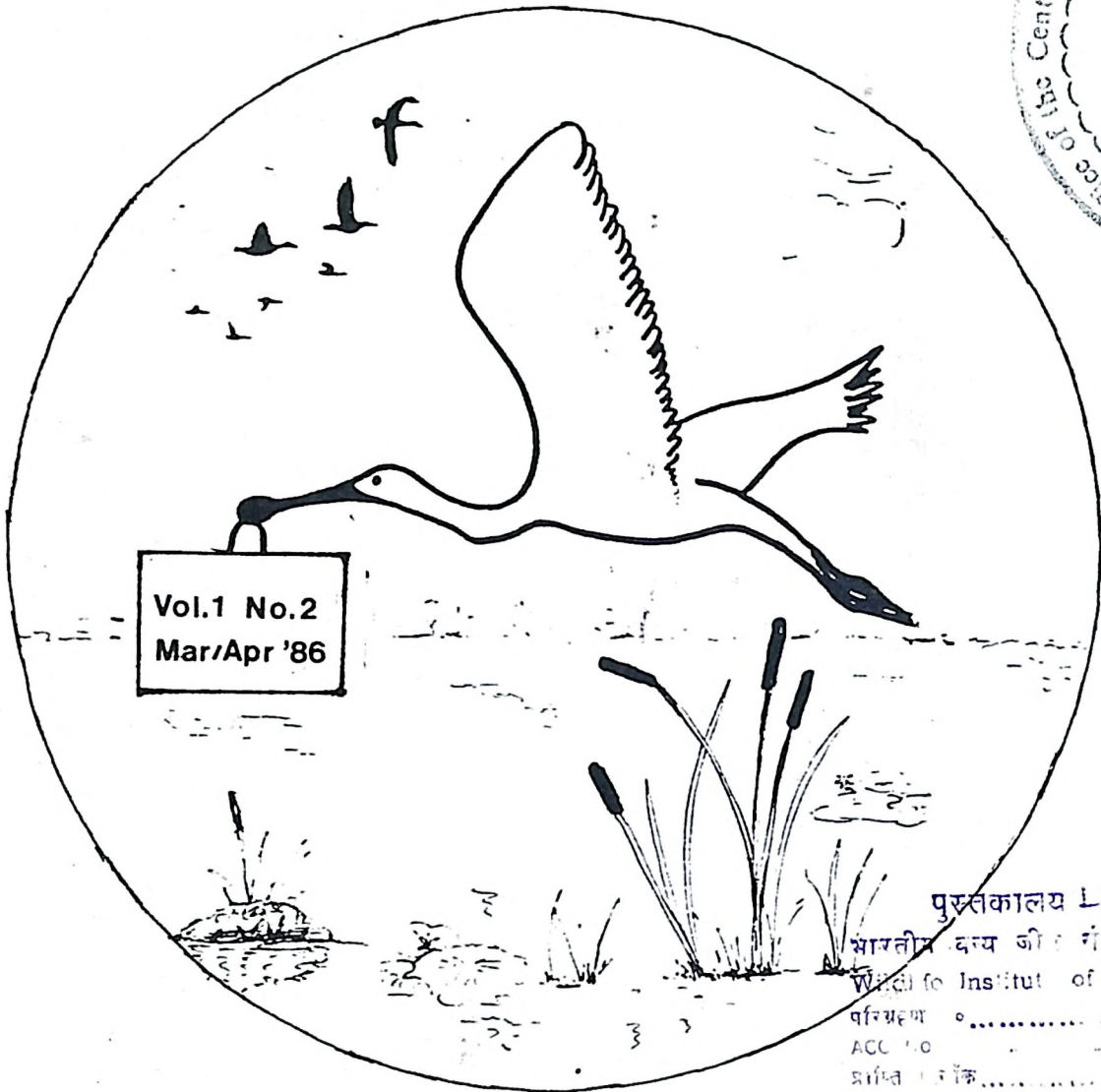
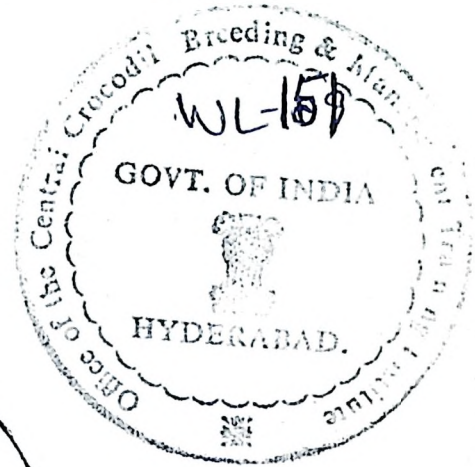


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EDITORIAL

Thanks to your contributions we can present you the second Newsletter of the W.I.I. and we hope you appreciate the change in cover and lay-out. We thank Mrs. Sale very much for her nice illustrations, Rajesh Thapa who did most of the typing work on the wordprocessor and of course Shantini Dawson who helped a lot with editing and lay-out.

In this issue you will find, apart from news about developments at WII and the Crocodile Research Center, brief reports on the progress of three research projects: the snowleopard survey project, the lion project in Gir and the Rajañ elephant project. There are articles on facilities at the institute: the herbarium and the wordprocessor; a few interesting contributions are dealing with various subjects: wildlife damage near Mussoorie, birth-control for lions and a walk in Arunachal. We started a new column "Book Reviews", to which we hope you will all volunteer to contribute.

This issue will also be circulated to the trainees of the last diploma course. We congratulate them all with their diploma and would appreciate if they could provide us with feedback from the field regarding their wildlife management activities. We welcome the 20 new trainees of the third certificate course; contributions and suggestions from their part are also most welcome.

The next issue we hope to bring out in the second week of July. Looking forward to your timely contributions,

G.VAN ITTERSUM
S. CHAUDHURY

DEVELOPMENTS AT THE INSTITUTE

GOVERNING BODY MEETING

The first Governing Body meeting after attaining autonomous status was held on 20 March, 1986. The Governing Body in its deliberations took several important decisions which set the course for the future development of the new Society and realisations of its objectives. Some of the main decisions of the Governing Body are as follows.

1. Taking note of the slow progress of the new campus development of the institute at Chandrabani, the Governing Body decided to delink with CPWD. (More about this in the following article).
2. The Governing Body approved the Recruitment Rules both for Faculty and Technical and Operation and Maintenance Staff.

Accordingly, the recruitment process has been initiated. It is expected that soon the Institute will be equipped with experts in different fields of Wildlife Science.

3. Institute's budget for 1986-87, to the tune of Rs. 1.58 crore was approved. The budget will be released as grant in aid by the Government. As much as Rupees one crore is earmarked for building programme.

4. The Governing Body also approved Institute's membership of IUCN and the constitution of the Research Advisory Committee of the Institute and the rules for its functioning.

PROGRESS OF NEW CAMPUS AT CHANDRABANI

The responsibility of the Institute's new campus development at Chandrabani was given to the CPWD. Some 20 lakh Rupees was earmarked for campus development in the 1985-86 budget. However, the CPWD made no progress and the entire amount lapsed. Hence on attaining autonomy, the Governing Body of the institute decided to cut links with CPWD.

In following up the decision of the Governing Body, an all India competition was announced in all leading newspapers inviting architects to send in an original, imaginative and working design for the Institute. Cash prizes of Rs 75,000/-, Rs 50,000/- and Rs 25,000/- have been announced for the best three entries which will be selected by an eminent jury comprising leading architects and individuals. The construction work is expected to begin after the monsoons.

In the meantime steps are being taken to suitably plant the approach road and other areas during the coming season. One bore-well has been energised and its water has been found potable. Another bore-well is under construction.

There are plans to fence the entire experimental block to ensure adequate protection to initiate important experiments. One such study is pheromone study of large cats in collaboration with ISI, Calcutta.

Attempts are also being made to declare a green belt all round the campus.

H.C. RAIZADA

NEWS FROM THE CROCODILE RESEARCH CENTRE

We congratulate Geri Van Ittersum and Sushant who have brought out the first issue of the Newsletter with a simple cover that will look more majestic next time with a logo, which we hope was selected before the bottle of whisky was consumed by the selection Committee! Guess we are missing out on a lot of fun at headquarters such as sports events.

Congratulations to Shri A. Annathurai, Steno, who was promoted in January. Republic Day was celebrated at CRC with the usual gaiety when Mr. Pushp Kumar, former Director, hoisted the national flag.

Letters from trainees who completed the recent Certificate Course indicate that the four from Kerala and one from Orissa have been posted to wildlife divisions of their choice. We hope other postings will follow suit, and stop us from pondering "Kahan Gaye Woh Log" (as Mr. Pushp Kumar once put it, referring to the disappearance of trained wildlifers from Wildlife Wings!).

Several wildlife students and researchers from A.P. have visited the Centre recently. May their tribe increase! Lectures to a wildlife group from Osmania University, were delivered on the Status of Wildlife Conservation, Crocodile Management in India with an Introduction to Wildlife Utilisation and Management practices in some South Indian Sanctuaries. Other visitors included researchers from the Kakatiya University, Warangal and Nizam College, Hyderabad for consultations in the library. Look for a 'Library Special' in the next issue.

It seems frog leg traders have not given up their stereo-typed thoughts - the First World Conference on Trade in Frogs Legs vis-a-vis Environmental Considerations was held at Calcutta on April 10 and 11, where reportedly

the second part of the title of the conference was almost forgotten! Binod Choudhury represented WII and has promised to send a report for the Newsletter. Currently he is on tour to Anamalai Sanctuary in Tamil Nadu, where he is supervising the release of captive reared mugger in locations identified by himself earlier.

The Editor of Crocodile Specialist Group Newsletter has commented on the 1985 report, Gharial population trend in National Chambal Sanctuary with notes on Radio-tracking, "a very valuable piece of work and I will copy it for our department Library"; while I understand another recipient has kept this 'heavy weight' on his puja shelf. In an attempt to recognise the roles played by other vertebrates in the life of gharial and the management of the sanctuary, other studies were carried out; one on the habits and distribution pattern of the Gangetic dolphin and another on the pattern of avi-fauna fluctuation. A report on the former (L.A.K. Singh and R.K. Sharma) appeared in the Journal of Bombay Natural History Society, in December '85 and one on the latter study (R.K. Sharma and L.A.K. Singh) is expected to be completed shortly.

Research Fellow Dr. R.J. Rao at camp in National Chambal Sanctuary attended the 7th All India Congress of Zoology in Meerut and an International Workshop on Surface Water Management at Bhopal during January. Later he visited Ghana Bird Sanctuary. RJ has produced a report on these two conferences and a review on the Research on Wildlife in National Chambal Sanctuary and Ghana Bird Sanctuary.

L.A.K. SINGH

THE 2ND CERTIFICATE COURSE IN WILDLIFE MANAGEMENT AT HYDERABAD

The 3-month Certificate Course in Wildlife Management, for inservice Range Officers from the southern region, commenced on 1 January at the W.I.I. Crocodile Research Centre, Hyderabad. Sixteen trainees, including one Sri Lankan, sponsored by eight agencies participated in the programme consisting of 120 lectures and 65 hours of practical work in zoos and deer parks, plus seminars and library work. Wildlife films were also screened. On Saturdays, when in headquarters, the trainees made field visits to areas of wildlife significance in and around Hyderabad.

The trainees were on field tours for a total of 5 weeks. The Wildlife Techniques tour was held in Nagarjunsagar-Srisailam Tiger Reserve and the Great Indian Bustard area at Rollapadu in Kurnool District. During the Wildlife Management tour participants were exposed to management practices and strategies adopted in Ranganathitoo Bird Sanctuary, Bandipur Tiger Reserve, Mudumalai, Nilgiri Tahr, Anamalai and Parambikulam Sanctuaries while at Mysore and Bangalore the trainees visited the Mysore Zoo and Bannarghatta National Park. At Hyderabad, Nehru Zoological Park, Mahavir Harin Vanasthaly and Chilkur Deer Park were used for wildlife exercises.

To broaden the knowledge of the participants in the field of wildlife conservation, several special lectures were delivered by Prof. J.V. Ramana Rao (Osmania University), Shri Pushp Kumar (Addl. C.C.F. (WL) Andhra Pradesh), Shri T. Ramakrishna (Director, Zoological Parks, Andhra Pradesh) and Dr. Mir Gower Ali Khan (Dy. Director, A.H. (Rtd.), Nehru Zoological Park).

The final examination of the course was held in the last week of March. A modest valedictory function was held on the 31st when Shri Pushp Kumar, the Chief Guest, gave away awards and certificates to all the 16 successful participants. Shri B. Sugirtharaj and Shri J.K. Dash finished the course with honours and Shri B. Sugirtharaj, Shri V. Valaguruvan, Shri J.K. Dash and Shri John Augustine Nirmal won special awards. The Director, Shri H.S. Panwar, in his address highlighted the future role of WII, as regards training and research on wildlife in South East Asia.

K.G.M. PILLAI

LECTURE ON MANAGEMENT PLANNING IN USA

On Monday 3 March, Dr. Hall Salwasser of the US Forest Department (Biology section) visited our institute together with a team of 6 other Americans, who attended the Aligargh meeting the week before. Dr. Salwasser presented an educative slide show on management of National Parks in the United States. He explained the systematic planning approach as developed in his department. In particular he discussed the 8 management steps for wildlife protection:

1. Species selection
2. Co-ordination (of interest groups)
3. Collect and organise species information (end product: a habitat capability model)
4. Develop planning and analysis of models
5. Develop range of management situations
6. Risk analysis options
7. Complete evaluation of options
8. Decisions, actions, monitoring.

His presentation was very clear and simple, and gave thumb rules for risk for calamities, genetic erosion and population dynamics. He also presented a scale of 10 protection classes.

There was quite lot of discussion on protection priorities, conflicts, financial applications etc., in which the US and Indian situations were compared.

One of the differences was the high use of National Parks for recreational purposes in the United States, which is at the same time a source of income. He suggested a rise in entrance fees for National Parks in India for foreigners to finance management and research.

G.VAN ITTERSUM

WORKSHOP ON THE ROLE OF ARMY IN WILDLIFE CONSERVATIONS

A workshop on the Role of Army in Wildlife Conservation was organised by the Institute between April 7-13. It was attended by 20 army officers deputed by Army Headquarters, New Delhi.

The main thrust of the workshop was to identify the role of army officers in nature conservation, and lectures and field visits were developed accordingly. The officers showed keen interest both in the field and at lectures.

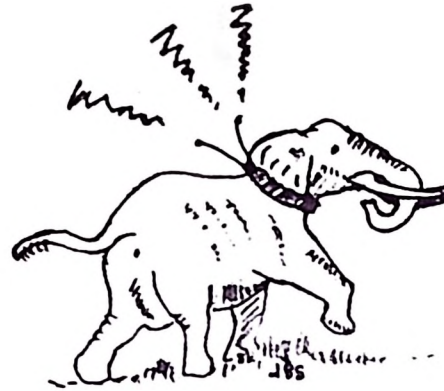
The workshop opened new vistas for close cooperation in the entire field of nature conservation between professionals and army officers. It was decided that the Institute will hold the next workshop sometime towards the end of the year, in a National Park so that more time could be devoted for field trips.

H.C. RAIZADA

THE RAJAJI ELEPHANT PROJECT

The elephant habitat utilization project is one of a number of WII research projects aimed at providing ecological data on the Rajaji Sanctuary near to Dehra Dun, as a basis for its scientific management. The main objective is to examine the year-round pattern of habitat usage by the elephant population of Motichur and Rajaji Sanctuaries and adjacent forests - the western extremity of the elephant's range in India. These elephants, which were formerly part of the same population that occurs in Chilla Sanctuary, have had their former eastern migration route blocked by the Chilla power channel on the east bank of the Ganga and are now confined to the area west of the river. The research programme is investigating whether the reduced habitat available to these elephants adequately provides for their needs and the manner in which resources such as space, food, water and shade are used by the herds on a seasonal basis. Aspects such as disturbance by graziers and forestry operations, are also being evaluated. An understanding of the relative importance of all these factors should provide a firm basis for elephant management planning, especially in the context of the proposed Rajaji National Park.

A preliminary phase of the project was commenced in 1983 and worked out basic approaches for the study, such as the main seasonal foci of elephant occupancy and the possibilities of using radio-tracking to follow the detailed movements of a few individuals. Procedure and drug dosages for immobilising elephants in order to fit them with radio-collars was refined and is the subject of the first scientific report from the project (Sale, J.B., Rishi, V., Singh, K.N. and Verma, V.K., Drug immobilisation of the Indian Elephant, J. Bombay Natural History Society In press). Radio collars had to be modified in order to prevent elephants from detaching the transmitter unit from the webbing collar, which they appeared to achieve by tugging at the aerial with their trunks.



The plastic block containing the radio is now attached to the collar with steel bolts and the free length of the aerial has been reduced. The two ends of the collar are firmly clamped together with two steel plates to prevent its removal by the elephant wearing it.

The main phase of the study commenced late in 1985 with myself, Dr. Sushant Chaudhury and Shri V.K. Verma, the local Wildlife Warden, as the main investigators. A Research Fellow is presently being recruited to spearhead field operations and WII and U.P. Forest Department are each to provide three Field Assistants for routine aspects of the work. The first of these, Shri Md. Yaseem, has been on the job for the past 6 months, faithfully collecting data from a radio-collared tusker, under trying field conditions. The animal remained in the blocks around the Dholkand area, in the company of the herd in which he was originally collared, from January to late March. After moving westwards to the Chillawali area with the herd, the tusker finally parted company with them in early April, since when he has been in the Mohund area, sometimes alone, sometimes in the company of another male. Detailed tracking of other tuskers will reveal the degree to which the changing seasonal patterns of this animal's habitat usage are typical. The probably different patterns of movement of cow-calf units will be studied, once some radio-collared females are "on the air". In the meantime, a good deal can be gleaned from careful observation of uncollared but identified herds and individuals, as they are encountered from time to time, while researchers traverse the forests.

