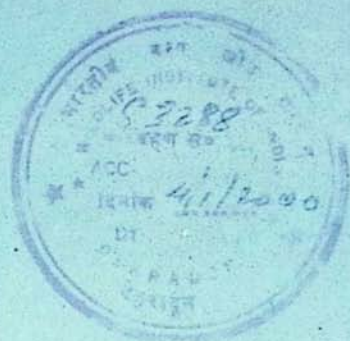
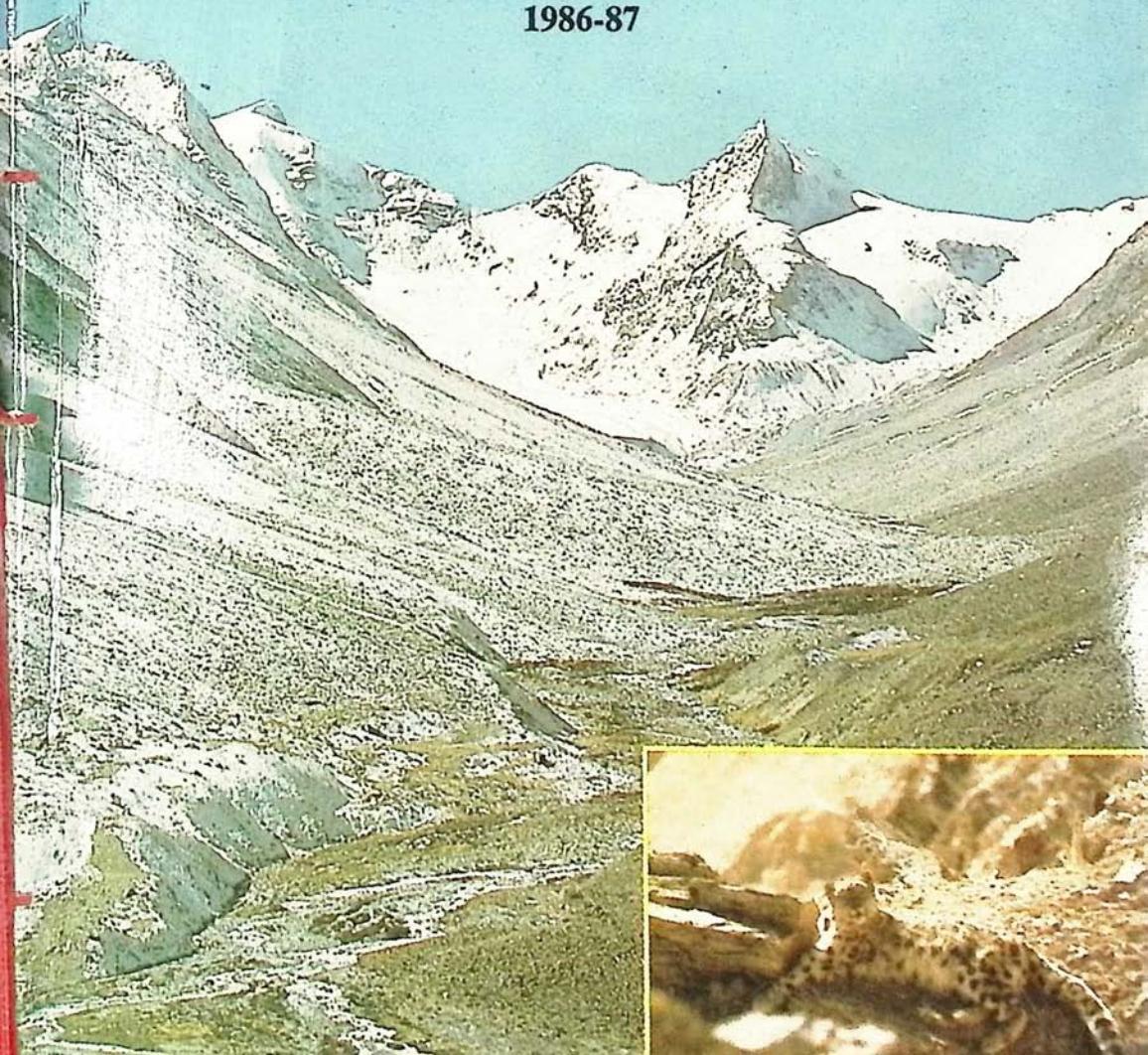


# WILDLIFE INSTITUTE OF INDIA



ANNUAL REPORT  
1986-87



**WILDLIFE INSTITUTE  
OF  
INDIA**

**An Autonomous Institution of the Ministry of  
Environment & Forests**

**ANNUAL REPORT  
1986-87**

**New Forest, Dehradun  
December, 1987**

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## INTRODUCTION

India's natural heritage in the form of diverse ecosystems and unique fauna is indeed great. Unfortunately, it has suffered pronounced depletion in the preceding decades. The pace of degradation has been so stunning that any significant conservation planning, much less scientific management of areas brought under protection, was hardly possible. Many ecosystems and species face extinction, today, unless we seriously plan to protect and use them sustainably. Even as this realisation grows, the that shortage of trained manpower and scientific information has become a major constraint. Proper planning and implementation of even those programmes for which the scarce finance can be mustered, becomes unachievable.

The Wildlife Institute of India was set up in 1982 to help overcome this deficiency through a need based training and research effort. In order to bolster its efficacy in academic pursuits, the Institute was granted autonomy as a Registered Society from April 1, 1986. The period under report is thus its first year as an autonomous institution and the one marked by brisk academic and developmental activities.

## THE OBJECTIVES

Aimed at fostering the development of the recently emerging science of wildlife conservation, the Institute's objectives are :

1. Training managers and biologists for protected area management and wildlife research.
2. Training education and extension specialists for protected areas to increase support for wildlife conservation.
3. Providing orientation courses for those involved in land-use management.
4. Conducting and coordinating applied wildlife research and evolving relevant techniques suited to Indian conditions.
5. Creating a data base for building a wildlife information system employing modern analytical techniques and computer equipment, and
6. Providing advisory services.

## PROGRAMMES

The wilderness is embroiled in pressures of demand for land and resources. The challenges to wildlife biologists and managers do not hence pertain only to the biology of the species and the science of habitat management but as much to the required compatibility between the management strategies on the one hand and the reasonable needs of the forest living people, on the other. The Institute is designing its courses in such a way as to enable its trainees to come upto these realistic challenges in the field. Likewise, the research activities have been oriented and prioritised to generating scientific information necessary to securing the welfare of endangered species and ecosystems. The activities are categorised in three broad groups viz.

1. Academic
2. Organisational
3. Developmental

### ACADEMIC

This core activity encompasses training, education and research programmes. Competent management personnel are needed to look after the growing number of





national parks and sanctuaries. Equally, in order to look after wildlife outside protected areas, short term orientation courses are required for forest officers. All management courses must stress the relevance of human dimensions in regard to wildlife management and emphasize the need for cooperation with forest living communities. Besides, short-term courses are also needed in specialised techniques of management.

Qualified wildlife biologists are needed for research and monitoring. Such personnel are also needed as teachers in all institutions, including universities, teaching life sciences, so as to emphasize the field ecology aspects. Proper training facilities in this subject are altogether lacking and the Institute has planned to operate a fully fledged post-graduate degree programme in wildlife biology.

In our present day context, wildlife research must address endangered ecosystems and species, technique development and application of modern technology under Indian conditions and, importantly, the human dimensions aspect of wildlife conservation and management. Research activities are geared to accord with these priorities and are also looked upon as a means of faculty development, essential to this upcoming Institute and to the upcoming Indian wildlife science which it is required to foster.

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The Institute also organises symposia for bringing together wildlife biologists and managers to afford opportunities for interaction and exchange of information. Another important activity is offering consultancy on scientific wildlife matters to Government at the Centre and the states.

In accordance with this academic charter, the Institute is organised in three faculty divisions viz. Wildlife Biology, Wildlife Management, and Wildlife Extension. The three divisions operate in close coordination, as ordained by the field based and applied nature of the multidisciplinary wildlife science.

## Training Programmes

The management of protected areas is with the State Forest Departments. Generally, forest officers of various levels occupy field management and senior positions in the wildlife wings of the department. In the light of the levels of forestry training background of the IFS, SFS and Range Officers the Institute has evolved courses for in-service officers.

- The 9-month Post Graduate Diploma Course is directed to meet the management planning and field management needs at the level of a director of a national park or the officer-in-charge of a sanctuary. The course work is divided into two terms. The first term prepares the theoretical background and basic techniques. The second term lays stress on management and administrative aspects. This is followed by a 6-week management planning exercise in an appropriate national





park. Each trainee then writes up a management plan for the area and this is evaluated for course credits. About half the time is spent in the field to provide the necessary experience and hands-on practice. Each tour is followed by group seminars to discuss solutions to problems encountered during field work.

- A 3-month Certificate Course is directed at the training of field level executive personnel. Admission to the course is open to persons holding a pass certificate from any of the Rangers' Colleges or its equivalent. The course structure is similar to that of the diploma course but places less emphasis on theory, stressing instead the practical aspects of management. It aims to prepare qualified technicians at middle levels for field tasks and day-to-day management.

Both the above courses combine wildlife management practice inside and outside protected areas and include management of deer parks and zoological parks. In addition to these regular management courses, a number of special workshops and orientation courses are organized to meet specific training needs. In the reporting period the following courses were conducted :

## Regular Courses

**7th Post-Graduate Diploma Course** - The 7th Diploma Course began in August, 1985 with 21 trainees from 15 states and was concluded in April, 1986. Field tours took the trainees to Bandipur, Nagarhole, Mudumalai, Nilgiri Tahr and Nagarjun-Srisailam, Palamau, Kaziranga, Sunderbans, and Manas. The management plan exercise was undertaken at Rajaji National Park.

