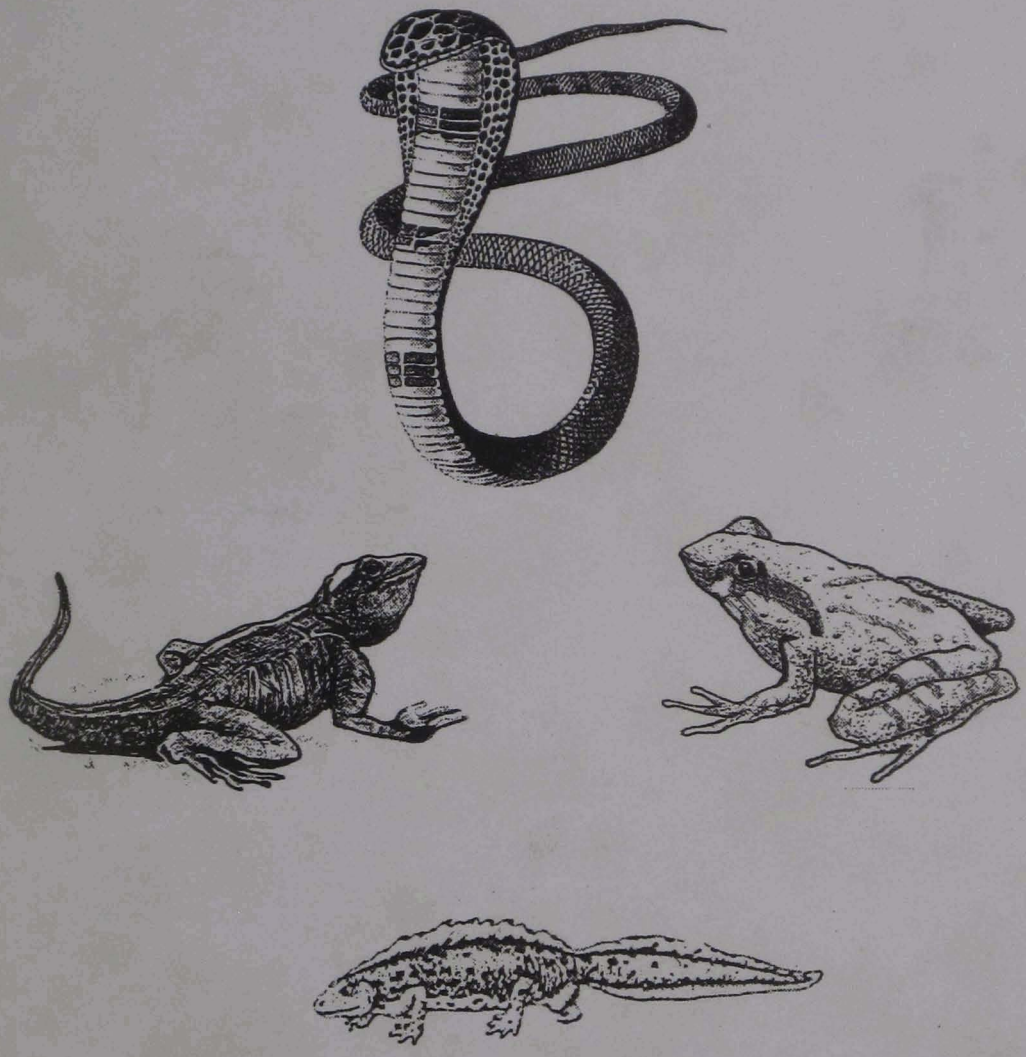
REPTILES & AMPHIBIANS

OF

SIKKIM



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Reptiles and Amphibians of Sikkim

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About the Document

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Preface

Even though it represents only a small fraction of the geographical area of the country, Sikkim has a unique diversity of flora and fauna. Because of its mountainous terrain, rugged configuration and sudden fall in elevation, the relative abundance and distribution of wildlife is phenomenal and has received notable interest. The rich fauna wealth of Sikkim has been recorded notably by Salim Ali (On birds), Meena Haribal (On butterflies) and A. Jha & R. Avathe (On mammals). Reptiles and amphibians - the lesser known, yet a vital face of our fauna have remained unrecorded so far. This book attempts to overcome this paucity of information.

This book provides basic information on 78 species of reptiles and 27 species of amphibians of Sikkim Himalaya with some 50 diagrams. These include a few species recorded in areas adjoining Sikkim. This is done to present a more complete and a more accurate picture of our reptilian and amphibian heritage. However, wherever required, a distinction between species recorded in the State of Sikkim and those outside it (but within Sikkim Himalaya) has been clearly made. The description of several species, particularly that of relatively unfamiliar ones have been borrowed from Fauna of British India, Reptilia and Amphibia Vol. II & III by Malcom A. Smith, which, even after more than fifty years since its publication, remains the single most important source of information on reptiles of India. It is also the chief source of diagrams we have presented in the book. Reconciliation of local and common names has been a difficult exercise and a little doubt with local names still persists. We sincerely hope that this book will help in raising the awareness levels of different sections of people - particularly at the school level.

Such efforts bear fruit only with help, encouragement and support of many like-minded people. We are extremely grateful to all those who were directly or indirectly involved in the preparation of this book.

We are indeed beholden to Dr. Indranil Das, Prof., Institute of Biodiversity and Environmental Conservation, University of Malaysia, Sarawak, who very kindly agreed not only to correct and authenticate the information given in this book but who in fact has

enriched it well beyond our expectations. His continual encouragement has been our greatest source of inspiration.

It was Mr. K.C. Pradhan, IAS (Retd.), Former Chief Secretary, Government of Sikkim and presently Chairman, WWF-India, Sikkim Advisory Committee, who had fondly nursed the idea of such a handbook. We are sincerely thankful to him for sharing his vision and insight. Dr. Saibal Sengupta, Prof, Department of Zoology, Arya Vidyapeeth, Gauhati, has been extremely kind in providing vital details presented in this book. We are much indebted for his generous help. Our sincere gratitude is also due to Mr. Ajay Rastogi and his team for always extending a helping hand whenever we needed it.

No words would be enough to convey our special gratitude and thanks to Mr. C. Lachungpa, DFO (Wildlife), Government of Sikkim. As a leading wildlife expert of this region, his contribution to this venture is immense. We express our gratitude to Ms Usha Ganguly Lachungpa, Senior Research Officer, Department of Forests, Government of Sikkim, for her kind help and guidance. We would like to convey our profound gratitude to Mr. S.T. Lepcha, a renowned musician and a rare authority on Lepcha culture for introducing us to the fascinating Lepcha world of reptiles and amphibians.

We offer our sincere gratitude to Ms Sampoorna Chakraborty, Ms Sakshi Sethi and Ms Nafisa Rehman - all students of Sikkim Manipal Institute of Technology - for their excellent sketches. Arindam Mandal, Student of the same Institute, is conveyed our special gratefulness for providing outstanding technical support without which this book would not have seen the light of day. Ms Uttara Talapatra of the same Institute is thanked for editing the text and for offering valuable suggestions.

Last, but not the least, we would like to express our deep debt of gratitude to Ms Seema Bhatt, Mr. Asit Mazumdar and Ms. Vanya Jha for the invaluable help they extended.

This handbook is dedicated to the cultural ethos of Sikkim which inspire us to love and respect all forms of life.

Ajeya Jha
Kishore Thapa

Introduction

Sikkim, small, enchanting, the second smallest state of India with deep valleys and tall mountains, located between 27°5' N to 28°9'N and 87°59' E to 88°56' E in an area of 7096 sqkm is an enthralling land. Geographically, it lies at the head of the Bay of Bengal. At its eastern frontier the Richipangola range forms an ill-defined boundary to separate it from Bhutan. The Kanhanjunga and Singalila ranges separate it from Nepal and Tibet lies at its north. The state of West Bengal defines its southern boundaries. It touches tropical and sub-tropical regions on the south-west fringes and encompasses alpine and cold desert zone in the extreme North and East.

It is a land predominantly alpine in character offering almost all possible mountain panorama. The altitude here ranges from 300 to 8580 m. Summers are hot and winters pleasant in the lower reaches. Winters are extremely cold and summers pleasant at high elevations. It is one of the wettest regions in the world, receiving heavy rain-fall from June to September. But the trans- Himalayan regions of the state are practically rainless, thus fostering a rare blend of desert and arctic like conditions. Presence of numerous climates and ecosystems aid in sustaining extremely rich faunal and floral wealth here thus making it an important location for biodiversity conservation.

That Sikkim is very well endowed with rich biological heritage can be established in the present context from the existence of 4,500 flowering plants, 450 odd orchids, 36 species of Rhododendron, 158 species of mammals, 550 species of butterflies, almost 700 species of birds alongwith over 61 species of reptiles and 20 species of amphibians. Sikkim, as many readers would recall, is a globally recognised biodiversity "hotspot". This handbook is intended to provide basic information on the rich Reptilian and Amphibian heritage of Sikkim.

Amphibians and Reptiles, by virtue of being the oldest land dwelling vertebrates, are an important component of our fauna. Compared to them mammals are still in their infancy. However, it is not just their age which authenticates their success as survivors, but their numbers also. In this era, which is so absolutely dominated by mammals, there exist about 6000 species of reptiles - twice the number of those of mammals.

Reptiles, particularly snakes, have been an important and enchanting component of the religion, mystique, folklore and culture of this land. Lepchas

recount numerous folklores where snakes play important roles. According to a well known Lepcha folklore rivers *Rung-nyu* (Teesta) and *Rung-nyet* (Rangeet) once decided to meet at Melli in South Sikkim and run away secretly to get married. Since both were youthful and inexperienced they chose separate guides to lead them to the rendezvous. Rung-nyet chose a naughty bird (a partridge) which took him via a long and torturous path. Rung nyu chose **Pu-reil bu** (a snake - Checkered Keelback) and could reach the destination via the shortest and perhaps the easiest route. From the story it is clear that Lepchas, far from considering snakes as reprehensible, look upon them as helpful and sincere beings. This folklore even today is portrayed as a charming dance-drama. In many other folklores and songs snakes are portrayed as virtuous and conscientious beings, sometimes even a bewitching bridegroom or a beau for some fortunate Lepcha maiden ! In another Lepcha folklore, a mother whose newborn baby died prematurely became so inconsolable that she began to nurse and breast-feed a *Pu-nith-bu* (a blind snake).

But Lepcha comprehension of reptiles is not limited to myths and folklores alone . They have studied them with almost a scientific precision and they not only have a rich nomenclature for their Reptilian and Amphibian fauna but are also familiar with their behavioral traits. Even the folklore mentioned above about the Lepcha mother who breast-fed a blind snake depicts a scientific fact. Blind snakes have only a few teeth in their upper jaw and none in the lower. Further their jaw bones are not properly ossified hence they (can not) chew or bite and only suck their food which exclusively comprises of worms, soft bodied insects and larvae.

Bhutias, another prominent inhabitants of Sikkim, traditionally prefer to dwell in the colder regions of the state where snakes are rather scarce. Yet snakes, particularly the cobra, are an important symbol in their culture and religious beliefs. They are predominantly Buddhist by faith. It is said that apart from ghosts and phantoms, a cobra too was sent to intimidate Lord Buddha while he was meditating, Buddha won it over and even today many pictures and sculptures depict the enlightened Buddha being sheltered by a five headed cobra. In my opinion a five headed cobra symbolises the Kingcobra. Thus snake-worship is frequently mentioned in Buddhist scriptures. Further, as in Tibet, from where Bhutias are said to have originated, so in Sikkim also springs, rivers and lakes are considered to be the sacred abode of various snake demi-gods. The snake-king, according to them,lives in a crystal palace in the depth of lake *Patli*. As in the rest of India, snakes are considered auspicious and also the deity of wealth by them.Skin disease, they believe, is caused when one, knowingly or un-

knowingly, insults a snake. A coiled snake is said to be worshipping Buddha and hence is sacred. Because of such profound beliefs even poisonous snakes in Sikkim can be seen roaming openly - unmolested.

Apart from such mythical beliefs they recount some fairly accurate accounts of snakes too. They know that snakes go into hibernation during winters and also that a snake at the time of coming out of hibernation is much more poisonous than at the time of going into hibernation. They tell how resolutely a mother king-cobra protects her eggs. A consistent opinion which I could not substantiate, is that sheep occasionally devour snakes. They do not have names for different snakes and all are referred to as *Drul.*(*Thuk drul* means a poisonous snake). Druk, the mythical creature revered by Bhutias deserves special mention here because of its reptilian character. It is an important part of their culture and is immensely auspicious.

Nepalese, the third dominant group of people in Sikkim, are primarily Hindu by faith, and thus they too look upon snakes with great respect and devotion. Snakes have been intimately associated with their myths, folklore, religion and arts. Their religious traditions are replete with nine legendary *Nagas*(cobras), namely *Ananta*, *Vasuki*, *Shesha*, *Padmanabha*, *Kambala*, *Shankhapala*, *Dhritarashtra*, *Takshaka* and *Kalia*. It is said that those who will recite the names of theses sacred serpents will remain free from fear and be victorious for ever. According to legends serpent-kings founded cities like *Patal*, *Pragjyotisha*, *Takshila*, *Magadha*, *Mathura*, *Vilaspur* etc. According to a prominent legend, when the Gods and *Asuras* decided to churn the ocean to bring out the precious treasures concealed in it,it was *Shesh Naga* that offered itself to be used as a rope to accomplish the momentous task. Even today homage is paid to *Shesh Naga* for the contribution it made to make ours a better and a richer world. *Mansa* - the snake-goddess is worshipped widely for protection against snake-bites and hence is also called *Vishahari* (one who destroys poison). She is the sister of *Vasuki* - the serpent-king. She married sage *Jaratkaru* and was the mother of sage *Astika*, who later protected snakes from imminent extermination at the hands of human beings led by *Janmajeya*. Thus snakes in Hindu legends not only share an intimate relationship with man-kind but are believed to be emotionally and even biologically related to them . Despite having an eternal and intense conflict with them their extermination was unacceptable to the Hindu mind, legacy of the philosophy - live and let live.

Every year *Nag-panchami*, a festival to reaffirm human respect and affec-

tion for snakes, is celebrated by the Nepalese in Sikkim when snakes are worshipped and offered milk. *Lord Shiva*, the supreme Hindu God is always depicted wearing a garland of cobras, to express his infinite love for all living beings-even snakes.

From the above it is clear that the culture prevailing in Sikkim fosters a very positive, healthy and tender attitude towards snakes. Their existence and solitude is duly respected. Consequently, though there are over 10 species of venomous snakes found in Sikkim, yet instances of snake-bites are almost unheared of.

From amongst the amphibians, frogs and toads figure prominently in local myths and folk-lore. Both are depicted as decent, trust worthy and intelligent beings, always ready to help the underdog. According to a Bhutia folklore, despite profound evil designs, a crow is always outwitted by a frog. The crow otherwise is an emblem of cunning and resourcefulness in most other folklores told in this region. According to a Lepcha folklore a deer once approached a frog seeking protection against a tiger. The Frog was obviously no match for the tiger and so it decided to bank on its cunning. When the tiger arrived it quietly gulped a few of its hair and later vomited them out. The tiger, apprehensive of such a 'strange' frog that 'feasted on tigers', ran away.

Frogs have been valuable to people of Sikkim in other ways also. For Lepchas and some Nepalese communities they possess immense food-value. They claim that frogs are delicious and catch them at night with the help of bamboo torches. The light of torches dazzles the frogs and makes them immobile thus making it effortless to catch them. These are preferably eaten fresh. If the catch is large Lepchas slice them open and roast them over fire for future use. For Tibetans and Bhutias, frogs are an important source of medicinal ingredients. Its flesh, bones and certain organs are often used as effective medicines. Frogs of higher altitudes are considered to be more valuable in this respect. It will not be out of place to mention that the Tibetan medicine system in particular is held in great respect by modern medical experts also. Lepcha medicine-men too used frogs for preparing medicines.

As has already been stated, Sikkim harbours over 61 species of reptiles and 20 species of amphibians. Such immense biodiversity for so small a tract of land is astounding. Further, these figures do not include many a species which have been recorded from adjoining Darjeeling and Kalimpong hills, the other components of Sikkim Himalaya. Also, it is not just the level of

reptilian and amphibian diversity that makes Sikkim important. The level of endemism, the number of species found nowhere else, too is exceptional. Such an immense richness, alongwith other faunal and floral biodiversity should be a matter of great happiness and pride for us. But it makes us all the more responsible too. Providing a safe and secure future to our non-human companions is our sacred obligation. Fortunately we have now realized the importance of conserving our wildlife and massive efforts are going on to restore the pristine state of both natural habitats and their wild inhabitants. Our cultural wisdom too teaches us the inherent goodness and indispensability of protecting and embracing life in all its forms.

Despite this khowledge, we are on the verge of losing a large component of our fauna and flora. To halt this downslide we need the support of common people, particularly that of children. Creating an awareness of our wild heritage would logically be the first step towards that goal. The book has been designed to fulfill this purpose.

REPTILES

Reptiles are almost as well known to us as are mammals, birds or fish. They form a very important class of fauna as they have diverse forms, are widely distributed and have evolved to near perfection in different habitats and regions of the world. They are great survivors and are believed to have been existing since the last 260 million years. Nearabout 6000 species of reptiles are spread over the earth in oceans, rivers, lakes, deserts, grasslands, swamps, forests and even snow clad mountains. Being cold-blooded creatures, they exhibit a distinct preference for warm climates and they abound in the tropics. Their numbers and diversity fall sharply as we move towards colder regions. They are conspicuous by their absence in Greenland, Iceland and Antartica.

Of the four orders, namely *Testudines, Rhyncocephalia, Crocodylia* and Sqamata, that exist in the world today only Squamata (Lizards and Snakes) is represented in Sikkim though unconfirmed reports suggest the presence of a Testudines *(*represented by *Geochelone elongata)* too.

ORDER TESTUDINEA
The Turtles and Tortoises

The members of this order are estimated to have existed now for over 200 million years. Normally they are associated with water and moist surroundings but actually some of them are found in deserts also. 32 species of Turtles and Tortoises have been recorded in India. Perhaps none exist in Sikkim Himalaya. None of the naturalists and scientists have recorded a Turtle or a Tortoise from this region so far. Lepchas, however, are consistent in their information that at least one species of land tortoises exist here. It must be mentioned that Lepcha information is seldom unfounded and also that existence of a land tortoise here is not impossible. Mr. S.T. Lepcha reports to have found one in a field near Kalimpong about 10 years back. His description matches with that of *Indotestudo elongata* - a species reported from Siliguri and Jalpaiguri also. We, therefore, are including it here. However, its presence, or that of any other species of this order, in Sikkim Himalays is yet to be confirmed.

1.East Asian Tortoise (*Indotestudo elongata*)

Local Name : *Fat ruba** (Lepcha)

Distribution : Eastern India and South-East Asia

Habitat and Status : Eastern India and South-East Asia.

Size : Length of shell 120 mm, breadth about 80 mm. and depth about 60mm.

Description : Can be easily recognised by its light brown carapace with black blotches.

Behaviour : Little information has been collected about its behaviour as it has a tendency to remain dormant during winter months. It is most active during the rainy season.

Food : Depends very largely on vegetation diet but is believed to eat snails and perhaps other soft creatures.

Breeding : Mating season coincides with the arrival of rains. Males have been known to become aggressive towards each other and they attempt to upturn their rival by shoving them. Female lays 3-7 eggs in a hole she digs herself.

** **Remark :** The Lepcha name **Fat ruba** (**Fat** = Earth) is indicative of its habit of living inside self dug burrows.*

ORDER SQUAMATA

Oreder Squamata is further classified into two suborders :

(a) Sauria - The Lizards, and
(b) Serpentes - The Snakes

LIZARDS

One of the most widely distributed and diverse group of reptiles, the lizards are roughly separated from the snakes by the presence of limbs. But then there are limbless lizards too. The Burmese Glass Snake (*Ophisauras gracilis*), a reptile of Sikkim Himalaya, is one such lizard. Indian lizards can be readily separated from snakes by the presence of eyelids. Some other

characteristic features of lizards include a short body with four limbs, a small flat tongue and an external ear opening.

Almost 3000 species of lizards roam the earth of which about 150 are found in India and about 23 have been reported from Sikkim Himalaya. Lizards, like other reptiles, are primarily creatures of warm tropical and subtropical areas. Their numbers and that of their species decrease rapidly in the temperate zone. The subalpine and alpine zones of the Sikkim Himalaya are practically devoid of any Saurians. Most lizards are land dwellers but some, such as flying lizards (***Draco***), are arboreal and certain others, such as the water monitor (***Varanus salvator***), which has so far not been recorded in Sikkim Himalaya, prefer to live in water.

The eyesight of ground lizards is moderate but the flying lizards are reported to possess keen visual perception. Burrowing lizards, as might be expected, have poor vision. The hearing sense of most lizards is appreciable and with the help of their well developed ears they are sensitive to sound waves carried through the air or through ground vibrations. The sense of smell of lizards is poor. All lizards of India and this region are completely non-venomous and are perfectly harmless.

Five families, *Gekkonidae* (Geckos), *Agamidae* (Agamas), *Scincidae* (Skinks), *Anguidae* (Glass Lizards) and *Varanidae* (Monitors) occur in Sikkim Himalaya.

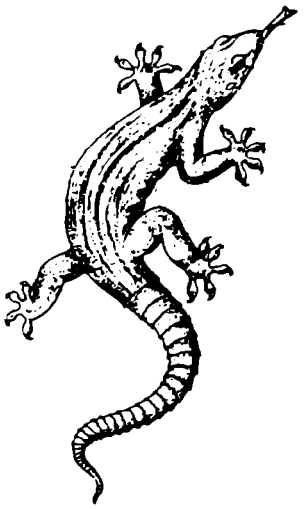
Family Gekkonidae
Geckos

The most well known amongst the reptiles of Sikkim, Geckos have a worldwide distribution. They have a flat body, thin skin, eyes without eyelids and covered by a transparent shield and an easily detachable tail to deceive the predators. Most are capable of producing sound, with some depending on mechanical means. They are oviparous and are completely nonpoisonous.

2. Yellow-bellied House Gecko (*Hemidactylus flavivirdis*)
Local Name : *Tiktikae* * (Nepali); *Su-ung* ** (Lepcha)

Distribution : Common practically all over India north of latitude 20° N. Also common in Pakistan, Bangladesh and upto the Coastal areas of the Red sea. In Sikkim it is commonly seen in towns like Gangtok, Singtam, Rangpo and Jorethang.

Habitat and Status : This is one of those few and fortunate creatures which has benefitted immensely from human companionship and is certainly widespread because of human auspices. Usually seen on the inside walls of buildings, during the day time it hides in wall-cracks or behind almirahs and other furniture which are seldom shifted. It exhibits a strong sense of territory.



Size : 100 to 140 mm. including 50-70 mm. tail. Individuals as large as 180mm. too have been recorded.

