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The Making of a Mowgli

Surviving the Tsunami

Turtle Boys

Mountain Men

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Umed Singh at the Kedarnath Wildlife Sanctuary © SOUMYA PRASAD

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Introduction

Kartik Shanker and Soumya Prasad

About eight years ago, a special issue in a magazine in India recounted the contributions of one of its premier wildlife research institutions. While singing paeans about its faculty, researchers and students, it had one glaring omission - no mention of the legions of loyal field staff who had made this research possible, through years and years of dedicated service to not undemanding jobs. This unfortunately reflects how the ruling class views this community, perhaps not individually, but certainly institutionally. Many researchers do have fine and lasting relationships with their field assistants, but most are employed as daily wage labour, whose services can be terminated at any time. Not nearly enough credit has been given to them for their willingness to work in trying conditions, their local knowledge, humour, and as often as not, their fraternal or paternal relationship with the researchers.

Few wildlife or ecology studies could have been carried out without these dedicated field assistants. In many parts of India, these are traditional forest dwellers whose knowledge of the land, of the forests, habitats, flora and fauna become invaluable to the research. As a colleague commented a decade and a half ago "I have a GPS unit; his name is Shivaji". In other cases, they were locals whose skill and aptitude for field research may have provided an opportunity, but what clinched the deal was a tolerance of rough weather, rogue elephants, ticks, leeches, and other joys of field work. This issue is dedicated to the field assistants who have worked in numerous field projects with little or no public acknowledgement of their contribution.

No doubt the task of documenting and acknowledging these contributions deserves greater detail and deeper

exploration than is offered here. However, over the eight years since we first mooted the idea and received widespread and enthusiastic response from wildlife biologists across the country, the difficulty of transforming oral histories into scholarly essays has proved too great a collective hurdle. We therefore serve this up as an appetiser and hope that more detailed contributions will follow in due course.

We begin the issue with a tribute to a man who appreciated this perhaps more than any one else. Every field site that he worked at, he established an astonishing rapport with his assistants, their families and the community. Inevitably, he became a part of them. That itself was the biggest tribute of all to their role in this arena of wildlife biology and conservation.

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Thukwaa

Rauf Ali

It is impossible to know where to begin in situations like these; it feels as if I almost knew Ravi Sankaran all my life. It must have been after the mid-80s that we met. An incident comes to mind immediately. There was a seminar at Topslip, in the Indira Gandhi National Park. It wasn't very inspiring. People

were waiting for the clock to strike 5; a ride round the park had been promised. I hunted down Ravi to check whether he was coming. "Of course not! I do this for a living, why should I do it when I'm on vacation"? Now why haven't the rest of us realised this?

Ravi started work with the Lesser Florican - a bird of open grasslands. This continued almost to the present, with Ravi having to grow a large moustache before going to Rajasthan and Gujarat every year. This research led to major initiatives

in conserving this heavily hunted species, involving active partnerships with villagers and Forest Departments. Ravi always insisted on spending a lot of time with local residents explaining sustainable use to them, and this was the first such effort, and possibly the first time village communities had been made active partners in a bird conservation programme. This was followed by a major study on the Nicobar Megapode and then the edible nest swiftlet, which is still ongoing. We used to say that he started with the 'birds people ate', went on to the 'birds whose eggs people ate', and then on to the 'birds whose nests

Thukwaa = Karen word for 'cousin', implying he indulges in disreputable activities such as poaching



RAUF ALI

Ravi Sankaran at the Chalisek boat landing

people ate’! Then he was involved in an ornithological survey of the Nanda Devi National Park. He did a short stint on the Narcondam Hornbill, where his major recommendation was that goats on the island be eradicated, and which was immediately acted upon by the Department of Environment and Forests of the Andaman & Nicobar Islands. Due to the rapport he had developed with the Forest Department, the traditional suspicion of researchers had disappeared by the time the rest of us began working in the Andamans, and it is difficult to think of another area where researchers and the Forest Department work in such close collaboration. Finally, there was the Nagaland initiative, which I am unfortunately not familiar with.

Our Andaman association started formally in December 2000, when we met in Mayabunder. Ravi and I often remembered the New Year’s Eve in 2000 which consisted of eight men going on a boat to Aves Island with an equal number

of whisky bottles. This was followed by some fairly intense snorkelling at dawn. On return to the Karen village where we were staying, the mood there seemed much lighter. The Karens had believed that the world was supposed to have ended the previous night, and were rather agitated at their padre that this had not happened.

The swiftlet project, easily the best ‘conservation for development’ project of its kind in the country until it fell afoul of well-meaning but ignorant environmentalists, had just started. The logistics of it, however, were a nightmare. If the cave was unattended even for 15 minutes over a weeks’ period, people would rush in, grab nests and run out. The value of each nest made it lucrative for people to watch the guards (in hiding) for long periods of time, just waiting for the break in concentration from the protection squad. It was obvious that the only way it could work was if the people looking after the caves had a longterm economic stake in the birds.

Unfortunately there was a second school of thought. Put the species on the protected list and all will be taken care of. However, in this case the nests are being harvested, akin to honey being taken from a hive (in this case, rejected honey would be a more appropriate analogy). As soon as the species is put on the protected list, its products also become protected. End of conservation program, and it is shocking that even eight years later the Ministry of Environment and Forests is loath to reverse its decision. Meanwhile, the status quo has somehow been maintained, largely because of Ravi’s refusal to give up, and the interest and funding provided by the Forest Department.

The first camp for Ravi’s swiftlet project was on Interview Island. As luck would have it, Dr. Alok Saxena, the Chief Wildlife Warden, had asked me to do a

status report on the elephants of Interview Island. We found that this ‘uninhabited’ island had a population of about 10 primary school dropouts and 2 Ph.D.s in 2001. For the elephant study, we had built an elaborate network of *machans* all over Interview Island. Unfortunately the elephants would only come there at night, and we didn’t have the equipment to photograph them. Like all good plans, this was tossed out of the window, and we took the help of Karen trackers who learned to identify individual elephants during the survey.

Ravi was a regular visitor at ANET, where I was based for the next few years. His visits were always a mix of very intense science and very intense alcohol consumption. J.C. Daniel, in one of his monthly newsletters as the Secretary of the BNHS, called us the “two mavericks of Indian wildlife biology”, or some such thing. We argued one evening about who was getting complimented and who insulted.

Ravi Sankaran, with field assistant, returning from Chalisek



RAUF ALI

We worked together after the 2004 tsunami when he came to spend a few weeks in Pondicherry to prepare the maps for his tsunami report. We decided that we had to do a project together there. We came up with a project on the preparation of and marketing virgin coconut oil, that was traditionally used by the Nicobaris. In May 2007, we spent a week in the Nicobars working on a prototype. It took another year to get funding, and then I had problems getting a tribal pass. The reason for this is still not clear. On January 15 this year I called Ravi to tell him that I was returning the funds to the Department of Science and Technology, since I didn't see the tribal pass happening. He told me to fight it out. I am now sitting at the ANET dining

table in Wandoor, where we have spent many great, and many totally forgettable evenings together, waiting for my flight to the Nicobars tomorrow.

My organisation, FERAL, had organised a seminar on coastal management after the tsunami, in August last year. By this time, Ravi had been induced to come onto our Research Advisory Board, and we had decided that he would handle the tough job of chairing the final discussion. How do you run a seminar where half of them are from the Forest Department and the other half researchers, and still stop the fur flying? As it turned out it was one of the best seminars I have ever attended, with a lot of serious science being spoken and taken note of.

How does one end the eulogy of a friend - one of the most challenging, exasperating, fun, provocative and plainly stark raving mad persons I've had the privilege to know? Rewind to the one minute silence in his homage at the BNHS 125th anniversary conference in Bangalore a few weeks ago. The projection booth operator, on seeing everyone stand up, hit the button for the national anthem. Through most of that minute we were treated to the antics of the organisers trying to get him to switch it off. Ravi was laughing the hardest, I'm sure.

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Looking beyond Acknowledgements

Soumya Prasad and Ambika Aiyadurai

Over the past 30 years of scientific enquiries, field biology in India has relied upon a variety of people from various backgrounds, cultures, and regions. A good team of field assistants is a core part of every field biology research project. Not only would it have been impossible to work in these remote regions without the active participation of local field assistants, but it also would have meant losing out on the unique insights into our research subjects that are gained through field assistants on several occasions. Even a brief glance at the mountain of ecological literature would bring home this point through the glowing tributes to field assistants which make up the bulk of acknowledgement sections of theses, reports and papers alike.

Occasionally, some contributions by field assistants are reflected in products of these research projects. The British naturalist, Edgar Layard, named a new flycatcher *Muscicapa muttui*, after his tamil cook, Muttu (Beolens and Watkins 2003). Aparajita Datta, who works on hornbills, and conservation issues in north-eastern India, included her field assistant, Japang Pansa, as a co-author in a paper that reported the discovery of the leaf deer in India (Datta *et al.* 2003). Similarly, Manish Chandi, a researcher based in the Andaman and Nicobar islands, has included his assistants as co-authors in project reports. Yet, like Chandi, many field biologists feel that they want to give back something more to their assistants and to their communities than just salaries and acknowledgements.

This sentiment has been echoed across the board by researchers working with various institutions and communities, in every part of this sub-continent. Most researchers would admit that there is a big gap between what researchers gain from their field assistants and what they are able to give back to them. Still, after over three decades of active field research by Indian nationals within India, we haven't formalised ways in which to acknowledge such contributions.