**8th Post-Graduate Diploma Course** - This course began in August, 1986 and was in operation at the end of March, 1987. This course was attended by 15 officers from 13 states. Field tours were taken to Rajaji, Sariska, Palamau, Dalma, Dudhwa, Corbett, Gir, Little Rann, Nalsarovar and Velavadar. Visits were made at National Zoological Park and National Museum of Natural History at Delhi and the Centre for Environment Education at Ahmedabad. The management plan exercise was carried out at Satpura National Park of Madhya Pradesh.

**3rd Certificate Course** - The 3rd Certificate Course was conducted at Dehradun with 19 trainees from 10 states besides one officer from Srilanka. The course lasted through May, 1986 to July, 1986. Field studies were conducted in Rajaji, Kanha, Bandhavgarh and Keoladeo-Ghana national parks and Ken Gharial sanctuary. The trainees also visited the National Zoological Park at Delhi.



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## Orientation Courses, Seminars and Field Training Workshops

Besides the above regular courses, the Institute also organizes short-term orientation courses, seminars and field training workshops on specialized subjects of wildlife management. While seminars focus attention on the important issues confronting the managers and researchers in the field, the training workshops enable participants to learn and practise new skills and techniques of wildlife management.

The following workshops, seminars were organized by the Institute during the period under review :



**Census Workshop** - The Institute conducted a workshop on census techniques, at Sariska Tiger Reserve from November 16-20, 1986 for officers from forest departments, research organizations and university teachers. Of a total 23 participants, there were 18 forest officers, 3 from research organizations and 2 from the universities. The first draft of a manual on census techniques suited to Indian conditions was prepared and provided to each participant as a basic reference. The document was very well received and was field tested. Based on the experience an improved version is under preparation.

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**Workshop on Power Fencing** - Two workshops on power fencing were conducted by the Institute. The first was conducted at Sariska on November, 20-21, 1986 attended by 11 forest officers and the other at Kaziranga on February 10-11, 1987 which was attended by 15 forest officers and two tea planters from north-eastern states. The programme included an overview of wildlife damage problems in the country and the locally developed control strategies, status of power fencing in general in Asia and particularly in India and the efficient maintenance of power fences. Other topics covered were power fencing for elephant, for livestock, and for habitat recovery as well as the economics of power fencing.

**Conservation Education and Nature Interpretation** - A 5-week training from January 21 to February 27, 1987 was organized in collaboration with the CEE, Ahmedabad. 19 wildlife professionals from 13 different states participated.

The course was directed at developing through discussions and practice, the capabilities of wildlife professionals in preventing and coping with the conflicts arising between wildlife conservation and human needs. The training aimed at generating knowledge and skills necessary to :

- designing solutions to area or situation specific problems;
- effective recreation management;
- education and information for visitors to protected areas; and
- planning urban extension services.

A training report with recommendations for future events of its kind was prepared.



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## Education Programme

**M.Sc. Wildlife Biology** - This major training activity is mainly awaiting a proper tie-up with a suitable university. Exploration for affiliation was done with a number of universities viz. Bombay, JNU, AMU, Garhwal and Saurashtra. Finally, for two



reasons negotiations have advanced with the University of Saurashtra, Rajkot, Gujarat. Firstly, the Saurashtra University has a department of Biosciences (combining botany, zoology and environmental sciences) which has been recognized by the UGC for special assistance. There are two very senior professors respectively in plant ecology and animal ecology, who have been involved in a number of wildlife research projects. Secondly, the evolving arrangements for recognition does not involve any stipulations on the administrative side. The proposal is in an advanced stage of negotiations with the University and the Government of Gujarat. It is expected that the course will finally start in late 1987 or early 1988. The syllabus, the course structure and costs have been finalized. The Institute plans to offer six fellowships on merit basis to deserving students.

RESEARCH PRIORITIES OF THE WILDLIFE INSTITUTE OF INDIA

Field of research	PRIORITY ONE						PRIORITY TWO		PRIORITY THREE	
	High Altitude	Siwaliks, Terai and Duars	Grasslands	Crucial Corridors	Hot arid	Tropical rain forests	Freshwater	Mangroves	Marine	
Ecosystems and regions	Highly Endangered Species	Indicator Species	Problem Species			Species of economic importance		Orchids etc.		
Techniques and methodologies	Quantitative evaluation and monitoring of wildlife habitats	Impact assessment upon wildlife and their habitat	Fire management of wildlife habitats	Population assessment and monitoring	Wildlife habitat in managed forests	Habitat manipulation including water management		Capture and handling of wild animals	Status surveys	
People's needs and involvement	Interface conflicts and animal damage control	Ecodevelopment around protected areas (pilot models)	Conservation Education			Visitor centres for parks				
Other activities	Documentation and database	Publication of monographs and reports	Assist universities and Wildlife Wings in research	Management Planning		Appraisal and assessment of research projects			Nodal agency in coordinating wildlife research	

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## RESEARCH

Wildlife research directly conducted by the Institute is aimed at acquiring an improved understanding of the problems of important ecosystems and species and is seen as a means of faculty development. The activity is planned and conducted under the purview of a Research Advisory Committee (RAC) comprising ecologists, wildlife biologists, wildlife managers, a silviculturist and representatives of Botanical and Zoological Surveys of India. To start with the RAC has developed criteria for prioritising wildlife research and has also formulated a matrix for ready understanding of priorities in terms of ecosystems, species, techniques and human aspects. During the reporting period the RAC approved new research projects, and some ongoing ones with modifications as deemed necessary. Research Fellows for these studies were selected and given a 3-week capsule training in study methods and techniques. These studies were underway during the year and a brief resume of progress is as follows :

### 1/THE INVESTIGATION OF HABITAT TYPES OF RAJAJI SANCTUARY, AND THEIR UTILISATION BY LARGE MAMMALS

Over 400 plant species have been collected and incorporated in W.I.I. herbarium. Mapping of habitat parameters is in progress; data are being reanalysed after stratification into disturbed and un-disturbed sites.



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## 2/ INVESTIGATION OF BIOGEOGRAPHIC PATTERNS OF RELEVANCE TO PLANNING OF LONG TERM WILDLIFE CONSERVATION STRATEGIES IN INDIA

The objective of this project is to develop viable conservation strategies to conserve the extensive endemic and rare flora of some selected biogeographical zones of India. The project concentrated on two areas, Meghalaya and U.P. Himalayas. The study for plant conservation planning of Meghalaya is almost complete and the writing of the final report is well underway. The study of U.P. Himalayas is in progress.

## 3/ MOVEMENT AND HABITAT UTILIZATION OF ELEPHANTS IN NORTH-WESTERN UTTAR PRADESH

The first elephant was immobilized and radio-collared on 14 January 1986 and data have been collected on the movement of the collared elephant in relation to Rajaji habitat types and water distribution. However, on 29 January 1987 the radio transmitter from this elephant was damaged and became detached from the collar. A mishap occurred while attempting second immobilization on 6 February 1986. Permission for further immobilization and radio-collaring has been temporarily withdrawn. This has affected the progress of work although the research fellow is continuing work on direct observations by following elephants after locating them. The analysis of the data so far collected is in progress.

## 4/ ECOLOGY OF THE ENDANGERED GRIZZLED GIANT SQUIRREL IN SRIVILLIPUTHUR RANGE, TAMIL NADU

Individual squirrels have been identified and data on their feeding behaviour, ranging pattern and time activity budget was collected for one year. Information on vegetation, nesting and tree phenology of major food species is being collected.

## 5/ FOOD HABITS AND RANGING BEHAVIOUR OF THREATENED NILGIRI LANGUR IN MUNDANTHURAI, TAMIL NADU

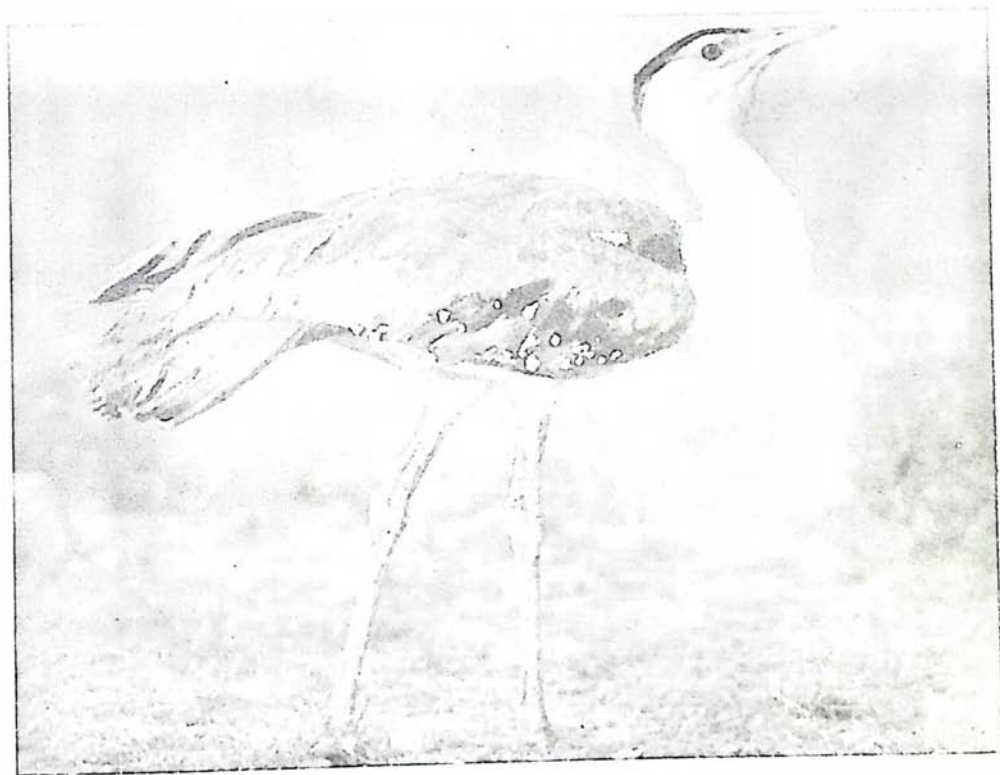
Two year data on the troop with restricted habitat and one year data on the troop with fairly large habitat are available. The project is now in its last phase of field work and the research fellow will soon start writing his thesis.