Description : Its dorsal surface is pale grey on which some indistinct markings may or may not to present. The ventral surface is yellowish. The dorsal surface may or may not have tubercles. A distinguishing feature of this species is that males have 5 to 7 femoral pores on each side. The tail is swollen at the base.

Behaviour : Like other members of this genus, it too is particular about its territory which it defends from others of its kind with pluck and determination. But when food is in abundance, for example around an electric light, two-three or even more can be seen devouring insects without any antagonism amongst them. Seasons do affect its activities and movements. Most disappear in secluded hideouts during winters when the weather is not favourable and food is scarce. It emerges out only in spring and can be seen in large numbers during rains when insects gush out in large numbers. It is nocturnal. Its ability to climb smooth and vertical walls is phenomenal. It is even known to defy the law of gravitation and crawl upside-down on ceilings comfortably. It can leap from one vertical wall to another, hardly ever falling in the process. Such movements are possible because of minute setae under the toes which are believed to act as suction cups.

Food : Chiefly insects, which it devours by swallowing. Larger prey is battered till it is soft enough for gulping.

Breeding : The mating season arrives with spring when it emerges from its hibernation hideouts. Males invite and captivate females by producing low grinding sounds. Fights between two rival males, which are as much for a female as for the territory, are not rare. Two and rarely three eggs are laid by the females sometime around May.

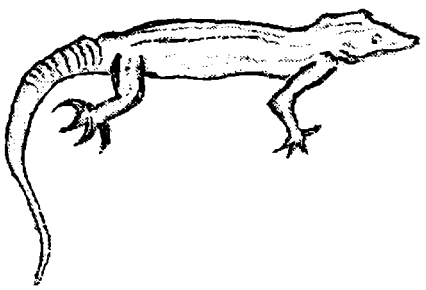
Status : Schedule IV (WPA, 1991)

Remarks : ***Tiktikae**, *its Nepali name, is indicative of the sound it makes.* ****Su-ung, its Lepcha name is rather strange because generally the suffix* ***ung** *in a Lepcha name is indicative of water. Perhaps the name has been derived from* ***Chu-sung,** *a crocodile to signify the outward resemblance this lizard shares with it.*

3. <u>Gray's House Gecko</u> (*Hemidactylus bowringii*)
Local Name : *Tiktikae* (Nepali); *Su-ung* **(Lepcha)**
Distribution : India : Darjeeling, Sikkim. **Elsewhere :** Myanmar, South China and Hongkong. Was reported from this region by Khajuria H. in 1958 from Jarkhola, dist. Darjeeling. (*Fauna of West Bengal, Vol.II, ZSI, 1992*)

Habitat and Status : This species is not widely distributed in India and is more or less uncommon, but is reported to be widespread in Myanmar.

Size : Total length 80 to 120 mm. including a tail of varying length.



Description : Resembling other geckos, it is dusky or dusky-brown in colour with a small and flat body. The dorsal surface has small granules which may be mixed with large round tubercles. The tail is not swollen at the base and unlike *H. garnoti* it has 9-11 upper labials.

Behaviour : The activity of this lizard too follows a seasonal pattern. It is most active during summers and rains and practically disappears during winters when it is known to hibernate. It is nocturnal, timid and not very social. It is regularly preyed upon by several predators and is known to derive limited protection from its easily detachable tail which serves the function of diverting the attention of predators for long enough to ensure its safe escape.

Food : A confirmed insectivore, it stealthily approaches an insect close enough and then pounces quickly to grab it and then devours it by swallowing.

Breeding : The mother lays two soft eggs which acquire hardness on

being exposed to air. A suitable place for laying eggs may be used by more than one mother. Incubation period varies from 40 to 75 days. In this region it is usually towards the higher side. (*Daniel, J.C., 1983*)

Status : Schedule IV (WPA, 1991)

4. Hemidactylus Garnotii

Local Name : *Tiktikae* (Nepali); *Su-ung* (Lepcha)

Distribution : Eastern Himalaya. Its presence in this region is confirmed by the Zoological Survey of India. (*ZSI, 1992*). Its presence in Sikkim is recorded in *Fauna of British India, Reptilia and Amphibia Vol, by Malcom A. Smith.*

Habitat and Status : A hill species. Status not ascertained so far but is believed to be uncommon.

Size : Total length 80 to 120 mm. including a tail of varying length.
Description : It is greyish brown above, speckled or indistinctly mottled with darker. It has small white spots present. There is a dark streak along the side of the head. Has a characteristic small and flat body. Dorsal surface with small, tail not swollen at the base and unlike *H. bowringi* has 11-13 upper labials.
Behaviour : Hardly any information about it has been collected. It definitely keeps to itself and is rarely seen because of a timid and reticent disposition.

Food : Mainly insects.

Breeding : Reproduction is believed to be parthenogenetic (fertilization without any aid from a male). Non-rejection of skin-grafts between different individuals suggests that it is unisexual.
Status : Schedule IV (WPA, 1991)

5. <u>Frilled House Gecko</u> (*Cosymbotus platyurus*)

Local Name :

Distribution : Northeastern India and Nepal. Reported from this region by the Zoological Survey of India. (*ZSI, 1992*). Its presence in Sikkim is recorded in *Fauna of British India, Reptilia and Amphibia Vol. II, by Malcom A. Smith.*

Habitat and Status : Habitat and status not ascertained so far. Believed to

be found in houses and gardens.

Size : Total body length about 125mm.

Description : Not very different from other house geckos but can be readily recognised by the tassled border of skin along the sides of the body. Body colour ranges from grey to greyish brown. Dark spots on body and bands on tail make it look rather handsome. A dark streak from behind the eye continues along the side of the body. Tail is sometimes red. Ventrally yellow or dirty white.

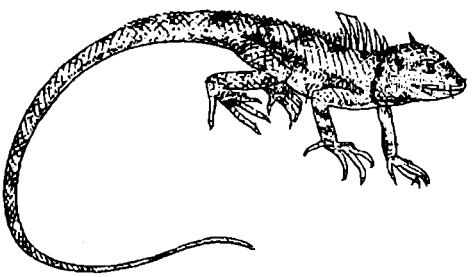
Behaviour : This is one of the least studied lizard. It is known to hibernate during winters and is nocturnal, timid and not very social.

Food : Insects are the preferred prey. Harmful insects are assiduously avoided.
Breeding : Oviparous.

Status : Schedule IV (WPA, 1991)

FAMILY AGAMIDAE
Blood Suckers and Japaluras

6. Blood Sucker (*Calotes versicolor*)



Local Name : *Chu-sung* (Lepcha)

Distribution : South Asia, Indo-Chinese subregion, south China, Hongkong, Malay Peninsula, Sumatra and Afghanistan. In Sikkim it has been reported in Rangpo, Singtam, Makha, Ranipul, Jorethang, Melli and even Gangtok Bazar.

Habitat and Status : It is the commonest lizard of the Agamidae family and is found in diverse habitats such as deserts, gardens, hedges, scrubland and forest. It is arboreal and prefers bushes, shrubs and undergrowth. In Sikkim Himalaya (upto 2000 m. elevations) it is widespread but not very common.

Size : Total length of body is about 350 mm. but specimens as large as 490

mm. (including 350 mm. long tail) have been recorded. Females are generally smaller than males. The blood suckers of Sikkim Himalaya and Indo-Chinese subregions are normally much smaller than those of the Indian Peninsula.

Description : Body colour is uniform light brown to sand grey. Sometimes a pattern of blotches and bands on back and sides may be present. Females are instantly recognised by two lateral strips. Head oval; body laterally compressed; tail exceptionally long and cylindrical. Males sport a characteristic dorsal crest from nape to head. Gular sac is present.

Behaviour : This is a worshipper of the Sun and is seen only during the day hours. The bloodsuckers of the peninsula are most active during the morning hours but here, in the Sikkim Himalaya, because of the colder climate it comes out of its shelter late in the morning and is active throughout the afternoon. During cold, clouded and foggy days it remains in concealment in sheltered spots. It is arboreal and is an agile climber.

Food : It is essentially insectivorous. Ants are reported to be its chief and preferred diet but it is known to eat up bird-eggs, nestlings, frogs and occasionally even small mammals and birds.

Breeding : Breeding season begins around April when males develop bright colouration in the forebody and begin to go after the females. Often they choose a prominent position and 'nod' their heads earnestly and sometimes even perform 'sit-ups' to entice females and intimidate other males. Sometimes two stand up on their hindlegs and grapple & bite each other until one of them gives up the fight and runs away. Females dig a small hollow in soft soil and lay 11-23 eggs in it for incubation and safety.

Status : Schedule IV (WPA, 1991)

7. Eastern Green Blood Sucker or Jerdon's Blood Sucker (*Calotes jerdoni*)

Local Name : *Chu-sung* (Lepcha)

Distribution : Hills of Northern India. In Sikkim Himalaya it is found at elevation upto 2000 m. Presence in Sikkim reported by Ganguli-Lachungpa, U. (*Faunal Diversity in Sikkim : An Overview*, 1998).

Habitat and Status : It prefers dense and bushy hill forests. Status in

Sikkim Himalaya not ascertained so far but is reported to be rare.

Size : Total body length about 350 mm. including the tail.

Description : It is a beautiful lizard having a slender and graceful build. Dorsal surface is brilliant green with a pair of brown, black-edged bands on the sides. There is a conspicuous dorsal crest above the shoulder. Tail long and green with bands.

Behaviour : A skilful and an adept climber, it moves over trees and bushes rather swiftly. It is active during the day time.

Food : Feeds largely on insects but at times bird-eggs, nestlings, and frogs too are eaten up.

Breeding : Breeding season begins around April when males develop bright colouration in the forebody and begin to chase females. Female digs a small hollow in soft earth and lays 11-23 eggs in it for incubation and safety.

Status : Schedule IV (WPA, 1991)

8. Blyth's Japalura (*Japalura tricarinata*)

Local Name : *Lho Chu-sung* (Lepcha)

Distribution : Sikkim, Darjeeling and eastern Nepal. Its presence in Sikkim is reported in *Fauna of British India, Reptilia and Amphibia Vol II, by Malcom A. Smith, The Gazetter of Sikkim, 1891* and has been confirmed by the Zoological Survey of India (ZSI, 1992)

Habitat and Status : A distinct mountain species replacing *Calotes* at higher altitudes. Not uncommon.

Size : Snout to vent 50 mm., tail 120 mm.

Description : The upper body is pale brown in colour and uniform or with six angular dark stripes and two brown cross bars on the head. Enlarged tubercles on the head and limbs are often green. Ventral surface is dirty whitish with small black dots. Post orbital spine absent. Tympanum is naked and there is a crest of 6-8 conical scales on the back of the head.

Behaviour : Not much has been recorded about its habits. It is diurnal and

is mostly found Sun worshipping resting over large stones in open and sunny places at elevations ranging between 1000 to 3000 m.

Food : Feeds chiefly on insects.

Breeding : Oviparous. Mating rituals observed during April and May.

Status : Schedule IV (WPA, 1991)

9. Gray's Japalura (*Japalura variegata*)

Local Name : *Lho Chu-sung* (Lepcha)

Distribution : Sikkim and Darjeeling. Its presence in Sikkim is recorded in *Fauna of British India, Reptilia and Amphibia Vol II, by Malcom A. Smith, The Gazetteer of Sikkim, 1891* and confirmed by the Zoological Survey of India *(ZSI, 1992)*

Habitat and Status : Once again a creature of the mountains, it is found at elevations ranging between 500 to 3000 m. But population is much higher and denser at elevations above 1750 m.

Size : Snout to vent 110 mm. and tail 205 mm. The specimen collected at lower elevation are noticeably larger than the ones from higher elevations.

Description : Olive brown or green above (iridescent when alive) with lighter and darker markings (brown, red or yellow). Usually a series of light chevron-shaped stripes along the back. There is a white stripe along the side of the back. Over the head light or dark cross bars are present sometimes, Tail is with dark and light annuli. Ventral parts are greenish white and the Gular patch has dark blue spots. Post orbital spine absent. Tympanum is concealed and the crest on the back of the head is not prominent.

Behaviour : Hardly anything has been reported about it. It is diurnal and is seen most often during the sunlight hours. It is profoundly territorial and possesses considerable power of changing colour.

Food : Feeds chiefly on insects.

Breeding : Oviparous. Mating takes place during April and May when its territorial instinct becomes stronger and males can be seen defining and defending their territory resolutely and chasing females.

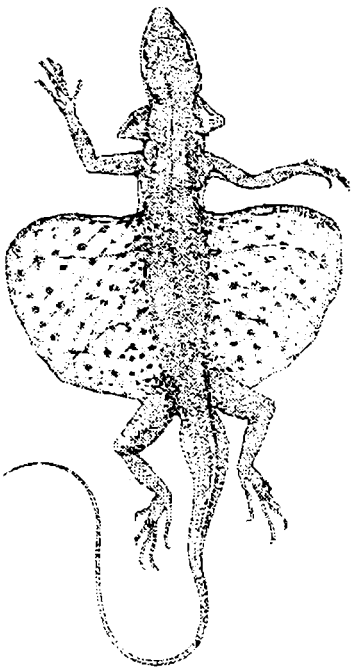
Status : Schedule IV (WPA, 1991)

10. Flying Lizards (*Draco blanfordii*)

A Draco species has been reported from Sikkim. Though there is no confirmation, Yet it is suggested that the species is *blanfordii* (*Das I, 2001, Personal Comminucation*).

Distribution : Eastern Himalayas. Presence in Sikkim reported by Ganguli-Lachungpa, U. (*Founal Diversity in Sikkim : An Overview*, 1998).

Habitat and Status : Inhabits primarily tropical and perhaps subtropical forests of the state. It is profoundly arboreal, rarely, if ever, coming down to the ground.



Size : Snout to vent 80 mm. and tail 125 mm. Males are reported to be slightly smaller than the females.

Description : Greyish or bronze above with darker markings underneath. There is a black interorbital spot and two on the nape. Wing membrane is orange, reddish brown, yellowish or greenish with scattered black spots (variable both in size and numbers) from above and pale yellow below. The colourful wing membrane is an excellent defence as it stands out when it is gliding through air but makes the animal disappear into the background abruptly as soon as it alights.

Behaviour : It is a diurnal creature mostly seen during the sunny hours. It has a rare expertise to glide from one tree to another often covering 10-15 m. in a single downward glide. The glides at times are assisted by the wind. It lands on the tree trunk with a thud.

Food : Feeds upon insects, larvae, maggots, worms and caterpillars.

Breeding : Mating season is observed during April- May when males develop a bold and cheeky attitude towards life. They defend a courting territory and attempt to entice females by wobbling. They head up and down and stand erect on their forelegs. The body colour turns a conspicu-

ous silver-grey. Females lay 2-5 eggs in 3-5 cm. deep holes they dig themselves from which the young once hatch out after about 50 days.

Status : Schedule IV (WPA, 1991)

11. Himalayan Agama (*Laudakia himalayana*)

An Agama species has been reported from Sikkim. Though there is no confirmation, yet it is suggested that the species is *himalayana* (*Das I, 2001, Personal Comminucation*).

Distribution : Most lizards of the genus *Agama* are generally distributed in the Himalayas in the Indian region. Presence in Sikkim reported by Ganguli-Lachungpa, U. (*Faunal Diversity in Sikkim : An Overview*, 1998).

Habitat and Status :

Size : Body 95 mm; tail 150 mm.

Description : It is greyish or brownish with a green/blue tinge. Body is depressed.

Behaviour : It is diurnal and lives singly or sometimes in pairs in holes or rock-crevices. An agile climber.

Food : Feeds on insects.

Breeding : Mating observed during May and June. Mothers lay 6-7 eggs. Some believe it hibernates during the cold months but others have reported seeing it basking on sunny days.

Status : Schedule IV (WPa, 1991)

12. Toad-Agama (*Phrynocephalus theobaldi*)

A *Phrynocephalus* species has been reported from Sikkim. Though there is no confirmation, yet it is suggested that the species is *theobaldi*.

Distribution : Confined to Trans-Himalayan deserts. Reported from the Sikkim Plateau.

Habitat and status : High altitude deserts. Status not ascertained so far.

Size : A small-sized Lizard, body 40-50mm; tail 60 mm.

Description : It has a small flattened body well-suited for life in the dessert. The eyes are tiny and are provided with projecting eyelids as protection against sand-grains. Even nostrils can be closed.

Behaviour : It is diurnal and is capable of making quick movements on sand. When threatened, it readily buries itself in the sand.

Food : Primarily feeds on insects.

Breeding : Practically no information exists about its breeding behaviour.

Status : Schedule IV (WPA, 1991)

FAMILY SCINCIDAE
Skinks

13. Gray's Skink (*Sphenomorphus indicus*)

Local Name : *Tug-gloth* (Lepcha); *Mansutlo* (Nepalese)

Distribution : Sikkim, Darjeeling, South-east Tibet, Indo-china and Malay Peninsual. Its Presence in Sikkim is recorded in *Fauna of British India, Reptilia and Amphibia Vol II, by Malcom A. Smith.* and confirmed by the Zoological Survey of India (*ZSI, 1992*)

Habitat and Status : Mostly found in hilly regions. Status not ascertained so far but has been reported to be a common species.

Size : Snout to vent 90 mm; tail 140 mm.

Description : Brown above, uniform or with small brown or black spots usually arranged in longitudinal lines. A dark brown or black stripe along the side of head, body and tail. Ventrally it is whitish. Limbs usually well developed, tympanum is sunk. Differs from S. maculatum in having a convex rostral and 30-38 scales round the body.

Behaviour : Like most other skinks this too is a ground-dweller but is by no means a bad climber and is at home on small trees and bushes. It roosts at night and is active during the day-time. Its tongue, like those of other

skinks, is sensory in function.

Food : It feeds on insects.

Breeding : Mating season solemnized during early summer months. Females lay 4 -5 eggs in June.

Status : Schedule IV (WPA, 1991)

14. *Sphenomorphus maculatum*

Local Name : *Tug-gloth* (Lepcha); *Mansutlo* (Nepalese)
Distribution : Sikkim, Darjeeling, Assam and Andaman & Nicobar Islands. Its presence in Sikkim is recorded in *Fauna of British India, Reptilia and Amphibia Vol II, by Malcom A. Smith.* and confirmed by the Zoological Survey of India (*ZSI, 1992*).

Habitat and Status : Inhabits mountainous regions at elevations ranging from 1500 to 2500 m.

Size : Snout to vent 70 mm.; tail 100mm.

Description : Bronze or brown above, uniform or with small golden-green spots; There are two median series of small black spots and a dark brown lateral band extends from nose to tail. Lower parts are whitish. Limbs usually well developed, tympanum is sunk. Differs from *S. maculatum* in having a convex rostral and 30-38 scales round the body.

Behaviour : Though primarily a ground-dweller it has been reported to be semi-arboreal. It returns back to its usual night-haunts to rest during the night and is out in the forenoon. The tongue of the members of this species is sensitive and is a vital organ for survival.

Food : Chiefly an insectivore.

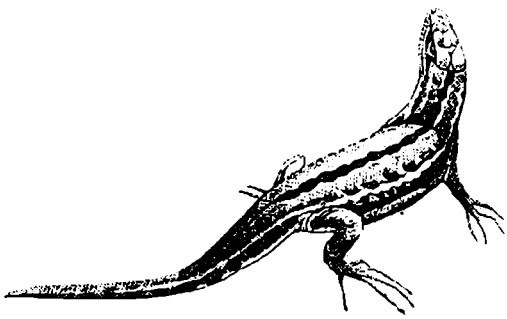
Breeding : Mating season solemnized during early summer months. Females lay 4-5 eggs in June.

Status : Schedule IV (WPA, 1991)

15. Common Skink (*Mabuya carinata*)

Local Name : *Tug-gloth* (Lepcha); *Mansutlo* (Nepalese)

Distribution : This is the commonest and best known Skink in India and is found throughout the country but is rare or absent in North-West India but is very common in the east. In Sikkim it is confined to lower regions only.



Habitat and Status : It is very much at home in human surroundings but is not out of place in forests either.

Size : Snout to vent 100 mm.; tail 120 mm.

Description : The upper surface is glossy brown, yellow-green or bronze, uniform or mostly with darker spots. Lateral sides are darker. A light band stretches from behind the eye to the base of the tail. The ventral surface is whitish or sometimes yellowish. Body elongated and flattened dorsoventrally. Limbs are well developed.

Behaviour : Rather active and completely harmless. It is mostly active during the day hours. Presence is betrayed more by the sound it makes than its actual sightings. It is reported to have a permanent resting place where it roosts at night.

Food : A voracious insect eater but at times small higher life forms too are consumed.

Breeding : Rather secretive about mating rituals, hence not much information exists. It is ovo-viviparous. About eigth young ones are born at a time sometimes in May-June. The author collected (August, 2000) a newly hatched baby from 6th Mile, Gangtok

Status : Schedule IV (WPA, 1991)

16. Sikkim Skink (*Leiolopisma sikkimense*)

(*The same species has been described in *Fauna of West Bengal Part 2, Zoological Survey Of India, 1992 as Scincella sikkimense*)

Distribution : Sikkim and Darjeeling. Its presence in Sikkim is recorded in *Fauna of British India, Reptilia and Amphibia Vol II, by Malcom A. Smith.* and confirmed by the Zoological Survey of India (*ZSI, 1992*). The author collected (October, 2000) a specimen from Himalayan Zoological Park, Gangtok

Habitat and Status : Confined to damp and misty forests and is rarely found near human habitation. In Sikkim it is found at elevations ranging from 1000 to 3000m. Not uncommon.

Size : These are small skinks with Snout to Vent measuring 55 mm.; tail 70 mm.

Description : Bronze brown above, with black, sometimes with small gold spots or short streaks arranged in longitudinal series. There is also a dark brown stripe along the upper part of the side of the head, neck and body. Flanks with white spots. Pale bluish or whitish below. There are 24 scales round the body. Limbs are usually well developed and tympanum is sunk. It differs from *Sphenomorphous* in having lower eye-lid with a transparent disc.

Behaviour : It often lives in holes in moss covered walls from where it emerges to sun itself on bright days. It is diurnal. Otherwise practically nothing is known about it.

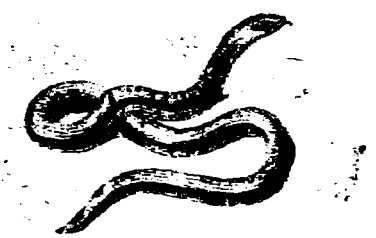
Food : Insectivore.

Breeding : Oviparous, laying 4-6 eggs at a time in June from which the young ones hatch by July-end. Eggs are laid hidden in damp moss on tree trunks. Males develop a bright red lateral stripe during mating season.

Status : Schedule IV (WPA, 1991)

FAMILY ANGUIDAE
Glass Lizards

17. Burmese Glass Snake (*Ophisaurus gracilis*)



Local Name : *Pu shik bu* (Lepcha)

Distribution : Eastern Himalaya and Assam. Its presence in Sikkim is recorded in Fauna of British India, Reptilia and Amphibia Vol II, by Malcom A. Smith and The Gazetteer of Sikkim, 1891.