Two '*Betta Kurumba*' tribals from Mudumalai – Bomma and Krishna – have been assisting field biologists for nearly four decades; these two men have probably had the longest careers as field assistants in India. They started off working with the Bombay Natural



KARPAGAM CHELLIAH



Bomma and Krishna have probably had the longest careers as field assistants in India

History Society (BNHS) projects in the Mudumalai Wildlife Sanctuary in Tamil Nadu. They have now been with the Indian Institute of Science (IISc) for the last two decades and continue to actively participate in field research at Mudumalai even today, well after both of them have become grandfathers and are in their 50s. They are excellent naturalists, a treasure trove of knowledge on Mudumalai's flora and fauna and experts at implementation of various field research techniques. Bomma's caring nature and sense of humour, and Krishna's excellent field tracking skills have accompanied many field biologists on their quests in these forests. Their work has contributed to over a dozen doctorates and several masters dissertations from this dry forest landscape.

Bomma and Krishna are rare exceptions to the general rule. Most field projects have 3-5 year tenures after which field assistants have to find other means of livelihood. Some get back to farming, others work as labourers, a few find employment with the Forest Department. Very few of them manage to get another opportunity to work with field research projects again. At the end of a field project, concerned researchers attempt to help find jobs for these assistants or help them financially in some manner,

often from their own meagre resources. Projects seldom budget such expenditure and very rarely do research institutions provide provident fund, gratuity or insurance benefits for field assistants. To put it crudely, research projects use local field assistants and then dump them rather unceremoniously. There are indeed few formal institutionalised norms for dealing with this issue. One exemplary attempt to address some of these concerns at an institutional level has been the Nature Conservation Foundation's (NCF) field assistants' fund (see box).

Most field assistants are inclined towards natural history and their research

subjects after having spent the prime of their life in field research, and often find it difficult to pursue other professions. We must realize that we are losing a case for conservation here when trained people - who could be valuable resources for the local Forest Department or other conservation and research projects - end up as farm or industrial labourers. Several research teams across the country have come to this very conclusion independently and have engaged their field assistants in innovative, mutually beneficial arrangements where the local assistants have become the centre point of conservation attempts in these landscapes. For example, Akhi Nathany from the *Lisu* tribe of Arunachal Pradesh is the co-ordinator of the NCF field base at Namdapha National Park. Akhi who used to hunt extensively in the past, got hooked to natural history while working with field biologists who came to Namdapha. Today, Akhi uses his immense knowledge about the forest and its inhabitants to educate his fellow villagers about the need for wildlife conservation.

This issue of *Current Conservation* carries several examples of novel initiatives that involve field assistants in promoting conservation, while also providing them a livelihood. In many of these cases, field assistants were trained for other

Field assistants' fund

In the late 1990s, as an active collaborative research project at Kalakad-Mundanturai Tiger Reserve was coming to an end, one of the field assistants, Poovan, fell sick with a terminal illness. The researchers on this project, some of whom were part of the NCF, actively sought funds to help their ailing assistant since they could not bear all the expenses themselves. Unfortunately, in spite of their efforts, Poovan succumbed to his illness. After providing financial relief to his family, there was still some money left in the fund that they had raised. They decided to set this money aside to help other researchers and their assistants who face similar situations. Many individuals in the research and conservation community have now contributed to this fund which operates as an emergency fund that is open not only for NCF's field assistants but also for field assistant working in any research and conservation project in India. The fund provides financial assistance for medical treatment and other emergencies. For example, a field assistant who lost a considerable part of his property when his house caught fire was provided with financial help to overcome this tragedy. The only requirement for getting this fund is a letter to NCF from either from field assistant or the researcher with the contact addresses and phone numbers (more details are available at www.ncf-india.org).

additional skills that were required for carrying out awareness or sensitisation campaigns (Dorje, Turtle Boys, Irulas), conservation education at local schools (Dorje), and additional language skills useful for eco-tourism (Mangu). However, given the diversity of people and their landscapes, it is hard to draw generalisations, and there are many lessons to be learnt by taking a closer look at some of the attempts to engage with local communities outlined here.

Information about field assistants, their field and language skills, and contact details already exists within the informal wildlife grapevine. It is high time that this information is organised and made available to a larger network of people and institutions involved in Indian wildlife conservation and research. We hope the articles in this issue prompt institutions

and people involved in field research in this country to pursue this actively and generate a database on field assistants that can be accessed by researchers across the country. We also need to pressurise our institutions towards working out a unified policy at an institutional level with respect to providing insurance, provident fund or gratuity to local staff. Awards that recognise the contributions of field assistants along the lines of the Sanctuary awards for wildlife biologists and conservationists also need to be created. We also urge people to initiate group discussions on this topic in research seminars to invoke wider participation and networking on these issues.

The indigenous knowledge and skills of local field assistants need to be recognised, and it is time we started looking beyond acknowledgements.

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The Making of a Mowgli

Raman Kumar & Ghazala Shahabuddin

It had been nearly half an hour since we started looking for the nesting bird that we had been waiting to spot all day. We weren't hopeful, and it was getting dark. But Mangu Singh Shekhawat confidently continued to scan the thick forest on the hill across the nallah. Suddenly he froze. We followed his gaze and, sure enough – there it was! Obscured by a drooping vine, thirty feet up on a rocky ledge, and glaring at us with its penetrating yellow eyes was our bird – the cryptic Brown Fish Owl – sitting in its nest. Mangu gave a triumphant grin that seemed to say, “I told you so!”

When we first arrived in Sariska for our study on birds in March 2003, we

had expected to employ a local person from the Gurjar community as our field assistant. Instead, we ended up working with this energetic, mischievous young ‘outsider’ hailing from a far-off village, who earned a living as a nature guide to tourists at Sariska. On our very first day in Sariska, an aggressive rhesus monkey got into our vehicle and grabbed one of our bags. Mangu swung into action, chased the rhesus and deftly prised it out of the surprised monkey's hands! It was then that we sensed he indeed was a different kind of person.

But how did Mangu end up in Sariska? “Back in our village I helped my father and brother till our small piece of land.

Cultivation was failing because of the long drought and I started looking for a job. Then I came across this advertisement in the newspaper calling for trainee nature guides and thought I'd try my luck in Sariska,” Mangu recollects. “I was new and had absolutely no knowledge about the forest or animals. It took me more than a year to gather confidence. Later, with experience I started to enjoy it.” He smiles shyly and adds, “Now they call me ‘Mowgli’ Mangu.” Today, he's just about the only trained guide remaining in Sariska. Out of the twenty-two who undertook the training, many have left their jobs. Some continued being nature guides, but went away to other parks like Ranthambhore and Keoladeo. The rest took up better-paid jobs at privately-owned resorts.

During our early days in Sariska, Mangu showed us around the Reserve, familiarising us with the terrain. His field skills and excellent relations with both



GHAZALA SHAHABUDDIN

the forest staff and the villagers helped us overcome the teething troubles of fieldwork. Every time we crossed a forest chowki, Mangu would inevitably stop and ask about the health of the forest staff there. His very presence was sure to bring an indulgent smile to every staffer's face! When passing a hamlet there was seldom an occasion when Mangu was not invited for tea or lassi by some villager. His high spirits and good humour never failed to dispel the tedium and monotony of the long days of fieldwork.

Mangu quickly fit into his role while setting up the project. When we were scouting for sites, his knowledge of the place and the people was a great asset. Not only did he suggest ideal locations but also helped us plan out logistics for our study, which was aimed at investigating the effects of forest resource extraction on bird communities.

During the course of our study Mangu rapidly supplemented his existing knowledge of Sariska's fauna by including more than 100 species of birds to his list, which was previously limited to large mammals as demanded by his job as a tourist guide. His sharp eye was quick to detect and identify birds and soon he also became familiar with their calls. With plants he was equally adept. Though he already knew the vernacular

names of many plants, he also learnt their scientific names with enthusiasm.

'Mowgli' Mangu's observations go beyond plain identification and touch the realms of natural history and ecology, something he has learnt not from books but on his own in the field. Why are the vultures gathering there? – There must be a kill. Why are the partridges alarming? – There should be a mongoose nearby. Is that bird carrying a grub in its bill? – There should be a nest with chicks. And unlike many other paid naturalists who tend to exaggerate events just for extra effect, we found that his portrayal of events, animal behaviour and sightings were true in every detail.

Instead of being intimidated by technology Mangu eagerly mastered it; new instruments fascinated him. He took the initiative to understand the use of gadgets like the rangefinder and GPS, and learnt scientific survey techniques such as point counts. This was a great

relief; the tasks of data collection could now be shared efficiently and we could concentrate more on observation. By the time we concluded our fieldwork, Mangu had learnt and contributed more to the project than an additional researcher could ever have.

Mangu carved out a niche for himself as an excellent guide, especially among serious naturalists and birdwatchers. His reputation spread by word of mouth. "Most tourists are not seriously interested in wildlife," he often complained. "They are impatient and loud and only want to see tigers. I prefer people who genuinely appreciate the wilderness." After a tedious week with noisy tourists from Delhi and Jaipur, he looked forward to Friday afternoons when he was contracted with the Sariska Palace Resort to take groups of birdwatchers out on a birding walk. Accompanying him into the forest, one could sense his keen enthusiasm for all wildlife - whether a humble dung beetle or a charismatic king vulture.



RAMAN KUMAR

Mangu's knowledge of Sariska was intimate; fieldwork was something he looked forward to. *Inset:* Mangu Singh Shekhawat always wore traditional ear studs and a disarming smile; his good humour brightened up even the most tedious field days





The rapport that Mangu (left) had with both forest staff (centre) and the villagers (right) helped us overcome the initial teething troubles of fieldwork

Apart from guiding hardcore wildlifers, Mangu has also had a chance to assist several documentary filmmakers. “I have learnt a lot from such people,” he admits. “They have helped me develop a better understanding of nature.” He shows his prized possessions handed to him as gifts by visitors impressed with his work – a pair of binoculars, a field guide to birds, several books, pictures, postcards and souvenirs. His fascinating experiences in tiger country with various naturalists over the years could fill a book. “It was a quiet afternoon,” he narrated one such incident. “I was helping a German filmmaker take shots of a langur. The monkey had descended to drink water from a forest stream, when a leopard, who apparently had been eyeing its prey for quite a while, jumped out of the overhanging

tree to grab the unwitting animal!” His eyes twinkle at the recollection. “I was so lucky to have witnessed such an awesome sight.”