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## 6/ ECOLOGY OF THE INDIAN FLYING FOX IN THE DEHRADUN AREA

The data on seasonal fluctuations in the population of Indian flying fox (fruit-bat) at the roost sites has shown a relationship with the fruiting season. The breeding behaviour of the flying fox is under observation and data collected is under analysis.

## 7/ ECOLOGICAL SURVEY OF SNOW LEOPARD POPULATIONS AND ASSOCIATED PREY SPECIES IN NORTHERN INDIA



The survey work has been completed and final report prepared. Based on this survey a detailed proposal has been drawn up for a 2-3 year intensive study of snow leopard and associated prey species in Zin-Chin area in Ladakh, Jammu & Kashmir.

## 8/ THE DEPENDENCY OF LOCAL PEOPLE ON THE RESOURCES OF RAJAJI NATIONAL PARK

The field work has been completed and the findings in detail are at present under



preparation. The study suggests a number of imperatives in order to ensure compatibility between conservation objectives and resource needs of local people.

#### 9/ECOLOGICAL FACTORS PERTINENT TO IMPROVED MANAGEMENT OF THE ASIATIC LION IN INDIA

The main objective of the study is to make recommendations for improved management strategies of the last resort of the Asiatic Lion in Gir on the basis





of a detailed study of predation patterns, spatial requirements, abundance and composition of lion population. Data continues to be gathered on scat collections, kill evidence, birth and death occurrences. With the immobilization and radio-collaring of 4 lions in January, 1987 their regular monitoring is yielding valuable data on associations, predation and range use.

#### 10/ A STUDY OF THE UNGULATE HABITAT ECOLOGY IN GIR

Preliminary data pertaining to habitat types and animal evidences have been gathered. For long term monitoring of vegetational change due to biotic factors, sites for detailed study plots have been selected. The field work is in progress.

#### 11/ MONITORING OF RHINOCEROS REINTRODUCED IN DUDHWA NATIONAL PARK

Preliminary data on the study area is being collected. The study commenced in March, 1987.

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## SYMPOSIA

### Symposium on Wildlife Habitat Evaluation using Remote Sensing Techniques

A 2 day symposium on the subject was held on October 22-23, 1986 at Dehradun in collaboration with the Indian Institute of Remote Sensing. Nearly 30 wildlife biologists, remote sensing analysts and practitioners from the host institutes, the National Remote Sensing Agency, Hyderabad and Space Application Centre, Ahmedabad participated in the Symposium. The symposium was aimed at identifying information - need in solving area specific problems and how and to what extent could remote sensing techniques be employed in this and in wildlife habitat evaluation and environmental impact assessment.

The symposium stressed the need of ongoing collaboration between biologists/wildlife managers and remote sensing technologists for evolution of efficient techniques appropriate to Indian conditions and requirements.

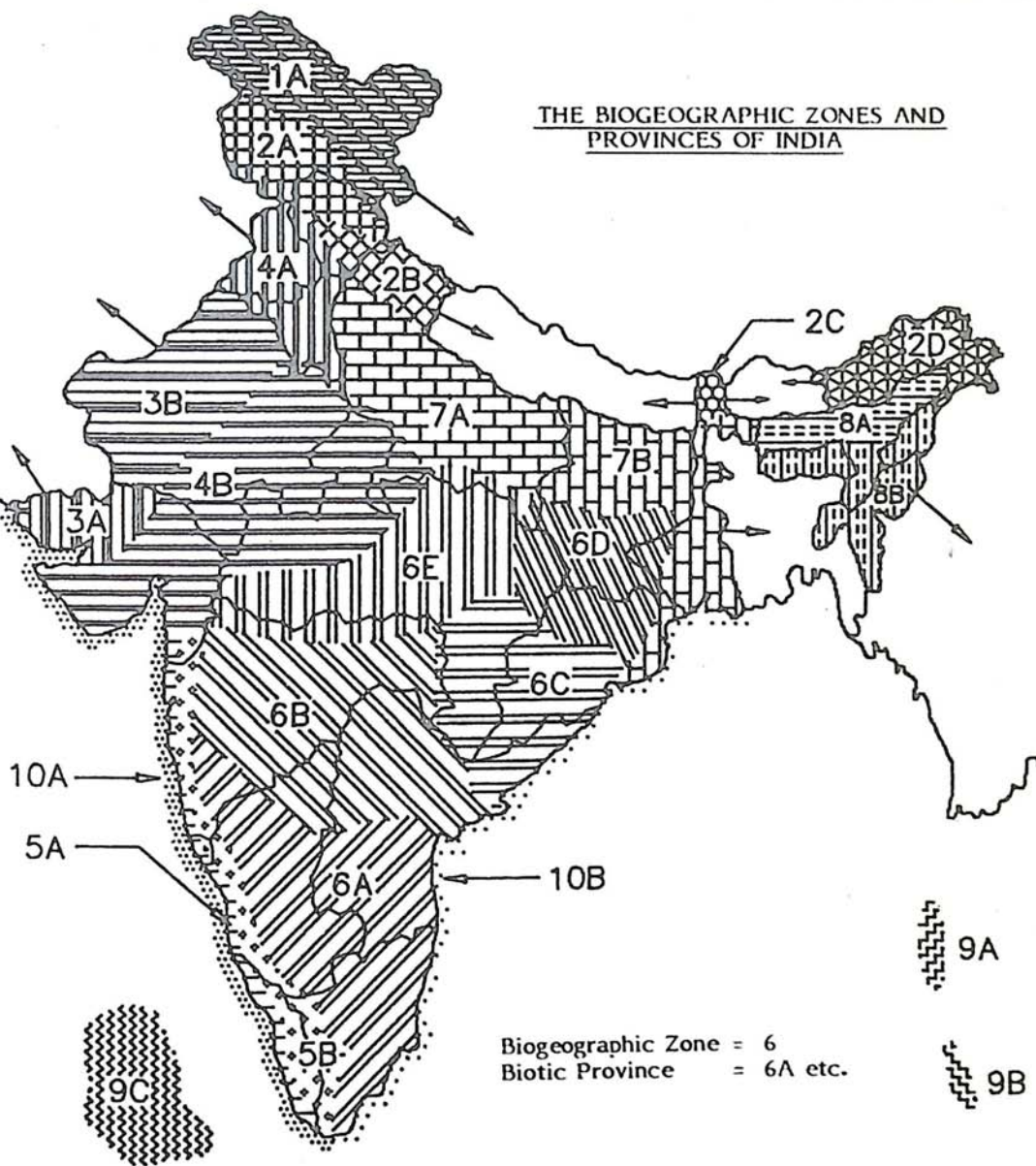
### International Symposium on Snow Leopard

Snow leopard is the main indicator species of the high altitude and trans-Himalayan wildlife ecosystems. Very little information exists on these fragile and pressured areas. An international symposium was organized at Srinagar in Kashmir during October 13-15, 1986 in collaboration with the International Snow Leopard Trust. The symposium was attended by research scientists, national park managers and officials of zoological parks from U.S., U.K., Finland, Sweden, Switzerland, Canada and India.

The W.I.I. Snow Leopard Survey Team which had covered areas in Jammu and Kashmir, Himachal Pradesh and Uttar Pradesh presented their findings and stressed the need of an intensive study on the ecology of the snow leopard and its associated prey in an appropriate locale in Ladakh. Status reports on wild snow leopard for various countries were presented, the one for India by the W.I.I.

The main recommendation that emerged from the symposium was the immediate need to undertake an ecosystem oriented conservation project for the snow leopard which could bring about similar conservation benefits to high altitude Himalayas as was derived from Project Tiger in the low-land India. The need for captive propagation of snow leopard and training of field research workers in techniques and methodology of survey, research monitoring and evaluation was also stressed.

THE BIOGEOGRAPHIC ZONES AND PROVINCES OF INDIA



Biogeographic Zone = 6  
Biotic Province = 6A etc.

- 1A. Ladakh
- 2A. NW. Himalaya
- 2B. W. Himalaya
- 2C. C. Himalaya
- 2D. E. Himalaya
- 3A. Kutch Desert
- 3B. Thar Desert
- 4A. Punjab Plains
- 4B. Gujarat-Rajwara

- 5A. Malabar Plain.
- 5B. Western Ghats
- 6A. Southern Deccan
- 6B. Central Deccan
- 6C. Eastern Highlands.
- 6D. Chota Nagpur
- 6E. Central Highlands.
- 7A. Upper Gangetic Plain

- 7B. Lower Gangetic Plain
- 8A. Brahmaputra Valley
- 8B. Assam Hills.
- 9A. Andamans.
- 9B. Nicobars.
- 9C. Lakshadweep.
- 10A. West Coast.
- 10B. East Coast.

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## CONSULTANCY

### National Biogeography Project

This consultancy entrusted by the Government of India is derived from the first priority of the National Wildlife Action Plan, and seeks to formulate suggestions for a biogeographically representative network of wildlife protected areas.

The consultancy report is at an advanced stage of formulation of the final draft. Compiling of a large number of maps needed for the final report awaits arrival of computer hardware. The final report is expected to be ready by end of 1987.

The Wildlife Institute of India's Biogeographic Classification recognizes ten major zones which are divided into a total of 25 biotic provinces, each larger province may have a further level of sub-division. These biogeographic units contain a variety of ecological formations or biomes. For example :

Zone 2 is the Himalaya Mountains

Province 2B is the Western Himalaya (Satluj to Gandak)

Sub-divisions are Himachal, Garhwal and Kumaon

Biomes include: subtropical pine, temperate Oak,  
subalpine scrub etc.

