment is that all veins lead to the eye so it presents a rapid way of circulating the medicine in the body.



Rachel Kaletta

**Surma applied by a healer to a client**

was extracted was not recorded. Still, the potential impact of harvesting on a wild plant population can be predicted depending on the plant parts used and method of harvesting. Uprooting the entire plant to obtain the roots is most likely to result in a detrimental impact on plant populations (Cunningham, A.B. 2001). In this study, 30.2 percent of plants were uprooted (see Figure 3.30), suggesting further research is required to assess the ecological impact of harvesting of these plants.

No conservation or management measures were mentioned for plants with declining populations, when a plant becomes more difficult to find, it is purchased from a pansari instead of wild harvested.

### 3.27 Methods for sale of medicines

#### 3.27.1 Medicines are hawked on the street and through fixed clients

There are three ways in which snake charmers practice the sale of their traditional medicine:

##### a. Excursions - fixed clients

Snake charmers may make several excursions in a year to different parts of the country to perform with their snakes and sell their medicines. A group of snake charmers from a particular village will often revisit the same districts every year. In this way, healers can establish fixed client bases in the villages they visit.

Excursions may also be carried out with the sole purpose of harvesting wild plants. The preferred locations for plant harvesting were the states of Jammu and Kashmir, Himachal Pradesh and Assam. Harvesting trips generally coincide with springtime and the plants gathered are dried for use throughout the year.

Rajendranath a traditional healer from Rajasthan makes

around five excursions per year, each lasting between four to eight weeks. At least one of these trips will be for the purpose of harvesting wild plants. He does not use snakes to sell his medicinal plants, but has a fixed client base in villages spread across six states, which he tries to visit every year. Patients also contact him by telephone to request treatment.

##### b. Excursions - on the streets with snakes

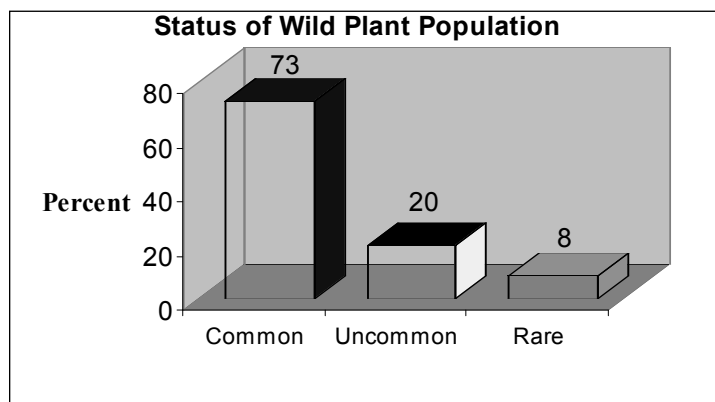
Muhkeshnath a traditional healer from Haryana only sells medicines in association with snake performances. He will use the snakes to attract an audience, then sell prepared treatments. He often gives these treatments for free, and only receives payment if the patient is cured.

##### c. Visits from patients/requests to attend patients

Patients may visit a healer, or request that the healer attend the patient. Clients often remain loyal to a single healer, which reduces competition for custom. Ramdyanath in Haryana was unique among all the healers encountered in that he owned his own clinic. This consisted of a small brick room where patients could visit for treatment. He has owned this clinic for 20 years, and only visits patients in their own home if they are too sick to attend the clinic, in which case the patients' relatives may come to collect him. He also makes one excursion per year to harvest wild plants.

### 3.28 Importance of Snakes to Traditional Medicine

In order to assess how dependent the sale of medicinal plants was on snake performances, the informants were asked whether they kept snakes. It was found that 90 percent of informants do keep snakes, although only 67



**Figure 3.26.1:** Perceptions of informants on the status of wild plant populations.

percent said the snakes were necessary for the sale of medicines. Reasons given for keeping snakes is shown in Figure 3.28 Some healers catch snakes to extract venom for use in medicines. The snakes are later released back in the wild. One informant sells cobra venom to a pansari. The venom from 10 to 12 snakes may fetch as much as Rs. 5000. Other healers keep snakes so that people can make offerings to the snake, or because it is part of their caste identity.

### 3.29 Not all healers have specialists knowledge about traditional medicine

Traditional knowledge in this study is taken to be analogous with Sillitoe's<sup>3</sup> (2002) definition of indigenous knowledge. Snake charmers are regarded as having either a general knowledge of medicinal plants, or specialist knowledge. Those with a general knowledge know only a few simple remedies. After their snake performances, they sell medicines usually prepared by more knowledgeable healers. Between 40-100 percent of snake charmers in a village have a general knowledge of medicinal plants.

Healers with specialist knowledge have a much greater understanding of medicinal plants, their use and preparation. These healers tend to be more dependent on herbal medicine for an income, and within a village only between 5-10 percent of the snake charmers possess this specialist knowledge.

Women in the community have very little knowledge of medicinal plants and are not encouraged to learn. However, if they, or one of their children is sick, they will approach their husband or another healer for a remedy, and in this way gain a limited degree of knowledge.

#### 3.29.1 Knowledge is passed down generations

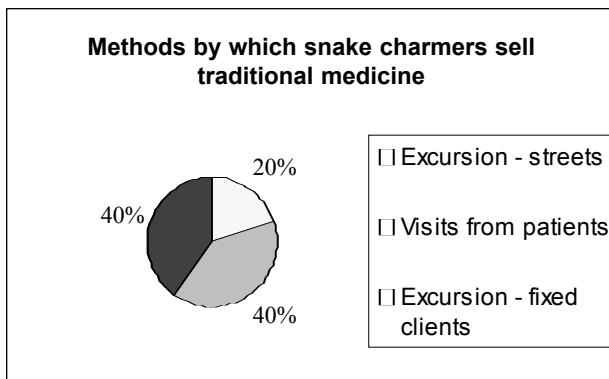
The average age that a healer starts to learn about traditional medicine is 13, although one healer was 25 when he began. Learning is achieved through an apprenticeship with a knowledgeable healer who is considered the boys' guru. The guru is often the boys' father, but may be chosen due to their expert knowledge. The apprentice will learn through observation of the guru as he practices his trade.

**Table 10: Reasons perceived by informants for the status of wild plant populations**

<b>Species with decreasing abundance</b>	
<i>Alternanthera paromychioides</i>	Loss of forest
<i>Butea monosperma</i>	Loss of forest
<i>Convolvulus arvensis</i>	Because it is uprooted as an agricultural weed
<i>Heliotropium sp.</i>	Increase in agriculture
<i>Launaea coromandelica</i>	Loss of forest and high demand
Bhilbel	Loss of forest
Kapas/Narma	Increase in agriculture
Nagdaun	Loss of forest
<b>Species with increasing abundance</b>	
<i>Launaea sp.</i>	Increase in agriculture
Kamalbuti	Increase in agriculture
<b>Uncommon/rare species (due to high demand)</b>	
<i>Coccinea grandis</i>	
<i>Euphorbia antiquorum</i>	
<i>Heliotropium subulatum</i>	
<i>Suaeda maritima</i>	
Chitah Jeri	
Jata Joot	

<sup>3</sup>Indigenous knowledge...may relate to any knowledge held more or less collectively by a population, informing understanding of the world... It is community based, embedded in and conditioned by local tradition... No one person, authority or social group knows it all. It exists nowhere as a totality...it is transmitted orally and through experience..."





**Figure 3.27: Methods by which snake charmers sell traditional medicine**

When asked why they decided to train as a traditional healer, 57 percent of informants said it was because that was the traditional occupation of the snake charmers. The remainder (43%) said it was because they had an interest in medicinal plants and healing.

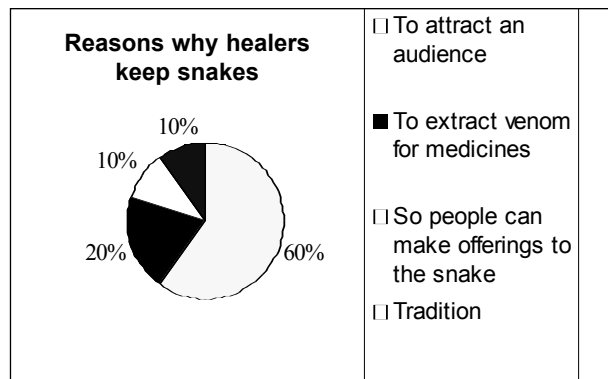
### 3.29.2 Exchange of Knowledge

If a healer does not know the remedy for a particular illness he will ask another healer. Several of the informants also had photocopies of treatment recipes from Ayurvedic texts and many of the plants used are known in Ayurvedic medicine. However, some healers may be very secretive of their treatments, so different treatments can be found for the same illness.