During his long years at Sariska, Mangu has earned the trust of the park officials at all levels. Any information provided by him on wildlife is taken seriously. He is one of the few regular volunteers during the annual wildlife census. Mangu also has the distinction of being the only person outside the forest department to win an award for his contribution to the cause of wildlife conservation.

Working as a guide and doubling as a field assistant, Mangu regularly sent money home. “There’s no water for our fields. During the drought the well dried. Now we need to sink a bore-well and that is expensive,” he used to say. “I like this work. It is exciting and I learn a lot. Someday I will have my own Gypsy. I would also like to learn English so that I can explain things better to foreign tourists.” However, Mangu’s plans went awry with the disturbing news that tigers had disappeared from Sariska. Mangu was very concerned and he volunteered with the forest department to search for tiger signs, and collect intelligence about possible poaching.

But soon it was official: the tiger was declared locally extinct in Sariska. “Tourist numbers dropped drastically and I had two kids to bring up,” Mangu lamented. “I considered moving to Bharatpur or Ranthambhore, or even going to Jaipur and work as a tourist guide.” Finding that it was difficult to create a niche for himself from scratch in other wildlife areas, he reluctantly went to Jaipur to seek a living for himself as a regular tourist guide.

It was a struggle having to switch gears from wildlife to conventional tourism. But Mangu being Mangu, he took this new role in his stride. The following year

he went to Pondicherry to learn French and since then has served as an exclusive guide for French tourists. However, in recent times with a dip in the arrival of overseas tourists, he faces another crisis. But his heart is still in Sariska. He hopes that someday he can find a job with a long-term research project in Sariska, so that he can get back to exploring the Aravallis.

Mangu Singh Shekhawat is an exceptional case. He is educated, resourceful and versatile – he will adapt and survive. But, for most other field assistants, life is tough after projects wind up. They, having spent their prime years doing little else but assisting researchers, suddenly discover that their special skills can no longer earn them a living, and it’s too late in life to learn another trade.

Taking a cue from Mangu, field assistants with their uncommon abilities can make excellent naturalists, given some training and support. Their abilities could come in handy if they find employment in tourism or forest departments. We are happy that Mangu Singh managed to overcome a livelihood crisis. But the research community is definitely the loser. Losing such trained and committed people to other professions is also a major loss for conservation in these regions, and we need to think of ways in which to address these issues. Mangu and other talented field assistants are worth a lot more than just a passing mention in the Acknowledgement sections of scientific papers.

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Sushil Dorje

Charudutt Mishra
(as told to Soumya Prasad)

Sushil Dorje was born in a farmer's family in the remote, high altitude Himalayan village of Kibber in the Spiti Valley. Sushil started his conservation career as a field assistant in a research project in 1996. Though he had limited education in a village school, and no formal training, a deep curiosity about nature resulted in Sushil's remarkable growth into one of the most committed conservationists in the region. Today he is the field programme coordinator for the Nature Conservation Foundation (NCF) and the India Program of the International Snow Leopard Trust (ISLT) in Himachal Pradesh.

Sushil is a fine naturalist and can identify most rangeland plants (using scientific names!), birds and mammals of the Trans-Himalaya. His vast knowledge about this landscape combined with his enthusiasm make him a key resource person for research projects here. Sushil has contributed substantially to one completed Doctorate, two ongoing Doctorates, one Masters dissertation and several other short-term research projects. His support has resulted in more than a dozen peer-reviewed scientific publications, with several more in the pipeline.

Working selflessly at frigid heights of 4000 to 5500 m, Sushil contributes much more for wildlife conservation than can be expected from the small income he derives. Sushil's understanding of conservation problems in the Trans-Himalaya as well as his people's concerns have come in handy while addressing human-wildlife conflict in this region. Households in Spiti face substantial financial losses due to livestock



Sushil holding blue sheep (*Pseudois nayaur*) horns during the survey of the remote Lingti valley

depredation by the snow leopard *Uncia uncia* and the wolf *Canis lupus* and the endangered carnivores are persecuted in retaliation. Sushil has helped expand the community-based livestock insurance programme, which was started in his village to address human-snow leopard conflicts, to nine other villages in Spiti and Ladakh. He has also been involved in the setting up of two village wildlife reserves, which is a participatory conservation initiative with potential benefits for both people and wildlife in this region (see www.ncf-india.org for more details). He is also involved in monitoring the performance of these conservation efforts by coordinating camera-trapping studies of the snow leopard, and monitoring mountain ungulates and birds.

Sushil is also actively involved in spreading awareness about wildlife conservation within his community. He motivates the youth of Spiti to help

protect wildlife, and has helped stop the occasional hunting that used to take place. He is working with several schools to promote conservation education and awareness amongst Spiti's children. His extensive natural history knowledge makes him a 'local hero' for children and youth alike in Spiti.

Inspired by Sushil's life and work, Pranav Trivedi featured Sushil as the main character in a book for children titled 'Nono, the snow leopard' which was published by NCF in 2007. In recognition of his outstanding contribution to reconciling the interests of nature conservation and local rural economies in these high altitude rangelands, Sushil was awarded the Van Tienhoven Foundation (Netherlands) award in 2008 in a ceremony in Ladakh.

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Mayavan

Kartik Shanker and
S.P. Vijayakumar

Mayavan's first association with field ecology was during Kartik Shanker's stay in the high altitude shola-grassland ecosystem of the Nilgiris. Starting with Kartik's PhD work on rodent communities in the Nilgiris, Mayavan has assisted field research projects on various taxa and across several sites in the Western Ghats. Today, he's also closely associated with Kartik's students like Vijayakumar (who studies amphibians) and several others. Kartik and Vijay share some of their experiences with the pied piper of Mukurthi in this article.

Phantom: The Saviour by S.P. Vijayakumar

It was pitch dark and unusually silent except for the distant cricket calls deep in the forest. There were three of us, including Mayavan. Chaitra and I were surveying for frogs in a *Myristica* swamp located in the lowland region of the southern Western Ghats. It was the first time I was venturing into this habitat in search of these frogs, especially the tiny tree frogs of the genus *Philautus*. The mission was to inventory the species and record their calls. Surprisingly we did not hear a single call and as I scanned the area for calls, my halogen head lamp showed an alert Mayavan searching the area around us with his own flash light: not for frogs but for something else, somewhat larger. We had been warned by the forest watchers about the movement of pachyderms in the neighbourhood. But our curiosity couldn't stop us from venturing into these forests. More than anything, it's Mayavan's presence that gave me the confidence to pursue this crazy game of frog hunting in elephant country. As I asked myself why the frogs were silent, I felt something soft on my shoulder! As my head light turned in the direction Mayavan's light was pointing, a few seconds passed, and there it was! A single eye glint amidst the thicket not very far from us, and though we couldn't judge the distance in the dark, it was not far. We all froze for a few seconds, and a disturbing silence followed while we waited for Mayavan's signal.

Within seconds, we were running through the trail laden with thorny vines... a high

jump over a fallen tree...and the final 100 metres rush to our vehicle. Mayavan was the last, and he looked a little crestfallen. I asked him what happened? Scared? He replied in his humorous tone that he had lost one of his slippers. We all burst into laughter. That's Mayavan - *Phantom* - a guy who can get you out of the trouble and at the same time ease the moment with his humour.

Over the last two years, every field trip has shown me a new, more interesting aspect of Mayavan. A few field trips for frog catching and call recording made him an expert in locating frogs by their calls. It just took him two days to get a

hang of it and find new ways to locate them. At times, he surpasses me in the number of individuals he locates by calls. Slowly he has ventured into the world of specimen processing. I feel guilty sometimes when my late night work keeps him sleepless. But, his enthusiasm and patience gives me the much needed energy in the field to push my own limits. With *Phantom* around, my life in the field becomes more than just routine data collection. With his humour, his enthusiasm to understand and learn, his patience, his rich experience, and those sharp watchful senses, it is no wonder that he has remained a "silent partner" on many research sagas like mine.



Mayavan

Man on the Shola Mountain *by Kartik Shanker*

Driving back from the field in our gypsy, Mayavan was lying in the back and staring through the skylight in the canvastop, and I heard a refrain of 'yes no yes yes yes no'. After a while, I became intrigued and asked him what he was doing. He responded that he was estimating the canopy cover on the way back to the field station. Just that day, he had accompanied a researcher and watched him do canopy counts through a scope. As I discovered over a 3 year period, Mayavan had an exceptional ability to pick up our research techniques and adapt them with little or no instruction.

Mayavan first started working with me when I was conducting field work for my doctoral thesis at Upper Bhavani in the Nilgiris. Unlike many other field assistants, he was neither a tribal nor a local. No body of knowledge had been passed down the generations. Everything he had learned, he had learned on his own, mostly after he dropped out of school after high school. His father was a driver with the Electricity Board, and he had lived with him in the area and started wandering around out of curiosity. When I met him, the only person who knew this region better than Mayavan was Kasi, an old poacher turned field assistant.

Mukurthi is a lovely sanctuary on the western edge of the Upper Nilgiris plateau with rolling grasslands and postcard pretty sholas nestling in the valleys. Few researchers had worked in the area, as many parts of the sanctuary were inaccessible

and somehow did not have the glamour of the lower elevation elephant-dominated forests such as Mudumalai and Anamalais, or the evergreen forests of Kalakkad.