The objective of conservation planning has been to identify a major protected area of national park status in each biogeographic sub-division, which covers a wide range of biomes. Further protected areas, either parks or sanctuaries, will conserve other biomes or additional significant populations of important species.

At present India has a protected area network covering some 3.1% of the country. Proposals within the biogeography report raise this figure to almost 4.6%.

### Professional assistance/training provided to states

**Population control for captive lions** - Contraceptive injections and silicon rubber implants containing melengestrol acetate or medroxy progestosterone have become increasingly popular as a means of regulating the reproductive activities of many large captive felids in most of the western zoos. In India a good number of zoological parks are facing the problem of over population of large carnivores which cause stress due to space and financial limitations of zoo authorities.

Trial implants were made in August, 1986 on 5 adult lionesses in Borivli Lion Safari Park after drug immobilisations. These non-toxic implants are reported to be functioning effectively.

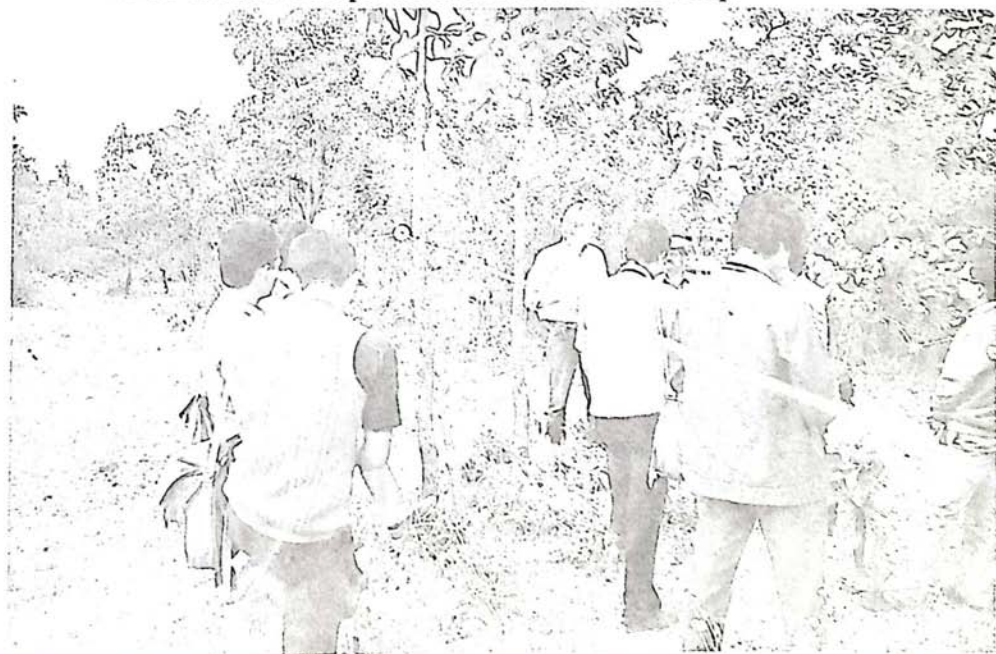
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**Census Techniques and Health-care Investigations** - In mid May, 1986 consultancy services were provided to Ranthambhore National Park, Rajasthan to improve wildlife census techniques as well as to investigate density distribution patterns of various species of wildlife. Assessment of general health condition in dense chital areas of the park was made. A case of 'tuberculosis' was detected.

**Demonstration of capture by chemical immobilisation for elephant population control** - Pursuant to the directives of Government of India a demonstration of elephant capture by chemical immobilisation was held in Meghalaya between October, 27 and November 2, 1986. Two wild elephants were captured from the dense Dedangiri forest of West Garo hills district which were then taken to a training camp for domestication. Both the elephants are now fully trained and reported to be in sound health.

**Chemical restraint of an aggressive domestic elephant** - Emergency help was provided to the Forest Department and Raibareli district administration of Uttar Pradesh in restraining a working elephant (tusker) in *musth* which had escaped to a neighbouring village and had killed one villager, wounded another and damaged property ranging from bicycles to tractors and agricultural crops. The animal was immobilised and restrained with chains to the relief of local people.

**Training of two wildlife veterinarians from Zaire** - Two veterinarians from the Institute of Nature Conservation, Zaire underwent special training in capture and domestication of Asiatic elephant under an ITEC fellowship.



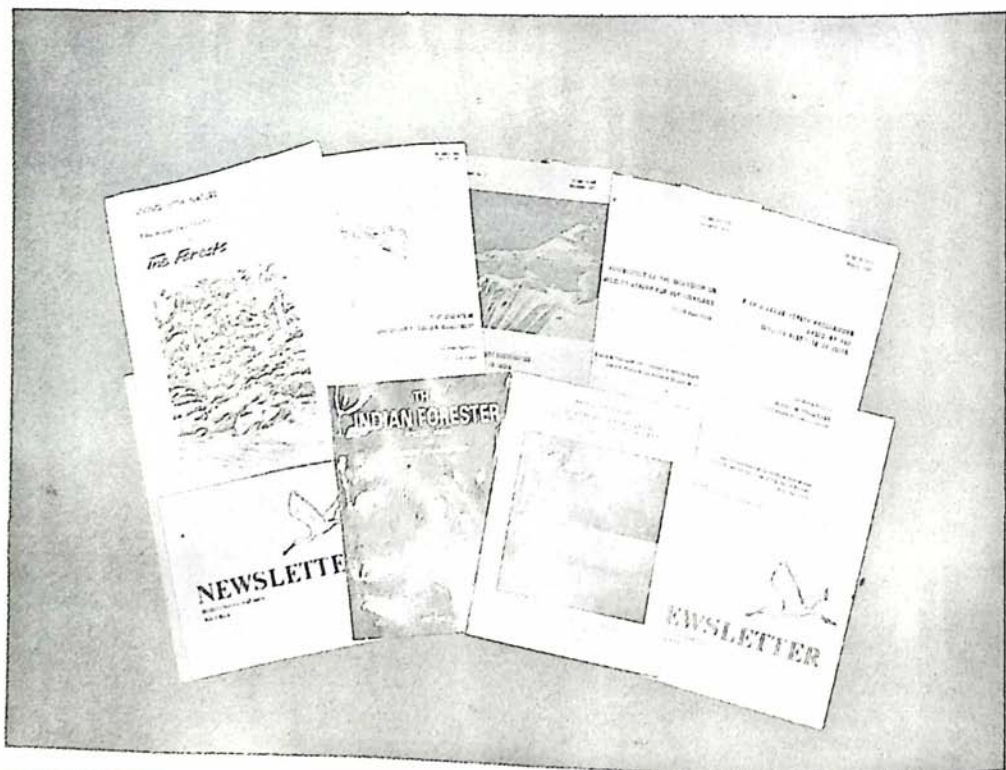
**Electric Fencing Trials** - 15 electric fencing trials are in progress under the auspices of the Institute throughout the country. Set up mostly to control elephant movements, some trials are directed at protection against damage by wild boar, deer and cattle. The total length of the trial fences is presently 151 kms. The results have generally been encouraging and the Institute continues to provide assistance by way of consultancy to state agencies.

## PUBLICATIONS

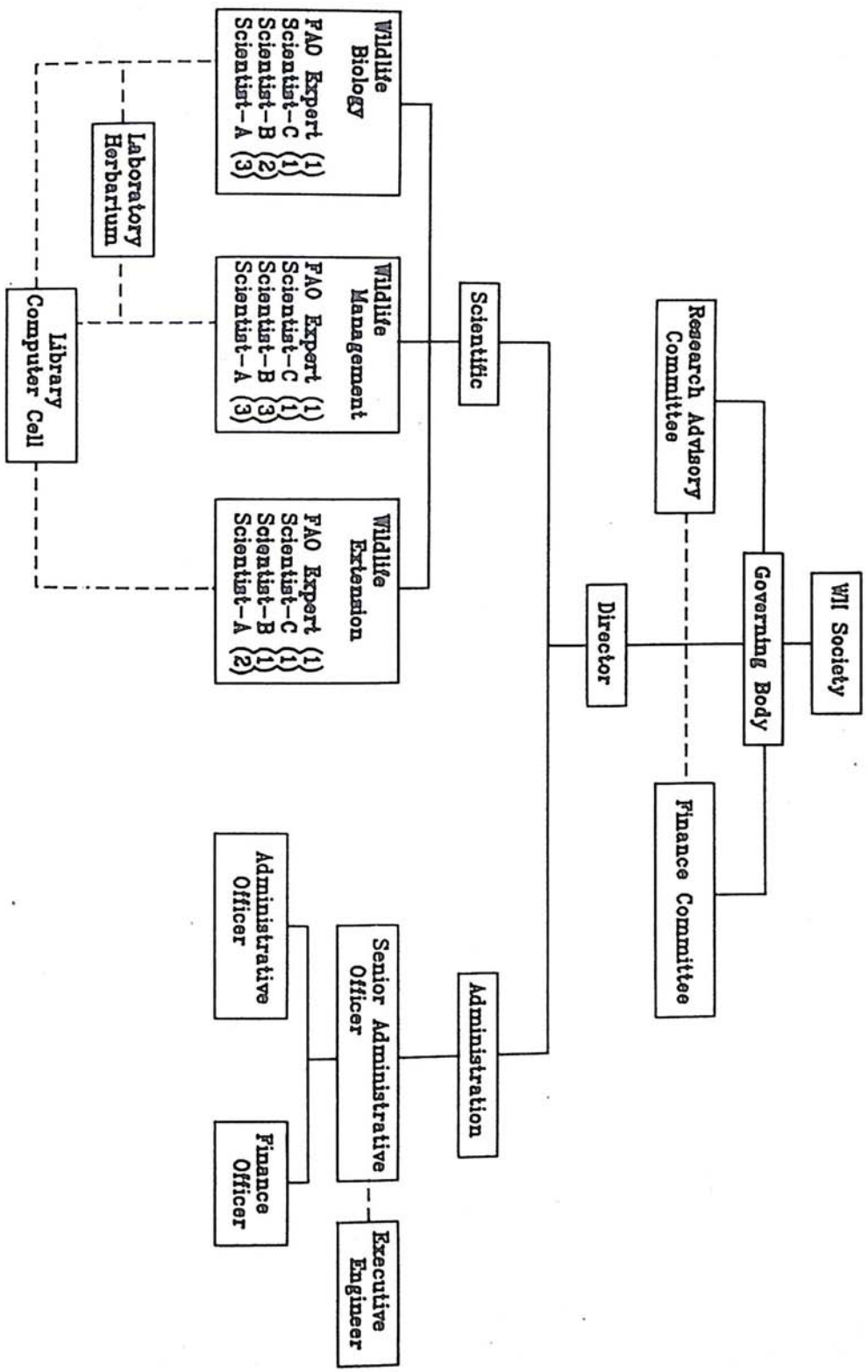
The Institute is regularly publishing its bi-monthly Newsletter. The proceedings of the Symposium on Wildlife Habitat Evaluation Using Remote Sensing Techniques was jointly published by the Wildlife Institute of India and the Indian Institute of Remote Sensing. The October issue of the Indian Forester, which the W.I.I. helped edit and put together, was devoted exclusively to wildlife management. A substantial number of articles for this issue were contributed by the Institute's faculty.