Research of this kind is seldom without its tribulations. Many attempts to immobilise and collar a selected elephant fail - maybe due to inadequate immobilisation because of some kind of dart malfunctioning or perhaps for no better reason than the fact that the collar prepared turns out to be too small for the elephant's neck (no case of this so far on this project!). Problems which arose following an inadequate immobilisation in February have held up further collaring of elephants in Rajaï for the past several months. However, such hold-ups are not uncommon when new techniques in wildlife research are being introduced and one has to patiently try and convince colleagues that the positive benefits obtained from the technique outweigh the disadvantages. The benefits in this case are the wealth of continuous data on seasonal resource utilization by a number of radio-collared elephants - quantified detail on the ecology of Rajaï elephants that cannot be obtained in any other way and that will provide a firm understanding of their requirements on which improved management can be designed.

J.B. SALE

FROM LION COUNTRY

A stiff breeze tugged at our clothes as we ascended the hill which overlooks the jungles north of the Sasan village. We had a sweeping view of the lush green riverine vegetation, of the village and the surrounding agricultural settlements. Shrill alarm calls of chital rend the early morning silence adding to the excitement and heightening our expectations. Settling down on the rock slabs at the summit we began to scan with our binoculars. Along with me were Mr. Narve DCF (Sasan), Mr. Berkmuller (FAO/WII) and Abba Japfer (probably the most experienced and knowledgable tracker of lions).

From our vantage point I soon located a big wild boar rooting about in the open teak forest. The boar moved about quite unhurriedly and I began to scan other areas. To my great surprise, when I attempted to relocate the boar, an adult lioness came into view instead. She was apparently stalking the boar and a little later I noticed that the lioness was accompanied by two more lionesses. The three of them spread out in formation, in a bid to make a meal of the boar. The boar probably smelt the lions as he took to flight before the lioness could get within charging distance.

The lionesses settled down for a short rest and then regrouped. That's when we saw the entire hunting party of five adult lionesses. On regrouping they greeted each other by rubbing faces and licking each other. Slowly the pride made it's way through the teak forest and disappeared behind a spur of rock, heading for the cool cover of the riverine vegetation, where they would lie up during the heat of the day.



I am on a Wildlife Institute project looking at predation and ranging patterns of lions under the guidance of Dr. A.J.T. Johnsingh and Dr. J.B. Sale. We are aiming to get data on prey and space requirements of lions; the ultimate management objective being to translocate some lions into suitable alternate habitats. Six lions will soon be radio-collared enabling me to locate them

easily and to study individual predation and movement patterns and habitat use. I am concurrently working for my doctoral degree, being registered with Saurashtra University, Rajkot under Prof. R.M. Naik.

When I began work in early February 1986, I was quite amazed that such a dry and barren looking forest was able to support such a large population of big cats (239 lions and 210 leopards, 1985 census). Having been used to the moist tropical forests of the Western ghats, it was a bit strange to work in the dry deciduous teak and Acacia forest and grasslands. Since those initial days of confusion, I have got a feel for this tract, the wildlife and the people therein.

Lions can be sighted easily early in the mornings upto about 0700 hrs and again in the evenings after 1800 hrs. During the heat of the day they seek shelter under the densely growing Carissa bushes or in the cool nullah beds. There are exceptions of course; I have observed a lioness stalk chital on the Macchundary river bed at about 1000 hrs when it was really hot. Probably the lioness was too hungry to notice the heat.

The most frequently encountered pride has been a group of 3 lionesses and 3 cubs. The lionesses are in their prime while one cub is about 18 months old and beginning to grow a mane, the other two are about a year old. This pride regularly appears in the 'lion-show' for the benefit of tourists.

Work often begins for me by 5 in the morning. Most of it is trekking on foot, tracking lions, photographing them, looking for kill remains, determining prey distribution and taking notes of the habitat. I am in the process of choosing sites for intensive study one of which would be in Eastern Gir, in the acacia grassland habitat, the other would be around Sasan looking at the baited prides and a third would be in the teak forests of Western Gir.

I have been able to collect information on quite a few chital and sambar kills of lions and leopards. The major prey species are chital, sambar, nilgai, wild pigs, chinkara, four-horned antelope, hare and peacocks. The hanuman langur may also be eaten. Quite a number of buffaloes are killed too.

It is a hair raising experience to listen to the lions roaring. The best time to hear them is before sunrise. Once while walking around the Singhoda reservoir, I heard lions roaring from five different directions. The sun was yet to rise and deep throated roars in the misty darkness is something that I will never forget.

Soon after the monsoon, the radio collars should be on the lions and from then on I will continuously monitor lion movement and gather data on other aspects of their ecology.

Currently Saurashtra is experiencing a very bad drought. Fortunately the wildlife is not badly affected as most of the nullahs still retain pools of water. The Gujarat forest department has to be commended for the excellent work they have done by the provision of numerous artificial water holes.

Apart from the lions, Gir has much more to offer. It holds the largest wild breeding population of mugger crocodiles and has a wealth of avi-fauna, especially raptors (honey and white eyed buzzard, crested hawk eagle, osprey, crested serpent eagle, shikra, to name a few).

There is so much to do and I conclude with the hope that all that has to be done will be achieved.

R. CHELLAM



SNOW LEOPARD SURVEY PROJECT

In November of 1985, a nine-month survey of the snow leopard and its associated prey in north western India began under the auspices of W.I.I. The project has been organized as a cooperative international effort among the Government of India (WII), the United States Fish and Wildlife Service, and the International Snow Leopard Trust. Dr. J.L. Fox, Research Director of the Snow Leopard Trust, is accompanying the field survey team, which comprises three research scholars from W.I.I. - S.P. Sinha (Zoologist), R.S. Chundawat (Botanist), and P.K. Das (Social Scientist). The project is guided by the Director W.I.I. and mountaineering expert Mr. Alok Chandola, is a consultant.

The research team initiated field work in the trans-Himalayan mountains of Ladakh and continued surveys in this region until the end of March. In April the survey location was changed to the south side of the Himalayas, first in north-western Uttar Pradesh, and then in May to northern Himachal Pradesh. During June the team will continue moving north over the main crest of the Himalayas, back into Ladakh, and complete the field work there in mid-July.

Data are being collected on snow leopard presence, conservation status, habitat use, and interaction with human activities. Similar information gathering on the main prey species, blue sheep and ibex, along with the snow leopard data, represent the main thrust of the surveys. However, corollary information on other mammalian species in the survey areas is collected whenever possible. With regard to main activities within snow leopard range, data are being collected on local human populations, land use, and attitude towards wildlife.

To date, the research team has encountered evidence of snow leopard presence in each of the general survey locations, although the Markha Valley region south of Heli in Ladakh has produced the most. Substantial data has been collected on snow leopard habitat use, based on tracking of the leopards (primarily in snow). Two sightings have been made, of different individuals, both in the Markha Valley region, including some 30 hours of visual observation. Some 250 ibex and 400 blue sheep have been observed and appropriate habitat use information collected. The snow leopard is an important predator on livestock in Ladakh. However, because in many cases the villagers are able to retrieve the kill from

the leopard, this predation is tolerated without great concern - except when the leopard kills many animals at once, which occurs occasionally when one gets into a pen inside a house. Such instances often provide an opportunity to kill the snow leopard, and represent an important conservation problem with regard to this endangered species.

The survey work will terminate in July this year, but the project will continue with selection of a site for more intensive studies on the snow leopard and associated species (probably Markha Valley) to begin next year. In addition, other conservation or wildlife research questions raised as a result of these surveys will provide part of the foundation for establishing research priorities of the currently emerging Alpine Ecology Center of the Wildlife Institute. Most of the sites surveyed are within either established or proposed National Parks and reserves, and the survey results will be used in formulating management plans for these areas.

Results of the snow leopard surveys will be presented at the Fifth International Snow Leopard Symposium to be held in Srinagar, Jammu and Kashmir, from 10-15 October of 1986.

J.L. FOX

A WALK TO PANGE

On 22nd April I had the chance to walk from Ziro (5000') to Pange (6300') looking for large mammals and their evidences of their presence. Ziro is the headquarters of Lower Subansiri district in Arunachal Pradesh and

Pange, which is 13 km from Ziro through a short cut, is an abandoned forest range headquarters. My original programme was to stay in Pange for two nights and explore the Tale valley (8000') which is 15 km from Pange. But due to unforeseen developments I could undertake only the walk.

The Pange - Tale valley area is unique in having the blue pine (Pinus excelsa) at lower elevations (5000 - 6000') and broad leaved trees at higher elevations (8000'). According to Mr. J.K. Mehta, Chief Wildlife Warden of Arunachal Pradesh, Tale valley is one potential area where takin (a goat-antelope and its scientific name is Budorcas taxicolor) and wild mythun (said to be a hybrid between gaur and domestic cattle, but some believe that mythun is a different type of gaur) could be found. With hopes of seeing Red jungle fowl, pheasants, hornbills, Malayan giant squirrel, capped langur and tracks of barking deer and sambar, I walked 24 km in total along a newly built forest road which runs through excellent forests with dense bamboo and tall moss covered trees. I was totally disappointed with what I saw, which were numerous tracks of tame mythuns and a tame mythun itself coming out of an abandoned shelter built by the road workers.

One spoor near Pange looked like that of a porcupine to me, but porcupine droppings were conspicuously absent all through my trek. However, scats of one species of lesser cat, possibly of leopard cat, were common all along. I was surprised to learn that inspite of the abundant bamboo and perennial streams elephants have never lived in Pange - Tale valley area. It is well known that tribals in Arunachal are very fond of hunting and still hunt all animals that are edible to them. This may explain the paucity of wildlife I saw in this tract.

A.J.T. JOHNSINGH



POTATOES, PIGS AND RUBBLE WALLS

Crop damage by wildlife has always been a feature of the little Himalayan village of Moldhar, north of Mussoorie. However, because of the high value of its cash crops no-one really bothered, at least, not until the 1970's when the market for Moldhar's seed potatoes disappeared and wildlife damage increased. Today, freshly sprouted wheat is grazed by deer and just before the grain ripens in April the wheat fields are invaded by flocks of monkeys; while wild boar dig up the potatoes, often before they have even germinated. Many fields bordering the forest have been abandoned and, paradoxically, now provide excellent cover for wildlife during the major crop-raiding season of April and May.

In an attempt to control the menace, some families hire chowkidars to scare the animals away - a method which depends on the reliability of the people hired. Others take up abode in the fields themselves during the peak damage period; success in repelling the marauders depending on their ability to stay awake at night. Best control is achieved by building rubble walls along the front edge but

this may merely divert the problem to neighbour's crops. Yet other families rely on the gods or simply give up.

A well built wall would undoubtedly solve much of the problem, especially the serious damage caused by wild boars. It is reported that government provision (Rs. 50,000) for a rubble wall made 11 years ago was subsequently withdrawn and recent appeals for official help have not been effective. Why don't villagers build themselves a wall from material available on the spot? Perhaps because of prevailing social factors. Families who have built a wall already are not interested, while those with a lot of land are content to accept some degree of loss. The majority of families are simply unable to participate in a volunteer project because all their able-bodied members are working away from the village in order to earn some cash.

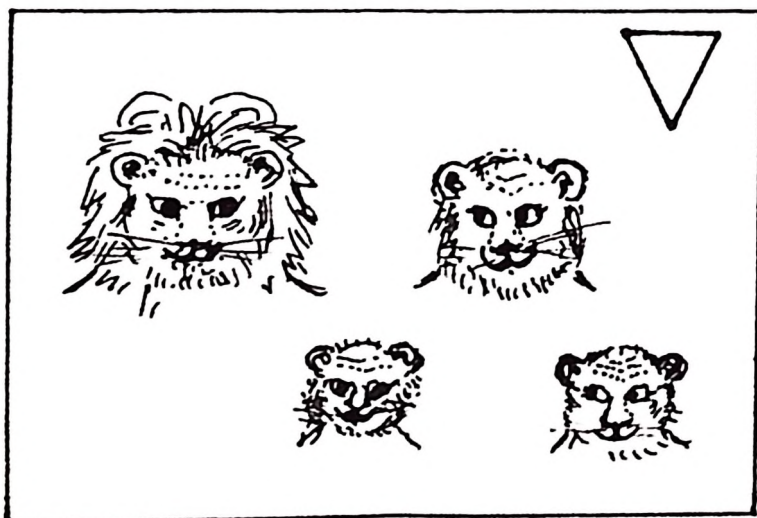
The study I am carrying out on Moldhar's problem raises the important question; "who is responsible for wildlife damage, and who is going to finance and implement measures to prevent it?"

What can WII do? Should we be interested in these problems? I think we should. Indications are that conflict between wildlife and man is increasing. Research could analyse various aspects of damage to crops, such as identification and quantification of depredation by different animal species, their relationships with habitat factors, control measures etc. Such studies involve a lot of field work and WII would realistically only be able to look into a few well-defined situations. However, research in this field is much needed and could ultimately lead to a more adequate structure for the control of wild animal damage in India.

B. SCHULTZ

BIRTH CONTROL FOR INDIA'S CAPTIVE LIONS

A good number of Indian zoos and zoological parks are facing a problem of overpopulation of lions which has led to severe financial constraints. To combat this problem, several overseas organisations were approached and as a result Dr. Nan Schaffer, a veterinarian from Lincoln Park Zoo, USA visited India during March '85 and conducted vasectomy



operations on 4 male lions in Mysore Zoo. The latest technique in lion population control, however, is by hormonal transplant which inhibits ovulation.

Our Director, Shri H.S. Panwar on return from his recent visit to USA, brought back about 23 hormonal implants for use in lionesses in India. Within another couple of weeks these will be implanted in selected lionesses at Junagadh Zoo in Gujarat and Sanjay Gandhi National Park, Borivili, Bombay who have approached for technical assistance.

Contraceptive injections and implants have become increasingly popular as a means of regulating the reproductive activities of many large captive felids. Investigations by the University of Natal's Department of Zoology and Institute of Natural Resources in South Africa indicates that this technique can be applied successfully to the management of wild lion populations. The study was undertaken at Etosha National Park where lion numbers are abnormally high. To make the lions easily available, prey movements were artificially restricted by the erection of a boundary fence and creation of man-made water holes. There was also an increased incidence of anthrax in wild ungulates which increased prey availability. Lionesses in several prides were treated with either a single injection of progesterone acetate or a silicon rubber implant containing melengestrol acetate. This treatment inhibits ovulation and is effective for up to four years. All treated lionesses were monitored for after-effects and behavioural changes.

This technique has now become so refined that it is possible to reduce a population to a predetermined percentage. Hopefully success in our present venture with this technique, under the guidance of Shri H.S. Panwar and Dr. Ulysses Seal, will mark the beginning of a new era in the control of captive lion numbers in India.

K.K. BHATTACHARJEE

WORDPROCESSOR OR TYPEWRITER?

As I wrote in the last issue, our computers are mainly used for word processing, nearly 80-90% of the time. It is an extremely useful application, especially when one is not good in typing, like me. It saves lots of correction ink and annoyance. How does it work?

There are many wordprocessing programmes which have their own specialities. Here I will describe only the main possibilities our wordprocessor 'Format 80' offers.

You start entering text like on an ordinary typewriter. When you finish a page, you can change text, insert or delete characters, create paragraphs, center text, reset the margins, move the words horizontally or lines vertically, underline text or transfer a whole paragraph. You may do all this and much more by pressing the right buttons.

There are more advantages. It is possible to produce several copies of a page. You can store your text on a diskette (30-40 pages) to be printed or edited later. With the mailing list option you can type address labels or letter headings e.g. for addressees receiving the Newsletter.

As you may have guessed this newsletter is edited on the wordprocessor.

Should we throw all the typewriters out the window now and rush to the screens? Please don't! There are a few drawbacks. Equipment is much more expensive of course, especially if you want a good letter quality printer. We do have the equipment already, but the two machines will not be sufficient to deal with all the typing work at the Institute. For routine letters it is better to use typewriters. You are not dependant on the electricity supply, and a trained typist will find that it is quicker to type a letter on a typewriter than to walk to the computer room, switch the machine on (if not occupied already), load the programme etc.

Add to this the fact that nobody is perfect and may lose by mistake his file or all the information stored on the diskette. A cry, sigh or curse from behind me in the computer room tells me that somebody again watches an empty screen where he expected his text. People are very inventive in finding new ways to lose their files (users please note my memo on this matter!)

I would suggest to use the wordprocessor only when you have a report to write that needs repeated corrections and changes later on (in text or layout) or when you have to print the same text in different contexts (e.g., the same letter with different headings) or for listings (plants, books) which later have to be added to. I also use it often to make pre-formats for field surveys.

The programme is easy to learn (in 2 mornings) and you get fully acquainted to it after approximately 2 weeks, if you are a regular user.

You are welcome to do an introduction course.

G.VAN ITTERSUM

A HERBARIUM FOR THE WII - DO WE NEED ONE?

Many applications of wildlife science require an understanding of the plant base of wildlife habitats. Descriptions of protected areas, restoration of degraded vegetation, analysing habitat requirements, studying diets of herbivores, all require the ability to identify plant species. Increasingly, conservationists are concerned with plant species in their own right, and consider plants as an integral part of "wildlife". Many rare and endangered species require protection. Managers thus must be aware of their identity. With over 15,000 species of higher plant in the country, no one person, not even a specialist botanist, can remember the name of anything more than a fraction of this total. A fully annotated identified reference collection, is a necessary aid for identification.