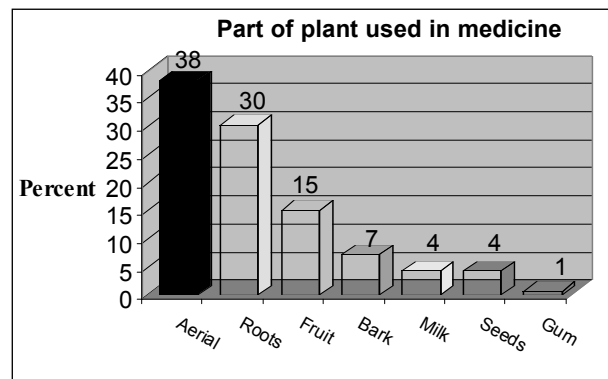
### 3.29.3 Continuity of Knowledge

All of the healers interviewed said they would continue with this occupation, although 80 percent of informants said they were continuing because they had no alternative. Many informants stated they were becoming more dependent on other sources of income such as a *been* party and breeding of horses, as they provided a higher income.

The general pessimism regarding the prospects of traditional healing as an occupation is reflected in the number of snake charmers practicing the trade. Almost 84 percent of informants agreed that the number of traditional medicinal practitioners had gone down in the past few years. None thought that the number had increased. The following reasons were given for this



**Figure 3.28: Reasons why healers keep snakes**



**Figure 3.30: Parts of plants used for preparing medicines**

decline:

- Due to the ban on snake charming we cannot keep snakes in captivity, which is necessary for the selling of medicines.
- An increase in the availability of Western medicines has caused a decline in the demand for and the faith in traditional medicine.
- The loss of forest has reduced the availability of wild medicinal plants.
- The ban on harvesting wild plants from forest areas has made plant collection more difficult.

Despite these feelings, 60 percent of informants have taught other healers, and of those who have not taught

**There is a high level of traditional knowledge regarding medicinal plants and healing practices, and levels of knowledge are similar in each state studied.**



**A healer with his medicines**

In Uttar Pradesh, it used to be common for healers to experiment with plants to find new treatments. With the decline in this occupation, experimentation is now rare. One young healer explained how he had discovered a new treatment for ear ailments using *Ailanthus excelsa* (Arru):

*"I needed a cure to treat watery discharge from the ears and deafness. I came across this plant and thought I would try it out. I took the leaves and heated them in mustard oil and camphor, then strained the oil with a fine cloth. I tested the oil on myself, placing 1 to 2 drops in the ears for 10 days. It worked. So now I use it to treat my patients. I call the plant 'Government Plant' as the Government planted it here. I have not told any other healers of this cure."*

anyone else, 50 percent said they would like to, given the opportunity. This demonstrates a willingness to pass on this knowledge to future generations. On being asked about the future of their profession, the reactions were mixed. Some healers thought demand would increase due to the efficacy of their remedies, while others predicted a continued decline as the younger generations were attending school and did not have the time to learn traditional medicine, or were opting for occupations which brought in higher income.

#### **To sum up this section :**

- 1.** There is a high level of traditional knowledge regarding medicinal plants and healing practices, and levels of knowledge are similar in each state studied. Most snake charmers have a general knowledge of traditional medicine, and only a few healers in each village have a specialist knowledge.
- 2.** None of the plants identified are rare or threatened, and many are common or weed species. Healers estimate that 73 percent of plants used are common. Decreasing populations are blamed on the increase in agriculture and loss of forest, and only two species are rare as the result of over harvesting. However, 30 percent of plants used are uprooted, which could potentially have a long-term negative impact on populations.
- 3.** Snakebite treatments were among the most frequently mentioned ailments, with any one healer treating up to 50 patients per year. The role of the plant based medicines administered in the case of a victim who has been bitten by a venomous snake is limited. The role of the traditional healer in such a case could lie in an important psychological support that it may give to a victim

especially in areas where anti-venom is not available. However the plant product cannot actually confront any venom in the blood and neutralise any of its components. The importance of plant treatments may, therefore, be in their placebo effect rather than any anti-venom qualities.

**4.** For the treatment of common ailments such as a stomach ache, skin diseases etc there does appear to be a medical basis for the use, as 41 out of the 58 plant species identified have medicinal properties. It is likely that snake charmers make an important contribution to primary healthcare, especially in rural areas.

**5.** The number of traditional healers has declined, and only two thirds of healers have passed on their knowledge to the next generation. An increase in school attendance is partly responsible for this decline, as well as a move towards higher income occupations. However, interest for the profession is still very high in the younger generation of healers interviewed.

**6.** On average 53.8 percent of household income was from traditional medicine and snake performances. There is an increasing dependence on other occupations such as been parties and horse breeding.

This study has shown that traditional medicine is a significant aspect of the culture and livelihoods of snake charmer communities. To date, they have been considered solely as snake charmers, but traditional medicine is often as important as snakes to the community, and the two professions are often inseparable. We suggest that for future research a more detailed investigation be carried out of their traditional knowledge systems and of the efficacy of some of the treatments used.

#### **Informant opinions of traditional healing:**

"One in a hundred people will curse me, but the rest will bless me for treating them."

"I enjoy the profession as I gain respect from my patients."

"I continue in this profession because otherwise I would be breaking a promise to my ancestors."

"I continue practicing traditional medicine as I have no other option."

## CHAPTER 4

# ANALYSIS OF RESULTS OF THE MULTI-DISCIPLINARY SURVEY



Vikram Hoshing

Snakes are kept in *topris* with a cloth lining to prevent injuries to the snake

### 4.0 Summary of results

The results of the previous sections can be summarised as follows:

1. Nearly 73 percent of the snake charmers in the age group of 18-35 are still dependent on snakes to earn a living.
2. Average income from snake charming is Rs. 75 a day, which is more than the minimum wage rate in most states. For instance, the minimum wage rate in Haryana is between Rs. 51 and Rs 55. Snake charming, then, despite all restrictions is still quite economically viable.
3. Education levels were high when compared with the previous generation. However, the figures only denote the number of children enrolled in school and do not indicate how many were regularly going to school. This was important as the schoolteachers confirmed that the attendance of the children from the Jogi-Nath community was quite poor.
4. Traditional knowledge level was measured with two indicators. One was the ability to play traditional instruments, mainly the *been*, and the second was their ability to catch snakes. We found that only 54 percent of those who were still practising snake charming knew how to play the *been*. This indicates that the value of the *been*, which is strongly associated with the profession, has gone down and a large percentage of those who practise snake charming are not using the instrument anymore. In the case of the second indicator, 82 percent of those who were practising snake charming were able to catch snakes with confidence.
5. About 75 percent of the people interviewed admitted that the ban on snake charming had led to a fall in their income levels, 20 percent no longer went to big cities for fear of being caught and 5 percent said the ban had not impacted them at all.
6. Snake charmers prepare their own herbal medicines and as many as 110 species of plants were mentioned. None of the plants mentioned are rare or threatened and most

**Nearly 73 percent of the snake charmers in the age group of 18-35 are still dependent on snakes to earn a living.**

To sum up this section, conservation laws governing the use of wildlife often have impacts beyond those related specifically to those control measures. This is exactly what has happened to the snake charmers today. The ramifications of the control measures are many, though they may not necessarily be reflected in the number of people practising snake charming. The consequences can be in terms of the psychological impact on community members, the sense of embarrassment they feel about their profession and the increased effort in finding a place to practise their occupation. Further, as many as 75 percent of the snake charmers interviewed admitted a fall in income levels since the introduction of the ban.

were common weed species. The medicines are used for treating a range of ailments such as stomach or ear aches and skin diseases. (See Appendix IV)

**7.** Snakebite treatments were among the most frequently mentioned ailments, with any one healer treating up to 50 patients per year. The role of the plant based medicines administered in the case of a victim who has been bitten by a venomous snake is limited. The role of the traditional healer in such a case should be treated with caution as it is limited to the psychological support that it may give to a victim especially in areas where anti-venom is not available. However the plant product cannot actually confront any venom in the blood and neutralise any of its components. The importance of plant treatments may, therefore, be in their placebo effect rather than any anti-venom qualities. Snake charmers, therefore, have a role to play in treating snakebite victims but it is very limited.