The report of the Conservation and Nature Interpretation Workshop which was organized by the Institute has been finalized.

Over 40 research papers were published by the faculty members of which many are published in journals of international repute. A detailed list of these appears at the end.



**WILDLIFE INSTITUTE OF INDIA**  
Organizational Chart



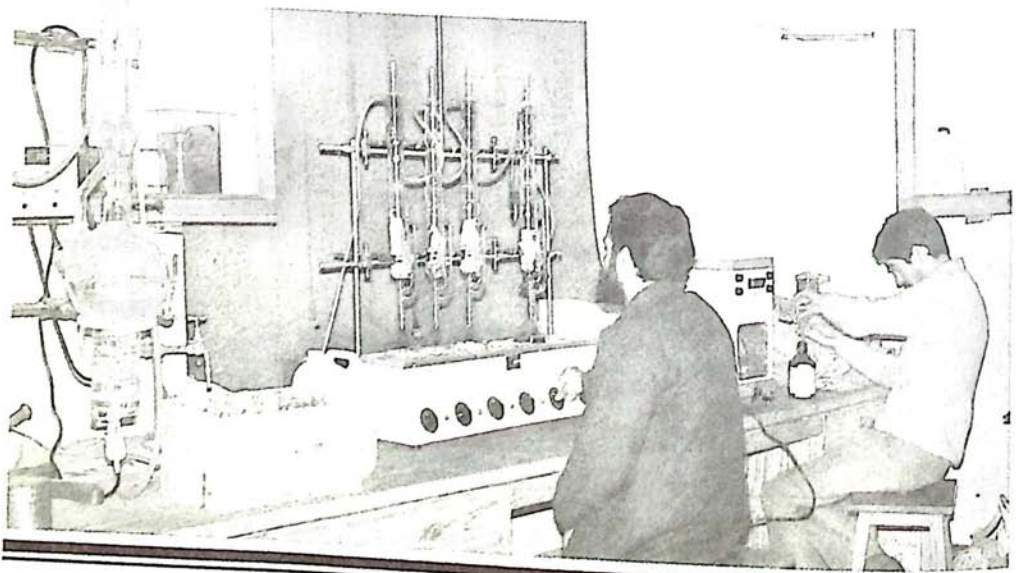
## ORGANIZATIONAL

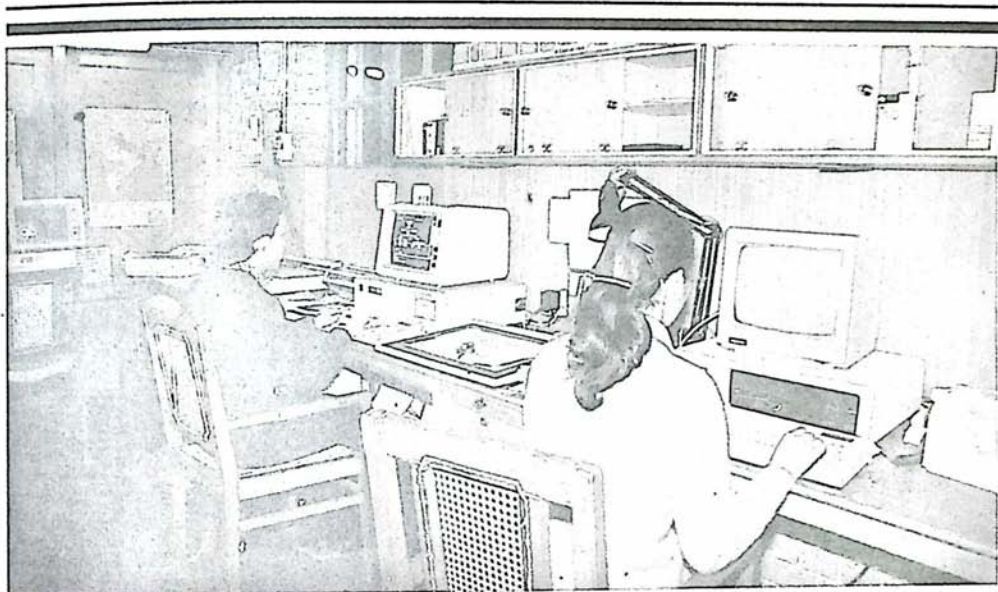
### Autonomous Status

In order to provide the needed efficiency and flexibility in pursuing academics, the Institute assumed autonomy, effective April 1, 1986, by registering itself as a Society under the Societies Registration Act. The 35 member W.I.I. Society, presided over by the Minister for Environment, Forests and Wildlife has a varied membership comprising Forest Ministers of some States, Members of Parliament, Members of the U.P. Legislative Assembly, officials of some concerned Ministries, and non-officials including representatives of NGOs connected with wildlife conservation. The Institute functions under a 14 member Governing Body chaired by the Secretary, Environment, Forests & Wildlife. The Governing Body normally meets once in every three months. Some of its functions have been delegated to Sub-Committees in matters such as finance, research and building construction.

### Faculty and other recruitments

A new set of recruitment rules was framed corresponding to an autonomous scientific institution. The new rules provide for merit based promotional avenues. The scope of essential and desirable qualifications was widened so as to create and promote a multidisciplinary faculty in the three divisions viz. Wildlife Biology, Wildlife Management and Wildlife Extension. On the basis of current needs and limited by the availability of appropriate candidates, recruitments were made during the year through three Selection-cum-Assessment Promotion Committees nominated by the Governing Body for the Scientific, Technical and Administrative services at various levels.





There are in all 23 posts in the faculty including the Director, who was already appointed earlier through UPSC by the Government. Against the remaining, from nearly 1000 applicants who responded to a widely publicized national advertisement, 17 were offered appointments and 15 have joined. Two of these are Scientist-C, six are Scientist-B and seven are Scientist-A. One Scientist-C was sent on deputation by the Government, thus making a total 16. Of the remaining 89 technical, administrative and maintenance posts, 63 incumbents have been appointed at various levels.

### FAO Inputs

The Institute in its current development phase has the advantage of a FAO-UNDP project aimed at institutional development. The project inputs are of three types viz. foreign experts, overseas fellowships for Indian faculty and specialized equipments. There are three core experts, one each for the three faculty divisions, and the senior most of these works as the Chief Technical Advisor. In addition, two Associate Experts respectively on habitat evaluation and animal damage control have also been functioning. Another expert on wildlife database came for a short tenure of a little under three months.

Shri B.C. Choudhury, Scientist-B was deputed on a 3-month fellowship to U.K. at Jersey Wildlife Trust for training in captive breeding of endangered species.

Specialized equipment procured via the FAO project included two IBM PC/AT Computers, Telenject immobilization outfit, radio-tracking equipment for lions, high altitude camping gear, electric fencing equipment, large format camera and accessories, polaroid quick slide making outfit and field vehicle spares.

