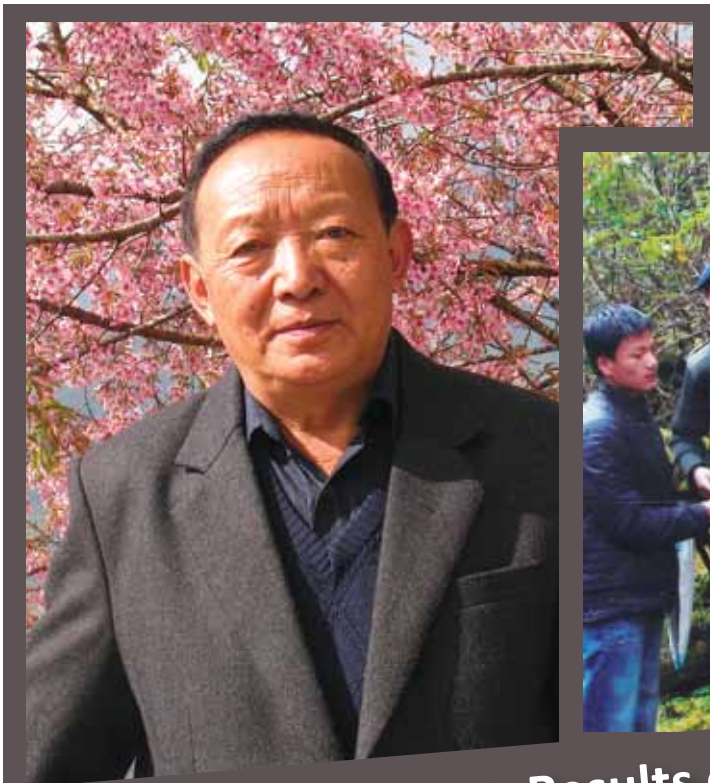


# CAN THIS RECORD BE **BROKEN?**

S. T. LACHUNGPA IFS  
PCCF cum Secretary, Forests

Photo credit : C. C. Lachungpa, Range Officer (T) North



## Preliminary Results of Photo Contest for Biodiversity Heritage Trees in Sikkim

**W**e have in Sikkim several ancient trees of various species spread in forest and fringe areas over different ecozones of the state, offering invaluable service to the local people over this time. Surely many are over 100 years old. Many such ancient trees are worshipped by the local communities. We need to now locate and identify all such trees, get available local knowledge about their history if any from the local people / village elders and generate a photo documentation. Also Biodiversity Heritage sites like Taal, Boudha etc. need to be identified and photo-documented.

Recently an interesting initiative, a search for the biggest/oldest tree of Sikkim, was launched by Hon'ble Minister, Forest, Tourism, Mines & Geology, Science & Technology, Shri Bhim Prasad Dhungel, as an activity on the occasion of the Sikkim Forest Centenary.



All members of the Sikkim Forest Family including members of JFMCs/EDCs/NGOs/CBOs and interested individuals were to scour their areas and forests to find the tree that could be best considered as a potential HERITAGE TREE. The person who finds such a treasure, informed Hon'ble Minister Forests, will be awarded suitable prizes and other incentives. The matter was given wide local publicity.

The following preliminary results have been received:

North Sikkim: 9 trees including a Juniper with girth of c. 42 feet

South Sikkim: 13 trees including a Pipalay Kabra with girth of 29 ft, height 95 ft.

East Sikkim: 10 trees including a 'Bar' or Ficus with girth 33 ft, height 150 ft

West Sikkim: The three famous Dhupis in Dubdi, Yuksom complex with girth 21 ft, height 120 ft.

Can we find any trees bigger/older than these? We must find and document such old giants so they can be formally recognized as Biodiversity Heritage Trees and given due status with the finders of such State Treasures to be also suitably recognized with the Tree dedicated as per their wishes, and felicitated during the appropriate ceremony of the Sikkim Forest Centenary.



Photo credit : C. C. Lachungpa, Range Officer (T) North

Detailed contacts of the JFMC/EDC/NGO/Persons for Photo Contest for Heritage Trees and Biodiversity Heritage sites in Sikkim for Forest Centenary 2009

District	Name of Person / JFMC /EDC /NGO	Contact No.	Address	Particulars of materials received by this office	Location (land status)	Tree physical condition	Approx. Age (years)
1. North District	Mr. C. C. Lachungpa, RO (T)		Lachung	Photos: 1. Juniper sp. of 42'5"	Sevo RF	Partially hollow	700-800
				2. Hemlock Tree of 36'	Lobungten RF	Sound	650-700
	Mr. C. C. Lachungpa, RO (T)		Mangan	Photos: 1. Rani Champ 28'6 (Champion Tree)	Naga RF		
				2. Tooni 17'6" (Champion tree)	Naga Gumpa (Road)		
				3. Kaizal 18'0" (Heritage Tree)	Mangshilla Khas (Devithan)		
				4. Saur 18'0" (Champion Tree)	Mangshilla (Lungma Dara Khas)		
				5. Angaray 16'0" (Heritage Tree)	Tingchim Private holding		
				6. Kimbu 17'3" (Champion Tree)	Bay Khasmal		
				7. Bajrat 19'0" (Champion Tree)	Mangshilla RF		
2. South District	Mr. S. D. Shangderpa, R.O. (T)	94746-48725	Namthang Mamring	Photos: 1. Pipalay Kabra 29'0" Height 95'0" (Av. Crown Spread - 502')	Road Reserve (Devithan)	Sound	175
				2. Bar 28'0", height 105' (427)	Palitam Namthang, Private holding of Tikaram Dhungel	Sound	200
	Namgay Sherpa	98323-68630	Temi	3. Pipli 20'6", height 8'	Gotamay Forest	Sound	90
	P. T. Lepcha, R. O. (T)	98324-58613	Lingmoo	4. Kimboo 31'5", height 80' (161'5")	Private holding of Lakpa Tsh. Lepcha of Kimboobortey	Sound	180
			Sokpay	5. Pipli 27'0", height 95' (300')	Private holding of Tulshi Adhikari	Sound	150
			Sokpay	6. Pipli 22'0", height 90' (300')	Private holding of K. B. Chettri at Sokpay	Sound	125
			Lingmoo	7. Kali Bahar 32'0", height 80' (350)	Private holding of Man Bdr. Chettri	Sound	150
			Kewzing under Ravongla Range (T)	8. Pipli 20', height 60' (801)	Private holding of Nim Tsh. Bhutia	Sound	120
			Barfing	9. Bahar 18'6" height 80' (70')	Private holding of Pintso Bhutia	Sound	80
			Ralong	10. Pine Tree 14'0" height 35' (60')	Ralong Karma Rabtenling Gumpa	Sound	200
			Mainam W/L Sanctuary	11. Patlay Katus 25', height 50' (80')	Pathing		
			Kyongsa	12. Pani Saj 19', height 25' (60')	Private holding of Padam Bdr. Chettri		
			Kyongsa	13. Chelaunay 14'0", height 45' (70')	Private holding of Padam Bdr. Chettri		
3. East District			Parsuram Sharma, FG (T)		Ranipool	1. Bar 33'3', height 150' (300')	Aho Yangtam, private land
	Ranipool	2. Panisaj 16.6', height 200' (50')			Khasmal	Sound	150
	Bishnu Prasad Darjee, HFG (T)	99339-21864	Singtam	3. Pipal 30.3', height 90' (130')	Chhota Singtam, Shivalaya	Healthy & Robust	125
	Purnalal Sharma, FG	97350-51562	Near Ranipool FCP	4. Pipal 21.3', height 60' (70')	RR near FCP Ranipool	Sound	38
	Ash Bdr. Rai, FG	97332-59643	Assam RF	5. Pipli 21.6' height 200' (60')	Assam Reserve Forest	Healthy & Robust	150
	RO (T) Gangtok		Lower Rakdong	6. Kainjal 390cm, height 80m	Singtam Dikchu RR	Sound	100
	M. L. Subedi	94343-18526	Singtam	7. Panisaj 5.181 mts, height 20 mts (148m2)	Badam Thangsing	Sound	100
	Hari Pd. Khanal, FG	94348-64329	Singtam	8. Kimbu 6.096 mts, height 31mts (232.25m2)	Mangthang RF	Sound	150
	T. P. Neopaney, FG	97340-56088	Singtam	9. Lampate (Mother Tree) 5.791 mts, height 12.192mts (188.127m2)	Kokaley-Makha, Pvt. Land of Sonam Tsh. Bhutia	Sound	120
	S. P. Bantra	98320-34457	Jagoan Rolep	10. Aule Pipli 19'0", height 45'0" (40')	Jagoan Rolep	Sound	200
4. West District	DFO (T) West		Yaksum	1. Dhupi 16.5', height 50'	Inside Yoksum Gumpa complex	Sound	350
			Dubdi Monastery	2. Dhupi 20', height 100'	Dubdi Monastery	Sound	250
			Dubdi Monastery	3. Dhupi 21', height 120'	Dubdi Monastery	Healthy	350



**A Surprising Find from North Sikkim:**

# **DEAD MAN'S FINGERS!**

*S.Z. Lucksom and Dechen Lachungpa*



**W**e were utterly surprised to find the strange looking fruits hanging from the branches of this small tree, bizarrely called “Dead Man’s Fingers” in English, “*Thigo Chem*” in Bhutia and “*Bhera Sinh*” in Nepali. We hurriedly collected some specimens and discovered that the pods have sweet fleshy pulp and taste just like banana. The plant scientifically known as *Decaisnea insignis* Hook.f. & Thomson is a genus of flowering plants in the family Lardizabalaceae, native to Eastern Asia. We searched several books for information on this species and found its mention in ‘Plants of Darjeeling and the Sikkim Himalayas’ by Dr. Kalipada Biswas. According to the book this species is found in the forests of Sikkim and Darjeeling Himalayas at an altitude of 2000 to 3000m. It is called as “*Bhera Sinh*” by the locals on account of its resemblance to sheep horns.

The genus is said to comprise of two species by different authors; *Decasnia insignis* was described from Nepal and *Decaisnea fargesii* from China. However the only distinction between the two species is that the fruit of one is yellow green and the other is blue. An internet search reveals that *Decaisnea* is a botanical oddity as the only shrubby genus among a clan of woody climbers. Wikipedia says *Decaisnea* is grown as an ornamental plant for its bold foliage and decorative fruit, bright blue in many cultivated plants, and that most plants in cultivation derive from

Chinese seed. Based on the literature survey, and the fact that several cultivated plants in North Sikkim like Horse Radish, Turnips, Sweet Peas are reported by the village elders to have come from across the northern borders when they were open, it is possible that this plant too was intentionally introduced into Sikkim.

*Decaisnea* belongs to the chocolate vine family. Its range covers the Himalayas to western China. The plants are deciduous shrubs and noted for their showy ornamental edible fruit. It is not very hard to grow in cooler temperate climates, in a fertile, well-drained soil. They are quite frost hardy. Sikkim is also mentioned as one of the localities in Flora of China (<http://www.efloras.org>, FOC Vol. 6 page 440).

We were fortunate to be able to photograph this fruit since the moment the fruit appears children break them off to eat. Also it seems that there are very low numbers of this plant in the forests of North Sikkim. We conducted a quick survey and discovered that the plant was grown in the compounds of only a few private houses. This plant can easily be propagated by cutting its branch and then planting it directly in the field in a crow-bar hole. We foresters must incorporate this species in our plantation programmes to ensure that this botanical oddity is not lost from Sikkim.



# FOUR STATE SYMBOLS OF SIKKIM



## I. STATE ANIMAL: RED PANDA

*Ailurus fulgens* Family Ailuridae

- Usually solitary and are sometimes in pairs
- Normal silent
- Found in Sub-Tropical and Temperate forests of Sikkim
- Omnivorous animal, diet consists of fruits, berries, bamboo – shoots and leaves, birds' eggs, honey, etc.
- Nepali name 'Koondo', Bhutia name 'Opdonka', Lepcha name 'Sankam'
- Colour bright orangish – brown, with black under parts, a striped fluffy long tail and white stripes on its face
- Live on trees and in hollows of old oaks
- Have 1 – 2 young ones per year, which are born in the spring
- Size like that of a large cat
- Very shy animal
- Breed well in captivity when provided with good natural habitat. (It was also a favourite pet of Pandit Jawaharlal Nehru)



## II. STATE BIRD: BLOOD PHEASANT

*Ithaginis cruentus* Family Phasianidae

- Found in the Temperate and Alpine regions of Sikkim
- Usually in large flocks or coveys
- Sound a weak cheeping or high pitched squeal
- Feed on insects, moss and shoots of alpine herbs, ferns and pines
- Nepali name 'Chilimey', Bhutia name 'Semu'
- Male is olive – green in colour, with red streaks on its chest, and has red legs; female has dull brown plumage to help her get camouflaged while on nest or with young ones
- Size like that of a Partridge
- Live in Rhododendron forests
- Make loose nest in grass or bushes and lay 5 – 12 eggs in early spring, incubated for about a month (They have never bred successfully in captivity anywhere in the world)



### III. STATE FLOWER: NOBILE ORCHID

*Dendrobium nobile* Family Orchidaceae

- A pretty epiphytic orchid
- Found in and around Gangtok the capital of Sikkim and across in Fambong Lho Wildlife Sanctuary, both of which are in the sub-Tropical belt of Sikkim; also other forest areas at around 1500 – 1600m altitude
- Flowers grow in dense bunches and are a bright purplish-pink
- Bloom in spring on moss-laden mature trees lending a festive air to the atmosphere

Luckily it is not an endangered orchid unlike the other three state symbols. Both the state animal Red Panda and State Bird Blood Pheasant are so highly endangered that they are protected under Schedule I of the Indian Wildlife (Protection) Act, 1972 as amended upto 2003)



### IV. STATE TREE: SNOW-LEAVED RHODODENDRON

*Rhododendron niveum* Family: Ericaceae

- Medium sized tree
- Called Snow-leaved Rhododendron, Nepali 'Hiun Patey Gurans', Bhutia 'Aeithuk – Mitok'
- A high altitude Rhododendron growing in Temperate Fir forests and ground herbs like Primulas, poppies and Sphagnum mosses
- Grows in Shingba Rhododendron Sanctuary, in the Lachung valley, North Sikkim
- A highly endangered Rhododendron because its habitat is open to uncontrolled tourism and other Rhododendron; also gets chopped for firewood because of lack of awareness of its status
- Flowers grow in deep maroon bunches; like other rhododendrons it goes into bud stage before winter and just as spring approaches, the buds burst into bloom.