"Ah", readers may argue, "why do we need another herbarium in Dehra Dun, when we already have the extensive Forest Research Institute and Botanical Survey of India herbaria?" The answer is simple. Theirs are taxonomic collections, not really to be pulled out and examined by increasing numbers of wildlife trainees and ecologists. We need a working herbarium, where we can put a sheet under a microscope to examine a leaf, so we can check the identity of a food fragment from the stomach of a spotted deer. We need a herbarium, so we can pull out thirty species of important weed to show to visiting managers, and which they can handle and feel and get to recognize the plant by field characters, not the number of stamens and position of the ovary.



Taxonomists would be horrified if we were to do this to FRI/BSI collections - so we need our own!

What progress have we made?

Collections by staff and trainees of the Institute total well over 2,500 specimens, probably representing close to 2,000 species in 150 families. Nearly all collections come from

wildlife areas, as far apart as Kaziranga in Assam, to Sariska in Rajasthan, to Tirunneveli in south Tamil Nadu. Major collections are from Sariska Tiger Reserve, where we run many training tours; a preliminary list is over 300 species and a description of the vegetation there is now being written. Our local sanctuary, Rajaji, is also well collected, the list approaches 450 species.

Over half the specimens are fully mounted, labelled and poisoned to prevent insect attack.

"Where is this herbarium?" you might ask. A good question, as it is still in cupboards in my house, from where it frequently overflows onto floors, shelves and chairs much to the horror of my wife. A permanent home in one of

our outlying bungalows has been promised, and proper cupboards have been built. We await the room, then the collection can be arranged properly and put to use. Progress is slow, especially in naming and mounting, but slowly we are making our mark. New records from Kaziranga National Park a checklist for Sariska, a possible recollection of a rare plant in Meghalaya and confirmation of southern endemics in sanctuaries are amongst our achievements to date.

W.A. RODGERS





Book Reviews

1984. G.J. COOK. THE ART TO MAKING PEOPLE LISTEN TO YOU. Vikas Publishing House Pvt Ltd, Ghaziabad.

If you skip the 60 pages about the "sales talk conference", you have 130 pages of inspiring reading about the art of public speaking and persuasive communication. The book contains much sound advice liberally illustrated with example which makes for easy reading.

Highly recommended for faculty who wish to improve their lecture performance and their effectiveness in staff meetings. Discover the "bulldozer", the "rebuttal instinct", the "wandering mind", the "emotional screen" inside yourself and others. Nobody is perfect!!!

K. BERMULLER

BOOKS ON TROPICAL EVERGREEN FORESTS

Four important books on the ecology of tropical forests are in, or about to be in, the library of W.I.I. These are: P.W. Richards, "THE TROPICAL RAIN FOREST", a new printing of the 1952 classic; British Ecological Society's 1983 symposium volume on "TROPICAL RAIN FOREST: ECOLOGY AND MANAGEMENT" edited by Sutton, Whitmore and

Chadwick, T.C. Whitmore's "TROPICAL RAIN FORESTS OF THE FAR EAST", in a new 1984 edition, and D.J. Mabberley's "TROPICAL RAIN FOREST ECOLOGY", a much smaller book, of 1983.

It is important to state at the outset that none of these books have material directly dealing with Indian Evergreen Forest. This is not because India's forests have nothing of value, they are of exceptional biological and management interest, but because there has been little detailed quantitative study leading to the formation of ecological theory and concept. The B.E.S. symposium's supplementary volume of secondary paper does have a paper describing the levels of ecological richness of the Silent Valley system by J.S. Singh and associates. Given this lack of direct Indian material, which of these books are considered to be useful to the interested reader?

The B.E.S. volume I think is the most disappointing, with a preponderance of papers dealing with the minutiae of invertebrates and nutrient cycling. This rather reflects the interests of many western ecologists, as well as being the sort of study that is possible in a series of short research visits to the tropics. The title suggests management issues are discussed, there is only a little input, notably by Dr. Ng of the FRI Malaysia, who details many ecological principles for rain forest conservation. Paul Richards has an interesting short paper discussing the idea of stratification in tropical rain forest. In brief he believes strata are conspicuous in single dominant forest (par excellence in sal!) but not evident in multi species forest and he considers the concept of little practical or theoretical use.

Richard's own book has been a principal text for forest ecologists for over 30 years, and is still a valuable information source. Much however has happened in tropical forest ecology in the last decades and the text is rather dated. New ideas of gap-theory, co-evolution and nutrient-energy flow are inadequately covered.

Whitmore's book has 350 large format pages, with many illustrations, and a bibliography of 1200 references. Whitmore is a forester, who teaches in the Oxford Forestry School and CFI. Forest managers as well as ecologists will appreciate his clear subject outlines and non-neglect of management issues, including the consequences of logging. Animals are mentioned in most of the chapters. The book largely deals with Malaysia and Indonesia.

Mabberley's book of 150 pages is cheap enough and available in India (Rs. 180) to be purchased by all interested in tropical forests. Mabberley teaches forest ecology at Oxford, and the text reflects his courses - clear, well illustrated and well referenced material bringing the subject both up to date and alive, and interesting. Which to read? Browse through all, more carefully at Whitmore and try and buy Mabberley for your own collection.

W.A. RODGERS

New Aquisitions

A selection of books and reports related to wildlife that were added to the library during March and April 1986, is listed below. A complete list is in the library.

- Shaw, J.H.; Introduction to Wildlife Management, 1985.
- Anonymous; Marine Mammals, 1985.
- Whitaker, R.; Endangered Andamans, 1985.
- Anonymous; Materials for a Catalogue of Threatened Plants of India, 1983.

- Ali, Salim; Study of Ecology of certain endangered species of Wildlife and their Habitats, 1985.
- Anonymous; Service Management Plan U.S. Fish and Wild life Service, 1980.
- Rama Rao, J.V.; Management and Husbandry of Black Buck, 1982.
- Kotwal, P.C.; Annotated list of flowering Plants of Kanha National Park, M.P., 1983.
- Bandyopadhyay, J.; India's Environment Crises and Responses, 1985.
- Pant, G.B.; Forest Problems in Kumaon, 1922.
- Singh, J.S.; Environmental Regeneration in Himalaya: Concepts and Strategies, 1985.
- Grime, J.P.; Plant strategies and vegetation processes, 1979.
- Schad, W.; Man and Mammals: Towards a Biology of form, 1977.
- Gilmore, D.; Environmental Factors in Mammal Reproduction, 1981.
- Duffey, E.; Grassland Ecology and Wildlife Management, 1974.
- Wallace, R.A.; Animal behaviour: Its Development Ecology and Evolution, 1979.
- Gubernick, D.J.; Parental care in Mammals, 1981.
- Barash, D.; Sociobiology: The Whisperings Within, 1980.
- Neiburger, M.; Understanding our Atmospheric Environment, 1973.
- McEvoy III J.; Handbook for Environmental Planning: The Social Consequences of Environmental Change, 1977.
- Fitzsimons, J.O.C.; Pheasant and their Enemies, 1979

- Lamb, M.J.; Biology of Ageing, 1977.
- Montali, R.J.; Mycobacterial Infections of Zoo Animals, 1978.
- Adamson, J.; Queen of Shaba: The story of an African Leopard, 1980.
- Van Den Bosch, R.; Biological Control, 1974.
- Bonner, J.T.; Evolution of Culture in Animals, 1980.
- Moody, R.; Prehistoric Life, 1983.
- Strong, D.R.; Ecological Communities. Conceptual Issues and the Evidence, 1984.
- Sokal, R.R.; Biometry: The principles and Practice of Statistics in Biological Research, 1969.
- Asdell, S.A.; Patterns of Mammalian Reproduction, 1964.
- Martin, R.D.; Prosimian Biology, 1974.
- Jayaram, K.C.; Fresh water Fishes of India, Pakistan, Bangladesh, Burma and Sri Lanka - A Hand Book, 1981.
- Ghosh, A.K.; Hand Book on Insect Collection Preservation on and Study, 1982.
- Z.S.I.; Ecology of Animal Population Part I, 1981; Part II, 1981; Part III, 1982; Part IV, 1982.

N.K. JAIN



TRAINEES ABOUT TRAINING - AN INTERVIEW

The valedictory function of the 7th Diploma Course in Wildlife Management was held on 30 April. The same day we interviewed two of the trainees, Vinod Uniyal (Kerala) who stood first in the course, and Uday Vora (Gujarat) who was adjudged the "Best all-round Wildlifer". They commented freely and frankly about their impressions of the course they had just completed. Generally speaking they were very complimentary about the instruction received at WII.

ON THE COURSE IN GENERAL: A very good course for people who come with an interest in wildlife conservation and management, it helped in orientating our way of thinking. It also helped in motivating others who were not so keen in the beginning. But, naturally, in a course such as this there are always a few who are not interested. Maybe the average age of trainees should be lowered in order to ensure a bit more enthusiasm. Duration of nine months seemed just right and we spent a good proportion of time in the field.

ON THE LECTURES: Several things we would have liked taught in more detail, especially in wildlife biology, which is a fundamental subject. The authorities probably thought we knew the basics already, but since we come from a variety of backgrounds, such as engineering, physics or botany, this assumption may not be entirely valid. For example, the basics of animal biology should be given more emphasis. Lectures in the introductory phases of this course tended to concentrate in a particular field of interest (instead of giving a total overview). In addition more emphasis should have been given to subjects such as law and human dimension.

ON THE LIBRARY: There was a lot of time allotted for library work. Mostly afternoons when the tendency was to go back to the hostel. What we missed was some guidance about what to read. We would like to make a suggestion: why not give every trainee or small group of trainees a short paper to write, after reading up the relevant topic in the library?

ON THE FIELD TOURS: We learnt a lot on field tours. The North-East India tour and the Sariska tour on management were the most useful - even if we learnt only about the various problems one faces in capturing animals! On the North-East India tour we got exposure to different types of habitat. On the Management Plan tour on the other hand, although very exciting and useful, time was limited. It was difficult to collect enough data to write up a model plan, which in normal circumstances takes more than a year. To enable us to utilize this one month more relevantly, the Institute should have provided us with maps and information from Range Offices or Divisional Headquarters prior to departure to camp so that we were aware of the type of area we were going to be exploring. There was also a lot of repetition on this tour - for example - we visited Gujar deras about five times. The gujars were getting a bit peaked about that!

ON EXAMINATIONS: The present system of examinations needs, as we see it, a bit of reconsideration. There were five papers, each of which contained questions on many subjects. Because of the need to cover so much material in each question it was difficult to maintain a high standard of writing and expression. Maybe we should have objective type of questions in the first four papers, and the final term paper be an essay type, to test our expression and find out our opinions.

ON FACULTY - TRAINEE INTERACTION: We enjoyed very good interaction with all faculty. They were very approachable and encouraging. Probably a written evaluation of the course say every three months would have helped.

ON THE FUTURE: The vision we carry back with us is to be posted in a wildlife area and put into use all that we have learnt here, especially taking into consideration the human dimension aspects of protected area management. We will also try and motivate our staff and encourage them to be alert and observant about wildlife in their surroundings.

Interviewed by S. DAWSON

FACULTY VS TRAINEES CRICKET MATCH

On 26 April at 7.00 a.m. a new WII sporting event got under way - a limited over cricket contest between the Seventh Diploma batch of trainees (augmented by a few volunteers from the within the Institute.) and a faculty team, captained by Institute Director H.S. Panwar. Trainees' captain Uday Vora, won the toss and put the older team in to bat. They got off to a fine start and opener Rawat was top scorer with 30 runs, including 5 fours and a fine six to long on. Other notable contributions to the faculty total was Shashant who hit 19. In addition to steady bowling by Vora, Achal and Bhattacharjee performed well for the trainees but their fielding needed a little polishing as evidenced by the 23 credited to extras in the faculty total.



After a brief break for light refreshment, the faculty took the field in confident mood, which when the score was 19 for 6 appeared to be justified. However, a fine captain's innings by Vora (23) fought the trainees back into the game, with able support from Vinod (23). Tension mounted steadily and when the hundred came up a look of anguished consternation was observed on the face on the Faculty's captain. Several judicious bowling changes paid off, however, and brought several wickets in quick succession, including the prized one of Vora. The trainees' tail wagged strongly though and again the atmosphere was tense as it looked as though the faculty score was going to be overhauled by the trainees before the 30 overs were up. Supporters in the pavilion shouted conflicting advice - depending on who they were supporting - and some sounded quite hoarse by the time the last wicket finally fell with the trainee's score at 140. Pawan was star bowler for faculty, ably supported by Shashant.

The event, a welcome innovation in the WII sporting calendar, was thoroughly enjoyed by players and spectators alike and it was agreed that cricket should become a regular feature.

Two complete newcomers to the game, Geri van Ittersum and Bo Schultz, seemed to grasp most of the rules after this limited exposure - however, they've still not quite sure whether a "wicket" is a part of the pitch, a set of wooden sticks or some mysterious entity which a batsman "looses" when the bowler hits his stumps (what on earth are they?)!!

S. DAWSON

WINNERS OF THE LOGO-CONTEST

We received 45 entries representing the labour of ten contestants. In a shortcut to fame, several of the entries had evidently been lifted from existing publications and were excluded. Others consisted of variations of a theme and were thus lumped together. Nevertheless, the judging panel, composed of the Director, the Joint Director, and Mr. Berkmuller had a difficult choice to make. Each panel member selected the six entries he liked best and judged each on three criteria: visual appeal, simplicity, and appropriateness.

Place number one went to Dr. Bhattacharjee for his spoonbill which was clear with a good visual balance and an unmistakable message.

Place number two went to Miss Asha Jain who made creative use of the Institute initials in a graphically pleasing way.

Place three went to Mr. V.K. Thakur for his owl carrying the Institute initials in its talons.



It was decided to use the winning entry as a preliminary logo for the internal newsletter, and submit it as well as the runners-up as possibilities for ideas to further develop, by professional designers.

K. BERKMULLER

BITS & PIECES

A lot has happened in the last couple of months in the WII family - additions, subtractions and multiplication.

Dr. Anil Tiwari resigned as Assistant Director and left on 25 April for Bangalore to take up his new assignment in the Department of Space. We'll definitely be seeing him here at Dehra Dun sometime - his fiancée lives here!

Mr.C.P. Pawha, Administrative Officer retired on 31 March after a long innings in government service. He joined WII on 9 January 1984. He was looking forward to a relaxed retired life and we wish him all the best. His services will be remembered for a long time to come!

On the personal side:

The Director's family joined him recently from Delhi. A warm welcome to them and best wishes for a happy stay in Dehra Dun. They must be glad to get out of the Delhi heat!

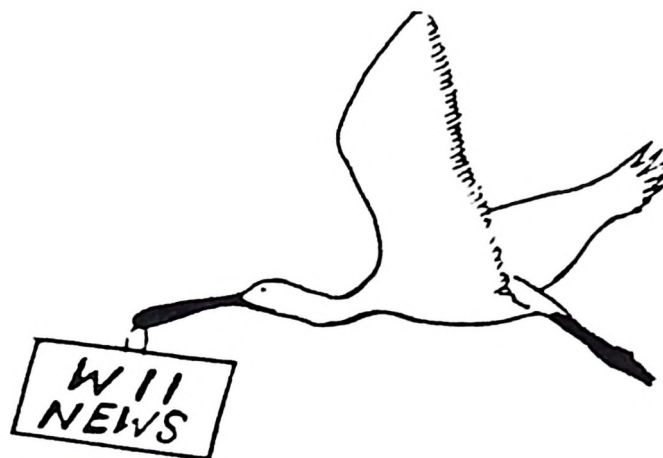
There has been a spurt of weddings at WII. Sangeeta Gupta (Research Fellow) was married to Arvind Gupta of ONGC on 5 May (at least she won't have to change her signature!). Mr. P.L. Saklani married Neeru on 4 May, Shiv Lal (Peon) married Khema on 6 May, and Suresh Kumar and Isham Pal (Sweepers) also tied the knot. To all these folks very warm wishes for a happy married life.

Congratulations to Dr. & Mrs. Rodgers who have an addition in their family. Alexander Edward was born in England on 13 March. Mrs. Rodgers is back in India with Alexander. So if you are wondering why Dr. Rodgers is walking around with a big smile on his face, now you know!

A recent addition to C.M. Sharma's (Stores In-charge) family is their daughter (temporarily called Ginny) who was born on 8 May. Kripal Singh (Cook) and his wife too had a son recently. To all of them congratulations and good luck in carrying out their added responsibilities.

Mr. Vijay Singh Negi, Editorial Associate from the Centre for Environment Education, Ahmedabad, currently working on certain publication projects in collaboration with the Institute is expected to be here till 31 December during which time he will be working on a series of books for middle school children. The first of the series deals with successful conservation projects in the field of environment. We hope Mr. Negi has a fruitful stay at the Institute.

A. SEN



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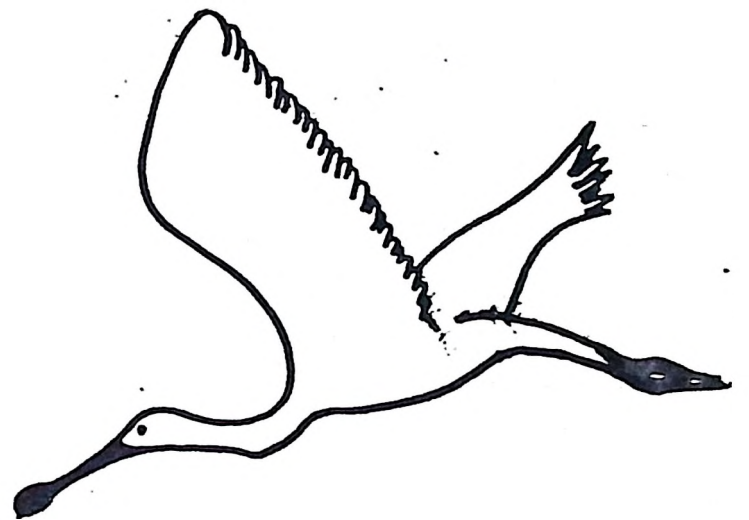
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LIBRARIAN

Sandhu
5/3/87

पुस्तकालय 'Library'
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NEWSLETTER

Wildlife Institute of India

Vol.1 No.5

Editorial

This year-end issue of the newsletter covers October through December, a period of change and great activity for the Institute.* Eleven new faculty members have joined the Institute, five of our colleagues have returned to their respective departments.