My own work there was on small mammals, mainly rodents. We carted over 200 sherman traps from shola to shola, setting them up in 1 hectare and 0.5 hectare grids, and monitoring them each morning. We trapped for over 35000 trap nights, in the sholas, grasslands and a range of plantations in the Upper Nilgiris. Mayavan and I became experts in handling the rodents - sliding our hands into the traps, nestling the rats in our palms and then slipping off the connecting rod that would open the trap, leaving the rat in our hand. Wroughton's rat, the white-bellied form of the common rat, and our most frequent visitor, is an aggressive customer, and needs to be handled with care. A little slip and you were guaranteed a nasty bite. Mayavan was much fonder of the mice, which he would handle like pets, while he positively hated the shrews, which were the most aggressive and smelly. In fact, he was pretty good at smelling the trap and predicting which species had been caught.

Very quickly, Mayavan understood exactly what the study was about. He fully understood that we were looking at differences in diversity in sholas of different sizes (otherwise known as island biogeography), that we were looking at population trends, and whether these were synchronized across sholas. He could be completely

trusted to supervise the fieldwork in my absence. This is in spite of the fact that Mayavan himself could not write in English. And though my other assistant(s) would keep records, it was Mayavan who often called the shots when I was away. Mayavan also had a remarkable sense of humour that kept us all in good spirits while we worked through the incessant rain and other hardships. Every researcher who passed through was quickly assigned a nickname, that was sometimes friendly and funny, and sometimes not.

After I left, Mayavan helped a series of researchers with their research and Doctorates in the Upper Nilgiris. He worked with Nixon and Bhupathy of SACON on a herpetology project and with Uma on the Nilgiri pipits. Today he works at the Centre for Ecological Sciences with my PhD students. He is a fair expert on herps, particularly frogs. He continues to be the premier field assistant for rodents, and is occasionally called on to assist with trapping studies. More than anything else, it is his quick grasp of field methods, his curiosity for the science and his deep commitment to both project and the researchers, that make him so valuable.

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Memories from the Camp of Silence

R. Suresh Kumar

There are innumerable references of the mountaineering skills and the physical strength of the Sherpas who are the backbone of many expeditions which aim to scale the mighty Himalayan peaks. While the Sherpas are reputedly the strongest of mountain people, there are many others who have endured the harshness of mountain life. Vikram Singh Bisht as the name suggests was no Sherpa, but a soft-spoken and mild-mannered Garhwali. He hailed from a small pastoral village

high up in the Himalayas, in a remote corner of Chamoli district in the Indian state of Uttarakhand. Though I knew Vikram only for a month, my association with him left a lasting impression on me. I first met Vikram in May 1996 when I was on a field trip to the Kedarnath Wildlife Sanctuary, as a student at the Wildlife Institute of India (WII). He was then employed as a field assistant with the WII for a research project on musk deer. He had previously worked on several other WII projects in Kedarnath

and had earned himself a name as one of the best field workers in this region due to his dedication and hard work. During that trip, I got hooked to the beauty and the adventure associated with the Himalayan mountains. The highlight of that trip was the sighting of a male Himalayan monal, one of the most brightly colored birds in the world and a denizen of the high alpine slopes. That incident left me with no second thoughts, and I decided to work on the winter habitat use of the Himalayan monal in Kedarnath for my Masters dissertation. Winters in Kedarnath can be harsh, with four months of sub-zero temperatures, frost and snow. For someone like me coming from tropical southern India who had never seen snow before, it was indeed reassuring to know that Vikram was there to assist me in field.

ABOVE: The innumerable cairns atop the Chandrashila peak
BELOW: The camp of silence, Shokharakh, covered in snow



VIKRAM SINGH BISHT



SWATI KITTUR

In the last week of November 1996, with several bundles of warm clothing, I landed in Kedarnath to commence my work on the Monal. My work was mostly concentrated around the Tungnath temple (3400 m), which is an important pilgrimage site along the southern boundary of the Kedarnath WLS. Unlike summer, when this area was frequented by pilgrims and pastoral people, hardly anyone was to be seen in winter. The pilgrimage season was over for the year and the livestock herders had also moved down to warmer areas. Vikram and I set up camp at Shokharakh (3200 m) in a log hut, which sat on a cliff edge. This was surrounded by three other cliffs and the mountain slope which led up to the Chandrashila peak (3680 m), the highest point in this range of the Himalayas. Just behind the hut, flowed a small stream which came down from the peak. Villagers from nearby areas conducted last rites for departed souls of their kin along this stream. 'Shokharakh' literally translated to 'camp of silence' in the local dialect. The campsite indeed had a spiritual air to it.

We set up camp and soon began to criss-cross the entire area to study where the monal occurred. We marked several trails and paths to monitor the presence of the monal. Vikram knew the area very well - he knew the elusive musk deer bedding sites, areas the black bears were active in, and what tubers monals dug for. He could also identify trees and other vegetation. Along the trails Vikram marked the trees with a red paint and where necessary he would tie a red ribbon; these would be the only indication of the trail when the area was completely snowbound. Over the weeks Vikram and I worked closely to run the camp and do the fieldwork, for we were the only two people around. Vikram's days were often longer than mine since he also attended to the bulk of camp duties. Most of our conversations revolved around his wild encounters, the mountain spirits, his village, his family and kids, but would invariably end with discussions about snowfall in the area. Our initial weeks at Shokharakh were a fight against time since there was heavy snow in the last week of December. Thereafter, regular snowfall occurred until the middle of April and the whole area would be covered with three to four feet of snow.

The last week of December had come and gone, and the weather appeared to be favorable with no signs of heavy snowfall in the near future. Taking advantage of this situation, Vikram and I decided to trek to the Chandrashila peak on the first day of the year 1997. *En route* to the peak, we stopped at the Tungnath temple and offered prayers. On my persuasion, Vikram had decided to give up his *beedies* as a New Year resolution. Soon we were atop the peak and the breathtaking panoramic view of the snow clad peaks to the north left us spellbound. As a token of respect to the mountain, we made a cairn of few small stones there. Delighted at our small achievement, we quickly took pictures of each other and trekked back to camp.

PANKAJ KUMAR



Himalayan monals - the brightly coloured birds of these mystical mountains

The next few days were routine - we marked more trails and searched for signs of the monal. On the morning of January 4, I found that Vikram had woken up very early and was sitting in the kitchen staring at the fire in the hearth. I noticed a strange uneasy look on his face, as if something was worrying him deeply. Upon enquiring what the matter was, he replied in an agitated tone that he would have to go home immediately and do some prayers and offerings as he was getting nightmares in the camp. Though I was surprised by his sudden outburst, I calmed him down and decided to move down to a lower camp, so Vikram could go home for a few days. Later, on the way to the lower camp, we marked one last trail that was left to be completed. At one point along the trail where pilgrims regularly offered prayers to a set of stones neatly arranged on the ground, Vikram prayed for a long time. He removed the fallen leaves from there and painted the "om" sign on the rocks. He truly seemed worried. Later on the same day he left for home, while I stayed behind in the lower camp.

A week passed but there was no sign of Vikram returning or the much awaited snowfall. The next day a boy in his teens, Prem Singh, arrived at camp saying he

was Vikram's brother. He had been sent by his brother saying he was worried that I would be having problems without anyone to assist me with my work. Prem told me that Vikram would be joining us soon after completing his prayers. On the night of January 19, the first snowfall began - overnight the entire area was transformed. I was all excited about the snow but deep down I was worried about Vikram's absence. Two days later when there was a break in the snowfall, two strangers arrived at the camp late in the evening. The men appeared physically exhausted after having to plough through fresh snow for nearly five km to get to our camp. They had come to take Prem Singh along since Vikram was seriously ill, and wanted to return to their village the same evening though it was dark. Shocked by the news, I too decided to go down to the village and visit the hospital in the nearby town where he was admitted.

The next day, I found Vikram in an emaciated state at the government hospital. He had become unbelievably thin and it was hard to recognise him. He had lost his speech, his movement and I learnt that he was unable to recognise anyone. His listless eyes stared straight at the hospital ceiling. I learnt from his mother who was there



R. SURESH KUMAR



R. SURESH KUMAR

ABOVE: Vikram Singh Bisht at Chandrashila peak on the new year day of 1997;
BELOW: The mystical slopes of the alpine meadows overlooking the Shokharakh camp

that he worried a lot about me and had fainted a few days earlier while he was preparing to leave for our camp. I again visited Vikram the next day. While I sat holding his motionless hands, consoling him that he will be fine soon, a tear trickled down the side of his cheek. He had recognised me! With great

difficulty, I went back to the campsite. It was very difficult to find someone to assist me, since everyone in the village believed that Vikram was attacked by a mountain spirit, but at last I managed to find another person. Vikram passed away on January 27 at the hospital; the reason remains a mystery.

The following months during field work, I sensed Vikram's presence around me all the time. The slippery parts of the trail where he would put out his hand to help me, the pile of stones atop the Chandrashila peak, the vantage points atop the cliffs where we would sit together and look for monal, and missed the hot *rotis* that he would serve. He had become an integral part of my life and it was very hard to accept that he would never return. Many years have passed since I met Vikram, and the paint marks that he left on the trees and rocks have faded away, but I can never forget the enthusiasm for fieldwork and the thoughtfulness and caring nature of this simple mountain man. Even today the view of the mountains, its snow covered peaks and the distant ringing call of the monal, instantly brings back vivid memories of Vikram Singh Bisht.

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Surviving the Tsunami

Manish Chandi

Although a part of the Republic of India, the Nicobar Islands are closer to the Indonesian island of Sumatra. The River Galathea drains into the sea in a large cove called South Bay on the southern tip of the Great Nicobar Island. The beach at the river mouth was a significant nesting site for leatherback sea turtles and this was where the Andaman and Nicobar Islands' Environmental Team (ANET)

ran a research project since the year 2000. Since the research camp lay 41 km along the main trunk road that led south out of the shantytown of Campbell Bay, it was called Point 41.

