

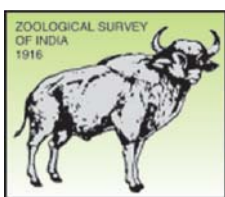


Ministry of Environment
Forest and Climate Change



ANNUAL REPORT

2015-2016

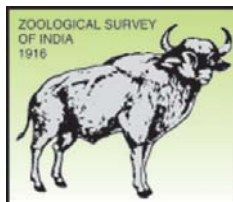


Zoological Survey of India



ANNUAL REPORT

2015-16



Zoological Survey of India
Kolkata

ANNUAL REPORT 2015-2016

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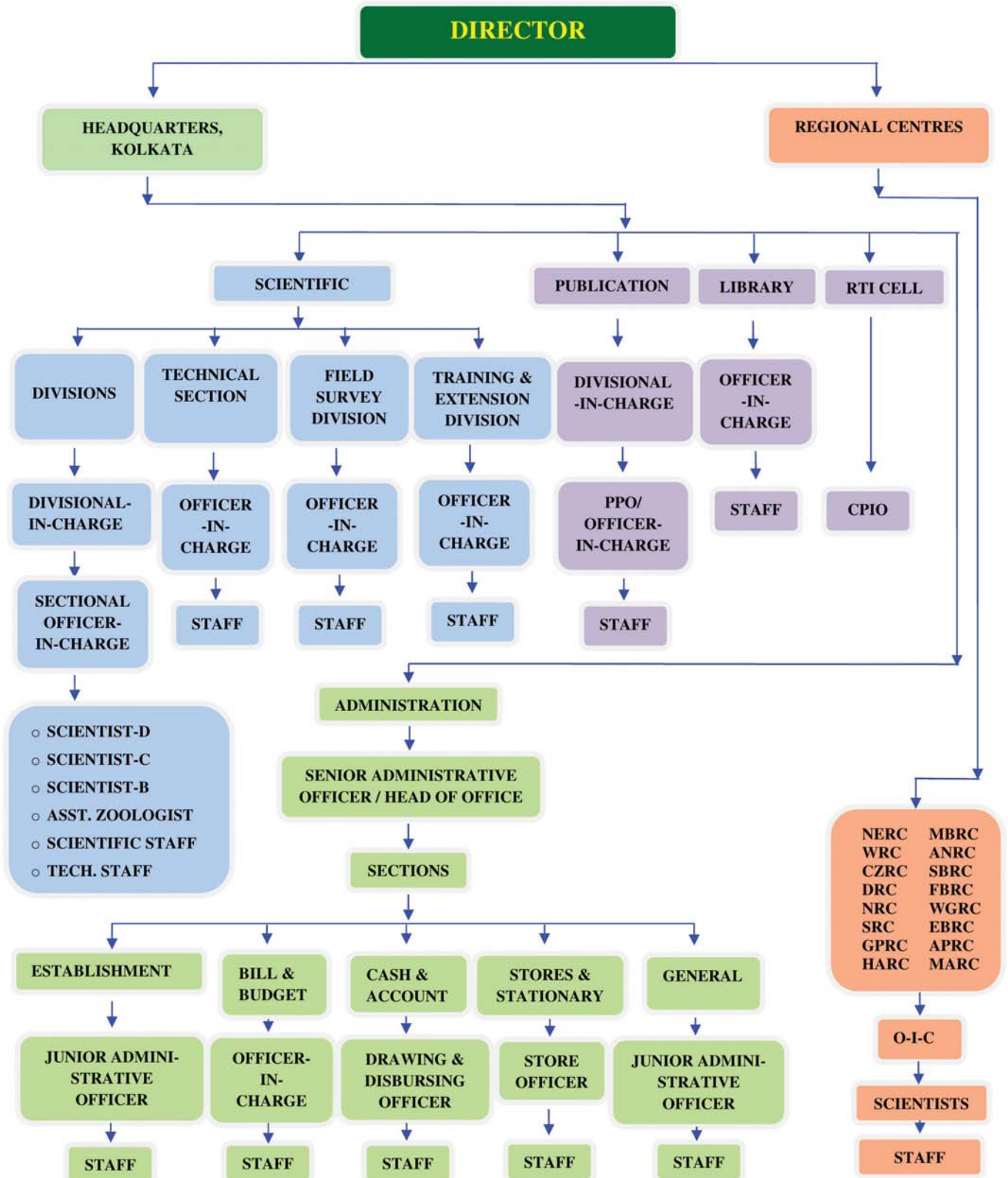
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ZOOLOGICAL SURVEY OF INDIA

ORGANIZATIONAL STRUCTURE



डॉ कैलाश चन्द्र
निदेशक
Dr Kailash Chandra
Director



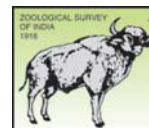
भारत सरकार
भारतीय प्राणि सर्वेक्षण
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
Government of India
Zoological Survey of India
Ministry of Environment, Forest and Climate Change



Director's Message

It gives me great pleasure to present the Annual Report of Zoological Survey of India (ZSI) for the financial year 2015-16. The mission of ZSI during this period was to focus more on mandated action plan programmes and do much better progress and productive results than that of the previous period. It seems to me appropriate in this context to mention beforehand that the overall performance of ZSI during this period was very noteworthy with regard to its scientific programmes, associated research works and other service activities, and the achievements made against the targets. Zoological Survey of India, since its inception in 1916, has been serving the Nation by providing the fundamental, base-line information on its rich animal diversity. As the premier taxonomic research organization in the country, ZSI all-through nearly 100 years of its service, has been committed to this task or mission through faunistic explorations, collection of faunal samples and data from diverse biogeographic zones and ecosystems, including the protected areas, of the country, and research on them in order to identify, discover and describe them for fulfilling the ultimate aim or objective of scientific cataloguing/inventorying of Indian fauna. This base-line information on fauna is periodically published through scientific documents as well as amply made use of in the development of database on Indian faunal diversity. ZSI through its research and extension services on Indian fauna has actively involved in fulfilling the objectives of the Convention of Biological Diversity (CBD) towards the biodiversity assessment by identification and monitoring; protection of ecosystems and natural habitats for their viable populations, related to conservation and sustainable use of components of biological diversity, thus supporting the provisions as per the clauses in the Articles 7,8,10 and 14, for scientific use and equitable sharing of the benefits of animal resources of the country.

As regards the focal points of the Annual Report, during the year, the scientists and researchers of ZSI conducted 120 surveys—exceeding the annual targets of 100 Surveys—of the typical ecosystems or habitats ranging from the underwater marine environment of Andaman and Nicobar Islands to the high-altitude-areas of the Indian Himalaya falling in varied biogeographic zones of the country. ZSI in its surveys covered some of the difficult territories and terrains in the country, like Valley of Flower National Park (Uttarakhand), Sangla and Spiti Valley (Himachal Pradesh), and notable habitat areas in Eastern Himalaya and many states, including conservation areas. ZSI currently handles 154 departmental Programmes and 30 externally-funded Projects. Under the faunal exploration/ survey programmes, one key area of work, ZSI has so far surveyed and documented the faunal diversity of 22 States and UTs and 52 Protected Areas (Pas) of country. The surveys of the remaining states and other conservation areas are in progress.



The year was highly productive in terms of scientific activities and results achieved. ZSI has contributed in a significant manner towards conservation of Biodiversity by playing key role in discovering the unknown denizens of biodiversity from the wild, natural ecosystem/ habitat environments of the country. ZSI in its devoted mission has been successful in discovering and describing many unknown animal taxa from the surveyed ecosystems. This year, ZSI described 78 species new to science from varied faunal groups as lower primitive organisms like roundworms and flatworms to the advanced vertebrate animal forms like fishes, amphibia and reptiles. Besides, 128 species were reported as new records of fauna, for the first-time, from the country.

Another gratifying point to note is that ZSI is completing its Centenary in July'2016, which is a significant milestone in the history of an institution. As a mark of jubilation on reaching 100 years of dedicated service to the nation, ZSI is planning to celebrate its centenary with a renewed enthusiasm to work on the theme: *Bringing Science to Public*. As part of this, a Centenary Run was conducted by ZSI HQ Office, Kolkata, and also by the 16 Regional Centres at their respective areas of office jurisdiction on the Foundation Day of ZSI on 1st July, 2015, involving eminent people, researchers, students and teachers. The aim of the Centenary Run was to generate awareness about the rich biodiversity of our country and the importance of its conservation for the mankind, while highlighting the services of ZSI to the nation. The centenary celebrations shall continue till July 2016, organizing workshops and seminars at headquarter as well as at all of its Regional Centres, educating the students and researchers, and as well disseminating the knowledge on biodiversity and its conservation to the general public at large. ZSI also makes every effort to augment the capacity building in the field of Zoology among students, researchers and young faculty members of colleges and universities of the country, imparting them knowledge through training programmes and national workshops in different topics of biodiversity and conservation.

ZSI has ventured into the field of scientific works and applications, making use of modern tools and techniques, like DNA Fingerprinting/Barcoding techniques, in the field of Taxonomy. ZSI achieved great success in this area, barcoding over 70 species of fauna and as well submission of 256 sequences at BOLD (Barcoding life Data Systems) & NCBI (National Centre For Biotechnology Information). ZSI has also taken a timely step to digitize all the rare and old books and journals (beyond 60 years) available in its library as per recommendations of the task force constituted by MoEFCC for the cause of the conservation of faunal diversity of India. This archive data of rare and old documents of ZSI shall be uploaded in the ZSI website by NIC for public use.

I would like to place on record the sincerity, hard work, commitment and dedication of the entire ZSI team. I seek their continued support in making the ZSI more committed to challenges of its scientific tasks in serving the nation.

(Kailash Chandra)



INTRODUCTION

The Zoological Survey of India (ZSI) was established on 1st July, 1916 to promote survey, exploration and research leading to the advancement in our knowledge of various aspects of exceptionally rich life of the erstwhile 'British Indian Empire'. The survey has its genesis in the establishment of the Zoological Section of the Indian Museum at Calcutta in 1875. ZSI is a premier institute under the Ministry of Environment, Forest and Climate change (MoEFCC). Over the successive periods, the functions of ZSI have also expanded gradually covering significant areas of works like the Environmental Impact Assessment with regard to fauna; survey of Conservation Areas; Status Survey of Endangered Species; Computerization of data on faunal resources; Environmental Information System (ENVIS) on faunal diversity; Identification and advisory services; Designated National Repository of Type and voucher specimen; supporting enforcement of Wildlife (Protection) Act, 1972; establishment of marine aquaria and Museum for awareness on conservation etc. and as a custodian of the National Zoological Collections. The National Zoological Collections, comprise more than five million specimens belonging to as many as 60,000 species including about 10,000 species of our neighboring countries like Myanmar, Pakistan, Bangladesh and Sri Lanka.

Primary Objectives

- Exploration, Survey, Inventorying and Monitoring of faunal diversity in various States, Ecosystems and Protected areas of India.
- Taxonomic studies of all faunal components collected.
- Periodic review of the Status of Threatened and Endemic species.
- Preparation of Red Data Book, Fauna of India and Fauna of States.
- Bioecological studies on selected important communities/species.
- Preparation of databases for the recorded species of the country.
- Maintenance & Development of National Zoological Collections.
- Training, Capacity Building and Human Resource Development.
- Faunal Identification, Advisory services and Library Services.
- Publication of results including Fauna of India and Fauna of States.

Secondary Objectives

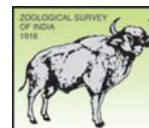
- Environmental Impact Assessment Studies.
- Maintenance and Development of Museum at Headquarters and Regional Centres.
- Development of ENVIS and CITES Centres.
- Research Fellowship, Associateship and Emeritus Scientist Programmes.
- Collaborative research programmes on Biodiversity with other Organizations.
- GIS and Remote Sensing studies for animal diversity as well as for selected threatened species.
- Chromosomal Mapping and DNA finger printing.

Biodiversity Convention : In the light of the objectives of the Convention of Biological Diversity for scientific use and equitable sharing of the benefits of animal resources of the country, the objectives of ZSI has been broadened with respect to Articles 5, 6, 7, 8, 10, 13, 14, 17 and 18 of the Biodiversity Convention

Identification and monitoring (Article 7)

Very little can be done to assess the degree and value of biodiversity without knowing the species involved. The health of ecosystems also cannot be monitored without recognizing the presence of the individual organisms that are crucial for or indication of ecological processes.

ZSI has made extensive surveys in different parts of the country and large number of specimens have been collected. Of these collections, only about 65% have been taxonomically studied. These include the major groups of vertebrates, while the lower groups of invertebrates need more attention in identification as well as in surveys and explorations.



In-situ Conservation (article 8)

Biodiversity can be conserved by the protection of undisturbed areas, representing the variety of natural ecosystems. It means, many species yet unknown to science can be protected, and will be available for assessment for their possible utilization in future. ZSI provides information and vital data for the in-situ conservation of various species in different ecosystems, both within and outside the protected areas.

Sustainable use of biological diversity (article 10)

Sustainable use is the use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspiration of present and future generation.

ZSI has been providing regular services with regard to permissible limits of legal trading of faunal resources or derivatives thereof, monitoring services on population status of commercially important species and providing input for underutilized, culturable species both from terrestrial and aquatic systems. ZSI also provides timely information on declining population of species of commercial importance to ensure sustainable use of components of biological diversity.

Environmental Impact Assessment (Article 14)

ZSI undertakes Environmental Impact Assessment (EIA) with special reference to ecology and wildlife.

Principal Thrust Areas of Work

1. Faunal inventorisations of States and Union Territories: Inventory of different Faunal groups of the following states and Union Territories were undertaken, viz. Andaman & Nicobar Islands, Lakshadweep Islands, Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chattishgarh, Goa, Gujarat, Haryana, Himachal Pradesh, Jharkhand, Karnataka,

Kerala, Madhya Pradesh, Maharashtra, Mizoram, Meghalaya, Odisha, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, Uttarakhand and West Bengal.

2. Faunal inventorisations of Ecosystems: (1) Marine Ecosystem: East and West coast of India, Digha Coast, Campbell Bay and North Andaman (2) Island Ecosystem: Bakkahali Isl. Sagar Isl. (3) Estuarine Ecosystem: Cauvery, Pennaru, Narmada-Tapti (4) Mangrove ecosystem: Odisha and Sunderbans (5) Freshwater Ecosystem: Chambal River, High altitude lakes and rivers, Bhoj, Govind Sagar, Chandratol, Riverine Ecosystems of Western Ghats (6) Himalayan Ecosystem, (7) Desert Ecosystem: Thar Desert, (8) Cold Desert of Himachal Pradesh and Jammu Kashmir (9) Terai Grassland.

3. Faunal inventorisations of Conservation Areas: Gulf of Mannar Marine Biosphere Reserve, Satkosia, Baisipalli, Sundarbans, Sonamukhi, Bethuadahari, Talley Vally, Mehao, Bornadi, Nongkhyllam, Hazaribagh, Lawalong, Point Calimer, Saddle Peak, Malabar, Thattekkad Bird Sanctuary, Sultanpur Bird Sanctuary, Govind, Rajaji, Sonanadi, Vally of Flowers, Samarpur, Nauradehi, Koyna, Navegaon, Sariska etc.

4. Status Survey of endangered species: Coral reef, Himalayan Musk Deer, Crab eating macaque, Horseshoe crab, Swamp Deer, Hoolock Gibbon, Robber Crab, Nicobar Megapod, Black Necked Crane, Blue Sheep, Caecilian, Great Indian Bustard, Wild Ass.

5. Taxonomic Studies: Protozoa, Mollusca, Marine sponges, Echinodermata, Rotifera, Trematoda, plant and soil nematodes, marine crabs, Hymenoptera, Termites, Lepidoptera, Coleoptera, Odonata, Collembola, Thysanura, Orthoptera, Hemiptera, Tettigonidae, Diptera, Oribatid mites, Ixodid ticks, spiders, marine and estuarine fishes, cardinal fishes, Ephemeroptera, Nemacheiline loaches, Oligochaeta, Nematode parasites, Fishes, Birds, Reptiles and Mammals.

6. Maintenance of National Zoological Collections



(NZC): Preservation and Maintenance of NZC, holding about 4 million specimens including 15,000 type specimens.

7. Advisory, Training and Extension services: To be imparted as and when required.

8. Computerization and Dissemination of data: Computerization of registered collection of type and non-type specimens are being carried out along with digitization of the specimens. Interactive identification and information system, Primary type Information systems etc already taken up. Digitization of ZSI publications is being carried out.

9. Collaborative Research Programme/Projects.

10. Checklist of faunal groups.

Brief Account of Headquarters and Regional Centres

Headquarters (Hq)

Headquarters of Zoological Survey of India office is situated in Kolkata. Apart from scientific divisions and sections, ZSI also has Library, Publication, Identification and Advisory, ENVIS centre, Field Survey, Training and Extension, Museum and Taxidermy Divisions, Photography section, Art section, Scanning Electron Microscopy Unit and Data centre. These units support research work of the scientists.