One of the new members of the education faculty, Shri Rabi N. Acharya, has been appointed to the editorial board of the newsletter replacing S. Chowdhury and V.S. Negi who have both been busy with field work. With some major publications of his own and regular columns in the "Sambad", a daily newspaper in Orissa, he is well qualified for the task and we are looking forward to working together.

In this issue the column "From the Director's Desk" is appearing for the first time and we anticipate it becoming a more regular feature in our bi-monthly newsletter from now on.

The changes in layout and cover in the last issue seem to have been widely appreciated, but criticism was voiced about some illustrations being perhaps more appropriate for the "Pig Breeders Association News" than for the Wildlife Institute. The point is well taken and, in response, we are pleased to announce that starting with this issue, Miss Asha Jain will help in the technical aspects of the newsletter production by drawing illustrations and taking care of key-lining and paste up.

Finally we decided not to sign articles written by the editors on the basis of information provided by staff or faculty. Other contributions are still attributed to the author.

K. Berkmuller
R.N. Acharya

* Numerous commitments and delays in receiving contributions are the reasons why this "year end issue" has only now come out. One of the editors' belated New Year resolutions is the promise to bring the next issue out on time by mid-April, but we can only do so if you cooperate and return the enclosed report form by the end of March covering the period starting with January 1, 1987.

FROM THE DIRECTOR' DESK

The long awaited faculty recruitment has finally materialised, expedited by our nascent autonomy. On behalf of the Institute staff I extend a very warm welcome to our new faculty members. I congratulate them too for pioneering the WII team. I myself feel challenged in that we now embark on the exciting, albeit demanding, task of systematically building wildlife science in our country on a solid foundation of research and field experience. Let us prove worthy of this challenge.

Auspiciously, as we started the orientation programme for our new multi-disciplinary faculty, we had a visit on November 28 from the doyen of Indian Wildlife Conservation, Dr. Salim Ali. His unflagging concern for the cause of nature conservation was eloquently expressed in his exhortation demanding our total dedication to the cause of wildlife science. A day before this, Mr. William H. Draper, Administrator UNDP visited the Institute. Convinced about the potential for meaningful work in the coming years he lent full support to the extension of the FAO-UNDP project at the WII by one year beyond June 1987. The proposal was finally endorsed in a tripartite review of the project undertaken by the Government, UNDP and FAO on 11 December, 1986.

The collaborative programme under the Indo-US Subcommittee on Science & Technology has since been cleared as well. Like the UNDP project, this 5-year programme provides for exchange visits of scientists and training abroad of new faculty. Hopefully inputs under the programme will commence in the first quarter of 1987.

In October we cosponsored two important symposia - the 5th International Symposium on Snow Leopard at Srinagar and

the Seminar-cum-Workshop on using Remote Sensing Techniques for Wildlife Habitat Evaluations. Proceedings of both have come out. These focus on the urgent need for the study of high altitude ecology and development of techniques of remote sensing as applicable to wildlife science in Indian conditions. The Institute is called upon to initiate programmes in this direction.

Extolling the utility of this newsletter I urge you to strengthen it by contributing material on a regular bimonthly basis. A proforma for this purpose is inserted in the newsletter. Suggestions on improving it are solicited. Please fill it in, and give it to the newsletter editors by mid-April, two weeks before the second issue is due to come out.

H.S. Panwar



DEVELOPMENTS AT THE INSTITUTE

FACULTY ORIENTATION

During the first few months of their assignment the newly recruited faculty spent considerable time on field orientation tours to Rajaji, Gir and Kanha.

Scientist-A: 1. Dr. S.P. Goyal
2. Mr. K. Sankar
3. Mr. R.B. Acharya
4. Dr. (Miss) Asha
5. Dr. N.P.S. Chauhan
6. Dr. Ajay Sharma
7. Dr. D.K. Sujan
8. Dr. S. Choudhury

Scientist-B: 1. Mr. V.B. Mathur
2. Dr. P.K. Mathur
3. Dr. B.K. Mishra
4. Dr. G.S. Rawat
5. Dr. L.A.K. Singh

Scientist-C: Mr. S.K. Mukherjee



Candid shot of a faculty member during early morning bird watching excursion.

**VIII DIPLOMA COURSE TECHNIQUES TOUR
25TH OCTOBER TO 22ND NOV '86**

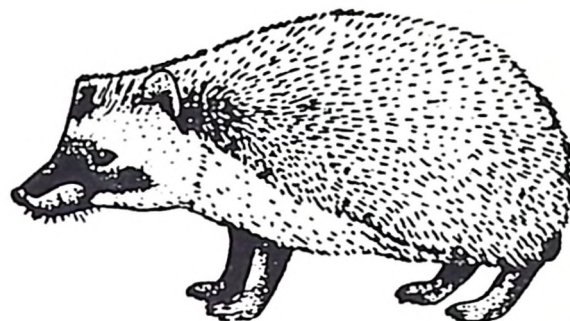
The Diploma Course trainees went on their techniques tour to Sariska, Bharatpur and Delhi zoo and Natural History museum from 25th October to 22nd November. The trainees were accompanied by Dr. Sushant Choudhury, Dr. W.A. Rodgers and Dr. A.J.T. Johnsingh. The main topics of the tour were habitat studies, census, and capture techniques.

There were three guest programmes at Sariska. One was the talk by Mr. Saini, Field Director Sariska Tiger Reserve on the use of plaster of paris pug mark castings to census tigers. The second was a talk by Mr. Bill Harvey a keen birder from British Council on bird communities in Sariska and the third was the demonstration of the use of Camera traps to record the presence of nocturnal carnivores by Dr. Paul Joslin from Chicago zoo.

On 15th the trainees accompanied by Dr. Choudhury and the undersigned left for Bharatpur where they spent the whole of 16th, 17th and 18th. There were 36 Siberian cranes to greet us. At Bharatpur we spent one day with Dr. V.S. Vijayan, Project Scientist of Bombay Natural History Society Hydrobiology Project who told us about the history of Bharatpur and explained the dynamics of its ecosystem. On the evening of the 16th we had a useful discussion with Mr. Rajan Mathur, Deputy Chief Wildlife Warden of Bharatpur.

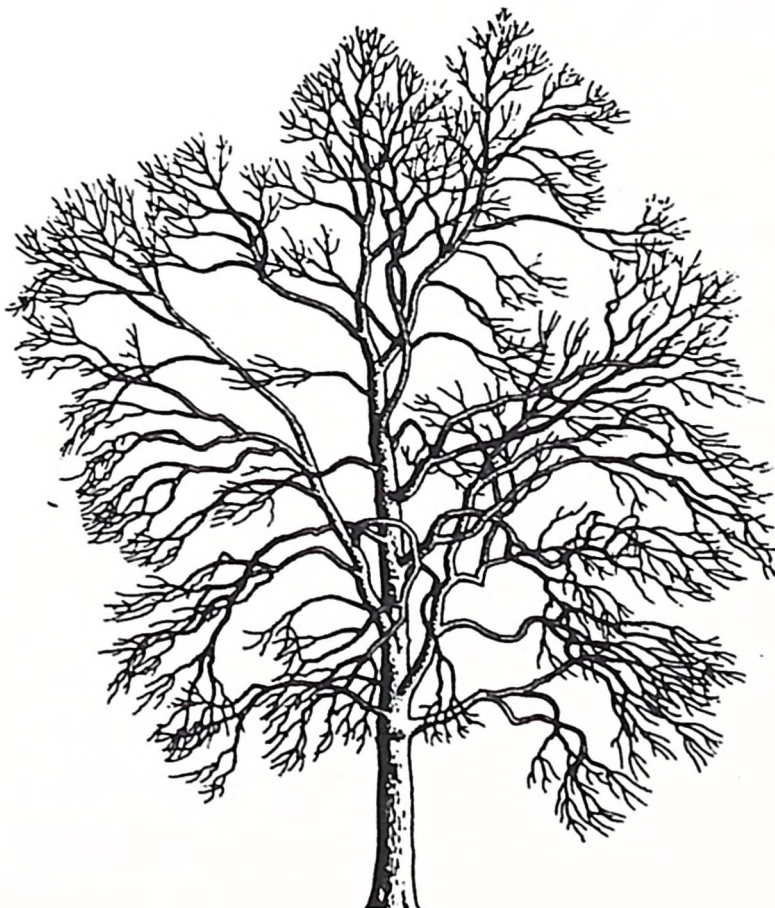
Delhi zoo was visited on 20th where Mr. Kamal Naidu received our trainees and explained different aspects of zoo management. The Natural History Museum was visited on 21st and the trainees returned to Dehra Dun on 22nd.

A.J.T. Johnsingh
Course in Charge
VIII Diploma Course



CERTIFICATE COURSE RESCHEDULED

The Fourth Certificate Course originally scheduled to begin in January at Hyderabad will now be held at Dehra Dun May through July 87.



NEW COMPUTER EQUIPMENT

It took a little while but here they are, the fastest and costliest goodies ever to be installed in the computer room of the Wildlife Institute: two personal computers IBM PC/AT plus voltage stabiliser and emergency power supply.

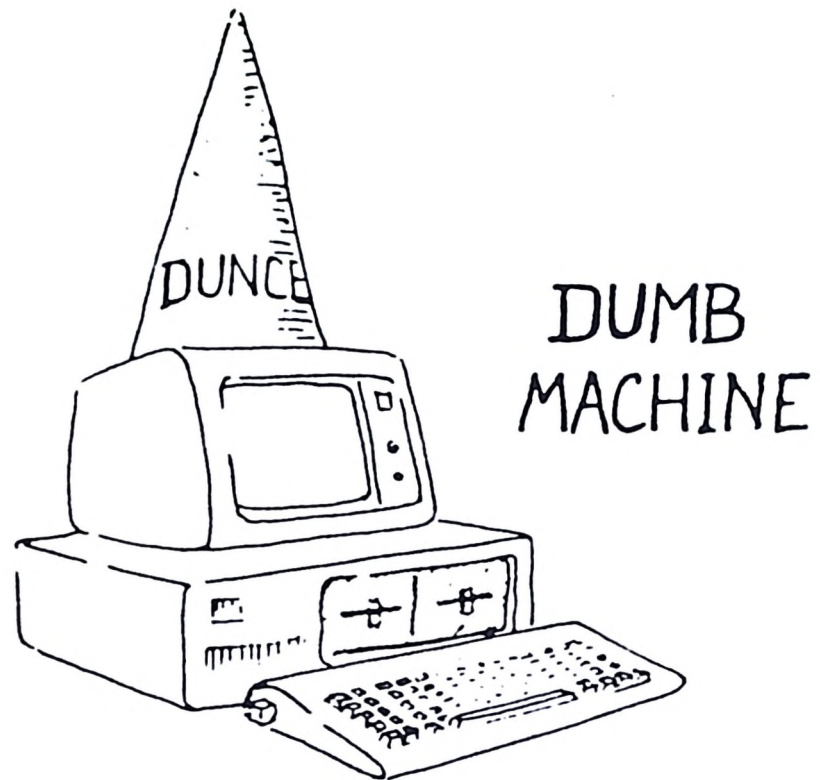
Purchased to do big jobs, these machines have huge capacity indeed. Each unit has an internal data storage capacity (called fixed or hard disk) of 30 Mb (megabyte). In terms of text this would be roughly equal to a 27,000 page novel! The working memory (that part of the computer where the data processing is being done) has a capacity of 640 Kb (kilobyte), capable of handling about 150 A4 pages of characters (letters, numbers, and symbols). In comparison our good old Apples have no hard disk, and an internal memory of 64 Kb.

Of course, even the best machine would be no more than an ornament without the software to tell it what to do. We have two software packages, one for database management, called dBASE III+, and one for statistical analysis, SPSS-PC+. These are expected to meet all our present and future needs in handling and analysing large datasets, for research and documentation (Also see "computer software" on page).

Does this mean that the Apples are obsolete? By no means! Wordprocessing, accounting (electronic spreadsheet; Multiplan) and small database management (Pfs:file) like keeping stores and fundamental statistics on research data will as before be done on the Apples only.

IBM's are special, in more than one way, so use them for special jobs only.

A.J.F.M. Dekker



FILM REVIEWS AND ORDERS

The Institute has a budget of 2 lakhs to buy films. Of this just under one lakh has been spent. Ten films have already been purchased and 12 are on order. A number of titles are presently being screened to recommend additional reels for purchase.

In order for a film to be recommended at least one faculty member must positively state that the film would be used by them before it can be considered. Other criteria, like picture and sound quality, appropriateness for Indian conditions, and availability of other films treating the same subject matter, are then considered before a decision is made.

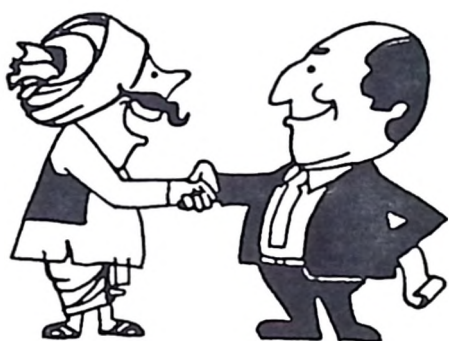
As it is, we have a good selection of films on larger species and some ecosystems. We have less on management and research techniques and we are definitely short on films dealing with environmental issues relevant to protected areas as well people/park relationships.

RESEARCH AND PROJECTS

NEW CAMPUS

In all 11 tenders for construction of the boundary wall were opened on December 4 and construction will begin in January. Avenue plantation along the approach roads has been completed.

The pre-bid qualification tenders will be opened later in December and construction on the campus itself is expected to begin in late February.



RAJAJI PEOPLE PROJECT

Fieldwork on the project was terminated when the Chief Wildlife Warden at Lucknow withdrew permission at the end of December 1987. The data collected up to then are now being evaluated and a report will be issued in due time.



TRIPARTITE REVIEW OF THE FAO PROJECT

The review was undertaken by representatives of the Government of India, UNDP and FAO in Delhi on 11 December. After examining the achievements of the Project since its inception on 1 January, 83, the meeting recommended a further 1 year extension to June 1988 in order to allow satisfactory completion of all the original objectives. In particular, it was agreed that time was needed beyond the present limit of June 1987 for the M.Sc. course to be established and the extensive programme for overseas training of faculty to be accomplished.

J.B. Sale

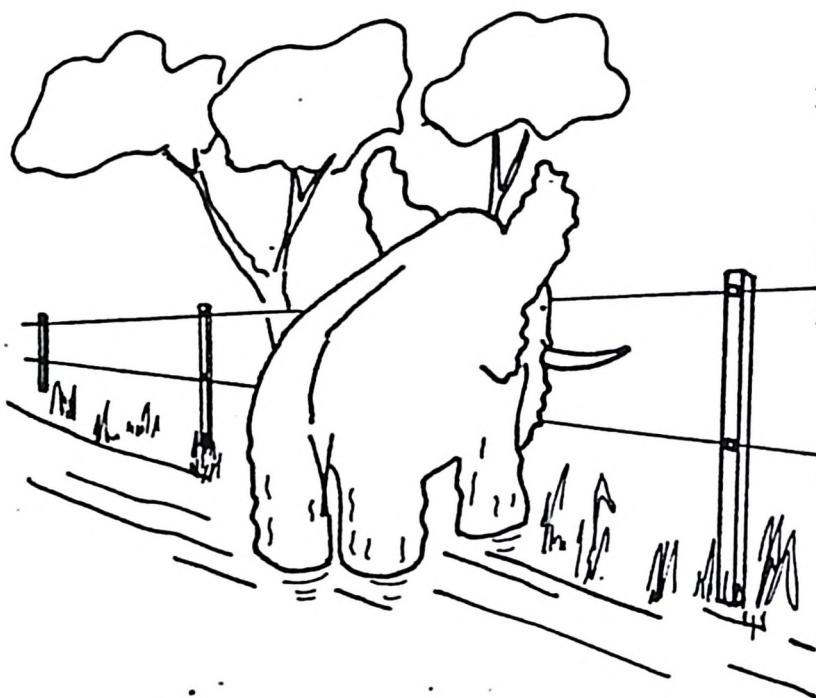
WILDLIFE WEEK NATURE CAMP

The annual wildlife week nature camp was organized again by the Institute in October. Because of the late rains and bad conditions of the forest road, the camp was held at Mohand. Dr. Bennett and B.C. Choudhry who conducted the camp reported that about 100 students and 8 teachers from 4 Dehra Dun schools attended. They used some activities from "Joy of Learning" by the CEE Ahmedabad.

WORKSHOPS AND SEMINARS

ELECTRIC FENCING

Mr. Schultz and Mr. Sawarkar conducted a workshop on construction and maintenance of electric fences at Sariska Tiger Reserve in Nov. 21-22, 1986. It was attended by 10 participants from 5 states.



Demonstration fences (cattle, deer, elephant and wild boar) were set up and materials and tools demonstrated. A fence planning and construction manual was handed out. The thoroughly applied approach was widely appreciated by the participants.

"Mona", the tame black buck unfortunately failed to jump when enticed to touch the wire because of the excellent insulation provided by the bone-dry Sariska soil. The ensuing discussion nevertheless pointed out the need for individual solutions appropriate to the site; one earth and one live wire in this case.

A similar workshop at Mudumalai for the southern states, planned for December 22-23 has been postponed to an indefinite date in spring 1987. Plans for an electric fencing workshop at Kaziranga for late January are being finalized.