In December 2004, the leatherback nesting season was at its peak and a quiet, shy, young wildlife biologist from Orissa, Dr Ambika Tripathy, was studying them. This was his first visit to the Nicobars, a

long awaited opportunity. His assistant was Saw Agu, a young Karen (a tribe originally from Burma settled in the Andaman Islands by the British in 1925), with several years of experience on the sea turtle project. The camp also included visitors from Pune – four middle-aged amateur ornithologists, and two guards from the Andaman and Nicobar Forest Department - Sameer and Abdul Aziz.

After dinner on Christmas day, Ambika and Agu left the camp to walk the long stretch of beach, recording data on nesting turtles, returning exhausted just before sunrise. They were deep in slumber when a tremendous shaking jolted them awake.

The Andaman and Nicobar Islands lie on a fault line and earthquakes are common. But this was a big one! Sprinting to the beach, they found their guests and the forest guards watching the sea receding into an abnormally low tide. Just as quickly, the tide rushed into camp, scattering their things on the flooded beach. Meanwhile it continued to quake and it was difficult for any of them to stand upright. The sea ebbed again leaving fish flopping on the shore. Sensing that the worst was yet to come, Agu pointed to the hills and shouted 'Bhago!' (run). Instead of heeding his warning, the four naturalists from Pune began to photograph the scene, while the two guards rushed around collecting their dispersed belongings, including precious certificates of achievement. Only Ambika took Agu seriously but compelled to play the host, he waited for the older men, wasting valuable time.

The tremors continued and the sea ebbed and surged in small bursts. When the waves started to engulf the land they stood on, the group finally decided to move. As they approached the road, the nearest high ground, the sea was surging ashore with greater intensity and they witnessed the forest check-post being washed away.

However, by the time they reached the road it had gone underwater too. There was water as far as the eye could see. The only thing that stood above the water was the bridge that spanned the River Galathea. But when they got to the bridge, it was already under thigh-deep water that was rising rapidly. Running to the hills in the distance was not an option anymore, as they would never make it in time. The only thing they could do was to climb a large pipul (*Ficus religiosa*) tree nearby. Agu and the guards assisted the naturalists in getting above the reach of the waves, before climbing up to "safety" themselves.

Sitting nervously on the tree, Agu recalls the sound of the tsunami as it approached. It began with an enormous roar, accompanied by the sound of branches snapping and trees falling. That's when Agu saw the huge phalanx of dark water, perhaps 15 m high, effortlessly crashing down giant coastal trees in its path and coming straight at them with the force of a celestial sledgehammer. That was the last time Agu saw his companions. The tsunami smashed the pipul tree like a matchstick and sucked Agu underwater, knocking his breath out and tangling his legs amongst tree branches. As he gasped for air and struggled to free himself, he snorted and swallowed mouthfuls of the dark, smelly water. When he managed to surface, he found himself bobbing amidst huge uprooted trees. Land was far in the distance. Before he could gain his bearings the next wave pulled him underwater again. The force of the tide whipped away his shorts leaving him totally naked. The waves walloped him against the trunks of huge uprooted

trees and other debris and every part of him took a beating. He felt like a rag doll being tossed by a malevolent force which he couldn't escape. He ached all over and was scratched and scraped everywhere. Each time he went under, he gulped more of the filthy water. When he tried to haul himself up a standing tree, it gave way and fell right on him. His shoulders and chest hurt especially badly, and every breath he drew hurt even more. There seemed no end to the fury of the sea.

Agu struggled to stay afloat through the turbulence until he was finally able to climb onto a floating tree. The battering had left him totally drained, but concern for others was uppermost in his mind. He scoured the watery landscape and shouted for the others; there was no response. The waves and the pain had wrung him of all energy. Seeing the camp underwater, it seemed unlikely anyone had survived that destruction. Eventually the fury abated; it was eerily

Saw Paung and Saw Agu aboard the MV Makara enroute Little Andaman Island, to set up a sea turtle monitoring camp in 2006



KARTIK SHANKER

quiet except for the harsh sound of rough waves crashing on fallen trees, pushing flotsam and Agu towards land. There wasn't a whimper of life anywhere, not even birds. The bridge across the Galathea had disappeared; only its columns rose above the water. Trees shorn of leaves stood naked against the sky. Agu was disoriented - the coast as he knew it was missing and the rainforest seemed to rise out of the sea - but he realized that the raft of the fallen tree he was sitting on had once been part of a lowland tropical forest next to a large mangrove creek, the Galathea River. He pondered his next move. The forest was too far in the distance - he didn't think his fractured, bruised and aching body could get him there. There were no fishing boats at sea. He was all alone on that long trashed coastline, with no sign of any help coming his way. He wondered if any of his friends from Chingenh, the nearest Nicobarese village, would remember to look for him, or if indeed any of them had survived. Helplessness washed over him. He knew he had to get back on land, but how? He told himself that he would wait, rest and recover his strength. After nightfall, it began to rain leaving him cold, tired, hungry and aching, but sleep was not an option. He felt compelled to maintain a vigil for any further developments.

The next day dawned and he was still bobbing in the middle of nowhere surrounded by rafts of logs and debris. The carcass of a turtle floated by and moments later a turtle swam past. These were the first creatures Agu saw in the immediate aftermath. Debris was piled up everywhere. There was no place to hide from the sun's relentless heat. It made him thirsty and when he could stand it no more, he was driven to drinking the dirty, stinking seawater. He slept fitfully and woke up to the same nightmare.

Hours wore on into days. Helicopters and planes occasionally flew overhead

but there was no way of alerting them. He had weakened from lack of water and food. Small sips of seawater were all he had. One moonlit night he saw a saltwater crocodile swim close to his pile of logs, and circle it. He looked around for something to fend it off in case it came close, but mercifully it swam away. He could see other crocodiles circling the debris of the mangrove forest that had once been their home. Sand flies bit him during the day and mosquitoes made the nights miserable. The crocodiles and the insects were the only signs of life. He had no idea what had happened to the people in the surrounding villages or just how massive the devastation was.

Rain brought relief from the heat and he gulped it eagerly, but the cooler temperatures that followed froze him at night. He kept count of the days; a week had already gone by. He lost consciousness frequently from dehydration and exhaustion. On the tenth day he tried swimming to another raft of logs closer to land, but when his aching body protested, he abandoned the effort.

The helicopters stopped flying past and Agu suffered a crisis of hope. Then one day, a water monitor lizard visited him and smelt his feet with its long forked tongue; Agu realized with a start that it was checking if he was carrion. He knew that he if he wanted to live he would have to go ashore, or become lizard food and die there. He was determined to live even if the effort killed him. He had regained his bearings to some degree and remembered that there was a forest trail that led to a village called Shastri Nagar 35 km away. He picked a small branch to support his badly wounded arm and swam over to the next logjam and rested. The pain was excruciating and every movement was time-consuming. He stumbled on the branches and slipped on the smooth trunks but he kept going. The effort knocked him unconscious

a lot of times, and it took him several hours to crawl ashore.

The shore was no longer the beautiful beach he remembered. It was unrecognisable - clogged with huge uprooted trees, lianas, broken branches, and slush. Climbing over this debris was going to be difficult, so he decided to make his way through the forest along a hilly slope. He was delighted to find the stream still flowing and drank his fill of fresh water for the first time in thirteen days. When he stepped on an old areca nut he couldn't resist the temptation to chew on it. There was nothing else around that seemed edible. On seeing a skull, he shivered, but realized it was old and had probably been unearthed by the waves. It was less than seven km to Shastri Nagar but it took him three days of hobbling and crawling to get there.

On January 11, 2005, Agu staggered into the village. It had been sixteen days since the tsunami. He couldn't see a soul around, but household wreckage - tin roofs, mangled furniture, window frames, clothes, and utensils - lay scattered everywhere. He stared, trying to comprehend the devastation; he knew some of the villagers and wondered what had become of them. He put on a pair of green trousers and a white shirt that he found lying on the ground. As he picked his way agonizingly and gingerly through the mess he heard a shout. It was Sriram - it was a strange relief to hear that familiar voice. Sriram was a villager, who had returned with a few others to collect some of their belongings.

Sriram narrated the terrible tale of the devastation that had been caused in just a few hours on that sunlit but fateful day. Sriram took Agu to an old couple who had stayed on after the tsunami. During his years working at the research camp, Agu had seen the couple going about the village and recognised them; they however couldn't identify him - sixteen

days of being ravaged by the sun, rain and sea had taken their toll. The old lady fed him his first meal since the tsunami. That was when they heard a helicopter flying low overhead and Sriram ran out to wave it down.

By an extraordinary coincidence, a search party from ANET had received

permission just that day to conduct a search for the members of their sea turtle research camp. As they flew in the Indian Navy helicopter surveying the damage below, they saw a few people gathered in an opening waving at them. The team requested to be dropped there and the villagers led them to Agu. There was shock and relief when they saw him

sitting under the coconut trees of the desolate village. Before being whisked away to a hospital, Agu told the search party that he had not seen Ambika or the others since the tsunami, but he asked them not to give up hope. However, despite many searches over the following months, none of the other members of the ANET sea turtle research camp were ever found.

The ANET Network

I am not a field biologist but work among human communities largely in the Andaman & Nicobar Islands attempting to understand aspects within society and its environment. During my 'fieldwork' among human communities, I have had the good fortune of being assisted by helpful people who either joined on their own or more rarely, were assigned to help in my assignments. Besides my primary work, I have also been part of surveys for sea turtles and crocodiles in the Andaman Islands, as a team member of Andaman and Nicobar Environmental Team (ANET), a division of the Madras Crocodile Bank Trust (MCBT).