# ORCHID HUNTING IN THE SIKKIM HIMALAYAS

K. C. Pradhan IAS (Retd)



In the early forties, when I was still in my early teens, I used to gaze with wonder at the baskets full of orchids being brought in and taken out of our house at Gangtok for phyto-pathological certification. This created an interest in me, and since we used to have three months of winter vacation, I started rattling out the Latin names carefully copied from the labels of the plants. Through the kind courtesies of those lovable porters, I soon built up a collection of my own, and by the time I was to leave home in Sikkim for college in India, I had a pretty good collection of 200-odd showy species mostly indigenous to Assam, Manipur and Burma. Besides the dark blue *Vanda caerulea* from the hills of Manipur, I loved the dainty *Paphiopedilum fairrieianum* best, which I was then told was indigenous to Bhutan and was rediscovered by Mr. G. S. Searight high up in the Valley of Torsa in Bhutan

in 1905 – nearly half a century after its first introduction into the United Kingdom, probably from Assam. The collectors that visited us used to tell fantastic tales of its occurrence and all the hazards in collecting it from high up on the steep limestone cliffs.

A decade ago there was strong feeling among the orchid lovers of Sikkim that *P. fairrieianum* occurred in Sikkim as well. But somehow it was hushed up, and the secret was closely guarded among that handful of collectors. Days flew by after eight years of college in India I ultimately came back to Sikkim to join its forest service, posted to look after its western region adjoining Nepal and the Indian district of Darjeeling.

Monday, January 22<sup>nd</sup>, was bright and gay this year (1962), and I was camping in a village called Wak – sixteen kilometers from here – amidst orange groves (*Citrus reticulata* = Sikkim Mandarin), with oranges tight and sweet clustering all around, near gigantic limestone precipices on the west overlooking the village. *Paphiopedilum fairrieianum* was always in my mind and I was keen to see that the secret of its occurrence in Sikkim, so jealously guarded, was released with tales of *P. fairrieianum* hunting, I started questioning the local villagers, but they could not tell me anything precisely except the legends behind it. They did, however, point out a track to go through on the upper portion of the ledge where we had to camp that evening. I, along with my range officer and orderly, determined to take that route. The track was alright, but the climb was exhausting. Amidst the desolate rocks there were pockets of sandy loam in which *Pieris ovalifolia*, *Engelhardtia spicata* and *Schima wallichii* were growing stunted. These also grew on slender branches, on which *Dendrobium nobile*, *D. chrysanthum* and *D. densiflorum* were also precariously anchored. *Dendrobium nobile* was in flower, though the small buds did not look very happy with their lot.

After three kilometers of climbing and consuming oranges, we came across a hut with a couple working in their field of inter-cropped peas and oats. They offered us the local millet beer to drink but we preferred tea with salt. As we were talking of their field and the crops, I casually inquired of the rocks on the left and the legends surrounding them. The lady, to be our generous hostess that night, was politely frank and at once told us that no one can dare to go there except two persons that ransack the area every year during August and September, collecting and bagging two to three hundred small plants every year. I insisted her husband show us the particular spot where the collectors entered. He hesitated at first, but afterwards agreed. We followed him, and after climbing about a kilometer, we found ourselves standing on one extreme edge of the desolate



precipice (called Slimm-Bhir locally) with the Rangit River flowing noisily and fast – two thousand meters below. Mount Kanchenjunga, the third highest mountain in the world, stood some thirty kilometers southwest of us. I consulted my map. We were standing exactly 1530 meters above mean sea level, within latitude 27° 14'N, and longitude 88° 20'E.

It was already getting dark. We proceeded half a kilometer up to the Tinkitam Village, where our luggage had already arrived from Wak via other easier routes. Our host and the range officer of the area were waiting for us. I was tired, and after a few sips of millet beer and a hurried supper, immediately went to bed.

As I got up at six next morning and peeped out the window, Mt. Kanchenjunga and all its adjoining peaks were in a golden glow. After a brief breakfast we started our hunt, accompanied by our host, the village headman and a few other villagers. We rolled down in exhilarative mood, but the moment we stood on the ledge we found ourselves numb and receding. The village headman – in his seventies, yet jovial and with lots of courage – sent for two men. They came in an hour's time and as I was trying to explain what the plant we were seeking looked like, one of the men at once said that he had seen it while collecting – and the collectors called it "Pherenum." So we roped him some eighty meters down, and after a good search for twenty minutes he managed to get two precious plants on the crevices which were filled with crumbled calcareous rocks and clay, amidst "salimoo" grasses (*Ischaemum angustifolium* ?), on faces of rocks where the sun shines all day long. I took out my wallet and flushed one five-rupee note (\$1.06). He was very happy. Another man volunteered to go down as well. The two ransacked the easier portion without ropes and in an hour collected sixteen more plants. It was already noon, and since the fact was firmly established that *P. fairrieanum* does exist in Sikkim, I called off the search. We carefully mossed and bagged the coveted plants, and after a sumptuous lunch we bade goodbye to our host and the villagers and set off to Temi, fifteen kilometers away.

The first eight kilometers we passed through lovely age-old, temperate, broad-leaved forests of oak, Machilus, walnut and michelia – all in their natural grandeur. All of these were generously beset with orchids – mostly Cymbidiums, Coelogynes, Cirrhopetalums, Achrochaenem Erias, Stauropsis, Pleiones and Dendrobiums of the cooler type – as the region we were encountering was about 2000 meters above sea level. Botanicals were numerous. White-pointed flower buds of *pleione humilis* were jutting out in thousands from the mossy trunks of the trees, and up on the bowers, masses

of *Cymbidium grandiflorum* and *Cym. devonianum* were cozily anchored. Each plant had more than half a dozen spikes, with an average of thirty flowers per spike. White *Dendrobium longicornu* was frequent, and down below, in the humus, *Anthogonium gracile*, *Calanthe masuca*, *Anoectochilus grandiflorus* and a few Habenarias were growing heartily beside the masses of white, fragrant *Daphne cannabina*, the bark of which is much sought for making paper in the Himalayas.

Next day was bright and pleasant. I got up early and potted our plants in tree-fern-stem troughs (*Alsophila latebrosa*) with fine composts of fern fibers, broken crocks, cow manure and a top dressing of sphagnum. They are now doing fine here at 1600 meters.

So we claim to have added one more species to the 453 species of Sikkim orchids previously known. But the story is not yet over. Protection of *P. fairrieanum*, demarcation of fire lines and converting the entire tract of some twenty acres into a sanctuary are under active contemplation. Above all, details of its ecological habitat are yet to be presented to the members of the American Orchid Society and orchid lovers all over. – *Temi House, Via Singtam, Sikkim.*

**NOTE: IN THE CENTENARY YEAR 2009 OF THE DEPARTMENT OF FOREST, ENVIRONMENT & WILDLIFE MANAGEMENT, GOVERNMENT OF SIKKIM, THE FIRST CONSERVATION RESERVE OF THE STATE WAS DECLARED FOR THE PROTECTION AND CONSERVATION OF PAPHIOPEDILUM FAIRREANUM AT TINKITAM, WITH THE ENTIRE SLIMM BHIR AND ADJOINING AREAS DECLARED AS SLING-DONG TINKITAM FAIRREANUM CONSERVATION RESERVE.**



Discovery of Fairrieanum (*Paphiopedilum fairrieanum*) at Tinkitam, South Sikkim. January 22, 1962.

L-R: Not known, L.B. Lama, R.O. P.S. Subba, Village Headman, R.O. Rinzing Choppel, son of Headman, FG. K. C. Pradhan sitting at centre. Two Rai brothers in front with our booty - a dozen plants.

Tinkitam is the westernmost limit of this highly prized orchid species having its centre of origin in Rupa in Arunachal Pradesh in North-East India.



# SIKKIM FLOWER FESTIVAL

DECHEN LACHUNGPA

Initially the first Flower Show was held at Loop Garden in North Sikkim during 1963 and inaugurated by the then Gyalmo Hope Namgyal. It was started with a view to bring about awareness of nature and the importance of conservation. The show seeks to generate interest and encourage people to conserve and propagate plants.

After 1963 the Flower Show has seen some major developments. It is now a year long event and is the only annual Orchid Show in South Asia held in the months of March and April. From a temporary set up it now has a permanent Flower Exhibition Center and is one of the major Tourist attraction in the state. Also it is serving as one of the major Educative Center for Students who is often seen carrying notebooks and making an effort to learn. Recently there is also an increase in the number of Quality Plant growers in

the State. Credit goes to the Flower Show Committee and the Government of Sikkim for making Sikkim's presence felt in the Global Floriculture scene. The Flower Exhibition Center has seen some of the greatest personality of India visit and genuinely lavished praises on the amazing display of Plants.

#### Main Objectives:

- Conservation of rare and endangered native species of flora.
- Propagation and commercialization of the flowers of the Himalayas.
- Education.
- Employment generation through development of floriculture in Sikkim.
- Development of Tourism.

### Journo of Events:

- 1963: The first Flower Show inauguration by Gyalmo Hope Namgyal
- 1989: The first Flower Show was organized and inaugurated by the then Prime minister of India Mr. V.P.Singh
- 1990: The first International Flower Show was organized.
- 1990: The existing permanent exhibition hall constructed.
- 1995: Flower Show Committee organized the Orchid Show along with Floriculture Wing at New Delhi during the International trade Fair (Pragati Maidan)
- 1996: The then Vice President of India H.E. Shri K.R.Narayanan paid a visit.
- 1997: All India Orchid Seminar was organized along with The Orchid Society of India at Gangtok.
- 1997: Tariff and Ticketing system introduced & the Flower Show becomes an year long event.
- 1998: Opened New Grower sales Counter & simultaneously visitors to the Flower show from 1992 to 1998 increased by 10000 to 100000
- 2000: The committee organizing a mega event 'The Eastern Himalayan Flower Festival'.
- 2002: Flower Show graced by the then Vice President of India, Shri Krishna Kanth.
- 2003: Flower Show graced by H.E. the then Prime Minister of India, Shri Atal Bihari Vajpayee.
- 2005: Flower Show graced by then H.M.Govt. of India Shri Shiv Raj Patil.
- 2006: Flower show graced by then Union Minister of Panchayati Raj Shri Mani Shanker Aiyar.
- 2007: First Bishnu Maya Award for the Sikkim Flower Show introduced sponsored by the NayumafamilyinhonourofSmt.BisnuMaya,the mother of Honorable Chief Minster Of Sikkim, Dr. Pawan Chamling.
- 2009: Flower show graced by H.E. the Governor of Sikkim Shri Balmiki Prasad Singh.

# म भावी हूँ

– श्रीमती अम्बिका शर्मा  
पाचेखानी नि० मा० विद्यालय

म भविष्य हूँ तिम्रो  
म भविष्य  
मेरा नत कैही चाहाछन्  
न केही स्वार्थ,  
केवल तिम्रै निम्ति मरिभेट्ने  
मेरा चाहानाहरु ।  
किन लथालिङ्ग पारिदिन्छौं,  
ए! चेतन चोला प्राणी  
मैले त तिम्रै निम्ति बढिदिन पर्छ  
तिम्रै आवश्यकता पूर्ति गर्न  
सरिदिनु पर्छ,  
तिम्रै भावी पिढीलाई हँसाउन फलिदिनु पर्छ ।  
अनि पर्यावरण स्वच्छ राख्न  
दृढ भएर उभिदिनु पर्छ ।  
तिमीले त के गर्नु छ र,  
केवल मलाई एउटा सानो  
खाल्डो खनेर,  
मेरा जराहरु पुरिदिए पुग्छ,  
कहिं खडेरी लागेर ओइलाउन लागे भने,  
तुरुन्ध्र पान हालिदिए,  
म सरह सनै प्रयास गर्छु  
केवल तिम्रै लागि ।  
तिमी मलाई चिन्ने प्रयास गर  
मैले त तिमीलाई चिनेको छु  
कर्तव्य ठानी मलाई बुझ तिमी,

मत केवल तिम्रै लागी भरिमेट्दैछु,  
म रुन्छु कवल तिम्रै लागी  
तर तिमी देख्दैनौं,  
म भयभीत भएर चिच्याउँछु  
भविष्य अन्धकार तिम्रो देखी  
तर तिमी सुन्दैनौं ।  
म सानो विरुवा सम्झेर किन....?  
किन लत्याउछौं मलाई  
बरु मेरा जरा माटोमा गडिदेऊ  
तिमी यतिमै हारस्नेछौं ।  
म गुणी छु केवल तिम्रै लागी  
सोच तिमी,  
दुषित वायुलाई किन म खिच्छु,  
निडर बनेर केवल तिम्रै लागी  
खडेरी परेर बाझिएको भुमिलाई  
पानी दिन्छु  
वायु मण्डललाई तह लगाई  
केवल तिम्रै लागी  
भक्तिएका पेहा दिस्कना थाम्ने गर्छु  
एउटा चट्टान बनीं कसका लागी...?  
भन अनि फेरी किन मलाई चिन्दैनौं तिमी  
म भावी हूँ तिम्रो  
म भावी..... ।



## हाम्रो क्योग्रोस्ला

बिष्णु कुमार शर्मा,  
सव-इन्सपेक्टर, डब्लु टी, हेडक्वार्टर

क्योग्रोस्ला ठाँऊ हेर्नलाई राम्रो, आल्पाइन सन्चुरी,  
जीव र जन्तु यी वन्य प्राणी, सबैको मन हर्ने ।  
डाँफे र मुनाल प्रसस्तै यहाँ, चिलिमे पनि छन्,  
छन् राज्य पशु रेड पाण्डा पनि, हेर्नलाई राम्रो झन् ॥

घोरल त यहाँ कति छन् कति, कस्तुरी पनि छन्,  
थार पनि यहाँ चरेकै हुन्छन्, भालूको डर झन् ।  
धुप्पी र सल्ला ठूल-ठूला रूख, पोटलिङ्गो-गुरास फूल,  
प्रिमूला पनि छन् धेरै थरि, दवाई र बिषको मूल ॥

सिरिरी चल्छ हिमालको हावा, कल-कल छन् छहरा,  
कतैछन् मैदान, मधेश जस्तै, काँहि छन् पहरा ।  
पर्दछ हिउँ सरर यहाँ, ढाम्म र ढुम्म छ,  
हउँदका दिनमा लाग्दैन घाँम, धाम्म र धुम्म छ ॥

जाडो छ औधी सकिन्न बस्न, आगोको टाडामा,  
झार पात छैन सेताछन् रूख, चाँदीका डाँडामा ।  
यही जाडोसंगै प्रकृति हर्न, दुनियाँ आउँदछ,  
सुन्दर र शान्ती मिलेको देख्दा, खुशीले रम्दछ ॥

त्यो केन्द्रविन्दु पोखरी छाङ्गु, पवित्र देवधाम,  
जनाँउछ स्वागत अतिथिलाई, यसैले उच्च नाम ।  
बाँच्नु छ अनि बचाउनु पनि, यो हाम्रो कर्म हो,  
बचाउँ जंगल हिमाल र प्राणी, यो ठूलो धर्म हो ॥



## बनभिन्नको मन

डिल्ली राम ढकाल,  
राज्य प्रदुषण नियन्त्रण बोर्ड, वन विभाग

प्राण बचाउँने जीवन दिने, बन-जंगल हो हाम्रो ।  
काटी-मासी नबनाऊ, मरुभूमि तुल्य नराम्रो ॥

स्वास प्रस्वासमा ताजा हावा, स्वास्थ्य जीवन बनाउने ।  
काटी जंगल दानव रूप लिई, जीवन किन घटाउने??