Habitat and Status : Eastern Himalaya and Assam. It is reported to be common at lower elevations. Lives under logs and stones.

Size : Snout to vent 150 mm.; tail 190 mm.

Description : The ventral surface is light or dark brown above with a dark lateral band having transverse series of blue and black-edged spots. The body is serpentine - slim and elongated and is limbless. Yet it can be readily distinguished from snakes by the presence of eyelids. The young ones are pinkish-light brown with a metallic gleam and a black band on each side of the body.

Behaviour : This is a confirmed night-loving reptile of rather a sluggish disposition. It is completely harmless and can be handled without any risk of being bitten. A trait share with the geckos is that it can give up its tail when attacked, thus diverting the attention of the predator. It is known to hibernate during winter months.

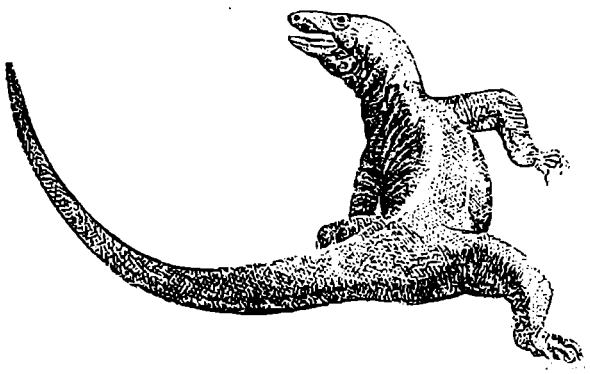
Food : Feeds on insects and earthworms.

Breeding : It is oviparous. Breeding season is reported to be around July-August. 4-5 eggs are laid sometime around September end. The mother remains with the eggs till they hatch.

Status : Schedule IV (WPA, 1991)

FAMILY VARANIDAE
Monitors

18. Common Indian Monitor (*Varanus bengalensis*)



Local Name : *Goh Saamp* (Nepalese)

Distribution : The whole of India, Nepal, Myanmar, Sri Lanka and Pakistan. Its presence in Sikkim is recorded in *The Gazetteer of Sikkim,* 1891.

Habitat and Status : It is widely distributed and lives in all biotopes from evergreen forests to dry grasslands. Not uncommon, but numbers are receding rapidly.

Size : Snout to Vent 300 to 500 mm; tail 180 to 300 mm. The Largest recorded was 1750mm. long including 1000 mm. long tail.

Description : The dorsal surface is dusky or dusky-brown with sparse dark marks. The ventral surface is yellowish, uniform or speckled with black. The young ones are brightly coloured.

Behaviour : Stories narrating the use of this lizard for climbing forts may not be pure imagination as once it wedges itself in a crevice or a crack, it is virtually impossible to dislodge it. It is a diurnal creature which can be seen moving slowly along the forest floor looking for a prey. Yet it can make a lightning movement when the need arises. It is also a wonderful swimmer and an agile climber. Though non-poisonous and of a mild nature, it can, nevertheless, inflict painful bites when handled.

Food : A versatile hunter, it is purely carnivorous and eats whatever it can overpower. Small mammals (including bats), birds, bird-eggs, small reptiles (Including snakes), turtles, frogs, crabs, prawns and even fish are devoured without any discrimination. Scorpions too are eaten.

Breeding : Males develop a very strong territorial instinct during the mating season. Even fighting is not uncommon when males stand on their hindlegs and 'wrestle' with each other. Nape-bites too are attempted but they are not serious. The vanquished male quickly runs away. Lepchas report that these reptiles, like cobras, also indulge in a combat-dance. Eggs are laid in deep hollows (excavated by the mother) between April and October. Mothers are also known to dig false pits in that area, perhaps to baffle the predators searching for the eggs.

Status : Schedule II (WPA, 1991)

SERPENTES

Snakes are creatures which mankind has held in awe since time immemorial. They are capable of evoking two diametrically opposite emotions - fear and fascination - at the same time. We have already seen how integral they are to the culture and philosophy of this region. They are of endless intrigue to the biologists also. As an evolutionary experiment they are unique in being limbless. Yet, by all evidence, they have been as much a success as their counterparts with limbs. They predate mammals by many million years and even today there exist almost 2700 snake species in the world as against 3000 mammal species, a glowing tribute to their success as survivors.

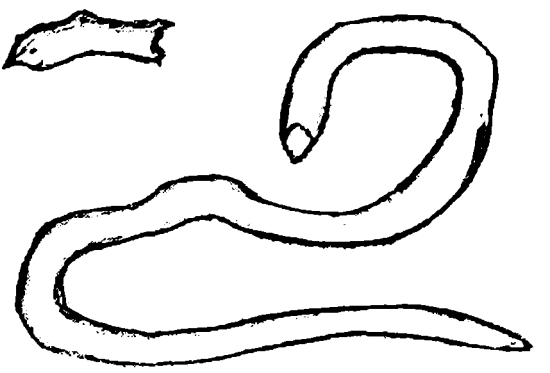
The absence of limbs has not been detrimental to their movements. Most snakes move quickly over ground, are adept swimmers and some are even exceptional climbers. Indeed the Ornate 'Flying' Snake is even capable of gliding long distances through air. The Absence of limbs does not prevent a mother kingcobra from building a safe and an intricate nest for its young ones.

Snakes are found throughout the world in forests, grasslands, deserts, rivers, oceans and even mountains. The Himalayan Pit Viper (*Gloydius himalayanus*) has been recorded at elevations as high as 5000 m.
Their venom makes them so fearsome and fascinating. But contrary to popular belief, only a handful of snakes pose any real danger to human life. Most snakes, including poisonous ones, are timid by nature and avoid any contact with human beings. Most bites of even poisonous snakes are reflexive in nature and are not toxic. It is generally when one actually stands on it that a snake resorts to poisonous bites. A cornered snake facing certain death is known to cling to its tormentor and bite viciously and persistently with all its might. Such bites, known as death-bites, are most fatal.
For most of us the word "snakes" conjures up a dull, unidimensional image. It is a false picture. Quite a few of these limbless animals are delightfully handsome, beautiful in appearance and movements, with ways and habits as fascinating as those of the tiger and the elephant. They exhibit an astounding diversity in look and behaviour. Some such as blind snakes are hardly a few cm. in length whereas others such as pythons may grow to even over 10 m. Their exterior shows infinite diversity in colour, shade, intensity and tinge and bears different patterns, decorations and designs. A few are profoundly aquatic, a few others primarily arboreal and a few (burrowing snakes) even prefer to live below earth. Some are diurnal whereas others are nocturnal. A few are even crepuscular - coming out at dawn or dusk. Some are gentle, allowing themselves to be handled, while certain others are vicious tempered, biting at the slightest provocation. Some are oviparous (egg laying), while others are viviparous (giving birth directly to young ones).

Such an awesome diversity adds to their charm and charisma and makes them an exciting and a fulfilling subject of study. They not only possess immense aesthetic and cultural value but are also important ecologically. They render beneficial service to man by destroying pests like rodents and various kinds of insects.

FAMILY TYPHLOPIDAE
Blind Snakes

19. Wall's Blind Snake (*Typhlops oligolepis*)



Local Name : *Andho Saamp* (Nepali); *Pu-nith bu* (Lepcha)

Distribution : Perhaps an endemic species of Sikkim. Presence in Sikkim recorded by Murty, T.S.N., The snake book of India, 1986.

Size : Total length 15 to 20 cm.

Description : Dorsal surface is brown and Ventral surface is pale. Snout round; eyes indistinct. 16 scales round the body.

Behaviour : A quiet and timid creature. Harmless and sluggish.

Food : Soft bodied insects, worms, larvae and pupae.

Breeding : The snake is oviparous.

Status : Schedule IV (WPA, 1991)

Remarks : *According to a Lepcha Folklore a mother whose newborn baby died prematurely became so inconsolable that she began to nurse and breast-feetd a* ***Pu-nith bu*** *(a Blind snake). A scientific truth concealed in this tale is that Blind snakes have only a few teeth in their upper jaws and none in the lower. Further their jaw bones are not properly ossified hence they cannot chew or bite and only suck their food which exclusively comprises of worms, soft bodied insects and larvae. It is very gentle and never attempts to bite when handled.*

20. Jerdon's Blind Snake (*Typhlops jerdoni*)

Local Name : *Andho Saamp* (Nepali)

Distribution : Assam and Eastern Himalaya.

Size : Total length 20 to 30 cm.

Description : Dark brown or blackish above and light brown below. Snout and anal regions whitish. Body cylindrical; snout round; eyes indistinct; nasals completely divided. 22 scales round the body.

Behaviour : A quiet and timid creature. Harmless and sluggish. Strong burrowing disposition.

Food : Insects, ants, larvae and pupae.

Breeding : The snake is oviparous.

Status : Schedule IV (WPA, 1991)

21. Common Blind Snake Or Brahminy Blind Snake (*Ramphotyphlops braminus*)

Not recorded in Sikkim so far but its presence in Sikkim Himalaya has been confirmed.

Local Name : *Andho Saamp* (Nepalese)

Distribution : Throughout India. Sri Lanka, Indo-china, Southern China, Malay Peninsula, Pakistan, Iran, Iraq and Arabia. A specimen was reported from Sevoke in Darjeeling in 1945. (*ZSI, 1992*)

Habitat and Status : Prefers wet and shaded places. Lives beneath the soil or below stones and logs. Often seen inside houses.

Size : One of the smallest snakes of this region. Total length 6-15 cm.

Description : Dorsal surface is black, ventrally light. Tail is whitish. Slenderworm-like shape; blunt, rounded head; obscure eyes; short and blunt tail.

Behaviour : A shy and quiet burrower which prefers solitary existence. At times it is found in a cluster. It is slow in movements, however, when threatened it makes vigorous efforts to flee. It is often preyed on by other snakes and birds.

Food : Ants, insects, larvae and pupae.

Breeding : Produces 2-7 eggs around April to July which hatch within the

uterus of the mother. Reported to be parthenogenetic.

Status : Schedule IV (WPA, 1991)

FAMILY BOIDAE
Boas and Pythons

Boas and Pythons are the most primitive of all the living snakes and they differ from other snakes in having a pair of internal hind limbs protruding at the vent. Another important feature are the pit on the upper lip which are used as heat receptors in locating and capturing warm-blooded prey which they kill by compressing. Though they are quite capable of killing large animals, they prefer rather smaller ones as their food. The Indian Python and Sand Boa are the only representatives of this family in Sikkim Himalaya.

22. Indian Python or Rock Python (*Python molurus bivittatus*)

Local Name : *Panu bu* (Lepcha); *Ajigar Saamp* (Nepali)
Distribution : Widely distributed in South Asia. The subspecies is limited to the Indo-Chinese subregion. In Sikkim Himalaya, it has been reported from tropical regions such as Sukna forest, Sevoke, Tarkhola, Melli, Jorethang, Manpur, Rangpo, Sirwani, Singtam, Makha and Rigu. A few years back forest officials had arrested several persons for killing a 4 m. long Indian Python near Singtam. Presence in Sikkim recorded in *The Gazetter of Sikkim, 1891.*

Habitat and Status : Though it prefers dense forests but it is quite at home in other habitats also and has been found in scrub jungles, rivers and lakes and rocky areas. It is equally adept on trees as is on the ground and is an excellent swimmer also. It can remain submerged in water for hours. Widespread but uncommon.

Size : It is the biggest snake of this region and amongst Indian snakes is second only to the reticulated python. Total length 3.5 to 4 m. weighing 50

to 60 Kg but individuals as large as 5.5 m. and weighing almost 100kg. too have been recorded.

Description : It is dark brown in colour with a pattern of rhomboidal marks having dark outlines. The ventral surface is pale yellow. A spear-shaped mark over the head is its distinctive feature. It is massively built and is bulkier than any other snake of this region. Neck distinct; tail short and prehensile; head flat; snout long; nostrils large; eyes small.

Behaviour : A quiet and secretive creature to which a fearsome reputation is wrongly attributed. It is timid and tends to avoid human contact. It may be diurnal and/or nocturnal and goes into hibernation during winters.

Food : An accomplished hunter, it compensates for its slow movements by being an extraordinary ambusher. It has been known to feed upon fish, frogs, toads, monitors, pigeon, partridges, peafowls, rats, hares, monkeys, goats, deer, antelopes, porcupines and even leopards. In captivity it has been known to go without food for even two years.

Breeding : Mating occurs during winter months. Female lays 8-100 eggs during May-June from which the babies are born 58 days later. Till the eggs are hatched the mother protects them from various predators.

Status : Schedule I (WPA, 1991)

Remarks : An approximate translation of the Lepcha name Panu bu is 'King snake' as they consider it to be the king of snakes. Even a Lepcha leader is implored to be like a python - strong, powerful and impersonal but not poisonous (malicious).

23. Russel's Earth Boa (*Eryx conicus*)

Local Name : *Lata Saamp* (Nepali); *Pulong bu* (Lepcha)

Distribution : Is found all over India and has been recorded in Nainital also. Presence in Sikkim reported by Ganguli-Lachungpa, U. (*Faunal Diversity in Sikkim: An Overview, 1998*).

Habitat and Status : A snake of the arid region but by no means confined to such tracts.

Size : Total length of females about 60-80 cm. Males on average only about

half as long as that.

Description : It is a pinkish grey snake with deep brown irregular patches all over the body. The patches are edged by black borders. The ventral side is faint yellow with brown spots on the outer side. The head is not distinguishable from neck. Body is almost cylindrical in shape.

Behaviour : This snake remains hidden under soft surface where the body colour is in keeping with the surroundings. One of the most sluggish and inactive snakes, it has rather an unpredictable temper and some individuals bite at the slightest provocation whereas others do not offer any resistance even when handled.

Food : It feeds on mammals such as mice and rats. At times hunts squirrels also. Frogs are rarely eaten whereas reptiles are positively avoided. However instances of it killing snakes too have been recorded. Lack of speed is often compensated by ambushing dexterity.

Breeding : It is oviparous, laying eggs during summer months.

Status : Schedule IV (WPA, 1991)

FAMILY COLUBRIDAE

Most snakes of India as well as this region belong to this family and they exhibit astonishing diversity in appearance and behaviour. Yet the essential similarities they share including broad scales (as broad as the body) on ventral surface, large and well arranged head scales, solid teeth on both the jaws and absence of even traces of hind limbs makes it imperative to place them under the same family. For the sake of convenience they are further classified under the following sub-groups:

Trinket Snakes, Rat Snakes, Racers, Kukri Snakes, Tree Snakes, Wolf snakes, Keel backs, Snail-eating Snakes and others.

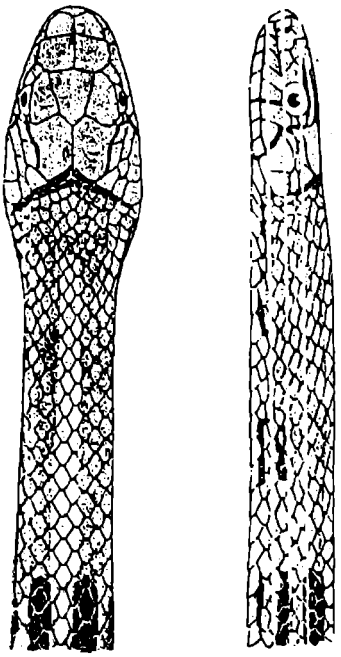
Trinket Snakes

24. Green Trinket Snake Or Green Tree Racer (*Elaphe prasina*)

Local Name :

Distribution : Eastern Himalaya. Elsewhere, Upper Myanmar, Yunan, Malay

Peninsula, Reported from Darjeeling by J. Gammie. (ZSI, 1992). Presence in Sikkim recorded by Gammie in *The Gazetteer of Sikkim, 1891.*



Habitat and Status : Hill forests at elevations from 500 to 2000m. Sometimes found near human habitation.

Size : 100 to 125 cm including 25 to 30 cm tail.

Description : Dorsal surface greenish and of different shades with black crossbands encircling whitish islets. Differs from other trinket snakes in having hemipenis extending to 9th caudal plate.

Behaviour : A fierce snake which attacks repeatedly and tenaciously when cornered. It is nonpoisonous. Like other snakes of its kind it is tireless and is on the move most of the time.

Food : Partial towards rats, shrews, lizards, frogs and occasionally even snakes which it kills by constriction.

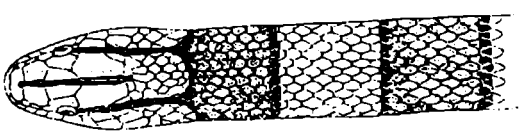
Breeding : Female lays eggs around April-May.

Status : Schedule IV (WPA, 1991)

25. Copperhead or Copperheaded Trinket Snake (*Elaphe radiata*)

Local Name :

Distribution : Orrisa, Bengal, Eastern Himalaya, Assam and further east. Presence in Sikkim recorded in *Fauna of British India, Reptilia and Amphibia Vol III, by A. Smith.*



Habitat and Status : Prefers open areas and is usually found at forest edges, agricultural fields, farms and in and around scattered villages.

Size : 170 to 190 cm including 35 to 40 cm tail. Individuals measuring over

200 cm have also been recorded.

Description : This snake derives its name from its copper coloured head. The specific name radiata refers to the three dark stripes radiating from the eye. The dorsal surface is yellowish brown to reddish brown, sometimes even with a greyish tinge with four black stripes on the upper body. Ventral surface is yellowish, uniform or powdered with grey. Hemipenis extends to 10th caudal plate.

Behaviour : This snake exhibits a singularly volatile temper and is always ready for a tough fight. When furious it inflates itself and assumes a menacing posture. It is active during the day hours. Like all other Trinket sankes, it is non-poisonous.

Food : Exhibits a distinct preference for small rodents and small mammals which are chased with determination and agility and killed by squeezing.

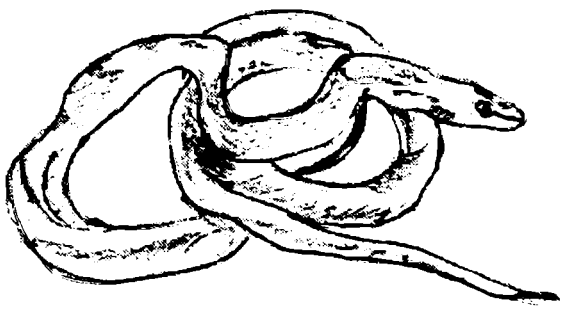
Breeding : Female lays eggs numbering around 5 -15 during April - June.

Status : Schedule IV (WPA), 1991)

26. <u>Himalayan Trinket Snake</u> (*Elaphe hodgsoni*)

Local Name :

Distribution : Kashmir, Sikkim and Assam. Has been reported from Kurseong, Kalimpong, Takdah. Its Presence in Sikkim is recorded in *Fauna of British India, Reptilia and Amphibia Vol III, by Malcom A. Smith.*



Habitat and Status : Jungles and foothills.

Size : Total length : Male about 1500 mm and females 1250 mm.

Description : A slender bodied snake having sleek and glossy scales, a slim head and large eyes. It is greenish brown above with secoration typical of this species. Many scales are edged with black. Light below.

Behaviour : It is active during the day and the early hours of darkness and

exhibits a vicious temper. It is a non-poisonous species.

Food : Feeds on rats, shrews and other mammals. Lizards too are eaten once in a while.

Breeding : Female lays eggs around April-May.

Status : Schedule IV (WPA, 1991)

27. Darjeeling Trinket Snake Or Ring-tailed Trinket Snake (*Elaphe cantoris*)

Distribution : Sikkim, West Bengal, Assam, Meghalaya and Myanmar. Despite fairly wide distribution mostly reported from Sikkim Himalaya. Sighted at Kurseong (ZSI, 1992). Its presence in Sikkim is recorded in *Fauna of British India, Reptilia and Amphibia vol III, by Malcom A. Smith.*

Habitat and Status : Common in the tropical and subtropical hill ranges, mostly above elevation of 250 m.

Size : Total length about 190 cm.

Description : Anterior half of the body grey with large squarish black spots, the vertebral series usually united to form broad transverse bars, Posterior part of body and tail olive brown to blackish with irregular light cross-bars (reddish brown in colour). 21 rows of scales round the body.

Behaviour : An active creature which hunts during the day and the early hours of darkness. Like other trinket snakes it has a wild temper and even during long captivity rejects all attempts to tame it.

Food : Partial towards rats, mice, shrews and lizards.

Breeding : Female lays eggs during early summer.

Status : Schedule IV (WPA, 1991)

28. Black-striped Trinket Snake (*Elaphe porphyracea*)

Local Name :
Distribution : Sikkim, Darjeeling, Assam, Myanmar, Siam, Malay Penin-

sula and Sumatra. Reported from Gopaldhara in Darjeeling (*ZSI, 1992*). Presence in Sikkim Recorded in Fauna of British India, Reptilia and Amphibia Vol III, by Malcom A. Smith.

Habitat and Status : Hill forests at elevations upto 2000 m.
Size : Total length 90 to 100 cm. including the tail.

Descriptions : Dorsal surface pale to reddish brown above with broad dark brown black-edged cross bars which narrow on the sides of the body. Two black parallel dorso-lateral lines on hinder part of the body and tail. A black stripe down the middle of the head and another on each side, usually connected with first transverse mark on the neck. Lower part uniform yellowish. It has a slender and graceful built, glazed scales, thin and flattened head and large eyes with rounded pupils.

Behaviour : It too prefers day hours to move around looking for suitable prey, is harmless and not as short tempered as other trinket snakes of this region.

Food : Mice, shrew and other small mammals and lizards.

Breeding : Female lays eggs around April-May.

Status : Schedule IV (WPA, 1991)

29. Striped Trinket Snake or Striped Racer (*Elaphe taeniura*)

Not recorded in Sikkim so far but its presence in Sikkim Himalaya has been confirmed

Distribution : An endemic species of Sikkim Himalaya.

Habitat and Status : Hill forests at elevations from 500 to 2000 m. Has been reported from Kalimpong, Debrepani, Nimbong and Narbong.

Size : Male 160 cm. and females 200 cm.

Description : Light greyish or brownish above; head and neck uniform except for a black stripe on each side of head, broadest behind the head. Anterior part of block has a vertebral series of large butterfly shaped black spots and smaller diamond shaped ones on the sides. Ventral surface light yellow - uniform or speckled. 23 rows of scales round the body. Body flat

and head elongated.

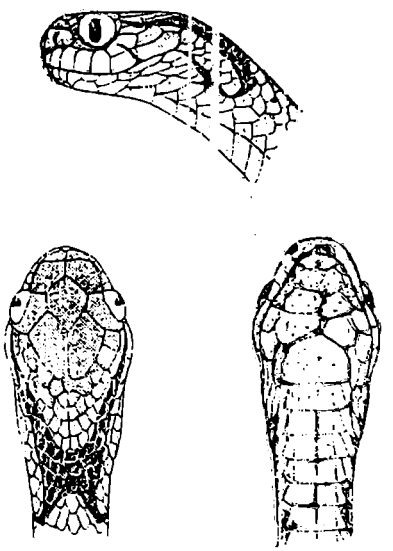
Behaviour : An active and truculent predator which is continuously on the move when awake. It is diurnal and is known to hunt boldly in the open Remains wildly ferocious in captivity.