The Scientific Divisions and Sections at ZSI Headquarters undertake studies on various animal groups from Protozoa to Mammals. The largest division is Entomology followed by Protozoology, Nematelminthes, Platyhelminthes, Arachnology, Malacology, General Non-Chordata, Crustacea, Marine and Fresh water Fish, Amphibia, Reptilia, Bird, Mammals and Osteology, Animal Behaviour, Wildlife Conservation, Animal population division.

Regional Centres

1. North Eastern Regional Centre (NERC), Shillong
North Eastern Regional Centre, Shillong is the first of

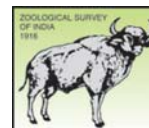
the 16 Regional Centres of Zoological Survey of India and was established on 6th March, 1959 with the primary objective of exploring and documenting the myriad faunal diversity of Northeast India.

2. Western Regional Centre (WRC), Pune

The Western Regional Centre at Pune, Maharashtra was set up in September 1959 under the Second Five Year Plan of the Government of India. The primary objective is the exploration and documentation of the fauna of the Indian Peninsula, which is a complex natural unit of geomorphological and biogeographical evolution. The area south of the Narmada River known as Deccan Plateau is by far the most extensive biogeographic zone of Indian region. This large zone is relatively homogenous and is distinct from the neighbouring zones- the Western Ghats, Semi-arid and Gangetic Plain. It is further recognizable into five subdivisions viz. Deccan Plateau South, Deccan Plateau North, Eastern Highlands, Chota Nagpur and Central Highlands. The Deccan Plateau is a conglomeration of different types of ecosystems embracing myriad of biological wealth. The Western Ghats or "*Sahyadri*" running parallel to the west coast of India is one of the biodiversity hotspots of India. The part of the Western Ghats between Tapi River in north and Trekhol creek, Goa in south is geologically very distinct and unique. It is commonly referred to as Northern Western Ghats and extends across three states viz. Gujarat, Maharashtra and Goa.

3. Central Zone Regional Centre (CZRC), Jabalpur

Central Zone Regional Centre of Zoological Survey of India was established at Jabalpur on 24th February 1960 under Second Five Year Plan, to survey and document our knowledge of the faunal resources of Central India. Central Zone Regional Centre covers two states of Central India namely Madhya Pradesh, (covering 51 Districts having 09 National Parks, 25 Wildlife Sanctuaries, 05 Tiger Reserves and 01 Biosphere Reserve) and Chhattisgarh (covering 27



Districts with 03 National Parks, 13 Wildlife Sanctuaries and 01 Tiger Reserve and 01 Biosphere Reserve shared with M.P.).

4. **Desert Regional Centre (DRC), Jodhpur.**

The Desert Regional Centre of the Zoological Survey of India, Jodhpur was established in June, 1960 in the name of Desert and Gangetic Plains Regional Station under Second Five Year Plan to survey the faunal diversity of Desert Biome. Later, in 1965 due to the characteristic changes in its boundaries, it was renamed as at present. The Jurisdiction of the Centre is spread over 3,42,239 Sq. km. area of Rajasthan and 1,81,1000 Sq. km. of Gujarat, covering 33 Districts of Rajasthan and 25 Districts of Gujarat. The area encompasses 6 National Parks and 44 Wildlife Sanctuaries, 2 Tiger Reserves and 3 Ramsar Sites. The Centre is engaged in the documentation of the rich and diverse faunal resources of the Rajasthan and Gujarat states by conducting field explorations and scientific studies.

5. **Northern Regional Centre (NRC), Dehradun**

The Northern Regional Centre at Dehradun, Uttarakhand, was established in August 1960 under the Second Five Year Plan of the Government of India. The Northern Regional Centre is entrusted with exploration of faunal wealth in five North Indian states: Uttarakhand, Uttar Pradesh, Punjab, Haryana, Delhi and the Union Territory- Chandigarh, covering an area of c. 441707 sq km. The region comprises of ecologically diverse areas ranging from the western Himalayas in north with Shivaliks at the base, through Gangetic Plains with Terai in north and Bundelkhand in south, and the part of the Aravalis in southwest with equally diverse biodiversity in its one World Heritage Site (Nanda Devi), one Biosphere Reserve (Nanda Devi), two Tiger Reserves (Corbett and Dudhwa), nine National Parks, 46 Wildlife Sanctuaries, two Conservation Reserves and 48 Important Bird Areas.

6. **Southern Regional Centre (SRC), Chennai**

Southern Regional Centre was established during the Second Five Year Plan on 9th March 1961 to conduct faunal explorations within its jurisdiction. Area under Jurisdiction: Tamil Nadu (30 districts with 5 National Parks, eight Wildlife Sanctuaries, One Tiger Reserve), Karnataka (Eight districts in southern part with three National Parks and six Wildlife Sanctuaries), Southern part of Andhra Pradesh, Union Territory of Puduchery (Pondichery). Two Biosphere Reserves fall within the jurisdiction of the centre.

7. **Gangetic Plains Regional Centre (GPRC), Patna**

Gangetic Plains Regional Centre was set up at Patna in March, 1965 under Third Five Year Plan to survey, ascertain and augment knowledge on the faunal resources of Gangetic Plains. Area of Jurisdiction: the jurisdiction of the Centre is spread over two states, Bihar having 38 Districts with one National Park, eleven Wildlife Sanctuaries and one Tiger Reserve, and Jharkhand having 24 Districts with one National Park, ten Wildlife Sanctuaries and one Tiger Reserve.

8. **The High Altitude Regional Centre (HARC), Solan.**

HARC was established in September 1968, under the Fourth Five Year Plan of the Government of India, with the main objective of exploring the Himalayan fauna. The jurisdiction of the Centre includes the mountainous states of Himachal Pradesh and Jammu & Kashmir of the North Western Himalaya. Owing to vast altitudinal variation from 600m to 6,500m ASL. It covers all the four physiographical zones of the Himalaya viz. Shiwalik, Lesser, Great and Trans Himalayan. Three important ranges: Karakoram Range is the northern most range, to the south of the Karakoram range run the Zaskar range and parallel to Zaskar range lie the Pir Panjal ranges in the region.

9. **Marine Biology Regional Centre (MBRC)**

Marine Biology Regional Centre was established on



1 st March, 1973 in Chennai. It was a Marine Survey Unit of Zoological Survey of India, Kolkata, since its inception under the First Five Year Plan in April 1959. Established with the mandate to studying the Marine Biodiversity of India, this centre was commissioned to assess the biodiversity in marine ecosystems within the 2.02 million sq km EEZ of India - from reef types such as fringing, barrier and atolls, to seagrasses, mangroves, estuaries, sand dunes, salt marshes and extensive beaches in addition to the oceanic habitats, submerged reefs and mounts.

10. **Andaman and Nicobar Regional Centre (ANRC), Port Blair**

Andaman and Nicobar Regional Centre of Zoological Survey of India (ZSI) was established at Port Blair on 21st April 1977 under the Sixth Five Year Plan of Government of India. The jurisdiction of the Centre covered entire Andaman and Nicobar Islands, and its territorial waters. The centre has been carrying out studies on the faunal communities with the state-of-art facilities for undersea survey such as SCUBA diving equipments and marine sampling instruments, Leica M205A automated stereo-zoom microscope with DFC 500 camera attachment, compound microscopes with computer connectivity, high resolution cameras with tele-lens, and still and video cameras with underwater housing facility.

11. **Sunderban Regional Centre, (SBRC), Canning**

The Sunderban Regional Centre was established in the year 1979 at Kakdwip, West Bengal under the Fifth Five Year Plan of the Government of India. It was later shifted to Canning, West Bengal, in 1984. The jurisdictional limit of the Centre encompasses the entire Indian part of Sunderban. The major mandate of the Centre is to explore the rich faunal diversity in different ecosystems of Sunderbans.

12. **Freshwater Biology Regional Centre (FBRC) , Hyderabad**

Freshwater Biology Regional Centre was established under Fifth Five -Year Plan of Govt. of India in February 1979 at Hyderabad, Telangana State (erstwhile united Andhra Pradesh) in order to study the Physico-chemical, ecological and faunal diversity of the freshwater bodies including wetlands of National and International importance (Ramsar sites).

13. **Western Ghat Regional Centre (WGRC), Calicut**

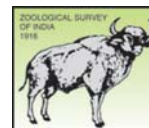
The Western Ghat Regional Centre at Calicut, Kerala, established in April, 1980, under the Sixth Five Year Plan of the Government of India, is one among the sixteen Regional Centres of the Zoological Survey of India (ZSI). The jurisdictional limit of the Centre encompasses the entire biogeographical zone of the Western Ghats, an extremely important life supporting system of the Peninsular India. The Centre is engaged in the documentation of the rich and diverse faunal components/ resources of the Western Ghats and Kerala, by conducting field explorations and scientific studies.

14. **Estuarine Biology Regional Centre (EBRC), Gopalpur**

Estuarine Biology Regional Centre, Gopalpur-on-Sea, Ganjam was established in 1980 during the Sixth Five Year Plan of Govt of India. The Primary objective of this centre is to conduct investigations on faunal diversity of estuaries, backwaters, lagoons and mangrove ecosystems along the east and west coast of India. Geographical coverage includes estuaries and mangrove ecosystems of India which occur throughout the country along both east and west coasts. The jurisdiction of the Estuarine Biology Centre is "All India": covering all estuaries and associated mangrove ecosystems of the country.

15. **Arunachal Pradesh Regional Centre (APRC), Itanagar**

Arunachal Pradesh Regional Centre of the Zoological Survey of India was established on 31st January



1983, at Itanagar under the Seventh Five Year Plan mainly to explore and study the faunal wealth of Arunachal Pradesh. The Area under Jurisdiction includes, Arunachal Pradesh, the northeastern state with an area of 83,743 sq. km having eight Wildlife Sanctuaries, one Orchid Sanctuary and two National Parks covering an area of 9,489 sq. km.

16. Marine Aquarium and Regional Centre (MARC), Digha

Marine Aquarium and Regional Centre was established in 1989. The centre has two distinct wings viz. research centre and aquarium, in addition to facilities for mass education of people. The research wing of the centre started functioning in 1989; however, the aquarium was opened for public since 2003. It was set up with the objectives of conducting education and awareness programme through the marine aquarium which is an integral part of MARC and providing infrastructure facility for conducting professional training course on coastal and marine ecosystem.



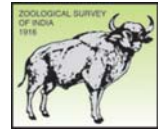
RESEARCH PROGRAMMES

Headquarters

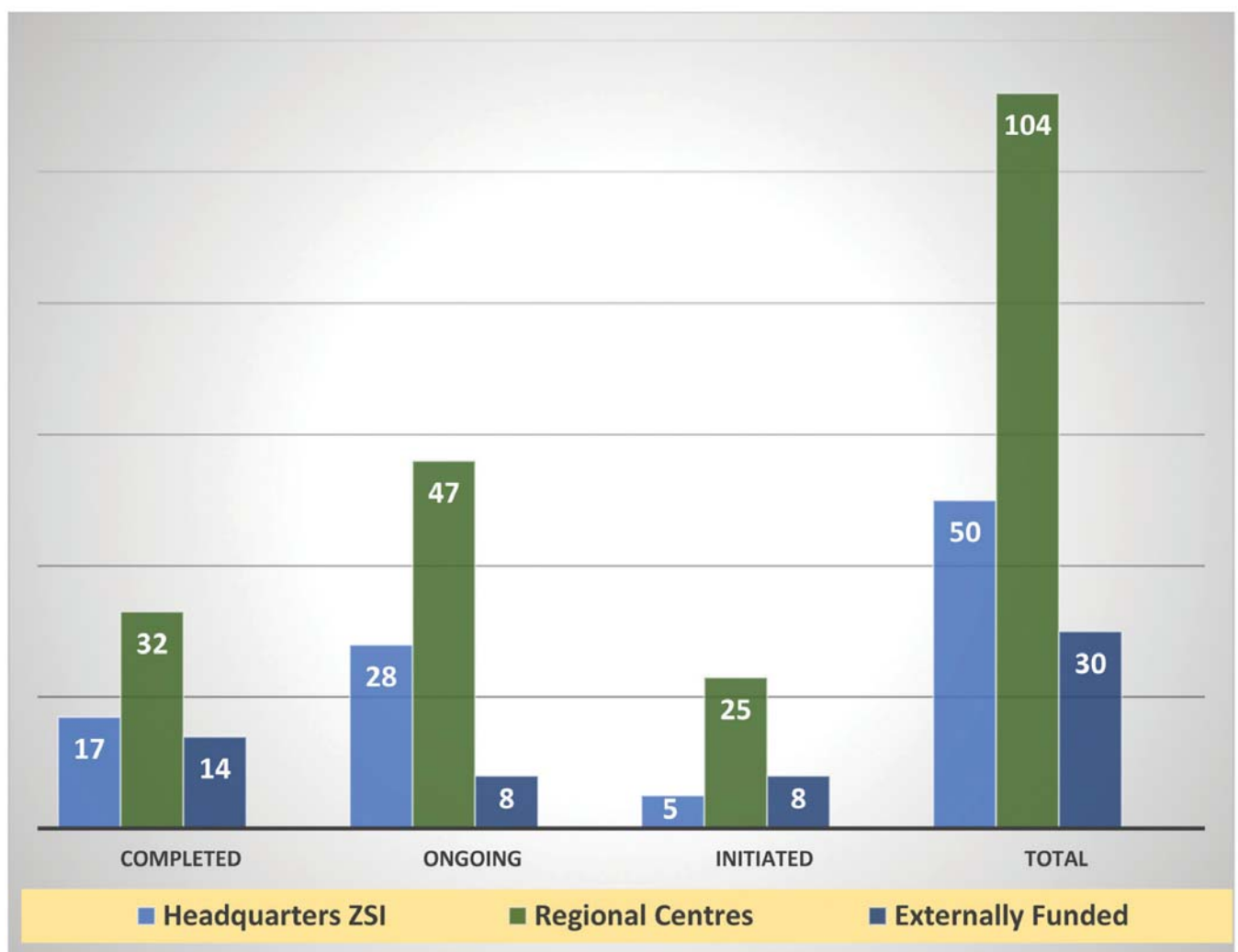
- Completed Programmes
- Ongoing Programmes
- Initiated Programmes



Zoological Survey of India



Research Programmes





Completed Programmes

1. Moss inhabiting Protozoans of Assam

Investigators: Dr. Jasmine, P.
Dr. Chitra J.
Mrs. Ruby Ghosh

Date of start: April 2012

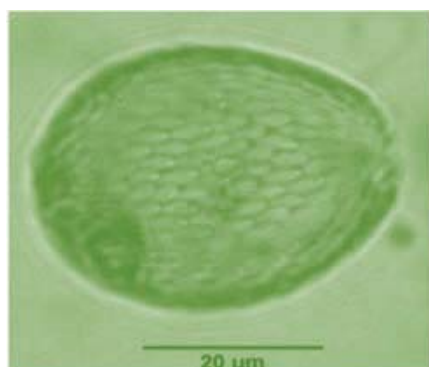
Date of completion: March 2015

Objectives: To study and inventorize the moss inhabiting Protozoans of Assam

Progress: 540 samples of water, soil and moss were collected from various districts and wild life sanctuaries of Assam. 548 permanent slides were prepared. 80 species of testate amoebae identified from the moss habitats of protected areas and various districts of Assam. 555 permanent slides were made and registered with 771 specimens. (PT 2549 to PT 3196).

Final Technical Report and Manuscript have been submitted, wherein, altogether 61 Species belonging to 17 Genera and 10 Families under the Phylum Amoebozoa were recorded and 19 species belonging to 5 Genera and 2 Families under the Phylum Rhizaria were reported.

Significant highlights: 13 species have been recorded new to India and 61 species have been recorded for the first time from the state. Two new species of testate amoebae identified and accepted for publication.



Assulina seminulum Leidy, 1879

2. Studies on the diversity of Protozoans from various ecosystems of Himachal Pradesh

Investigators: Dr. Jasmine, P.
Dr. Chitra J.
Mrs. Ruby Ghosh.

Date of start: April 2012

Date of completion: March 2015

Objectives: To study and inventorize the Protozoans from various ecosystems of Himachal Pradesh

Progress: About 398 samples water, soil and moss samples were collected. 293 permanent slides were prepared. 68 species of testate amoebae identified from the various ecosystems of Himachal Pradesh. 285 permanent slides were made and registered with 352 specimens.

Final Technical Report and Manuscript have been submitted. Total 68 species belonging to 22 genera and 11 families under the phylum Amoebozoa and Rhizaria were recorded.

Significant highlights: Two species are recorded new to India and 39 species are recorded for the first time from Himachal Pradesh.

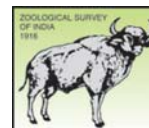


Euglypha acanthophora (Ehrenberg, 1841)

3. Platyhelminthes Parasites of Fishes of Economic Importance from Diamond Harbour, West Bengal, India

Investigators: Dr. Jasmine, P.
Smt. Anindita Ghosh
Dr. Shuvajit Chakrabarti

Date of start: April 2012

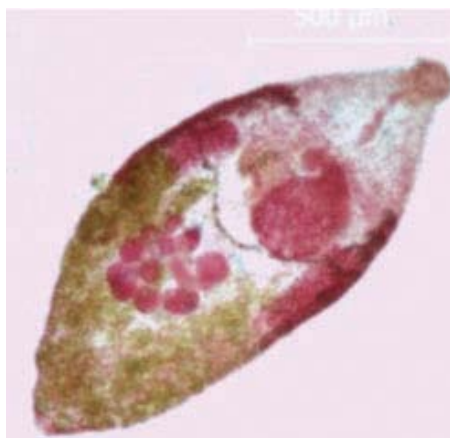


Date of Completion: March 2014

Objectives: To study and inventorize the Platyhelminthes Parasites of Fishes of Economic Importance from Diamond Harbour, West Bengal, India.