जडी-बुटीको स्रोत पनि हो, विभिन्न रोग निवारण ।  
बन-जंगल मै जीवन छ त, गरौं बन संरक्षण ॥

जलको पनि हो मुख्य स्रोत, छ जल जीवनको आधार  
बुझ्दा-बुझ्दै किन हामी, गछौं बनलाई अत्याचार??

मिली हामी रक्षा गरौं, वन जंगलको पहिल्यै ।  
अनि मात्र जीवन हाम्रो स्वास्थ्य रहन्छ जहिल्यै ॥

मूलं ब्रम्हा, त्वचा विष्णु, शाखा रुद्रो महेश्वरः  
पातले पातले देवानाम वृक्षराज नमस्तुते ॥

हे वृक्षराज! तुम्हे नमस्कार है । तुम्हारा मूल में ब्रम्हा, देह  
में विष्णु, शाखाओं में महेश तु पत्ते-पत्ते में देवताओं का  
वास है ॥

# THE BULBULEY PEACE RESERVE

T R Poudyal, IFS (Retd)



**T**hanks to the intensive care and coverage of the area by way of comprehensive protective measures adopted by the Forest, Environment and Wildlife Management Department, the Northern Bye-Pass forests have woven themselves into the mosaic of the natural environment. The head is where the health is planned and protected. The health and protection of Gangtok municipality with the burgeoning population, its fast growing traffic and rapid urbanisation needs to be well taken care of. Conservation measures adopted like this on the head of Gangtok will serve the purpose of the growing population in terms of aestheticity, recreational values, water needs, local climate amelioration and above all the stability of the slope where the Gangtok township hangs tenuously.

The Himalayan Zoological Park at Bulbuley along the Northern Bye Pass covers quite an extensive area where the Himalayan fauna is elegantly housed. In a bid to

insulate the area against pilferers and encroachers the entire area is minimally criss-crossed and zigzagged by tarred roads and serpentine footpaths to enable better conservation by supervision.

The *Smriti Vans* or Memorial Forests have been laid out in blocks and parcels providing participation to members of the public in an effort to green the slopes and at the same time create their own forests for memory. Memorial Forests is what the concept is all about. And look at the results. There is a phenomenal transformation of the area towards natural succession. The weeds are competing, the bushes are outstripping one another and the trees are sighing in relief to have a space of their own under the sun. What an example of community and social living, of the vegetation and the animals and the birds together. A symbiotic fabric of nature is in the offing. We have created nature right in our neighbourhood.

At a time when the entire world is focussed on the menace of global warming and

its consequential disadvantages to the human societies, the re-creation of nature to mitigate the effects of green house gases leading to climate warming is both a timely step and technically paraphrased programme. The carbon sink function that this patch of green cover renders unto us needs to be quantified to be really believed, apart from its multifarious functions of intangibles like the healing of the ailing mind, producing equilibrium and balance of mind, reducing its fluctuations, enhancing spirituality and all the other aspects that are related of us to the nature. And nature is what we are turning towards, whether it is natural farming, natural healing or holistic living.

There was a time when we either ignored the trees as an inalienable component of our living or delighted in wiping it out for petty reasons, for gaining enough space for sunlight to come or as inviting obnoxious worms and caterpillars to our households. It is again the time that is putting the clock back to our thinking cerebellum. And we have begun to treat trees with reverence and respect as enshrined in the constitution of all religions.

While the world communities have woken up to the need for retention of trees and the vegetation in general as a survival matrix and begun to take stock of ills and intricacies that beset this beautiful earth, we in Sikkim have started to take small steps commensurate with our size and strength to actually ameliorate the health of our hills. And the noblest way to do it in consonance with our relief and topography is none other than greening the hills,

whatever area is devoid of it. A small step of returning a piece of dull and degraded landscape to the nature through the medium of civil society in the case of Smriti Vans and through the mode of animals in the case of the Himalayan Zoological Park in which the entire activities have been orchestrated through the Department has contributed substantially to the enrichment of an impoverished land skeleton.

What a transformation! The area is rich and resplendent, green and gorgeously, brimming with birds and butterflies, bees and beetles that eloquently speak of the character of nature in real action.

There cannot possibly be a more ideal wilderness area so close to a bubbling urban centre to cater to the needs of nature hungry Gangtokians. There are Maples and Magnolias, Alders and Oaks, Walnuts and Michelias, Cryptomerias and Cupressus, local and exotic species all integrated in one green canvass. The students enrich its vaults, the self-help groups contribute liberally, individuals and institutes donate generously and the traders come

out with their share, not in any way in money and cash but by way of planting saplings free of cost in the courtyard of this beautiful site, BULBULEY.

Nature walk, birdwatching, enjoying animals in the near-to-nature enclosures, botanizing, viewing the glistening peaks, picnicking, experiencing solitude and quietude, meditating and all kinds of physical and mental healing that possibly emanate from such a natural niche is what the Bye Pass Nature Reserve is intended to offer to bring immense relief to the tired and turbulent, to the sick and ailing and to all those also who are buoyant and vibrant, alive and eager to be near to nature.

A 50 hectare Herbal Garden aptly proposed to be called Sanjivani Smriti Van that is on the anvil adjacent to this peace zone will add to the aura of this beautiful landscape. With the famous and historical Ganesh temple at the gate, the towering Hanumantok at the peak and enchanted Enchey Gumpa or Monastery at the base, Bulbuley Smriti Van rightfully qualifies to be called a **Peace Reserve**.





# DHARAS AND THEIR STORIES:

## Conserving Water Sources in context of Global Warming and Changing Climate

T. R. Poudyal, Retd. IFS

We have been reading a great deal of the Government programme of conserving the water sources in the state through the local media. The effort of the RM &DD in this noble task is indeed a timely step and is to be appreciated.

Water is a prime necessity. If water sources dry up we can neither substitute, search or survey new areas for our needs. Sikkim is endowed with innumerable water sources. The old and the wise in our society took care to see that these traditional sources are preserved for our posterity and framed social norms and ethics to ensure their perennality. Over the years, various forces and factors have led to their

depletion or drying out. It is time we engage our attention to restoring them so that we do not face a seemingly avoidable crisis which was in our hands to do so.

Old-timers may not fail to recall their childhood days when they used to go daily to their neighborhood *dharas* for ablutions and enjoy the open, natural cold water bathing. This, perhaps, ensured their longevity. *Dharas* were ideal spots for assemblage of local household members not only to collect water for cooking and washing but to share their joys and sorrows, to relate the stories about their sleeps and dreams, of domestic quarrels and fights, of marriages and

elopements, or simply to chalk out their programme for the day to go *to mela*, marriage or market together. The *dharas* joined together various peoples and persons, castes and communities, the young and the old, male and female that helped evolve a strong, unshakeable and sustainable cohesive society. Traditional water sources are our great heritage, therefore. They must be revived: they are not dead as yet.

Sikkim is a fountain of myriad streams, springs and small tributaries, but there are some areas, districts and pockets that are starved of water almost every year. While the Government has covered every household with rural water



supply scheme but regrettably the sources are dying out sending signals of distress among the consumers. A host of actions and activities including proliferation of constructions, road making, irrigation channels, declothing the existing vegetation for alternative land uses are some of the reasons. While the water yielding capacity of the forest- catchments have substantially increased owing to strict conservation measures, those smaller ones lying and located in the rural revenue areas have suffered owing to neglect and mismanagement that need to be protected.

While no counts of *dharas* which have disappeared from our landscapes are officially made, there used to be quite a good number of them between Rangpo and Gangtok loved and enjoyed by the travelers in the past. Only two of them, one at Martam and the other at Tadong still survive the mammoth march of human feet that generally destroys everything that comes on the way. But the volume and the intensity of flow is seriously reduced. While the Ghattey dhara is long dead, the one at Dentam, West Sikkim is the only one which has defied the human intrusions and continues to send out jets of spring water from the base of a huge ridge above. It is, at once, a soothing, cooling and calming experience to be near such natural sights which might eventually be either rare or extinct altogether from the face of the earth looking at the contours and configuration of development strategies all over the world.

The '*Dhara Vikas*' programme of the RM&DD is a welcome and timely intervention. To identify 1000 rural water sources to prepare the Spring Shed Atlas and propose treatment to about 300 critically degraded

ones in the first phase to principally increase the discharge and duration of the springs will go a long way in reviving our sick *dharas*.

The means to achieve these objectives should, however, be through vegetative means. Measures such as enrichment plantations, gap fillings, dry wall fencing as opposed to cemented works should be taken up. Choice of species is an important criterion when we are rehabilitating a degraded catchment, particularly when our aim is to enhance the water yielding capacity of the catchment. The contrary and inhibiting factors in operation within the delineated catchment should be withdrawn. The traditional knowledge by which the local people have protected the water sources must be harvested. As a matter of fact, the module needs to be formulated taking the local people's views, advice and expertise, should also be managed and maintained by them.

Carving out parcels of catchments

in the rural areas for water source conservation, managing them for the society to meet the water needs is our foremost task. Dotted all over the rural landscape such unique traditional hydro-eco conservation spots will be an added item in the menu of the home-stay tourists. A shower under the *dhara* will refresh the tourist and will carry a good remembrance of it long after his/her departure. It is never too late to replenish this precious gift of nature and start building a secure and sustainable water base for Sikkim lest the big investment made in laying out the supply network does not run dry.

Sustainable development, demands adoption of holistic approach to managing our resources be it water, land or vegetation. So far Sikkim has been able to strike a balance between conservation and development successfully. An important area which remained unattended so far is now being taken up to the satisfaction of all.



# BIODIVERSITY RESEARCH IN SIKKIM

SINCE THE TIME OF CHOGYAL SIDKEONG TULKU

**USHA LACHUNGPA**  
Sr. Research Officer (WL)



George Cave & Rebu at Eumtso 1909  
(c) Cave Family 2009



WII MSc student in cold desert - 2007



2009  
Researcher Yasmeen studying Alpine Plant Life of North Sikkim 2009

Real natural history exploration in Sikkim started with Sir Joseph Dalton Hooker's pioneering botanical and biogeographical explorations between 1847 and 1850 with the resulting output, a naturalist's tome, the Himalayan Journals published in 1891. For Sikkim-phales, this classic by Charles Darwin's friend is a must-read. Spurred by his enthralling narrative, in the next 40 odd years, a number of British botanists traversed most of the state using indigenous Lepcha collectors. Prominent among them were George King, C. B. Clarke, D. Prain, J. S. Gamble,

George Watt, R. Pantling, J. Gammie W. W. Smith and G. H. Cave, Kingdon Ward and several other twentieth

in journals were also published. H. H. Risley's Gazetteer of Sikkim is a case in point, documenting almost all aspects of life in Sikkim including its enormous biodiversity. In short, as botanists Smith and Cave remark in their book on vegetation of Zemu and Lhonak valleys of Sikkim, '...The result is that probably no corresponding



Elongated or Sal-Forest Tortoise *Indotestudo elongata*

century explorers, botanists, birders and other enthusiasts like W. T. Blanford, W. Edwin Brooks, Lionel de Niceville, F. Ludlow, N. B. Kinnear, R. Meinertzhagen, F. Scully, Herbert Stevens, H. G. Champion, S. K. Seth. Not only were plant collections deposited at the Central National Herbarium, Kolkata, but seeds of wild plants were sent out to botanic gardens throughout the world as were bird, butterfly and other insect specimens among others; scores of books, periodicals, research papers



Hedychium gardnerianum at Tendong by CABI project



Courtesan in Camera

Gangtok  
October 21, 1950

My dear Mr. Cane

I received another two boxes of plants, besides one box I have already received at Chikong.

Many many thanks for so kindly sending me such a lot of variety plants of all kind from your valuable collection.

It was most

kind of you to take the trouble in collecting & sending the plants for me.

My all services here are in good condition. I am completely pleased with them and am highly engaged in my planting the trees in my garden.

I am sending you one Tibetan tea cup with its saucer & bowl also one copper tea clog bowl which I hope you will kindly accept it as a small present

after me.

I hope you & Mrs. Cane both keeping quite well.