**8.** On an average seven snakes per year were caught by one snake charmer. Eight species of snakes were kept in captivity of which the maximum number were Common cobras followed by Rat snakes. Two rare species were also found, namely the Royal snake and the Python, but these were observed only in 2 percent of the households sampled.

**9.** Across all species, the general trend was that the body condition was predominantly weak for snakes that had spent more than one month in captivity.

**10.** The snakes used for performances were generally released back in the forest after six months. However, as the body condition of the snakes was poor, their ability to survive in the forest was questionable.

**11.** The venom apparatus of cobras and King cobras was damaged or removed in snakes used in performances. The teeth of the non-venomous snakes were kept intact.

**12.** A small percentage of snakes (especially in the case of the pythons and the King cobra) were observed to be healthy and good husbandry practises were being followed.

**13.** Snake charmers were often called by local farmers to remove snakes from agricultural fields or human habitation. The snake charmers thus provide, a valuable service to people from nearby villages. They could potentially also provide a valuable ecological role by releasing captive snakes in the forest. However, the reptiles rescued from agricultural fields or human habitations were kept in captivity and used for performances.

#### 4.1 Discussion

Having summarised the results, we shall now analyse some of the questions raised in the beginning of the study:

##### 4.1.1 Has the ban on snake charming led to a loss in livelihoods of the community?

The results of the previous section have shown that 73 percent of the snake charmers in the younger generation are still following their traditional occupation. Despite the ban, a substantial proportion of the Jogi-Nath population is still dependent on a wildlife resource, namely snakes, for their livelihood. Of the Jogi-Naths who were not practising snake charming, 37 percent admitted fear of being caught or "embarrassment" as the reason for not practising snake charming. Thus, while a small percentage has been impacted by the law, others continue to practise snake charming as they know no other skill, or the average income is still enough from snake charming to override the risk of being caught.

We also found a diversification in their livelihood sources as a strategy employed by the community at times of hardships. Snake charmers today are engaged in different occupations through the year to supplement their income. These include occupations such as the been party, sale of herbal medicines, shop-keeping and sale of semi-precious stones.

Perhaps, the most significant impact has been a decline in household income. Although it was difficult to estimate in exact monetary terms the extent of this fall, there are definite indicators. A greater effort in terms of time and



Rachel Kaletta

**A healer collecting plants for medicinal use**

energy is spent in going to smaller places, away from the watchful eye of the police or the Forest Department to put up performances. Visits to the cities, which yielded more money in performances, have stopped. Further, a fear psychosis has gripped the community and snake charmers today feel ashamed of admitting their profession. Thus, a sense of pride has been replaced today by a sense of guilt for following their traditional occupation.

During our stay with the snake charmers in different villages across India we also made other observations. We observed that many Jogi-Naths have started selling snakes to other communities such as the Kalandars or the Badhiyas who now masquerade as snake charmers and roam the street (pers comm. Hawa Singh Nath). Thus, communities who were earlier not involved in snake charming, display snakes on streets to earn a living.

#### 4.1.2 Are reptile species endangered by snake charming?

Unfortunately, very little is known about the status of any species of reptiles in India but some references indicate that certain species are declining and are threatened as a direct result of the skin trade which was flourishing in India before the introduction of the Wildlife (Protection) Act (Tyagi and Sharma 1980). Whitaker (1978) mentions several species of snakes that have been affected by trade. The Indian Python is now locally extinct in many areas. The Indian Sand boa has been extensively killed for its skin. The Checkered keelback, considered one of the most abundant species, has become locally extinct because of intensive all-season collections. In the case of the Rat snake, entire populations have been wiped out in some localities where they were earlier abundant. The Common cobra, too, was hunted and killed throughout most of their range. The legal export of reptile skins virtually ceased in 1976 and no licenses for the killing of reptiles have been issued since then (Inskipp, 1981). India does not record the export of any CITES-listed reptile skins or products in its annual reports, but the CITES trade figures of other countries indicate that large-scale illegal exports continue. If we compare the list of species in the reptile skin trade with the ones used by the snake charmers, we find that two species in common are the Rat snake and the cobra. Again, if we compare the numbers used in trade and those used by the Jogi-Naths, we find a substantial difference. Snake skins trade data shows that at one point tanneries in Chennai would handle up to 9000 snake skins per day

- No scientific studies have been done so far to show how use by snake charmers is affecting the survival of these species in the wild and this needs further verification.

- Species such as the Indian python and the King cobra, which have been affected by rapid destruction of habitats, are more vulnerable. Therefore, any use, however small scale, by the community could affect the population and long-term survival of these two species.



**A Royal snake observed in captivity**

(Inskipp, 1980). Our data from the snake charmers has shown that on an average seven to eight snakes are used by one snake charmer in a year. Assuming the number of people engaged in snake charming to be 60,000, the total number of snakes used in one day is 1150. This figure is only 13% of the number of snakes harvested for trade by one tannery when snakeskin trade was legal. While the number is far lower, in the absence of baseline data on total number of snakes in the wild it is difficult to estimate if the use of snakes by snake charmers is sustainable or not. Further a number of other factors such as the rampant trade and destruction of vital habitats may have further impacted snake populations making it difficult to estimate just the impact of snake charming on snake populations.

What is of further concern, however, is the poor condition of the snakes kept in captivity by the snake charmers. The procedures of capturing, handling and removal of the venom apparatus are cruel, and lead to stress and disease for the captive snake. While conducting this study we have seen a number of snakes that were in poor body condition, or had an infection in the mouth, due to bad handling.

From the animal welfare perspective, then, snakes were treated quite badly. The use of snakes by snake charmers is uncontrolled and exploitative. On the positive side, we did come across snake charmers who look after their snakes well, but the cases were few. Snakes were perceived as a resource, which is easily replaceable, perhaps explaining why they were not looked after well in captivity.

#### 4.1.3 What is the future of snake charming as an occupation in India?

In a country where unemployment rates are high, the snake charmers are able to provide a service in which there is little competition. This indicated that access to education does not necessarily lead to salaried employment or shift from their caste-based occupation. The Jogi-Naths have over generations been able to create their own niche in village life: one of catching snakes and then of entertaining audiences with these snakes.

The challenge lies in being able to save the traditions of this occupation without compromising on the welfare needs of the individual snakes and the species as a whole. In the final chapter we give some suggestions on how the balance can be maintained.

## CHAPTER 5

# COMMUNITY INITIATIVES

This project was aimed at not just conducting research but also responding to the immediate needs of the Jogi-Naths. In this section we glance at some of the projects initiated with the Jogi-Naths to address their livelihood needs. Given the size of the population, the efforts are small. We are hopeful that even if on a small scale they are able to demonstrate the range of skills of the Jogi-Naths, from their inimitable music to their knowledge of snakes.

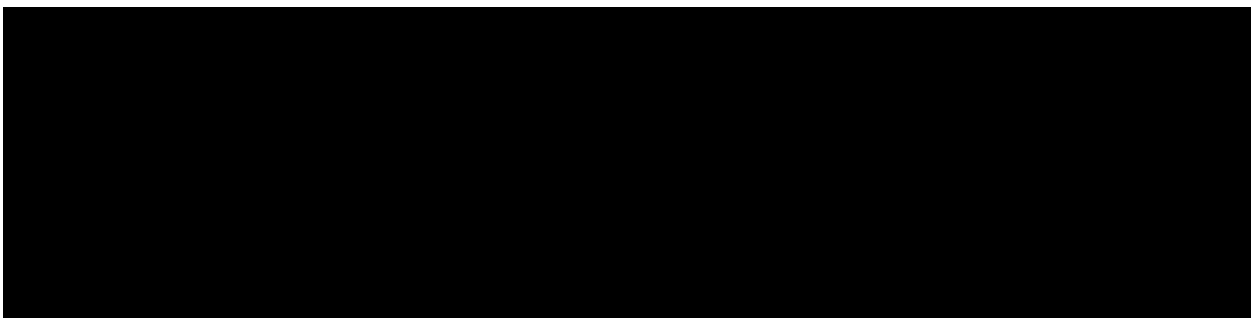
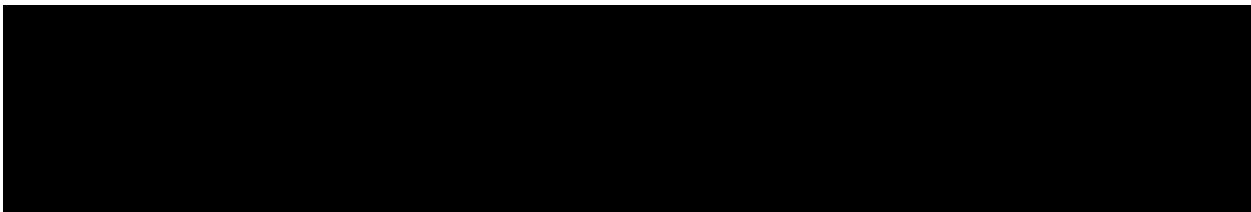