Progress: Final Technical Report and Manuscript have been submitted. The study reports 38 species under 28 genera and 17 families of trematode parasites and five species under four genera and three families of Acanthocephala parasites from fish hosts have been reported.

Significant highlights: Twelve species of trematodes are first records from Diamond Harbour. It has been observed that the rate of infection is less in winter in comparison to summer and monsoon season.



Faustula gangetica (Srivastava, 1935)

4. Soil and Plant Parasitic Nematodes (Order Dorylaimida and Tylenchida) of Maharashtra

Investigators: Dr. V.V. Gantait.
Dr. D. Sen

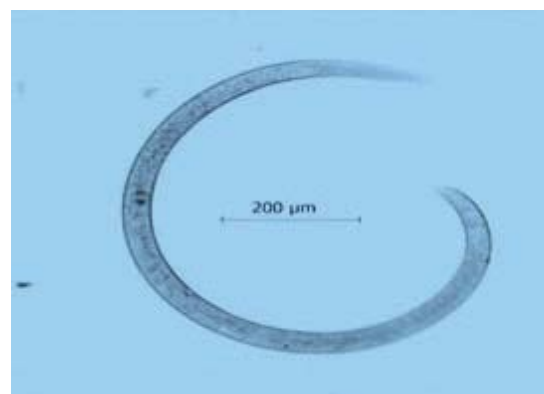
Date of start: April 2012

Date of completion: March 2015

Objectives: To study and inventorize the Soil and Plant Parasitic Nematodes (Order Dorylaimida and Tylenchida) of Maharashtra.

Progress: Final Technical Report and the Manuscript have been submitted. During the study, altogether 40 species belonging to 22 genera under 12 families of the order Dorylaimida have been reported. While, 51 species belonging to 23 genera under 12 families of the order Tylenchida have been reported.

Significant highlights: Two species are new records from India and 6 species are new records from Maharashtra.



Xiphinema americanum Cobb, 1913

5. Arthropod parasitic Nematodes of Maharashtra

Investigators: Dr. V.V. Gantait.
Dr. Jasmine, P.

Date of start: April 2012

Date of completion: March 2015

Objectives: To study and inventorize the Arthropod parasitic Nematodes of Maharashtra.

Progress: Final Technical Report and the Manuscript have been submitted. During the study, altogether, 12 species of arthropod parasitic nematodes belonging to 2 subgenera, 10 genera, 5 subfamilies, 2 families, 2 superfamilies, one suborder and 2 orders have been reported.

Significant highlights: All the species are new records from Maharashtra.



6. Diversity and Distribution of Cephalopods along the West Coast of India

Investigators: Dr. B. Tripathy,
Dr. A. Mohapatra,
Dr. V. Kumar
Sh. A. K. Mukhopadhyay

Date of start: April 2011

Date of completion: March 15

Objectives: Information on Cephalopods along the coast of India is not adequately known and therefore the programme is proposed for inventorisation of Cephalopods fauna of west Coast of India.

Progress: Technical Report and the Manuscript submitted. The present study recorded 59 species including one new species of sepiolid and 10 new species of octopods from the west coast of India, including 15 species of cuttlefishes of which 12 Sepiids and 3 Sepioids apart from 10 species of squids, including 8 myopsid squids and 2 oegopsid squids were also identified. The two different forms of *Uroteuthis* which had been treated as either species or subspecies or local variants by the early authors are geographical or seasonal broods within a species. Another species complex observed is in *Uroteuthis duvauceli* with very slender and chubby type of specimens. Also, the study revealed the presence of 29 species of octopods including 11 species of the genus *Amphioctopus*, 6 species of *Callistoctopus*, 3 species of *Cistopus*, 5 species of *Octopuses*, 3 species of *Pteroctopus* and 1 species of *Scaeurgus*. There has been considerable confusion surrounding the group of small to moderate-sized octopuses as historically known as the *Octopus aegina* species-group warrants further taxonomic clarity. Detailed taxonomic studies require documenting the species diversity of octopuses in the genus *Octopus*. Technical Report and the Manuscript submitted.



7. Studies on the Formicidae (Hymenoptera) of Andhra Pradesh

Investigators: Dr. Sheela, S.

Date of start: April 2012

Date of completion: March 2015

Objectives: To study and inventorize the Formicidae (Hymenoptera) of Andhra Pradesh

Progress: Final Technical Report and the Manuscript have been submitted, wherein, altogether 53 species of Formicidae from 26 genera have been identified from Andhra Pradesh.

Significant Highlights: *Camponotus compressus*, *C. sericeus* and *Trichomyrmex scabriceps* are the most dominant species. Two rare species, *Dilobocondyla bangalorica* and *Polyrhachis scissa* were also collected.

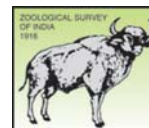
8. Studies on the termite Fauna (Order-Blattaria, Infraorder-Isoptera) of Himachal Pradesh

Investigators: Dr. N. Saha
Shri P.C. Mazumdar
Smt J. Basak

Date of start: April 2012

Date of completion: March 2015

Objectives: To study and inventorize the termite Fauna (Order - Blattaria, Infra order - Isoptera) of Himachal Pradesh.



Progress: 90 vials identified under 15 species have been recorded. Taxonomic treatment of total 20 species (9 genera and 3 families). All the species have been dealt with regard to their synonymies, diagnostic characters, distribution and biological & taxonomical remarks.

Final Technical Report submitted. Termite Fauna of the state is not at all rich. Soil-inhabiting 18 species dominate out of 20 species, except 2 wood-destroying species. Depletion of habitats leads to such impoverishment.

Significant Highlights: Out of 20 species, 3 species being first record from the state and many new locality records included. A very primitive termite species of wood-roach-like appearance, *Archotermopsis wroughtoni* Desneux, has been found in the cold temperate coniferous forests of Kalatop-Khajjier WLS at an elevation of 3000 m, after a lapse of about more than three decades. It is the largest out of 286 species in India and the only living representative of the genus *Archotermopsis* under the family Archotermopsidae whose members are nowhere survived except the single living species, *A. kuznetsovi* Belyaeva in Vietnam.



9. Lepidoptera Fauna of Maharashtra

Investigators: Dr. Bulganin Mitra,
Dr. Kailash Chandra

Date of start: April 2012

Date of completion: March 2015

Objectives: To study the Lepidoptera Fauna of Maharashtra.

Progress: Final Technical Report and the Manuscript have been submitted.

The present study enumerated 1143 species of Lepidoptera from Maharashtra. It constitutes 8% of entire Indian Lepidoptera Fauna and nearly 50% of total insect fauna reported from Maharashtra. The 1143 species belonging to 677 genera and 51 families of which butterflies shared 261 species belonging to 139 genera and 6 families and moths shared 882 species belonging to 538 genera and 45 families.

Significant Highlights: Eighteen species of Moths were found to be first records from the state. Altogether, 93 species have been added to the Moth fauna of Maharashtra.



Euploea mulciber (Cramer, 1777)

10. Studies on Odonata and Lepidoptera fauna of Desert Ecosystem of Rajasthan

Investigators: Dr. Gaurav Sharma

Date of start: April 2012

Date of completion: March 2015

Objectives: To study the diversity of the Odonata and Lepidoptera fauna of Desert Ecosystem of Rajasthan.

Progress: Final Technical Report and the Manuscript



have been submitted.

The studies on Odonata fauna of Desert Ecosystem of Rajasthan have recorded 36 species belongs to 5 families under 2 suborders. The study reveals that *Ceragrion coromandelianum* (Fabricius), *Brachythemis contaminata* (Fabricius), *Bradinopyga geminata* (Rambur), *Crocothemis servilia* (Drury), *Ischnura aurora* (Brauer), *Pseudagrion rubriceps* Selys, *Orthetrum glaucum* (Brauer), *Orthetrum pruinatum neglectum* (Rambur), *Orthetrum sabina* (Drury), *Pantala flavescens* (Fabricius) and *Trithemis aurora* (Burmeister) were the dominant species of Odonates of Desert Ecosystem of Rajasthan. About 102 species belongs to 16 families of 2 suborders of order Lepidoptera recorded from Desert Ecosystem of Rajasthan. The family Nymphalidae was the dominant family represented by 25 species followed by Noctuidae having 20 species; Pieridae 17 species; Crambidae 8 species; Lycaenidae 06 species; Papilionidae 5 species; Arctiidae 4 species; Lymantriidae, Nolidae and Sphingidae each having 3 species; Gelechiidae and Pterophoridae each having 2 species and least by Hesperidae, Geometridae, Plutellidae and Pyralidae each having one species.

Significant highlights: The mass emergence of *Pantala flavescens* (Fabricius), a migratory species was also recorded from May to October in different localities of Desert Ecosystem of Rajasthan during 2012-2015.

11. Studies on the diversity of Collembola Fauna from Jharkhand

Investigators: Dr. G.P. Mandal,
Shri K. K. Suman

Date of start: April 2012

Date of completion: March 2015

Objectives: To study the diversity of Collembola fauna from Jharkhand.

Progress: Final Technical Report and Manuscript have been submitted, wherein, altogether, 22 species of

Collembola belonging to 13 genera under 5 families have been recorded from Jharkhand.

Significant Highlights: All the species are recorded for the first time from the state of Jharkhand. Four new species of Collembola were identified and registered.



Acanthurella betlaensis Mandal et al., 2016



Temeritas dimna Mandal et al., 2016

12. State Fauna series: Hemipteran Fauna of Maharashtra

Investigators: Dr. M. E. Hassan,
Shri B. Biswas,

Date of start: April 2012

Date of completion: March 2015

Objectives:

- Survey exploration and inventorying of Hemipteran Fauna with special reference to data



deficit groups / less studied and under explored groups.

- ii. Preparation of distribution record of the faunal components collected from Maharashtra.
- iii. Host – Plant relationship of selected species.
- iv. Studies of external Genitalia & last tergum in some important species of Hemiptera and its Taxonomic significance.

Progress: Final Technical Report submitted, wherein, altogether, 60 species are recorded, of which, 18 species belonging to family Pentatomidae, 8 species under 7 genera belonging to family Miridae, 3 species under 3 genera belonging to family Pyrrhocoridae, 17 species belonging to family Lygaeidae, 7 species belonging to family Reduviidae, 2 species belonging to family Nabidae, 2 species belonging to family Enicocephalidae and 3 species belonging to family Berytidae recorded for the first time from the state.



Aeschrocoris spinosum Hassan et al.

13. Dipteran fauna of Himachal Pradesh

Investigators: Dr. Dhriti Banerjee
Shri B. Mitra
Shri R.S. Mridha

Date of start: April 2010

Date of completion: March 2014

Objectives: Survey exploration and inventorying of Dipteran Fauna.

Progress: Final Technical Report submitted. First detailed systematic study of Diptera fauna of Himachal Pradesh consisting of 484 species under 214 genera distributed over 37 families. Out of 442 species, 79 species were recorded for the first time from Himachal Pradesh.

Significant Highlights: 79 species were recorded for the first time from Himachal Pradesh.

14. Soil Oribatid Mites of Maharashtra

Investigators: Dr. Shelley Acharya

Date of start: April 2012

Date of completion: March 2015

Objectives: Survey exploration and inventorying of Soil Oribatid Mites of Maharashtra.

Progress: Final Technical Report submitted. Altogether 46 species of oribatid mites belonging to 36 genera and 22 families have been recorded. Before understanding the present work only 3 species under 2 genera and 2 families were known from the state.

Significant Highlights: The present study records 43 species, 34 genera and 20 families as the first record from Maharashtra. In addition, 10 species under 8 genera are recorded from India for the first time.





15. Taxonomic studies on the Spiders of Himachal Pradesh

Investigators: Dr S. Talukdar

Date of start: April 2011

Date of completion: March 2015

Objectives: Survey exploration and inventorying of Spiders of Himachal Pradesh

Progress: 67 species have been identified under 15 genera under 10 families.

16. Studies on earthworm population in South 24 Parganas in different habitats.

Investigators: Mrs Rinku Goswami

Date of start: April 2012

Date of completion: March 2015

Objectives: To prepare an inventory of earthworm species found in different habitats of South 24 Parganas.

To investigate earthworm diversity and distribution in different habitats of South 24 pgs.

To study the population dynamics and relative abundance in different habitats of South 24 pgs.

Progress: A total of six species of six genera under two families (Megascolecidae, Octochaetidae) found from 505 examples of earthworms collected from South 24 parganas of West Bengal were identified. Only two species, viz., *Lampito mauritii* and *Metaphire posthuma* occur in abundance in most of the areas. *E. orientai* was also found from six habitats, i.e. except one habitat it occurs in most of the areas. In contrast, two species of earthworms are very site specific such as *Amyntas diffringens* in the bank of river Hooghly and *Dichogaster bolaui* in rose garden.



Metaphire posthuma (Vaillant, 1868)

17. A taxonomic & population analysis of earthworms in different habitats in Indian Botanic Gardens.

Investigators: Smt. Rinku Goswami

Date of start: April 2012

Date of completion: March 2015

Objectives: To prepare an inventory of earthworm species found in different habitats of Indian Botanic Garden (IBG).

To develop identifying keys to the families, genera and species with the help of external and internal morphological characters.

To investigate earthworm density, diversity and distribution in different habitats of IBG.

To study the population dynamics of major earthworm species in different habitats of IBG in different seasons.

To analyze physico chemical properties of soil in the five habitats of IBG and reveal correlations, if any, with the earthworm populations, using statistical techniques.

Progress:

Taxonomical and Ecological Studies:

Out of the total 1805 earthworms collected, 14 species were identified belonging to 7 genera under 3 families and 2 orders. Among these, the species *Metaphire birmanica* is new to the state.

Diversity

The Shannon-Wiener Diversity Index (Shannon H' Log Base 10) value was the highest in Flower Garden (0.884), followed by that in Conifer, Keora and Bamboo (0.64, 0.639 and 0.637, respectively) habitats, while the lowest (0.581) was recorded in GBT habitat.

Cluster analysis

Results of cluster analysis revealed the highest similarity was observed between Bamboo and Keora (85.01) habitats, followed by that between Bamboo and GBT (80.62). Conifer was distant from all the other sites, and the lowest similarity was recorded between Conifer and Flower Garden (48.57) habitats.



Amyntas alexandri (Beddard, 1900)

Ongoing Programmes

1. Annelid (Hirudinea- Leech and Oligochaeta- Earthworm) fauna of Rajasthan.

Investigators: Dr. Chandra Kanta Mandal

Date of start: April 2014

Date of Completion: March 2016

Objectives: To prepare the inventory of the Annelid (Earthworm & Leech) diversity of Rajasthan.

The diversity of Leech and Earthworm fauna of Rajasthan will be worked out.

Checklist of Annelid (Leech and Earthworm) will be prepared. Endemic species if any will be published.

Progress: Total 571 leeches and 815 earthworms have been collected from four surveys of Rajasthan.

Significant highlights: Ten new records of earthworms and eight new records of leech from Rajasthan and four new species of leech have been recorded.



Metaphire posthuma

2. Fauna of Gujarat: Platyhelminthes Parasites of Fishes

Investigators: Dr. Jasmine, P.
Smt. Anindita Ghosh
Dr. Shuvajit Chakrabarti

Date of start: April 2013

Date of Completion: March 2016

Objectives: To study and inventorize the Platyhelminthes Parasites of Fishes in Gujarat state.

Progress: 43 species under 28 genera and 19 families of Trematodes and 4 species under 3 genera and 3 families of Cestodes have been reported. Final Technical Report submitted.



Lecithocladium glandulum Chauhan, 1945



3. Studies on The freshwater Crustaceans of Himachal Pradesh

Investigators: Dr. K. Valarmathi.

Date of start: April 2012

Date of Completion: March 2015

Objectives: To study and inventorize the freshwater Crustaceans of Himachal Pradesh.

Progress: Two Surveys completed and the detailed taxonomic analysis of the specimen collected and examined reveals the occurrence of 9 species of decapod crustaceans, 27 species of Zooplanktons, 8 species of Molluscs and 11 species of Aquatic Hemiptera. Among the Decapod Crustaceans all the 4 species of freshwater shrimps were reported for the first time from Himachal Pradesh, the Brachyuran crab *Himalayapotamon chambaensis*, sp. nov. is new to science. Among the eight species of molluscs three species namely *Physa acuta*, *Macrochlamys indica* and *Ariophanta interrupta* have been recorded for the first time from Himachal Pradesh. Final Technical Report submitted

Significant highlights: Out of the 11 species of aquatic and semiaquatic hemipterans encountered in the study area, *Metrocoris quynhi* Tran and Zettel, 2005 is recorded for the first time from India.