With kind regards

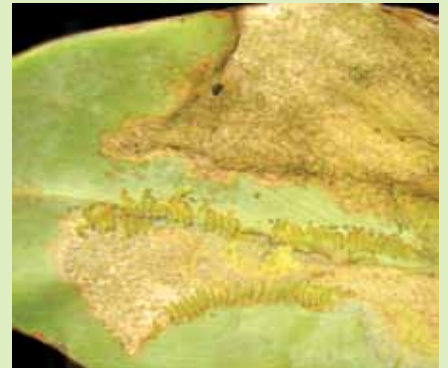
Yours & Sincerely,  
Sushant Singh



Snow Leopard in Camera trap-WII



Peafowl Blood Sampling



Leaf mining larvae on *Hedychium gardnerianum* at Yuksom, West Sikkim - CABI-NBPGR-ICAR



Serow-KNP-WII



Mohun Sharma with Great Crested Grebe, NEW RECORD



J B SUBBA with skeleton from KNP



Ali Hasan with CLAP TRAP



Golden Cat dark var. WII-KNP



Frog Megophrys sp.

area in India has been so fully ransacked for its flora and probably none is so well known, despite the wealth and variety of its vegetation due to the great range of altitude and of humidity.'



Tree-ring coring of Silver Fir from Dombang, North Sikkim; Forest official observing tree-ring sample collection technique

Some of these pioneering explorers and collectors had good contacts with the Maharajas or Chogyals of Sikkim. Chogyal Sidkeong Tulku in power between 1909-1914, had spent some time at Oxford with the assistance of the then Political Officer Claude White before he took over the reins of Sikkim. The sweeping and far-sighted reforms he brought into the system saw the birth and flowering of the Forest Department, with the result that despite ongoing development initiatives, Sikkim a 100 years later, today still has the best forest and wildlife protected area coverage in the country. This Founder-Father of

Modern Forestry's good relationship with botanists of his time is seen from a letter dated 27.5.1910 to Dr. George Cave thanking him for sending a vast collection of live plants to him from Chakung for planting, and in return sending him a Tibetan tea-cup as a present. This information was kindly sent by Ms. Rowena Cave, his great grand-daughter presently at New Zealand researching his life through his diaries and photographs.

Following Chogyal Sidkeong Tulku's scientific reorganization of the Forest Department, delineating Reserve Forests, Gaucharan (for livestock grazing) and Khasmal (for fuelwood), protecting green belts along watercourses and many pioneering environmentally friendly measures, it became easier for the Forest Managers to take their charge seriously and confidently. The Forest Family was enriched by a long line of dedicated managers down to this day.

Once Sikkim became part of India, there were series of major and minor explorations and collecting expeditions by Zoological Survey of India (ZSI) and Botanical Survey of India (BSI). Many collectors also collected specimens of beetles, seeds, and other bio-resources clandestinely knowingly or unknowingly and today these collections can be seen in some European museums. Several publications resulted. One is the five-Volume Fauna of Sikkim by ZSI.

Today we have documentation of not only the flora and fauna but also the diversity of micro-organism and even some diseases and introduced,



Dr. B.S. Kholia helping student identify ferns

naturalized exotic species. Much research today has graduated from survey-collection to more management oriented studies with students acquiring academic degrees working with sophisticated cameras and instruments like GPS, camera-traps, mist-nets and increment borers, in one of the most challenging places in the Himalayas, SIKKIM.



Shiva Kr. Sharma sensitizing Foresters about *Panax* spp. in Sikkim

## LIST OF SOME COMPLETED/ONGOING RESEARCH PROJECTS IN SIKKIM

Organization	PIs / Researchers	Biodiversity under study
1. Bombay Natural History Society	Usha Lachungpa, Asad Rahmani; Isaac Kehimkar	Cold Desert Fauna and its conservation in North Sikkim; Butterfly Camps and surveys
2. Birbal Sahni Institute of Paleobotany, Lucknow	Amalav Bhattacharya	Collection of tree ring samples from Zema, Green Lake, North Sikkim
3. Botanical Survey of India & Ghent University, Belgium	Deepa Tamang V B Mathur B. S. Kholia Kanad Das, Anne-Marie Verbeken Avishek Bhattacharjee A. Benniamin	Survey and Ethnobotany Collection of Salix & Populus spp. (N. Skm) Ferns & Mushrooms of Sikkim Study of Lactarius species of Mushroom important for forest regeneration Collection of Acorus, Digitalis, Curcuma spp Taxonomic Studies on Aspidiaceae in West Sikkim
4. Deccan College, Pune	Mukund Kajale	Paleoenvironmental study in North Sikkim
5. Delhi Univ-CISHME & SACON	Bhoj Kr. Acharya Basundhara Chettri	Birds & Butterflies of Tista Valley Reptiles of Tista valley
6. Delhi University	Shiva Kr. Sharma Yasmeen Maheshwari	Panax species of high altitudinal medicinal plant used commercially; Research work on high altitude plants and climate change
7. IISc, Bangalore & University of Stockholm, Harvard University	Praveen Karanth, Ullasa Kodandaramiah Krushnamegh Kunte	DNA Barcoding of Satyrid Butterflies, Butterfly Biogeography
8. KFRI, Kerala & CABI, UK, NBPGR, ICAR	K. Sankaran, Djami Djeddour, Weed Control Scientist	Collection of Hedychium spp and their pests from South Sikkim; Weed / Invasive species control
9. Nature Conservation Foundation (NCF) / ISLT & TMI-India	Yash Veer Bhatnagar, Nima Tashi, Ghanashyam Sharma, Suraj Subba	Snow Leopard Survey using non-invasive methods
10. Punjabi University	M. S. Saini's students Hemender Bharti's students	Survey & collection of Trichoptera, Bumble Bees, Micro-Lepidoptera; Survey & collection of Ants from Sikkim
11. Sikkim Government College	Basundhara Chettri	Amphibian study in Tista Valley & Maenam WLS, South Sikkim
12. Voluntary Health Association of Sikkim	B. B. Rai, P. C. Rai	Study in villages around Barsey Rhododendron Sanctuary
13. Wildlife Institute of India & Chicago University	Pranav Chanchani MSc V. B Mathur, G. S. Rawat, Satya Kumar, Mervyn, Dhananjay Mohan, Pratap Singh  Trevor Price, Chewang Bonpo, Kamal Poudyal, Tapajit Bhattacharya, Tawqir Bashir	Wildlife of Tso Lhamo Cold Desert Survey & blood Sampling of Red Junglefowl Developing Spatial Database on Mammal Distributions & Monitoring Programme for large Carnivores, Prey populations and their Habitats in KBR Birds spp. Nos. and Densities in East & West Himalayas (KNP/KBR in Sikkim)
14. WWF-India	Dr. Partho Ghose,	Red Panda Survey in Sikkim
15. Dabur India Ltd.	Collection for tissue culture of <i>Swertia chirita</i> , <i>Picrorhiza kurooa</i> , <i>Nardostachys grandiflora</i>	FEWMD (Territorial Circle)
16. Indian Institute of Tropical Metereology, Pune	Dr. Hemant Borgaonkar	Collection of incremental cores from old Conifer trees in different parts of Sikkim
17. GB Pant Institute for Himalayan Environment & Development	L. K. Rai, Y.K. Rai, Ranjan Joshi, Varun Joshi, H. K. Badola and K. K. Singh	Assessment of biodiversity values and ecosystem services in the Wildlife Protected Areas of Sikkim Himalayas
18. Banaras Hindu University	A. K. Mishra, Dr. Hridip Sarma	Observing eco-biological status and carrying out small in field experiment on high altitude <i>Hippophae salicifolia</i>
19. Kalyani University, WB	Sarbani Nag	Herpetofauna of East Sikkim
20. Burdwan University	Gautam Ganguly, J. P. Keshri	Ferns of South Sikkim, Desmids of Sikkim (under process)
21. Pune University	A. B. Nadaf, Rahul Zanan	Pandanus spp. in Sikkim (under process)
22. North Bengal University	Dr. A. P. Das, Mr. Sonam Rinchen Lepcha	Angiospermic Flora of Alpine East Sikkim with special reference to Pangolakha WLS

# WILDLIFE PROTECTED AREAS (PAs) IN SIKKIM - AN OVERVIEW



H .P. Pradhan, IFS

## 1. OVERVIEW

- The term wildlife encompasses all uncultivated flora and undomesticated fauna. Every species has the right to live and every threatened species must be protected to prevent extinction.
- Water, wilderness and wildlife are irrevocably interlinked. With mounting industrial and demographic pressures, wilderness areas, which are the richest repositories of wildlife and biodiversity have either shrunk or disappeared. Their continued existence is crucial for the long term survival of the biodiversity and the ecosystems supporting them.



Red Panda  
*Ailurus fulgens*  
State Animal

- Effective ecosystem conservation is the foundation of long-term ecological and economic stability. Conservation of biodiversity is directly linked with conservation of ecosystems and thus with water and food security.
- Habitat loss is caused by infrastructural developmental projects for short term economic gains undermining ecological security.

## 2. PERSPECTIVE MANAGEMENT STRATEGIES

The Department of Forest, Environment & Wildlife Management in the state has been adopting and implementing following strategies for smooth and effective management of Protected Areas i.e. Sanctuaries and National Parks which are oriented towards protection, conservation and preservation of pristine flora and unique Himalayan fauna in the state.

### *(i).Strengthening and Enhancing the Protected Areas Network.*

There are 8 (Eight) PAs comprising of 7 (seven) Sanctuaries and 1 (one) National Park. Efforts have been made

to increase the extents of PAs in the state to strengthen and enhance the biodiversity as the main strategy for conservation and protection of most of the rare and threatened wildlife species and biodiversity in the state. Proposal for creation of inviolate areas within the sanctuary under Critical Wildlife Habitats had been selected and submitted in the Ministry and will be authenticated after the scientific study.

### *(ii) Effective Management of Protected Areas:*

Maximum efforts have been made for effective management of PAs in the state by adopting suitable management techniques based on scientific and ecological data viz:

- Improvement of degraded habitat by suitable management practices under CSS scheme.
- Restriction of thoroughfare in core zone and development of eco-tourism including trekking by the adventure tourists only in buffer areas.
- Control of forest fire, grazing, disease, poaching and trade of wildlife and its derivatives.

- Intensive management through organization of anti-poaching activities, trap demolition and patrolling by the wildlife officials with the active participation of Eco-Development Committees.
- Intensive measures have been taken up for mitigation of man-animal conflicts in and around the Pas.
- Scientific and ecologically sound management plans for all PAs are in the final stages of preparation.

***(iii) Conservation of Wildlife and Endangered Species and their Habitats:***

- The conservation of Wildlife and Endangered Species and their habitats has been proposed to be initiated in all PAs in the state by way of conducting status surveys of all endangered species covering all groups of rare and threatened species of flora and fauna. The logistic and financial resources from the Ministry, GOI are required for conducting such studies. Inviolable areas for such species have also been proposed and identified within

the PAs to declare them as Critical Wildlife Habitats for intensive protection and conservation of rare and threatened species. The field survey and study of Red Panda habitats and its population in all PAs has been taken up in the state in close coordination of WWF-India, Sikkim.

- There is a dire need of developing capabilities for planned *ex-situ* conservation such as captive breeding of Red Panda, Musk Deer and Snow Leopard in accordance with IUCN guidelines.
- Need to strengthen the techniques of capture, translocation by tranquilization of displaced and problem herbivores considering the growing trend of crop depredation by wild boar, porcupine, barking deer, monkeys and occasionally Himalayan Black Bear.

***(iv) Restoration of Degraded habitats outside Protected Areas:***

- Habitat improvement within the PAs has been taken up under the fund provided under 100 % CSS.

- There is a dire need to develop, restore and manage degraded habitats outside PAs vital for spatial movement of spill-over animal population and requirement of basic biological resources of fringe forest dwellers living around the PAs.
- Need to identify and develop degraded habitats around each PAs and in potential 'Wildlife corridors'. Fund for implementation of such schemes has been provided by the Ministry, GOI.

***(v) Control of Poaching and Illegal Trade in Wild Animal and Plant Species:***

Efforts have been made by the Department for effective prevention of poaching and illegal wildlife trade in the state by conducting intensive patrolling, surveillance, and vigilance by the territorial and wildlife officials with the help of EDCs. But the manpower resource is poor due to shortage of frontline staff which needs to be addressed during the meeting for special Wildlife Crime Cell and enforcement agencies for combating such activities to be funded under CSS.



North Sikkim Tour with Shri Bhim Dhungel, Minister FEWLM



Kabi Forest Check Post.

- Efforts have been made for providing adequate professional skills in prosecution matters related to wildlife offences for the frontline staff.
- Efforts have been made for requisite information and database on wildlife offences to devise suitable strategies to combat wildlife crime and detection.
- Maximum efforts have been made to secure and prohibit smuggling of wildlife along the international borders by setting up check post and patrolling by wildlife and territorial staff.
- The wildlife personnel must have a status at par with the police in the use of weapons and the equipment to enable them to combat the poaching and illicit trade effectively. Secret Fund is to be provided for intelligence gathering in cases of illegal trade of animals and their derivatives.

**(vi) Monitoring and Research**

- Survey and studies of wildlife population are being carried out for preparation of Management Plans, but field efforts are hampered due to lack of proper field equipments for tracking/monitoring/documentation due to paucity of funds for the purpose.

- Other issues like research and regular, long-term monitoring using reasonably sophisticated field equipments needs to be strengthened.



Rhododendron  
*Rhododendron niveum*  
State Tree

**(vii) Human Resource Development and Personnel Planning:**

- Efforts have been made for posting of wildlife trained and skilled manpower for better management of Protected Area and its habitat. Maximum people participation using EDCs, Panchayats, Pokhari Sanrakshan Samitis and communities has been ensured for planning and management of PAs in the state.
- The department is deputing ACFs and Range Officers for training every year for Diploma and Certificate courses to Wild Life Institute of

India, Dehradun to ensure better management of wildlife within and outside PAs as well.

**(viii) Ensuring Peoples' Support & Participation in Wildlife Conservations.**

- Initiated orientation programmes for PA staff, local youth, panchayats, and EDC members and Para-military forces in close co-ordination with WWF-India, Sikkim for developing local capacities to implement developmental activities by the local communities and EDCs around PAs.
- Developed guidelines and passed resolution for EDCs for effective implementation of programme and protection and conservation of PAs.
- Employment opportunities are provided to the local communities for various protection measures and conservation works such as fire protection, improvement of habitats, water holes, distillation of wet lands etc.