Food : Feeds mainly on rats, mice and shrews. From Darjeeling it has been reported to feed on bats and at times on snakes also.

Breeding : Female lays eggs around April-May.
Status : Schedule IV (WPA, 1991).

Snail - eating Snakes

30. Assam Snail-eater (*Pareas montocola*)



Distribution : Sikkim, Darjeeling and Assam. Its presence in Sikkim is recorded in *Fauna of British India, Reptilia and Amphibia Vol III, by Malcom A. Smith* and *The Gazetteer of Sikkim, 1891.*

Habitat and Status : A shake of hill forests preferring humid and damp surrounding and areas receiving heavy rain fall.

Size : Total length : Male about 56 cm. including 13-14 cm. tail and female about 70cm. long.

Description : Brown above with vertical blackish bars on the sides or extending across the back; a black line from above the eye to the nape; top of head thickly spotted with black. Yellowish below dotted with brown. It has a thin neck, firm body and a broad head. The eyes are noticeably large. Its characteristic feature is the absence of a mental groove.

Behaviour : These are shy and timid snakes which do not attempt to bite even when handled and tend to retreat and hide when met. It is primarily nocturnal and hence possesses unusually large eyes. Its movements are slow and unhurried.

Food : Since the mental groove is absent it can stretch the jaws only slightly.

As a result, it exclusively feeds on snails and other soft and small crustaceans.

Breeding : The female lays 2-9 eggs at a time.

Status : Schedule IV (WPA, 1991)

31. Darjeeling Snail-eater (*Pareas macularius*)

Not recorded in Sikkim so far but its presence in Sikkim Himalaya has been confirmed

Distribution : Darjeeling and perhaps, Sikkim.

Habitat and Status : A snake of moist and wet surroundings. Common at one time, its numbers have dwindled considerably in recent times.

Size : Total length 45-65 cm.

Description : Chestnut above with vertical blackish bars on the sides or extending across the back; a black line from above the eye to the nape; top of head thickly spotted with black. Yellowish below with brown. It has a thin neck, firm body and a broad head. The eyes are noticeably large. Its characteristic feature is the absence of any mental grove.

Behaviour : A quiet and inoffensive snake which shows no inclination to bite even when fondled and stroked. Primarily nocturnal.

Food : Snails and other soft and small crustaceans.

Breeding : The female lays 2-9 eggs at a time.

Status : Schedule IV (WPA, 1991)

Rat Snakes

32. Rat Snake, Oriental Rat Snake or Dhaman (*Ptyas mucosus*)

Local Name : *Gharaiya Saamp* (Nepali); *Putong bu* (Lepcha)

Distribution : One of the most common and widespread snakes in India.

Habitat and Status : Is found in diverse habitats ranging from hills, plains,

scrub forests, open areas, desert and in and around human habitation. Has been recorded from hills at 1800 m. elevations. Reported from Sikkim by J. Gammie in 1891 (*The Gazetteer of Sikkim*).

Formidable knot of Rat Snake

Size : A huge snake of Sikkim Himalaya. In size it is perhaps next only to the Indian Python and King Cobra. Total length of adults varies from 1.8 to 2.2 m. but specimen as large as 3.5 m. too have been recorded. Males of this species are noticeably bigger than the females.

Description : Dorsal surface is olive-yellow to olive-brown with black cross bars on one-third of hinder portion. Ventral surface is light yellow. It has a thin elongated head, distinct from neck; large eyes; sturdy, firm body tapering at both the ends and a long prehensile tail.

Behaviour : This snake is full of character and is very much at home on the ground, trees and in water. It has been seen diving gracefully in streams and ponds. It is mostly out during the day hours. In the face of danger, it tends to escape but when cornered it assumes an S-shape and strikes with boldness and tenacity while mewing and screeching like a cat. An exceptional behaviour of this snake is the combat dance between males which curl around each other on the ground and often when half erect. It is often cited as a love-dance between a male and a female.

Food : Unlike its name suggests it is not particularly inclined toward rats and though it shows a marked preference for frogs and toads it eats whatever it can find. Common food includes small mammals, lizards, snakes, turtles and bats.

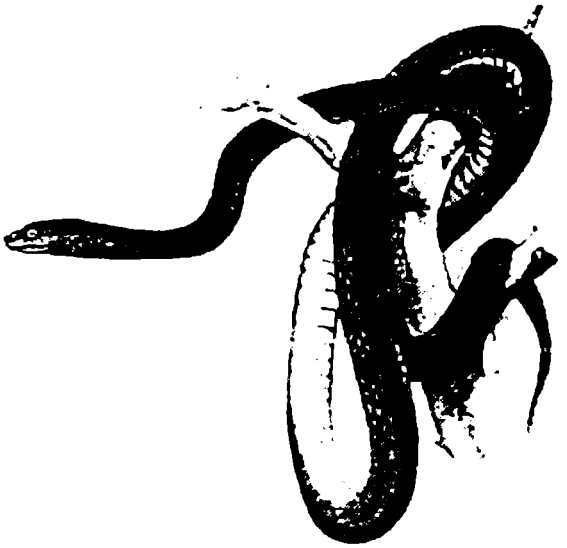
Breeding : Breeding season on Himalayas is reported to be May to July. Female lays 6-14 eggs.

Status : Schedule II (WPA, 1991)

Remarks : *A common erroneous belief held by the Nepalese in Sikkim is that this snake often makes a cow immobile by coiling around its hindlegs and sucks the milk from its mammary glands. Such a belief is prevalent in other parts of India also.*

33. **Indochinese Rat Snake** (*Ptyas korros*)

Included on the basis of unconfirmed reports*.



Local Name : *Dhaman Saamp* (Nepali)

Distribution : Indochinese region.

Habitat and Status : A forest dweller, it is rather uncommon. Reported only from Darjeeling in West Bengal (ZSI, 1992)
Size : Smaller than the Oriental Rat Snake. Total length about 1.5 m. including 40-50 cm. long tail.

Description : Dorsal surface olive to mustard yellow with black cross bars on posterior region. Ventral surface is dirty white. Body shape similar to that of oriental rat snake.

Behaviour : Hardly any observations have been made about its behavioural traits. On the ground it is noted for its speed, is a dexterous climber and in water it swims and dives with ease. Diurnal in habit.

Food : It is believed to feed on a varied diet such as frogs, lizards, small mammals, birds and water-borne creatures. Occasionally it ends up being the prey of the Banded Krait (Bungarus fasciatus). (*Murthy, T.S.N., 1986*)

Breeding : Not much known. Female lays eggs during rains.

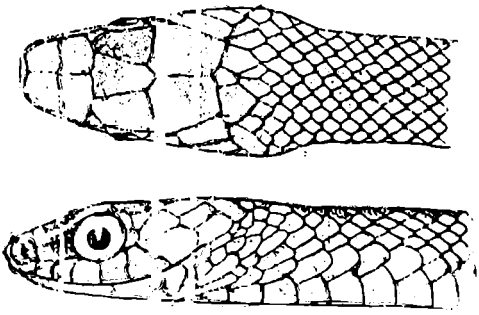
Status : Schedule IV (WPA, 1991)

34. **Green Rat Snake** (*Zaocys nigromarginatous*)

Local Name :

Distribution : Sikkim, Darjeeling and Assam. First Reported from Darjeeling in 1872 by J. Gammie (ZSI, 1992). Its presence in Sikkim is recorded in *Fauna of British India, Reptilia and Amphibia Vol III, by Malcom A.*

Smith and *The Gazetteer of Sikkim, 1891.*



Habitat and Status : This exhibits a distinct liking for cool mountain forests and has been recorded from elevations as high as 2700 m. also. Not very uncommon.

Size : A large snake considered by Gammie to be bigger than even the Oriental Rat Snake (*The Gazetteer of Sikkim, 1891*). An average adult measures about 2.8 m, including about 1 m. long tail. It is rather thick and heavy.

Description : One of the most beautiful snakes of this region. It is deep green dorsally with a broad black band on each side of the posterior half of the body. It is unique amongst the snakes of Sikkim Himalaya in having an even number (14 or 16) of scales round its body (***The Gazetteer of Sikhim, 1891***)

Behaviour : An adventurous creature, it is agile and active on the ground, trees and water though it is decidedly less aquatic than other rat snakes. It is innocuous but if offended can inflict painful bites. Is active during the day.

Food : Eclectic and it eats a large variety of food.

Breeding : The female lays 6 to 12 eggs.
Status : Schedule IV (WPA, 1991)

Racers

35. Banded Racer (*Argyrogena fasciolata*)

Distribution : Found all over India except the north-west region. Is more common in peninsular India. Presence in Sikkim reported by Ganguli-Lachungpa, U. (*Fauna Diversity in Sikkim : An Overview*, 1998)

Habitat and Status : A jungle dweller, it nevertheless is found in open areas and occasionally in urban areas also. Rare in Sikkim.

Size : Total length about 100 cm. including 20-25 cm. tail. Largest specimen found measured 1.26 cm.

Description : Dorsal surface ranges from yellowish to deep rich brown with narrow crossbars on the anterior half of the body. Head bears two white spots. Adults are often uniform in colour. Ventral surface light yellow to yellowish-green in colour. Body long and cylindrical, tapering slightly at the neck.

Behaviour : A lively snake, rather combative in nature. When cornered it erects forebody and flattens neck like a cobra and is many times mistaken for one. In captivity it is reported to become rather docile.

Food : Young ones prefer to feed on insects and frogs whereas adults exhibit a marked partiality towards rats. Snakes, lizards and birds are also eaten occasionally. Rather than ambushing, they chase their prey and consumed hunt boldly in the open. Once the prey is caught, it is pinned to the ground with a part of the body before swallowing.

Breeding : Female lays 2-6 eggs.
Status : Schedule IV (WPA, 1991)

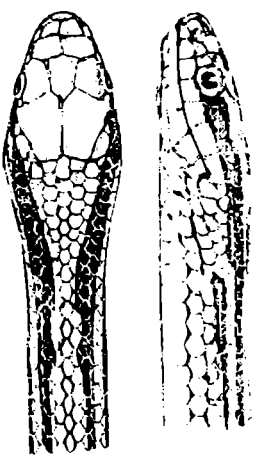
Striped-neck Snakes

36. Stoliczka's Striped-neck Snake (*Liopeltis stoliczkae*)

Distribution : Sikkim, Darjeeling and Assam. Reported from this region by the Zoological Survey of India (*ZSI, 1992*). Its presence in Sikkim is recorded in *Fauna of British India, Reptilia and Amphibia Vol III, by Malcom A. Smith.*

Habitat and Status : Hilly regions. Extremely rare.

Size : Total length : Male about 60 cm. and female about 54 cm. long.



Description : The name has been bestowed on it because of a characteristic sharp, black stripe on each side of the neck. Greyish above, lighter below. A greyish stripe on the outer margins of the ventrals. Body is visibly cylindrical, tail is long and pointed and large eyes have round pupils.

Behaviour : Not much is known about its ecology and behaviour. It is comfortable on the ground and is a good climber. Fairly active during sunlit hours, it

prefers to dodge rather than face danger.

Food : Lizards, mice and baby birds.

Breeding : Female lays eggs of unknown numbers.

Status : Schedule IV (WPA, 1991)

37. Himalayan Striped-neck Snake (*Liopeltis rappi*)

Distribution : Darjeeling and Assam. Reported from this region by the Zoological Survey of India (ZSI, 1992). Its presence in Sikkim is recorded in *Fauna of British India, Reptilia and Amphibia Vol III, by Malcom A. Smith.* (Gunther recorded it from Sikkim in 1860)

Habitat and Status : Hill forests. Fairly common.
Size : Total length 40 to 60 cm.

Description : Like other snakes of its kind, it too sports characteristic sharp, black stripes on each side of the neck. Brown above with small black spots and lateral transverse bars on the anterior of the body. Markings may disappear in adults, leaving upper part dark brown. Body is visibly cylindrical, tail is long and pointed and large eyes have round pupil. Differs from L. Stoliczkae in having divided nasal. (*ZSI, 1992*)

Behaviour : It is generally a mild and lethargic snake although when confronted it hisses menacingly and if the warning is not heeded may inflict a harmless albeit painful bite. It is diurnal.

Food : Lizards and small birds.
Breeding : Female lays eggs of unknown numbers.

Status : Schedule IV (WPA, 1991).

Kukri Snakes

38. White-striped Kukri Snake or Ladder Back Kukri Snake or Light-barred Kukri Snake (*Oligodon albocinctus*)

Local Name : *Kukri Saamp* (Nepali)

Distribution : Eastern Himalaya, Assam, Bangladesh and Myanmar. Pres-

ence in Sikkim Recorded in *Fauna of British India, Reptilia and Amphibia Vol III, by Malcom A. Smith.*

Habitat and Status : Common in evergreen hill forests upto an elevation of 1700 m. Most sightings reported from tea gardens.

Size : Total length 60 to 75 cm. including 9 to 11 cm. long tail.

Description : The dorsal surface is brown (Reddish) or pinkish when alive) with red with 20 to 30 white, yellow or fawn coloured black edged cross bars. Belly whitish with large black squarish spots at the outer margin of the ventrals. Head light brown above with a characteristic chevron mark on it. The body shape is similar to that of *Oligodon juglandifer.* The name Kukri is indicative of its sharp-curved upper teeth bearing an approximate similarity to the blade of a Gurkha's *kukri* (sword).

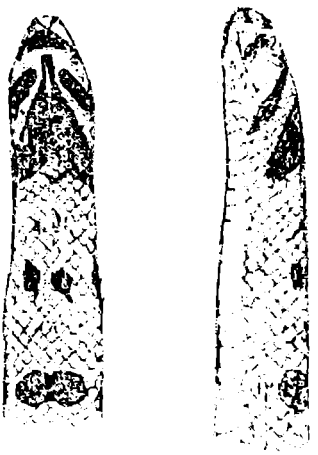
Behaviour : A gentle snake active during day hours. Has been reported to enjoy basking in the sun. It is harmless and does not resort to hissing or bitting even when held in the hand.

Food : Feeds on reptilian and amphibian eggs and small rodents.
Breeding : Little information has been gathered about its breeding behaviour. Females lay eggs (about 10 in number) during April -May.

Status : Schedule IV (WPA, 1991)

39. <u>Red-bellied Kukri Snake</u> (*Oligodon erythrogaster*)

Not recorded in Sikkim so far but its presence in Sikkim Himalaya has been confirmed
Local Name : *Rato Kukri saamp* (Nepali)



Distribution : Darjeeling.

Habitat and Status : Fairly common in moist evergreen forests and the tea gardens of the district. Not rare in human surroundings.

Size : Total length 40 to 50 cm.

Description : As the name suggests, the ventral surface of this snake is red (turns white

after it dies) in colour with blackish outer margins. Purplish grey above, the scales edged with black; a light brown vertebral stripe, bordered on either side by greyish brown, Another distinguishing feature is that the hemipenis is not spinose (*ZSI, 1992*). Body shape is similar to other Kukri snakes.

Behaviour : A harmless species, when frightened it puffs up the body but is not keen on biting. It is a fairly good climber. Like other snakes of its kind, it too is diurnal.

Food : Reptilian eggs and frog spawns.

Breeding : Females lay eggs.

Status : Schedule IV (WPA, 1991).

40. Black Kukri Snake (*Oligodon melaneus*)

Not recorded in Sikkim so far but its presence in Sikkim Himalaya has been confirmed.
Local Name : *Kalo Kukri saamp* (Nepali)

Distribution : Darjeeling

Habitat and Status : Moist and evergreen forest edges, near human habitation and tea gardens. Not common

Size : Total length 30 to 45 cm.

Description : The ground colour of dorsal surface is dark brown with characteristic patterns on the body. Body smooth, annular and uniform throughout; head flat and tail short.
Behaviour : Not very different from other Kukri snakes. Does not show much fear for human proximity and if allowed undisturbed it gets accustomed to human presence to a large extent. Diurnal and moderately active.

Food : Mainly feeds on reptilian and amphibian eggs.

Breeding : Little information has been gathered about its breeding behaviour. Females lay eggs (about 8-10 in number) during April-May. Pairs are often seen together long after the mating rituals are completed.

Status : Schedule IV (WPA, 1991).

41. Darjeeling Kukri Snake or Large-spotted Kukri Snake (*Oligodon juglandifer*)

Not recorded in Sikkim so far but its presence in Sikkim Himalaya has been confirmed.

Local Name : *Kukri saamp* (Nepali)

Distribution : Darjeeling.

Habitat and Status : An extremely rare species which has been so far recorded only in the Darjeeling hills above elevations of 600 m. Has been reported from Gopaldhara. (*ZSI, 1992*)

Size : Total length 60 to 65 cm. including about 10 cm. long tail.

Description : It is a slim, cylindrical and slender snake of modest and uniform size. Neck only slightly distinct; head flat; snout small and rounded; tail short. The ground colour of dorsal surface ranges from buff, pale brown to reddish-brown. There are dark, large, well defined spots on body and tail. Head bears a distinct characteristic "three marks" of Kukri snakes.

Behaviour : These are timid and mild tempered snakes which exhibit practically no inclination to bite. They are day-dwellers and are fairly active and are particularly seen during the rainy season.

Food : Exhibits a distinct preference for reptilian and amphibian eggs but mice and small rats are consumed as well.

Breeding : Pairing instinct is reported to be fairly strong and males and females live together long after mating. Females lay 4-8 eggs sometime around August.

Status : Schedule IV (WPA, 1991)

Bronze-backs

42. Painted Bronze-back (*Dendrelaphis pictus*)

Local Name : *Sano Shirishe Saamp* (Nepalese); *Pu-pyong bu* (Lepcha)

Distribution : Spread over West Bengal, Eastern Himalaya, further east

and south China. Presence in Sikkim recorded in *The Gazetteer of Sikkim. 1891.*

Habitat and Status : It is profoundly arboreal and hence exhibits a strong preference for forests and woodlands. Not very common.

Size : Total length about 1.25 m. including a 40-45 cm. long tail.

Description : Dorsal surface is rust-coloured with a fine dark stripe demarcating it. It is pale yellowish on the flanks. Ventral surface is yellow, pale-grey or greenish. It has a slender, smooth and graceful built, flat elongated head, rounded snout and a long slender tail.

Behaviour : One of the most restless snakes which is continuously on the move when awake. On the ground it is astonishingly swift and moves keeping the upper body raised. On trees too its movements are awesome and graceful. It has been reported to leap from one branch to another, a feat made possible by its balanced movements and unfailing grip. When threatened on a tree it flings itself on the ground and quickly disappears in the undergrowth. It is non-venomous and tends to avoid danger, but if cornered it compresses the neck, amplifies the throat and fights back with a singular display of courage - lunging forward again and again to strike with all its might. Reported to turn gentle and submissive in captivity. There is an erroneous belief that it is fatally poisonous.

Food : Feeds on lizards, tree frogs, snakes and nest-confined baby birds.

Breeding : Oviparous, lays 6-8 eggs after 4-6 months of gestation period.

Status : Schedule IV (WPA, 1991)

43. <u>Green Bronze-back</u> (*Dendrelaphis cyanochloris*)

Local Name : *Sano Shirishe Saamp* (Nepalese); *Pu-pyong bu* (Lepcha)

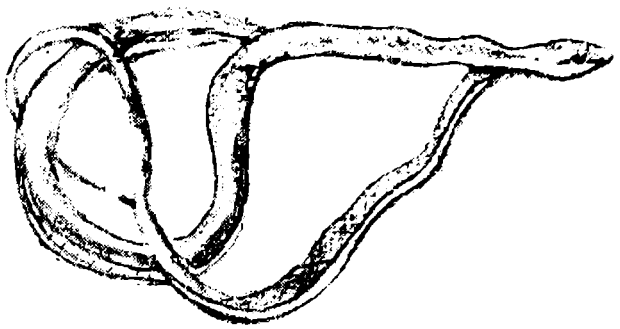
Distribution : West Bengal, Assam, Andaman & Nicobar Islands.

Elsewhere : Upper Myanmar and Siam. First reported from this region by Gammie, J.A. in 1872. (*ZSI, 1992*). Presence in Sikkim recorded by Gammie in *The Gazetteer of Sikkihim, 1891.*

Habitat and Status : An Arboreal species, it prefers forested areas, rarely

ever coming down. Not very common.

Size : Total length 1.2 to 1. m. including about 40 cm. long tail.



Description : Dorsal surface is bronzy olive, the scales are black edged. Ventral surface is pale greenish or yellowish. Usually no black flank stripe. A broad black temporal stripe, extending onto the neck and forebody, where it may be broken up into spots. Lips and lower jaw are yellowish. Slim, agile and flowing built; long prehensile tail; flat head and large eyes. Snout, unlike that of other Bronze-backs, is squarish and not round.

Behaviour : This too is an active creature which is wonderful in all its movements over the trees. It is non-poisonous but stabs fiercely and forcefully if unable to escape. It is up and moving during day hours.

Food : Lizards, birds, small rodents including squirrels.

Breeding : Oviparous, mother lays eggs which hatch 30 to 40 days later.

Status : Schedule IV (WPA, 1991)

44. Himalayan Bronze-back or Gore's Bronze-back (*Dendrelaphis gorei*)

Not recorded in Sikkim so far but its presence in Sikkim Himalaya has been confirmed

Local Name : *Sano Shirishe Saamp* (Nepalese); *Pu-pyong bu* (Lepcha)

Distribution : West Bengal and Assam. First reported from this region by Gammie, J.A. in 1872. (*ZSI, 1992*)

Habitat and Status : An arboreal species preferring areas with trees and thick shrubs. Once in a while it does come down to the ground. This species is more or less rare in India and perhaps other regions of habita-

tion also.

Size : Total length 90 to 100 cm. including a 32-33 cm. long tail.

Description : Bronze brown above and greenish or greyish below. A more or less distinct yellowish stripe and a black stripe along each side of the head extending onto the neck where it may be broken up into spots. It has the typical build of a Bronze-back and differs mainly in the 15 number of scales round the body.

Behaviour : A lively snake which exhibits charming, graceful and swift movements. It is harmless and not particularly pugnacious but if resigned to fight it does so courageously.

Food : Lizards, mice, tree frogs, birds and bird-eggs. Has been reported to catch prey such as frogs, toads and lizards on the ground also.

Breeding : Oviparous, mother lays eggs which hatch 30 to 40 days later.