4. Freshwater Crabs of Mizoram

Investigators: Mr Santanu Mitra

Mr. A. Gokul

Date of start: April 2013

Date of Completion: March 2015

Objectives: To study and inventorize the Freshwater Crabs of Mizoram

Progress: Total three surveys completed. All the materials collected from the surveys were identified and registered, reveals 17 species of freshwater crab belongs to 11 genera and two families. Final Technical Report submitted

Significant highlights: 3 new species species namely *Acanthopotamon horai* sp. nov, *Indochinamon*

dampaense sp. nov., and *Teretamon indicum* sp. nov, one new record to India *Phricotelphusa elegans* and 14 new record to Mizoram, several species collected after more than 100 years gap.

5. Non-Targeted diversity loss in West Bengal with special preference to Brachyuran Crabs

Investigators: Mr. A. Gokul.

Mr M. K. Dev Roy,

Date of start: April 2014

Date of Completion: March 2015

Objectives: To study the Non-Targeted diversity loss in West Bengal with special preference to Brachyuran Crabs.

Progress: Two survey tours were undertaken and a total of 1259 faunal samples including 602 brachyuran crabs were collected. From this 225 examples of Brachyuran crabs were identified into 10 Species under 8 Genera and 5 Families. 15 example of Stomatopod was identified as *Oratosquilla interrupta* Kemp, 1911. Final Technical Report submitted.

6. An Assessment of Taxonomic Status, Conservation and sustainable utilization of the Horse-shoe crab resource along the East Coast of India

Investigators: Dr. B. Tripathy

Sh. A. Mohapatra

Dr. Vikas Kumar

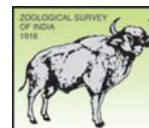
Sh. A. K. Mukhopadhyay

Date of start: April 2013

Date of Completion: March 2016

Objectives:

- Habitat Survey: Documentation on the occurrence and distribution of horseshoe crab all along the coast, population enumeration at important horseshoe crab habitats, evaluation of habitat suitability for foraging and nesting of horseshoe crab along the Odisha coast.



- ii. Identification of the horse-shoe crab habitat within the coastal regulation zone along the entire Indian Coast including islands and preparation of GIS based maps with boundaries for the horse shoe crab habitats along Indian coast.
- iii. Secondary sources of information on the occurrence, traditional use and threat to horse shoe crab along the east coast of India through literature review, interviewing fishermen and concerned fisheries and forest officials.
- iv. Evaluation of various onshore and offshore threats to horseshoe crab in Odisha such as fishing practises, cause of mortality at the breeding ground, habitat destruction due to developmental activities, pollution etc. and identification of horseshoe crab habitat for protection.
- v. Formulation of suitable conservation and management strategy for horseshoe crab along the east coast for its protection and sustainable utilization.

Progress: Two surveys conducted and 77 examples collected. Identified 9 examples belonging to two species.

Significant highlights:

- i. First GIS based maps with boundaries for the horse shoe crab habitats along Indian coast.
- ii. Limited distribution of the two species of horseshoe crabs.
- iii. Recommendation for conservation of these two species.
- iv.



Carcinoscorpius rotundicauda (Latreille, 1802)

7. Species diversity and richness of Mollusca fauna of Himachal Pradesh

Investigators: Sh. A. Mohapatra,
Dr. B. Tripathy,
Sh. A. K. Mukhopadhyay,
Dr. T. Biswas

Date of start: April 2012

Date of completion: March 15

Objectives: To inventorize the Land and Freshwater molluscan fauna of Himachal Pradesh along with species richness.

Progress: Land Mollusca: 404 examples, identified as: Family - 8, Genus -10, Species -14. Freshwater Mollusca: 229 examples, identified as: Family - 4, Genus -4, Species -7.

Significant highlights: 14 species are new records from the State; 11 endemic to this region. Land mollusca recorded from 9000ft at Haripur Dhar area.

8. Studies on the termite Fauna (Order-Blattaria, Infra order-Isoptera) of Arunachal Pradesh

Investigators: Dr. N. Saha
Shri B. Bareik
Smt J. Basak

Date of start: April 2014

Date of completion: March 2017

Objectives: To study and inventorize the termite Fauna (Order-Blattaria, Infra order-Isoptera) of Arunachal Pradesh.

Progress: Two surveys completed. Total 20 species under 11 genera and 3 families (ca.130 vials) identified. New records: 3 species. Numerous new locality records. 125 vials computerized. Ten species have been dealt with regard to their synonymies, diagnostic characters and distribution.

Significant highlights: Unique assemblage of primitive genera (*Cryptotermes* and *Reticulitermes*) along with most modern genera (*Nasutitermes*) found under humid condition of Arunachal Pradesh.



Nasutitermes tandoni Bosc (soldier caste) from AP



Reticulitermes assamensis Gardner (soldier caste)

9. Insect pest and pollinator diversity of some major crops of North Bengal

Investigators: Dr. Bulganin Mitra

Date of start: April 2012

Date of completion: March 2015

Objectives: To study insect pest and pollinator diversity of some major crops of North Bengal.

Progress: Two surveys were conducted to North Bengal. Total 919 examples of insects were collected among which 604 examples belong to the order Lepidoptera and 83 examples of butterflies have been identified and registered. Final Technical Report submitted.

10. Studies on Odonata and Lepidoptera fauna of Desert Ecosystem of Rajasthan

Investigators: Dr. Gaurav Sharma

Date of start: April 2012

Date of completion: March 2015

Objectives: To study the Odonata and Lepidoptera fauna of Desert Ecosystem of Rajasthan.

Progress: 38 species of Odonata and 108 species of Lepidoptera have been identified.

11. Studies on the selected families of Hymenoptera (Apidae, Vespidae, Scolidae and Formicidae) of Sundarban Biosphere Reserve, West Bengal

Investigators: Dr. Gaurav Sharma

Dr. P. Girish Kumar

Date of start: April 2013

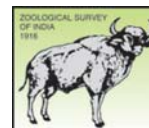
Date of completion: March 2016

Objectives: To study the selected families of Hymenoptera (Apidae, Vespidae, Scolidae and Formicidae) of Sundarban Biosphere Reserve, West Bengal.

Progress: Total specimens collected during the survey period: 568 specimens. Hymenoptera – 423 specimens; Coleoptera – 76 specimens; Hemiptera – 20 specimens; Diptera – 40 specimens; Arachnida – 07 specimens; Lepidoptera – 01 specimen; Crustacea – 05 specimens; Mollusca – 07 specimens; Pisces – 06 specimens. Identification of Hymenoptera specimens have completed.



Ropalidia narendrani Shareef & Kumar, 2015



12. Collembolan Fauna of Duars region of Northern West Bengal & Shola grassland of Western Ghats

Investigators: Dr. G. P. Mandal

Shri K. K. Suman

Date of start: April 2012

Date of completion: March 2015

Objectives: To study the Collembolan Fauna of Duars region of Northern West Bengal & Shola grassland of Western Ghats.

Progress: 1555 exs. Of collembolan have been collected. 18 species of Collembola belonging to 12 genera under 5 families have been identified.

Significant highlights: One new species of collembola have been identified.



Dicranocentrus cercifer (Imms, 1912)



Callyntrura ceylonica (Ritter, 1911)

13. Mantodea fauna of Andaman & Nicobar Island

Investigators: Dr. G. Srinivasan

Date of start: April 2013

Date of completion: March 2016

Objectives: To study the Mantodea fauna of Andaman & Nicobar Island.

Progress: One survey tour was conducted 15 specimens belonging to 6 species under 5 genera identified.

14. Diversity and seasonal variation of Diptera in Sonamukhi reserve forest, West Bengal

Investigators: Dr. Dhriti Banerjee

Dr. Vikash Kumar

Shri R.S. Mridha

Shri Atanu Naskar

Date of start: April 2013

Date of completion: March 2016



Image : *Tabanus (Tabanus) rubidus*
Wiedemann, 1821



Image : *Tabanus (Tabanus) tenens*
Walker, 1850



Image : *Tabanus (Tabanus) diversifrons* Ricardo, 1911



Image : *Tabanus dorsiger*
Wiedemann, 1821



Image : *Chrysops dispar* (Fabricius, 1798)



Image : *Haematopota anandalei*
Ricardo, 1911

Objectives: To study the diversity and seasonal variation of Diptera in Sonamukhi reserve forest, west Bengal

Progress: One survey was conducted during the period. 4597 dipteran specimens were collected from all the surveys and 1917 specimen are identified till date, 1917 specimens registered.



15. Taxonomic studies of Tabanidae (Insecta: Diptera) from West Bengal

Investigators: Dr. Dhriti Banerjee

Dr. Vikash Kumar

Shri R.S. Mridha

Shri Atanu Naskar

Date of start: April 2013

Date of completion: March 2016

Objectives: To study the diversity and seasonal variation of Tabanidae from West Bengal.

Progress: Three surveys conducted. 4666 dipteran specimens were collected during surveys of which 1285 were tabanids specimens. 1285 tabanids specimens have been identified and registered.

16. Taxonomic studies on the Spiders of Himachal Pradesh.

Investigators: Dr S. Talukdar

Date of start: April 2011

Date of completion: March 2015

Objectives: Survey exploration and inventorying of Spiders of Himachal Pradesh

Progress: 67 species yet identified under 15 genera under 10 families from 600 out of 1000 collections.

17. Ecology and Diversity of Spider fauna in Betha Dahuri WL Sanctuary, Nadia West Bengal

Investigators: Dr S. Talukdar

Date of start: April 2011

Date of completion: March 2015

Objectives: Survey exploration and inventorying of spider fauna in Bethua Dahuri WL Sanctuary, Nadia West Bengal.

Progress: Identified 64 species under 21 genera under 15 families.

18. Studies on the cardinal Fishes (Perciformes: Apogionidae) of West Coast of India

Investigators: Shri S.S. Mishra

Shri S.C. Saren

Date of start: April 2014

Date of completion: March 2017

Objectives: Survey exploration and inventorying of cardinal Fishes (Perciformes: Apogionidae) of West Coast of India.

Progress: An easy-to-use key for identification of 24 genera of cardinal fishes known from India has been prepared based on recent studies and species level identification keys for each genera also prepared.

Significant Highlights: Identification keys for each genera prepared.

19. Morphological and Molecular study of Mulletts (Mugiliformes: Mugilidae) of India

Investigators: Shri S.S. Mishra

Dr Vikas Kumar

Date of start: April 2014

Date of completion: March 2016

Objectives: The Morphological and Molecular study of Mulletts (Mugiliformes: Mugilidae) of India.

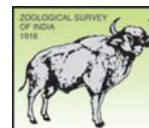
Progress: Attempt to use old preserved specimens to get the DNA failed. Fresh specimens are collected and preserved in alcohol. Since the number of species are too less, searching for more species. FTR may be allowed to submit by 30 September 2016 after completion of work.

20. Taxonomic Studies on Fresh-water Fishes of North-Bengal

Investigators: Sri A. Das

Sri. K.C. Gopi

Date of start: April 2010



Date of completion: March 2015

Objectives: Survey exploration and inventorying of Fresh-water Fishes of North-Bengal.

Progress: A total of 201 fish species belonging to 106 genera, under 36 families and 10 order has been recorded. Final technical report submitted.

21. Revision of Indian Cyprinoid Genus *Barilius* Hamilton

Investigators: Dr. S. Kar

Shri. K.C. Gopi

Dr. L. Kosygin Singh

Date of start: April 2010

Date of completion: March 2015

Objectives: Revision of Indian Cyprinoid Genus *Barilius* Hamilton.

Progress: Under the genus *Barilius* Hamilton, 1822, twenty species are considered as valid and systematic accounts of fishes discussed. Final Technical Report submitted.

22. Diversity and zoogeographical distribution of freshwater fishes of Kameng River, Arunachal Pradesh

Investigators: Dr. L. Kosygin Singh

Shri K.C. Gopi

Shri A. Dash

Miss A.K. Tudu

Date of start: April 2013

Date of completion: March 2016

Objectives: To study the diversity and zoogeographical distribution of freshwater fishes of Kameng River, Arunachal Pradesh.

Progress: Two surveys conducted. Altogether 825 specimens of fishes were collected from the Kameng River of Arunachal Pradesh.

A total of 351 specimens were identified which represents 53 species, 32 genera and 14 families has been identified.



23. Amphibian Fauna of Duars area of northern West Bengal

Investigators: Dr. Kaushik Deuti

Date of start: April 2013

Date of completion: March 2016

Objectives: Survey exploration and inventorying of Amphibian Fauna of Duars area of northern West Bengal.

Progress: One survey completed and 46 Anurans of 15 species, 13 genera and 5 families were collected including three new records for West Bengal State.

Significant Highlights: Three new records for West Bengal State.

24. Amphibian Fauna of mangrove areas of Orissa

Investigators: Dr. Kaushik Deuti

Dr. P.G.S. Shetty

Date of start: April 2013

Date of completion: March 2016

Objectives: Survey exploration and inventorying of Amphibian Fauna of mangrove areas of Orissa.



Progress: Two surveys conducted and 59 Anurans of 13 species, 8 genera and 5 families were collected. This included the Mangrove Crab-eating frog (*Fejervarya cancrivora*).

25. Status Survey of Himalayan Musk Deer *Moschus chrysogaster* (Hodgson, 1839) in Himachal Pradesh

Investigators: Dr. Varadaraju

Date of start: April 2014

Date of completion: March 2017

Objective: To study the status of Himalayan Musk Deer *Moschus chrysogaster* (Hodgson, 1839) in Himachal Pradesh.

Progress: Two Surveys were conducted. The First survey was undertaken to Tirthan Wildlife sanctuary (Tirthan Valley) and Sainj Wildlife sanctuary (Sainj Valley) of Great Himalayan National Park. Survey team spent whole day in the field during survey period in search of study species. During the first survey in both Tirthan Wildlife sanctuary (Tirthan Valley) and Sainj Wildlife sanctuary (Sainj Valley) of Great Himalayan National Park we have not sighted the species in the study area, though we reached and searched the species in the localities where it was earlier reported and sighted. It may be due to the season i.e during summer musk deer goes beyond 5000-7000 meters high in the Himalayas in search of grass and safeguard itself from human hunting.

Significant Highlights: Two Surveys were conducted.

26. Status Survey of Crab-eating Monkey *Macaca fascicularis umbrosa* (Miller, 1902) at Andaman and Nicobar Islands

Investigators : Sh. P.C. Saren,

Sh. D. Basu

Date of start : April 2013

Date of completion : March 2016

Progress : Two field surveys were undertaken

during the period under report. Last field survey was completed in the month of January 2016. A total of 944 Macaques were recorded in two field surveys. Final technical Report has been submitted.

27. Investigating Thrips Diversity (Thysanoptera: Insecta) in Rajasthan State of India

Investigators: Dr Vikas Kumar

Date of start: April 2014

Date of completion: March 2017

Objectives: To investigate the Thrips Diversity in Rajasthan through surveys, exploration and Inventorisation.

Progress: More than (One thousands) slide mounted specimens with registration.

30 species identified. Status of the taxa, ecological studies conducted & results obtained with conclusion drawn. A summary of the completed projects highlighting the important findings is to be given.

Significant Highlights: One new species of thrips described to science. Ten new distribution records of thrips from Rajasthan state of India. Twenty species of Thysanoptera Identified and processed for DNA barcoding data.

28. Morphological & Molecular Systematics of Thysanoptera (Insecta) of Himachal Pradesh

Investigators: Dr Vikas Kumar

Date of start: April 2012

Date of completion: March 2015

Objectives: Morphological & Molecular Systematics of Thysanoptera (Insecta) of Himachal Pradesh.

Progress: More than 800 (eight hundred) slide mounted specimens with registration. 80 species identified.

Significant Highlights: Revisionary study of four Thysanoptera genera. Four new species of thrips.



Initiated Programmes:

1. Fauna of Terai Grasslands of Gangetic plains - Protozoan Fauna (Rhizopoda: Testacea)

Investigators: Dr. Chitra J.

Coordinator: Dr. G. Maheswaran

Date of start: April 2015

Date of completion: March 2018

Objectives: To study and inventorize the protozoans (Rhizopoda: Testacea) of Gangetic plains.

Progress: One survey conducted. Collected 291 samples of moss from soil, walls and trees, water samples from pond, lakes, canals, rivers and fern samples of inhabitants of forest areas. Few Soil and water samples were analysed. Among them 17 species of rhizopods were identified from 26 examples belonging to 9 genera, 5 families and 2 orders respectively.



2. Diversity and Distribution of Marine Mollusca of Maharashtra and Gujarat coast along the west coast of India

Investigators: Shri A. K. Mukhopadhyay,
Dr. B. Tripathy

Date of start: April 2015

Date of completion: March 2018

Objectives: Inventorisation of marine Molluscan fauna of West Coast is envisaged with special reference to Gujarat and Maharashtra.

Progress: Two surveys conducted 1091 species of Bivalves have been identified with 45 families, 73 genera and 171 species. 441 species of Gastropods have been identified with 51 families 67 genera and 101 species.

Significant Highlights: Documentation of the Marine Mollusca diversity along the West coast of India. Economically viable and edible Molluscan species have been identified.