**(ix) Conservation Education and Protected Area Interpretation.**

- Time to time capacity building programme has been organized for different level of frontline staff and target groups like para-military forces, BRTF, EDCs member, local youth to educate them on wildlife conservation, illegal trade of animals and trade in derivatives.
- Prepared and developed wildlife conservation brochures and leaflets both in English and in local languages highlighting the needs of conservation, role of forest and wildlife resources in the environment

**(x) Tourism in Protected Areas**

- Eco-tourism in PAs and outside PAs as well are fast growing in the state to inculcate in visitors an empathy for nature, both animate and inanimate and to provide a communion

with nature rather than to merely ensure sightings wild animals.

- Necessary strict guidelines and rules for protection and conservation



of the natural resources, waste disposal have been laid down and implemented for tourism in PAs. Trekking rules have also been extended and implemented for adventure tourism to prevent bio-piracy and other illegal activities by the tourists and visitors.

- Local Tourism Development Committees by involving local stakeholders and members of the Eco-Developments have been constituted for formulation of environment friendly eco-tourism implementation, regular monitoring the impacts of ecological effects on wildlife habitats.
- All the development and promotion of eco-tourism projects within and outside the PAs have been prescribed in the wildlife Management Plan and implemented by the Forest Department in close coordination of Tourism Department and local tourism development committee.
- Time to time capacity building programme for tour operators, local stake holders for bringing awareness to them for rules and regulations governing eco-tourism are emphasized.

***(xi) Domestic Legislation and International Conventions:***

- The management of PAs, conservation of floral and faunal

bio-diversity, protection of existing fauna-avifauna etc. has been done under the strict provision of Wildlife (Protection) Act, 1972 and other Acts related with the environment.

- Time to time review of the Acts is required at the Centre with a view of making them more oriented and relevant to the realities of the present day which is imperative while rules in various issues related to environment and wildlife should be prepared in consultation with the states

***(xii) Enhancing Financial Allocations for Ensuring Sustained Fund Flow To the Wildlife Sector.***

- The fund provided by the ministry under CSS is not sufficient for effective management of PAs especially for infrastructure like Office and residential quarter of the frontline staff.
- There are growing trends of crop depredation by the wild animals like wild boar, porcupine, barking deer, monkeys, even some cases by Himalayan Black Bear. Fund for provisions for procurement of tranquilizer gun and drugs are inadequate and this sector needs to strengthen in order to capture and translocate displaced animals and release in suitable habitats.
- Funds are inadequate for filling up



Blood Pheasant  
*Ithaginis cruentus*  
State Bird

vacancies and creating new posts in wildlife sector especially for combat forces in area facing severe poaching, check post guards and sufficient equipments.

- Special provision of fund needs to be provided for restoration and improvement of habitats in outside PAs and animal corridor .

***(xiii) Integration of National Wildlife Action Plan with Other Sectoral Programme.***

- Integration of various Central and State Government schemes have to be made for development of areas outside PAs

***3. Progress Report of the Implementation of the Management Plan of PAs.***

The preparation of Management Plan for all PAs in the state has been completed. The inordinate delays are due to difficulty in procuring relevant maps as most of Sikkim falls under Restricted Area and Protected Area, under the custody of the military. So far correspondence is being pursued with the SOI for procuring the maps. The Management Plan has been prepared on the basis of the guidelines issued by the Ministry.



RangRang Landslide Treatment.





Satyr Tragopan  
*Tragopan satyra*  
Protected under Sch 1 of WLPA

being sighted in and around the human habitations, the FEWM Department appeals to the general public to adopt the following measures;

- Do not to retaliate or take any independent action or approach the wild animal.
- Do not to fuel or heed any rumors which may create panic in the area.
- Do not to create any disturbances like noise, etc.
- Do not dispose garbage especially rice beer wastage in and around human habitations.
- Do not wear bright coloured clothes if movement in the area is required.
- Do restrict human and domestic animal movement where the presence of wild animal is suspected.
- Do inform the nearest Forest Office/personnel or Police post/personnel.



Nobile Orchid  
*Dendrobium nobile*  
State Flower

- Do assist the Officials in securing and cordoning the area.
- Do assist the Officials for rescue and translocation of displaced wild animal as and when required only.
- Do remain vigilant during dusk, dawn and night.
- Do not go out for morning and evening walk till the situation is normalized in around Gangtok

The conflicts of domestic livestock with wild ungulates are reduced to minimum due to ban on grazing in Reserve Forests for last ten years resulting into low mortality, restriction in hunting and increase in welfare factors like resting, breeding and feeding grounds, leading to considerable increase in wildlife population .The Department has conducted detailed survey of the different location and area where the agriculture crop of the fringe villagers have been damaged by wild animals during 2008-09 and continued for 2009-10.

The state Government has issued notification for scheduled of rate for crop compensation and granted Rs.15.50 lakhs ex -gratia/relief to the affected families though crop assessment committee. in different parts of the state during 2008-09.

**Determination of Critical Wildlife Habitat:**

The Department has identified inviolate areas within the Wildlife Protected Areas

and proposed to declare them as Critical Wildlife Habitats. These areas needs to be validated by scientifically backed investigations with strong logistic and financial resources for conducting such studies from the Ministry, GOI. The State Government has constituted State Level Committee as per the directives issued by the ministry vide letter No. D.O. No.1-39/2007-WL-I (Pt) dated 30<sup>th</sup> August, 2007

**Other initiatives**

- Introduced participatory management of PAs involving active people's participation through Eco-Development Committees (EDCs).
- Declaration of "Sling-Dong Fairrieanum Conservation Reserve at Upper and Lower Tinkitam, Omchu, Sanganath and Nardang, South Sikkim vide notification no. 24/CWLW/GoS/FEWMD/308/WLC/08 dated 05.11.2008.
- Construction of Sidkeong Tulku Bird Park at Rabdentse, West Sikkim covering an area of 18.85 Hectares at a total cost of Rs. 6,84,00000.00 (Rupees six crores eighty four lakhs only).
- Construction of Butterfly Park at Rangrang, North Sikkim covering an area of 26.5 Hectares at a total cost of Rs. 1,24,42,000.00 (Rupees one crores twenty four lakhs forty two thousand) only under the scheme Wildlife Management Plan under Teesta Stage -V- NHPC.

**NUMBER OF WILDLIFE OFFENCES CONVICTED AND PENDING IN THE COURT**

Sl. No.	Year	No. of Cases	Compounded	Settled through court	Pending
1	2003-04	3	2	0	1
2	2004-05	3	0	3	0
3	2005-06	4	2	1	1
4	2006-07	3	0	3	0
5	2007-08	3	1	0	2
6	2008-09	4	0	0	4
<b>Total</b>		<b>20</b>	<b>5</b>	<b>7</b>	<b>8</b>



Government of Sikkim  
**Forest, Environment and Wildlife  
 Management Department**

**THE FOREST FAMILY**

INDIAN FOREST SERVICE OFFICERS (FOREST ENV. & W/L MANAGEMENT DEPTT)		
Sl. No.	NAME	DESIGNATION
1	<b>Shri S.T. Lachungpa</b>	PCCF-cum-Secretary
2	<b>Shri N.T. Bhutia</b>	APCCF/Chief Wildlife Warden
3	<b>Shri M.L. Arrawatia</b>	Secretary-Science & Technology
4	<b>Shri Manjit Singh</b>	APCCF (Planning & Adm./M & E/SPCB)
5	<b>Dr. Anil Mainra</b>	CCF(JICA/Biodiversity)
6	<b>Shri Thomas Chandy</b>	CCF (On Higher study to Australia)
7	<b>Shri Arvind Kumar</b>	CCF (Resident Commissioner, Sikkim House New Delhi)
8	<b>Shri A.K. Ganeriwala</b>	Secretary, RMDD)
9	<b>Shri S.B.S. Bhadauria</b>	Secretary Tourism)
10	<b>Shri M.L. Srivastava</b>	CCF (Nodel Officer FCA, 1980) with additional charge of Climate Change Cell
11	<b>Shri H.B. Sharma</b>	CCF (Utilisation)
12	<b>Mrs. Bharati Joshi</b>	CF on deputation to IGNFA, Dehradun
13	<b>Shri A.K. Mohanty</b>	CCF (Working Plan)
14	<b>Shri C.S. Rao</b>	Director Human Resource Development Deptt.
15	<b>Shri H.P. Pradhan</b>	CCF Wild Life
16	<b>Shri C. Lachungpa</b>	CCF Land use & Env. & Territorial
17	<b>Shri Pradeep Kumar</b>	CF (Territorial)
18	<b>Shri Brijendra Swaroop</b>	Managing Director SIMFED
19	<b>Dr. Sandeep Tambe</b>	Joint Secretary,Rural Management & Development Department
20	<b>Shri Karma Zimpa Bhutia</b>	Managing Director, SFPF (Singtam)
21	<b>Dr. P. Senthil Kumar</b>	Managing Director Sikkim Milk Union
22	<b>Dr. S. Anbalagan</b>	Chief Executive Officer, Sikkim Tourism Development Cooperation
23	<b>Mrs. Monalisha Dash</b>	DFO (Territorial) North
24	<b>Shri D. Manjunatha</b>	DFO (Working Plan) South-West
25	<b>Dr. Barapatre Abhay Bhaskar</b>	IFS Probationer - ACF (Territorial) Gyalshing
26	<b>Shri M. Ravi Kumar</b>	IFS Probationer - ACF Mangan Headquarter with additional charge of ACF BAC, Kabi

STATE FOREST SERVICE OFFICER (FOREST ENV. & W/L MANAGEMENT DEPTT)		
SL NO	Name	Designation
1	<b>Shri T.D.Rai</b>	Directo
2	<b>Shri C.S.Pradhan</b>	Addl. Director
3	<b>Shri B.K.Tewari</b>	Addl Director
4	<b>Shri Gut Lepcha</b>	Addl. Director
5	<b>Shri B.P.Pradhan</b>	Joint Director
6	<b>Shri B.S.Siktel</b>	Joint Director
7	<b>Shri Y.P.Gurung</b>	Joint Director
8	<b>Shri D.C.Nepal</b>	Joint Director
9	<b>Shri N.W.Tamang</b>	Joint Director
10	<b>Shri J.B.Subba</b>	Joint Director
11	<b>Shri T.R.Bhutia</b>	Divisional Forest Officer
12	<b>Shri T.Gyatso</b>	Divisional Forest Officer
13	<b>Shri B.S.Sharma</b>	Divisional Forest Officer
14	<b>Shri S Wangyal</b>	Divisional Forest Officer
15	<b>Shri D.S.Chhetri</b>	Divisional Forest Officer
16	<b>Shri Karma Legsey</b>	Divisional Forest Officer
17	<b>Shri Udai Gurung</b>	Divisional Forest Officer
18	<b>Mrs. Sonam Choden</b>	Divisional Forest Officer
19	<b>Shri B.B.Gurung</b>	Divisional Forest Officer
20	<b>Shri S.K.Thatal</b>	Divisional Forest Officer
21	<b>Shri V.K.Rai</b>	Divisional Forest Officer
22	<b>Shri P.K.Yonzon</b>	Divisional Forest Officer
23	<b>Shri Namgyal Sherpa</b>	Divisional Forest Officer
24	<b>Shri C.B.Bhujel</b>	Divisional Forest Officer
25	<b>Shri B.L.Sharma</b>	Divisional Forest Officer
26	<b>Shri M.R.Rai</b>	Divisional Forest Officer
27	<b>Shri B.C. Koirala</b>	Divisional Forest Officer
28	<b>Shri Gey Tshering Bhutia</b>	Divisional Forest Officer
29	<b>Shri K.B.Gurung</b>	Divisional Forest Officer
30	<b>Shri D.R.Subba</b>	Divisional Forest Officer
31	<b>Shri P.D.Bhutia</b>	Divisional Forest Officer
32	<b>Shri B.K.Basnet</b>	Divisional Forest Officer
33	<b>Shri Binod Yonzon</b>	Divisional Forest Officer
34	<b>Shri Harish Chandra Rai</b>	Divisional Forest Officer
35	<b>Shri Phurba Tamang</b>	Divisional Forest Officer
36	<b>Shri Nombi Bhutia</b>	Divisional Forest Officer
37	<b>Shri Lakpa Sherpa</b>	Asstt. Conservator of Forest
38	<b>Shri M.K.Koirala</b>	Asstt. Conservator of Forest
39	<b>Shri S.B.Prangden</b>	Asstt. Conservator of Forest
40	<b>Shri Dazom Lachungpa</b>	Asstt. Conservator of Forest
41	<b>Mrs. Rajani Bhandari</b>	Asstt. Conservator of Forest