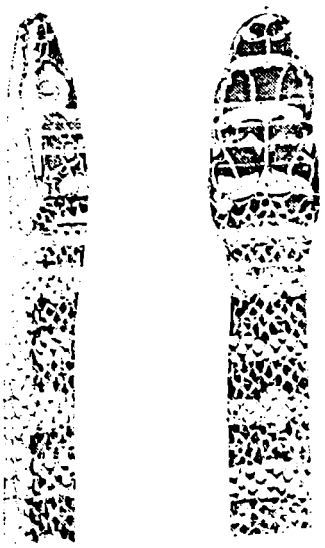
Status : Schedule IV (WPA, 1991)

Flying Snakes

45. Golden Tree Snake or Ornate 'Flying' Snake (*Chrysopelea ornata*)

Local Name : Pufong bu (Lepcha); Thulo Shirishe saamp (Nepalese)

Distribution : Madhya Pradesh, Bihar, Orissa, North Bengal, Assam and eastwards throughout the Indo Chinese region. In Sikkim it has been recorded by the author from forests at Manpur, Makha and Rangrang forest (near Mangan). Its presence is confirmed by the Lepcha and Nepalese inhabitants.



Habitat and Status : It is essentially arboreal and hence is found most often in forested areas but is also at times seen in grass and on low bushes. Reported to be common in the Indo Chinese region.

Size : Specimens as large as 140 cm. with about 35 cm. long tail not uncommon. Some measuring 175 cm. and above have been recorded.

Description : Most colourful amongst the snakes of this region. It is black above with yellow or pale-green cross bands and a series of red-orange flowershaped spots on the back. The ventral surface is greenish. This snake is famed for its beautiful built. It is supple, lithe and slender; head profoundly depressed and pear-shaped; neck visibly narrow and eyes large. Another distinguishing feature is that it has 9 supralabials.

Behaviour : The flying snake has acquired a legendary reputation because of its ability to 'fly'. Though quite capable of gliding long distances (as much as 50 m.), its talent is highly exaggerated - so much so that some local inhabitants even claim that it possesses a pair of wings too. Gliding is accomplished by a forceful leap followed by furious, rhythmic swimming movement. Perhaps this is the only limbless creature in the world that can accomplish a forceful leap, actually gliding through the air and, more importantly, managing a graceful, safe landing over a tree. A miraculous performance by any standards. It is not only at ease on trees but actually flourishes in such surroundings. It is courageous and sometimes even ferocious. Mostly active during the day time. Lepchas marvel its ability to keep the forebody straight and horizontal over a tree branch without any support.

Food : Small birds, lizards, tree frogs, small rodents and bats. A small moving prey is miraculously captured, killed and swallowed in mid-air-all in one motion. Large prey are killed by constriction and devoured whole. It has been reported to feed on insects also.

Breeding : Oviparous, mother lays 6-12 elongated eggs around May-June.

Status : Schedule IV (WPA, 1991)

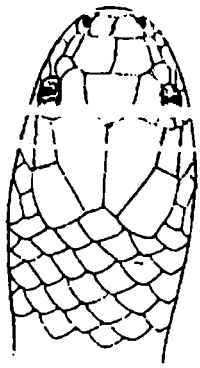
False Wolf Snakes

46. <u>Sikkim's False Wolf Snake</u> (*Dinodon gammiei*)

Distribution : Darjeeling and Sikkim.

Habitat and Status : Moist and wet mountain regions. Recorded from this region by Lord Carmichael and K. K. Tiwari. (*ZSI, 1992*) It is quite rare.

Presence in Sikkim Recorded in *Fauna of British India, Reptilia and Amphibia Vol. III, by Malcom A. Smith.*



Size : Total length 90 to 120 cm. including 25 to 30 cm. long tail.

Description : Dorsal surface is dorsum brown with alternating black and greenish yellow rings with very irregular margins, 28-36 in number. Head black with light spots on most of the shields. A large light spot on each side of the posterior part of the head. 17 scales round the body. It differs from Wolf Snakes in having unarched maxillary bones.

Behaviour : Hardly any information regarding its behaviour and ecology has been gathered. It is nocturnal, more or less inofensive and harmless.

Food : Lizards, mice and frogs.

Breeding : Female lays eggs.

Status : Schedule IV (WPA, 1991)

47. Gunther's False Wolf Snake (*Dinodon serpentrionalis*)

Not recorded in Sikkim so far but its presence in Sikkim Himalaya has been confirmed.

Distribution : Darjeeling , Assam and Mizoram.

Habitat and Status : Moist and wet mountain regions. It is quite rare.

Size : Total length 90 to 120 cm. including 20 to 30 cm. tail.

Description : Dorsal surface is dorsum brown with white transverse bars. It differs from Wolf Snakes in having maxillary bones not arched. Skin glossy; body long and slender; head pear shaped and depressed; eyes black and neck slightly distinguishable.

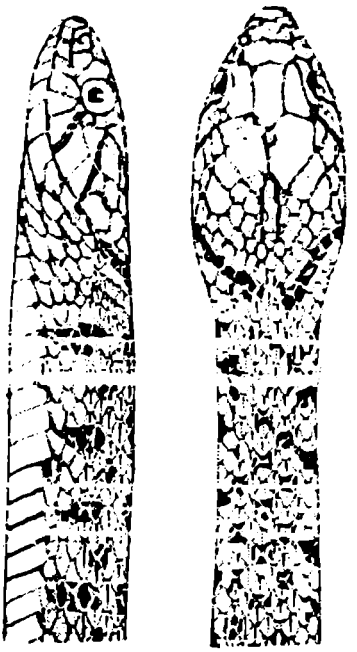
Behaviour : More or less no extensive behavioral studies have been concluded so far.

Food : Lizards, mice and frogs.

Breeding : Oviparous, female lays 4-12 eggs.
Status : Schedule IV (WPA, 1991).

Water Snakes
Keelbacks

48. Checkered Keelback (*Xenochrophis piscator*)
Local Name : *Pu-reil bu* (Lepcha); *Hiley Saamp* (Nepali)



Distribution : Entire South Asia, South China and Malay Peninsula.

Habitat and Status : One of the commonest fresh-water snakes of India. The Himalayan variety is paler than those found in the plains. Inhabits banks of rivers and streams and swampy regions. It is common in the plains but extremely rare in hilly regions. Ground holes in river banks are its favourite haunts.

Size : Females are consistently longer than the males but their tails are shorter. Total length 120 to 140 cm. including 35 to 40 cm. long tail. Longer specimen have also been recorded.

Description : Four varieties of this snake differing in colour have been recorded. The dorsal surface of the Himalayan variety, which is found in this region, has ground colour of olive with a profound pale tinge with five strings of dark spots. When the snake is agitated or upset it swells up to reveal some red markings which are confined to the basal half of the scales. Head is olive-brown with two dark strips one below and one behind the eye. Ventral surface is yellowish or dirty white. It is a sturdy snake with an egg-shaped head. Neck distinct; body narrows towards the tail and eyes moderately large.

Behaviour : Perhaps is the most aggressive snake of this region, is known to bite at slightest provocation. Poisoned bites are fatal for small mammals but have no effect on man or large mammals. When furious it erects and flattens its body like a cobra and is often mistaken for one. It is active during the day and can be seen often particularly during the rainy season.

Goes into hibernation during the winters. In plains during summers it hides deep inside the ground holes to escape the blazing heat and scarcity of food. However such behaviour has not been confirmed with the Himalayan variety. It is quite energetic and is known to swim and dive with great proficiency. When pursued aggressively it escapes swiftly with one or more spectacular leaps.

Food : Favours frogs but fish and perhaps other water prey too are taken up. The prey is swallowed alive and frogs have been reported to keep on squealing long after being devoured. (*Daniel J.C., 1989*)

Breeding : Mating occurs sometimes around October and pairs remain together till much later. Female lays about 8 to 90 eggs from February to May usually in nest holes near water. Incubation period has been reported to be longer in this region than in plains because of low temperatures.
Status : Schedule II (WPA, 1991)

Remarks : *According to a Lepcha folklore river Rung-nyu (Teesta) and Rung-nyet (Rangeet) once decided to meet at Melli in South Sikkim and run away secretly to get married. Since both were youthful and inexperienced they chose separate guides to lead them to the remdezvous. Rung-nyet chose a naughty bird which took him via a long and torturous path. Rung nyu chose* ***Pu-reil bu*** *(this snake) and could reach the destination via the shortest and perhaps the easiest route. Nowadays Lepcha dancers mimicking the snake in this story imitate the movements of a cobra, hence the general perception is that it was a cobra that guided the Rung-nyu in the story. From the story it is clear that Lepchas far from considering snakes as reprehensible, look upon them as helpful and sincere beings.*

49. <u>Boulenger Keelback</u> (*Amphiesma parallela*)

Local Name : *Pani ko Saamp* (Nepalese)

Distribution : North Bengal, Sikkim, Assam and further east. First reported from this region by Anderson J. in 1867. Widespread but rare. Presence in Sikkim Recorded in *Fauna of British India, Reptilia and Amphibia Vol III, by Malcom A. Smith.*

Habitat and Status : Most often found around ponds, lakes, streams, rivers and other water bodies where grass and low vegetation provides excellent camouflage to it.

Size : Total length 40 to 50 cm. including 10 to 12 cm. long tail.

Description : Olive brown or greyish brown above, the scales sometimes black edged and with 2 light dorso-lateral black edged stripes or series of spots along the back and tail a short yellow, vertebral streak behind the occiput, a light brown chevron-shaped mark on back pointing backwards. A black streak from the eye to the angle of the mouth. Top of head brown. Ventral surface yellow-uniform with a black dot on each side. It is rather a heavy bodied but smooth and elegant snake with a broad head and large eyes.

Behaviour : Like all other snakes of its kind this too is a shy and a quiet snake which bites extremely rarely. But when alarmed it raises its head menacingly. It is active during the day and perhaps in the early hours of darkness also.
Food : Frogs and toads.

Breeding : Oviparous, female laying 4 to 12 eggs during summers or early rains. Mating is reported to take place during winters.

Status : Schedule II (WPA, 1991)

50. <u>Mountain Keelback</u> (*Amphiesma platyceps*)

Local Name : *Pani ko Saamp* (Nepalese)

Distribution : Kashmir, Himachal Pradesh, Garhwal, Nepal, North Bengal, Sikkim and Assam. Reported from Takdah in Darjeeling district by Khajuria. H. In 1958 (ZSI, 1992).

Habitat and Status : It is unmistakably a hill snake found in hilly forests around water bodies. It is expansively distributed and is a common species in this region.

Size : Total length 80 to 90 cm. including 20 to 25 cm. long tail.

Description : The ground colour of the dorsal surface is olive brown of varying intensity with obscure marks on it; sometimes a dorso- lateral series of white spots; frequently two white black-edged parallel lines or an elliptical mark on the nape; or a white black-edged streak on each sides of the head or a black line from eye to nape. Lips white or yellow. The ventral surface is yellowish with or without blackish dots bordered with red. Throat

sometimes black. It is a large and a bulky snake with a broad head, narrow neck and a long tapering tail.

Behaviour : It is gentle and inoffensive by nature and bites only on extreme provocation. Bites are rather painful but perfectly harmless.

Food : Frogs and toads of different species, small rodents, lizards. The prey is captured by the rear-teeth.

Breeding : Oviparous, female laying 4 to 12 eggs during summers or early rains. Mating is reported to take place during winters.
Status : Schedule IV (WPA, 1991).

51. Red-necked Keelback (*Rhabdophis subminiata*)

Local Name : *Pani ko Saamp* (Neplalese)

Distribution : Sikkim and adjoining area. Elsewhere, Indochinese subregion, South China, Hongkong and Malay Peninsula. Presence in Sikkim recorded by Murty, T. S. N., *The Snake book of India, 1986.*

Habitat and Status : Found in the hilly regions near water bodies. Reported from Gopaldhara in **Darjeeling district** by **Stevens H.**

Size : Total length 55 to 65 cm. including 15 to 18 **cm. long tail.**

Description : Dorsal surface is yellowish with an olive tinge and ventral surface is lighter. There are 19 scales round the body and hemipenis is forked. (*ZSI, 1992*).

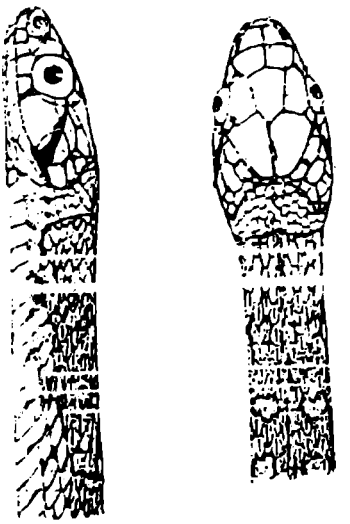
Behaviour : Though a shy, quiet and harmless snake it is capable of inflicting painful wounds and does so if and when cornered.

Food : Bush frogs, skipper frogs and common toads. Occasionally other prey are also taken up.

Breeding : Oviparous, mother lays eggs during summer months.

Status : Schedule IV(WPA, 1991).

52. Himalayan Keelback (*Rhabdophis himalayana*)



Local Name : *Pani ko Saamp* (Nepalese)

Distribution : Sikkim and Assam. Reported from this region by the Zoological Survey of India. (*ZSI, 1992*) and its presence in Sikkim is recorded in *Fauna of British India, Reptilia and Amphibia Vol III, by Malcom A. Smith* and *by* Murty, T.S.N., in *The Snake book of India, 1986.*

Habitat and Status : Male about 80 cm. long including 20-21 cm. long tail and Females about 125 cm. long including 30 cm. long tail.

Description : Body shape similar to those of other Keelbacks. Dorsal surface is olive brown with small black spots and two dorso-lateral series of small yellow spots or narrow cross bars. Lower part yellowish, speckled with brown or black or nearly entirely greyish or blackish. A yellow or orange collar usually interrupted in the middle and succeeded by a dark cross bar or triangular patch. Sometimes two black bars one below, other behind the eye; neck and forebody sometimes with a reticulation of black and yellow. There are 19 scales round the body and hemipenis is not forked. (*ZSI, 1992*)

Behaviour : Like all other snakes of its kind this too is a shy and a quiet snake which bites extremely rarely.

Food : Frogs, toads and occasionally lizards.

Breeding : Mating occurs in winters during hibernation. Females lay about 5 to 10 eggs from May to September.

Status : Schedule IV(WPA, 1991).

False Cobra

53. Darjeeling False Cobra (*Pseudoxendon macrops*)

Distribution : Sikkim, Darjeeling, Assam, Nepal, Myanmar, Thailand and Malay Peninsula. First reported from this region by Gammie J. in 1870. (*The Gazeteer of Sikkim*). Rather common in this region.

Habitat and Status : Has a definite preference for moist and damp mountainous forests.

Size : Total length 90 to 120 cm. including 20 to 23 cm. tail.

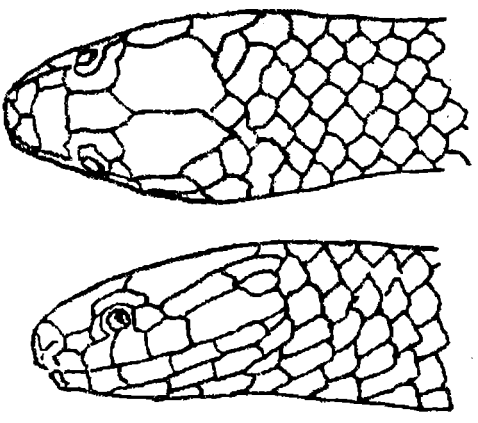
Description : It is a lovely snake with varying coloration. The dorsal surface is brownish with a golden tinge and a row of yellowish orange spots or crossbars at the back. A sidelong row of black spots too is present. A distinct chevron-shaped mark on the nape, pointing forward. The ventral surface is ivory- yellow to yellow. The anterior part of the belly has large quardangular black or dark brown spots or cross bars. Posterior part of the belly and tail speckled or coloured with black or dark grey. When ruffled it raises itself and widens hood like a cobra and hence its name. But it pays a heavy price for this resemblance and is often killed indiscriminately. A distinguishing feature is that the teeth are unequal in size.
Behaviour : Hardly any information has been gathered about its habits. It is harmless, not very aggressive and active during late afternoons. It goes into hibernation during winters.

Food : Small rodents and lizards.

Status : Schedule IV(WPA, 1991).

Oriental Worm Snakes

54. Darjeeling Oriental Worm Snake or Black-bellied Roughside (*Trachischium fuscum*)



Distribution : Garhwal, Darjeeling and Assam. Its presence in Sikkim is recorded in *Fauna of British India, Reptilia and Amphibia Vol III, by Malcom A. Smith*. Gunther reported it from Sikkim in 1858. Sharief reported it from Kurseong in 1926 (*ZSI, 1992*).

Habitat and Status : A creature of damp and moist hills at elevations ranging between 1500 to 2250 m. It prefers living under stones, rocks and fallen logs. More or less common.

Size : Total length : Male about 32 cm. including 4-5 cm. long tail; Female about 45-50 cm. including 6-7 cm. long tail.

Description : Dark brown or blackish above and below; more or less iridescent, and with or without indistinct light longitudinal streaks above. The young are light brown above with dark longitudinal lines. There are 13 scales round the body and it has 150 to 165 ventrals. It differs from other snakes of the colubridae family in having an almost rectangular prefrontal scale (*ZSI, 1992*).

Behaviour : A harmless and gentle snake which can be handled without much fear of being bitten.

Food : Small frogs and lizards.

Status : Schedule IV(WPA, 1991).

55. Gunther's Oriental Worm Snake (*Trachischium guentheri*)
Distribution : Sikkim and Darjeeling. Its presence in Sikkim is recorded in *Fauna of British India, Reptilia and Amphibia Vol III, by Malcom A. Smith.* Zoological Survey of India reports it from Darjeeling (*ZSI, 1992*)

Habitat and Status : A hill snake having a definite preference for damp and moist mountains ranging between 1500 to 2250 m. It favours living under boulders, rocks and fallen logs. Not uncommon.

Size : Total length : Male about 30 cm. including 4-5 cm. long tail; Female about 42 cm. including about 6 cm. tail.

Description : It is dark brown or reddish above with uniform or with indistinct lighter and darker longitudinal streaks. Yellowish below (coral red when alive), uniform or scantily mottled with brown. Young with an indistinct yellowish collar. There are 13 scales round the body. It differs from *T. fuscum* in having 132 to 154 ventrals (*ZSI, 1992*).

Behaviour : A harmless and gentle snake which can be handled without any fear of being bitten

Food : Small frogs and lizards.

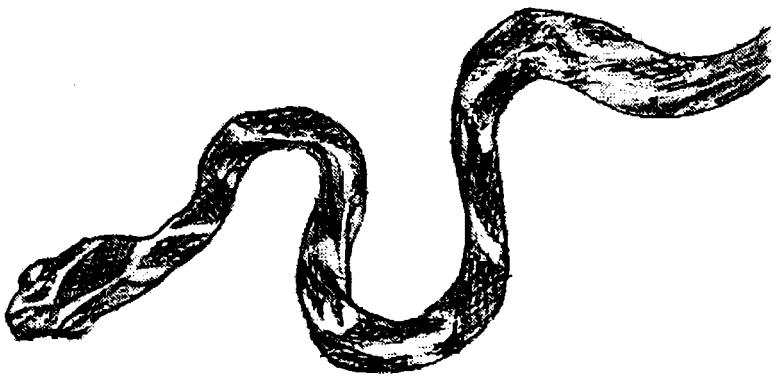
Status : Schedule IV(WPA, 1991).

56. Orange-bellied Oriental Worm Snake (*Trachischium tenuiceps*)

Distribution : Eastern Himalaya. Its presence in Sikkim is recorded in *Fauna of British India, Reptilia and Amphibia Vol III, by Malcom A. Smith.* Zoological Survey of India reports it from Darjeeling (*ZSI, 1992*)

Habitat and Status : A creature of damp and moist hills at elevations ranging between 800 to 2000 m. It prefers living under stones, rock and fallen logs. Status not ascertained.

Size : Total length 30 to 40 cm. including 4-6 cm. tail.



Description : Adults are dark brown to blackish above, bright yellow or orange below (when alive). Tail mottled with brown and with a brown mesial line. There are 13 scales round the body and 125 to 140 ventrals. (*ZSI, 1992*)

Behaviour : Like other oriental Snakes it too is an innocuous and pleasant snake which is not given to biting even when handled.

Food : Small frogs and lizards.

Status : Schedule IV(WPA, 1991).

Cat Snakes

57. Common Cat Snake or Indian Gamma (*Boiga trigonata*)

Local Name : *Birale Saamp* (Nepalese)

Distribution : South Asia. Its presence in Sikkim is recorded in *Fauna of British India. Reptilia and Amphibia Vol III, by Malcom A. Smith*

Habitat and Status : A common snake of evergreen and deciduous forests.

Primarily an arboreal species haunting low bushes, scrubs and trees. But is quite at home in areas without vegetation also. Common in plains. On Himalayas has been recorded upto 1500 m. elevations. (*Daniel J.C., 1986*)

Size : Females, which may grow over 100 cm (including 18 cm. tail) are consistently longer than the males (80 to 85 cm.)

Description : Dorsal surface is fawn coloured - uniform or smeared with darker shades. There is a series of marks, resembling the Greek letter Gamma, on its back. Ventral surface rufous brown and is dotted alongside. There are lung shaped patches over the head. Lower part whitish, uniform or with small black spots on the outer margins of the ventrals. A light stripe from above the eye to the angle of the jaw. A small snake with lean but compact body; neck narrow and distinct and large eyes. It is often mistaken for a saw-scaled viper but the viper differs in not having the head shields.

Behaviour : Essentially a tree snake it has adapted well to an arboreal life and is an excellent climber. Has been reported to jump down from appreciable heights to escape enemies. It is pugnacious by nature and if picked up by the tail it quickly doubles up and bites severely. It has a tendency to bite repeatedly. Usually it is seen at night. During the day it curls up into a small pile in thick bushes and rests. It is poisonous enough to kill lizards and small mammals but is harmless for man. It has fangs in the back of the mouth.

Food : Fairly versatile in eating habits but exhibits a distinct liking for garden lizards (genus Calotes). At times small birds and mammals too are taken up. The prey is killed by constriction.

Breeding : The mating takes place sometimes around March-April and the mother lays about 4 to 12 eggs in August or September.

Status : Schedule IV(WPA, 1991).

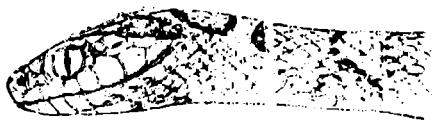
58. <u>Tawny Cat Snake</u> (*Boiga ochracea*)

Local Name : *Rato Birale Saamp* (Nepalese)

Distribution : Sikkim, Darjeeling, Assam, and Andaman & Nicobar Islands. Reported from Darjeeling and Sikkim by Jerdon T.C. (*ZSI, 1992*).

Habitat and Status : A snake of moist and damp forest and brushwood.

Arboreal to a marked degree. Fairly wide spread but not very common.



Size : Total length 80 to 100 cm. including 20 to 24 cm. long tail. Females are larger (110 cm.)

Description : Greyish, reddish or yellowish brown above (coral red in life). Some of the scales finely edged with black forming more or less distinct transverse lines or bars. The vertebral series of scales lighter than the other. Paler below; lip and chin whitish. It has distinctive short, blunt head; thin neck and a slender compressed body. The eyes are very large. Ventrals are strongly enlarged and hemipenis extends to 10th-12th caudal.