Turritella bicingulata Lamarck, 1822

3. Diversity and Distribution of Cephalopods along East Coast of India

Investigators: Dr. B. Tripathy

Sh. A. Mohapatra

Dr. Vikas Kumar,

Sh. A. K. Mukhopadhyay

Date of start: April 2014

Date of completion: March 2017

Objectives: To study the Diversity and Distribution of Cephalopods along East Coast of India

Progress: Two surveys conducted. 441 specimens have been identified belonging to 5 families, 21 genera and 34 species.

Significant highlights:

- Economically viable species have been identified.
- Species specific population chart already prepared.
- Data regarding catch of cephalopods (month wise) have been prepared.



Uroteuthis duvaucelii (d'Orbigny [in Férussac & d'Orbigny], 1835)

4. Fauna of Terai Grassland Ecosystem

Investigators: Dr. Gopinathan Maheswaran

Date of start: April 2015

Date of completion: March 2018

Objectives: To study the Fauna of Terai Grassland Ecosystem

Progress: One survey conducted to Dudhwa NP and Kishanpur WLS from 21st March to 2nd April, 2016.

5. Fauna of Satkosia Tiger Reserve, Odisha

Coordinators: Dr. Dhriti Banerjee
Dr. Gurupada Mandal

Subject Investigators: Dr. G. Maheswaran, Dr. M. E. Hassan, Dr. Gaurav Sharma, Dr.S. Sheela, Dr. B.Tripathy, Dr.P.Jasmine, Dr.K.Valarmathi, Dr.Shelley Acharya, Smt. Rinku Goswami, Dr. Chitra J, Dr. Bulgarin Mitra, Dr. O. P. Srivastava, Smt Anindita Ghosh, Dr. Kaushik Deuti, Shri M. K. Nayek, Dr. Viswa Venkat Gantait, Dr. Debabrata Sen, Mr. Swapan Das.

Date of start: April 2015

Date of completion: March 2018

Objectives: To identify and inventorise the fauna of from various ecosystems of the Satkosia and Baisiapally WLS, Odisha. To study and describe new taxa and new records (whenever available). To publish the results on the occurrence of fauna from the concerned Protected Areas. To make a general collection of fauna as much as possible within the radius of the surveyed areas.

Progress: four surveys were conducted during the period.



Name of faunal Group collected	Number of faunal Specimen Collected
Protozoa	111
Nematoda	58 Tubes
Crustacea	1188
Coleoptera	26
Soil Sample	96
Acari	69
Odonata	69
Diptera	651
Coleoptera	501
Hemiptera	525
Hymenoptera	525
Orthoptera	375
Lepidoptera	335
Mollusca	1060
Fish	67
Amphibia	7
Reptilia	8
Avi Fauna	19
Mammalia	3
Total Fauna collected	5671



RESEARCH PROGRAMMES

Regional Centres

- Completed Programmes
- Ongoing Programmes
- Initiated Programmes



Zoological Survey of India



NORTH EASTERN REGIONAL CENTRE (NERC), SHILLONG

Completed Programmes

1. Taxonomic study on Anuran Amphibians of North East India present in the unidentified collection of NERC/ZSI, Shillong

Investigators: Bhaskar Saikia

Date of start: April 2011

Date of Completion: March 2013

Objectives: Taxonomic study of the unidentified anuran amphibian specimens at on Anuran Amphibians of North East India present in the unidentified collection of NERC/ZSI, Shillong.

Progress: Final Technical Report and Manuscript submitted. The study dealt with 399 specimens identified into 19 species under 11 genera and 6 families.

2. Taxonomic studies of aquatic and semi-aquatic Hemiptera of West Khasi Hill and Ri-Bhoi districts, Meghalaya

Investigators: Mrs. J. Lyngdoh

Date of start: April 2011

Date of Completion: March 2013

Objectives: Taxonomic studies of aquatic and semi-aquatic Hemiptera of West Khasi Hill and Ri-Bhoi districts, Meghalaya.

Progress: Final Technical Report and Manuscript submitted. Altogether, 2281 exs of aquatic and semi-aquatic Hemiptera were examined and were identified into 28 species under 16 genera and 11 families.

Ongoing Programmes

1. Faunal inventory of Bornadi Wildlife sanctuary, Assam.

Investigators: Mrs. J. Lyngdoh

Date of start: April 2014

Date of Completion: March 2016

Objectives: Faunal inventory of Bornadi Wildlife sanctuary, Assam.

Progress: Signing of MoU pending with the Assam Forests Department. Permission for survey in the sanctuary was obtained from the Assam State Bio-diversity Board but subjected to signing of MoU with the Assam Forest Department. Surveys will be conducted after MoU with the Assam Forest Department.

2. Taxonomic and Ecological studies on the Earth worms (Annelida: Oligochaeta) of West Khasi Hills and South Garo Hills districts of Meghalaya.

Investigators: Mrs. I. J. Kharkongor

Date of start: April 2009

Date of completion: March 2012

Objectives: Taxonomic and Ecological studies on the Earthworms (Annelida: Oligochaeta) of West Khasi Hills and South Garo Hills districts of Meghalaya.

Progress: Final Technical Report submitted. The study dealt with 37 species under 13 genera and 3 families.

3. Taxonomic study on Ichthyofauna of Nongkhylem Wildlife Sanctuary and adjoining areas, Ri-Bhoi district, Meghalaya

Investigators: Dr. D. Khyntiam

Dr. (Miss) N. Sen

Date of start: April 2012

Date of completion: March 2015

Objectives: Taxonomic study on Ichthyofauna of Nongkhyllem Wildlife Sanctuary and adjoining areas, Ri-Bhoi district, Meghalaya.

Progress: Final Technical Report and Manuscript submitted. The study dealt with 1428 specimens of fishes identified into 39 species under 25 genera, 14



families and 5 orders. The manuscript was revised as per the suggestions of the editorial board and resubmitted.

4. Chiroptological investigation in some of the major caves of East Jaintia Hills and West Jaintia Hills districts, Meghalaya, Northeast India

Investigators: Dr. U. Saikia,
Mrs. I. J. Kharkongor

Date of start: April 2013

Date of completion: March 2016

Objectives: To investigate chiropteran diversity in some of the major caves of East Jaintia Hills and West Jaintia Hills districts, Meghalaya, Northeast India.

Progress: Eight major limestone caves of Jaintia Hills Districts of Meghalaya was explored for bat diversity. Twentynine bat specimens were collected as vouchers which were identified in to 11 species in three genera and three families. The compilation of data completed.

5. Resurvey of the Siju Cave, South Garo Hills District, Meghalaya, to Study the Faunal Diversity of the Cave

Investigators: Mrs. Ilona J. Kharkongor
Dr. Uttam Saikia

Date of start: April 2013

Date of completion: March 2015

Objectives: Resurvey of the Siju Cave, South Garo Hills District, Meghalaya, to Study the Faunal Diversity of the Cave.

Progress: No surveys could be conducted due to the prevailing security situation in the area.

6. Faunal inventory and ecological studies of Majuli Island, Assam with special reference to Molai Forests, the largest hand-planted forest in India, located near the island.

Investigators: Mrs. I. J. Kharkongor
Mr. B. Saikia

Date of start: April 2014

Date of completion: March 2016

Objectives: Faunal inventory and ecological studies of Majuli Island, Assam with special reference to Molai Forests, the largest hand-planted forest in India, located near the island.

Progress: Two surveys conducted. One during 2014-15 and another during 2015-16. 20 species of fishes collected during 2014-15 and 4 species of amphibian collected during 2015-16 have been identified.

7. Taxonomic studies of the fresh water crabs of Aizawl district, Mizoram

Investigators: Mr. A. Rana

Date of start: April 2013

Date of completion: March 2014

Objectives: Taxonomic studies of the fresh water crabs of Aizawl district, Mizoram.

Progress: Final Technical Report and Manuscript are under preparation and will be submitted soon.

8. A documentary on the mass migration of earth worms in Mawlyngot area, Meghalaya.

Investigators: Mrs. I. J. Kharkongor

Date of start: April 2009

Date of completion: March 2012

Objectives: A documentary on the mass migration of earthworms in Mawlyngot area, Meghalaya.

Progress: Technical Report submitted. Manuscript is under preparation.



Initiated Programmes

1. Faunal inventory of Nongkhylllem wildlife sanctuary

Investigators: Officer-in-Charge & Scientific staff

Date of start: April 2015

Date of completion: March 2018

Objectives: Faunal inventory of Nongkhylllem wildlife sanctuary.

Progress: Permission granted by the wildlife dept. Govt. of Meghalaya. Local surveys are being conducted. 183 examples of various faunal groups collected. 11 examples of aquatic hemiptera belonging to 4 species have been identified.

2. Status survey of Hoolock gibbon

Investigators: Dr. U. Saikia

Date of start: April 2015

Date of completion: March 2018

Objectives: To determine the current status of Hoolock gibbon in Assam.

Progress: Two surveys were conducted in July and December, 2015 covering 41 localities in Assam. and the status report of Hoolock gibbon in Assam submitted (soft copy) to Technical Section, ZSI HQ, Kolkata. Presence-absence, encounter rate and mean group size data was obtained for western Hoolock Gibbon from those survey localities. Compilation of final report underway.

**WESTERN REGIONAL CENTRE (WRC),
PUNE**

Completed Programmes

1. A study of Coccinellid (Insecta: Coccinellidae) fauna of Karnataka [Uttarkannada, Udupi and Mangalore (Dakshin Kannada district)] of Western Ghats region of Karnataka

Investigators: Dr. P. S. Bhatnagar

Date of start: April 2012

Date of completion: March 2015

Objectives: To study Coccinellid (Insecta: Coccinellidae) fauna of Karnataka [Uttarkannada, Udupi and Mangalore (Dakshin Kannada district)] of Western Ghats region of Karnataka.

Progress: Final Technical Report and Manuscript have been submitted. Two surveys were completed and tour reports were submitted. Total 1100 examples have been identified under 11 genera and 13 species.

2. Molecular Taxonomy of Endemic Freshwater Fishes of Western Ghats: Phase I* (*Maharashtra, Goa & Karnataka)

Investigators: Dr. R. Bano

Dr. S.S. Jadhav

Date of start: April 2012

Date of completion: March 2015

Objectives: To study Molecular Taxonomy of Endemic Freshwater Fishes of Western Ghats: Phase-I* (*Maharashtra, Goa & Karnataka).

Progress: The DNA sequences of 13 endemic freshwater fishes uploaded on NCBI website (Submission ID: 1907079). Two surveys were completed and tour reports were submitted. Final Technical report and manuscript have been submitted.



Hypselobarbus kurali Menon & Rema Devi 1995,

Ongoing Programmes

1. Status survey of 4 Caecilian species (Amphibia : Gymnophiona) viz. i) *Gegeneophis danieli* Giri, Wilkinson and Gower; ii) *Gegeneophis seshachari* Ravichandran, Gower and Wilkinson; iii) *Indotyphlus battersbyi* Taylor and iv) *Indotyphlus maharashtrensis* Giri, Gower and Wilkinson



Investigators: Shri. S.S. Kamble

Date of start: April 2010

Date of completion: March 2012

Objectives: Status survey of 4 Caecilian species (Amphibia: Gymnophiona) viz. i) *Gegeneophis danieli* Giri, Wilkinson and Gower; ii) *Gegeneophis seshachari* Ravichandran, Gower and Wilkinson; iii) *Indotyphlus batersbyi* Taylor and iv) *Indotyphlus maharashtraensis* Giri, Gower and Wilkinson.

Progress: One Survey was undertaken to Satara District. Specimens of *Indotyphlus maharashtraensis* available with Dr. Bapurao Jadhav were studied and information on the localities was obtained. Final Technical Report and Manuscript will be submitted shortly.

2. Noctuidae (Insecta: Lepidoptera: Heterocera) of Northern Western Ghats, Maharashtra

Investigators: Dr. Aparna S. Kalawate

Date of start: April 2012

Date of completion: March 2015

Objectives: To study the Noctuidae (Insecta: Lepidoptera: Heterocera) of Northern Western Ghats, Maharashtra.

Progress: A total of 1255 specimens were so far collected. 13 species belonging to 3 genera have been identified. Further identification work is in progress.



3. Western Ghats, Maharashtra Phase-I under Biodiversity 'Hotspots' and Tropical Rainforest Ecosystem

Investigators: Officer- In- Charge and Other scientific staffs.

Date of start: April 2012

Date of completion: March 2015

Objectives: To study fauna of Western Ghats, Maharashtra Phase-I under Biodiversity 'Hotspots' and Tropical Rainforest Ecosystem.

Progress: 5178 specimens were so far collected. Identification work is in progress.



Ghatiana atropurpurea Pati et al., 2016



Ghatiana splendida Pati et al., 2016



Spiralothelephusa gibberosa Pati & Sudha Devi, 2015



Gubernatoriana alcocki Pati et al., 2016

CENTRAL ZONE REGIONAL CENTRE, JABALPUR

Completed Programmes

1. Taxonomic studies on the Geometrid (Lepidoptera: Geometridae) fauna of Madhya Pradesh

Investigators: Dr. S. Sambath

Date of start: April 2012

Date of completion: March 2014

Objectives: Taxonomic studies on the Geometrid (Lepidoptera: Geometridae) fauna of Madhya Pradesh

Progress: During the course of study, a total of 173 freshly collected specimens of moths of Geometridae were identified and registered which resulted 31 species and 24 genera of three subfamilies were identified. A checklist of 51 species of Geometrid fauna of Madhya Pradesh is prepared which consists of 10 species of subfamily Geometrinae, 25 species of subfamily Ennominae, 14 species of Sterrhinae and 2 species of subfamily Larentiinae. The Manuscript will be submitted soon.



Asota ficus Fabricius

2. Taxonomic studies on the small (rodents, shrews and bats) mammals of Madhya Pradesh

Investigators: Dr. S. S. Talmale

Date of start: April 2012

Date of completion: March 2014

Objectives: Taxonomic studies on the small (rodents, shrews and bats) mammals of Madhya Pradesh

Progress: Completed all four surveys and collected 388, 268, 490 and 135 examples along with total 55 specimens of small mammals. Identified all freshly collected specimens Order: Soricomorpha: 2 species



(7exs.), Rodentia: 7species/subspecies (25exs.); Chiroptera: 6species/subspecies (23 exs.). A list of 56 species/ subspecies of small mammals of Madhya Pradesh is prepared includes Order Scandentia (Tree shrew) 1 species; Order Rodentia (Rodents): 20 species/ subspecies; Order Soricomorpha (Shrews): 4 species and Order Chiroptera (Bats): 31 species/ subspecies. Manuscript submitted.

Significant highlight:

- i. Topotype of bat species *Taphozous theobaldi secatus* Thomas, 1915 collected from its type locality, Asirgarh, Burhanpur district. This species only recorded from 3 locations in India (Madhya Pradesh & Karnataka).
- ii. New collection locality recorded for one shrew species *Suncus etruscus* (Savi) from Pachmarhi Biosphere Reserve, Chhindwara district.
- iii. New collection locality recorded for three striped palm squirrel, *Funambulus palmarum robertsoni* Wroughton from Betul district.
- iv. New collection locality recorded for Blanford's Madromys rat, *Madromys blanfordi* (Thomas) from Madhav National Park, Shivpuri district.
- v. Five new collection localities recorded for Lesschenault's Rousette Bat, *Rousettus leschenaultii* (Desmarest) from Dindori (Hatdol cave), Burhanpur (Sita Gupha and Asirgarh Fort) and Shivpuri (Narwar fort and Karera Fort) districts.
- vi. Three new collection localities recorded for Greater False Vampire Bat, *Megaderma Lyra* E. Geoffroy from Shivpuri District (Surwaya Garhi, Madhav National Park and Terahi Garhi).
- vii. One new collection locality record for Lesser Mouse-tailed bat, *Rhinopoma hardwickii* Gray from Khokhai Math, Rannod, Shivpuri district.
- viii. One new collection locality record for Naked-rumped Tomb Bat, *Taphozous nudiventris* Cretzschmar from Surwaya Garhi, Shivpuri district.
- ix. Thirty roosting sites, locations were recorded by GPS, populations and roosting tree type of *Pteropus giganteus* (Brunnich) recorded from nine districts surveyed during the programme.
- x. Pie bald white patches recorded on thorax and

abdominal portion of House Rat *Rattus rattus rufescence* (Gray) and Little Indian Field Mouse *Mus booduga* (Gray) from Betul and Hoshangabad districts of Madhya Pradesh.



Funambulus pennantii Wroughton

Ongoing Programmes

1. Faunal Diversity of Nauradehi Wildlife Sanctuary, Sagar District, Madhya Pradesh

Investigators: Officer- In- Charge and Other scientific staffs.

Date of start: April 2013

Date of completion: March 2016

Objectives: to study Faunal Diversity of Nauradehi Wildlife Sanctuary, Hqs. Sagar District, and Madhya Pradesh

Progress: Three surveys were assigned and three surveys were undertaken from Nauradehi, Mohli, and Chheola, Sarra, and Singpur forest range of Nauradehi WL Sanctuary w.e.f. 28.09.2015 to 09.10.2015; and 11.01.2011 to 21.01.2016 and 28.03.2016 to 08.04.2016 and collected 1356 specimens (704, 455 and 486) of various faunal groups.