42	<b>Shri Tshering P. Bhutia</b>	Asstt. Conservator of Forest
43	<b>Miss Urmila Thapa</b>	Asstt. Conservator of Forest
44	<b>Shri Sangey G. Bhutia</b>	Asstt. Conservator of Forest
45	<b>Miss Kathrine S. Lepcha</b>	Asstt. Conservator of Forest
46	<b>Shri Blen Tsh. Targain</b>	Asstt. Conservator of Forest
47	<b>Shri Sugan M. Saring</b>	Asstt. Conservator of Forest
48	<b>Mrs. Kusum Gurung</b>	Asstt. Conservator of Forest
49	<b>Shri Nischal Gautam</b>	Asstt. Conservator of Forest
50	<b>Mrs. Dichen Lachungpa</b>	Asstt. Conservator of Forest
51	<b>Shri Kharga Bdr. Gautam</b>	Asstt. Conservator of Forest
52	<b>Shri Tashi Tsh. Bhutia</b>	Asstt. Conservator of Forest
53	<b>Shri Sonam Pintso Bhutia</b>	Asstt. Conservator of Forest
54	<b>Shri Kharga Bdr. Gurung</b>	Asstt. Conservator of Forest
55	<b>Shri Sudhir Gurung</b>	Asstt. Conservator of Forest
56	<b>Shri Prem Kumar Rai</b>	Asstt. Conservator of Forest
57	<b>Shri Ganesh Kumar Rai</b>	Asstt. Conservator of Forest
58	<b>Shri Sanula Bhutia</b>	Asstt. Conservator of Forest
59	<b>Shri Lobzang Bhutia</b>	Asstt. Conservator of Forest
60	<b>Shri Ashok Kumar Pradhan</b>	Asstt. Conservator of Forest
61	<b>Shri Devendra Chhetri</b>	Asstt. Conservator of Forest
62	<b>Shri Krishna Kr. Basnet</b>	Asstt. Conservator of Forest
63	<b>Shri Phurba Bhutia</b>	Asstt. Conservator of Forest
64	<b>Shri Kiran Kumar Gurung</b>	Asstt. Conservator of Forest
65	<b>Shri Dilliram Nirola</b>	Asstt. Conservator of Forest
66	<b>Shri Bishnu Kumar Chettri (Panth)</b>	Asstt. Conservator of Forest
67	<b>Shri Ben Singh Rai</b>	Asstt. Conservator of Forest
68	<b>Shri Kharka Dhoj Subba</b>	Asstt. Conservator of Forest
69	<b>Shri Prem Kumar Chhetri</b>	Asstt. Conservator of Forest
70	<b>Shri Bir Bahadur Subba</b>	Asstt. Conservator of Forest
71	<b>Shri Prahlad Pradhan</b>	Asstt. Conservator of Forest
72	<b>Shri Narapati Gautam</b>	Asstt. Conservator of Forest
73	<b>Shri Mahakal Gurung</b>	Asstt. Conservator of Forest
74	<b>Shri Govind Pradhan</b>	Asstt. Conservator of Forest
75	<b>Shri Nehru Prasad Dahal</b>	Asstt. Conservator of Forest
76	<b>Shri Namgyal Tshering Bhutia</b>	Asstt. Conservator of Forest
77	<b>Shri Ram Prasad Sharma</b>	Asstt. Conservator of Forest
78	<b>Shri Sangey Kazi</b>	Asstt. Conservator of Forest
79	<b>Shri Dhan Kumar Subba</b>	Asstt. Conservator of Forest
80	<b>Shri Anguir Bhutia</b>	Asstt. Conservator of Forest
81	<b>Shri Dhruva Lohagan</b>	Asstt. Conservator of Forest
82	<b>Shri Dorjee Tamang</b>	Asstt. Conservator of Forest
83	<b>Shri Man Bahadur Subba</b>	Asstt. Conservator of Forest
84	<b>Shri Karsang Lama</b>	Asstt. Conservator of Forest
85	<b>Shri Madan Kumar Rai</b>	Asstt. Conservator of Forest
86	<b>Shri Kharga Bahadur Subedi</b>	Asstt. Conservator of Forest
87	<b>Shri Abidal Chhetri</b>	Asstt. Conservator of Forest
88	<b>Shri Arun Thapa</b>	Asstt. Conservator of Forest
89	<b>Shri Mani Ram Subba</b>	Asstt. Conservator of Forest

<b>OFFICERS IN ADMINISTRATION, FINANCE &amp; OTHER SERVICES</b>		
Sl No	Name	Designation
1	<b>Shri P.R. Poudyal</b>	Special Secretary
2	<b>Shri D.R. Sharma</b>	Director, Sericulture
3	<b>Shri H.P. Sharma</b>	Additional Director (Accounts)
4	<b>Shri T. Shenga</b>	Chief Account Officer
5	<b>Shri Navin Kr. Chettri</b>	Joint Secretary
6	<b>Mrs. Madhu Pradhan</b>	Joint Director, Statistics
7	<b>Mrs. Usha Lachungpa</b>	Senior Research Officer, Wildlife
8	<b>Shri H.P. Rai</b>	Joint Director, Sericulture
9	<b>Dr. Gopal Pradhan</b>	Chief Scientist, SPCB
10	<b>Mrs. Laden Bhutia</b>	Principal Private Secretary
11	<b>Shri G.N. Pradhan</b>	Deputy Director, Statistics
12	<b>Dr. M.K. Shivashankar</b>	Deputy Director, Wildlife & Zoo
13	<b>Mrs. Radha Koirala</b>	Under Secretary
14	<b>Mrs. Sharmistha Rai</b>	Under Secretary
15	<b>Mrs. Lakpa Doma</b>	OSD, SMPB
16	<b>Shri K.D. Subedi</b>	Accounts Officer
17	<b>Mrs. Lakpa Doma Bhutia</b>	Accounts Officer
18	<b>Mrs. Manu H. Subba</b>	Assistant Director, Statistics
19	<b>Mrs. Purnima Karki</b>	Senior Private Secretary
20	<b>Mr. Nirmal Kr. Rai</b>	Assistant Director, Statistics
21	<b>Shri I.B. Acharya</b>	Assistant Director, Sericulture
22	<b>Shri B.K. Chhetri</b>	Assistant Scientific Officer, SPCB
23	<b>Mr. Ranjan Rai</b>	Assistant Env. Engineer, SPCB
24	<b>Mr. Kamal Gurung</b>	Assistant Engineer, Civil
25	<b>Mr. Rajiv Rai</b>	Scientist 'B'
26	<b>Miss. Geeta Lama</b>	Private Secretary
27	<b>Mr. Chandra Prakash Rai</b>	Private Secretary
28	<b>Mrs. Sarita Subba</b>	Private Secretary
<b>OFFICIALS IN ENVIRONMENTAL INFORMATION SYSTEMS (ENVIS) CELL</b>		
1.	<b>Shri Rajen Pradhan</b>	Sr. Programme Officer
2.	<b>Ms. Sandhya Pradhan</b>	Programme Officer
3.	<b>Shri Laxuman Darnal</b>	Programme Assistant

LIST OF FOREST RANGE OFFICERS	
Sl. No.	Name
01	Mr. Bir Bdr. Tamang
02	Mr. Chatra Bdr. Rai
03	Mr. Samdup Tsh. Bhutia
04	Mr. Prem Pd. Silwal
05	Mr. Kamal Subba
06	Mr. Phurba Rinchen Bhutia
07	Mr. Nima Gyalpo Bhutia
08	Mr. Surya Kr. Subba
09	Mr. Kul Bdr. Ghaley
10	Mr. Keshar Nath Sharma
11	Mr. Sonam Zangpo Bhutia
12	Mr. Nandu Lamichaney
13	Mr. Kamal Gurung
14	Mr. Chitra Pd. Sharma
15	Mr. Kharga Bdr. Basnett
16	Mr. Dattaram Sharma
17	Mr. Mingma Tsh. Lepcha
18	Mr. Dinesh Kr. Rai
19	Mr. Rapden Bhutia
20	Mr. Sonam Tsh. Bhutia
21	Mr. Sonam Wangdi Bhutia
22	Mr. Suk Bdr. Subba
23	Mr. Duryodhan Gurung
24	Mr. Topden Bhutia
25	Mr. Sonam Tsh. Lachungpa
26	Mr. Birkha Bdr. Subba
27	Mr. Pempa Tsh. Lepcha
28	Mr. Tilak Kr. Mukhia
29	Mr. James Saring Lepcha
30	Mr. Blacky Tsong
31	Mr. Khittu Tsh. Bhutia
32	Mr. Norzang Lachenpa
33	Mr. Tashi Chewang Bhutia
34	Mr. Jigdel Lachungpa
35	Mr. Chewang Tashi Lepcha
36	Mr. Palden Gompu Lepcha
37	Mr. Bijoy Upreti
38	Mr. Uttarman Tamang
39	Mr. Varun Kr. Rai
40	Mr. Til Bdr. Subba
41	Mr. Yap Tsh. Bhutia
42	Mr. Chatra Bir Chettri
43	Mr. Tek Bdr. Gurung
44	Mr. Chewang C.Lachungpa
45	Mr. Dhananjai Pradhan
46	Mr. Budhilal Bhattarai
47	Mr. Nar Bdr. Chettri
48	Mr. Topgay Tsh. Bhutia
49	Mr. Suresh Kr. Das
50	Mr. Pempa Dadul Lachungpa
51	Mr. Pritam Thapa
52	Mr. Tek Bdr. Chettri

53	Mr. Nar Singh Rai
54	Mr. Gajendra Singh Gurung
55	Mr. Netuk Tsh. Bhutia
56	Mr. Karma Loday Bhutia
57	Mr. Tenzing Norbu Bhutia
58	Mr. Bhai Bhutia
59	Mr. Norden Tsh. Lepcha
60	Mr. Sherap D. Shangdarpa
61	Mr. Samdu Bhutia
62	Mr. Tseten W. Lachungpa
63	Mr. Namgyal W. Lachungpa
64	Mr. Tshering Thendup Bhutia
65	Mr. Pempa Tshering Bhutia
66	Mr. Karma G. Lachungpa
67	Mr. Satish Chandra Basistha
68	Mr. Jigme Gyatso Bhutia
69	Mr. Joseph Lepcha
70	Mr. Karma W. Lepcha
71	Mr. Arun Kr. Gurung
72	Mr. Bal Krishna Dhamala
73	Mr. Bharat Singh Tamang
74	Mr. Chewang T. Bhutia
75	Mr. Tseten Tashi Lepcha
LIST OF SERICULTURE RANGE OFFICERS	
Sl. No.	NAME
01	Mr. S.K. Das
02	Mr. Ram Pd. Rai

LIST OF BLOCK OFFICERS	
S.NO.	NAME
1	Mr. Anup Jyoti Baniya
2	Mr. Suren Kr. Pradhan
3	Mr. Sonam Pintso Bhutia
4	Mr. Churamani Bhandari
5	Ms. Urmilla Subba
6	Ms. Bindhya Subba
7	Mr. Dhiraj Khati
8	Mr. Manjil Kharel
9	Ms. Pem Diki Sherpa
10	Mr. Dilliram Sharma
11	Mrs. Suryalata Rai
12	Ms. Seema Basnett
13	Mr. Ashok Lepcha
14	Mr. Keshab Bdr. Chettri
15	Mr. Lalit Kr. Rai(I)
16	Mr. Ong Tshering Sherpa
17	Mr. Jigdal Bhutia
18	Ms. Harimaya Thapa
19	Mr. Milan Kr. Subba
20	Mr. Akas Das Rai

21	Mrs. Passang Diki Sherpa
22	Mr. Purna Kr. Sharma
23	Mr. Vikram Chamling
24	Mr. Sanjeev Kr. Pradhan
25	Ms. Santa Subba
27	Mr. Maniraj Rai
28	Mr. Pawan Subba
29	Mr. Niraj Pradhan
30	Mr. Sangay Dorjee Bhutia
31	Ms. Meena Sharma
32	Mr. Sanjeev Kr. Rai
33	Mr. Pravin Gurung
34	Mr. Easter Lepcha
35	Mr. Navin Thapa
36	Mr. Phuchung Lepcha
37	Mr. Saran Subba
38	Ms. Dorjee Wangmu. Gensepa
39	Mr. Bishnu Pd. Sharma
40	Ms. Kavita Pradhan
41	Mr. Suman Basnett
44	Mr. Lhendup Lepcha
45	Mr. Tashi Wangyal Lachenpa
46	Mr. Phu Tshering Lepcha
47	Ms. Sangita Sharma
48	Mr. Kumar Bhandari
49	Ms. Hemanta Sharma
50	Mr. Anuj Gurung
51	Mr. Pankaj Pradhan
52	Mr. Sachin Chettri(Karki)
53	Mr. Narendra Sapkota
54	Mr. Nagendra Rizal(Chettri)
55	Mr. Navin Gurung
56	Mr. Salem Chinlop Lepcha
57	Ms. Hema Kharka
58	Mr. Karma Sonam Bhutia(I)
59	Mr. Santosh Bagdas
60	Mr. Gyamtso Bhutia
61	Mr. Bhuwan Singh Subba
62	Ms. Sakuntala Baraily
63	Mr. Arjun Tamang
64	Ms. Beenamith Lepcha
65	Ms. Rameshwari Thapa
66	Ms. Sabi Gadhily
67	Mr. Norden Zangpo Bhutia
68	Mr. Ruben Tsh. Lepcha
69	Mr. Choden Lepcha

70	Mr. Lalit Kr. Rai(II)
71	Mr. Karma Sonam Bhutia(II)
72	Mr. Karma Pakhrin
73	Mr. Sonam Gyaltzen Bhutia
74	Mr. Sonam Bhutia
75	Mr. Norden Tsh. Bhutia
76	Mr. Roshan Tamang
77	Mr. Sonam Dadul Tamang
78	Mr. Sanjeev Kr. Chettri
79	Mr. Purna Kr. Subba
80	Mr. Am Narayan Sharma
81	Mr. Dil Bdr. Tamang
82	Mr. Nishant Karma Ugen Yonzone
83	Mr. Ashish Lama
84	Mr. Chandra Bdr. Gurung
85	Mr. Rudra Bdr. Poudyal
86	Mr. Devilall Dulal
87	Mr. Bhim Bdr. Basnett(II)
88	Mr. Dhurba Kr. Tamang
89	Mr. Dilli Ram Sharma
90	Mr. Tek Bdr. Rai (I)
91	Mr. Kharka Bdr. Chettri
92	Mr. Phichey Bhutia
93	Mr. Pem Gyatso Bhutia
94	Mr. Maita Singh Gurung
95	Mr. Bhim Bdr. Chettri(I)
96	Mr. Kewal Pd. Rai
97	Mr. Suk Tsh. Lepcha
98	Mr. Chandra Kr. Chettri
99	Mr. Jit Bdr. Subba
100	Mr. Bal Bdr. Gurung
101	Mr. Kamal Bdr. Chettri
102	Mr. Khichung Bhutia
103	Mr. Lall Man Rai
104	Mr. Sonam W. Bhutia
105	Mr. Pema Rinzing Bhutia
106	Mr Asish Gurung
107	Miss Namratha Sharma
108	Mr. Bishal Rai
109	Tenzing W. Lepcha
110	Mr. Binod Chettri
<b>SERICULTURE BLOCK OFFICER</b>	
S.NO.	NAME
01	Mr. Kharka Bdr. Gurung
02	Ms. Sunita Sharma