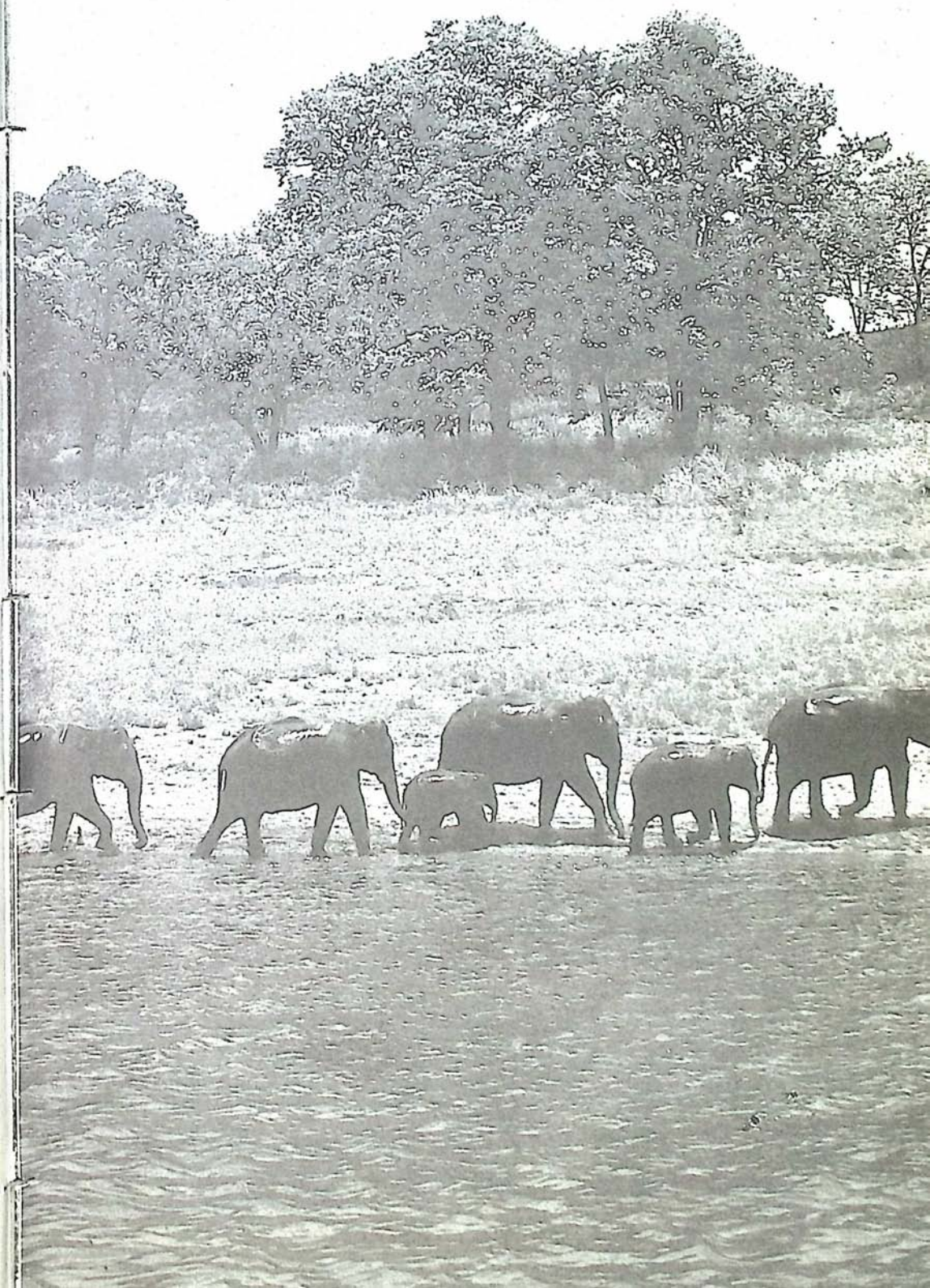
A summary of budget and actual expenditure of the FAO Project from January to December, 1986 is as follows :

Description	Budget US\$	Expenditure US\$	Rate of completion
Personnel	264,230	266,486	102%
Training	10,000	6,347	64%
Equipment	47,000	53,642	114%
Miscellaneous	19,000	19,462	102%
<b>Total</b>	<b>340,230</b>	<b>347,829</b>	<b>102%</b>

### Logo Design Contest

The Wildlife Institute of India, in order to have its own logo, arranged a Logo Design Contest. A number of noted individuals and organizations were invited and in response 46 participants sent in all 109 entries. The entries have been examined by a panel of judges and adoption of a Logo awaits Governing Body decision.





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## DEVELOPMENTAL

### Internal Faculty Training and Special Tours

New faculty members from different disciplines joined the Institute during October-November, 1986. An important developmental task has been to orient and train this new multidisciplinary faculty. Familiarization with the realistic field situations, status of species and ecosystems and conservation issues vis-a-vis the forest living people, is crucial to their teaching and research pursuits. These training inputs have been visualised in four ways. The first is the study of literature and interaction with senior Indian faculty and FAO experts leading to preparation of lecture outlines for teaching various course components. The second is further interaction with senior faculty and experts in class rooms and field tours of trainees and the third is the special study tours to selected protected areas for orientation to and familiarization with field ecology and conservation issues. The fourth type of input is by way of advanced training abroad under FAO fellowships in specialized subject areas and techniques.

All the three types of intra-institutional training inputs have been provided and the new faculty were encouraged to take up lectures at the Certificate Course level initially and to some extent at the PG Diploma Course, subsequently. Only one overseas fellowship was availed of, that being Shri B.C. Choudhury, Scientist-B having been deputed to U.K. for 3-months training in captive breeding of endangered species. The Director participated and presented a paper at the International Symposium on Tiger at Minnesota, U.S.A.

Special study tours to select protected areas for the new faculty included Rajaji, Kanha, Gir, Little Rann (wild ass), Velavadar and Pirotan (coral reef, marine fauna and mangroves). The tours focussed on status of ecosystems and species, conservation issues, research and management imperatives and the role of W.I.I. in this context. These study tours gave them an opportunity to look at diverse habitats such as Siwaliks, Central Indian Highlands, arid areas of Western India and reef fauna and mangroves of Kutch. They were also able to look at the conservation problems of critically endangered species, and the management strategies in case of species like barasingha, wild ass, elephant, black-buck, tiger and lion.

### National Wildlife Data Base

The setting up of a micro-computer based National Wildlife Data base has been initiated. The data base is designed to intergrate information on the conservation status of species, habitat types, biogeographical regions, administrative units and specific protected areas.

The objective of the data base is to classify biogeographical units by habitat types, monitor the status of those habitats (how much remains, how much is protected) and link species distribution data, protected areas data and species-by-locality data collected in the field.



The system is thus programmed to accept data on the distribution of species and habitat types used by species, the overall distribution and rate of loss of different vegetation types, location and management details of all the protected areas, qualitative species lists for any location and census records wherever actual counts of animal numbers have been made. The data base system is designed to bring together the most up-to-date vegetation classification system for the sub-continent which combines the three existing classifications now in use, namely the forest type classification of Champion & Seth, the vegetation series classification of Meher-Homji and the forest cover classification of the Forest Survey of India. A simple three digit code has been devised to classify any vegetation according to all three of these separate classification systems.

Mapping facilities through means of a plotter and a digitizer together with appropriate software (Autocad and GIS system) are being added to enable the data base to store a lot of information in a map form as coordinate files. This will enhance the type of output generated by the data base and species print-outs could then be accompanied by maps showing the overall distribution of the species, the locations where the species are protected.

An important component of this programme to be followed up is the collection of data from sources e.g. the B.N.H.S., the Zoological and Botanical Surveys of India. Considerable further field based research is needed to establish techniques for rapid data collection on status of species and habitats and application of modern analytical methods e.g. systems analysis and GIS.

Two faculty members worked as Indian counterparts to the short term FAO expert on data base and have received basic training in computerized data base system. They

are to be further groomed in this field through further research and overseas training.

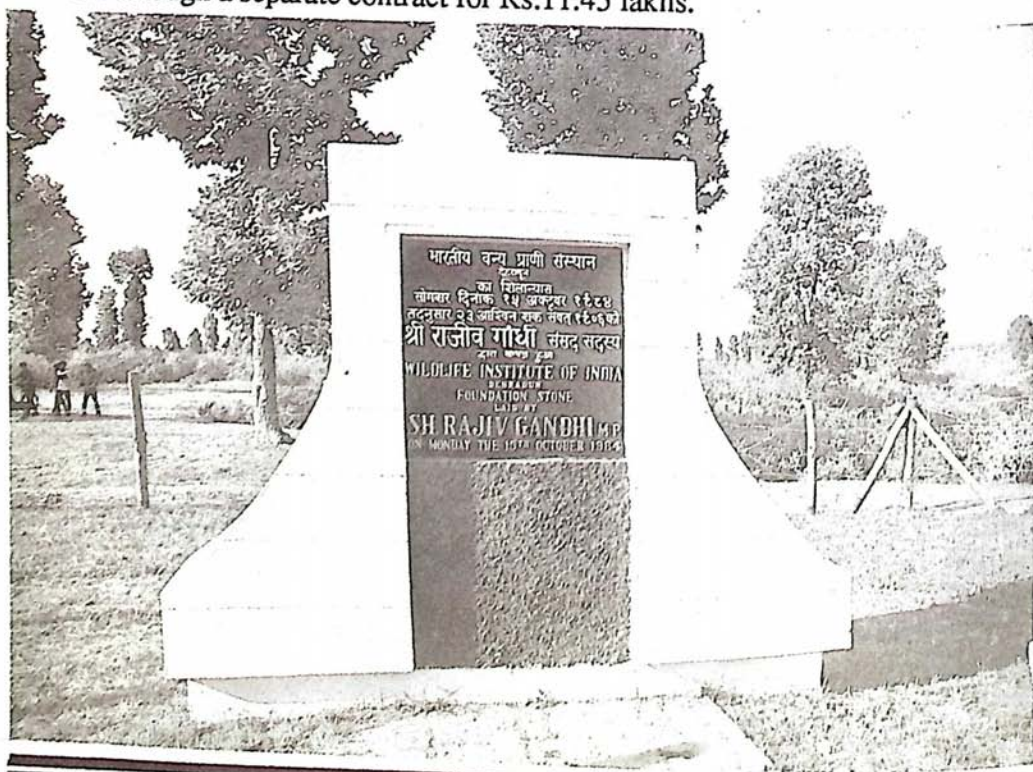
## Campus Development

The Institute, for its new campus, has an exciting wooded site in the Siwaliks, foothills near Dehradun in the Doon Valley. The Government of Uttar Pradesh, in addition to the gift of this 80 hectares site in three blocks has provided access road and bulk power and water supply.

A national architectural competition was organized for detailed lay out plans, architectural and structural designs and landscaping. A specially appointed jury selected the design of one M/s Kothari Associates, New Delhi as the best entry from a total of 25 entries received. In addition to a first prize of Rs.75,000/- to the best design, a second prize of Rs.50,000/- and a third prize of Rs.25,000/- were awarded to two other entries, so adjudged.