The genesis of field assistants at ANET began during field surveys for crocodiles and sea turtles by the MCBT in the mid 1970s. At ANET, people from the Karen community in the Andamans have played a crucial role through the years. The field assistants at the ANET station have often doubled as boatmen, cooks, data collectors, and accomplices on journeys by boat and on foot. Field surveys for sea turtles, saltwater crocodiles, or even visiting a community in South Andamans invariably entails the use of a boat. 'Being in a tub' for extended periods of time certainly results in camaraderie, periods of doubt and tension, fun and discovery of 'things and places', and even 'self discovery' for some. Over these many years of association, a strange rapport has developed that is not easily explained. Of the many people, the main crew who have worked and some who continue to work with us are Uncle Paung, Uncle Pambwein, late Saw Shwether, Saw John, Saw Nelson, Saw Agu, Montu Bhowmik, and Naveen Ekka. On more than one occasions, people in the Andamans have become associated with our work purely by chance. They have guided generations of ANET researchers through cyclones, mud swamps and the tsunami. They continue to have a steady interest in research, despite many lucrative offers from recent developers in the islands. Even our 'retired' fieldassistants, like Uncle Paung who is past 70, have a passion for exploration and natural history that is hard to come by these days, and an incredible asset for an organisation working on biodiversity conservation in the islands.

ANET has often acknowledged the role of its field assistants by including them as co-authors of articles, notably one on sea turtle surveys. Whether their greater contribution is in terms of their skills and resourcefulness, or indigenous knowledge, or the warm companionship they have provided to the many generations of ANET researchers, is debatable. What is indisputable is that they have been an invaluable and integral part of a team, with great loyalty to the institution, the people and their work in the islands.

Agu was treated for his injuries and dehydration at Dhanvantri, the Naval hospital at Port Blair. He had broken both collarbones, fractured a few ribs and bruised his body very badly. After spending a few months with his family, recuperating at his home in Webi, North Andaman, Agu returned to work at ANET where he works even today.

It is a testament to his strength of will that Agu narrated this story with no sense of drama, but as if it were a tale of a long forgotten hero in a distant land. He is a source of courage to all of us.

On that fateful day, the sand at South Bay sank several metres, destroying the beach and the mangroves. The sea turtle camp lay about 125 km northwest of the epicentre of the 9.1 Richter earthquake of December 26, 2004, and about 150 km from totally devastated Aceh in Sumatra. Today there is a slow accretion of sand on the beach and soon ANET researchers will be able to determine if the leatherbacks will come back to nest here.

Ambika Tripathy's contribution to sea turtle research in the Andamans and Nicobars will go a long way towards the conservation of sea turtles, and enable future researchers to evaluate how the tsunami has affected the leatherback nesting grounds in the Nicobars.

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Mathe Budda

Meera Anna Oommen

As a daily wage labourer with the General Reserve Engineer Force (GREF), Mathe Budda came to the island of Great Nicobar over three decades ago. Hailing from a village in Ranchi, he was one of the many young people from the northern state of Bihar who were employed by this organisation whose main task was to build roads in inhospitable terrain and new frontiers that were being opened up. The road which was constructed between Kopen Heat on the west coast and Campbell Bay, the main settlement on the east coast came to be known as the East-West Road. After the completion of the road, the GREF moved on, but Mathe stayed back as did a few of his compatriots in different parts of the island. Not much is known

about him except that he eventually settled down in the picturesque little coastal hamlet of Kopen Heat. Since the road had ceased to be motorable due to landslides (and was non-existent in many places), he had little contact with anyone other than the members of a small Nicobari family settled nearby, labourers from the forest department who visited infrequently, and fishermen who pitched camp on the odd occasion. Despite his old age and partial blindness, he tended a little coconut grove which provided him with raw material to brew considerable amounts of toddy which he bartered for provisions. To the occasional researcher who visited his little hamlet, the *budda* (old man) played the perfect host, preparing meals, showing off his toddy tapping skills (though old, blind and bow-legged he was very agile and could climb coconut trees very well) and recounting encounters of previous visitors. The fact that he recollected and recounted in vivid detail, the visits (and often embarrassing accounts) of the dozen or so research personnel who visited him in

as many years, was a source of amusement to all who happened to partake of his hospitality. He was particularly keen to recount the story of a well respected and very senior lady researcher who arrived at Kopen Heat to research indigenous seafaring craft only to fall off one of the *bodis* (country boats) into the sea and her subsequent rescue.

Kopen Heat though sheltered from the sea (lagoon was well known for its stillness of its water and the beautiful view of corals), was destroyed by the tsunami which followed the earthquake off Sumatra in 2004. Most of the settlements on the west coast of Great Nicobar (and its few hundred inhabitants) were wiped out and there were only a few survivors. Unfortunately, Mathe Budda was not among the handful of people who survived, but memories of his warmth and hospitality remain with those of us whose lives he touched.

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Mathe Budda



Ravi Sankaran's Circle

Madhuri Ramesh
and Shirish Manchi

When talking about a person as gregarious as Dr. Ravi Sankaran, the social 'circle' tends towards an ellipse: as someone once said, he was a 'voracious field biologist' and working with him meant not only getting to know wildlife, but also people. He revelled in collecting a motley crew around him, and many of his local assistants went on to become friends and foster family not just his, but also his students' and colleagues'. Of late, he'd been working along a triangular route - in the Andaman & Nicobar Islands on the cave-dwelling edible-nest swiftlet and on post-tsunami changes in the ecosystem, in Rajasthan on the desert-dwelling Indian spiny-tailed lizard and in Nagaland on community conservation efforts. The two anecdotes we've put together are from these places where, as his students, we've either seen or heard these or both.

The Andaman Islands by Shirish Manchi

I first met Dr. Sankaran in 2003 when I joined the edible-nest swiftlet conservation programme in the Andamans. This unique programme aims to combine protection of a threatened bird (*Collocalia fuciphaga*) with sustainable exploitation of its nest. Dr. Sankaran, with the support of the Forest Department of the Andaman and Nicobar Islands, had gradually persuaded people who earlier poached the nests (which are made of bird saliva and have great commercial value) to become protectors and harvest the nests after the breeding season thereby ensuring successful breeding of the birds. Intensive ecological studies were also conducted alongside, which are a part of my doctoral dissertation.

Whenever Dr. Ravi Sankaran and Shirish discussed the swiftlet program, the third person who was always in the picture was Saw Alexander. He started working with Ravi in 1997, during the survey of the edible-nest swiftlets in the Andaman Islands. When I joined them in 2003, I could tell from the way they met, that they were not just colleagues but also very good friends. Ravi used to say that Alex is an *ustad*

in the sea and in the forest, and Alex used say that Boss is an *ustad* in whatever he does. Alex would often talk about Ravi's swimming skills and admit that he couldn't be beaten in diving and spearing fish. Alex felt that Dr. Ravi Sankaran was a person who was keen to learn anything from anybody and also that he was the fastest learner, whether it was dingy riding, throwing fish net, chopping wood or making huts. Alex confided that it was Ravi who led him away from illegal poaching and forest cutting. Ravi felt Alex was the person who saved him with his experience and sense of humor during the first swiftlet survey in 1997. After joining the swiftlet program in 2003, within a short time it was clear that it was a combination of Dr. Sankaran and his local relatives that really made edible-nest swiftlet conservation successful. Now, even after the demise of Ravi Sankaran, Alex is the person who first encouraged Shirish saying, "I am there and we will take this program ahead as Boss wanted."

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Ravi Sankaran in the Andamans



The Thar Desert *by Madhuri Ramesh*



Ravi Sankaran in the Desert National Park

I first met Dr. Sankaran in a workshop in 1998 when I was pursuing my Bachelor's degree. He was an esteemed sounding board for many years and in 2007 agreed to guide me through a PhD on the Indian spiny-tailed lizard (*Uromastyx hardwickii*) in the Thar Desert, on a collaborative project with GNAPE (Group for Nature Preservation and Education). It began with an extensive survey of western Rajasthan to determine the status and distribution of this poorly-studied lizard, since it was believed to be heavily exploited for meat and oil - the well-known '*sanda ka tel*'. This was to lead to a behavioural study of this unusually herbivorous lizard. Dr. Sankaran had worked in the Thar Desert in the 1990s, when he was assessing the role of the grazing enclosures of the Desert National Park. During that period, true to form and

despite the immutable social structure of western Rajasthan in those days, he had made friends who spanned the spectrum including several *dharam bhai*s scattered across the landscape.

One of them, Mohammed Fakira, often cropped up in his recollections. Dr. Sankaran, his brother Hari, and Fakira together went by camel from Sam to the famous Pushkar mela and back. A long, tiring journey by any standards, the entire trip took them 3-4 weeks and they lived like *untwallahs* do - travelling along grazing grounds, watering at the *nadis*, eating *rotla* and sleeping in the open. Like a proper herdsman, Dr. Sankaran would say with a pleased expression 'We brought the camels back in *exactly* the same condition that they were in when we left' and gesture to show you that the hump of the camel was 'Just so' all through. At the end of

that arduous journey, Fakira made him a *dharam bhai*. And fifteen years later, when I accompanied Dr. Sankaran to Sam, he was far from forgotten. He in turn effortlessly slipped back into their social fabric - from the variations in formal greetings to the usual preoccupations with rains, livestock and errant sons.

When he was in a reflective mood, he'd often repeat something Fakira had told him on one leg of the journey, when they had been desperately trying to find fodder for their camels and someone demanded an exorbitant amount for it: "This world is made up of two kinds of people *lenewalle* and *denewalle*" and he'd end with a snort of laughter.

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Turtle Boys

Kartik Shanker

Marine turtles are near mystical creatures, appearing out of the sea at night at particular times each year to lay eggs beneath the sand. They return quietly, letting their eggs incubate in the heat of the sun, to hatch 7 or 8 weeks later. The hatchlings rush into the sea, guided by the reflection of light on the water, and then wander for many years, before finding their way back to their natal beaches to mate and nest again. As if this isn't remarkable enough, olive ridley turtles employ a predator swamping strategy, emerging simultaneously to nest in tens or hundreds of thousands, creating one of nature's extraordinary spectacles – the 'arribadas'. These 'arribadas' occur only in Mexico, Costa Rica, and Orissa on the east coast of India.