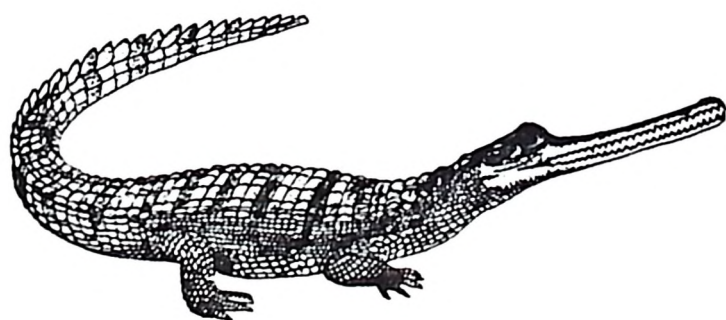
B. Schultz

CENSUS WORKSHOPS

A workshop on wildlife census techniques was conducted at Sariska in Nov. 17-20, 1986 by Dr. Rodgers, Mr. Sawarkar, and Dr. Johnsingh. Twenty-three participants (RFO, ACF, DCF) from 12 states attended. Most of the techniques described in an 80 page manual prepared for the workshop were tried out in the field and discussed. The first census workshop ever to be held in India it was very well received by the participants.

REMOTE SENSING

A two day workshop on remote sensing was organised by the Wildlife Institute at the computer centre auditorium of the FRI. Papers and discussions dealt with the application of remote sensing to habitat evaluation.



INTERNATIONAL SYMPOSIUM ON SNOW LEOPARD

Sponsored by: The Wildlife Institute of India and the International Snow Leopard Trust, under the auspices of the Department of Environment, Forests and Wildlife - Government of India.

Collaborating agencies: The Department of Wildlife Protection, J & K, the U.S. Fish and Wildlife Service, Seattle's Woodland Park Zoological Gardens and the I.U.C.N. Cat specialist Group.



The Symposium yielded a number of **recommendations**. Those pertaining to research and training are given below.

The focus should be on conservation-oriented field research in aspects identified by the range countries with the objective of enhancing understanding of the snow leopard, its habitat, prey, human use etc., with a view to improving management.

Such needs should be clearly identified in the light of "status" and "threats" by the concerned countries for their respective areas.

Studies should be mounted simultaneously in different habitat types, taking samples of "good" and "degrading" areas in a multi-disciplinary approach as suggested above.

Research should also cover ecodevelopment measures and alternatives for local people and migrant graziers, so as to minimize pressures on habitat areas inside and outside protected areas.

Training of field research workers in range countries in techniques and methodology of survey, research, monitoring and evaluation is necessary.

A data base should be established supported by regular monitoring to update it.

Channels of communication should be established for exchange of information between international and national data banks.

EDUCATION AND INTERPRETATION WORKSHOP

Nineteen participants from 13 states attended this workshop which was organised in collaboration with the CEE Ahmedabad.

The first three weeks of the workshop were held at WI. The final week at CEE Ahmedabad ended February 27. A workshop report with recommendations for future events of its kind is being prepared.

ELEPHANT RESEARCH - RAJAJI

A significant milestone has just been reached in this WII Project in that an adult male elephant radio-collared on 14 January 1986 has now provided us with a full year of detailed data on his seasonal movements.

Completed proformas recording all these data are available for 325 days out of the 365 since the animal was radio-collared.

This detailed information on the asiatic elephant of relevance to its management is unique and represents an important achievement for wildlife research in India. Great credit goes to Field Assistant Shri S. Yaseen who has faithfully tracked this animal over the past year at considerable personal discomfort and risk. The radio-transmitter is still giving a very strong signal and the collar is standing up to the heavy wear and tear involved - earlier collar designs had failed after a few months. It is thus hoped that it will be possible to obtain information from this single tusker for a long time ahead, adding further insight into elephant ecology.

This example illustrates the value of radio-tracking technology and the importance of persisting with this type of research inspite of earlier setbacks. The need to get similar sample data from other units of the Rajaji elephant population (cow-calf unit, young male, lone female etc.) is highlighted and I hope it will be possible to obtain permission to immobilize and radio-collar a small number of other elephants in the near future.

J.B. Sale



Face to face with a tusker at Raja

CONSULTANCIES

IMMOBILISATION OF AN AGGRESSIVE WORKING ELEPHANT AT RAE BARELLY, U.P.

From Meghalaya Dr. Bhattacharjee went to Rae Bareilly, U.P. where a working elephant in musth had killed one villager, wounded another and had damaged property ranging from tractors and bicycles to crops. With the concurrence by the elephant's owners and authorization by the district collector Dr. Bhattacharjee undertook the darting as described in the following excerpt from his report.

"Next day (5/12/86) I went to the village and found the elephant (large tusker, 9 feet plus) roaming around and feeding on and destroying crops. After several police had been instructed to check the crowd of about 5,000 villagers, I approached the animal on foot and from a distance of about 60 meters fired the first dart (which hit the front leg). ...I waited for more than one hour before firing the second dart, this time fired from a range of about 35 meters. This one hit the rump. After the animal had fallen it was chained. A magotted wound was discovered on its neck and a suppurating wound on its left front leg. Both were treated and animal recovered well after injection of the antidote. All the villagers were happy to get the elephant back alive which they now intend to sell out for the construction of a school in the village."

CAPTURE AND DOMESTICATION OF WILD ASIATIC ELEPHANTS IN MEGHALAYA

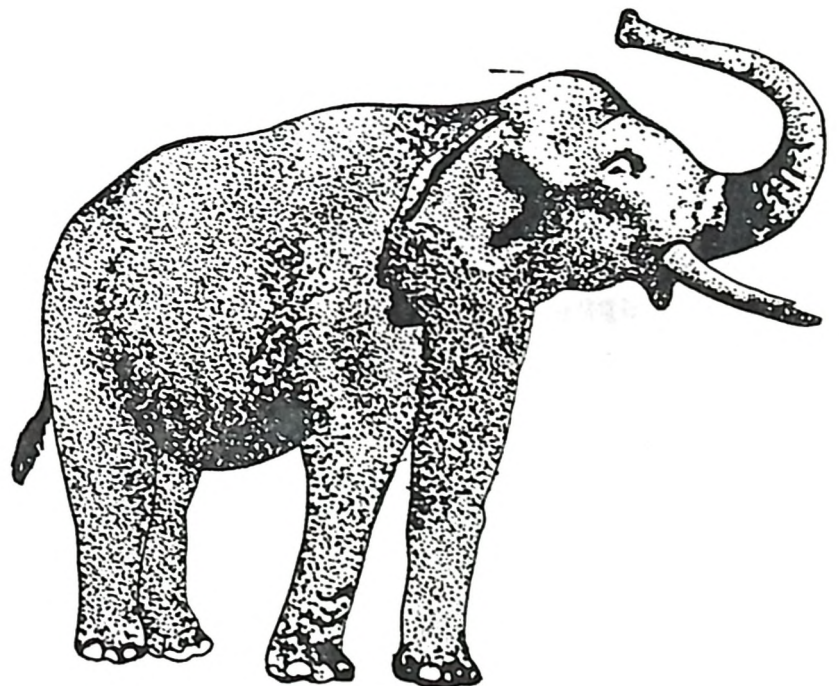
It was decided at a high level meeting between the Meghalaya Forest department and the Union Ministry of Environment

and Forest that 5 wild elephants would be tranquilised and captured for domestication initially on an experimental basis. As per the decision Dr. K.K. Bhattacharjee travelled to the West Garo hills area in Meghalaya and between 27 October to 2 November '86 captured 2 wild elephants (one sub-adult male and one 5 year old male calf) in the dense Dadangiri Forest.

Both the animals were immobilised on foot in the morning of 1 Nov. and, with the help of domestic kunkie elephants taken to the camp set up at "Chibenang" the same day. Both the elephants are reported to be in sound health.

In his report the consultant stressed the cooperation he had received from Mr. S. Debroy, IFS, CCF (Wildlife) Assam, Mr. A. Whalang, Chief Wildlife Warden, Meghalaya and all other forest officers of Meghalaya particularly Mr. W. Warjri and Mr. Lyngdoh.

K.K. Bhattacharjee



VISITS AND LECTURES

SYMPOSIUM TO MARK 90TH BIRTHDAY OF DR. SALIM ALI

To mark the 90th birthday of its world famous President, the Bombay Natural History Society held a 3-day Symposium, during 10 to 12 November. The Symposium at which Wildlife Institute was represented by Dr. J.B. Sale, reviewed the various research projects of the BNHS and made a special presentation to Dr. Salim Ali. The Society has made an outstanding contribution to our knowledge of the biology of the Indian avifauna, as well as other fields including elephant ecology and its journal is the oldest biological periodical on the Indian Sub-continent.

J.B. Sale

Dr. Malcom Coe

Dr. Coe of the Animal Ecology Research Group University of Oxford, United Kingdom visited the Wildlife Institute from 2 to 17 October under sponsorship of the Royal Society of London and the Indian National Science Academy. He gave stimulating seminars to faculty and diploma course trainees on 6, 7 and 8 October and also participated in the Snow Leopard Symposium in Srinagar. Dr. Coe has wide interests within tropical ecology but on this visit to India was particularly examining distribution and seed dispersal of Acacia spp. and its relationship to Bruchid beetles.

Mr. G.S. Child, Senior Officer at FAO Headquarters, Rome

Mr. Child visited the Wildlife Institute on 6 and 7 December. He met a number of faculty members and held

discussions with the Director and Chief Technical Adviser on aspects of the Institute's work.

J.B. Sale

Mr. William H. Draper, UNDP, head of the programme in New York

The Wildlife Institute was particularly honoured to be among the few institutions in the Dehra Dun area to be visited by Mr. Draper on 27 November. He was accompanied by Mr. Hamdy (UNDP Resident Representative, New Delhi), Mr. Chris Jaegar (Chief of the Asia Pacific Desk, UNDP, New York) and Mr. M.S. Mukherjee (Joint Secretary, Department of Economic Affairs, Government of India). After lunch hosted by the Director, WII, Mr. Draper and his party saw slides of Indian Wildlife and the work of WII. Later in the afternoon the party flew into Rajaji Sanctuary by helicopter for an elephant ride and an introduction to the new faculty members who were then camping at Dholkhand as part of their orientation programme.

We hear that Mr. Draper and party were impressed with WII's development and the contribution being made by the FAO/UNDP Project. He particularly enjoyed watching wildlife from elephant back in the jungle - no doubt a welcome contrast to his office suite in the concrete jungle of New York.

Mr. Gamil M. Handy, UNDP Resident Representative

Mr. Hamdy visited the Wildlife Institute to discuss the Institute's development with the Director and the FAO Chief Technical Adviser. He made a trip to the new site at Chandrabani and reviewed progress in staff recruitment and the contribution of the UNDP/FAO Project.

ANNOUNCEMENTS AND REQUESTS

COMPUTER SOFTWARE

Here is a quick review of some of the things you can do with the software available in the computer room.

APPLE IIe:

- Programming language: BASIC (Applesoft)
- Format-80 (Wordprocessor: writing, editing, printing text, up to 80 characters per line)
- Multiplan (electronic worksheet: accounting, testing assumptions, forecasting etc.)
- Pfs:file (data base management)
- Personal Data Analysis (statistical package: data preparation (add, subtract, multiply, divide, power, square root, log etc.), chi-square test, cross-tabulation, multiple regression, cluster analysis; no graphics printout)

IBM PC/AT:

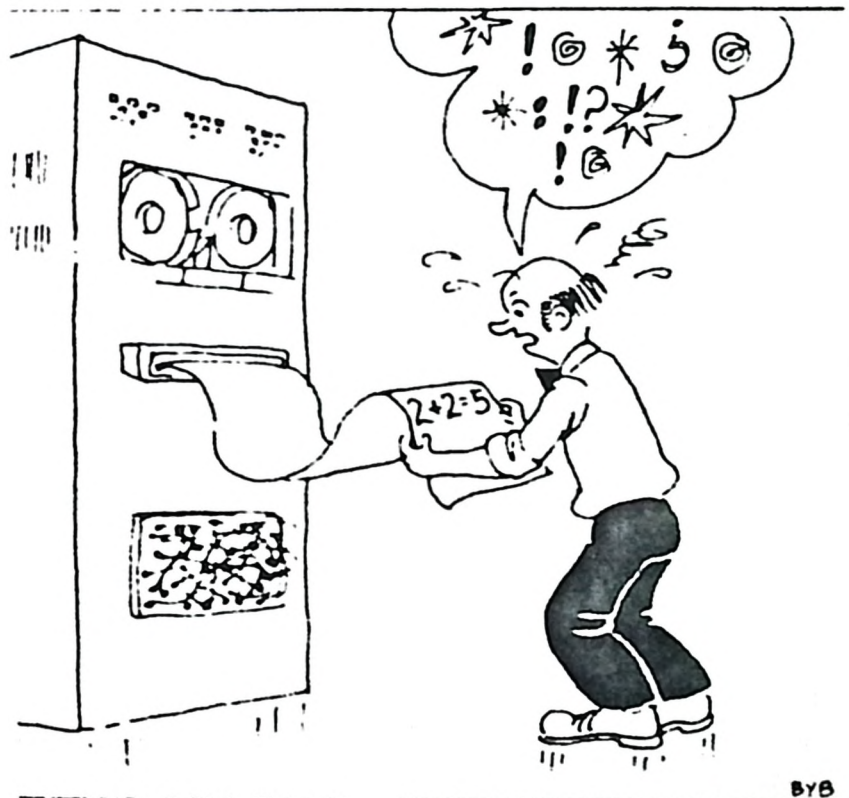
- Programming language: BASIC
Advanced BASIC
- dBASE III+ (database management, basic mathematical data conversion, accounting, forecasting, testing assumptions etc.)
- SPSS-PC+ (statistical package: data preparation (add, subtract, multiply, divide, power etc., weighing, sorting etc.), cross-tabulation, tests (chi-square, T-test, non-parity (rank-tests), etc.), variance analysis, regression (multiple, linear, matrix, residuals), plotting, printing, reporting, graphics (histograms, pie-chart, bar-chart, scatter plots).

The limits to the size of datasets to be analysed are basically set by the computer's memory. For the Apple the limit for most options is 200 cases with 20 variables. The IBM will go far beyond this.

In addition to the above, the following program and programming language are available through computer staff members.

- McPAAL : Micro-computer Programme for the Analysis of Animal Locations. Menu driven programs with output of animal location/distribution maps on printer.
- Turbo- : Advanced programming language. Pascal

A.J.F.M. Dekker



REPRINT COLLECTION

The reprint collection is gradually becoming known and the number of requests has increased sharply. It was noticed that quite a number of reprints are out and we would like to remind our readers to - please - return those they still have.

SLIDE COLLECTION

Faculty and Research Fellows!!! Please check your slide collections for good quality slides of species, habitats, ecosystem, research activities, management action, specific parks and sanctuaries, people etc. for the Institute's slide collection.

This plea is particularly addressed to those who have received slide films from the FAO office. Those who donate slides from privately purchased film can be compensated with slide films.



FILMS AVAILABLE AT THE LIBRARY

COBRA, THE SNAKE GOD (colour, 2 reels, 55 mts.)

An interesting account of snakes, particularly the cobra in Indian mythology, religion and culture. The film shows tribal rites, village festivals of snake workshop, and snake charmers at work and at home. It ends with a subtle but powerful plea for the protection of snakes. Cobras captured and revered for a short period of festivities are released unharmed in the place where they had been caught.

Not a film about snake ecology and behaviour, but a starter for discussing ethics of wildlife conservation, indigenous conservation practices or the place of reptiles in conservation consciousness.

SNAKEBITE (colour, 27 mts.)

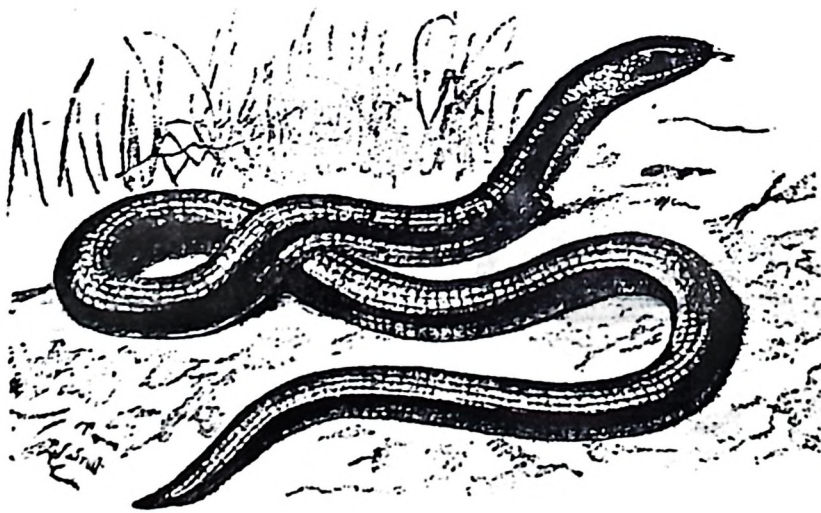
This film by snake expert Rom Whitaker provides a lucid description of the four snake species responsible for the majority of deaths by snake bite; Soft Scaled Viper, Russels Viper, Krait, and Cobra. In scenes performed by lay actors and in authentic personal accounts the film tells us how to avoid snake bites and what to do if bitten. Anti-venom production, superstitious beliefs and the value of snakes as rat predators are secondary topics of the film.

Can be screened and discussed to dispel fear of snakes.

SNAKES AND SNAKES PARKS (B/W, 20 mts.)

The major families of Indian snakes are introduced in narrative (Hindi) and in sequences filmed at Madras (and other) snake parks. Snake biology (e.g. Jacobson's organ, function of poison fangs) is dealt with on an elementary level by crude animation.