A Been Party performance at Dilli Haat, New Delhi

Vikram Hoshing



**A The bottle gourd fruit from which musical instruments like the 'been' and the 'tumba' are made**





Vikram Hoshing

## 5.4 MICRO-CREDIT AND NEW LIVELIHOODS

In the year 2003-2004, 17 Jogi-Nath families, with the assistance of the Delhi government, were given loans of Rs. 50,000 each to start small-scale businesses. The funds were invested for starting their own *been* party, fully equipped with drums, horses and a carriage, to play at weddings. Others have taken the loan to start their own grocery or electrical repair shops.

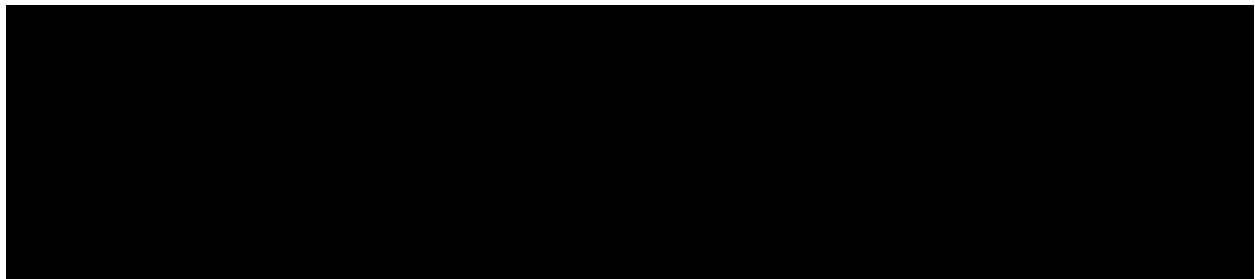
Regional variations of the '*Been Party*'. At Punjabi weddings, the '*Bhangra Party*' is popular



Snake charmers in Rajasthan and Haryana are called by farmers to remove cobras from agricultural fields



Vikram Hoshing

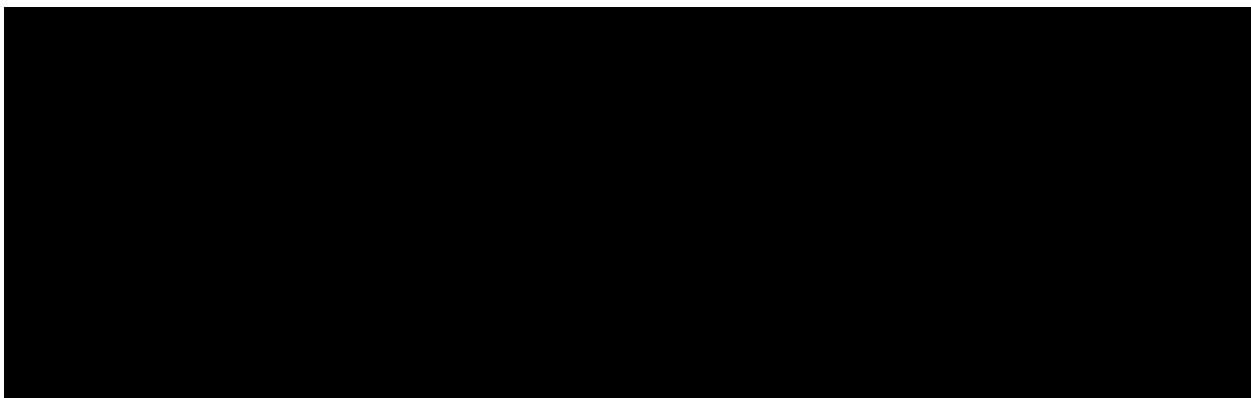
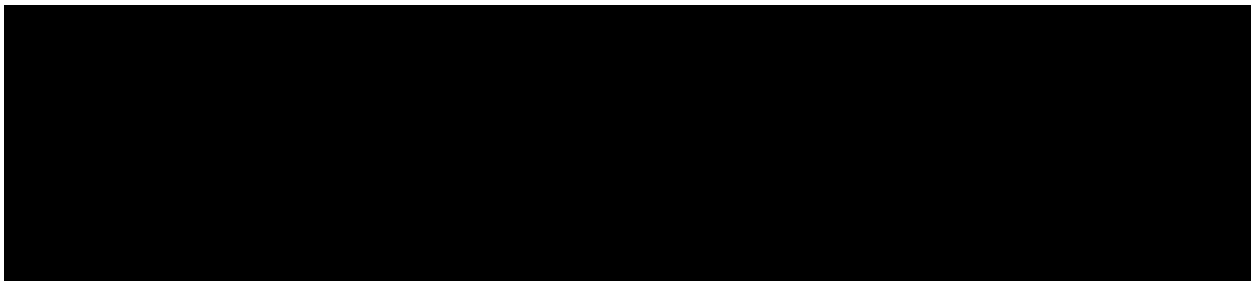






The author in a meeting with members of the Sapera Samaj at Charkhi Dadri, Haryana

*Vikram Hoshing*



## CHAPTER 6

# KEY RECOMMENDATIONS

**In a country, where unemployment rates are high snake charmers have carved their own niche in the employment sector. This niche is of relevance, especially in an agricultural economy where pressure on land is tremendous.**

The main results of this report have shown that snake charming, despite introduction of regulatory conservation laws, is thriving. The reasons for this are cultural, social and economic. Firstly, snake charmers fulfil a role in rural areas as traditional healers, treating snakebites as well as common ailments. While the efficacy of many of the treatments need further investigation we found many healers having established clientele across states which indicate their popularity. In a country where access to primary health care facilities is minimal, snake charmers are providing informal health services to a large section of the rural population. Second, snake charmers are still able to earn a reasonable amount of money from snake charming. In a country, where unemployment rates are high and thousands of educated persons compete for jobs, snake charmers have carved their own niche in the employment sector. This niche is of relevance, especially in an agricultural economy where pressure on land is tremendous.

From the point of view of conservation, the use, on an average, of six to seven snakes in a year by the snake charmers *per se* may not necessarily be detrimental to the overall survival of the species when compared to the number of snakes killed for the snakeskin trade which was around 9000 snakes per day as mentioned before. The status of snake species in the wild needs to be investigated further and requires more detailed research, which is expensive to undertake and also difficult to do in the case of cryptic reptiles like snakes.

Assessing the biological status of snake species can take many years. But the dilemma before us needs to be addressed immediately. On the one hand is the dependence of over 2-300,000 Jogi-Naths on this traditional occupation, on the



Vikram Hoshing

Shifting sand dunes of Rajasthan

other is the welfare and conservation needs of snake species used by them.

### 6.1 So is this a win-lose situation for biodiversity conservation vs. livelihoods?

In the past year we have had discussions with experts, human rights activists, scientists and herpetologists to come up with a way out of this dilemma. Can conservation and animal welfare needs be reconciled with the livelihood needs of a large population that knows no other skill? In Table 11 we have tried to present the various options suggested to solve this complex problem. We also weighed the pros and cons of each suggestion given. Examining the options stated, we find that one way or the other there is a compromise either on the livelihood needs of the community or on the welfare/conservation needs of snakes. Even the suggestions which came from the community were extreme.

If we examine the option of issuing permits so that the snake charmers can continue with their traditional occupation, there are two lobbies strongly opposed to this. One, the animal welfare activists who have rightly pointed out that the snakes are treated badly and the procedure for removal of the venom apparatus (especially since venomous snakes are favoured by the snake charmers) is extremely cruel and inhumane. Second, are the wildlife conservationists who are opposed to the issuing of permits for snake charming. The fear is that issuing permits would open the floodgates for uncontrolled exploitation of snakes for the illegal snakeskin industry. Thus snakes would be collected from the wild in the name of snake charming and be supplied to the illegal wildlife trade.