The first prize winner, M/s Kothari Associates, have been appointed Consultant Architect for detailed designs, estimates and supervision of construction work. While the Consultant Architect has been preparing detailed designs and estimates, the exercise of prequalification of contractors for the construction work has been done by national advertisement and short listing of applicants by the Tender Committee. Stage will soon be ready to embark on the main constructions.

Meanwhile construction of boundary wall of the main campus block has been initiated through a separate contract for Rs.11.45 lakhs.





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## Library and Documentation

Academic work and training at the Institute is backed by a rapidly upcoming library service comprising text and reference books, research journals, reprint and documentation facilities. With the recruitment of new library staff, documentation work has been accorded priority. A Library Committee constituted within the Institute oversees the library development and service.

A total of 1449 books were added to the library during the period under report of which 1042 were purchased and 407 were received as gift, bringing the total to 4000 books. There are 118 titles of journals and periodicals, 59 of which are on current subscription and an equal number received as gift. Among those on subscription, 40 titles are foreign (8 added this year) and 19 are Indian (4 added this year). There are 350 bound volumes of journals.

The library maintains a films section. Twenty four 16-mm films on various conservation topics were added to this section bringing the total to 33.

About 2000 slides on 40 different aspects of forest and wildlife conservation and interpretation techniques have been collected by the Wildlife Extension Division under its developing facilities of slide library for teaching and extension. The cataloguing system devised covers the following broad subjects:

- a/ Animals
- b/ Natural Habitats
- c/ Human Habitat/Activity/Life-style
- d/ Environmental Problems
- e/ Protected Area Management
- f/ Specific Area and Themes

## Laboratory and Teaching Aids

The Institute is engaged in research on different animals and ecosystems. In order to support field observations with the laboratory analyses, the existing laboratory facilities are being strengthened with view to developing them to a level appropriate for a good research laboratory. Main laboratory equipments added include analytical balance, laboratory oven, muffle furnace, flame photometer, spectrophotometer, pH meter, conductivity meter, BOD incubator, centrifuge, crude fibre apparatus and Soxhlet extraction heater.

The Institute has procured 321 maps and 131 aerial photographs for different areas from Survey of India for use in field studies by faculty and research fellows and for management plan exercises of Diploma trainees.

The herbarium collections are being augmented for reference by research scholars. Herbarium specimens are also used in class-room study and practicals. Approximately 1500 specimens covering about 500 species were collected from different protected areas by the faculty members and research scholars and identified with the

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help of various regional floras and seeking assistance from Botanical Survey of India and the Forest Research Institute. The herbarium is presently housed in a make shift hired space and proper facilities will have to await until the Institute's new campus comes up.

### **Other Equipments**

Computer Equipment includes 2 units each of APPLE IIe, IBM PC/AT and UNICOMP PC/XT with some printers and a digitizer with appropriate software for word processing, graphics, mapping and data base.

Audio-visual equipment added to supplement teaching aids includes a 70-cm colour television and a video cassette recorder.

Chemical immobilisation equipment acquired this year includes 4 sets of distinct equipment (Immobilising Gun with its accessories) and different drugs such as Ketamine hydrochloride. Acepromazine maleate and Xylazine hydrochloride.

### **PERSPECTIVE FOR 1987-88**

Tempo of activities in the academic, organisational and developmental sectors will pick up from the firm base set up in 1986-87. On the academic side M.Sc. Wildlife Course will be launched towards the end of 1987. Besides the usual PG-Diploma and Certificate courses, the Workshops on animal census and habitat evaluation, for managers and biologists, will be the main short duration trainings. A detailed study of the trans-Himalayan ecosystem in Ladakh with special reference to snow leopard, and another of turtles, dolphin and otter in National Chambal Sanctuary will be undertaken. The present studies would also make considerable headway in the coming year.

The important consultancy work on the planned national network of biogeographically representative protected areas will be completed and published. A techniques manual for the use of managers will be brought out besides a guide book on pheasants and a few occasional technical papers. An updated and elaborate version of the Directory of National Parks and Sanctuaries will also come out as a collaborative activity with the Indian Institute of Public Administration.

Faculty development activity will be intensified through both on-the-job training at the Institute and overseas fellowships in specialised subjects, under the FAO-UNDP project.

At the new campus, besides construction of boundary wall and fence of all the three blocks, the construction of the institutional and residential buildings will be started. The already initiated avenue planting on approach road will be consolidated. The coming year thus promises to be busy and eventful.

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## GOVERNING BODY

1. Shri T.N. Seshan,  
Secretary,  
Ministry of Environment & Forests, Chairman  
Paryavaran Bhavan, 'B' Block, CGO Complex,  
Lodi Road,  
**NEW DELHI - 110 003.**
2. Lt. Col. Fatehsing Rao P.Gaekwad,  
7, Duplex Lane,  
**NEW DELHI.**
3. Shri J.C. Daniel,  
Curator,  
Bombay Natural History Society,  
Hornbill House,  
Shaheed Bhagat Singh Road,  
**BOMBAY - 400 023**
4. Prof. R. Misra,  
C/o Dr. P.N. Tiwari,  
D-11/4, IARI, PUSA,  
**NEW DELHI.**
5. Shri M.A. Partha Sarathy,  
Hamsini,  
1,12th Cross,  
Rajmahal,  
**BANGALORE-560 080.**
6. Shri Y.G. Jadhav,  
Inspector General of Forests,  
Ministry of Environment & Forests,  
Paryavaran Bhavan,  
CGO Complex,  
'B' Block, Lodi Road,  
**NEW DELHI-110 003.**

7. Dr. M.K. Ranjitsinh,  
Joint Secretary (Wildlife),  
Ministry of Environment & Forests,  
CGO Complex, Paryavaran Bhavan,  
'B' Block, Lodi Road,  
NEW DELHI-110 003.
  
8. Shri R.S. Gopalan,  
Joint Secretary (Finance),  
Ministry of Environment & Forests,  
Paryavaran Bhavan,  
CGO Complex,  
'B' Block, Lodi Road,  
NEW DELHI-110 003
  
- 9.. Dr. R.V. Singh,  
President, Forest Research Institute & Colleges,  
New Forest,  
DEHRA DUN.
  
10. Shri Y.N. Chaturvedi,  
Joint Secretary (Education),  
Ministry of Manpower & Resources,  
Shastri Bhavan,  
NEW DELHI-110 001.
  
11. Shri R.P. Sharma,  
Chief Wildlife Warden,  
Uttar Pradesh,  
17, Rana Pratap Marg,  
LUCKNOW.
  
12. Dr. J.B. Sale  
Chief Technical Adviser, FAO-UNDP Project,  
Wildlife Institute of India,  
New Forest, DEHRA DUN. - Special Invitee
  
13. Director,  
Wildlife Institute of India,  
P.O. New Forest,  
DEHRA DUN.

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## RESEARCH ADVISORY COMMITTEE

1. Dr. M.K. Ranjitsinh, - Chairman  
Joint Secretary (Wildlife) and Director, Wildlife Presentation,  
Department of Environment, Forests & Wildlife,  
**NEW DELHI.**
2. Dr. J.B. Sale,  
Chief Technical Advisor,  
UNDP - FAO, Wildlife Institute of India, P.O. New Forest,  
**DEHRADUN.**
3. Shri V.B. Singh,  
Ex-Addl. Chief Conservator of Forests (Wildlife),  
**LUCKNOW.**
4. Shri J.C. Daniel,  
Bombay Natural History Society,  
**BOMBAY.**
5. Prof. J.V. Ramana Rao,  
Déptt. of Zoology, Osmania University,  
**HYDERABAD.**
6. Dr. B.S. Lamba,  
Director, Zoological Survey of India,  
**CALCUTTA.**
7. Shri J.K. Chaturvedi,  
Director, Indian Institute of Forest Management,  
**BHOPAL.**
8. Dr. M.P. Nair,  
Director, Botanical Survey of India,  
P-8, Brabourne Road,  
**CALCUTTA.**
9. Shri H.S. Panwar, Member Secretary  
Director, Wildlife Institute of India,  
P.O. New Forest,  
**DEHRADUN.**

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## FINANCE COMMITTEE

1. Chairman,  
Governing Body. -Chairman
2. Shri M.A. Partha Sarathy,  
Member,  
Governing Body.
3. Joint Secretary (Finance) & F.A.,  
Deptt. of E.F. & W.
4. Joint Secretary (Wildlife),  
Deptt. of E.F. & W.
5. Director,  
Wildlife Institute of India -Member Secretary.

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# WILDLIFE INSTITUTE OF INDIA, DEHRADUN

Balance Sheet as on 31st March, 1987

Amount  
Rs. Ps

## FUNDS AND LIABILITIES

Department of Environment,  
& Forests, Govt. of India,  
New Delhi Grant-in-Aid A/C  
Balance as per last  
Balance Sheet

Excess of Income Over  
Expenditure

1,00,07,049.56

Equipments, Furniture &  
Fixtures, Vehicles, Library  
Books, etc. as on 31.3.1986.

24,47,340.70

Stock of Consumable  
stock as on 31.3.86.

36,756.33

## OUTSTANDING LIABILITIES

Security Deposits

17,969.25

Income Tax

3,595.00

C/F

1,25,12,710.84

**Amount**  
**Rs. Ps**

**ASSETS**

Land*	31,87,590.00
Trees*	24,32,709.00
Boundary Wall* Block-I Chandrabani under Construction	8,82,828.09
Equipment, Furniture,* and Fixtures, Vehicles, Library Books, etc. as on 31.3.1987.	40,35,028.63
Consumable Stores as on 31.3.87.	1,48,988.35
Advances to conduct Trainees tour, Workshop & Seminar.	1,53,950.00
Loans and Advances to Staff	1,44,623.00
Advances to Staff (for expenses)	71,007.00
To Sundry Debtors	22,000.00
	1,10,78,724.47

\* As per Annexure A

B/F

1,25,12,710.84

Sundry Credit  
Balances

24,385.25

Total Rs 1,25,37,096.09

The above Balance Sheet to the best of our belief contains a true Account of the Funds and Liabilities and property and Assests of the Institute.