Behaviour : This too is a nocturnal snake living amidst low vegetation. It is rather short tempered and when threatened assumes a hostile posture with body erect and puffed up and tail swaying tensely. The bites are fiery, purposeful and slightly venomous.

Food : Lizards (particularly *Calotes*), mice and nestling.

Breeding : Oviparous with mother laying eggs around July.

Status : Schedule IV(WPA, 1991).

59. Eastern Gamma or Eastern Cat Snake (*Boiga gokool*)

Local Name : *Birale Saamp* (Nepalese)

Distribution : Eastern Himalaya, Assam and Bangladesh. Presence in Sikkim. Recorded in *Fauna of British India, Reptilia and Amphibia Vol III, by Malcom A Smith.*

Habitat and Status : It prefers forest and brushwood areas with heavy rain fall. Reported to be very common in Duars but more or less rare in Sikkim Himalaya.

Size : Total length : Male about 80 cm., including 17 cm. long tail; Females slightly longer some times reaching 120 cm. also.

Description : Very similar to B. trigonata. Is brownish or yellowish-brown above with a series of dorsal Y-shaped or T-shaped markings on each side

of the back separated from one another by a light vertebral line. There is an arrow shaped brown black-edged mark on the head. A black stripe from eye to the angle of mouth. Ventral surface is whitish with an almost continuous series of brown or black spots on each side of the ventrals. Labials are brown. Ventrals are strongly enlarged and hemipenis extends to 10th caudal.

Behaviour : A bold and aggressive species which often hides in bushes during the day time only to reappear at nightfall. Like all others of its genus its bites are poisonous for its small prey but are harmless for man. When faced with danger it feigns an erect and antagonistic posture so typical to this genus.

Food : Lizards, mice and nestling.

Breeding : An egg-laying snake.

Status : Schedule IV (WPA, 1991)

60. <u>Green Cat Snake</u> (*Boiga cyanea*)

**** Not recorded in Sikkim so far but its presence in Sikkim Himalaya has been confirmed.***

Local Name : *Hario Birale Saamp* (Nepalese)

Distribution : Darjeeling and Assam. Reported from this region by Zoological Survey of India (*ZSI, 1992*) Gammie J. (*The Gazetteer of Sikkim. 1891*)

Habitat and Status : Damp and moist hilly regions receiving heavy rainfall. Status not ascertained so far.

Size : Total length about 100 cm.

Description : Dorsal surface is greenish brown with a row of characteristic marks on the body. Ventral surface is lighter, at times dirty white. There are 21 rows of scales round the body and posterior genitals are not as long as the anterior. It is a slender snake with a long tail. Head is small and rounded.

Behaviour : This too is gives to provocation quite easily. When the snake is disturbed the head and body are heaved well off the ground, the tail is

thrown into loops prior to striking. It too is active at night and hence possesses large eyes.

Food : Has a definite liking for garden lizards but otherwise is quite catholic in its eating habits.

Breeding : The mating occurs sometimes in the spring and the mother lays about 4 to 12 eggs in August or September.

Status : Schedule IV (WPA, 1991).

61. Himalayan Cat Snake (*Boiga multifasciata*)

Not recorded in Sikkim so far but its presence in Sikkim Himalaya has been confirmed

Distribution : Garhwal, Nepal and Darjeeling. Reported from this region by the Zoological Survey of India (*ZSI, 1992*) Gammie J. (*The Gazetteer of Sikkim, 1891*).

Habitat and Status : Thick bushes and shrubs of hilly regions at elevations ranging between 1000 to 2300 m.

Size : Total length 90 to 120 cm.

Description : The ground colour of the dorsal surface is light greyish brown to chestnut brown with a row of 'V' shaped black bars, two black stripes on the head and one dark stripe on the nape. Body long, slender and firm. Head moderate in size and eyes very large. There are 21 rows of scales round the body and posterior genitals are as long as the anterior.

Behaviour : A nocturnal and aggressive snake, perfectly at ease on trees and shrubs where it moves swiftly and confidently. Like others of its genus it too has fangs in the back of the mouth. The secretion of the mouth-glands is toxic and lethal for mice and lizards.

Food : Mice and lizards.

Breeding : Oviparous. Females lay 4 to 12 eggs at a time.

Status : Schedule IV (WPA, 1991).

62. Bengal Cat Snake (*Boiga ocellata*)

Not recorded in Sikkim so far but its presence in Sikkim Himalaya has been confirmed
Local Name : *Birale Saamp* (Nepalese)

Distribution : Darjeeling and Assam

Habitat and Status : Dense forest and undergrowth regions. Status not ascertained.

Size : Total length upto 120 cm.

Description : Dorsal surface brown with a row of typical Gamma-shaped marks. Long, graceful body, neck distinct, eyes very large with mustard yellow iris. 23 rows of scales round the body. Occasionally 25 rows of scales round the body. Preocular reaches to the upper surface of head. (*ZSI, 1992*)

Behaviour : Hostile, daring and courageous. Active during the dark hours of night. Slightly poisonous.

Food : Lizards, frogs and small rodents.

Breeding : Oviparous.

Status : Schedule IV (WPA, 1991).

63. Forsten's Cat Snake (*Boiga forsteni*)

**** Not recorded in Sikkim so far but its presence in Sikkim Himalaya has been confirmed .***
Distribution : Eastern Himalaya , Uttar Pradesh , Bihar , West Bengal , Orissa and Western Ghats.

Habitat and Status : More profoundly arboreal than other Cats snakes. It is found in plain and hill forests and is reported to be common in Western Ghats and Indo Chinese subregion .

Size : The largest of all the Cats snakes it sometimes reaches 200 cm. in length including an about 50 cm. long tail.

Description : It is brown to buff to reddish brown with dark spots or bars on the back , particularly on the neck and forepart of the body. Ventral surface is dirty white. The build is similar to that of other cat snakes.

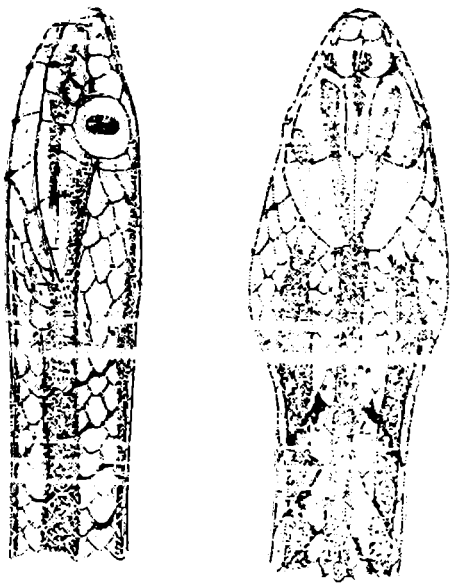
Behaviour : Similar in habits to other cats snakes except that it is much more arboreal. It too is nocturnal , aggressive and bold.

Food : Apart from the usual prey taken by other cat snakes it is reported to feed on bats, pigeons and other birds. It is particularly fond of poultry on which it feeds greedily. It kills by first immobilizing the prey with venom and then strangling the prey in its vice like folds.

Breeding : Male and female are seen in pairs. They mate during spring and the female lays 5 to 10 eggs at a time.

Status : Schedule IV (WPA, 1991).

64. Mock Viper (*Psammodynastes pulverulentus*)



Distribution : Indo Chinese subregion. Reported from Sikkim by Murty, T. S. N. The snake book of India, 1986.

Habitat and Status : Rather uncommon. In India so far reported from hill forests at elevations between 1000 to 1800m. at Darjeeling and Sikkim only. (ZSI , 1992). Recently it has also been collected from Simlipal , Orrisa (Bowmick and Sur , 1998). New record of Psammodynastes pulverulentus from Orrisa. Rec. Zool. Surv. India 85 (3) : 453 - 454.

Size : Total length about 60cm. including 8 - 9cm. long tail.

Description : Bears a remarkable similarity to the Himalayan Pit Viper (*Agkistrodon himalayanus*). The dorsal surface varies in colour , light or dark brown or blackish , reddish , greyish or yellowish above with small black spots or streaks, sometimes arranged in pairs. Occasionally a series of pink or orange spots on either side of the vertebral line. Flanks usually with three closely set longitudinal lines or with yellow spots. Ventral sur-

face thickly powdered with brown or grey and with dark spots or longitudinal lines. Head with dark symmetrical markings. Body is short and thick - set, tail rather small , eyes large with vertical pupils; snout is short and truncated. But the absence of loreal pits distinguishes it readily from the Himalayan Pit Viper.

Behaviour : It is diurnal and rather truculent in habits. It is completely harmless but strikes vigorously at the offender if disturbed. Has a plucky and vicious disposition, is mildly poisonous and can kill small creatures including snakes with a single bite.

Food : Has a strong liking for reptilian and amphibian diet.

Breeding : It is ovo-viviparous. Mothers give birth to about 10 babies during May and June.

Status : Schedule IV (WPA, 1991).

Whip Snakes

65. Green Whip Snake (*Ahaetulla prasina*)

Local Name : *Pu-jok bu* (Lepcha)

Distribution : Eastern Himalaya, Indo Chinese subregion and Indo-Australian archipelago. Its presence in Sikkim is recorded in *Fauna of British India, Reptilia and Amphibia Vol III, by Malcom A. Smith.* Also reported from Sikkim by Gammie J. (The Gazetteer of Sikkim, 1891). The Zoological Survey of India too confirms its presence in Sikkim. (*ZSI, 1992*).

Habitat and Status : Most often seen on low bushes and shrubs in jungles, groves and tea gardens. Has been sighted in gardens also. On vegetation it dwells most often on topmost boughs as its slim built and buoyant body are well supported by even the smallest of twigs and twining stems. It is more or less a rare snake.

Size : Total length 120 to 150 cms. including 60-62 cm. long tail. This is proportionately longer than any other snake in this region. Females (200 cm. including 60 cm. long tail) are a little longer than the males but males possess longer tails.

Description : It is a green coloured snake. The green on its dorsal surface often matches the green tint of the foliage it prefers. The ventral surface too is light but intense green. There is a pale line along the outer margin of the ventrals. The name 'whip snake' finds its origin in its long whip-lash like tail. The snakes of this genus are also called 'Long-nosed tree snake' because of a soft and fleshy overgrowth on their snout which stretches out beyond the lower jaw. It has two anal scales and nasals are in contact with labials.

Behaviour : It is a harmless snake which is gentle and not particularly hostile but when in danger can be quite ferocious and formidable. When threatened, apart from raising its forebody, widening neck and opening fearsome jaws wide, it looks straight into the eyes of the aggressor. Hence it is a much feared snake. It is diurnal. It is often killed senselessly because of the unfortunate resemblance it shares with the Bamboo Pit Viper. It is mildly poisonous and though is harmless for man but some swelling and numbness at the site of the bite is not uncommon. Allows itself to be handled and keeps its tongue out almost motionless for a considerable time.

Food : Reported to be quite sweeping in its food choice and takes up small mammals, birds, lizards, frogs and even other snakes. Once a prey is discovered, it launches itself with lightening speed, grabbing the prey by its neck or head. It dislodges the prey off its footing and hangs on till the struggle ends.

Breeding : Ovo-viviparous, giving birth to 3 to 20 young ones between March to December.

Status : Schedule IV (WPA, 1991).

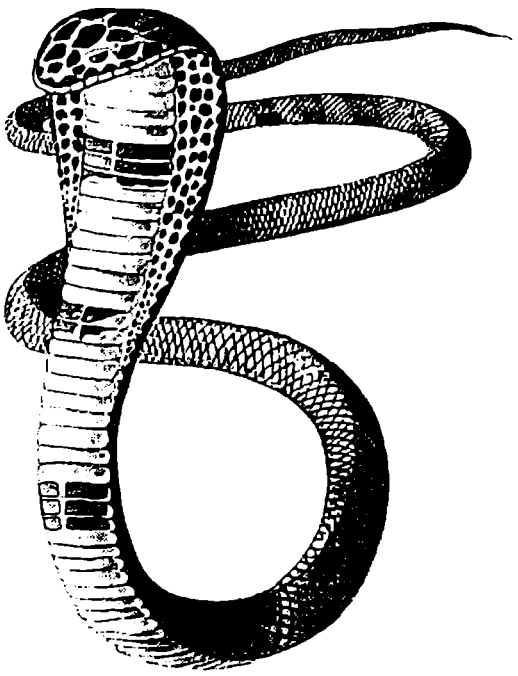
FAMILY ELAPIDAE
Cobras, Kraits and Coral Snakes

66. King Cobra (*Ophiophagus hannah*)

Local Name : *Pu-mol bu* (Lepcha) *Shesh Naag* (Nepali)

Distribution : India : Himalayas, Sunderbans, Bihar, Orissa, Andaman Islands, Western Ghats. Elsewhere : Bangladesh, Upper Myanmar, Southern China, Thailand, the Malaya Peninsula and Philippine Islands.

In Sikkim Himalaya it is limited to tropical forests below 1250 m. (***The Gazetteer of Sikkim, 1891***). A King Cobra was reported from Gangtok in 1923. According to an unconfirmed report, about a decade back, a 12 feet long specimen was reported from Majhitar, near Jorethang.



Habitat and Status : Occurs in dense evergreen forests and is (wide spread) yet extremely rare.

Size : It is the largest venomous snake in the world and the second largest snake (next only to the Indian Python) in the Sikkim Himalaya. A full grown specimen may grow above 5 m. (including 70-85 cm long tail) and may weigh about 15 kg.

Description : It has a slender and graceful built with a narrow, flat head and a rounded snout. Head olive brown, throat creamy-orange, body blackish brown to light brown with 43 to 56 lighter bands. It is a good climber and is very much at home in water also.

Behaviour : It has a number of unique characteristics not found in any other snake. It has a higher level of intelligence, awareness and alertness than many other animals. The male is very possessive about its territory. If any other snake of its kind ventures into its territory, it chases the intruder out. It is timid by nature but may become very aggressive when cornered and though its venom is less poisonous than that of a Krait or a common cobra, its massive glands have been known to yield over seven cc of venom in a single extraction which is more than enough to kill even an elephant.

Food : It is a diurnal hunter and most often feeds on other snakes, sometimes turning cannibalistic. Its double-hinged jaw and elastic throat permits it to consume prey much larger than itself. It is known to prey often upon monitor lizards also.

Breeding : The female King cobra is the only snake that builds nests

and protects the 30 - 40 eggs resolutely from predators like monitor lizard, mongoose and wild boar for the entire period of 60-90 days it takes for the eggs to hatch. Perhaps its cannibalistic trait prompts the mother to abandon the eggs just before they hatch.

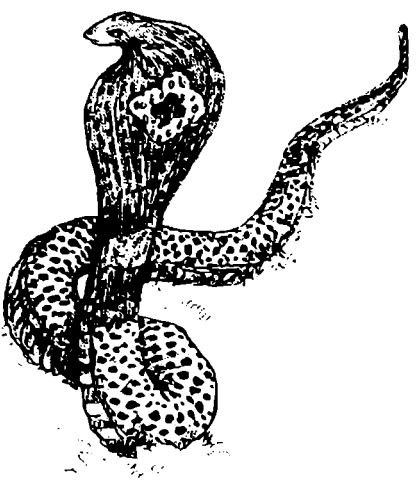
Status : Schedule IV (WPA, 1991).

Remarks : *An approximate translation of the Lepcha name Pumol-bu is* ***The Minister of Snakes****, title accorded presumbaly because of its size and venom. According to Lepchas its bites are so lethal that death is instantaneous. An interesting Lepcha myth recounts how the poison was gifted to the King Cobra by Na-zong-nyo, the Lepcha Goddess-mother. Proud of its new-found might it went around biting and killing every creature, including trees and shrubs, it came across. The mother was disappointed by its behaviour and hence she locked its jaws. Thereafter its jaw could open and allow it to inflict bites only to the creatures whose death was said to be inevitable. Lepchas too confirm the fact that the mother King-cobra makes nests for the eggs it lays and protects them from predators. Further, an unsubstantiated belief prevailing amongst them is that even the father King cobras keep a watch over the mother and the eggs from over the tree under which the nest is built. Anyone unfortunate enough to arrive near the nest accidentally is pounced upon by the angry father and killed right away.*

67. Indian Monocled Cobra or Bengal Cobra (*Naja Kaouthia**)

Local Name : *Purshyuk bu* (Lepcha); **Nag** (Lepcha)

Distribution : Bengal, Orissa, Bihar, Andaman Islands, Sikkim, Assam and further east. **In Sikkim**, it is not very common but is wide spread in tropical and subtropical regions of the state. Has been reported from Rangpo, singtam, Sangkhola, Makha, Sriwani, Ranipool, 6th Mile. A specimen was recorded by the author near the Secretariat in Gangtok (1800 m). Has been recorded from elevations as high as 2500 m also. Population moderate in Sikkim and Darjeeling. The famed ***Golden cobra*** of this region is not a distinct species but merely a seasonal form of this snake. The golden yellow colour is due to winter hibernation when



the snake remains in seclusion away from light. This colour quickly changes to brown when the snake is exposed to sunlight.

Habitat and Status : Versatile in habitat. It is quite at home in forests, tea-gardens, edges of forests, farms and cultivated areas, in and near human settlements and near rivers and lakes. But shows a distinct preference for wet surroundings. Hollows of trees, holes in the ground, termite mounds, ruined buildings, rock-piles and small dens are its preferred dwellings. Population Moderate.

Size : 125 to 160 cm. long. Longest measured specimen was 225 cm. long.

Description : General colour buff, olive, brown or black. Individuals with a greenish tinge too have been recorded. Can be distinguished from other species (*N. naja* and *N. oxiana*) by a yellow or orange O-shaped mark on the well developed hood. The body-scales are smooth. Round eyes, large nostrils. The head is not disparate from the neck.

Behaviour : It is most active in late afternoons and evenings. It is less poisonous than its other two subspecies and is more aquatic. Though young cobras are reported to be aggressive, but an adult is timid by nature and bites only when somebody accidentally steps on it. Cobra bites are more fatal at night when it bites persistently and resolutely. Its venom is neuro-toxic and death occurs because of respiratory failure and cardiac arrest. Its has a good vision particularly at night.

Food : Its favourite food includes rats, mice, frogs, lizards and even snakes and birds. Aquatic prey are also taken regularly and it is known to feed on snake and bird eggs also.

Breeding : Cobra pairs tend to remain together from the time of mating (January - February) till the young ones are born (July - August). The mother lays 10-30 eggs sometimes around May and both the parents take turns to protect the eggs from predators.

Status : Schedule II (WPA, 1991)

**Early workers have traditionally treated all Asian species of Naja as a subspecies. Wuster and Thrope (1992) have shown that many population are specifically distinct, based on morphological and distributional data.*

Kraits

68. Himalayan Krait (*Bungarus bungaroides*)

Distribution : Sikkim, West Bengal, Assam and Upper Myanmar. Specimen collected from Labdah, near Kurseong. (*ZSI, 1992*). Presence in Sikkim Recorded in *Fauna of British India ,Reptilia and Amphibia Vol III , by Malcom A. Smith.*

Habitat and Status : Extremely rare. Has been collected from 1600 to 2200 m. elevations.

Size : Total length : Male about 140 cm. including 16-18 cm. long tail; Female 100 cm. including 13-14 cm. long tail.

Description : Is often mistaken for the young of a king cobra. Is black or dark brown in colour with about 62 brown bands, formed of a series of spots across the back. Below, the lines widen, forming broad bands across the belly. A white line runs across the snout and a curved one on each side from the frontal shields to behind the angle of the mouth. Ventral surface is creamish or light brown in colour. Like other Kraits it can be easily identified by the polished glossy and hexagonal scales. The mouth is narrow and the poison fangs are small and short.

Behaviour : A rare and a secretive creature. Not much is known about it. Like other Kraits it is highly poisonous and is most active during night. Though it is venomous but there are hardly any records of its biting.

Food : Partial towards lizards, insects and small snakes.

Breeding : Female lays eggs. Not much is known about its breeding behaviour.

Status : Schedule IV (WPA, 1991).

69. Black Krait (*Bungarus caeruleus*)

Local Name : *Kalo Goman* (Nepalese); *Pahyuk bu* (Lepcha)

Distribution : Assam, Bengal, Bihar and A.P. Reported from Sikkim by Gammie (***The Gazetteer of Sikkim, 1891***)

Habitat and Status : It prefers cracks in walls or heaps of stones or bricks. Rare in Sikkim.

Size : Length upto 1.5 m.

Description : It is distinctly steel blue in colour with an enlarged chain of hexagonal scales. Head not distinct from neck. Eyes moderate or small.

Behaviour : Highly poisonous. The venom is 16 times more potent than that of a cobra. But it is a mild snake and hence does not account for many fatalities.

Food : Mice and at times snakes too. There is a suspicion that occasionally it can be cannibalistic.

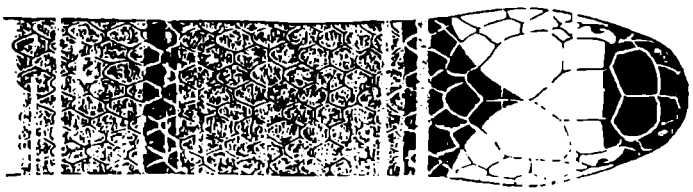
Breeding : An egg-layer. Lays eggs between April and May which take 45-60 days to hatch. No information recorded about its mating and breeding behaviour.
Status : Schedule IV (WPA, 1991).

70. <u>Macclelland's Coral Snake</u> (*Hemibungarus macclellandi*)

***Formerly known as** *Calliophis macclellandi.*

Local Name : *Gurbhe Saamp* (Nepalese); *Pub-lyok bu* (Lepcha)

Distribution : This subspecies of Macclelland's Coral Snake is common in Sikkim Himalaya. The species is spread over the Himalayas to Assam, Southern China and Taiwan. **In Sikkim**, It has been reported from Gangtok, Chungthang, Dentam, Namchi, Geyzing, Kewzing, Manshitang, Rinchinong, Temi and other localities at elevations between 1500 to 2500 m.



Habitat and Status : A common snake of damp, humid, mountain forests with thick humus floors prefers to live under rocks, logs and other debris.

Size : Total length 50 to 65 cm. Specimen above 80 cm. are rare.

Description : A handsome snake with differing colour forms. Head shiny black with a sharply defined broad white cross band. Body uniform red of varying tinge with well-defined black vertebral stripes. Ventral surface whitish with a red tinge and black splotches.

Behaviour : An extremely shy creature which remains in hiding most of the time. Despite being poisonous it is quiet and inoffensive.

Food : Feeds on small snakes and other reptiles.

Breeding : Roughly after 50 days of mating the female lays eggs (about 10 in number) in August-September.

Status : Schedule IV (WPA, 1991).