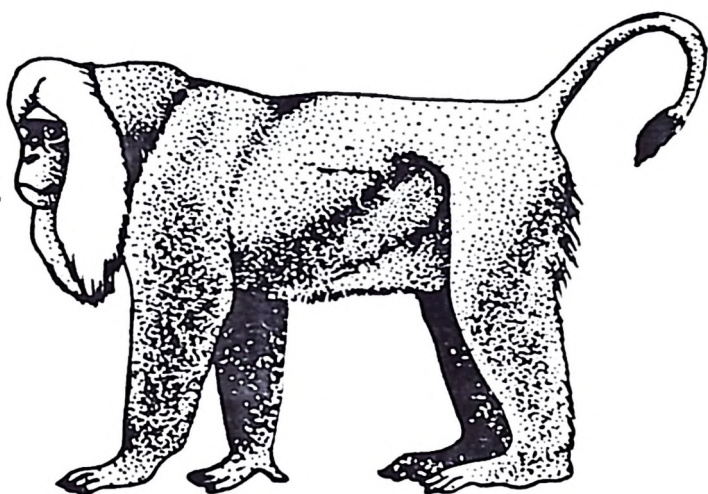
Although picture and sound quality of this film are wanting, it may be of interest in the context of snake taxonomy and elementary biology.



THE VANISHING LION-TAILED MACAQUE (B/W, 25 mts.)

Sundry shots of habitat and macaques amateurishly pieced together, accompanied by a long-winded commentary which frequently fails to match the picture.

Possibly of use to illustrate a talk specifically on the Lion Tailed Macaque, but not without cutting it short.



GUINDY NATIONAL PARK (colour, 15 mts.)

The film introduces Guindy National Park at the outskirts of Madras stressing the need to conserve natural areas in the vicinity of urban centers for recreation and education. Unfortunately the theme is not developed further and the film dwells instead on blackbuck and chital for much of the remaining time. Although technical quality is generally good, some hurried scans and narrative are sometimes distracting.

Can be used as primer for discussing purpose and management of deer parks and similar outdoor recreation areas.

LAST OF THE WILD (colour three reels, 30/35/45 mts.)

Brief glimpses of endangered, rare, and not so rare species throughout the world.

Reel 1 - North America, Galapagos grizzly bear, caribou, otter, wolverine, wolf, whooping crane, alligator, iguana, giant land tortoise, walrus, beaver, moose.

Reel 2 - South America, Australia, New Guinea, New Zealand, Indonesia, Malaysia, India kondor, elephant seal, koala bear, echidna, platypus, lyrebird, Komodo dragon, orangutan, kiwi, birds of paradise, gibbon, Prevost squirrel, slender loris, tapir, leatherback turtle, Indian wild ass.

Reel 3 - India, Africa, Japan, Antarctic Gir lion, Indian rhinoceros, white rhinoceros, zebra, giraffe, cheeta, Colobus monkey, hippopotamus, flamingos, cape buffalo, leopard, Manchurian crane, penguin.

The series could be more useful were it not so shoddily pieced together and interspersed with unrelated footage of staged animal fights and similar fare designed to demonstrate the ferocious nature of wild beasts. Because of this, it is poor material for almost any purpose, except perhaps to introduce a particular region and some of its species, but even then editing would be required.

SUNDERBANS (colour, 50 mts.)

A far ranging description of one of the world's largest tidal delta ecosystems. The film touches on a wide variety of topics: delta formation, mangrove and animal species, tiger reserve management, resource use by the local people, cultural history. Unfortunately, none of these topics are consequently followed through.

Nevertheless, an interesting and useful introduction of general interest to an important ecosystem.



"Children, one thing you should remember, it's most disgraceful to be called a man-eater!"

ANIMAL IMMOBILIZATION TECHNIQUE (colour, 25 mts.)

A film about the technical aspects of chemical immobilization starting from appropriate drugs how to choose the right one to dosage, guns, post darting care and safety precautions.

Didactically well made, immobilization is to look deceptively easy but then the film is made to be used and useful in the context of workshop, lectures or field practise in the subject.

FILMS ON ORDER

1. Leatherbacks and loggerheads
2. An ecosystem: A struggle for survival
3. Last round up
4. Follow the tiger
5. Elephant's eye view
6. Great one horned rhinoceros
7. Tough near the top
8. Marshes of Bharatpur
9. Great Indian rhino
10. Snakes of India
11. Tigers of Kanha
12. Twelve hours at a waterhole
13. Land of the tiger
14. Empty desert
15. Biological sciences : Evolutionary biology

OTHER TOPICS

FAREWELLS

Four of our colleagues have left institute. Shri Raizada is attached to the Chief Conservator's Office in Lucknow where he is awaiting a new posting somewhere in the U.P. Dr. Bennet is in charge of the FRI Botany branch, just around the corner from the Wildlife Institute. Shri Pillai has returned to his home state in Kerala where he is now in charge of education and interpretation at the sanctuaries of the state. Dr. Bhattacharjee returned to his state Arunchal Pradesh, but his new posting is still uncertain.

On behalf of all of us we bid farewell to these colleagues and friends. Keep in touch and help us forge and strengthen the important link between field and institute.



"Stop nagging! If we did family planning, we'd soon be extinct!"

LETTERS

Mr. Burhe, a former trainee and presently assistant manager at the Forest Development Corporation of Maharashtra, has sent us an interesting article "Lions get a Break" published in the Sunday edition of a major newspaper. It is about the implantation of contraceptives in lions which was mentioned in the last newsletter. We regret that reproduction of the pedigree chart for Borivili lions is somewhat outside the scope of the newsletter. Nevertheless, we enjoyed hearing from Mr. Burhe and would like to encourage our former trainees to maintain contact and write to us.

QUOTES

Ms. Bitapi Das, RA on the Rajaji People Project about her observations at a headloader trail near Motichur: "At 8:50 a huge herd of women arrived."

Dr. A.J.T. Johnsingh about activities at Bharatpur during the Techniques Tour: "Seventeenth and eighteenth (of Nov.) were spent looking at python holes, ungulates and burnt areas."

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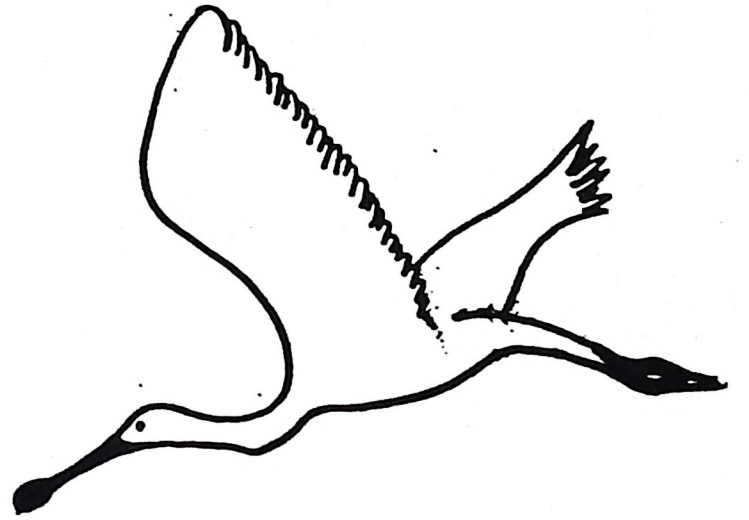
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NEWSLETTER

Wildlife Institute of India

Vol.1 No.4

Editorial

"Better late than never" was the motto under which this fourth issue of the newsletter was produced. Nevertheless, we managed to give it a face lift, rectified margins and major headings in typeface and we added another column "NEW FACES".

In terms of content we were not as comprehensive and meticulous as we would have liked to be, simply because of competing demands on the editors' time. This is also the reason why there is no interview column. Mr. Negi who did the interviews in the last two issues has gone on field tour.

On the bright side, a lot of progress was made at the Institute. Interviews of applicants for faculty positions are well underway and new research fellows and assistants have been appointed. A special issue of the "Indian Forester" is being compiled and edited.

The Director had originally intended to address the readers of the newsletter in regard to a request for bi-monthly reports (see "announcements and requests"). Unfortunately, his schedule was extremely busy of late and our column "FROM THE DIRECTORS DESK" will, therefore, not be inaugurated in this issue.

K. Berkmuller
S. Chowdhury

DEVELOPMENTS AT THE INSTITUTE

VIIIITH DIPLOMA COURSE IN WILDLIFE MANAGEMENT : PROGRESS AND THE ORIENTATION TOUR

The VIIIth Diploma Course in Wildlife Management for IFS and SFS officers, started on 1st August, has now 15 trainees.

A field trip to Chilla wildlife sanctuary for the trainees was organized on 23rd August followed by the one week orientation tour from 7th to 14th September.

The tent camp in Chilla was established near the Forest Rest House which is just 10 minutes walk from river Ganges and 100 meters from the forest. Particularly attractive feature of this camping site was the nearby guava orchard which was in fruit!

The orientations programme covered different aspects such as plant identification, bird watching and differentiating mammalian tracks and dung, evaluating a habitat for different wildlife species and assessing the values of Chilla Sanctuary as part of the proposed Rajaji National Park. Quantification studies involved weeds (Parthenium hysterophorus and Cassia tora), habitat degradation, large mammal evidence in the proposed corridor area and changes in tree species with reference to altitude. Dr. S.S.R. Bennet was the tour in charge and Dr. W.A. Rodgers inducted quantification studies on 9th and 10th.

Initially we found very little wild animal evidence in Chilla and Kunaun blocks but later our spirits soared when we saw abundant tracks and pellets of chital and sambar and three

different fresh tiger pug marks (a mother with a cub and a big male) in the Dogudda rao. Sighting of a goral in the Soni sot ridge close to the power channel excited every one of us. In total 110 birds species were identified including all the three species of hornbills of the area (Grey, Pied and the Great Indian).

I would conclude that the tour achieved for what it was intended.

A.J.T. Johnsingh
Course in Charge
VIIIth Diploma Course

INTRODUCTORY COURSE FOR RESEARCH FELLOWS

By mid 1987, the Institute will have upwards of 20 Research Fellows employed in the field. New ones are expected to be hired at a rate of between 5 and 10 per year.

A 3-week course is being prepared to introduce them to the Institute, to conservation issues, and - last not least - field study techniques and literature.

In addition, they will have an opportunity to work on their project outlines with the help of the faculty.

No starting date has as yet been fixed, but the first of these courses will probably be launched in early 1987.

Editors

FACULTY RECRUITMENTS

A total of 978 applicants were received out of which 123 applications were invited for interviews Sept. 12 through 20.

Grade	WM	WB	EE	Total
A	74	508	112	694
B	38	114	21	173
C	17	44	9	70
D	17	24	-	41
Total	146	690	142	978

Applications by grade and faculty

WM = Wildlife Management

WB = Wildlife Biology

EE = Education and Extension

Of the administrative staff, 3 accountants and 3 stenographers have been appointed in late August.

Editors

IIIRD CERTIFICATE COURSE - A REPORT

The IIIRD Certificate Course in Wildlife Management was conducted at this Institute from the 1 May - 31 July, 1986. It was mainly allotted to the northern states who had not sponsored candidates for the previous Certificate Course held in the South.

The course had 20 participants sponsored by 11 states - Andamans and Nicobar Islands (2), Arunachal Pradesh (1), Himachal Pradesh (1), J & K (3), Madhya Pradesh (1), Maharashtra (6), Mizoram (1), Rajasthan (1), Tripura (1), Uttar Pradesh (2), and Sri Lanka (1).

Our sincere thanks go to the Principal CCFS, the Chief Wildlife Wardens, and the officers concerned of Uttar Pradesh, Rajasthan and Madhya Pradesh who helped a lot and offered facilities for this class during the field tours, without which the course could not have been conducted successfully.

All the 20 participants of the course were declared eligible for the award of the Certificate in Wildlife Management. B.P. Yadav from Andamans & Nicobar Islands was the top student of this course.

K.G.M. Pillai

FIVE WEEK INTERPRETATION COURSE (Education Officer Course)

The (5-week) course is scheduled to begin mid December and end mid to late January. The course will be completed with one week at the Centre for Environment Education there in Ahmedabad.

The course will be taught in 4 parts:

- I Conservation Education Theory
- II Programme and Activity Development
- III Visitor Management & Interpretation Practise
- IV Design and Production of Materials (at Ahmedabad)

Letters have gone out to state governments requesting candidates who are likely to become part-time or full-time education officers when they return to the field.

Editors

CONVOCATION DAY

31 July 1986. The roads had been awash with rain since the previous night and we half anticipated a diluted valedictory function for the IIIrd Certificate Course but people braved the elements and took their seats on time. Sh. N.D. Bachkheti, former Inspector General of Forest was the Chief Guest. In a long and eventful career spanning over 30 years, Sh. Bachkheti has earned many distinctions; creation of the National Zoological Park at Delhi being only one of them. So it was, as Sh. H.S. Panwar put it in his welcome address, "indeed a privilege for the Institute and for the trainee officers receive their certificates from his hands".

Editors



DESIGN COMPETITION FOR THE NEW CAMPUS

In all 28 entries were received by the due date June 30th, 1986. They were judged by a jury headed by the Chairman of the Governing Body and consisting of the WII director, and several eminent professionals in the field of architecture. The jury finally selected the following three architects in order of merit: (1) M/s Kothari and Associates, New Delhi (2) M/s Madhav Nayak and Associates, New Delhi (3) M/s Shabnam Patel.

The winners of the competition, M/s Kothari and Associates are to be appointed as the consultant architect for the campus design and development. It is expected that construction work will start in a few months. The Institute has also taken up planting on both sides of the approach road leading to the main campus to create a green belt on both sides of the road.

H.C. Raizada

AUDIO-VISUAL LIBRARY AND WORKSHOP

With the clearing and refurbishing of a previous store room, the AV library and workshop has finally become reality. However until all equipment has been installed and a technician hired and trained, only rudimentary services can be provided. Once the facility becomes fully functional it will provide support service for teaching and research.

- store, maintain, and issue audio-visual equipment.
- produce and issue visual aids and teaching materials.
- assist with conducting training practicals.
- maintain slides and pictures for reference and use in publications.
- production of internal publications (like this newsletter).

Equipment and materials will be issued to institute staff against receipt only for use at the Institute. No open ended or long term loans will be made. Look up "Announcements and Requests", for materials which will soon be available.

K. Berkmuller

NEWS FROM HYDERABAD

B.C. Choudhury has written from Jersey, UK "I have started my work here from Monday last (28 July) and thoroughly enjoy it. This is a lovely place. There are some seven other trainees right now. I am to leave for the summer school on the 9th (August) till 30th". (By now BC Choudhury would have completed his training and we await to read from his own pen.)

V. Vijaya Kumar joined the Institute at Hyderabad on 30 August 1986 as a Junior Research Fellow. (see 'New Faces')

My trip to Nagarjunasagar-Srisailem Sanctuary, on 6-7 August was very useful as the Field Director has agreed that data would be collected from four locations for the proposed study "Dynamics of Pasture Use and Soil Degradation by Domestic Cattles and Wild Animals in Nagarjunasagar-Srisailem Sanctuary, a joint project of WII and AP Forest Department."

A research proposal has been submitted to study the "Status, Population trend and niche-occupation by four groups of aquatic vertebrates in Ramganga River, Corbett National Park". These vertebrates are the mahseer fish, turtles, crocodilians and others.

The project on species availability and stomach contents of Rana tigerina commenced in July as per schedule. Ms. Manju from Andhra University, Waltair, is carrying out the study. An important discovery for the study has been that of a professional frog-catchers who would be useful for other occasions too.

At the Independence Day this year, we had as the chief guest Mr. Joseph, Curator at Nehru Zoological Park.

L.A.K. Singh

RESEARCH AND PROJECTS

WILDLIFE SURVEY IN ARUNACHAL PRADESH

Arunachal Pradesh has the greatest diversity of ecosystems in the country, and probably also the highest proportion of undisturbed wilderness. Wide altitudinal and climatic variations over small distances, low human population density and its situation in the transition zone between the Indian and Chinese zones are the main reasons for such diversity. Although 65% of its land area are under forests, only 7% of these form part of the national parks and sanctuaries, much below the national average of over 13%. Also, the process and pressures of development are increasing rapidly and unless conservation areas are identified and gazetted urgently wilderness, it may soon become too late.

Arunachal is home to a large number of rare and endangered species. However, data on their status and distribution is totally lacking.



The Chairman of the Research Advisory Committee, aware of this deficiency, called a meeting on 5 May 1986 in which J.K. Mehta, Chief Wildlife Warden (Arunachal Pradesh), and H.S. Panwar, Director WII also participated. They discussed broad outlines of a survey.

A quick systematic survey was proposed, to locate populations of the important species so as to establish protected areas. The survey would involve visits to wildlife areas in the interior, and high altitude regions to look for direct as well as indirect evidences (tracks, droppings, etc). The survey team would carry illustrations of the animals so that they could be identified by the local people.

The survey team comprising Dr. Johnsingh, two research fellows from WII and two officers from Arunachal Forest Department will do an initial field survey in Lohit to familiarize the team with field conditions.