LIST OF HEAD FOREST GUARDS	
SL.NO.	NAME
1	Mr. Hari Pd. Gurung
2	Mr. Khir Bdr. Tamang
3	Mr. Buddha Singh Subba
4	Mr. Kharga Bdr. Manger
5	Mr. Bal Bdr. Subba
6	Mr. Dal Bdr. Gurung(II)
7	Mr. Krishna Das Rai
8	Mr. Suk Bdr. Tamang (II)
9	Mr. Prem Kr. Subba
10	Mr. Mahadeo Gurung
11	Mr. Lhendup Tsh. Lepcha
12	Mr. Bishnu Pd. Darjee
13	Mr. Suk Bdr. Limbu (II)
14	Mr. Dil Bdr. Subba
15	Mr. Topchung Lepcha
16	Mr. Karna Singh Subba
17	Mr. Top Tsh. Bhutia
18	Mr. Sonam Topden Bhutia
19	Mr. Krishna Bdr. Chettri
20	Mr. Adup Lepcha (I)
21	Mr. Kinchok Lepcha
22	Mr. Purna Bdr. Gurung
23	Mr. Tika Ram Sharma(I)
24	Mr. Bhakta Bdr. Rai
25	Mr. Purna Bdr. Karki
26	Mr. Yogya Pd. Sharma
27	Mr. Man Bdr. Chetrti
28	Mr. Tika Ram Sharma(I)
29	Mr. Chung Chung Bhutia
30	Mr. Mitralall Sharma
31	Mr. Sishupal Pradhan
32	Mr. Damber Kr. Chettri
33	Mr. Thom Thsering Bhutia
34	Mr. Bal Krishna Sharma (I)
35	Mr. Nandalall Chettri
36	Mr. Bir Bdr. Thapa
37	Mr. Dhan Bdr. Thapa
38	Mr. Prithinaryan Sharma
39	Mr. Bhim Bdr. Rai

LIST OF FOREST GUARDS	
Sl. No.	NAME
1	Mr. Pinga Lepcha
2	Mr. Lhakpa Sherpa
3	Mr. Ongden Lepcha
4	Mr. Dhan Bdr. Gurung
5	Mr. Kalikup Lepcha
6	Mr. Phurba T. Sherpa
7	Mr. Rikpa Kenzang Lepcha
8	Mr. Dawa Namgyal Sherpa
9	Mr. Durgaman Limbu
10	Mr. Dikman Tamang
11	Mr. Dawa Tamang
12	Mr. Adup Lepcha(II)
13	Mr. Bhaktinanda Sharma
14	Mr. Rapden Bhutia
15	Mr. Ongdup Bhutia
16	Mr. Tashi Tsh. Bhutia
17	Mr. Kishor Kr. Pradhan
18	Mr. Harka Bdr. Chettri
19	Mr. Jit Bdr. Tamang
20	Mr. Chenga Lachungpa
21	Mr. Akal Dhoj Subba
22	Mr. Ram Bdr. Rai
23	Mr. Mani Kr. Rai
24	Mr. Mani Tamang
25	Mr. Nim Pd. Koirala
26	Mr. Bir Bdr. Chettri(I)
27	Mr. Laxmi Pd. Sharma
28	Mr. Dawa Tsh. Lepcha
29	Mr. Takchung Lepcha
30	Mr. Durga Pd. Sharma
49	Mr. Pentay Subba
50	Mr. Pema Lepcha
51	Mr. Tenzing Gyatso Bhutia
52	Mr. Ran Bdr. Rai
53	Mr. Tar Tso Lepcha
54	Mr. Karma Tsh. Bhutia
55	Mr. Ram Das Rai

56	Mr. Udai Chandra Poudyal
57	Mr. Hem Lall Bhandari
58	Mr. Parsuram Pariyar
59	Mr. Sherap Pintso Lepcha
60	Mr. Sherap Lepcha
61	Mr. Durga Shamsher Pradhan
62	Mr. Mohan Kr. Gurung
63	Mr. Shanti Pd. Khanal
64	Mr. San Bdr. Rai
65	Mr. Keshar Bdr. Gurung
66	Mr. Bir Bdr. Chettri
67	Mr. Dorjee Tsh. Lepcha
68	Mr. Kamal Kr. Rai
69	Mr. Pemba Dorjee Tamang
70	Mr. Phip Raj Subba
71	Mr. Passang Sherpa
72	Mr. Purna Bdr. Subba
73	Mr. Dal Bdr. Limbu
74	Mr. Gyaltzen Lachungpa
75	Mr. Rom Nath Thapa
76	Mr. Tirtha Singh Tamang
77	Mr. Dhurba Kr. Rai
78	Mr. Hari Pd. Sharma
79	Mr. Purna Lall Sharma
80	Mr. Anna Bdr. Chettri
81	Mr. Singh Bdr. Subba
82	Mr. Dilli Ram Chettri(I)
83	Mr. Chandra Bdr. Rai
84	Mr. Pem Dorjee Sherpa
85	Mr. Gyanendra Bir Rai
86	Mr. Lhendup Lachungpa
87	Mr. Janga Bir Rai
88	Mr. Palden Tamang
89	Mr. Gambir Das Rai
90	Mr. Kumar Rai
91	Mr. Krishna Lall Sharma(I)
92	Mr. Bejoy Kr. Pradhan
93	Mr. Hasta Singh Rai
94	Mr. Purna Singh Lepcha

95	Mr. Khem Chandra Gautam
96	Mr. Narayan Kr. Gurung
97	Mr. Choden Lepcha
98	Mr. Birkha Bdr. Darjee
99	Mr. Tashi Topgay Lachungpa
100	Mr. Chet Bdr. Chettri
101	Mr. Dal Bdr. Rai
102	Mr. Bed Nath Sharma
103	Mr. Krishna Bdr. Rai(II)
104	Mr. Bir Bdr. Pradhan
105	Mr. Samuel Lepcha
106	Mr. Tej Pd. Neopaney
107	Mr. Prem Lall Chettri
108	Mr. Indra Bdr. Chettri
109	Mr. Hari Pd. Khanal
110	Mr. Dina Nath Dahal
111	Mr. Ajit Lepcha
112	Mr. Khitook Lachungpa
113	Mr. Lila Bdr. Chettri
114	Mr. Padam Bdr. Rai
115	Mr. Tej Man Gurung
116	Mr. Chuktey Limbu
117	Mr. Chuten Lepcha
118	Mr. Karma Lepcha
119	Mr. Krishna Bdr. Rai (II)
120	Mr. Nakchung Bhutia
121	Mr. Narad Thapa
122	Mr. Bhim Lall Sharma
123	Mr. Dawa Tsh. Tamang
124	Mr. Lall Bdr. Chettri
125	Mr. Aita Man Subba
126	Mr. Tirtha Ram Rai
127	Mr. Tilochand Sharma
128	Mr. Passang Bhutia
129	Mr. Lobzang Chopel Lepcha
130	Mr. Karma Tamang
131	Mr. Prem Bdr. Rai
132	Mr. Samten Lepcha
133	Mr. Ash Bdr. Limbu



134	Mr. Punya Bikash Tamang
135	Mr. Ratna Bdr. Gurung
136	Mr. Palchen Sherpa
137	Mr. Purna Singh Subba
138	Mr. Ashok Kr. Tamang
139	Mr. Kunzang Dorjee Sherpa
140	Mr. Padam Bdr. Mainali
141	Mr. Ram Chandra Sharma
142	Mr. Thakur Ram Chettri
143	Mr. Janga Bir Nepal
144	Mr. Rinchen Tsh. Bhutia
145	Mr. Boudhaman Subba
146	Mr. Bhakta Bdr. Gurung
147	Mr. Netra Kr. Rai
148	Mr. Pemchung Lepcha
149	Mr. Ram Ch. Adhikari
150	Mr. Subash Gurung
151	Mr. Man Bdr. Rai
152	Mr. Phurba Bhutia
153	Mr. Harrun Lepcha
154	Mr. Chandra Kr. Darnal
155	Mr. Moti Kr. Darjee (Sewa)
156	Mr. Bhim Bdr. Chettri
157	Mr. Prem Kr. Chettri
158	Mr. Parsuram Sharma (I)
159	Ms. Biba Rai
160	Mr. Netra Pd. Sharma
161	Mr. Padam Bdr. Gurung
162	Mr. Phuchung Bhutia
163	Mr. Nar Bdr. Pradhan
164	Mr. Tshering Norbu Bhutia
165	Mr. Dadi Ram Sharma
166	Mr. Yanku Tsh. Lepcha
167	Mr. Sonam Dorjee Lachenpa
168	Mr. Bholanath Bhandari
169	Mr. Purna Bdr. Chettri
170	Mr. Uttam Rai
171	Mr. Jai Bdr. Gurung
172	Mr. Subash Rai

173	Mr. Bishnu Lall Panday
174	Mr. Bhupen Sharma
175	Mr. Parsuram Sharma (II)
176	Mr. Thitup Lachenpa
177	Mr. Naresh Kr. Gautam
178	Mr. Basudev Khanal
179	Mr. Birendra Kr. Chettri
180	Mr. Dhan Bdr. Chettri
181	Mr. Surya Pd. Sharma
182	Mr. Buddha Bdr. Rai
183	Mr. Mingma Sherpa
184	Mr. Chandra Pd. Sharma
185	Mr. Aita Raj Subba
186	Mr. Samten Tamang
187	Mr. Narayan Sharma
188	Mr. Prakash Rai
189	Mr. Narad Adhikari
190	Mr. Birbal Manger(Thapa)
191	Mr. Gautam Kr. Gurung
192	Mr. Bhim Raj Gurung
193	Mr. Palden D. Bhutia
194	Mr. Sonam Chopel Lachungpa
195	Mr. Lobzang Bhutia
196	Mr. Buddha Bir Subba
197	Mr. Bhim Bdr. Basnett (II)
198	Mr. Bholanath Koirala
199	Mr. Krishna Lall Sharma(II)
200	Mr. Dorjee D. Lachungpa
201	Mr. Ramesh Kr. Rai
202	Mr. Ajay Lamichaney
203	Mr. Shrilall Sharma
204	Mr. Roger Lepcha
205	Mr. Krishna Das Bhandari
206	Mr. Loknath Sharma
207	Mr. Shiva Lall Sharma
208	Mr. Mani Kr. Tamang
209	Mr. Dhan Pd. Subba
210	Mr. Lakpa Tenzing Tamang
211	Mr. Damber Bdr. Manger

212	Mr. Bhagi Man Rai
213	Mr. Santosh Rai
214	Mr. Dorjee Tamang (I)
215	Mr. Dorjee Tamang(II)
216	Mr. Nima Lepcha (I)
217	Mr. Nima Lepcha(II)
218	Mr. Tulsu Ram Chettri
219	Mr. Tej Bdr. Rai
220	Mr. Chandr Bdr. Gurung
221	Mr. Sonam Kheythu Bhutia
222	Mr. Phip Raj Subba
223	Mrs. Nirmaya Rai
224	Mrs. Padmawati Gurung
225	Mr. Bholanath Sharma
226	Mr. Tek Pd. Sharma
227	Mr. Datempa Tamang
228	Mr. Ram Bdr. Subba
229	Mr. Narman Thapa
230	Mr. Chandra Kr. Gurung
231	Mr. Dawa Tsh. Lepcha (III)
232	Mr. Panchaman Rai
233	Mr. Dup Tsh. Lepcha
234	Mr. Rohit Rai
235	Mr. Pem Leda Bhutia
236	Mr. Tsering Thendup Sherpa
237	Mr. Thutop Bhutia
238	Mr. Sonam Tashi Bhutia
239	Mr. Bikash Subba
240	Mr. Karma Dorjee Lepcha
241	Mr. Nima Tsh. Bhutia
242	Mr. Saden Lepcha
243	Mr. Sonam Thendup Lepcha
244	Mr. Dhan Bdr. Sunwar
245	Mr. Bhim Bdr. Rai
246	Mr Samden Sherpa
247	Mrs Deoki Sharma

# Some Interesting Plants of Sikkim

## 1. UTRICULARIA in Sikkim

Sikkim is home to varied and rich plant life. Amongst these one interesting plant is Insectivorous plant. Many of us may have read or heard about *Utricularia* an insectivorous plant but very few may have seen these. My first encountered with *Utricularia* was at Takshe, after paying a visit from Takshe Monastery. I was standing on a roadside for a cab to reach Gangtok. My eyes caught on a small yellow nodding flower on damp face of rocks at roadside. Though at those time, I used to name identify few plants, its genus if not species. This few particular plants attaining just few inches (10 cm) baffled me with its leafless stem, standing erect on damp rocks. I just picked and wrapped in newspaper sheet and straight away reached hotel at Gangtok, where couple of Botanist, Taxonomist, plant experts had come from Japan to study the flora of our Himalayan state. Few days earlier I had met this group at the office of the PCCF-cum- Secretary, Shri. T. R. Poudyal. I was officially assigned to go along with them. On enquiry at the hotel one of the members told me it is an insectivorous plant. I was surprised and overwhelmed to hear. Never had I read, heard or seen a picture of its existence in our own soil.

Those who wish to see it need go no further the area around Takshe and Bushuk. My second encountered with this gem was at Bushuk on roadside concrete wall growing almost along with *Marchantia* sp. These species was completely different from the previous one seen at Takshe. Its petal were lobed, and blotched with yellow marking at centre (my diary dt. 8/9/05 reads its



**Ongden Lepcha**  
BO Territorial East Division

lobed with yellow blotch at centre)

The most beautiful and outstanding in appearance was seen at Lachen forest and is still alive in my mind. The pole size tree was completely covered with green moss and hundreds of *Utricularia* spp. were laden on it from its base to top.



On its cool windy day, they were looking almost hugging each other. The specimen was really beautiful with its green moss background.

This plant is also called Bladderwort because of the presence of minute bladders on its leaf edge. This plant attain to a height of 15cm leafless stem. Most species of this plant are aquatic (free-floating) there are few terrestrial species also. Our Himalayan species are mostly terrestrial as per my sighting. Aquatic species are mostly found in old tank, stagnant water etc. Terrestrial species leaves are rosette, partially submerged or submerged in damp rocks, poles, old walls etc. Here the function of leaves is to keep the plant erect, to hold bladder.

One may mistake them for roots, but actually they are leaves being slightly green in colour. Its leaves are thin, needle size 5cm long. All carnivorous plants have leaves modified as trap. In *Utricularia* there are minute bladders on the

leaf, which can be seen if looked closely on the leaf. These bladders trap minute aquatic insect which float on damp places. The bladders are provided with a valve at its mouth which open inwards and closes as a result of response conveyed by sensory hairs situated at the entrance of the mouth of bladders. Thus these bladders catch small aquatic prey for survival. This plant starts flowering from June till November and can be seen its tiny stalked few nodding flowers on stem. Truly these are the damp-loving gem of the plant world. There also exist other Genus of Insectivorous plants in the Alpine area in Sikkim viz: *Drosera*, *Pinguicula alpina* etc. The realm of plants is extraordinarily rich and diverse. To discuss their useful and medicinal properties in detail would require many authentic books.