Further, not just the Jogi-Naths, but many other communities are engaged in snake charming and this could lead to unsustainable exploitation of snake populations given the sheer numbers of such communities.

### 6.2 A balanced approach: Using traditional skills for conservation

While there is weight in the reasons put forward against issuing of licenses, other creative means must be sought

for addressing the livelihood needs of the Jogi-Naths. While weighing the pros and cons of the options stated above, we analysed what a balanced approach should contain:

- Use the skills of the snake charmers as 'Bare Foot Conservation Educators'.
- Use the skills of the community to protect snakes that may potentially be killed due to conflict with human beings.
- Use their skills as traditional healers, especially in rural areas where access to health facilities is not easy and people have more faith in indigenous methods of treatment after validation of their treatments through further research and registration with Ayurvedic colleges or government bodies dealing with traditional medicine systems

Keeping these points in mind, we advocate the setting up of an institutional framework that would help balance the livelihood and conservation needs.

The role of the *Sapera* Centre could be the following:

- Venom collection and immediate release of snakes back in the wild.
- Treatment for persons suffering from snakebites through administration of anti-venom injections.
- Sale of herbal medicines made by snake charmers to treat different ailments after registration and verification with Ayurvedic colleges or government bodies dealing with traditional medicine systems
- Education classes conducted by snake charmers for the general public on how to distinguish between a venomous and non-venomous snake.
- Rescue of snakes from agricultural fields or human habitation and release in the wild for a small fee.

There is scope for starting *Sapera* Centres in areas inhabited by the snake charmers. These centres could function as establishments for promoting related

**Setting up of 'Sapera Centres' in northern India as an institutional framework would address the livelihood needs of the snake charmers while ensuring regular monitoring of their work.**



Vikram Hoshing

Cobras trapped by the Jogi-Naths

livelihood practices like dairy farming, cultivation of medicinal plants and been parties. They could also act as information centres where information on snakes can be imparted to children through lecture demonstrations by the snake charmers. It was observed that snake charmers possess alternative skills like jute bag making and horse breeding. These skills could be tapped as well. Their skills as traditional healers could also be promoted as an occupation after further validation of their treatments.

The *Sapera* Centre could help the state earn revenue while imparting a public service role and providing employment to thousands of snake charmers who, today, face possible extinction of their profession and skills which are exclusive to their caste. The extraction of venom from snakes can be sustainable and is not new to India. There is already a cooperative in South India which is run by a traditional snake catching community called the Irulas and the project has demonstrated that application of tribal knowledge to generate income from wild animal sources is possible (Whitaker, 1995).

The government departments that would be involved would be the primary health care services in collaboration with the Forest Department and a non-governmental organisation that could play the role of facilitator in helping the Jogi-Naths form cooperatives and getting them registered.

### 6.3 Recommendations to policy makers

Since the introduction of the Wildlife (Protection) Act in 1972, several policy documents and initiatives have been introduced by the Ministry of Environment and Forests which recognise the problem of strict implementation of conservation laws. The National Conservation Strategy and Policy Statement on Environment and Development (1992) and the Wildlife Conservation Strategy (2002) of the Ministry of Environment and Forests have all emphasised the need to address the livelihood needs of local communities and use of their skills for conservation. These policy documents further stress the need to educate people and spread awareness about biodiversity and the need to protect it.

Further, in 2002, the National Forest Commission was set up with the specific tasks to "review and assess existing policy and legal framework and their impact in a holistic manner, from the ecological, economic, social and cultural viewpoint." And "to establish meaningful partnership and interface between forestry management and local communities including tribals." Keeping these policy initiatives of the Government of India in mind, we strongly recommend the following:

- A detailed investigation must be carried out by the National Forest Commission on the impact of regulatory conservation laws on certain traditional communities across India to examine the extent of their dependence on wild animals and livelihood options available to them.
- Setting up of institutions such as the *Sapera* Centre which recognises their traditional skills and maintains a balance between conservation and livelihoods.
- Use the skills of the Jogi-Naths for educating people in rural and urban areas about snakes, their ecological role



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**A red spotted royal snake in captivity**

and the difference between venomous and non-venomous snake. This role is already being performed by students, NGO activists and amateur herpetologists in the cities of Bangalore (Karnataka), Pune (Maharashtra), Delhi, Rajkot (Gujarat) for which snake charmers could be easily trained. Formal training can be imparted with the assistance of NGOs. Registration of the snake charmers should be undertaken as 'Barefoot Conservation Educators'. The registration can be undertaken with existing government agencies such as the Animal Welfare Board of India and the Central Zoo Authority.

- Recruitment of the Jogi-Naths in the State Forest Department with the specific task of rescuing snakes from human habitations and releasing them in the forest.

**It would be easy to just let the ancient tradition of snake-charming come to an end. On the other hand a lot can be done to save the traditional skills of this community, caught between their past and modern conservation laws. Employment of snake charmers as 'Barefoot Conservation Educators' would not only protect their culture and identity, but also assist in the protection of thousands of snakes that are killed by ignorant people. The need of the hour is to address the livelihood needs of the snake charmers in a phased manner with the requisite infrastructure and adoption of innovative methods.**

**Table 11: OPTIONS AVAILABLE TO SNAKE CHARMERS**

S No	Options	Pros	Cons
1	<b>Increase enforcement</b> so that snake charming is forcefully banned.	Would lead to complete end to snake charming and use of snakes by the Jogi-Naths.	<b>Easier said than done.</b> Does not address employment issues. Would mean a loss of a culture and associated skills of a people who have the unique ability to handle snakes.
2	<b>Regulate use of select species of snakes through licenses</b> and close monitoring. If a snake dies before, due to bad management practise, then the license can be cancelled.	Would allow snake charmers to continue in their traditional occupation.	Still means that <b>snakes are defanged and kept badly</b> if inspections are not monitored closely. Monitoring too would not be easy.
3	<b>Intensive education</b> and employment opportunities so that they do not turn to snake charming.	A long-term intervention which also addresses the development needs of the community.	<b>Does not address the immediate income needs of thousands of families.</b>
4	<b>Breed snakes</b> in captivity for use by snake charmers.	Would allow them to continue in their traditional occupation.	Difficult to monitor if snakes have been caught from the wild or bred in captivity. <b>Does not address animal welfare concerns.</b>
5	<b>Use the skills of the snake charmers for conservation education and protection of snake species.</b>	Balanced approach which addresses conservation needs and livelihood requirements through the traditional skills of the community.	Requires commitment from government agencies and strict monitoring and enforcement.

# APPENDIX I

## QUESTIONS FOR TRADITIONAL HEALERS

### A. Socio-Economics

1. Name of village/ district/town \_\_\_\_\_
2. Name of informant \_\_\_\_\_
3. Educational and occupational details \_\_\_\_\_

4. Proportion of contribution of each occupation (use stones/pie chart)
  - a. Informants' incomes
  - b. Household incomes
5. What is your average income from healing (per day/ week)?
6. Are there seasonal variations in income?
7. Who do you sell the medicines to, and proportion of each?
  - Other snake charmers
  - Audiences
  - Private customers
  - Shops
  - Trader/ pansaris
4. How much does it cost?
5. How often do you purchase it?
6. How much do you purchase?
7. How constant is the supply/ seasonality/ why?
8. If collected: Where are the collections made?
  - H- Homestead
  - V- Village commons
  - P - Private land
  - A - Agricultural land
  - F- Forest (definition?)
9. What is the location of the collections? Is it a protected area?
10. Who makes the collections?
11. Which season/ months is the plant harvested?
12. What harvesting methods are used? Why?
13. What is the source of the plant out of season?
14. What are the past/ future population trends?

### B. Plants

1. Please freelist the plants used by you and for what purpose.
2. Why is this plant used?
3. What part of the plant is used?
4. What stage in life cycle of the plant is used?
5. What is the final product/medicine?
6. Preparation of medicine (quantities, process and other ingredients).
7. What is the purpose of the medicine?
8. Treatment details:
  - a. Cost of medicine
  - b. Frequency of use/Duration of use
9. Frequency of use of plant (when was last use of plant).
10. Frequency of demand for treatment (when was last treatment).
11. Can any other plants be substituted for this plant?