FAMILY VIPERIDAE
Vipers

Broad, flat and triangular heads, bulky and fat bodies and small tails are the distinct features of vipers. They are classified into two broad groups commonly called True Vipers and Pit Vipers. Russel's Viper is the only true viper found in Sikkim. Of Pit Vipers as many as four species have been reported from this region. They are named after the pit - a distinct concave surface in between the eyes and the nose on both sides of the face. These pits are an important device, particularly at night, for detecting warm blooded prey by this cold-blooded creature. These are further subdivided into two sub-groups - those having large shields on the head and those having minute scales on the head. In Sikkim Himalaya the former is represented by the Himalayan Pit Viper (*Agkistrodon himalayanus*).

71. Russel's Viper (*Vipera russelli*)

Distribution : A common poisonous snake distributed throughout India in plains as well as on the Himalayas upto the height of 2000 m. Has been recorded from Darjeeling and Bhutan also. Presence in Sikkim Recorded in *Fauna of British India, Reptilia and Amphibia Vol III, By Malcom A. Smith.*

Habitat and Status : This snake is found in rocky and bushy regions where

the colouration of the skin is in keeping with the surroundings. It is known to climb up small bushes and trees. It is rather scarce in this region.

Size : Total length about 120 cm. including a tail of about 18 cm. with males being slightly larger than the females. The largest specimen ever recorded was about 168 cm. in length.

Description : Ground colour on dorsal surface is brown of varying shades with three series of large oviate spots, one vertebral and the other two coastal. Spots are brown in the centre and margined successively by black and white or buff. Head with distinct dark patch behind. Ventral surface whitish or yellowish with a few dark half moon marks. Body is massive (females are bulkier), cylindrical and narrowing at both the ends. Head is flat and triangular with a large snout.

Behaviour : Rather a languid reptile not much given to movements and slow to react to provocation but when thoroughly angered it bites with purpose and tenacity, often clinging on for many seconds. When approached closer it hisses loudly and ferociously. It is nocturnal in habits.

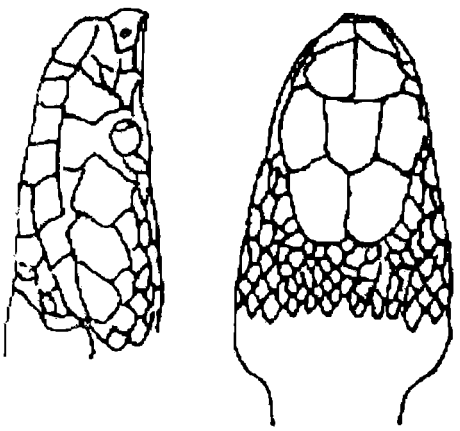
Food : Food chiefly comprises of rats and mice but it has been recorded feeding on squirrels, shrews, kittens, small birds, Calotes, frogs and snakes. Does show a strong cannibalistic penchant.

Breeding : Viviparous with young being born between May and November. At a time 30- 40 and often even more young ones are born.

Status : Schedule II (WPA, 1991).

72. **Himalayan Pit Viper** (*Gloydius himalayanus*)

*Formerly known as Agkistorodon himalayanas.



Distribution : It is a common snake of Western Himalaya but is rare east of Nepal. It was reported from this region by J. Gammie in 1891.

Habitat and Status : It is usually found in forests at elevations between

2000 to 3000 m. Though rare at high altitudes it has been reported from elevations as high as 4900 m. also. A ground dweller, it often lives under logs and rocks, hardly ever coming out of forested areas. Loves to bask in sun-shine.

Size : Total length 50-75 cm. Much larger adults (upto 90 cm.) have been recorded.

Description : Body colour ranges from brown to blackish-brown with dark, irregular blotches or wavy bands. Head is darker than the body and tail has a red tinge. Ventrally it is dirty white speckled brown with different shades. Body is heavy and stout, head rather long and flat and tail short.

Behaviour : This too is a sluggish snake which rarely bites and poses little danger even when handled. Its venom is not fatal for an adult man but children may die if bitten seriously. It has profound hibernating inclination and retires in autumn and reappears much later than other snakes. It has been reported to vibrate its tail like the rattle snake.

Food : Feeds mainly on mice. Frogs and skinks are also taken up.

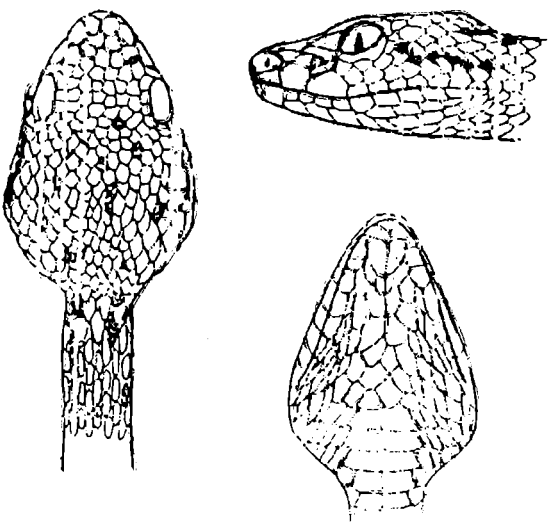
Breeding : Mates during hibernation. Viviparous - female gives birth to 5-7 young ones in August-September.

Status : Schedule IV (WPA, 1991).

73. <u>Bamboo Pit Viper</u> (*Trimeresurus gramineus*)

Local Name : *Pu-fong bu* (Lepcha); *Hareu Saamp* (Nepalese)

Distribution : North Western Ghats; Hills of Central and Eastern India. Gammie, J. reported it from Sikkim (The Gazetteer of Sikkim, 1891). The taxonomy of Trimeresurus is poorly understood and many green coloured species were once included in Trimeresurus gramineus. Therefore Gammie may have mistakenly reported it from Sikkim.(*Das I, 2001,*



Personal Comminucation)

Habitat and Status : As the name suggests it prefers to live amidst bamboo and low vegetation on hills at 500 to 1500 m. elevations. Has been reported from tea-gardens also.

Size : Body length : Male 60-70 cm. including a 10-12 cm. long tail Female 80 cm. including 16 cm. long tail. Longest measured specimen 112 cm.

Description : Grass green or yellowish green above, uniform or with occasional small dark brown spots produced by an extension of the colour of the interstitial skin onto the base of the scales. Whitish or yellowish green below. Upper lip whitish. A dark temporal streak may or may not be present. Tail may have a yellowish or reddish tinge. Body is stout. Head is flat and noticeably broader than the neck. Tail is short (shorter in females) and prehensile (can be used for gripping).

Behaviour : A confirmed tree dweller where its body colour provides an excellent camouflage and its prehensile tail allows it to secure a firm grip. It is slow moving and remains motionless for most of the time and hence is rarely noticed. Though its venom is feeble (but painful) children have succumbed to its bite. It assumes an aggressive pose when faced with danger.

Food : Feeds on mice , small rats , shrews , frogs , reptiles and even small birds. This viper wraps the tail and hinder part of the body round a branch when stricking a victim.

Breeding : Viviparous giving birth to 8 - 15 young during June - July.

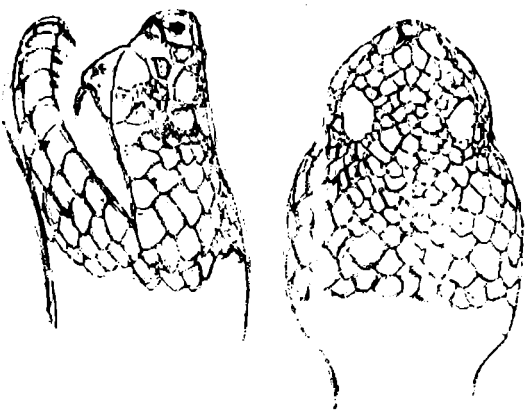
Status : Schedule IV (WPA , 1991).

74. <u>Blotched Pit Viper</u> (*Ovophis monticola**)
*Formerly known as Trimeresurus monticola.

Distribution : Eastern Himalayas, Assam, Indo Chinese region, Southern China, South East Tibet. Has been reported from Palmajua in Darjeeling. (*ZSI, 1992*). Gammie, J. reported it from Sikkim in 1891. (***The Gazetter of Sikkim, 1891***)

Habitat and Status : A widely distributed species which though quite at home in hot valleys ascends to elevations of over 1800 m. also.

Size : Total length 55-75 cm. long including 9-12 cm. tail. Females are considerably larger.



Description : Dorsal surface reddish brown to pale brown with two rows of large, square black spots along the upper part of the back, and a row of smaller ones on each side with ill-defined dark brown blotches. Head dark brown above with a light streak from the eye to the angle of the jaw. Lips pale, yellowish or spotted with brown or entirely brown. Ventral surface marble white and spotted or powdered with brown, sometimes very thickly. Body noticeably plump and heavy with a short tail.

Behaviour : A slow and lethargic serpent which, like other members of its family, prefers to lie in wait for its prey in camouflaging surroundings rather than chasing it. It is poisonous but is not considered fatal for man.

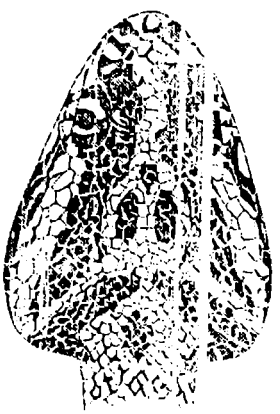
Food : Feeds on small mammals and reptiles. After injecting the venom it searches out the prey which moves far off before the venom takes its effect. Tail quivers when it is about to attack.

Breeding : Female gives birth to 6-10 babies. Certain experts have reported that it is oviparous, laying 6-18 eggs concealed in a hole or hollow in the ground or in vegetable debris and are guarded by the parents until the young emerge (As recorded in *Fauna of British India, Reptilia and Amphibia Vol III, by Malcom A. Smith*)

Status : Schedule IV (WPA, 1991).

75. <u>Jerdon's Pit Viper</u> (*Protobothrops jerdonii)**

*Formerly known as Trimeresurus jerdonii.



Local Name : *Pu-fong bu* (Lepcha); *Hareu Saamp* (Nepalese)

Distribution : Eastern Himalaya and Assam. (Presence in Sikkim confirmed by ***The Gazetteer of Sikkim, 1891***)

Habitat and Status : It has been recorded only at high altitudes so far. Status not ascertained so far.

Size : Body length : Male about 84 cm. including 11-12 cm. long tail; Female 95-100 cm. including 16 cm. long tail.

Description : The dorsal surface is green or yellowish-green or olive with a row of rhomboidal reddish-brown black-edged or almost entirely black spots on the back. There is a series of more or less vertical spots along the sides. Head black above with fine yellow lines symmetrically arranged. Upper lip yellow, more or less profusely spotted or marked with black. Posterior part and tail almost entirely black. Ventral surface is whitish with a tinge of green.

Behaviour : This too is a duggish creature which prefers hunting at night, locating its warm-blooded prey with the help of its heat sensitive organ.

Food : Small rats, mice and lizards.

Breeding : Viviparous, giving birth to babies.

Status : Schedule IV (WPA, 1991).

76. Pope's Green Pit Viper (*Trimeresurus popeorum*)

Not recorded in Sikkim so far but its presence in Sikkim Himalaya has been confirmed.

Local Name : *Pu-fong bu* (Lepcha); *Hareu Saamp* (Nepalese)

Distribution : North Bengal and Assam. Elsewhere Myanmar, Siam, Malay Peninsula, Borneo and Sumatra. Reported from Darjeeling by Gammie (*ZSI, 1992*)

Size : Total length 70-90 cm. including 17-20 cm. long tail.

Description : Green above, pale green or whitish below. A light stripe, bordered below with orange or chocolate may be fully or partially present. Upper lip pale green, end of tail pinkish. Not as bulky as *T. monticola*. Hemipenis extending to the 20th-25th caudal plate.

Behaviour : A slow and inactive viper which assumes a threatening pose in the face of danger even thought it is not particularly venomous.

Food : Small rats, mice and lizards.

Breeding : Viviparous, giving birth to 8-12 babies.

Status : Schedule IV (WPA, 1991)

77. Stejnegeri Pit Viper (*Trimeresurus stejnegeri*)

Not recorded in Sikkim so far but its presence in Sikkim Himalaya has been confirmed.

Local Name : ***Pu-fong bu*** (Lepcha); *Hareu Saamp* (Nepalese)

Distribution : Eastern Himalayas and Assam. Presence in Darjeeling Recorded in *Fauna of British India, Reptilia and Amphibia Vol III, by Malcom A. Smith.*

Habitat and Status : A fauna of Indo-Chinese region it is found amidst green vegetation.

Size : Total length 70-75 cm. including 14-15 cm. long tail.

Description : Green above, pale green or whitish below. A light stripe, bordered below with orange or chocolate along the flank and base of the tail. A light postocular stripe, bordered above with chocolate or orange may be fully or partially present. Upper lip pale green, end of tail pinkish. Not as bulky as *T. monticola.* Dorsal scales are strongly keeled. (*ZSI, 1992*)

Behaviour : A slow and inactive viper which assumes a threatening pose in the face of danger even though it is not particularly venomous.

Food : Small rats, mice and lizards.

Breeding : Viviparous, giving birth to 8-12 babies.

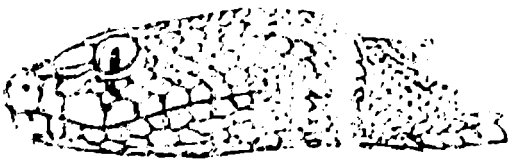
Status : Schedule IV (WPA, 1991)

78. Spot-tailed Pit Viper (*Trimeresurus erythrurus*)

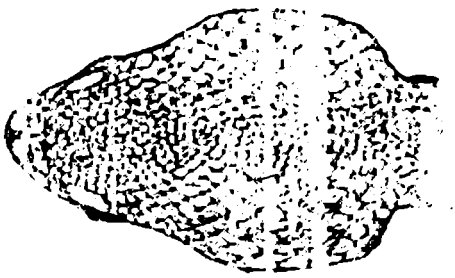
Not recorded in Sikkim so far but its presence in Sikkim Himalaya has been confirmed.

Local Name : *Pu-fong bu* (Lepcha); *Hareu Saamp* (Nepalese)

Distribution : Eastern Himalayas. Presence in Darjeeling recorded in Fauna of British India, Reptilia and Amphibia Vol III, by Malcom A. Smith.



Habitat and Status : A fauna of the Indo-Chinese region it is found amidst green vegetation.



Size : Total length: Male 55-60 cm. including 12 cm. long tail and female 100 cm. including 16-17 cm. long tail.

Description : Green above, pale green or yellowish below. A light stripe along scale row 1, starting from the neck and extending on to the tail present in males. End of tail spotted or mottled with brown. First labial is completely or partly united with the nasal. (*ZSI, 1992*)

Behaviour : A slow and inactive creature, it nevertheless faces danger with rare ferocity. Not particularly venomous but children, if bitten hard, may succumb.

Food : Small rats, mice and lizards.

Breeding : Viviparous, giving birth to 8-12 babies.

Status : Schedule IV (WPA, 1991)

AMPHIBIANS

Amphibians are the class of animals which are at home in water as well as on land and hence spend their life partially on land and partially in water. Their individual species, however, show a marked preference for their habitat. Thus some are predominantly aquatic, a few terrestrial and some even arboreal Sikkim, aided by its remarkable geographic, climatic and floral diversity, is exceptionally rich in its number and varieties of amphibians.

Frogs and toads, the two tailless amphibians, are by far the most important members of this group. Both are wonderfully fascinating creatures as also very useful ones for they capture and get rid of mosquitoes and numerous other noxious insects. Their ecological value is immense. Frogs can be

easily distinguished from toads by their following behavioural traits and outward characteristics :

- While frogs have damp, slimy skin toads have dry skin covered with poisonous warts. Secretion which is exuded when a toad is annoyed is harmful if it gets into the eyes or mouth of predators. A dog which picks up a toad in its mouth ejects it immediately and rushes away yelping.

- The hindlegs of frogs, being well adapted for swimming and jumping, are very long in proportion to their body. While toads which spend most of their time on dry land have comparatively shorter hindlegs.
- Frogs in general are more aquatic than toads. Though their are some arboreal frogs too.

- The web between frogs' toes is far more developed than that of toads. This too is a legacy of their aquatic habitat.

- Their reaction on being disturbed too are deviant. A frog will almost certainly rise on all four legs, and after one cautions look hop away to a safe distance. Toads on the other hand will immediately crouch down and remain motionless, trying hard not to be seen.

- Toads are primarily nocturnal and remains in hiding during the day, coming out during the early hours of darkness.

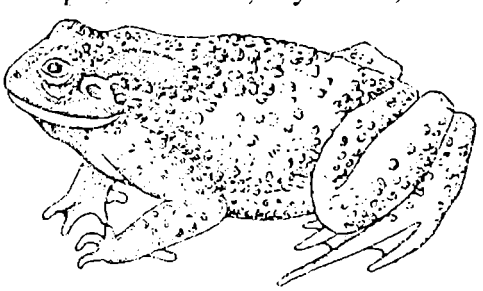
- Toads lay their eggs in long chains whereas frogs lay them in clusters.

FAMILY BUFONIDAE

1. Common Indian Toad (*Bufo melanostictus*)

Local Name : *Vheguta or Vagota* (Nepalese); *Lhak-bo-thalak* (Lepcha)

Distribution : Common throughout India Nepal, Sri Lanka, Myanmar, South China, Malay Peninsula and Archipelago. In Sikkim Himalaya its distributional range is recorded upto 3200 m. (*ZSI, 1992*). In Sikkim it has been reported from Rangpo, Majhitar, Singtam, Jorethang, Manpur, Lachung



and perhaps is found in many other areas too.

Habitat and Status : A widely distributed amphibian, it has adapted well to various circumstances and is found in diverse biotopes. It is terrestrial and is often found in moist conditions and near water, particularly during the breeding season. It is very common. It is often found in dark corners of village huts.

Size : Snout to vent length 110-130 mm.

Description : Above dark brownish with a tinge of green. Skin is rough with many bristly warts. Parotid rather big and has a kidney like shape. Ventral surface creamish with many tiny warts. Head is broad, snout rounded fingers free with swollen tips. First finger is slightly longer than than second. Toes almost half webbed.

Behaviour : It is a profound ground-dweller and can be met far away from water bodies. During the breeding season, however, it is found in or near water. During winters it is often found under the ground. It is active at night.

Status : Schedule IV (WPA, 1991)

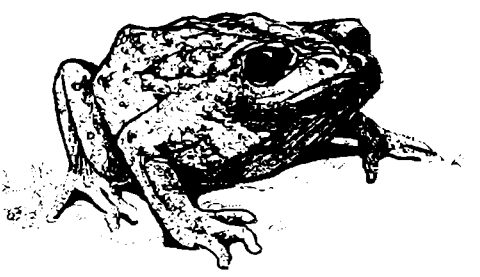
2. <u>The Himalayan Toad</u> (*Bufo himalayana*)

Local Name : *Vheguta or Vagota* (Nepalese); *Lhak-bo-thalak* (Lepcha)

Distribution : Sikkim, Meghalaya, Arunachal Pradesh, Darjeeling and Nepal. Has been reported from Gangtok, Bushuk and other areas of similar elevation. Is common in and around Darjeeling and Kurseong (*ZSI, 1992*).

Habitat and Status : Exhibits a definite preference for cool, moist mountainous areas. Mostly found underground. Is not uncommon in its distributional range.

Size : Snout to vent length about 120 mm



Description : Above yellow to brownish with rough skin replete with porous warts. Parotids are large and are ovoid in shape. Ventral surface is whit-

ish with a number of tiny warts. Head is broader than it is long, snout short and blunt. Fingers free with swollen tips whereas first and second finger are equal in size. Toes half webbed.

Status : Schedule IV (WPA, 1991)

3. *Bufo abatus*

Not recorded in Sikkim so far but its presence in Sikkim Himalaya has been confirmed.

Local Name : *Vheguta or Vagota* (Nepalese); *Lhak-bo-thalak* (Lepcha)

Distribution : Recorded so far from Darjeeling only. Perhaps an endemic species of Sikkim Himalaya.

Habitat and Status : They prefer to hide under stones in a damp corner. Extremely rare, Specimen last recorded in 1925 (*ZSI, 1992*).

Size : Snout to vent length about 100 mm.

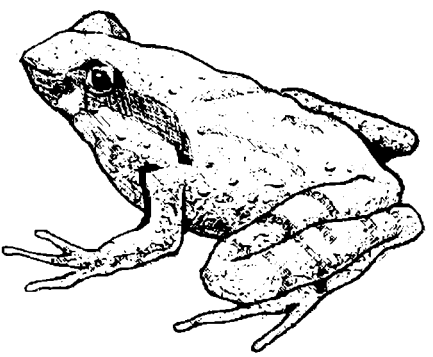
Description : Dorsal surface brownish and rough with spiked warts. Ventral surface dirty white, bristly and granular. First and second finger of about the same size. Toes are considerably webbed. Differs from B. himalayan in having two subarticular tubercles on toes. (*ZSI, 1992*).

Status : Schedule IV (WPA, 1991)

FAMILY MEGOPHRYIDAE

4. Little Spadefoot Toad, *Megophrys parva*

Local Name : *Vheguto* or *Vagota* (Nepalese); *Lhak-blow-thalak* (Lepcha)



Distribution : Sikkim and Darjeeling. Perhaps an endemic species of Sikkim Himalaya. Its presence in Sikkim is recorded by Chanda, S.K. from Lachung in North Sikkim district.

Habitat and Status : A frog of damp humid forests lying at elevations of 1500 to 2500

m. They have been collected from under stones near streams and water falls. Extremely rare.

Size : Snout to vent length about 30-40 mm.

Habitat : Lakes of North Sikkim.

Description : It is a broad-headed amphibian with dorsal surface yellowish green with porus warts. Limbs with faint bars. Ventral surface white with a few brown specks spread over the breast and throat. Fingers are free and at times first one is slightly shorter than the second one. Toes only marginally webbed.

Behviour : Hibernates during winter for considerable times. It has been reported to breed in the shallow of alpine marshes and streams.

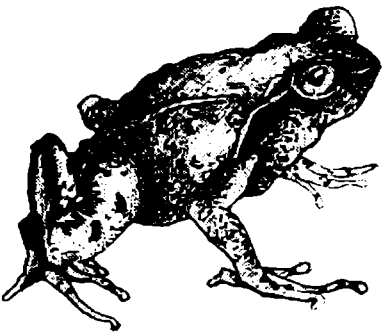
Status : Schedule IV (WPA, 1991)

5. Large Spadefoot Toad, *Megophrys robusta*

Not recorded in Sikkim so far but its presence in Sikkim Himalaya has been confirmed.
Local Name : *Vheguta* or *Vagota* (Nepalese); *Lhak-blow-thalak* (Lepcha)

Distribution : Recorded so far from Darjeeling only. Perhaps an endemic species of Sikkim Himalaya.

Habitat and Status : A creature of hill forests preferring humid and damp surroundings and areas receiving heavy rainfall. Is found in soil under stones near water bodies. Extremely rare.