Identification: 44 specimens of Odonata belonging to 13 species and 13 genera; 01 specimen of Mammalia (Rodentia) belonging to one species and one genus; 44 specimens of Hemiptera belonging to 29 species and 27 genera; 151 specimens of moths (Lepidoptera) belonging to 50 species and 50 genera; 62 specimens of butterflies (Lepidoptera) belonging to 29 species and 12 genera; 02 specimens

of Coleoptera (Coccinellidae) belonging to 02 species and 02 genera; 03 specimens of praying mantids (Mantodea) belonging to 03 species and 03 genera; 236 specimens of spiders belonging to 59 species 35 and 28 specimens of Pisces belonging to 05 species and 05 genera were identified and registered from Nauradehi WL Sanctuary. Further identification is in progress.



Ceriatagrion coromandelianum (Fabricius)



Canis aureus (Linnaeus)

2. Taxonomic studies on the Crambid (Lepidoptera: Crambidae) fauna of Madhya Pradesh & Chhattisgarh

Investigators: Dr. S. Sambath

Date of start: April 2014

Date of completion: March 2017

Objectives: Taxonomic studies on the Crambid (Lepidoptera: Crambidae) fauna of Madhya Pradesh & Chhattisgarh.

Progress: 2 surveys were conducted and 593 exs OD specimens belongs to different animal group were collected.



Abisara echerius (Stoll)

Initiated Programmes

1. Faunal Diversity of Bhoj Wetland, district Bhopal, Madhya Pradesh in collaboration with FBRC, Hyderabad

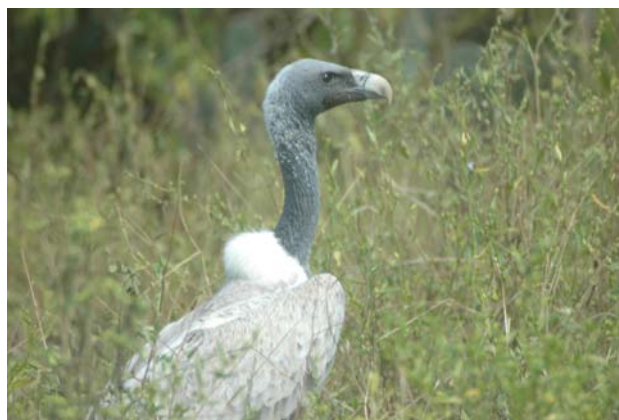
Investigators: Officer- In- Charge and Other scientific staffs.

Date of start: April 2015

Date of completion: March 2017

Objectives: To study the Faunal Diversity of Bhoj Wetland, district Bhopal, Madhya Pradesh.

Progress: One survey was conducted and 320 specimens belonging to 11 faunal groups were sorted and registered.



Gyps indicus (Scopoli)



DESERT REGIONAL CENTRE, JODHPUR

Completed Programmes

1. Studies on Faunal Diversity of Rajasthan - Gaps in Research

Investigators: Officer-in-Charge & Scientific staff

Date of start: April 2013

Date of completion: March 2016

Objectives: i. Survey, observation, collection, identification and documentation of faunal diversity components such as Insects, amphibians and fishes from unexplored areas of Rajasthan.

- ii. To develop the faunal diversity database and species distribution in the State of Rajasthan.
- iii. Observation on threats to the fauna if any from various sources and developmental activities.

Progress: Ten Surveys conducted and survey reports submitted. 957 lots comprising of 7522 examples of invertebrates and vertebrates were collected under ten surveys conducted. 15 species of ants, 22 species of butterflies, 46 species of fishes, 10 species of amphibians, 44 species of reptiles, 459 species of aves and 49 species of mammals identified and studied so far. Final Technical Report of the research programme and Manuscript based on vertebrate fauna have been submitted.

2. Exploration of Ichthyo-faunal Diversity in the Escape Reservoirs of Indira Gandhi Nahar Pariyojna (IGNP) Canal in the Bikaner and Jaisalmer districts of the Thar Desert, Rajasthan

Investigators: Dr. H.S. Banyal

Date of start: April 2014

Date of completion: March 2016

Objectives:

- i. Survey, observation, collection, identification and documentation of the Ichthyo-faunal diversity of water logged areas/ escape reservoirs of Indira Gandhi Nahar Pariyojna (IGNP) canal i.e. RD 507 escape reservoir near Chhatargarh and RD 750 escape reservoir near Hanumannagar in Bikaner district, RD 1120 & RD 1356 escape reservoir near Nachna and RD-1458 (Digga) reservoir at Digga village in Jaisalmer district.

- ii. To develop the Ichthyo-faunal diversity database and species distribution in the proposed area of study.

- iii. Observation on threats to the fish fauna if any from various sources and developmental activities.

Progress: 38 localities were surveyed in five escape reservoirs of (IGNP) Canal in the Bikaner and Jaisalmer districts of the Thar Desert. 4 lots comprising of 36 examples of Gastropoda, 43 lots of Fishes comprising of 711 examples & 3 lots of Amphibian comprising of 4 examples were collected and registered in unidentified register of the Centre. All the fishes are identified and registered. Fauna collected during the survey is sorted out, preserved and registered in the unidentified register of the Centre. Final Technical Report of the Research Programme have been submitted.

Significant highlights: One species of fish found to have new distributional record from the area of study. Listing of the fish faunal diversity of the five escape reservoirs of (IGNP) Canal in the Bikaner and Jaisalmer districts of the Thar Desert is done for the first time.

Threats to the fish species identified & reported.

Fish data base of the said reservoirs is being prepared



Oenanthe picata (Blyth, 1847)

3. Faunal Diversity of Sariska Tiger Reserve, Rajasthan

Investigators: Officer-in-charge & Scientific staff



Date of start: April 2015

Date of completion: March 2016

Objectives: To prepare and submit manuscript on the basis of already known information on different animal groups identified so far by different ZSI experts and work published.

Progress: A total of 471 species of invertebrate and vertebrate are recorded from the protected area. Out of 471 species recorded from STR, 396 species are worked out and identified from previous survey conducted by Desert Regional Centre alone.

Manuscript is submitted on the basis of already known information on different animal groups identified so far by different ZSI experts and published report.

4. Faunal Diversity of Desert Ecosystem, Rajasthan

Investigators: Officer-in-charge & Scientific staff

Date of start: April 2015

Date of completion: March 2016

Objectives: To prepare and submit manuscript on the basis of already published information on different animal groups by different experts.

Progress: Manuscript is compiled and submitted on the basis of already published information on different animal groups by different experts.



Pernis ptilorhynchus ruficollis (Lesson, 1830)

Ongoing Programmes

1. Studies on Faunal Diversity of Dry Grasslands of the Thar Desert

Investigators: Dr. Sanjeev Kumar
Dr. H.S. Banyal

Date of start: April 2015

Date of completion: March 2018

Objectives:

- i. Inventorization and documenting the faunal diversity associated with grasslands of the Thar Desert.
- ii. Developing Datasets on exotic species and their status in the dry grasslands of the Thar Desert.
- iii. Digital Inventory of Avifauna and other vertebrates of dry grasslands Thar Desert
- iv. Assessment of the threatened/endangered dry grassland faunal species of the Thar Desert especially Banni grasslands of Saurashtra when flooded.
- v. Monitor the changes in vertebrate faunal composition, especially the avifaunal structure of the dry grasslands of the Thar desert due to the Indira Gandhi Nahar Project
- vi. To identify species rich zones in different habitats for conservation of the species.

Scientific recommendation/suggestions for habitat improvement of grasslands for conservation of threatened and endemic faunal species.

Progress: Dry Grasslands in the Thar Desert of Rajasthan falling under District (s): Nagaur, Pali, Jalor, Sikar, Churu & Jhunjhunu were surveyed.

Dry Grasslands in the Thar Desert of Gujarat falling under Kachchh district were surveyed.

2 species of amphibians, 13 species of reptiles, 234 species of birds and 17 species of mammals were recorded and identified so far under the programme.

Significant highlights: Important grassland species of aves such as *Ardeotis nigriceps* (Vigors, 1831) and *Chlamydotis undulata* (Jacquin, 1784) were sighted from the grasslands of Kachchh region.



2. Status Survey of *Ardeotis nigriceps* (Vigors, 1831) (Great Indian Bustard) in Grasslands of Rajasthan

Investigators: Dr. Sanjeev Kumar

Date of start: April 2014

Date of completion: March 2017

Objectives:

- Survey of the critically endangered species: *Ardeotis nigriceps* (Vigors, 1831) (Great Indian Bustard) in grasslands of Rajasthan.
- To collect data on population status, distribution and threats.
- To identify species rich zones in different habitats for conservation of the species.
- To study the ecology and behaviour of the GIB in its natural habitat.
- Scientific recommendation/suggestions for conservation of species.

Progress: Grasslands of 11 district of Rajasthan are so far surveyed where presence of GIB was earlier records. In all a total of 72 major grassland habitats were surveyed to work out the presence of GIB in these grass dominated landscapes.

Nine grassland habitats have been repeatedly surveyed in order to work out the presence and population status of the GIB. So far presence of GIB is recorded from four major localities in Jaisalmer district of Rajasthan only.

Major attempt was made and 13 localities were surveyed under the programme along the Indo-Pak border areas of Jaisalmer district including Desert National Park Sanctuary (DNPS) for the evaluation of the species status in the state.

A total of 18 species of reptiles, 180 species of birds and 19 species of mammals were identified and recorded in the field during the course of this programme.

Significant highlights: Field data of four major localities surveyed under the programme of the grassland habitats of Jaisalmer district including localities within Desert National Park Sanctuary (DNPS) was analyzed and present population structure worked out along with , ratio. Breeding population and its present status is also counted.



Eryx johnii (Russell, 1801)

Initiated Programmes

1. Status Survey of Indian Wild Ass (*Equus hemionus khur* Lesson, 1827) in Desert Ecosystem

Investigators: Dr. Sanjeev Kumar

Date of start: April 2015

Date of completion: March 2018

Objectives: To compile and submit manuscript on the basis of already published information by different experts

Progress: Introduction on the status of Indian Wild Ass (*Equus hemionus khur* Lesson, 1827) in Desert Ecosystem is under construction in order to bring comprehensive information on the species and its distribution within its home range of Gujarat State.

Consultation and assortment of documents also initiated to collate already known facts and figures on this species so as to prepare complete document on the status of Indian Wild Ass.

NORTHERN REGIONAL CENTRE, DEHRADUN

Completed Programmes

1. State Fauna of Punjab

Investigators: Officer-In- Charge and Scientific staff.

Date of start: April 2011

Date of completion: March 2014

Objectives: To study and inventorize Fauna of Punjab State.



Progress: Identification: Acridoidea: Identified and registered 34 examples belonging to 14 species.
Hymenoptera: Encyrtidae: Identified 4 examples belonging to four species.
Lepidoptera: Identified 41 examples belonging to seven (7) species
Mollusca: Identified 857 examples belonging to twenty one (21) species
Pisces: Identified 901 examples belonging to thirty (30) species
Manuscript submitted to PPO, Kolkata vide letter No. F. 101-1/Tech/2014-15/194 dated 12.6.2015. The faunal diversity (Invertebrates and Vertebrates) is represented by 1658 species belonging to 895 genera under 280 families. Of these, 80 species have been recorded for the first time from Punjab.

Ongoing Programmes

1. Trichotaxonomy and Molecular Study (from ZSI collections) of species of Lesser Cats (Mammalia: Carnivora: Felidae) listed under Wildlife (Protection) Act, 1972.

Investigators: Dr. Archana Bahuguna

Date of start: April 2012

Date of completion: March 2016

Objectives:

- To develop key of identification from features of PGH from all body regions: dorsal, ventral, head and tail.
- To find out the species specific gene sequences for molecular study.

Progress: Trichotaxonomy: Scanning electron microscopy: Dorsal, ventral, head and tail primary guard hair of *Caracal caracal* (Schneider), *Pardofelis marmorata* (Martin); *Felis silvestris* Schreber, *Catopuma temmekii* Vigors & Horsfield, *Otocolobus manul* Brandt Medulla slides of PGH of *Felis silvestris* Schreber and *Catopuma temmekii* Vigors & Horsfield, *Otocolobus manul* Brandt were prepared.

Key preparation based on results completed with 36

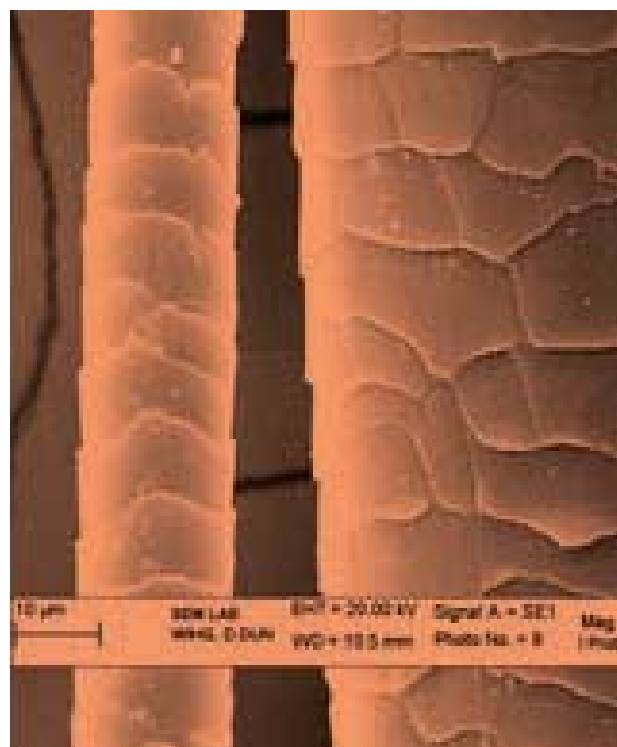
plates belonging to eight species of small cats (including medulla type, cross section types and scanning electron microscopy along with measurements) and 170 photomicrographs and SEM micrographs taken.

Molecular: DNA extracted from 45 old taxidermy (100-150 years old) samples of small cats and 25 samples were used for PCR of 12sRNA genes and Cytochrome b genes of *Felis chaus*, *Felis silvestris* and *Otocolobus manul* and 18 amplicons obtained.

Eight Accession numbers obtained for 12SrRNA genes: from NCBI KU880683-88, KX002031-32, belonging to three species *Felis chaus*, *Felis silvestris* and *Otocolobus manul*.

One sequence with Accession number KP789016 of 12 SrRNA gene of *Prionailurus bengalensis* (Kerr) was released at NCBI.

Analysis of partial DNA sequences (12S rRNA gene) of *Prionailurus bengalensis* (Kerr) and *Prionailurus viverrinus* was done. Mss is under preparation.



SEM of PGH from head of *Prionailurus viverrinus* (Bennett)



2. Molecular Characterization of Common Butterflies of District Dehradun

Investigators: Dr. A.N. Rizvi
Dr. P.C. Tak
Shri Parmod Kumar

Date of start: April 2012

Date of completion: March 2015

Objectives:

1. Morphological identification and photography.
2. Molecular characterization with Universal Primers for Lepidoptera

Progress: Identification: Morphological Studies: Identified 132 species under Families: Pieridae, Papilionidae, Nymphalidae, Lycaenidae and Hesperidae, distribution ranges, material examined and photography have been completed.

Molecular Studies

DNA extraction from 82 species (including 8 RET species).

PCR with Universal primers:

Amplicons of COI genes were obtained from 45 species, including 3 Scheduled species

Chapters on Introduction, Review of literature completed and Result analysis is in process.

Significance Highlights: 92 COI gene sequences have been submitted to NCBI & received 92 Accession numbers.

43 species of butterflies have been DNA barcoded.

Sequences submitted for the First Time in NCBI GenBank: 8 species.

Sequences submitted for the First Time in NCBI GenBank from India: 10 species.

DNA Barcoded Butterflies of District Dehradun			
Sr No.	Species	Accession nos.	Picture
1.	<i>Pareronia valeria</i>	KM285393 KM507498	
2.	<i>Euploea mulciber</i>	KM507499 KU947972	
3.	<i>Parantica aglea</i>	KM507500	
4.	<i>Tirumala limniace</i>	KM507501	
5.	<i>Papilio polytes</i>	KM507502	
6.	<i>Catopsilia pyranthe</i>	KP081316 KP137389	
7.	<i>Catopsilia pomona</i>	KP081317 KU947967 KU947968	
8.	<i>Eurema brigitta</i>	KP119869 KP119870	



Tirumala limniace (Cramer, 1775)

3. Diversity of Nematodes in Govind WLS & NP, Uttarakhand.

Investigators: Dr. Vinita Sharma

Date of start: April 2012

Date of completion: March 2015

Objectives:

- i. To identify nematode fauna of Govind Wildlife Sanctuary and National Park
- ii. To prepare Data Base information of nematode associated with Forest Ecosystem

Progress: One tour from 31 March to 6th April 2015 and collected 50 soil samples around the roots of medicinal plants. Processed 50 soil samples, and fixed. Identifies 38 exsbelonging 11apecies of Soil nematodes and registered 23 species and 33 examples.



Discolaimium simplex Siddiqi, 1965



4. Taxonomic studies on the Encyrtidae of Uttarakhand (India)

Investigators: Dr. S. I. Kazmi

Date of start: April 2013

Date of completion: March 2016

Objectives: To study the diversity of the Encyrtidae of Uttarakhand state.