### C. Ranking

#### Rank the plants in order of:

1. Frequency of use.
2. Income from treatment.
3. Ease of availability - what are criteria? (cost, seasonality, abundance).

### D. Source of Plants

1. Please state the source of each plant:
  - Collected
  - Purchased

#### If purchased:

2. Where do you purchase it?
3. From whom do you purchase it?

### E. Knowledge

1. How long have you been a healer?
2. How did you learn?
3. Why did you become a healer?
4. What are the advantages/ disadvantages of being a healer?
5. Will you pass on your knowledge to anyone?
6. Why this person?
7. How long do you think you will continue to be a healer? Why?
8. Are there more/ less/ the same, number of healers than in the past? Why?
9. What do you think will happen to the number of healers in the future? Why?
10. What are the past trends in demand for healing?
11. Do healers share/ trade information on treatments? Who, how, how often?

### F. Surma

1. Do you make *Surma*?
2. What it is? How would you define it?
3. What ingredients do you use? Do you use venom?
4. Are there any associated myths/ practices to do with the preparation/ use?
5. What do you use it for?
6. Was the treatment successful?
7. How much do you sell it for?

## APPENDIX II

# QUESTIONNAIRE FOR HERPETOLOGICAL INFORMATION

1. Name of respondent \_\_\_\_\_

2. Name of village/ district \_\_\_\_\_

3. Time-line of captive snake \_\_\_\_\_

Species	Number	Time of trapping (month/ year)	When will it be released and where	Area for trapping*

**Code as follows:**

A-Agricultural field

F-Forest (check how they define the word forest)

W-Wasteland/ village commons

S-Someone's house

P- If purchased then specify from whom

U-urban area

**(Questions related to husbandry practises)**

4. Who feeds the snake?

- a. Snake charmer
- b. His wife
- c. Children
- d. Any others

5. How often is the snake fed?

- a. Once a week
- b. Once a day
- c. Any others

6. Do you know how to remove the fangs?

- a. Yes
- b. No (If no please state who removes the fangs)

7. How would you describe the general condition of the snake?

- a. Weak
- b. Healthy

Some observations on general condition

8. Has the snake been defanged?

Species	Yes /no

9. Does the snake have any infections in the mouth due to the defanging?

If yes, please give details of condition

10. For how long in a day does the snake spend time out of the basket

11. Please rank your preferences for a snake species on a scale of 1-5

Species	Rank	Reasons

## APPENDIX III

# SOCIO-ECONOMIC SURVEY WITH SNAKE CHARMERS

1. Name of village/ district/town \_\_\_\_\_
2. Name of informant \_\_\_\_\_
3. Educational and occupational details \_\_\_\_\_

### DETAILS OF FAMILY MEMBERS (Note even children may be working)

Name	Age	Rel. to Informant	Sex	Education	Occupation/s	Comments

4. What is your main occupation (by main we mean practiced for more than 6 months a year)?

- a. Snake charming
- b. Daily wage work
- c. Agriculture
- d. Private job
- e. Government service
- f. Any others : please specify
- g. Been party
- h. Unemployed

5. Average income from main occupation? How much have you earned today?

Occupation	Daily Income

6. If not practicing snake charming and given the option, would you go back to it?

- a. Yes
- b. No

7. Any other livelihoods you engage in for some time of the year like been party or harvest work?

Occupation	Month	Daily Income

8. Do you know how to play the been?

9. Do you know how to catch a snake?

- a. Yes very confident
- b. No cannot catch a snake
- c. Can manage with the help of other snake charmers

10. When was the last time you caught a snake?



- 11. If not practicing snake charming, what are your reasons for not following your traditional occupation?**
- You got caught by the police
  - You never learnt the been or the tricks of the trade
  - You feel embarrassed
  - You are scared of getting caught/ it has been declared illegal
  - Any others (please specify)
- 12. What occupation was/ is your father involved in ?**
- Snake charming
  - Daily wage
  - Agriculture
  - Private job
  - Government service
  - Any others: please specify
  - Been party
- 13. In your opinion has snake charming as an occupation declined? If yes why?**
- Strict laws
  - Other forms of entertainment
  - Any other reason
- 14. If practicing snake charming, are there any months when you cannot practice snake charming or earnings are less?**
- 15. Do you own any land for agriculture?**
- 16. If practicing snake charming would you like to continue in this? If yes why?**
- I don't know anything else
  - It is part of our caste identity
  - I like my job
- 17. If no what would you like to move on to?**
- Agriculture
  - My own business or shop
  - Service
  - Been party
  - Any others, please specify
- 18. Why do you think snake charming has been banned?**
- Species are dwindling
  - It is not banned, the police just harass us to make money
  - Animal activists have told the Forest Department to arrest us
- 19. Have you ever been arrested or harassed by the police? If yes:**
- I was asked to pay a bribe
  - I was jailed
  - My snakes were seized
- 20. What has been the impact of the ban on snake charming on your occupation?**
- No impact
  - I don't go to big cities
  - Fall in income

## APPENDIX IV

# INVENTORY OF MEDICINAL PLANTS SEEN WITH SNAKE CHARMERS AND THEIR USES

### List of identified Plants

Latin Name, Family, Local Name	State	Part Used	Use	Literature Review
<i>Abrus precatorius</i> L. Leguminosae Chirmi / Rati	R, UP	R, SD	CF, A, AP	CF, UP, M, AP, PR, A
<i>Acacia leucophloea</i> (Roxb.) Willd. Acaciaceae Kikar	R	B, G	BN, P, FSD, BC, AP	CF, GP
<i>Acacia</i> sp. Acaciaceae Kikar	UP	FR	MSD, PG, L	CF, GP, UP, BN, SA
<i>Achyranthes aspera</i> L. Amaranthaceae Barchita	H	R	L, MSD	UP, EP, GP,
<i>Adhatoda vasica</i> (L.) Nees Acanthaceae Arusha	H	L, FL	EA	CF, GP, G, SA, AA
<i>Ailanthus excelsa</i> Roxb. Simaroubaceae Arru	UP	L	EA	GP, AA, CF
<i>Alternanthera paromychioides</i> Amaranthaceae Nevlabuti	H	A	UP	
<i>Anagallis arvensis</i> L. Primulaceae Chitrapath	R	A, R	SA, BC, M, J	S, M
<i>Argemone mexicana</i> L. Papaveraceae Kandai	H	A	EA	SA, EP
<i>Azadirachta indica</i> A.Juss. Meliaceae Neem / Neemkee	H, R, UP	B, L	SB, EA, AP, W, SA, CF	SA, GP, TG, W, CF, UP, W, G, FSD, MSD
<i>Baliospermum</i> sp. Euphorbiaceae Daiyad	UP	M, ST	TG	
<i>Boerhavia repens</i> var. <i>diffusa</i> L. Nyctaginaceae Nirvani / Santabuti	R, UP	A, R	SB, GP, D, SA	GP, UP, BC
<i>Bombax insigne</i> Wall. Bombacaceae Semul	UP	B	SA	UP, CF
<i>Butea monosperma</i> (Lam.) Taubert Leguminosae Dhak	H	R	TG	PL, MP, GP, FSD, MSD, D
<i>Calotropis gigantea</i> (L.) W.T.Aiton Asclepiadaceae Ak (green)	R, UP	A, FL, FR, M	AP, SB, BR, SS, VT	GP, SA, CF, W, AA, P
<i>Calotropis</i> sp. Asclepiadaceae Aarkh (white)	R		AA	GP, SA, CF, W, AA, P