Sd/- (S.B.Prasad)  
Finance Officer

Sd/- (Dr.J.H.Desai)  
Senior Administrative Officer

Sd/- (H.S. Panwar)  
Director

1,10,78,724.47

Suspense Account 33,483.37

CASH AND BALANCES

With Indian Bank, 16,218 14  
Hyderabad

With Union Bank 45,944.67  
of India, Dehradun

With Indian Bank & Union  
Bank of India Dehradun 13,49,771.09 14,11,933.90

Cash in Hand 12,954.35 14,24,888.25

Total Rs 1,25,37,096.09

Examined and found correct as per Books of Accounts, Vouchers, etc. produced before me and as per information and explanations given to me, subject to observations contained in the inspection report 1986-1987.

Dated: December 24. 1987.  
Place: Dehradun

Sd/- ( T.K.Dutta)  
Audit Officer  
Directorate of Audit C.W. & M. II,  
New Delhi

# WILDLIFE INSTITUTE OF INDIA

## INCOME AND EXPENDITURE ACCOUNT

For the Year Ending 31st March, 1987

	Rs.	Ps
<b>EXPENDITURE</b>		
To Salaries	12,48,318.03	
To Honorarium	90,760.00	
To DCRG & Pension	47,617.30	
To Leave Salary	14,714.40	
To Bonus	39,633.90	
To Fellowship	1,00,781.95	
To Wages	2,10,268.75	
To Travel Expenses	3,98,082.80	
To Conveyance	2,059.00	
To Newspaper & Magazines	12,316.35	
To Publicity & Advertisement	1,64,956.90	
To Rent for hired Buildings	81,240.00	
To Electricity & Water Charges	17,047.83	
To Telephone & Trunk Calls	60,283.65	
To Postage & Telegrams	27,893.50	
To Stationery	58,748.34	
To Printing & Binding	5,946.00	
	C/F	25,80,668.70

**INCOME****Rs. Ps****By Grant-in Aid**Department of Environment,  
Forests & Wildlife, New Delhi.

71,00,000.00

**By Training Cost**

9 Months Diploma Course

3,60,000.00

3 Months Certificate Course

1,47,550.00

By Workshop &amp; Seminar

16,400.00

Workshop Fee accrued not received

22,000.00

38,400.00

By Gift received from Forest Department,  
Govt. of U.P.

Land

31,87,590.00

Trees

24,32,709.00

By Miscellaneous Receipts

18,682.20

By Earnest Money (Forfeited)

10,000.00

1,32,94,931.20

B/F 25,80,668.70

To Repair & Maintenance of Office Equipments	10,150.20
To Entertainment	3,816.30
To Maintenance of Animals (Deer Park)	23,008.70
To Uniforms	1,061.70
To Operational Expenses	79,573.73
To POL for Vehicles	1,78,805.66
To Repair & Maintenance of Vehicles	60,230.96
To Vehicle Insurance	3,437.00
To Insurance (Research Fellows)	5,400.00
To Training Programme	3,25,749.08
To Workshop & Seminar	6,627.77
To CPF Contribution	22,576.00
To Excess of Income Over Expenditure	1,00,07,049.56

Total Rs. 1,33,08,155.36

Sd/- (S.B.Prasad)  
Finance Officer

Sd/-(Dr.J.H.Desai)  
Senior Administrative Officer

Sd/- (H.S.Panwar)  
Director

1,32,94,931.20

By Interest on Bank Account

13,224.16

Total

Rs. 1,33,08,155.36

Examined and found correct as per Books of Accounts, Vouchers, etc. produced before me and as per information and explanations given to me, subject to observations contained in the inspection report 1986-1987.

Dated: December 24. 1987.  
Place: Dehradun

Sd/- ( T.K.Dutta)  
Audit Officer  
Directorate of Audit C.W. & M. II, New Delhi

**WILDLIFE INSTITUTE OF INDIA, DEHRADUN**  
**Receipts & Payments Account for the year ending 31st March, 1987**

RECEIPTS		Rs. Ps
To Opening Balance:		
Cash in Hand		Nil
Cash in Bank		Nil
To Grant-in-Aid	5,00,000.00)	
Deptt. of Environment	10,00,000.00)	71,00,000.00
Forests & Wildlife, New Delhi	16,00,000.00)	
	40,00,000.00)	
To Training Cost		
9-Month Diploma Course	3,60,000.00)	5,07,550.00
3-Month Certificate Course	1,47,550.00)	
To Workshop & Seminar		
	400.00)	
	16,000.00)	16,400.00
To Recoveries from Pay Bills to be remitted to Govt. Deptt./Other Bodies		2,47,644.90
To Refund of unspent Advance for Expenses		1,28,132.59
To Loan from Trainees Account		1,95,250.00
To Recovery of Income Tax from Contractor		3,595.00
To Recovery of Security Deposits from Contractor		17,969.25
To Earnest Money		10,000.00
To Miscellaneous Receipts		18,682.20
To Interest Received		13,224.16

PAYMENTS	Rs. Ps.	
By Salaries	-	12,48,318.03
By DCRG & Pension-	-	47,617.30
By Leave Salary	-	14,714.40
By Bonus	-	39,633.90
 By Honorarium	 -	 90,760.00
By Fellowship	-	1,00,781.95
By Wages	-	2,10,268.75
By Travel Expenses	-	3,98,082.80
By Library Books	-	2,53,605.29
By Newspaper & Magazines	-	12,316.35
By Journals & Periodicals	-	60,398.41
By Publicity & Advertisement	-	1,64,956.90
By Purchase of Vehicles	-	2,22,414.33
By P.O.L. for Vehicles	-	1,78,805.66
By Repairs & Maintenance of Vehicles	-	60,230.96
By Vehicle Insurance	-	3,437.00
By Audio-visual, Computers & Training Equipments	-	3,20,576.15
By Laboratory Equipment & Chemicals	-	2,16,517.08
By Office Equipment	-	50,899.39
By Camp Equipment		37,059.01
By Photographs & Photographic- materials		44,281.10
		37,75,674.76

B/F

82,58,488.10

C/F

82,58,488.10

		37,75,674.76
By Educational Films	-	1,57,810.00
By Furniture & Fixtures	-	80,967.16
By Material & Supplies	-	1,43,160.01
By Operational Expenses	-	1,17,198.26
By Stationery	-	1,30,891.21
By Maintenance of Animals (Deer Park)	-	23,008.70
By Rent for Hired Buildings	-	81,240.00
By Postage & Telegrams	-	27,893.50
By Sports Goods	-	2,464.62
By Uniforms	-	1,061.70
By Telephone & Trunk Calls	-	60,283.65
By Conveyance Charges	-	2,059.00
By Electricity & Water Charges	-	17,047.83
By Entertainment	-	3,816.30
By Printing & Binding	-	5,946.00
By Repairs & Maintenance of Office Equipments	-	10,150.20
By Training Programmes	-	3,25,749.08
By Seminar & Workshop	-	6,627.77
By G.P.Fund Advance	-	90,533.00
		50,63,582.75

Total

Rs 82,58,448.10

Sd/- (S.B.Prasad)  
Finance Officer

Sd/- (Dr.J.H.Desai)  
Senior Administrative Officer

Sd/- (H.S. Panwar)  
Director

		50,63,582.75
By Medical Advance	-	400.00
By Motor Car Advance	-	50,000.00
By Festival Advance	-	10,000.00
By Repayment of Loan to Trainees Account	-	1,95,250.00
By Insurance Research Fellows	-	5,400.00
By Advance for Expenses	-	3,53,089.99
By Remittance of Recoveries from Salary Bills to Govt.Deptt./Other Bodies		2,16,949.65
By Avenue Plantation		78,560.15
By Campus Development		54,258.69
By Construction of Boundary Wall Block - I		4,00,009.25
By Architectural Competition		1,50,000.00
By Architects Fee and Supervision charges		2,00,000.00
By C.P.F. Contribution		22,576.00
By Suspense Account		33,483.37
By Cash in Hand		12,954.35
By Cash in Bank		14,11,933.90
Total		Rs 82,58,448.10

Examined and found correct as per Books of Accounts, Vouchers, etc. produced before me and as per information and explanations given to me, subject to observations contained in the inspection report 1986-1987.

Sd/- ( T.K.Dutta)

Audit Officer

Directorate of Audit C.W. & M. II, New Delhi

Dated: December 24, 1987.

Place: Dehradun

# WILDLIFE INSTITUTE OF INDIA, DEHRADUN

## Permanent Assets as on 31/3/1987

Sl. No.	Particulars	Amount
		Rs. Ps
1.	Land	31,87,590.00
2.	Trees	24,32,709.00
3.	Boundary Wall Block I Chandrabani under construction.	8,82,828.09
4.	Furniture & Fixtures	2,81,571.51
5.	Laboratory equipment & Chemicals	4,89,424.56
6.	Office Equipment	3,90,950.78
7.	AV Aids, Computers & Training Equipment.	4,51,443.47
8.	Camp Equipment	1,59,472.16
9.	Photographs & Photographic Equipment	1,63,181.35
10.	Educational Films	2,37,578.75
11.	Library Books	5,74,796.50
12.	Journals and Periodicals	1,16,650.15
13.	Material and Supplies	1,43,160.01
14.	Vehicles & Trailers	10,26,799.39
	Total	1,05,38,155.72

Sd/- (S.B.Prasad)  
Finance Officer

Sd/- (Dr.J.H.Desai)  
Senior Administrative Officer

Sd/- (H.S. Panwar)  
Director

Sd/- ( T.K.Dutta )  
Audit Officer

Directorate of Audit, C,W & M II, New Delhi