I first visited the mass nesting beaches of olive ridley turtles in Gahirmatha, Orissa in 1997. We were a large group of international participants in a sea turtle workshop in Bhubaneswar. We were hosted for two days by Bivash Pandav, a young sea turtle biologist with the Wildlife Institute of India. On Babu Bali or Long Wheeler Island, Bivash had his field camp with a team of dedicated field assistant, boatman and cook. Two years later, I returned as a post-doctoral fellow with the Wildlife Institute of India, to initiate a project on sea turtle genetics, and spent several weeks at the camp. This time, I got to know the team a lot better. There was Madhu, the cook, and major domo of the camp. The boatman (Subash) and the rest of the team (Kalia, Siria and Sahadev) were proficient 'turtle fishers'. Bivash wanted to work on mating pairs, and they had devised a triangular net with which they scooped the mating turtles out of the water. In three years, they tagged nearly 1700 mating pairs from the offshore waters of Gahirmatha. They also tagged several thousand turtles on the nesting beach. Without his dedicated band of followers, little would have been possible.

Later that season, I visited Bivash's camp at the Devi river mouth. There, a young schoolboy named Bichitrananda Biswal (Bichi) was trying to impress upon Bivash his interest in sea turtle conservation. Along with Tuku, Tulu and Bishnu, Bichi kept track of the

dead turtles that were getting washed ashore the Devi coast in large numbers and helped Bivash in tagging turtles during an arribada that took place near the Devi river mouth in March 1997. After working at his camp for three seasons, Bichi kept his interest in turtles alive, working for Operation Kachhapa and the Forest Department. Eventually, he would start his own NGO, Sea Turtle Action Programme (STAP). Today, STAP is a part of collective sea turtle conservation projects in Orissa, and Bichi an active participant. Turtles still continue to die in large numbers along the coast of

the Devi river, and Bichi still continues to keep track of them, keeping the issue alive.

Further south, a similar band of turtle followers were initiated into tagging and counting rituals at Rushikulya. This mass nesting beach was only discovered in 1994, during one of Bivash's surveys of the Orissa coast. Rabindranath Sahu was the fiery leader of this group. After working for Bivash, some of the boys worked briefly for Operation Kachhapa. During the mid 2000s, they assisted Basudev Tripathy with his fieldwork for his PhD and in

Collecting misoriented hatchlings in Rushikulya



turn, Basu helped them get a grant to build an interpretation centre and start their group, the Rushikulya Sea Turtle Protection Committee (RSTPC).

One of the major problems in Rushikulya is light pollution from a nearby highway, aquaculture farms and a chemical factory. Each year, when hatchlings emerged after mass nesting (millions at a time), most would be disoriented and end up in the vegetation behind the beach. Rescue missions were organised involving local volunteers, but hundreds of thousands of hatchlings still died, and even those that were rescued were probably weakened, soon to be devoured. While the biologists – Jack Frazier and Bivash amongst others – posed the idea of a barrier, and suggested the use of empty cement bags, one of the members of the group, Damburu, then came up with the idea of using a fence made of fishing nets, behind the mass nesting area. With funding from WWF and other agencies, for years, this barrier served to prevent hatchlings from straying away from the beach

and getting killed. Today, members of the RSTPC run the interpretation centre at Rushikulya, participate in state conservation activities, spread awareness in local schools and assist researchers who work on sea turtle biology at the site, in addition to their own ongoing monitoring.

Many of them continue to work on research projects as field assistants. Ganapati helped Divya with her Masters dissertation, and continues to work with our projects. Suresh, who is the latest to conduct Doctoral research on ridleys in Orissa, has a dedicated group of field assistants, including Damburu, Shanker, Surendra, Madhu and Kedar. His boatman, Sri Ramalu, has now worked for several years in turtle projects. Despite being hearing and speech impaired, he is gifted with an acute sense of sight, and does not miss even a single surfacing turtle in the featureless seascape. His ability to get the boat through the river mouths where the breakers come crashing down, and maneuvering through rough seas nonstop for six to seven hours are

Measuring olive ridleys on the boat



BIVASH PANDAY



SURESH KUMAR

Sri Ramalu, boatman par excellence

invaluable. Without his enthusiasm, hard work and skills, all the offshore studies would be much the poorer.

For all those who helped with sea turtle projects along the Orissa coast over the years, the projects have been a significant source of income even though the activity is only seasonal. With fish catch declining over the years, many other local fishermen now eagerly look forward to working in turtle projects. Some of them even want to work without pay in order to gain experience so as to get included in future.

From retired residents on the coast of North Carolina, to indigenous communities in the Torres Strait, sea turtles have attracted an incredible variety of dedicated conservationists and volunteers across the world. In India, students, fishing communities

and animal activists have all become involved in sea turtle conservation across the coast, some for more than twenty years. The groups in Orissa had a different origin, working as field assistants in sea turtle research projects. They have helped with three Doctoral (Bivash, Basu, Suresh), several Masters dissertations (Karthik Ram, Basu, Divya, Murali) and several research and conservation projects. Together, the projects have involved the monitoring of nesting beaches, offshore distributions, arribada census, hatching success, tagging, genetics, and satellite telemetry, covering a fair range of research that is carried out on sea turtles. And now, these field assistants turned conservationists have a significant role to play in the conservation of these animals and their coastal and marine habitats, not just in Orissa, but across India.

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BIVASH PANDAV

Triangular net designed by the field assistants

The Best Snake Hunters in the World

Romulus Whitaker

A Brief History

Sometime in the early 1900s, a German fancy leather trader came to India to look for snake skins. We may never know how he found out about the hunting prowess of the Irulas of Chengalpattu District but he very quickly organised what was to become one of the largest snake slaughters the world has ever known.

Using middlemen, often Muslim livestock hide dealers, our German friend started a trade that eventually snowballed into the killing of over 10 million cobras, rat snakes, pythons and Russell's vipers per year. And then it wasn't just the Irulas - soon tribal hunters all over the country got into the act, but none had the finesse and expertise of the Irulas.

The trade was out of control and probably not sustainable for long. Luckily the combination of local and international outcry killed the bulk of the snake skin industry with the ban on exports in 1976, but that put about 5000 Irulas out of a job and hard times followed. In 1978, with 12 Irula friends, I registered a Cooperative Society for Snake Catchers. This was

to let the Irulas continue to catch snakes, but only for the venom and then the snakes had to be released.

How they do it

I first met the Irulas in 1969 when I was on a snake collection trip to Madras for Haffkine Institute, then the biggest producer of antivenom serum. The late photojournalist, Harry Miller had written about the snake hunting art of the Irulas in the Indian Express and he introduced me to Arjun, who blew my mind with his casual skill. From that moment on I had found my peer group – I instantly like their reserved, calm attitude and deeply admired their vast store of wild

knowledge. Over the next 34 years I went on innumerable snake hunts and learned much.

One of the first bits of Irula “magic” they taught me was how to recognise the alarm cry of the babblers, mynahs and palm squirrels when they spot a snake. Very useful, especially after the rains make the bushes dense and snakes are hard to see. I learned how to collect “stick honey” from the small bees that harvest flower nectar every April and how to eat live termites without getting my lips and tongue bitten. Next they tried to teach me how to find snakes by their tracks but decades later, I’m still a rank novice. In a harsh, hot land like India many snakes spend a good part of their lives underground – either hunting, eating and digesting rats or just tiding over the burning daylight hours. The Irulas specialise in finding the rat holes, termite mounds and other places snakes stay in, and that is like real magic.

An average snake hunt

Last July my partner Janaki and I went snake hunting with Kali, a longtime Irula friend. He was catching the “Big Four” venomous snakes: cobra, krait, Russell’s viper and saw-scaled viper for venom extraction. We started with the cobra and headed straight to the boundary of a rice field where mole rat (*Bandicoota bengalensis*) burrows abounded. Scarcely noticing crab holes and rat holes with rat tracks or fresh diggings, Kali homed in on one with a slight smoothness, a shiny bit of compressed dry earth on the bottom edge. He peered in, dug a few licks with his short crowbar and showed us a very obvious snake track impressed on the softer earth deeper down. No root system to hamper work, Kali dug a wide access into the hole swiftly and carefully. Careful so not to cut the snake. After digging awhile, occasionally peering in, Kali

takes a thin, springy, green stick and gently pushes it into the hole about a foot. The stick mysteriously pushes back out an inch. Kali smiles and pushes his elbow to mimic the snake’s coil as it pushes against the stick. Now he knows he can safely dig a foot more without harming the snake. In a few short moments the cobra is visible; it’s obviously a female because she’s with her 20 or so eggs! She is carefully removed and bagged; the eggs are collected for incubation back at the Irula venom center.

Over the next few days our Irula pals took us first to Russell’s viper territory, dense hedgerows of spiny Agave plants and we pulled out two adult and six baby Russell’s (the babies for release in a safe place). Then we went after kraits, the clues this time being a shed skin and a fresh scat. Digging out this elusive snake of the night was more difficult – the large male had found a hole in the root system of a neem tree. But again, no problem for the Irulas; finding the last of the Big Four venomous snakes of India was a snap. We spent the morning peering down into the rough bark of palmyra trees and found several of the tiny but dangerous vipers tightly coiled and well hidden. Again, the Irulas knew where to look: according to the species and the season.

When my son Nikhil and I wrote up the rough data of the 5 day hunt for a scientific note we found that we had slowly and carefully hunted about 3 km per day and caught a total of 55 snakes, including a bunch of rat snakes, water snakes, striped keel backs and sand boas just to measure and release. We also recorded 158 shed skins of 11 species of snakes and started formulating ideas of how to use shed skins to study status and distribution. After all, it’s quite easy to identify a snake from the shed skin.