## 2. PARASITIC PLANTS OF SIKKIM

Parasitic plants are those plants which cannot prepare their own food and live on other organisms (autophytes). The plants on which parasites live are called hosts. The parasitic plant produce 'haustoria' or root-like organs that penetrate the stem or roots of the host and grow inwards to merge with host tissue from which parasite extracts water, minerals and manufactured nutrients. The parasitic plants can be herbaceous, shrubby, or climbers.

Parasitic plants may be partially autophytic and partially parasitic. Such partial parasites have green leaves or stem and therefore partially depend on the host plant for nutrient e.g. *Viscum articulatum*, *Scurrula elata*, *Helixanthera parasitica*,



etc. Some parasitic plants are non-green i.e. they do not possess green leaves or stems and therefore totally depend upon the host plant for complete nutrition. Examples are *Cuscuta reflexa*, *Balanophora polyandra*, *Aeginetia indica*, *Boschniakia himalaica*, etc. It is assumed that in the early ancestry of organism concerned some parasitic plants had leaves but in course of evolution they disappeared or were reduced to scales.

Parasitic plants are both epiphytic (epi = upon, Phyta = plants) and terrestrial (on land). Epiphytic parasitic plants live on high branches of trees and are camouflaged with its host tree. And may be hence they are less visible. You can find them best

during flowering time. Epiphytic parasitic plants seeds are sticky and mostly dispersed by birds as they stick to their beaks, thus bringing about the dispersal of seeds to other host tree. Terrestrial parasitic plants live on the ground. They do not have green leaves or green stem and are distinctly recognizable during flowering time by bright eye catching whole plant body. They emerge from the ground and live for a short period and gradually die.

The world's largest flower, *Rafflesia arnoldii*, is a terrestrial parasitic plant found in Sumatra, Java. Its flower is fleshy, measuring up to one metre in diameter, truly the largest flower known to botany. Similarly, the world's smallest flower, *Arceuthobium minutissimum*, is also a parasitic plant and lives and grows in the *Pinus wallichiana* (blue pine) trees at higher altitudes of the Himalayas in Bhutan. In Sikkim, this tree is very rare.

Here's a list of few parasitic plants I have seen in the wild in Sikkim:

### 1. *Cuscuta reflexa*:

Locally known as Akash-beli (Akash: air, beli: lahara/creeper). This parasite is one of the commonly sighted in Sikkim, seen the whole year round. It is mostly seen around village at roadside hedge or shrubs. It is easily recognizable from a distance looking much like a yellowish thread coiling on bushes and hedge plant. It is a total stem parasite lacking green leaves or green stem. It is considered to



have medicinal value by village people. Its whole plant is crushed and applied externally in case of jaundice and also used during body pain..

### **2. *Viscum articulatum*:**

This parasitic plant is locally known as Har-Chur (Har: Green, chur: joint). Its species name *articulatum* means jointed. It is a partial parasite having green jointed stem, rather than green leaves. Since from the first sighting of this plant at Damthang on 10<sup>th</sup> Dec 2002 (my diaries date) there after, I have not come across anymore. It is mostly found in Oak (katus) trees. It grows to a length of one meter, branching sideways. There are several pieces jointed together to about a meter, each piece measuring up to 2.5 cm. To find them in the jungle is very challenging task. May be because of the reason they live on high branches of tree or are very well camouflaged by the host tree. If one fails to locate them on trees, then one may look for strewn stems that are brought down by natural phenomenon on roadside, footpath trail etc. If really interested, visit the weekly market at

Gangtok, the old wrinkled lady there, an ethno-medicinal practitioner, will probably not dishearten you. If more lucky you might even get a glimpse to see in fresh form. This plant is of great medicinal value.

### **3. *Balanophora sp.*:**

This parasitic plant is a total root parasite. I happened to see this plant in the Lachen forests. It was just few meters away from our camp-site under a Rhododendron grove. Emerging from the soil, it attains the height of around 15 cms. It is fleshy and reddish in colour looking very much like a mushroom. Those who wish to see need not go up higher reaches of Himalayas. Visit the BSI at Zero-point. The specimen there is well preserved.

### **4. *Aeginetia indica*:**

Locally it is known as 'Gopangeni'. I got a glimpse of this plant at Pendam. After a steep-walk my friend and I decided to rest for a while. As usual my eyes roamed the area around for interesting plants. Then, all of a sudden, my eyes caught this plant. On enquiry my friend told me it is known as 'Gopangeni' in Nepali. It is chiefly used by Brahmin community during Teej-Puja which is held in the month of August-September. It was clearly visible on the ground among the other plants, because of the whole plant body being reddish purple in color attaining a height of 30 cm. It is a total root parasite, lacking green chlorophyll. It absorbs all the required nutrients from the host and lives only for a shorter period and gradually dies.

### **5. *Scurrula elata*:**

This parasitic plant is a partial parasite having green leaves and shrubby in nature. It is found on branches of trees in broad-leaved forest and profusely seen in and around Damthang area. My diary reads 'seen blooming on 12<sup>th</sup> Sept 2004 at Damthang'. The flower is tubular, curved and of two colour combination, red at the base and greenish in the upper part. If one wishes to see this plant, go around Pangthang forest. The peak time of their blooming is August-September. To find the plant one can also look for strewn flowers scattered on the ground.

# LAW OF THE JUNGLE



-Thomas Chandy IFS\*

**F**orests form a significant common pool resource of humankind perhaps next only to water and fisheries in its importance. They, like water and fisheries, form a life giving resource for millions of people who in one way or another are dependent on it, not to speak of the indirect benefits that accrue to the larger community in the form of ecosystem services. As for all common pool resources we are called upon to act judiciously while utilizing forest resources so that we do not reduce the opportunity of future generations of mankind to reap the benefits from them just as we are doing today, a concept that is called “inter-generational equity”. In order to ensure inter-generational equity of forest resource availability, the state is entrusted with its custody so that it can administer, supervise and control it in the public interest and for public good, to ensure its availability to the present generation as also its survival for use by future generations. This responsibility of the state towards safeguarding of natural resources is now recognized under the public trust doctrine after a ruling of the California Supreme Court in 1983 suggested the inclusion of all natural resources within its ambit. In India too the judiciary has invoked this doctrine to preserve natural resources.

The public trust doctrine makes the state a trustee of the public in respect of the assets it safeguards on behalf of it. In the case of forest resources this is a daunting task, given the open nature and structure of the resource that lends itself to easy access and stealthy operations. Add to this the need to fulfill the daily needs of millions of forest-dependent people and the situation is perhaps most unenviable for the trustee that is the state through its forest managers. This ideology and the enormity of the task of conservation make our public trust responsibility at once most important as well as challenging. But it is a responsibility that is to be discharged, explicitly by forest officials and implicitly by all other public servants. In order to maintain this trust that has been bestowed to our charge we have equipped

forests with legal instruments that we consider will best enable us to fulfill our charge.

In India we have inherited a legacy of forest laws that were principally meant to serve the interests of the *raj*. While forest reserves were kept beyond the reach of the common man they were available to the state for rotational (exploitative?) use to serve its commercial interests. Strict policing was meant to be instituted so that open resources are not subjected to pilferage by smuggling or indiscriminate action. While forest products contributed greatly to the infrastructure that the British created by way of setting up the world’s largest and longest railway, India’s best forests were put to the contractor’s axe. Forests continued to be a commercial entity even after independence resulting in fast depletion of forest resources all over the country and it was not until 1988 when the government changed track to make conservation central to its policy on forests that at least concepts such as biodiversity preservation and (lately) carbon sequestration came to be a part of official lexicon and the emphasis shifted to conservation as opposed to exploitation. The Forest (Conservation) Act, a potent law that represents this shift, restricts the





use of forest lands for non-conservation purposes and enables the state to fulfill its public trust function more effectively. Sikkim has almost a century-old history of forest laws covering all aspects of forest conservation and sustainable harvesting. The first laws were simple rules and regulations that were brought out by the *darbar* for specific purposes. From 1912 onwards several of these specific guidelines to deal with forest land and forest products were brought out for enabling the landlords to take appropriate action where required. These rules while reflecting the technical knowledge of forestry that the *darbar* officials had, were conspicuous by the absence of penal provisions – a reflection perhaps of the simplicity of those times. The Sikkim forest act of 1988 which is a more stringent local adaptation of the Indian Forest Act and all the rules made under it are aimed at conserving pristine forest areas for their ecosystem functions. It vests in forest officials powers to curb illicit activities by deterrent action and makes all public servants responsible for safeguarding forests.

Societies change with time and laws too need to be modified according to the need of the hour. The public trust doctrine entails preserving the opportunity of future generations to utilize a natural resource but does not entail depriving the present generation of its right to utilize those resources. It in fact preserves the rights of the common man (of the present generation) to access public resources against its appropriation by private interests. It also does not allow causing a disadvantage to the public in respect of a public resource. This was apparent in the civil case that some grazers instituted against the State Government's policy of imposing a ban on grazing in reserved forests when the honourable High Court wanted to know what arrangement was made by the government to enable the grazers to meet their livelihood if they were not allowed to graze their cattle in the forests. We therefore need to ensure that the present generation is not deprived of their right to access common pool resources to the extent that this access is governed by principles of sustainability. It is thus left to the state to draw the line where the present generation's rights end and those of the future generations begin. The instrument we use to draw this line is the rule of law and making laws to fit this logic will no doubt draw heavily on our tactfulness, foresight and knowledge of ecosystems. It will require equal or more tact on the part of those who implement those laws to fix these limits in practice. The crucial factor is to look for eco-friendly ways to drive development and summoning courage to alter development that violates the public trust doctrine or its spirit. We must be aware of the ecological footprints that we generate out of our actions and not create a situation which causes species loss.

## HOLIER THAN THOU!

Laxmi Devi (name changed) was a very authoritative and assertive lady, quite unexpected of a village woman, but truly fitting the position of Panchayat Secretary that she held. Little wonder then, that she would not hesitate to take up cudgels against someone who was reaping an unduly high reward from a public property when most of the villagers were living out a near frugal existence. The person Laxmi Devi could not tolerate was Phur Tshering (name changed) who was an ex-serviceman and had been rewarded for his services by being allowed to hold and cultivate a certain stretch of forest land, the frontiers of which he didn't hesitate

to extend. Needless to say, Phur Tshering's background made him an awesome as well as a dreaded person to the other villagers most of whom preferred to keep a certain distance from him. The ongoing feud between Laxmi Devi and Phur Tshering spilled out into the open and to the various forest offices in the district from time to time. Most of the times it was the vocal Laxmi Devi who would come in with her volley of complaints.

One afternoon, a few days into my posting as the territorial conservator, an anonymous call came through saying that in Laxmi Devi's and Phur Tshering's



village one Chotey Lal (name changed), a Bihari trader, had stocked loads of valuable timber in his godown not very far from the road. The anonymous caller seemed to have been spying on Chotey Lal's activities for sometime as he could tell the source and quantities of timber, the semi-finished and finished products that were packed into the godown and the possibility of its shipment out of the State that night. He however could not be lured (by a cash reward) into revealing his identity and seemed to have a grudge not against the trader per se but against those who had supplied him the timbers. He also warned me that the matter could take a serious turn and so adequate manpower was necessary for a raid.

I acted on a gut feeling that the information was authentic and was worth verifying and started for the village in two hours of the office closing for the day. I decided to make use of the forest guards deployed in the area as well as the police force and for that purpose called the Sub Divisional Police Officer (SDPO) and sought his assistance which he readily agreed to extend, both personally and by deploying men. He met me at an appointed place with a posse of police constables. I noticed in just ten minutes of conversation with him that he was a nature lover and had a streak of enthusiasm to save the forests of the State from destruction.

Within half an hour the forest guards joined us and a team of around 15 forest guards and constables and about half a dozen names descended on the premises of Chotey Lal, who we found was not at home at that late hour of around 9 p.m. He had apparently gone to the nearby town in connection with some business. We asked his family to contact him and ask him to return in view of the requirement of his presence at his home. In the mean time a number of villagers gathered outside Chotey Lal's house despite the late hour, some of

whom confided with one of the constables that it was a perfect time for a raid as the godown was full of illegal wood which was to be sent out that night. Among those present was Phur Tshering who appeared tense and worried. When it became clear that Chotey Lal would not return that night we sealed the godown using tape and after deploying a group of 4 forest guards and 2 constables to guard it through the night returned to the Sub Division headquarters. Early in the morning I was surprised to find Chotey Lal at my doorstep. He confessed having accepted timber from villagers and explained how their indebtedness to him was driving them to cut down trees and give the timber to him. He stated that a substantial quantity of the timber was supplied to him by Phur Tshering, which explained his worried look of the previous night.

After the process of interrogation of the timber suppliers commenced that afternoon (almost a day after we arrived on the scene for the first time) the SDPO and I along with a few guards decided to pursue some leads that came out of it. This took us to Laxmi Devi's house as well, who was gleeful that at last Phur Tshering was brought to book. When we did not turn up anything to pursue further, we returned to the Sub Division and I prepared to get back to headquarter after a quick snack of momo and tea at a restaurant. At the restaurant we were met by a villager who expressed his appreciation of our efforts to curb the menace of illicit felling but dropped a hint that we were not able to unearth a stock of valuable illegal timber because we did not look at the right place. We got the hint and I decided to stay back for the second night so as to unearth this stock. Early next morning we set out for the village on foot with a bamboo walking stick each to help us on our way. We reached the cowshed of the house that we were aiming for amidst loud bellows from the cows that did not approve of an early morning visit by strangers. The house owner on seeing us rushed out to enquire about the purpose of our re-visit. While talking to her we noticed loads of mature cow dung manure in a compost pit which we offered to buy after testing the material properly with our bamboo sticks. As we tested the manure, the walking sticks hit something hard just below the surface. A closer look after clearing away the manure revealed neatly stacked blocks of timber cleverly hidden from view. A huge haul of illegal timber was just exposed! And so was Laxmi Devi!

\*The author is currently doing his Ph.D at the University of Melbourne