<i>Capparis decidua</i> (Forssk.) Edgew. Capparidaceae Kairbuti	H, R	R, ST	AP	GP, BC, AA, CF
<i>Cassia fistula</i> L. Caesulpinaceae Gulakdi	R, UP	FR	CF, MP	
<i>Chenopodium murale</i> L. Chenopodiaceae Akarbathua	R	SD	AP	GP, CF, SA
<i>Cissampelos pareira</i> L. Menispermaceae Banchuri / Jaljannibuti / Nirbashi	H, UP	A	EA, EP, W, MSD, S	UP, M, GP
<i>Citrullus colocynthis</i> (L.) Schrad Cucurbitaceae Kaurtumba	R, UP	FR, R	GP, FSD, SA, AP, SB	J, AP, UP, AA, CF, GP, G
<i>Coccinea grandis</i> (L.) Voigt Cucurbitaceae Kakodabuti	H	R	SA, CF, TG, AP	
<i>Cocculus villosus</i> DC. Menispermaceae Kalipahad	H, UP	A, R	SB, SA, MSD, GP, G	SA, GP, AP
<i>Convolvulus arvensis</i> Convolvulaceae Arnabuti	R	A, R	AA, CF, S, FSD, WH	
<i>Cuscuta</i> sp. Cuscutaceae Armarbel	H, R	A	AP, SB, SA, EA, FSD, UP	L, GP, SA, MSD, AP
<i>Diospyros montana</i> Roxb. Ebenaceae Bistendu / Kendu	H, UP	A, FR	GP, TG, CF, AP	SA
<i>Euphorbia antiquorum</i> L. Euphorbiaceae Thor	H	M	TG	GP, M, SA, W
<i>Euphorbia hirta</i> L. Euphorbiaceae Dudhi	H	L, FL	GP	CF, GP, UP, SA
<i>Ficus benghalensis</i> L. Moraceae Bud	H		MSD, AP	AP, GP
<i>Ficus elastica</i> Roxb. Ex Hornem. Moraceae Patharchat	H	L	SA	
<i>Ficus</i> Sp. Moraceae Bar / Kakra Patta	R, UP	L, M	S, CF	SA, GP, AP, UP, BC, L, PL, CF, AA, TG, W, BR, FSD, MSD
<i>Heliotropium curassavicum</i> L. Boraginaceae Mukkanbuti	R	L	PL	SA, W
<i>Heliotropium</i> sp. Boraginaceae Bichubuti	R	A	CF, J	SA, W, UP, TG, CF, AA, GP
<i>Heliotropium subulatum</i> (Hochst. Ex A.DC.) Boraginaceae Kalibui	R	A	FSD, MP	
<i>Heliotropium supinum</i> L. Boraginaceae Gumrath / Slokbuti / Jaarpath	R	FL, SD	AA	
<i>Hemidesmus indicus</i> (L.) Schult. Asclepiadaceae Badagadi Bel / Ram Chana	UP	L	UP	UP, AP, SA
<i>Holoptera integrifolia</i> Planch. Ulmaceae Papri	UP	L	SA	AP
<i>Ipomoea batatas</i> (L.) Lam Convolvulaceae Shakarkand	UP		CF, AA	
<i>Kochia indica</i> Wight Chenopodiaceae Laanabuti	R	L	M, BC	BC

<i>Launaea coromandelica</i> (Houtt.) Herrill. Anacardiaceae Bada Dodhi	H	A	UP	
<i>Launaea procumbens</i> (Roxb.) Ram. & Raj. Anacardiaceae Dodhi / Ghammanbuti / Junglibuti	R, UP	I	EP, AA	
<i>Launaea sp.</i> Anacardiaceae Bakthalbuti	R	FR, L	AP, GP	EP, UP, GP
<i>Leptadenia reticulata</i> (Retz) Wight & Arn. Asclepiadaceae Kheep	R	FR	AP, BC, M, AA	SA, AA
<i>Lycium barbarum</i> L. Solanaceae Jaarlbuti	R	A, R	FSD	UP, S
<i>Moringa concanensis</i> Nimmo Moringaceae Sainjna	H, UP	FL, L	AP, AA, GP	BC, EP, SA, UP, AP
<i>Musa sp.</i> Musaceae Banana	UP	R	FSD	GP, UP, BC
<i>Nepeta hindostana</i> Lamiaceae Bicchhu Grass	UP	A	SS	BC, CF
<i>Nothosaerva brachiata</i> L.Wight Amaranthaceae Patharcheetah	UP	A	UP	
<i>Polygonum barbatum ssp.gracile</i> L. Polygonaceae Chitah	H	L	SA	SA, TG
<i>Salvadora oleoides</i> Decne. Salvadoraceae Jhal	H	L	AP	CF, GP, AP, MSD, FSD
<i>Sida cordata</i> (Burm.f.) Borssum Malvaceae Khrainti	UP	ST, R	PL	CF, AA, AP, BC
<i>Solanum suratense</i> Burm. Solanaceae Kateli / Kateli Bel	UP	A, FR, R	VT, G	
<i>Solanum virginianum</i> L. Solanaceae Chirmi	R	FR	P	
<i>Suaeda maritima</i> (L.) Dumort. Chenopodiaceae Loonibuti	R	L	FSD	
<i>Tamarix dioica</i> Roxb. Ex Roth Tamaricaceae Fraasbuti	R	L, ST	D, M	GP, SA
<i>Triumfetta rhomboidea var.pentandra</i> Jacq. Tiliaceae Kutta Grass	UP	L	CF, AP	
<i>Withania somnifera</i> Dunal Solanaceae Kicharpod	R	SD	BC	CF, AP, FSD, M, SA, EP, W
<i>Wrightia arborea</i> (Dennst.) Mabberley Apocynaceae Doodhi	R	SD	G	

## List of unidentified Plants

Local Name	State	Part Used	Use
Akol	UP		SB
Ariyalbuti / Saphed Fulka Grass	UP	A, R	F, UP, P
Askand	R	FR	GP
Bahakbath / Siptoh	R		
Balgarikathal	R		
Bandhkarela	H		
Baphodbuti	H	R	S, AP, SA
Baslumba	H		GP, SB
Batelbuti	R	L, R	PL, MSD, FSD, UP
Bhilbel	H	R	GP
Bhoongar Grass	UP	A, R	FSD, SA
Bipodhbuti	R		
Birchita	H		
Birmi grass	UP		FSD
Charchita	H, UP	A, R	SB, UP
Cheepat Grass	UP	ST	AP
Chitah Jeri	UP	R	SA, AA
Dhumaya	H		SA
Gaduma	UP		SB
Gajjarbatha	R	A, R	FSD
Ghursan	UP	FR, L	SB
Gokhru	UP		GP, CF
Haad	R		
Harmalbuti	H		AP
Imirti	H		SA, BC, SB
Jaiphal	H		CF
Jata Joot	UP	R	SA, G
Jeewanbuti	H		CF
Jharkarela	H	R	GP
Jud	H	R	CF
Kakora	H		FSD
Kalabasa	H		CF
Kalinirvasi	H		
Kamalbuti	R	A, R	BC
Kapas / Naarma	R	FR	EA
Katali - Ped	UP	M	EP
Kuchila	R	SD	AP
Lagwantibuti	H		CF
Mahla	UP	R	EP
Mohari	H		SB
Mul Kangui	UP	FR	AP, GP, F
Nagdaun	H, R	R	SB, AP, GP, SA, TG
Nakodabuti	H	R	
Namolee	R		PL
Nevlabuti	H		SB
Phorphendua	UP	FR	SB
Pundiaributi	H		AP
Ramtori	R		FSD
Rataanjoth	H		EP
Saliabuti	R	FR	AP
Sonmarchi	H		EP
Tori	UP		SB
Tumba	R		SB

### KEY :

States : H = Haryana, R = Rajasthan, UP = Uttar Pradesh.

Part used : A = Aerial parts, B = Bark, FL = Flowers, FR = Fruit, G = Gum, L = Leaves, M = Milk, R = Root, SD = Seeds, ST = Stem.

For ailments : See Appendix V. Codes in bold are those that have been confirmed in the literature review.