The author with Irula tribesman Kali, bagging a Russell’s viper



JANAKI LENIN

But the Irula knowledge goes far beyond the world of serpents. Being big consumers of the tasty field rats that abound in our rice fields, the Irulas have worked out rat finding and capture techniques that puts pussycats to shame. A hunter-gatherer can't waste precious time and energy digging up a vacant burrow by small signs like tracks, dung, fresh digging and even the presence of rat lice. They are so good at rat catching that the Government of India's Department of Science and Technology gave the Irula Cooperative a grant of Rs. 10 lakhs to do a pilot project of rodent control by direct capture. During the 20-month period, the Irulas captured over 400,000 rats, probably saving at least 12 tonnes of grain and other crops, without using a drop of deadly pesticide. Unfortunately the project was never taken to its logical conclusion: make rodent control in India a labour intensive operation that

would employ lakhs of tribal people. As usual, the big industries (the pesticide producer) run the show and the Government bows to big bucks, never mind how dangerous and ineffective these rodenticides really are.

The Irula Cooperative is one of the most financially successful cooperatives in India, but it would be wonderful to see the Irulas' other talents being fully utilised for the good of the country and to make a living for them too. Rodent control, crocodile farming, technical assistance to field biologists are just some of the many things the Irulas are expert at. The Coop's sister organisation, the Irula Tribal Women's Welfare Society, has helped Irula women get recognition as herbal and the tree planting experts. They have planted lakhs of trees since they started in 1986 and the future looks a lot brighter for these great people described in recent Government

texts as 'most primitive' and as having the lowest per capita income in the country.

The Irula literacy rate is dismally low and few of their kids finish more than a couple of years of school. On the other hand, their knowledge of nature far surpasses most college graduates or even professors – now that's food for thought!

This brief introduction to the field people I admire most in India would not be complete without mentioning the two non-Irulas who act as the catalysts in the success of the Irula Snake Catchers' Cooperative and the Irula Women's Society: S. Dravidamani and K. Krishnan.

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The Irulas are probably the most effective rat catchers in the world



ROMULUS WHITAKER

Mountain Men

Meera Anna Oommen

Theremoteandpoorlyaccessible Kedarnath, Badarinath and other ancient shrines located high up in the Garhwal Himalaya are some of Hinduism's holiest pilgrimage sites. Religious tourism offers some employment opportunities for people living in the region – as porters, horsemen, and workers in the small restaurants and hotels that spring up seasonally to accommodate the large number of pilgrims. The climbers and tourists who visit the region for its spectacular panoramic views of the peaks such as Kamet, Chaukhamba, Bandar Poonch and Nanda Devi have also been a source of income for the local people in the Garhwal and Kumaon regions.

Gyan Singh belonged to Ransi, a small village in the Rudraprayag District of Garhwal. He was a shepherd most of his life and had, as a result, an in depth knowledge of the valleys and wildlife in the region. Although his patch of land and livestock provided him a source of livelihood, he supplemented his income as a porter based at Gaurikund, the hamlet at the beginning of the Kedarnath trail. During summer, when the trail to the temple was snow-free, the large numbers of devotees visiting the shrine were willing to pay considerable amounts of money to men who carried them or their luggage. Wooden palanquins borne by porters are still a popular mode of transport for pilgrims unable to trek in the tough mountain terrain.

Our association with Gyan Singh started in 1996 when we began our field surveys with the Wildlife Institute of India in Kedarnath Musk Deer Sanctuary. Our project aimed to identify potential areas for conserving biological diversity in the Western

Himalaya and the trans Himalaya. Kedarnath, on account of its wide variety of habitat types, remoteness and large elevational extent was an ideal site for detailed explorations on species diversity patterns which formed the focus of the study. After one of our initial surveys to the area surrounding the Madhyamaheshwar temple, we camped at the inspection bungalow at Akhtauli near Ransi. Although there were a number of porters who were familiar with the temple trails, our search for men who knew the surrounding wildlife sanctuary and who were willing to risk a trek out to the higher valleys in late autumn and unpredictable weather had few takes from villages near the roadhead. Finally, with the help of a forest guard (Ganga Singh) and field assistant Kalyan Singh Bisht (an article about his brother Vikram Singh Bisht by Suresh Kumar, appears in this issue) we were introduced to Gyan Singh and Trilok Singh from Ransi. This team guided us in our surveys through the valleys of Dhaul, Mandani and Kham. Thus began a close association which lasted over five years.

In spite of his taciturn nature and a curious disability (a part of one foot was chewed off during a tussle with a Himalayan black bear which raided his shed, and the other was affected by filariasis), Gyan Singh became the backbone of all field surveys. Stoic and unflappable, his knowledge of trails, campsites, and *odeyars* (large rock overhangs where one could take shelter or tents could be pitched) was phenomenal as was his adeptness at spotting wildlife, predicting the weather and finding running water when everything around was frozen or dry. However, what truly set him apart from the younger men was his uncanny ability to casually chart out courses where no paths existed and in places where he had never been before.

At the old temple at Mandani.

Left to right: Gyan Singh, Trilok Singh, Ganga Singh (forest guard), Kalyan Singh, and Shivakumar and Sushil, porters from Mansoon



RASHID H. RAZA AND MEERA ANNA OOMMEN

He also knew most of the shepherds who camped in the region, and this often helped us in establishing better associations with them.

What he did not like was the drudgery and monotony of laying vegetation plots and during the time we spent counting plants, he would make himself useful by looking for indirect evidence of wildlife within the plots or collecting edible ferns. While sampling in the alpine meadows he was particularly prone to abandon work and disappear looking for *chaura* (*Angelica* sp.) which is a prized flavouring agent. This shortcoming we were willing to forgive since the dinner he prepared would be sumptuous. At the same time, his long years as a shepherd meant that his knowledge of the vernacular names and local uses of plants was considerable and on several occasions he was responsible for resolving issues related to species identification. His self confessed fondness for wild meat (he curbed his appetites during this period) was also instrumental in our sightings of the endangered *chir* pheasant (*Catreus wallichii*) as well as in various wildlife sightings ranging from leopards and musk deer to lammergiers and numerous rare birds. To make up for his own illiteracy and lack of enthusiasm for data collection, he introduced us to two young men from his village – Umed Singh and Birender Singh. These two quick learners, along with Kalyan Singh, helped us establish and maintain over five hundred vegetation and bird plots and numerous quadrats along the considerable sampling gradient which ranged from over 1200 metres in the subtropical zone to alpine meadows and scrub which occurred above 4000 metres. Since bird diversity was to be sampled during different seasons, this meant marking and maintaining the plots at regular intervals to enable revisits.



MEERA ANNA OOMMEN

The Kang Yatze base camp



RASHID H. RAZA

Birender Singh (left) and Umed Singh

While the field surveys involved walking from dawn to dusk on most days and the sampling entailed very hard work in the plots on a similar schedule, the added responsibility of cooking, carrying provisions, shifting and establishing camp frequently meant that on most days there was hardly a break for the men. Additional responsibilities included striking bargains for old sheep with neighbouring shepherds when provisions ran low, returning runaway *bhutia* dogs (Tibetan mastiffs accompanying local shepherds) to their rightful owners, building makeshift bridges across torrential streams and rescuing researchers who fell in (we later found that the undisturbed slopes that we were seeking for sampling remained undisturbed for a reason) and nursing others from periodic bouts of high altitude sickness and giardiasis. On the odd occasion when sampling was concluded early or we had an off day at the base camp, cricket was the preferred form of sport and entertainment. The team also included our driver Jagdish who was good at the game and took it upon himself to train the rest. However, all this was contingent on the availability of

level ground and often we resorted to idleness which was most enjoyable. While the younger men were quick to pick up the game, Gyan Singh struggled to keep up and found it difficult to bowl even once without falling down at the end of his run up. However, his ability to keep wickets and his late blooming batting skills earned him some points and he was christened Ian Healy (after the Queensland cricketer) by Jagdish and some of the children from nearby cattle camps.

For a team of individuals who started work unaccustomed to data collection or long spells away from their families, they showed remarkable commitment and enthusiasm and it was soon clear that they were motivated by much more than the modest salaries they received. In fact, most of these men could get by without regular employment as they owned land and livestock. By the end

of the project period, Umed Singh could correctly identify most woody plant species in the study area by both local as well as Latin names, while Birender could visually estimate the girths of trees to the nearest 10 cm or so. As the project neared completion, we explored options to establish a long-term monitoring research programme that would also provide a source of employment to the team, but the costs were prohibitive and as students our options to raise money were limited. Umed Singh went on to work on a similar project with Rashid Raza in Askot Wildlife Sanctuary while Gyan Singh and Birender Singh stayed back in their village at Ransi. Kalyan Singh, who was the youngest member of the team married a girl from a village near Ransi and fulfilled his long held dream of starting a provision shop in Ghat, his remote and inaccessible village in Chamoli District.

To conclude, we share the same sentiment as the other contributors to this special section. While most of us have been happy to acknowledge the contributions of individuals and certain communities, we feel it is time to develop formal institutional norms for developing long term partnerships that benefit both researchers and field assistants. In addition to basic commitments such as steady incomes and insurance, it is also important to provide recognition on institutional websites and conservation related publications. Field assistants and informers also play a critical role as vital links between their own communities and researchers, often creating opportunities for furthering mutually beneficial partnerships.

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Meera Anna Oommen (along with Rashid H. Raza) worked with the Wildlife Institute of India on a project that aimed to identify potential areas for conservation of biodiversity in the Indian Himalaya. The field surveys for this project were conducted in the Ladakh region of Jammu and Kashmir and the Garhwal Himalaya in Uttaranchal. Gyan Singh, Umed Singh, Birender Singh and Kalyan Singh were members of the team in Kedarnath Musk Deer Sanctuary in Uttaranchal where extensive field studies were conducted.



RASHID H. RAZA AND MEERA ANNA OOMMEN

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