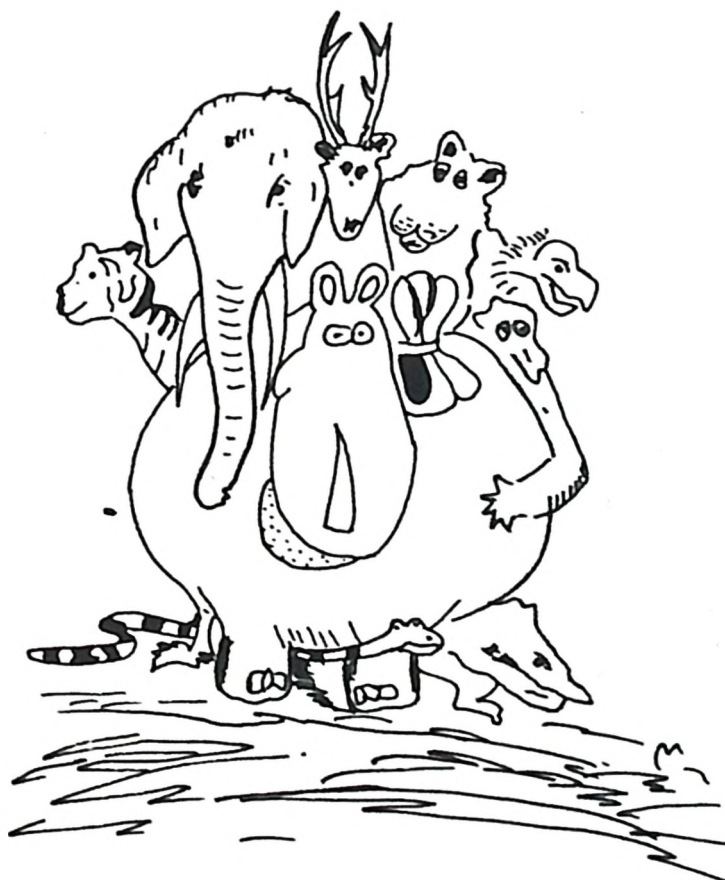
The team would then split into two groups, each with one research fellow and one forest officer. One group would survey Upper Subasiri and the other, Upper Siang area. After initiating the survey and accompanying one of the groups for a few days Dr. Johnsingh would return to Dehra Dun while the other members of the team would carry on their work till and November when these areas become snow-bound.

The entire December would be spent surveying Lohit, including the lake area. In January next year, the team would again split in two groups and if considered necessary, would proceed to Upper Debang, including Anini and Namdapha separately.

The survey is to continue in February and March after snow melt.

Costs for survey staff are shared by the WII, and the Arunachal Pradesh Administration. Logical support is provided by AP administration, while portorage cost would be met by WII. WII's budget requirement for one year (including salary for two Jr. Research Fellows, equipment, travel, TA, DA, labour charges and contingency) is Rs. 1,50,000/-. Tariq Aziz and Jamal Ahmad Khan have joined WII as Jr. Research Fellow, to work on this project. (See 'New Faces'). The Arunachal Pradesh administration has also identified two forest officers for the project.

H.S. Panwar
A.J.T. Johnsingh

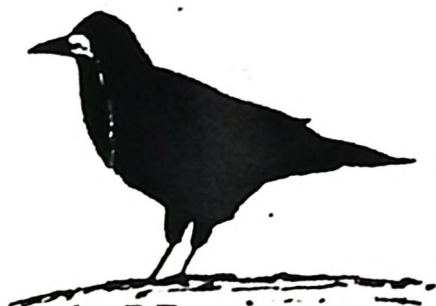


TURTLE ECOLOGY

A study on the "Ecological Relationships Among Freshwater Turtles in National Chambal Sanctuary" has been undertaken as a research project at the Hyderabad Centre. The main objectives of the project are to determine the species diversity, population structure and pattern of habitat utilisation by freshwater turtles in the National Chambal Sanctuary.

A total number of 7 species of freshwater turtles have been identified in the Chambal river. They are the hardshell turtles - Kachuga tentoria, K. dhongoka, K. kachuga and Hardella thurgii, and softshell turtles - Trionyx gangeticus, Chitra indica and Lissemys punctata. Behavioural studies on nesting and basking of all three Kachuga species are under progress. Their nesting grounds and basking places in the Sanctuary were identified during the annual gharial census. Quantitative data on nesting ecology and predation were collected in successive seasons. Egg transplantation experiments were conducted to protect the turtle eggs from predation by jackal. The results of these experiments revealed that 55% of the shifted nests were safe from predation. Eggs of all three species of hardshell turtles were collected for incubation in the Gharial hatchery at Deori (Camp Office) where now more than 100 young turtles are being reared to study the growth patterns and feeding habits.

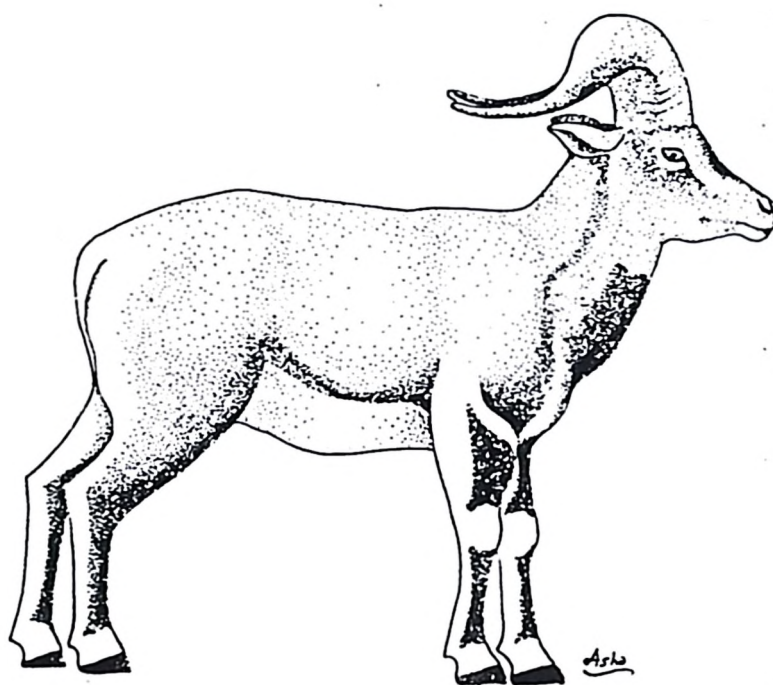
Detailed results of the study have been produced in Interim Reports 1 and 2 of 1984 and 1985, respectively.



R.J. Rao
L.A.K. Singh

SNOW LEOPARD PROJECT

The first phase of the project "Ecological Survey of the Snow Leopard and its Prey Species" was completed in July 1986. Its major objectives were: (i) determining the status of the snow leopard population and of its prey species, (ii) collecting information on habitat use, and (iii) identifying a site for more intensive studies in the next phase.



Beginning last October we traversed about a thousand kilometres, and covered Upper Suru catchment, Zaskar and Markha valleys, all in Ladakh; Upper Beas and Parbati catchment in Himachal Pradesh; and Upper Tons (Har ki Dun) catchment in Garhwal, crossing snowy passes as high as 16,000 ft MSL in temperatures as low as -30 deg.C. The team comprised Sr. Research Fellow - S.P. Sinha, and two Jr. Research Fellows - Pallav Das and R.S. Chundawat, with J.L. Fox from the International Snow Leopard Trust, representing the USA. The project is jointly sponsored by Wildlife Institute of India, US Fish & Wildlife Service, and the International Snow Leopard Trust.



RANGDUM MONASTRY.

In the course of our survey, we covered about 70-80 km of snow leopard tracks. We also noticed scrapings on the hill-sides and sprayings over rock outcrops and overhangings, a territorial marking behaviour of the snow leopard. However, attempts to follow tracks proved futile as these always seemed to ascend some cliff and vanish over it, making it impossible for us to follow. Even spottingscope and binoculars did not help, for snow leopard are extremely well camouflaged.

But - and these were by chance!- we did make two sightings, obviously the high points of our nine-month outing, and were able to photograph these magnificent creatures of the high mountains. We also collected about 120 scat samples for analysis of the animal's feeding habits. Of other predators we spotted 2 wolves and 4 brown bear including a female with two cubs to check the wolf menace.

From our observations, wild ungulates and goats are the snow leopard's major prey species. In all, we sighted 400-500 Ibex, over 800 bharal, a rare small herd of the rare Nayan or argoli, and 25-30 Ladakh urials. Other prey we often saw were Tibetan woolly hare, mouse hare, Himalayan marmot, and long tailed marmot.

Markha valley, just south of Leh in Ladakh will be the site for the second phase of the project due to begin in November 1986 (winters always being the best time for observing mountain animals). We are now eagerly looking forward to returning there for further study. Meanwhile, data collected up to now is being analysed. Preparations are also afoot for the International Symposium on the Snow Leopard, to be held at Srinagar (J & K) in October 1986. A detailed report on the first phase of the project is awaiting completion.

R.S. Chundawat

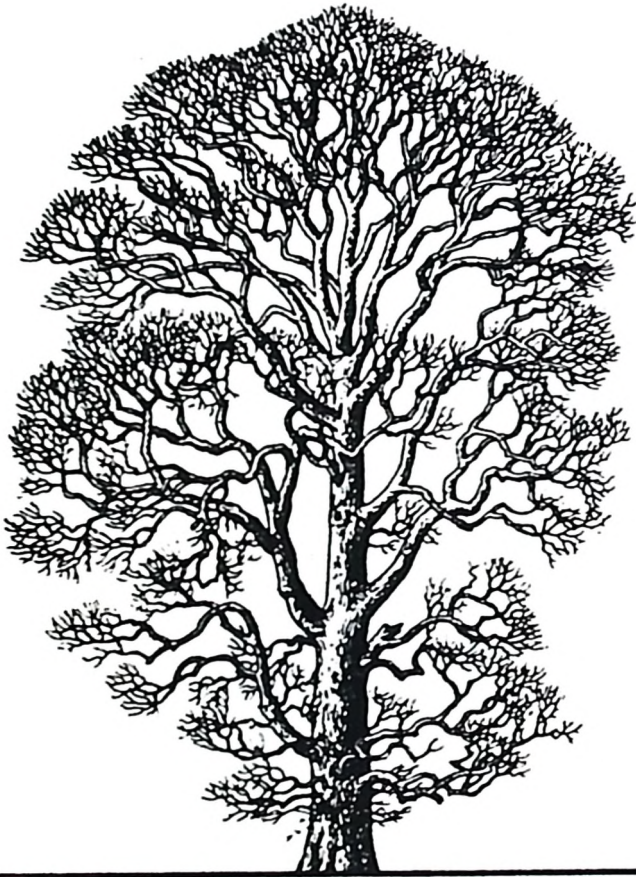


LADAKHY LADY.

THE DEPENDENCE OF LOCAL PEOPLE ON THE LIVING RESOURCES OF THE PROPOSED RAJAJAI NATIONAL PARK.

The title seems quite a mouthful to repeat every time you talk or write about it. In the newsletter we shall refer to it as the Rajaji People Project (RPP) from now on. The RPP has gotten off to a flying start with the hiring of two energetic and enthusiastic assistants, Miss Bitapi Das and Mr. Sameer Bhatnagar.

Editors



For the bicyclists among the research fellows: Ravi needs to travel frequently, often at night, between his study sites which are about 50 km apart.

Editors

NEWS FROM THE LION, NILGIRI LANGUR AND GRIZZLED GIANT SQUIRREL

Research on the Gir lion is making good progress. Research Fellow Ravi Chellam is able to work more efficiently now as he has a jeep and one more field assistant. Identification of lions, collection of kills and scats continue. Recently he had his first encounter with a big russels viper which was basking on his way back to the camp. He writes that hereafter he will watch out for every step he takes in the jungle! No wonder R.S. Ditmars a famous snake specialist was correct when he said that a native Indian fears not a tiger but fears a russels viper!

Wesley Sunderraj spends 10 days in total in a month from dawn to dusk with his two Nilgiri langur troops studying their feeding and ranging patterns. Recently as a result of severe tick bites he had high fever for a week. Otherwise every thing goes well with his study in Mundanthurai.

Justus Joshua has chosen five Grizzled giant squirrels (two adult males, two adult females and one young unsexed) as his study animals and observes each one of them from dawn to dusk two days a month. Recently one more elephant herd has come to his study area and has killed a woman who went in for wood cutting. Justus writes that the habit of two herds frequently visiting his 10-15 sq km study area now makes him a little nervous. He hopes that the elephants would move out when the North East monsoon starts in October.

A.J.T. Johnsingh



WORKSHOPS AND SEMINARS

WORKSHOPS

The Institute in collaboration with the Indian Institute of Remote Sensing is organising a Workshops on Habitat Evaluation using Remote Sensing Technique. It will take place on Oct.22 and 23rd, 1986 at Dehra Dun for delegates from Wildlife Wings of the State Forest Departments.

The Institute is also organising a Workshop on Animal Census Techniques at Sariska Tiger Reserve in November which is followed by a Workshop on Electric Fencing. More workshops on electric fencing are planned at Mudumalai Sanctuary in December '86 and another at Kaziranga National Park in January '87. A Workshop for Senior Army Officers is planned for February 1987.

H.C. Raizada

SNOW LEOPARD SYMPOSIUM

The Wildlife Institute of India in collaboration with the International Snow Leopard Trust is organising the 5th International Symposium on Snow Leopard with assistance from the U.S. Fish and Wildlife Service. The Symposium is being held October 13-15, 1986 at Shere Kashmir Convention Sri Nagar. The J & K Wildlife Organisation is actively posting the Symposium and will provide the necessary facilities. About 70-80 participants are expected to attend from countries like USA, Canada, China, England, Nepal besides the Indian delegates.

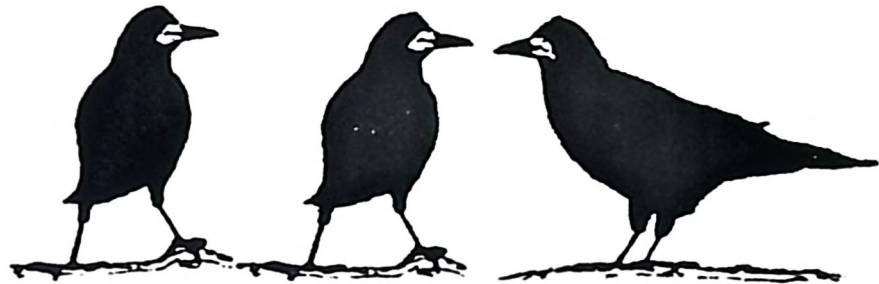
H.C. Raizada

VISITS AND LECTURES

Dr. J.H. Desai gave a talk on breeding of endangered species in captivity on 25 July for the members of the Wildlife Preservation Society, Dehra Dun.

At the same place Sh. H.C. Raizada made an audio-visual presentation on the "Valley of Flowers" in Garhwal Himalayas, the region where he was working before he joined the Institute.

Editors



TIGER INVESTIGATION AND MAPPING

Dr. David Smith from the University in Minnessota spent two days at the Institute to discuss a project proposal to investigate and map tiger population structure over a 15,000 sq km area in M.P. which will be forming the base for later management decisions.

During his visit Dr. Smith gave a presentation about large scale habitat evaluation for actual or potential presence of tiger. His maps of the western Terai of Nepal illustrated how this evaluation technique can be used to determine known, and likely or potential distribution as well as barriers separating populations.

Editors

ANNOUNCEMENTS AND REQUESTS

SLIDE PROGRAMS AVAILABLE

The following slide series will become available for loan at the AV library from mid-November onwards.

1. Leathery Turtles of Trengganu
2. The Great Jungle Bungle (Malaysia)
3. The Great One Horned Rhino
4. Conserve Today (Kenya)
5. Lord of the Jungle
6. The Asian Elephant
7. Wonders Around You (India)
8. Vanishing Forests (India)
9. Understanding Mangrove Ecosystems
10. Sabah's Underwater Paradise
11. Saving the Plants that Save Us
12. Planning for Survival
13. Understanding Wetland Ecosystems
14. If the Land Dies
15. Extension in Forestry for Local Community
16. Why the Soil must be Saved
17. Why the Forests must be Saved
18. Integrated Watershed Management
19. Extension Work and Teaching Aids
20. Extension Agent at Work
21. Genetic Conservation

If you are regularly using one or the other slide series of your own, why not deposit a copy at the AV room. If you are reluctant to part with your originals, we will have copies made.

K. Berkmuller



FIELD ASSISTANTS NEEDED

Field Assistants are being sought for the elephant study in Rajaji Sanctuary (two posts) and research on the "Flying Fox" or large fruit bat around Dehra Dun (one post). Candidates should have at least Intermediate B.Sc., preferably in a biological subject and be prepared to work irregular hours under field conditions. Interested persons should contact Dr. Sushant Choudhury (elephant) or Dr. S.S.R. Bennett (bat).

J.B. Sale

NEW AQUISITIONS

About 140 books were added to the library during the months May to August. A list of the new titles is available with the librarian.

Editors

BI-MONTHLY REPORTS

Beginning in November 1986, the director's office will send out forms to each faculty on which to tick off and briefly report major activities during the preceding two-month period

The completed forms will provide a convenient record to refer to when compiling material for annual reports and newsletters.

Editors

PUBLICATIONS AND CONSULTANCIES

HORMONAL IMPLANT FOR BIRTH CONTROL IN CAPTIVE LIONS

Species that are vanishing in the wild have been bred so successfully in captivity that zoos or zoological parks are now in a fix over what to do when they run out of room for them.

Should they curtail breeding? Should they resort to euthanasia? Can these captive bred animals be reintroduced in the wild? All these methods have been tried with varying degree of success. Even when suitable protected habitat is available, returning captive bred large cats to the wild creates controversy. Although considered feasible in some instances, it can't be done on a large scale. The only alternative apart from euthanasia is birth control.

Borivili lion safari park has experienced a lion population explosion. They tried separating the animals during the appropriate period of the reproductive cycle as well as by irreversible means such as vasectomy in male lions. WII was approached to offer technical assistance with the implementing of contraceptive devices in female lions.

Between 6 and 14 August five adult lionesses of Borivili lion safari park received hormonal implants donated by Dr. U.S. Seal from the University of Minnesota, USA. The animals were immobilised in a squeeze cage and anesthetised. The implants were then placed subcutaneously in the neck region. All the animals recovered completely within 4 hours.