Progress: A checklist of 40 species and 28 genera of Encyrtidae (Hymenoptera) fauna of Dehradun has been prepared and submitted for publication. Study of Two Types materials of Encyrtidae (Hymenoptera) deposited in National Forest collection, FRI, Dehradun.

5. Taxonomic Study on Acridoidea (Orthoptera) of Rajaji National Park

Investigators: Dr. Narender Sharma

Date of start: April 2014

Date of completion: March 2016

Objectives: To study the taxonomy on Acridoidea (Insecta: Orthoptera) of Rajaji National Park.

Progress: Surveys: Six local surveys conducted & collected 176, exs of Acridoidea from Phandowala (Ramgarh Rang) and Kansro (Kansro Range), Mandal, Mithiwala localities of the Chilla Range

Identified 12 species & 37 examples,



Xenocantantops humilis (Serville)

6. Fauna of Sonanadi Wildlife Sanctuary (Nainital, Uttarakhand).

Investigators: Officer-In- Charge and Scientific staff.

Date of start: April 2014

Date of completion: March 2017

Objectives: To study and inventorize the Fauna of Sonanadi Wildlife Sanctuary (Nainital, Uttarakhand).

Progress: Surveys: Four surveys completed:

- i. One survey was conducted along with four members from 22-27th April'15 and collected 938 exs belonging to 19 faunal groups.
- ii. One survey from 31st -6th Nov'15, Number of examples collected 743 belonging to 18 groups.
- iii. One field survey from 17.02.2016 to 21.02.2016. Total 457 examples belonging to 11 faunal groups of collected and observed 99 avian species.
- iv. One field survey from 26.03.2016 to 30.03.2016. Total 459 examples belonging to 13 faunal groups were collected and observed 12 species of Birds and 5 species of mammals.

Tour reports submitted

Identifications:

Lepidoptera: 64 exs, 17 species, examined and observed 43 species

Acridoidea: 21 exs,

Nematoda: 314 exs, 36 species,

Pisces: 1131 exs, 15 species,

Amphibia: 201 exs, 5 species,

Reptilia: 10ex. 3 species examined, 3 species sighted and photographed,

Observations: 99 species of Birds & 12 species of mammals



Pila globosa (Swainson)



Greater Flameback *Chrysocolaptes guttacristatus*

Initiated Programmes

1. Fauna of Valley of Flower NP, Uttarakhand



Gateway to Valley of Flowers

Investigators: Officer-In- Charge and Scientific staff.

Date of start: April 2015

Date of completion: March 2017

Objectives: To study and inventorize the Fauna of Valley of Flower NP, Uttarakhand

Progress: Surveys: two conducted but one completed. One tour conducted by Dr. Narendran Sharma & party w.e.f. 24-28.6.2015. Could not be completed. Due to heavy rains, floods, Damage of roads and bridges on the way to valley of Flower & N.P., the survey Party came back to Dehradun on 28.06.2015. One tour conducted by Dr. Anil Kumar & party w.e.f. 29. 9.2015 to 05.10.15 and collected 231 examples belonging to

9 faunal groups of invertebrates. Apart from this, total 18 avian species (including 2 unconfirmed identity) belonging to two Orders and 13 families were observed. Occurrence of four species of mammals was Confirmed based on direct sightings of two species and indirect evidence for two Species. 6 Soil samples were also collected.

Tour Reports: One tour report submitted.

Identifications: Lepidoptera: 56 exs. 6 species.

Nematode: 56 exs belonging to 9 species.

Observations: 18 species of Birds & 4 species of mammals.

2. Fauna of Freshwater Ecosystems- Ropar Wetland, Punjab

Investigators: Officer-In- Charge and Scientific staff.

Date of start: April 2015

Date of completion: March 2017

Objectives: To study and inventorize the fauna of Freshwater Ecosystems- Ropar Wetland, Punjab

Progress: Surveys: Two surveys completed

i. Extensive survey was conducted from 19th August to 23rd August 2015, collected 656 exs. Belonging to 16 groups. Reptile sighted and photographed 3 species 3 Soil samples collected

ii. Extensive tour from 17.11.2015 to 21.11.2015 collected 440 exs.

Identification:

Lepidoptera: 37 exs. and 10 species

Acridoidea: 11 exs, 11 species

Pisces: 177 exs, 11 species

Amphibia: 24 exs, 3 species

Reptilia: 4 exs, 2 species.

Sighting, Observations: Birds: 94 species and Mammals: 7 species



Northern Palm Squirrel *Funambulus pennantii* Wroughton, 1905



3. Fauna of Samaspur Bird Sanctuary (Uttar Pradesh)

Investigators: Officer-In- Charge and Scientific staff.

Date of start: April 2015

Date of completion: March 2017

Objectives: To study and inventorize the Fauna of Samaspur Bird Sanctuary (Uttar Pradesh)

Progress: Surveys: Two surveys completed

- One survey conducted from 28.09.2015 to 04.10.2015 and collected 309 exs.
- Second Survey conducted from 2.12.2015 to .12. 2015 and collected 470 exs, 17

Groups. Observations were made on 3 species of mammals, 56 species of birds and 10 species of Lepidoptera.

Identifications:

Soil nematodes 35exs, 9 species.

Lepidoptera: 62 exs, 9species

Acridoidea: 5 exs. 5 species

Pisces: 77 exs, 15 sp

Amphibia: 22 exs. 3 species,

Reptilia: 7exs., 1 species.

Observations: 56 species of Birds & 3 species of mammals

4. Status survey of Blue Sheep *Pseudois nayaur* in North-west Trans-Himalaya

Investigators: Dr. Anil Kumar

Date of start: April 2015

Date of completion: March 2018

Objectives: To survey and provide the Status survey of Blue Sheep *Pseudois nayaur* in North-west Trans-Himalaya

Progress: One survey was undertaken in June 2015 in Kinnaur district. Different localities were covered. Preliminary analysis indicates that the estimated population of Blue Sheep in Kinnaur district ranged between 454-590.



Blue Sheep *Pseudois nayaur* Hodgson, 1833

5. Status survey of Black-necked Crane *Grus nigricollis* in Ladakh, India

Investigators: Dr. Anil Kumar

Date of start: April 2015

Date of completion: March 2018

Objectives: Status survey of Black-necked Crane *Grus nigricollis* in Ladakh, India

Progress: Population of Black-necked is reduced at alarming level. Four localities namely Pangong Tso, Tsokar, Puga and Tsomoriri were covered in the survey.



Preliminary analysis of the data indicate the occurrence of 5 to 14 individuals. Five individuals were seen directly.

SOUTHERN REGIONAL CENTRE, CHENNAI

Completed Programmes

1. Taxonomic studies: Non Marine Molluscs of Southern Western Ghats (Nilgiris Anamalais Palni hills-Travancore region)

Investigators: Dr. R. Venkitesan

Date of start: April 2012

Date of completion: March 2015

Objectives: To survey and inventorize Taxonomic the Non Marine Molluscs of Southern Western Ghats (Nilgiris Anamalais Palni hills-Travancore region).

Progress: The collections were made from 171 localities spreading of 11 districts covering the states of Tamil Nadu and Kerala. A total of 3344 examples were collected during the surveys. They were identified as 133 species 36 genera of 15 families. *Euplecta turritella*, *Ruthvenia biciliata*, *Chloritis leithi* and *Chloritis delibrata* were new distributional records to India particularly of South western Ghats. Final Technical report submitted.

2. Taxonomic studies on the freshwater Ostracoda from Nilgiri, Villupuram, Trichy, Tiruvannamalai and Chennai districts of Tamil Nadu, India.

Investigators: Dr. Jayasree Thilak

Date of start: April 2012

Date of completion: March 2015

Objectives: To survey and inventorize the Ostracoda from Nilgiri, Villupuram, Trichy, Tiruvannamalai and Chennai districts of Tamil Nadu, India.

Progress: Ostracoda fauna was studied from Nilgiri, Villupuram, Trichi, Tiruvannamalai and chennai districts of Tamil Nadu. These districts are selected

according to the physiographic variations. Revising of the genus *Cypris* was done. Final Technical Report and Manuscripts have been submitted.

3. Fauna of Kalakkad – Mundanthurai WLS

Investigators: Officer- In- Charge and Other scientific staffs.

Date of start: April 2012

Date of completion: March 2014

Objectives: To study Fauna of Kalakkad – Mundanthurai WLS

Progress: 8 different faunal groups were identified, few groups were sent to H.Qr/ Other Regional Centres for identification. However MS yet to be received.

21 species of Odonates under 16 genera of six families are recorded

13 species of Blattodea under 13 genera of 4 families

17 species of Lepidoptera under 12 genera of 5 families

6 species of Ephemeroptera

15 species of Reptiles under 5 genera belonging to 5 families were identified.

10 species of Amphibians

65 species of Birds

14 species of Mammals

Identification of other groups is in progress. Final Manuscript will be submitted very soon.

4. Fauna of Andhra Pradesh

Investigators: Officer- In- Charge and Other scientific staffs.

Date of start: April 2012

Date of completion: March 2015

Objectives: Selected faunal groups of Andhra Pradesh that were not covered under the state fauna so far will be studied.

Progress: Different fauna belonging to nine groups were identified. Altogether, 16 species, 15 genera, 6 Orders under 6 families of Fishes, 15 species under 11

genera of two families of Odonata, 12 species, 4 genera, one order under 3 families of Rotifers, 20 species, 12 genera, 2 orders under 6 families of Cladocerans, 4 species, 4 genera, one order, 1 family of Ostracodes, 15 species under 11 genera of 4 families of Reptiles, 5 species of Amphibians, 75 species of Birds and 15 species of Mammals were identified. Identification of other groups is under progress.

Ongoing Programmes

1. Ecosystem studies: Tropical Rainforest Ecosystems Western Ghats, Tamil Nadu.

Investigators: Officer- In- Charge and Other scientific staffs.

Date of start: April 2013

Date of completion: March 2017

Objectives: To document the Status, diversity and distribution of fauna of Western Ghats, Tamil Nadu.

Progress: Protected and Reserve forest areas of the following districts had been covered namely Nilgiris, Coimbatore, Erode, Thirupur and, Theni of Tamil Nadu State. One survey conducted as a combined survey to Western Ghats of Tamil Nadu (Erode, Nilgiri, Coimbatore and Dindugal districts and collected 2122 specimens belonging to different faunal groups and 33 lots of zooplankton samples. 5 species of Rotifers belonging to 4 genera, 1 order under 3 families, 6 species of Cladocerans belonging to 6 genera, 1 order under 4 families, 1 species of Ostracoda, 26 species of Odonates, 25 species of Reptiles, 20 species of Amphibians, 78 species of Birds and 10 species of Mammals were identified. Identification of other groups under progress.



Black Drongo, *Dicrurus macrocercus* (Vieillot, 1817)

2. Lizards (Reptilia –Squamata: Sauria) of Western Ghats of Tamil Nadu. India

Investigators: Dr. R. Aengals

Date of start: April 2013

Date of completion: March 2016

Objectives: To study Lizards (Reptilia –Squamata: Sauria) of Western Ghats of Tamil Nadu. India.

Progress: 172 examples of lizards and snakes collected include 23 species of lizards and 9 species of snakes.

During the survey, 4 species of snakes viz., *Boiga nuchalis* (Gunther 1875), *Macropisthodon plumbicolor* (Cantor, 1839), *Oligodon taeniolatus* (Jerdon, 1853), *Naja naja* (Linnaeus, 1758), and 2 endemic species viz., *Oligodon venustus* (Jerdon 1853), *Plectrurus perrotei* (Dumeril, 1854) photographed. Final Manuscript will be submitted very soon.



Flying Lizard *Draco dussumieri* (Dum.&Bibr. 1821)



3. Taxonomy and ecology of Hydropsychidae, Lepidostomatidae and Calamoceratidae (Insecta: Trichoptera) of Southern Western Ghats

Investigators: Dr. S. Prabakaran

Date of start: April 2013

Date of completion: March 2016

Objectives: To study Taxonomy and ecology of Hydropsychidae, Lepidostomatidae and Calamoceratidae (Insecta: Trichoptera) of Southern Western Ghats

Progress: Surveys were undertaken to Western Ghats of Brahmagiri Hills, Karnataka State, Wayanad district of Kerala and Nilgiri, Coimbatore, Theni, Virudhunagar districts of Tamil Nadu and KMTR & Kanyakumari Wildlife Sanctuary. Collected specimens of 650 larvae and 124 adults, preserved them in 70% alcohol in glass tubes and adults were preserved in dry condition for further studies. All the specimens were separated based on structure and size. Based on the morphological characters, the identification of specimens is under progress.

4. Taxonomic studies on the Plecoptera fauna in the Western Ghats of Tamil Nadu

Investigators: Dr. R. Babu

Date of start: April 2013

Date of completion: March 2017

Objectives: Taxonomic studies on the Plecoptera fauna in the Western Ghats of Tamil Nadu

Progress: Collected 198 examples of Stonefly larvae and 364 examples of adults and identified 62 examples up to genera (Neoperla and Phanoperla of family Perlidae)

Apart from Stoneflies, 703 examples of Ephemeroptera larvae and 618 specimens of Odonata were also collected. Identified 31 species of Odonata. Identification work is in progress.



Phanoperla sp.

5. Orthoptera of Western Ghats in Tamil Nadu

Investigators: Shri D. Prabakar

Date of start: April 2014

Date of completion: March 2017

Objectives: To study Orthoptera of Western Ghats in Tamil Nadu.

Progress: Surveys were conducted in Erode, Nilagiri, Coimbatore and Dindukkal districts of Tamil Nadu; the tropical wet evergreen forests, moist deciduous forests, grass lands and protected areas comprising national parks, wildlife sanctuaries, tiger reserves and elephant reserves of Erode, Nilagiri, Coimbatore and Dindukkal districts were covered. One survey conducted as a part of combined survey. Total 338 specimens were collected. Identification of the collected specimen is under progress.

Initiated Programmes

1. Fauna of Point Calimere Wildlife Sanctuary, Tamil Nadu

Investigators: The Officer-in-Charge & Scientific staffs

Date of start: April 2015

Date of completion: March 2018

Objectives: To study Fauna of Point Calimere Wildlife Sanctuary, Tamil Nadu.

Progress: Under investigation.

2. Lesser known Fauna of Cauvery Estuary, Tamil Nadu.

Investigators: The Officer-in-Charge & Scientific staffs

Date of start: April 2015

Date of completion: March 2018



Objectives: To study lesser known Fauna of Cauvery Estuary, Tamil Nadu.

Progress: Under investigation

3. DNA barcoding of selected faunal groups/ species groups/ species

Investigators: Dr. V.M. Sathish Kumar

Date of Start: April 2012

Date of completion: March 2015

Objectives: DNA barcoding of selected faunal groups/ species

Progress: So far, DNA Samples processed belonging to 21 species.

12 DNA Barcode submissions approved by the Genbank National Center for Biotechnology Information, USA with accession numbers as follows:

Uropeltis sps	KU133656 - KU133665
Canis aureus	KJ887398
Acridotheres tristis	KJ922371

GANGETIC PLAINS REGIONAL CENTRE PATNA

Completed Programmes

1. Mollusca and zooplankton of temporary and permanent water bodies in and around Valmiki Tiger Reserve, Kusheshwar Asthan, Saraiyaman Lake and Gogabil Pakhsi Vihar (IBA-sites) in Bihar

Investigators: Dr. Gopal Sharma

Date of start: April 2012

Date of completion: March 2014

Objectives: To study Mollusca and zooplankton of temporary and permanent water bodies in and around Valmiki Tiger Reserve, Kusheshwar Asthan, Saraiyaman Lake and Gogabil Pakhsi Vihar (IBA-sites) in Bihar

Progress: Identified:

Mollusca : 37 species

Zooplankton : 38 species

Annelida : 9 species and 3 Genera

Bryozoa : 2 genus

Arthropoda : 17 species and 6 Genera

Crustacea : 9 species and 2 genera

Porifera : 1 genus

2. Taxonomic studies on family Noctuidae from Bihar and Jharkhand

Investigators: Dr. Navneet Singh

Date of start: April 2011

Date of completion: March 2014

Objectives: Taxonomic studies on family Noctuidae from Bihar and Jharkhand

Progress: A total of 195 species of moths (including 140 species of Noctuidae) from Bihar and Jharkhand have been collected and identified.

Four new species have been discovered with two new records from India

17 species of Noctuidae have been reported for the first time from Palamu Tiger Reserve.

36 species of Noctuidae have been reported for the first time from Valmiki Tiger reserve.

Dissections of all the identified species have been completed to study the external male and female genitalia.

Photography of adult moths of all the studied species has been completed.

Photography of male and female genitalia of all the identified species has been completed.

Compilation of data is under progress.

Final Manuscript will be submitted very soon.

Ongoing Programmes

1. State Fauna of Jharkhand (Aquatic invertebrates and Lepidoptera)

Investigators: Dr. Gopal Sharma

Dr. Navneet Singh

Date of start: April 2014



Date of completion: March 2017

Objectives: State Fauna of Jharkhand (Aquatic invertebrates and Lepidoptera)

Progress: All the surveys (I, II, III & IV quarter) have been completed successfully

Localities like Hazaribagh WLS, Saranda Forests, Dalma WLS, Lawalong WLS, Parasnath Hill, Itkhori, Koderma, Palkot WLS, Masanjor Dam, Tanu Dam, Konar Dam, Topchanchi Lake and Pachkheri Dam have been covered during the year 2015-16.