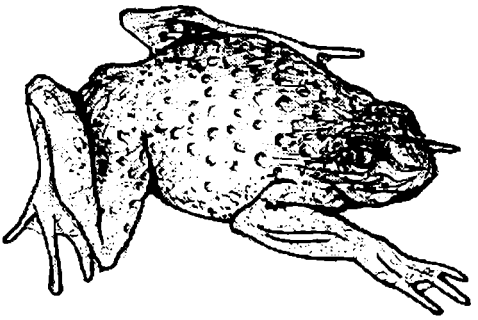


Size : Snout to vent length about 80 mm.

Description : It is a broad-headed amphibian with dorsal surface smooth (Sometimes granular) brown with a glandular ledge on both sides of the back. Ventral surface white with a few brown spots spread over the breast and throat. Fingers are free and at times first one is slightly longer than the second one. Toes only marginally webbed.

Status : Schedule IV (WPA,1991)

6. Sikkim Snow Toad (*Scutiger sikkimensis*)



Distribution : Sikkim and Tibet.

Habitat and Status : Perhaps the highest altitude amphibian in the World. It is mostly found in cold Himalayan deserts at high elevations. It has been collected from 5200 m in Tibet. Rare.

Size : Snout to vent length 30-40 mm.

Description : It is very similar to Kashmir Snow Toad (*Scutiger occidentalis*) reported from Kargil and Bodhkharbu in Ladakh. It is a rough-skinned, high mountain Megalophrys with short maxillary teeth. Local specialization of Megalophrys stock is of comparatively recent times.

Behaviour : These are small toads with extraordinary ability to withstand low (sub-zero) temperatures.

Status : Schedule IV (WPA, 1991)

FAMILY RANIDAE

7. **Torrent Frog** ***Amolops monticola***

****Not recorded in Sikkim so far but its presence in Sikkim Himalaya has been confirmed.***

Local Name : *Da-ri-thalak* (Lepcha) *Sawane Paha* (Nepalese)

Distribution : China, Tibet and India so far recorded in Darjeeling only.

Habitat and Status : It is confined to high elevations. It is found under stones or in bushes near fast flowing streams. Tadpoles have been collected from rocks submerged in hill streams to which they attach themselves with the help of their large adhesive belly discs.

Description : Dorsal surface is sleek and brown. Ventral surface is glossy and white in colour. Head at times longer than it is broad with a round snout. Toes somewhat completely and ruggedly webbed. Differs from other species of Genus *Amolops* by a glandular fold on the lateral side (*ZSI, 1992*)

Status : Schedule IV (WPA, 1991)

8.* Torrent Frog, *Amolops formosus
Local Name : *Da-ri-thalak* (Lepcha) *Sawane Paha* (Nepalese)

Distribution : Sikkim, Darjeeling, Khasi hills, Mussoori and also in Nepal. Its presence in Sikkim is recorded in Fauna of West Bengal, part 2, by the Zoological Survey of India, 1992.

Habitat and Status : A distinct hill species confined to high elevations. Soil under stones near fast flowing streams are its preferred haunts. Tadpoles have been collected from rocks submerged in hill streams to which they attach themselves with the help of their large adhesive belly discs.

Size : Snout to vent length 110-130 mm.

Description : Dorsal surface is smooth and brown. Ventral surface is glossy and off-white in colour. Head is about as long as it is broad with a rounded snout. Glandular fold on the lateral side absent. Can be differentiated from *Amolops afghanus* by its deeply notched toe-webs (*ZSI, 1992*).
Status : Schedule IV (WPA, 1991).

Status : Schedule IV (WPA, 1991)

9.*Torrent Frog, *Amolops afghanus

Local Name : *Da-ri-thalak* (Lepcha) *Sawane Paha* (Nepalese)

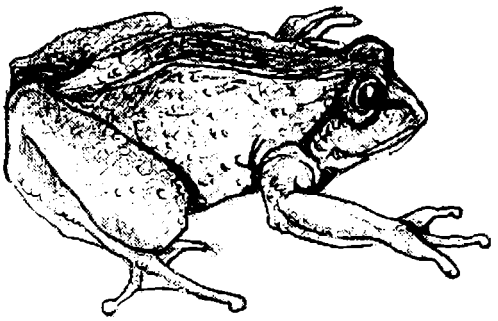
Distribution : Sikkim, Darjeeling, Kangra, Khasi and Garo hills. Elsewhere in Nepal, Burma, Thailand, southeast China and Tibet. Its presence in Sikkim is recorded in *Fauna of West Bengal*, part 2, by the Zoological Survey of India, 1992.

Habitat and Status : A mountain stream breeder, the tadpoles have an adhesive disc on the ventral surface behind the mouth for holding on to rocks in fast streams.

Description : Dorsal surface is rough and yellow-green in colour. Ventral surface is smooth (except for belly and thighs which are granular pale in colour. Head is about as long as it is broad with a rounded snout Glandular fold on the lateral side absent. Can be differentiated from Amolops formosus by its feebly notched toe-webs (*ZSI, 1992*).

Status : Schedule IV (WPA, 1991)

10. Sikkim Bull Frog (*Paa liebigii)**
***Formerly known as Rana liebigii.**



Local Name : {*Behphang* (Frog) and *Chongmo* (Tadpole)} (Tibetan)}; *Khane Paha* (Nepalese); *Lhak-pok-thalak* (Lepcha)

Distribution : Sikkim, Darjeeling, Simla and also Nepal. Its presence in Sikkim is recorded in Fauna of West Bengal, part 2, by the Zoological Survey of India, 1992. Its presence in Sikkim is recorded by Chanda, S.K. from Geyzing in West Sikkim district.

Habitat and Status : A definite alpine species has been collected from among grass and bush growning on moist soil close to a water body. Believed to be a common species though its numbers are certainly dwindling.

Size : Snout to vent length about 70 mm.

Description : This is a broad-headed amphibian. Dorsal surface is olive to brown and smooth with a few rotund warts. Limbs with irregular cross bars and sides powdered with dark. Ventral surface is light -brown. Males have been reported to develop black spines on breast and arms. Toes are entirely webbed. Tips of fingers without discs (*ZSI, 1992*).

Food : Is known to feed upon young bamboo shoots.

Breeding : The eggs are laid in water about 30 cm. or less deep. At the time of egg-laying both males and females become vocal. A batch of about 1000-4000 eggs is laid enclosed in a mass of jelly which is attached to a pond plant of some kind. A few days later tadpoles hatch out and begin feeding upon aquatic vegetation. In about two months time they attain adulthood.

Status : Schedule IV (WPA, 1991)

***Remarks** : Lepchas consider this to be by far the most delicious and edible frog species and have been known to catch them and other edible*

species at night with the help of bamboo torches. The light of torches dazzles the frogs and makes them immobile thus making it effortless to catch them. These are eaten preferably fresh. If the catch is large Lepchas slice them open and roast them over fire for future use. Lepchas are known to recognize most varieties of frogs and toads by their calls.

11. Chaparana sikkimensis*

*Formerly known as *Rana sikkimensis*.

Local Name : {Behphang (Frog) and *Chongmo* (Tadpole)} Tibetan); *Paha* (Nepalese)

Distribution : Sikkim, Darjeeling, Khasi hills and also in Nepal.

Habitat and Status : Has often been collected from the bottom surface of thick bushes, particularly those located near shady jungle streams. Population modest.

Size : Snout to vent length about 60 mm.

Description : Dorsal surface is smooth with scattered warts and is brown with a red tinge. Ventral surface is smooth and off-white. Head is slightly broader than it is long. Toes about completely webbed. Discs present on finger-tips. Glandular fold from eye to shoulder present (*ZSI, 1992*).

Status : Schedule IV (WPA, 1991).

12. Rana livida

Local Name : *Lhak-chek-thalak* (Lepcha); *Paha* (Nepalese).

Distribution : Sikkim, Darjeeling, Assam, Manipur, Meghalaya and also in Myanmar.

Habitat and Status : It prefers dense and bushy hill forests.

Size : Snout to vent length 45-65 mm.

Description : A dark brown (sometimes with a green tinge) frog with off-white and smooth (though a few granules on thighs present) ventral surface. Limbs with cross bars. Head about as long as it is broad with pointed snout and toes entirely webbed.

Food : It feeds on small worms, slugs and insects.

Status : Schedule IV (WPA, 1991)

13. *Amolops gerbillus*

Not recorded in Sikkim so far but its presence in Sikkim Himalaya has been confirmed.

Local Name : *Lhak-chek-thalak* (Lepcha); *Paha* (Nepalese)

Distribution : Darjeeling, Assam, Meghalaya and Abor foot-hills in Arunachal Pradesh.

Habitat and Status : Has a definite preference for moist and damp mountainous regions preferring deep forests with thick covering of tall and broad leaved trees. Status not ascertained.

Size : Snout to vent length 55-70 mm.

Description : Dorsal surface is sleek and deep-gray (sometimes with olive or brownish olive tinge) with dark spots. Limbs with irregular cross bars. Ventral surface is yellow-green with a few brown spots scattered over the throat and the breast region. Head as long as it is broad. Toes are completely webbed. Glandular fold from eye to shoulder absent (*ZSI, 1992*).
Status : Schedule IV (WPA, 1991)

14. *Rana alticola*

Local Name : *Paha* (Nepalese)

Distribution : Sikkim.

Habitat and Status : Found in damp and moist hilly regions receiving heavy rainfall. It is terrestrial.

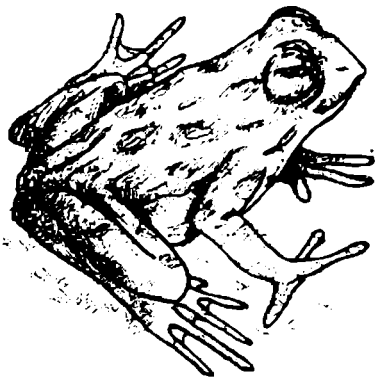
Description : An unusual feature for a tadpole is the well developed parotid glands on both sides of the head.

Status : Schedule IV (WPA, 1991)

15. Skipping Frog (*Euphlyctis cyanophlyctis**)

*Formerly known as *Rana cyanophlyctis*

Local Name : *Pong-pe-thalak* (Lepcha); *Paha* (Nepalese)



Distribution : Throughout South Asia including Sri Lanka and upto 1800 m. in the Himalayas. In the East its range is extended upto Thailand and in the West upto Iran and Saudi Arabia. Its presence in Sikkim is recorded by Chanda, S.K. from Lachung in North Sikkim district.

Habitat and Status : Basically a species of the plains where it is commonly seen floating in ponds and puddles. In Kurseong it has been collected from drains (*ZSI, 1992*). It does not show much sensitivity for ecological decline and is quite at home in dirty surroundings also.

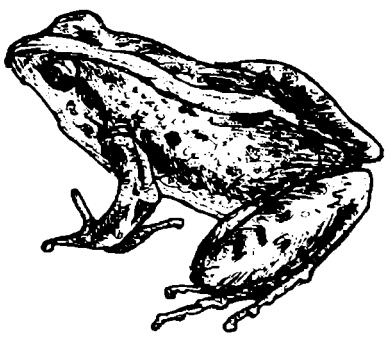
Size : Snout to vent length 50-70 mm.

Description : This too has a head broader than it is long. Dorsal surface is blackish with a tinge of gray or brown and possesses a few warts. Limbs with irregular cross bars. Ventral surface is glossy and off-white. Toes fully webbed. A few specimens collected from Kurseong had extremely rough and tuberculated dorsal surface and also a lateral chain of warts from below tympanum to the ventral joint of thighs (*ZSI, 1992*).

Breeding : Insect larvae and mosquitoes.
Status : Schedule IV (WPA, 1991)

16. Indian Cricket Frog, *Rana limnocharis*

Local Name : *Behphang* (Tibetan); *Paha* (Nepalese)



Distribution : All over India. Presence in Sikkim recorded by Boulenger in 1920.

Habitat and Status : Commonly found inside bushes grown on the demarcation lines of cultivated land, banks of ditches, ponds and canals (*ZSI, 1992*). Common all-over India and is found in almost all the biotopes of the country. Extremely rare in Sikkim where it is recorded in damp forest-bed covered with thick umbrella of trees.
Size : Snout to vent length 60-80 mm.

Description : Dorsal surface could be rich grey, brown or even olive with a few dark spots and is replete with warts. Ventral surface is glossy white. Head as long as it is broad with a more or less pointed snout and toes almost half webbed.

Status : Schedule IV (WPA, 1991)

17. *Rana annandalii*

Local Name : {*Behphang* (Frog) and *Chongmo* (Tadpole)} (Tibetan); *Paha* (Nepalese)

Distribution : Recorded so far from Sikkim and Darjeeling only. Perhaps an endemic species of Sikkim Himalaya.

Habitat and Status : Tadpoles are common in the streams around Darjeeling during Monsoon (*Daniel, 1962*). Found under thick bushes and other vegetation near hill streams.

Size : Snout to vent length 50-60 mm.

Description : Dorsal surface is green with a slight yellowish tinge and smooth. Some specimen possess a few tiny warts ventral surface off-white and glossy. Head is slightly broader than it is long with a rounded snout. Webs reach upto three-fourth of toes.

Food : The food comprises of flies. These are caught by a hinged, sticky tongue which flicks out and catches insects several cm. away.

Status : Schedule IV (WPA, 1991).

18. *Rana macrodon*

Local Name : {*Behphang* (Frog) and *Chongmo* (Tadpole)} (Tibetan); *Mhun Paha* (Nepalese)

Distribution : India recorded only Sikkim (Lachung, North Sikkim district) so far (Chanda, S.K., 1986).

Habitat and Status : No detailed information of its habitat available. Extremely rare.

Size : Snout to vent length 70-90 mm.

Description : Dorsal surface is yellowish red to reddish-brown or sometimes even brown. Limbs with dim dusky bands. Ventral surface pale yellow sometimes with orange tinge. Inner thighs powdered with black. Head is slightly broader than it is long with a snout extending well beyond the mouth. Toes fully webbed.

Food : The food comprises of flies. These are caught by a hinged, sticky tongue which ticks out and catches insects several cm. away.
Status : Schedule IV (WPA, 1991)

FAMILY RHACOPHORIDAE

19. East Himalayan Bush Frog (*Philautus annandalii*)

Not recorded in Sikkim so far but its presence in Sikkim Himalaya has been confirmed.

Local Name : *Lhak-ni-thalak* (Lepcha)

Distribution : Recorded so far only from Darjeeling and Assam.

Habitat and Status : Found inside bushes growing on moist forest-beds covered with thick umbrella of trees. Specimen has been collected from under a mass of rotten leaves on forest-bed near Kurseong (*ZSI, 1992*).

Size : Snout to vent length 20-25 mm.

Description : Small sized frog. Dorsal surface grey or rich brown with a few dark bands and is more or less smooth with scattered tiny tubercles. Ventral surface is granular greyish or off-white and is spotted or powdered with brown. It is broad-headed and the toe are half-webbed. Fingers free from web.

Behaviour : Nocturnal in habit.

Status : Schedule IV (WPA, 1991)

20. Jerdon's Bush Frog, *Philautus jerdonii*

Local Name : *Lhak-ni-thalak* (Lepcha)

Distribution : Recorded so far from Darjeeling only. Perhaps an endemic species of Sikkim Himalaya.

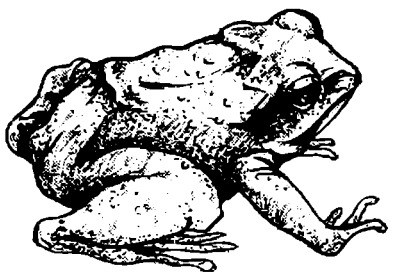
Habitat and Status : A creature of wet temperate forests. Found under cool, moist bushes. Has also been collected from under heaps of rotten leaves.

Size : Snout to vent length about 30 mm.
Description : Dorsal surface is smooth and deep brown with a reddish tone. Ventral surface is dull white and granular. Toes nearly two-third webbed. Fingers webbed at the base.

Status : Schedule IV (WPA, 1991)

21. East Asian Tree Frog (*Polypedates leucomystax*)

Local Name : *Rukh Paha* (Nepalese)



Distribution : Darjeeling, Jalpaiguri, Eastern Himalayas and also in south China and Malaysia. Its Presence in Sikkim is recorded in Fauna of West Bengal, part 2, by the Zoological Survey of India, 1992.

Habitat and Status : It prefers to hide in thick forest bushes or even under wooden logs. A good number are found hidden amongst aquatic vegetation in large ponds particularly during the breeding season (*ZSI, 1992*). Several frogs have been found trapped inside their dried-up foamnests. Rather common in Sikkim Himalaya and Foothills.

Size : Snout to vent length 70-90 mm.

Description : Dorsal surface is smooth and is chocolate brown of a lighter shade at times with a greenish hue. Four dark linear bands from snout to vent present. Ventral surface is off-white and granular. A broad-headed frog with partially (about two-third) webbed toes.

Behaviour : It is nocturnal, mostly coming out in the evenings particularly during premonsoon and monsoon showers.

Status : Schedule IV (WPA, 1991)

22. Jerdon's Flying Frog (*Rhacophorus jerdonii*)

Local Name : *Dar-thalak* (Lepcha); *Rukh Pala* (Nepalese)

Distribution : Sikkim, Darjeeling, Assam and Arunachal Pradesh.

Habitat and Status : A creature of wet, moist forests, it is profoundly arboreal. It is capable of making long leaps. Has been collected from the undersurface of barks of trees. Status not ascertained.

Size : Snout to vent length 80-100 mm.
Description : Dorsal surface is uniform grey and is smooth. Ventral surface is chalky-white with a few brown spots sprayed over the throat and is smooth but for the underbelly which is granular. Fingers partially (about half) and toes fully webbed.

Status : Schedule IV (WPA, 1991)

23. *Rhacophorus reinwardtii*

Local Name : *Dar-thalak* (Lepcha); *Rukh Paha* (Nepalese)

Distribution : Darjeeling, Assam, Meghalaya and Arunachal Pradesh. Also reported from Indonesian islands Java and Sumatra.

Habitat and Status : Prefers to dwell in trees of wet, moist forests of North-Eastern states and Far East. Status not ascertained.
Size : Snout to vent length 50-60 mm.

Description : Dorsal surface is leaf-green of olive with a large black spot on each side of maxilla and is more or less smooth. A couple of black spots present behind the arms. Ventral surface is off-white and granular. Fingers and toes fully webbed. Head is broader than it is long and snout is pointed.

Status : Schedule IV (WPA, 1991)

24. *Rhacophorus maximus*

Local Name : *Dar-thalak* (Lepcha); *Rukh Paha* (Nepalese)

Distribution : Sikkim, Darjeeling, Assam, Meghalaya, Arunachal Pradesh extending to Nepal in the west and Thailand and Southern China in the east.

Habitat and Status : This too belongs to wet, evergreen forests of this region and is an arboreal species rarely ever coming down. Collections

have been made from over tree trunks. Status not ascertained.

Size : Snout to vent length 80-110 mm.

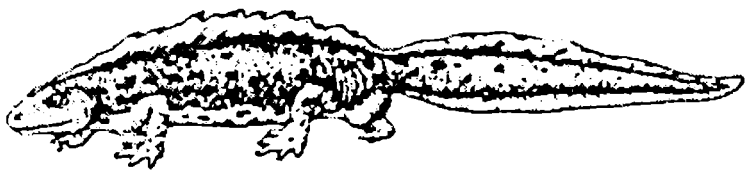
Description : Dorsal surface is green of non-descript shade and smooth. Ventral surface is milky and granular. Toes and fingers completely webbed. Differs from above by the absence of black spots behind the arms (*ZSI, 1992).* Head about as broad as it is long.

Status : Schedule IV (WPA, 1991)

25. The Himalayan Newt (*Tylototriton verrucosus*)

Local Name : *Gphro* (Nepalese)

Distribution : Arunachal Pradesh, Manipur, Nepal, Darjeeling, Sikkim Myanmar and Thailand. Presence in Sikkim confirmed by Zoological Survey of India (*ZSI, 1992*).



Habitat and Status : They are found in and around seasonal and as well as perennial pools and streams in the eastern Himalayas at altitudes between 1200 to 2200 m. Pools partly filled with water and having bottom covered with small boulders and decomposed tree leaves are its preferred haunts. A few years back it was reported to be common in Darjeeling and Sikkim, but its colonies are disappearing at an alarming rate and now it is quite rare. Habitat destruction, its use in folk medicine and false local perception that it is harmful are the main causes behind its endangered status.

Size : Total length 150-170 mm. including 75-85 mm. long tail. Male is relatively slender and shorter.

Description : It resembles a common house lizard. Dorsal surface is dark brown with males showing a prominent ventral yellow tailrim. Females are of lighter brown shade. Head of male is box-like, while that of female is triangular. Ventral surface of both the sexes is creamish. During mating season, colouration, particularly that of females, become more prominent.

Behaviour : Despite being an amphibian it is profoundly aquatic and can be seen crawling or swimming in pools. Swimming involves movement of tail while limbs remain motionless. It comes to the surface for breathing. Frequency of breathing increases substantially during mating. On land it moves sluggishly but migration on land for upto 2.5 km. have been recorded by researchers. It goes into hibernation around November.

Food : Their main diet consists of micro-organisms, aquatic vegetation, insect larva, tadpoles and earthworms.

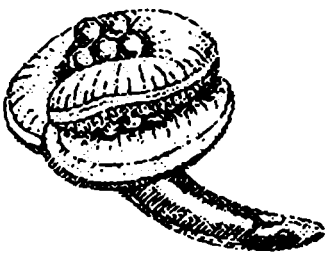
Breeding : After one or two pre-monsoon showers in April-May the adult newts gather in the pool to mate. Their courtship is elaborate. Males flaunt the colour of their caudal region and then mate with a willing female. Small pearly eggs are laid on aquatic vegetation. By August numerous tadpoles with long bodies and external gills inhabit the pools. These are dainty, semitransparent little creatures with feathery gills and tiny, trailing legs. As they attain maturity, gills gradually disappear in favour of lungs and their limbs develop to sustain their amphibian life. Adulthood is attained in three years.

Status : Endangered, listed in the Red Data Book of Zoological Survey of India under the Indian Wildlife (Protection) Act, 1972.

26. *Sikkim Blindworm* (*Ichthyophis sikkimensis*)

Distribution : Sikkim and Darjeeling. Perhaps an endemic species of Sikkim Himalaya.

Habitat and Status : It is found in Sikkim Himalaya at altitudes of 1000-1800 m. Not common.



Size : Snout to vent length about 250 mm. including 3-3.5 mm. Tail

Description : In appearence, movements and habits it is very similar to a large earthworm but can be readily distinguished by its distinct head and eyes. It is a light coloured amphibian having a long slender body, small tail and tentacles. Dorsal surface has tiny folds - less than 300 in numbers (*ZSI, 1992*)

Behaviour : It is a burrowing amphibian and hence is often found under the earth, Eyes are covered with a transparent membrane - an adaptation to its

burrowing habit. Not much is known about its behaviour.
Breeding : Oviparous.

Status : Schedule IV (WPA, 1991)

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