The animals will be monitored for side effects, weight gain, susceptibility to diabetes and lethargy. In the next phase, 10-15 animals of Sakkarbagh zoo, Junagadh will receive similar implants.

Silicone rubber implants are non-toxic and biologically non-reactive and can be removed at any time to return the animal to reproduction within several weeks after removal. The compound is released at a steady rate during the life of the implant and the quantity released is much smaller than in the oral or injection method.

The whole operation would not have been possible without active support and cooperation of Mr. V.K. Samant, Mr. N.B. Bure, Mr. Rao and Dr. Batwe of Borivili national park.

K.K. Bhattacharjee

VISITOR MANAGEMENT AND INTREPRETATION AT CORBETT

The Wildlife Institute, the CEE Ahmedabad are writing recommendations for visitor management, interpretation and visitor centre design at Corbett National Park, UP.

The documentation together with explanatory display panels are being prepared for the 50th anniversary celebrations of the park to be held in mid-November.

Editors

Journal of Bombay Natural History Society, issue 80(4) published the following article/papers/notes:

1. Gangetic Dolphin Plantanista gangetica: observations on habits and distribution pattern in National Chambal Sanctuary - by L.A.K. Singh and R.K. Sharma.
2. A gharial (Gaiialis gangeticus) at Gahirmatha coast, Orissa, India - by C.S. Kar and R.J. Rao.
3. Unusual egg-laying in a captive softshelled turtle Trionyx gangeticus (Cuvier) - by R.J. Rao.

The same journal, issue 83(1) carried the following:

1. THE INDIAN CHAMELEON, Chamaeleos zeylanicus (Laurenti) in Satkoshia Gorge Sanctuary, Orissa: Notes on Availability, Growth and Biometrics - by L.A.K. Singh.
2. Significance of residual egg-fluid to hatching patterns in the Gharial (Gavialis gangeticus) and emydid freshwater turtles (Reptilia; Crocodilia and Chelonia) - by L.A.K. Singh and R.J. Rao.
3. A note on cannibalism in freshwater softshelled turtle Trionyx gangeticus (Cuvier) - by R.J. Rao.

Also, the following paper has been communicated to overseas for vetting:

"Pattern and Significance of colonial nesting in the Gharial, Gavialis gangeticus (Gmelin) (Reptilia, Crocodilia)" - by R.J. Rao and L.A.K. Singh.

WILDLIFE MANAGEMENT, A SPECIAL ISSUE OF THE INDIAN FORESTER

In April 1986 I, in a moment of weakness, suggested that the Institute organise and edit one issue of the Indian Forester journal, as a special on "Wildlife Management", which could be released in Wildlife Week. Colleagues and the Director agreed, the Editorial Board of the journal gave their approval and the idea was launched. Perhaps if we had known then, just how much work would be involved, all of us might have had second thoughts!

The idea came about from a desire to stimulate debate on some practical management issues and to produce papers of interest to field managers. We were not interested in the more strictly biological or even educational aspects of wildlife. To focus attention on some major topics we decided to choose three themes and then, as time was running short, to invite selected people to contribute short papers on specified subjects. The themes chosen were "The Management of Fire", "Reintroductions in Wildlife Management", and "Wildlife and the People". All are relevant issues today.

We reckoned on 6-8 papers per theme, plus a theme review which at an average of 4-5 printed pages would give an issue of some 100 pages. As we were allowed upto 120-130 pages we also decided on reviews of some important national issues such as the implementation of the National Wildlife Action Plan etc.

(continued on page 16)

L.A.K. Singh



OTHER TOPICS

RAJAJI NATIONAL PARK

The State Forest Department has recently sanctioned the creation of the Rajaji National Park and ordered a reshuffle of responsibilities effective October 1. The areas covered by the park are taken out of their respective divisions and consolidated under a single park authority headed by Shri D.R. Raturi. It is expected that the formal announcement declaring the National Park will be issued by March, 1987.

H.C. Raizada

ANIMAL - MAN COEXISTENCE

Mid-August, on my way home from a visit to the deserts of North-West Rajasthan, I stopped at Sirsa in Haryana. The CWI of Haryana had informed us that crop damage by blackbuck and nilgai was prevalent in this area.

So at 5.30 in the morning, I, along with Range Officer Raj Kumar Jangre, went out to survey the situation. On the way to the village where there should be a good possibility of observing the animals we saw several millet fields which had "lost" the upper 30 cm. Judging from the foot prints nilgai seemed the culprit.

Approaching the blackbuck area, we saw a herd of more than 30 blackbucks in a fallow land, barely 200 m ahead. All were females except one male, quite occupied with keeping his 'zenana' in check.

In adjoining fields were more blackbucks. Unfortunately I had not brought a tele lense and since there was no cover it seemed impossible to get close-up pictures of the animals. "No problem", said the range officer. We got off the car and quietly approached the herd on foot. To my surprise, the animals didn't seem to take any notice until we were only 50 m away. Then they gracefully moved away and only when we again tried to come closer did they bolt in astonishing leaps.

Meanwhile, the villagers, who were Bishnois, apparently not informed of our intentions, had chased the bucks to a "safer" location. On the way back when we were invited to tea with the headman of the village. I enquired about the animals, the crop damage, etc. The pradhan and his sons reluctantly admitted that some damage was taking place, but in the same breath added that it didn't create significant problems at all. I also learnt of the Bishnois' devotion to the conservation of nature in general and the blackbucks in particular.

Crop damage, yes. Crop damage problems, well. Once again one of these incredible paradoxes of India. Elsewhere animals neglecting the holy boundaries of private property would most probably have been shot and eaten.

B. Schultz



CHEQUERED TIGER TRACER

The Tiger Tracer is a rectangular piece of glass 15 cm x 18 cm with four adjustable props, and is used to identify individual tigers by their tracks.

It had been observed during our Wildlife Management tour to Tiger Reserves/National Parks that some of the tracings of tiger pugmarks were unusually large and imperfect, hence incorrect. This is mainly because of the difficulty of correctly tracing pugmarks on a plain Tiger Tracer (Fig. 1).

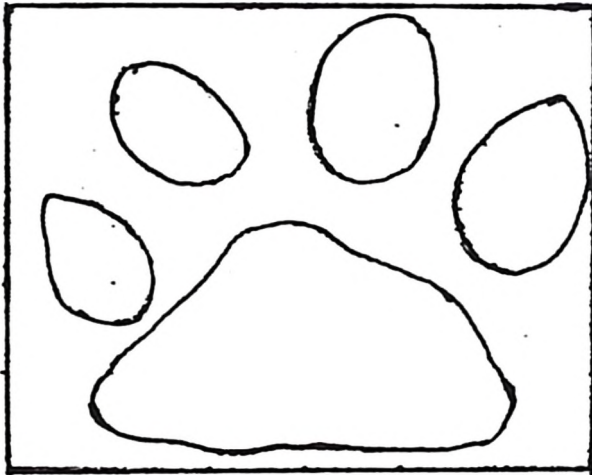


Fig-1

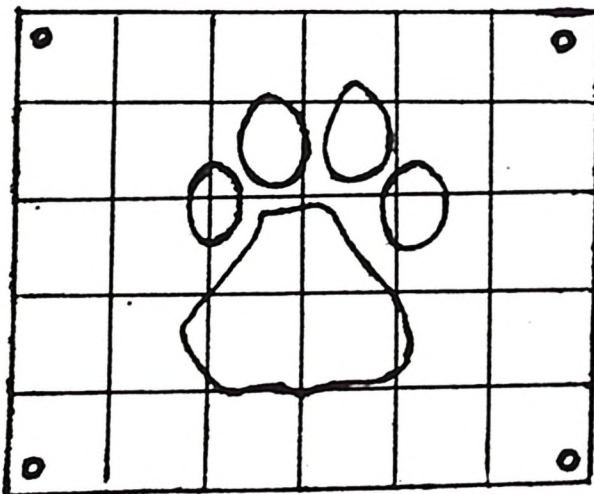


Fig-2

The tracing can be improved by imposing a grid pattern to the glasses as shown in Fig. 2. Hence the title "Chequered Tiger Tracer". The grid divides the tiger tracer glass pane into 3 cm x 3 cm squares. The lines can be etched in or drawn with a glass cutter and coloured by rubbing in black ink. The tracing will come out more accurate and even if the tiger tracer moves out of alignment it can be reoriented easily. It also becomes easier to copy on to paper. For tracing one should use paper with an identical grid pattern.

K.K. Sharma
(IIIrd Certificate Course)

MEETING OF THE STATE WILDLIFE ADVISORY BOARD, U.P.

The reconstituted State Wildlife Advisory Board of U.P. met under the chairmanship of the Chief Minister on August 26th at Lucknow. This was the first board meeting held after a gap of about three years.

The Board approved a programme for the breeding of endangered species with a total outlay of Rs.120 lakhs over the next 5 years which amounts to a great leap forward in wildlife conservation in the state. The Board also approved a programme for the propagation of Mahseer at an anticipated cost of Rs.34 lakhs.

The Board further advised to extend the ban on shooting of wild animals in the state for another two years till December 1988.

Finally, the Board also voted to declare

Sarus Crane as the state bird.
Swamp Deer as the state animal.
Ashok as the state tree.
Brama Kamal as the state flower.

H.C. Raizada

NEW FACES

RESEARCH FELLOWS AND ASSISTANTS

The appointments ball has at last begun to roll. Eight research fellows and assistants have been appointed. On behalf of all the staff we welcome them and we look forward to fruitful cooperation.

Bitapi Das and Sameer Bhatnagar, both from Dehra Dun, have joined the Rajaji Peoples Project. Bitapi has a background in commerce (M.Com.) and experience with survey work in the Doon Valley. She hopes to apply the knowledge and insights gained with this project to her Ph.D. topic "Demography and Economy in the Development of Garhwal Region" for which she has submitted a synopsis to the Garhwal University.

For Sameer, this is his first assignment after graduating from Garhwal University (MA Economics). His interest in development issues is indicated by the topic he has chosen - 'Radical Humanism'. If that sounds a little academic, work in the field will soon provide the necessary touch with the real world.

Tariq Aziz, 23 yrs. M.Sc. (Zoology) with specialization in wildlife biology and ornithology, graduated from Aligarh Muslim University. Being a keen sportsman, and fond of the outdoors, he will appreciate the exercise he will get during the "Wildlife Survey of Arunachal Pradesh". Jamal Ahmad Khan, 25 yrs. M.Sc. (Zoology) also from Aligarh Muslim University joined the same project.

Jitendra Lal Srivastava, 25 yrs, M.Sc. (Botany) was a Senior Research Fellow at Rani Durgawati University, Jabalpur, studying the flora of Jabalpur and

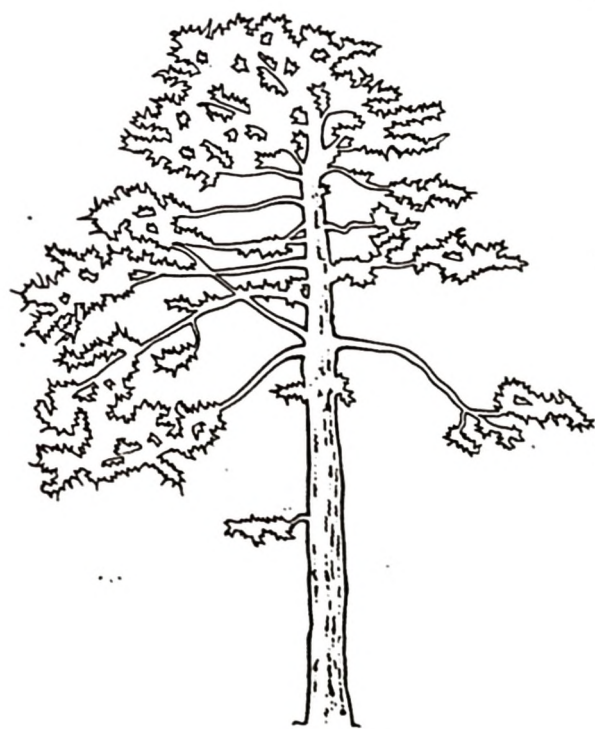
surrounds. At the Institute he will be working on "The Investigation of the Habitat Types of Rajaji Sanctuary and Their Occupance by Large Mammals".

Afifullah Khan, 25 yrs., M.Sc. (Zoology) from Aligarh Muslim University has joined the Project "Movement and Habitat Utilization of Elephants in North-Western Uttar Pradesh".

Syed Ainul Hussain, 26 yrs., a post graduate in zoology from Aligarh Muslim University has joined the Hyderabad Centre to participate in the Project "Population Dynamics, Habitat Utilization and Feeding Ecology of Gharial in the National Chambal Sanctuary".

Also working on another species of crocodile is V. Vijay Kumar, 25 yrs., M.Sc. (Wildlife Biology). He has joined the Project "Evaluation of Mugger Crocodile Restocking by Monitoring and Longterm Management Implications" covering five to six wildlife sanctuaries of South India.

Editors



FAO ASSOCIATE EXPERT

Mr. Dekker, has joined the Institute in September as FAO Associate Expert.

He graduated as Agricultural Engineer in 1981 with specialisation in plant taxonomy and biology. During various assignments in West Africa for a total of three and a half years he was involved in, among other things, habitat mapping and the technical aspects of radio telemetry. One of his major tasks here will be habitat mapping.

His full name is Aloysius Joseph Franciscus Maria Dekker. Fortunately he does not mind being called "Lewie". Welcome Lewie!

Editors

(continued from page 12)

So, in early June letters of request went out to many wildlifers all over India. We wanted short practical papers on topics of which they had considerable expertise. We thought we were being generous in allowing six weeks, till mid July, for submission. We would then have a month for editing and the journal would have gone for printing well in time.

But Alas life is not so simple! By mid July we had just two papers in! Now in late September, we have changed some authorships (half our colleagues in the field did not reply!) and we still await a few critical papers. The issue will come out, and it will we think be useful, but it will be late.

We have learnt a valuable lesson, publishing is not easy! Maybe now I will believe the editors of this newsletter when they complain.

W.A. Rodgers

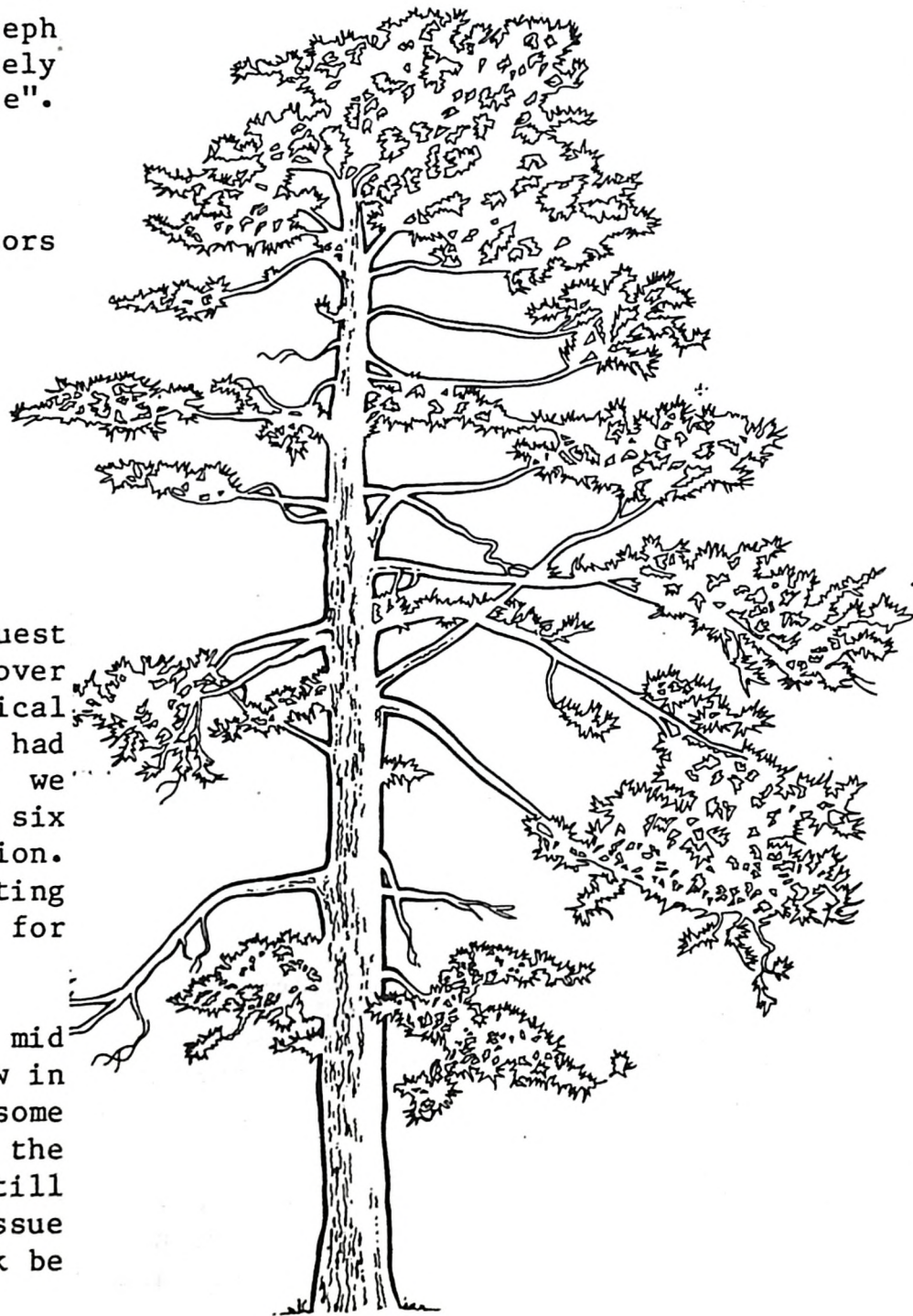


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