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## APPENDIX V

### AILMENTS TREATED BY SNAKE CHARMERS

CODE	TREATMENT	DESCRIPTION	NUMBER OF MENTIONS		
			Identified Plants	Unidentified Plants	Total
<b>SB</b>	Snake Bite	Heals wound, may act as placebo	14	18	32
<b>AP</b>	Aches & Pains	Aches & Pains / Joint aches / Muscle Cramps / Headache	18	9	27
<b>SA</b>	Skin Ailments	Skin allergies / Infections inc. Daad	15	8	23
<b>CF</b>	Colds & Flu	Coughs / Colds / Flu / Pneumonia / Throat infections	13	8	21
<b>GP</b>	Gastric Problems	Gastric Problems - gas, constipation, heartburn, indigestion, stomach ache, worms	11	8	19
<b>FSD</b>	Female Sexual Disease	Sexual diseases including Leucorrhoea	9	6	15
<b>AA</b>	Asthma / Allergies		8	1	9
<b>BC</b>	Blood conditions	Anaemia / Blood cleansing / High Blood Pressure / Poor Circulation	6	1	7
<b>EA</b>	Ear ailments	Ear problems inc. deafness, discharge, earache	6	1	7
<b>UP</b>	Urinary problems	Urinary problems, inc. Kidney Stones	4	3	7
<b>EP</b>	Eye Problems		2	4	6
<b>MSD</b>	Male sexual disease	Sexual disease	4	2	6
<b>TG</b>	Teeth & Gums		6	0	6
<b>M</b>	Mind conditions	Stress / Strength of mind / Memory	5	0	5
<b>G</b>	Glands / Goitre		3	1	4
<b>S</b>	Strength	Lethargy, for strength, virility	2	1	3
<b>PR</b>	Paralysis		2	1	3
<b>PL</b>	Piles		2	1	3
<b>A</b>	Abortion		2	0	2
<b>F</b>	Fractures / Bones		0	2	2
<b>J</b>	Jaundice		2	0	2
<b>SS</b>	Scorpion Sting		2	0	2
<b>VT</b>	Veterinary Treatments		2	0	2
<b>W</b>	Wounds		2	0	2
<b>BR</b>	Bruising		1	0	1
<b>BN</b>	Burns		1	0	1
<b>D</b>	Dehydration / Heat Stroke		1	0	1
<b>L</b>	Liver		1	0	1
<b>MP</b>	Menstrual Problems		1	0	1
<b>N</b>	Nosebleeds		0	1	1
<b>PN</b>	Painkiller		1	0	1
<b>PG</b>	Pregnancy		1	0	1
<b>WR</b>	Water retention		1	0	1
<b>WH</b>	White Hair		1	0	1
	<b>Total Number Mentions</b>		<b>149</b>	<b>76</b>	<b>225</b>

Additionally mentioned ailments whose treatments were not mentioned:

Code	Ailment
<b>BC</b>	<b>Bone cancer</b>
<b>E</b>	<b>Epilepsy</b>

## Appendix VI

### WHAT DO THE EXPERTS SAY ?

In this section we present some views of herpetologists, scientists and amateur snake experts about the profession of snake charming, how the snakes are treated by snake charmers and the future of this occupation.

#### 'Nag-Panchami in Mumbai': Kedar Bhide, Reptile Rescue Centre, Mumbai

Reptile Rescue and Study Centre (RRSC), Mumbai, is an independent organization functioning in and around Mumbai city. RRSC has a volunteer force and we attend to calls to rescue snakes trapped in houses and also in distress.

Snake charming occurs in and around Mumbai city all year round in very minimal proportions. Snake charming takes a new meaning in the city during the *Nag-Panchami* festival. In Mumbai and its outskirts, the *Nag-Panchami* festival comes with a large number of snakes being brought into the city from northwest Rajasthan by the Naths and sold to fake snake charmers for *Nag-Panchami*. These are mostly local people who will sit outside temples begging for alms. Their snakes include a large number of cobras (*Naja naja*), Rat snakes (*Ptyas mucosa*), Sand boas (*Eryx conicus*), Earth boas (*Eryx johnii*), Royal snake (*Articeps diadema*) and the occasional Rock python (*Python molurus*). A couple of years ago we were astounded to see charmers with a Flying snake (*Chrysopelea ornata*) and a Brown Vine Snake (*Ahetulla pulverulentus*) on *Nag-Panchami* day.

Our centre conducts special awareness programs in the fortnight leading to *Nag-Panchami* to dispel myths associated with the festival. The response of school children to this program is overwhelming. In the past two years, RRSC volunteers handed out idols of snakes to the charmers from whom the snakes were confiscated. This was an attempt to reduce the use of live snakes for worship. It was heartening to see the willingness with which these idols were accepted.

A sad aftermath of the festival is noted in the week following *Nag-Panchami*. Volunteers at RRSC are often called out to rescue snakes that have been randomly released by the snake charmers at the end of *Nag-Panchami* day. These snakes are barely alive and more often than not die despite best efforts.

#### 'Friends of the snake charmers': Rupali Ghose, Rajkot, Gujarat

I have had a close rapport with snake charmers from different parts of the country, especially West Bengal, Bihar, Orissa and Gujarat. I was interested in snakes and that is how I got interested in snake charmers. I have learnt quite a lot from them and the skills they have are unique. These include their ability to recognise the species of a snake from the snakebite, their knowledge of herbs and variations in the breeding seasons of snake species according to the weather, and the ease with which they handle venomous snakes. Snake charmers in Gujarat are engaged mostly in agricultural work or street performances. They are harassed much by animal activists but not so much by the Forest Department. I think their skills can be used for conservation education as they have a lot of knowledge which is very practical.

## Suggestions on husbandry: Gowri Mallapurkar, veterinarian surgeon, Pune

Most of the snakes found on *Nag-Panchami* have severe infection in the mouth due to defanging and removal of venom glands. They appear to have been kept in the same baskets for more than a couple of days and the humidity leads to pneumonia which is enhanced by dipping them in milk on the day of *Nag-Panchami* for the ritual. The *kumkum* and *haldi* used in the ritual is aspirated and causes severe irritation to the eyes. The Rat snakes (*Ptyas mucosa*) have various degrees of scale rot, subcutaneous abscesses and at times broken bones so as to prevent movement. The Sand boas are tied in knots and put into small cloth bags. They are removed only for display on the festival day. Broken bones, emaciation, dehydration and mouth rot is commonly noted in these snakes.

The most difficult part of maintaining snakes in captivity is management of the infections caused by the removal of the venom glands. Severe mouth rot infections are noted. The snakes rescued on (and after) *Nag-Panchami* have enteritis leading to severe dehydration and severe respiratory tract infections due to aspiration of milk and the *haldi* and *kumkum*. Due to the humidity in the snake basket and poor basking, the snakes improperly shed moults, especially the eye cover, which then leads to blindness.

The challenge is to treat these infections effectively and provide appropriate management practices for recuperation. Management practices need to be followed stringently. All the snakes should be kept in independent boxes. The cages have to be checked regularly for defecation or regurgitation by the animal and have to be cleaned as soon as possible. Basking can be provided by natural light or by means of artificial sources like heating pads or bulbs. Maintenance of a temperature gradient is essential. Maintenance of an appropriate ambient temperature is the defense mechanism of the reptile against diseases. Hiding areas made of cardboard boxes or natural material for crepuscular snakes (e.g. cobras) are essential, as is the provision of some rocks and stones which will facilitate moulting.

## Romulus Whitaker, Centre for Herpetology, Chennai

*(Whitaker has set up a Snake Venom Collection Centre which is managed by an indigenous community, the Irulas)*

Unfortunately there are no studies to show that snake populations have bounced back since the introduction of the Wildlife (Protection) Act (1972), but our experience is that snake populations have, indeed, bounced back in most cases. It seems pretty obvious that this should be the case when you consider that up to 10 million skins were exported every year prior to 1976. Of the species used by the snake charmers, only the python and King cobra have much to worry about and that, too, mainly because of habitat loss. At Bhitarkanika sanctuary in Orissa, for instance, people have expressed concern that the snake charmers have been over-harvesting King cobras for so many years that numbers are visibly lower. Again, no one has done a study, but I can imagine that hundreds, if not thousands, of King cobras have been removed from that area over the last decade or two.

In the case of the snake charmers, aside from the cruelty factor (defanging, starvation, mishandling, etc.), it would seem to me that seven snakes per year per snake charmer (as your study has shown) would not constitute any threat to the species we are talking about as they are all very common and widely distributed.

My main suggestion for communities still dependent on wild animals is that for each community in each area, some imaginative brainstorming needs to be done with their collaboration. The idea of the Irula cooperative started in this way and the whole thing was six years in the making before it finally started working. What works for one community does not necessarily work for another. We all have a certain sympathy for people with livelihoods dependent on traditions and animals, but it is rapidly becoming impossible for such communities to continue, simply because either animals are getting scarce or their methods are unacceptable in today's animal welfare world.



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## CONSERVATION ACTION SERIES

Several communities in biodiversity-rich India traditionally depend on fast-depleting wildlife resources for their livelihood. The Jogi-Nath *saperas* of northern India is one such community. For generations, the Jogi-Naths have made a living from entertaining street audiences with performances using snakes they capture from the wild. This report by the Wildlife Trust of India is an attempt to find solutions through which this community of snake charmers can earn a living and use their skills for the protection of snakes on which they have depended for so long.



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