A total of 1050 examples of order Lepidoptera and 2336 examples of aquatic invertebrates have been collected. 85 species of Lepidoptera, 34 species of Mollusca, 05 species of insect larvae and 11 species of zooplankton have been identified

Initiated Programmes

1. Fauna of Hazaribagh National Park, Jharkhand Investigators

Investigators: Dr. Gopal Sharma
Dr. Navneet Singh

Date of start: April 2015

Date of completion: March 2017

Objectives: To study the Fauna of Hazaribagh National Park, Jharkhand.

Progress: Hazaribagh National Park was surveyed during First, Second and third quarter

A total of 250 examples of order Lepidoptera and 735 examples of aquatic invertebrates have been collected. 25 species of Lepidoptera, 22 species of Mollusca have been identified.

2. Fauna of Lawalong Wild Life Sanctuary, Jharkhand

Investigators: Dr. Gopal Sharma
Dr. Navneet Singh

Date of start: April 2015

Date of completion: March 2017

Objectives: To study the Fauna of Lawalong Wild Life Sanctuary, Jharkhand.

Progress: Lawalong Wild Life Sanctuary was surveyed during first and second.

A total of 55 examples of order Lepidoptera and 235 examples of aquatic invertebrates have been collected.

16 species of Lepidoptera, 21 species of Mollusca have been identified

HIGH ALTITUDE REGIONAL CENTRE, SOLAN

Completed Programmes

1. Faunal Diversity of Kalatop Khajjiar Wildlife Sanctuary, district Chamba

Investigators: Officer- In- Charge and Other scientific staffs.

Date of start: April 2009

Date of completion: March 2014

Objectives: To explore and make the inventory of Faunal Diversity of Kalatop Khajjiar Wildlife Sanctuary, district Chamba

Progress: Completed and number of species belonging to different groups were identified: Oligochaeta: 11 species
Apterygota: 8 species
Orthoptera: 38 species
Hemiptera: 08 species
Lepidoptera: Rhopalocera: 111 species
Lepidoptera: Heterocera: 37 species
Pisces: 15 species
Amphibia: 02 species
Reptiles: 05 species
Aves: 93 species
Mammals: 17 species

The Kalatop Khajjiar Wildlife Sanctuary document has been corrected as per referee's comments and resubmitted to HQs, Kolkata for final publication.

It contains 345 species referable to 252 genera under 11 chapters.

2. Faunal diversity of Chail Wildlife Sanctuary district Solan (HP).

Investigators: Officer- In- Charge and Other scientific staffs.



Date of start: April 2012

Date of completion: March 2015

Objectives: To explore and make the inventory of Faunal diversity of Chail Wildlife Sanctuary district Solan (HP).

Progress: Completed and Species belonging to different groups were identified: Oligochaeta: 09 species

Collombola: 06 species

Orthoptera: 36 species

Lepidoptera: Rhopalocera: 56 species

Lepidoptera: Heterocera: 70 species

Pisces: 12 species

Amphibia: 05 species

Aves: 94 species (Vocal call of 10 species recorded)

Mammals: 12 species

Document of Chail WLS, district Solan has been revised as per the comments of screening committee of HQs. The whole document has been rearranged/ corrected and resubmitted to headquarter for further processing towards publication. It contains 300 species referable to 244 genera and 09 Chapters.

Ongoing Programmes

1. Faunal resources of Spiti Valley and Chandertal Lake, district Lahaul & Spiti.

Investigators: Officer- In- Charge and Other scientific staffs.

Date of start: April 2012

Date of completion: March 2015

Objectives: To study faunal resources of Spiti Valley and Chandertal Lake, district Lahaul & Spiti.

Progress: Species belonging to different groups were identified:

Protozoa: 16 species (03 species new records from India)

Oligochaeta: 07 species

Lepidoptera: Rhopalocera: 39 species (08 spots of Parnassius comprising of 03 species have been explored).

Lepidoptera: Heterocera: 06 species

Orthoptera: 06 species

Pisces: 05 species

Amphibia: 01 species

Reptilia: 02 species

Aves: 70 species (vocal calls of 24 species recorded)

Mammals: 09 species

(The sighting of Royle' Pika, Ibex, Blue Sheep, Weasel, Himalayan Fox have been made. Tibetan Wolf and Snow Leopard have been recorded with indirect evidences)

The overview has been finalized. The mss of Protozoa, Oligochaeta, Rhopalocera, Heterocera, Orthoptera, Pisces and Herpetofauna has been received so far and the chapters on other fauna are awaited.



Gonepteryx rhamni

Initiated Programmes

1. Faunal Resources of Sangla Valley, district Kinnaur (Himachal Pradesh)

Investigators: Officer- In- Charge and Other scientific staffs.

Date of start: April 2015

Date of completion: March 2019

Objectives: Faunal Resources of Sangla Valley, district



Kinnaur (Himachal Pradesh)

Progress: Species belonging to different groups were identified:

Oligochaeta: 06 species

Lepidoptera: Rhopalocera: 17 species

Orthoptera: 12 species

Pisces: 02 species

Reptilia: 01 species

Aves: 45 species

Mammals: 05 species

2. Fauna of Sainj Wildlife Sanctuary, district Kullu (Himachal Pradesh)

Investigators: Officer- In- Charge and Other scientific staffs.

Date of start: April 2015

Date of completion: March 2019

Objectives: To study Fauna of Sainj Wildlife Sanctuary, district Kullu (Himachal Pradesh)

Progress: Species belonging to different groups were identified:

Oligochaeta: 02 species, Lepidoptera: Rhopalocera: 25 species, Orthoptera: 18 species

Pisces: 02 species, Reptilia: 01 species, Aves: 21 species and Mammals: 05 species.



River Sangla in Sangla Valley Dist Kinnaur

MARINE BIOLOGY REGIONAL CENTRE, CHENNAI

Completed Programmes

1. Meio-fauna of Palk Bay with special reference to Free – living Marine Nematodes & Tardigrada

Investigators: Dr. G. Sivaleela

Date of start: April 2012

Date of completion: March 2014

Objectives: To study Meio-fauna of Palk Bay with special reference to Free – living Marine Nematodes & Tardigrada

Progress: Manuscript submitted.

2. Faunal diversity in the mangroves of Bhitarkanika, Orissa

Investigators: Dr. C. Venkatraman
Shri. P. Padmanaban

Date of start: April 2012

Date of completion: March 2015

Objectives: To study the Faunal diversity in the mangroves of Bhitarkanika, Orissa.

Progress: Final report of "Faunal diversity in the mangroves of Bhitarkanika, Orissa" was submitted in the month of May 2015 in a publishable form to Hqrs, Kolkata.

3. Studies on Epi benthic faunal assemblages on Sea grass" ecosystems of Palk Bay & Gulf of Mannar Biosphere Reserve:

Investigators: Dr. Rajkumar Rajan
Dr Bindu ,L.
Dr G. Sivaleela
Dr K. Venkataraman

Date of start: April 2010

Date of completion: March 2015

Objectives: To study and inventorize the Epi benthic faunal assemblages on Sea grass" ecosystems of Palk bay & Gulf of Mannar Biosphere Reserve:

Progress: Seven surveys were conducted. Final



Technical Report and Manuscript have been submitted. Altogether, 1422 examples were identified, which yielded 109 species

Ongoing Programmes

1. Taxonomy of Meiobenthic communities with special emphasis on Nematodes, Polychaetes & Tardigrades in Andhra Coast

Investigators: Dr. G. Sivaleela

Date of start: April 2014

Date of completion: March 2017

Objectives: To study the Taxonomy of Meiobenthic communities with special emphasis on Nematodes, Polychaetes & Tardigrades in Andhra Coast

Progress: 45 species of free-living marine nematodes under 5 families were identified from 128 specimens, permanent slides were prepared and digitized. (N-257-319).

Conducted one extensive survey to Andhra Coast from 31.8.2015 to 9.9.2015 on Meiobenthic communities with special emphasis on Nematodes, Polychaetes & Tardigrades. The following coasts were covered: Visakhapatnam (Rushi Konda), Bhimulipatnam, Kakinada, Yanam, Coringa, BanduMalli, Malleswaram, Pedapattinam, Kannur, Machilipatnam, Mangalpudi, Kavali, Thumalapenta, Vadarevu. A total of 201 examples including 80 Nos. of Meiofauna, 98 Nos. of Molluscs, 10 Nos. of fishes, 4 Nos. of starfish, and 9 Nos. of Seurchin were collected.

2. Revision of Scleractinian coral genus *Montipora* Blainville, 1830, and preparation of annotated checklist of Scleractinians in Indian waters

Investigators: Dr. Rajkumar Rajan

Date of start: April 2014

Date of completion: March 2017

Objectives: To study the Revision of Scleractinian coral genus *Montipora* Blainville, 1830, and preparation of annotated checklist of Scleractinians in Indian waters

Progress: Lakshadweep Islands have been covered

on a field survey. The Andaman Nicobar Regional Centre has been visited and the specimens photographed for identification. 374 species have been collected, including 356 Corals, which have been registered. The underwater photographs of fishes have been identified. The total of 733 photographs yielded 92 species under 60 genera. A total of 124 Scleractinian samples were photographed of the unidentified collection of Andaman Nicobar Station. 46 species out of 63 specimens have been identified. 7 (Seven) species have been identified as New Records to Indian waters.

3. Reef associated Bryozoans of Gulf of Mannar Marine Biosphere Reserve

Investigators: Dr. C. Venkatraman
Dr. Rajkumar Rajan

Date of start: April 2012

Date of completion: March 2015

Objectives: To study the Reef associated Bryozoans of Gulf of Mannar Marine Biosphere Reserve

Progress: Extensive field survey was undertaken in Gulf of Kachchh, Gujarat from 11-27th, November 2015. The areas, Sikka, Narara, Bedipur Port, Khijadiya Bird sanctuary and Sachana, Pirton island, Betwaraka island, RK bandhar & Okha fish landing centre, Mitapur and Aramda were surveyed. A total of 586 exs were collected under nine faunal groups. Sorting out and Identification of species under process. The areas in Sindhudurg and Ratnagiri, Maharashtra were covered under the field survey during 17 February 2016 to 02 March 2016. A total of 323 were collected.

4. Studies on the Free-living protozoan fauna of estuaries in various coastal zones of Tamil Nadu

Investigators: Dr. Bindu, L.

Date of start: April 2012

Date of completion: March 2016

Objectives: Studies on the Free-living protozoan fauna of estuaries in various coastal zones of Tamil Nadu.



Progress: One survey was conducted from 9. 10. 2015 to 14. 10. 2015. Collections were made from Vettar, Arasalar, Kaduvayar, Coleron, Vellar, Marakkanam and Kaliveli estuaries. Identified 7 species of freeliving Tintinnid ciliates from Kaduvayar estuary, Nagapatinam district, Tamil Nadu.

Initiated Programmes

1. Reef Associated Bryozoan of Gujarat and Maharashtra Coast

Investigators: Dr. C. Venkataraman
Dr. P. Padmanaban

Date of start: April 2015

Date of completion: March 2018

Objectives: To study Reef Associated Bryozoan of Gujarat and Maharashtra Coast.

Progress: Extensive field survey was undertaken in Gulf of Kachchh, Gujarat from 11-27th, November 2015. The areas, Sikka, Narara, Bedipur Port, Khijadiya Bird sanctuary and Sachana, Pirton Island, Betwaraka Island, RK bandhar & Okha fish landing centre, Mitapur and Aramda were surveyed. A total of 586 exs were collected under nine faunal groups. Sorting out and Identification of species under process.

The areas in Sindhudurg and Ratnagiri, Maharashtra were covered under the field survey during 17 February 2016 to 02 March 2016. A total of 323 were collected

2. Ecosystems: Marine & Island-Odisha

Investigators: Dr. C. Venkataraman
Dr. P. Padmanaban

Date of start: April 2015

Date of completion: March 2017

Objectives: To study Ecosystems: Marine & Island-Odisha

Progress: Secondary information on Marine Ecosystems of Odisha being gathered.

ANDAMAN AND NICOBAR RESEARCH CENTRE, PORT BLAIR

Ongoing Programmes

1. Faunal Studies in Saddle Peak National Park and its adjoining Sea, North Andaman

Investigators: Dr. C. Sivaperuman
Dr. C. Raghunathan

Date of start: April 2011

Date of completion: March 2015

Objectives: Faunal Studies in Saddle Peak National Park and its adjoining Sea, North Andaman

Progress: A total of 219 species comprised of 98 species of corals, 5 species of polyclads, 50 species of gastropods, 17 species of bivalves, 27 species of echinoderms, 11 species of opisthobranchs and 10 species of crabs, 1 species of ascidian were identified.

Significant Highlights: Total of 244 species of terrestrial fauna under six faunal groups were identified

2. Status of corals and its associated macrofauna in Landfall Island Sanctuary, North Andaman

Investigators: Dr. C. Raghunathan,

Date of start: April 2012

Date of completion: March 2015

Objectives: Status of corals and its associated macrofauna in Landfall Island Sanctuary, North Andaman

Progress: A total 783 species of faunal communities comprising of 297 species of scleractinian corals, 26 species of alcyonacean corals, 13 species of sea anemones, 2 species of schyphozoans, 12 species of sponges, 8 species of polyclads, 42 species of echinoderms, 108 species of molluscs, 41 species of opisthobranchs, 42 species of crabs, 16 species of shrimps, 8 species of lobsters, 1 species of nemertean, 17 species of ascidians, 148 species of fishes, 1 species of reptile and 1 species of mammal were record from said study areas of North Andaman while Landfall Island represented a total of 660 species of faunal

communities among them.

Significant Highlights: New species of Scleractinian coral: 01 species. New records to India: 06 species

The percentage of live coral cover ranged from 23.25% in Table Delgarno Island to 47.65% in Landfall Island with the mean of 33.03%. The mean numerical density of corals was estimated as 17.80 to 31.50 colonies/10 sq. m. at Table Delgarno Island and Landfall Island respectively with the regional mean value of 24.48 colonies/10 sq. m. which is healthy enough status for the scleractinian corals. The density of new recruitment of the corals was estimated as 7.15 to 17.75 colonies/10 sq. m. at Table Delgarno and Landfall Island with the mean of 11.45 colonies/10 sq. m. Reported the mass stranding (40 individuals) of short-finned pilot whales *Globicephalus macrorhynchus* Gray 1846 in Elizabeth Bay.



Landfall Island Sanctuary,

3. Status of corals and its associated macrofauna in North Reef Island Sanctuary, North Andaman

Investigators: Dr. C. Raghunathan,

Date of start: April 2014

Date of completion: March 2017

Objectives:

- i. to assess the present status of corals and coral associated macrofaunal communities such as echinoderms, molluscs, nudibranchs, soft corals and other marine faunal groups
- ii. To estimate the diversity, density and distribution of coral and other macrofauna in the reef area.



North Reef Island

Progress: A total of 529 species including 204 species of scleractinian corals, 34 species of octocorals, 12 species of sea anemones, 23 species of sponges, 150 species of molluscs, 21 species of opisthobranchs, 26 species of echinoderms, 24 species of crabs, 2 species of halobates and 33 species of ascidians were identified.

Significant Highlight: One new species of Scleractinian coral and six new records to India.



Tetralia nigrolineata Serene & Dat, 1957



Ceratoplax ciliata Stimpson, 1858



4. Status of corals and its associated macro fauna in Neil Island, Richie's Archipelago, South Andaman

Investigators: Dr. C. Raghunathan
Mrs. Kamla Devi

Date of start: April 2014

Date of completion: March 2017

Objectives: i. To assess the present status of corals and coral associated macrofaunal communities such as echinoderms, molluscs, nudibranchs, soft corals, fishes and other marine faunal groups.

ii. To estimate the diversity, density and distribution of coral and other macrofauna in the reef area.

iii. To assess the primary and secondary productivities.

iv. To assess the impact of tourism on marine faunal components. Progress: A total of 529 species including 204 species of scleractinian

Progress: A total of 472 species including 181 species of scleractinian corals, 21 species of octocorals, 1 species of sea anemones, 38 species of sponges, 85 species of molluscs, 15 species of opisthobranchs, 4 species of polyclads, 23 species of crabs, 38 species of echinoderms, 15 species of ascidians and 40 species of marine fishes were identified.

Significant Highlights: New Records: 04 species
Scleractinian corals: 03 species
Ascidians: 01 species.



Neil Island, Ritchie's Archipelago

5. Status, distribution, population dynamics and habitat selection of small mammals in Andaman Islands

Investigators: Dr. C. Sivaperuman
Mr. P.T. Rajan

Date of start: April 2013

Date of completion: March 2016

Objectives:

i. To determine the population status and distribution of smalls in Andaman Islands.

ii. To document endemic and endangered species.

iii. To make recommendations for future monitoring.

Progress: Two surveys have been conducted during the reporting period

Nine species of mammals are identified.



Cave Nectar Bat *Eonycteris spelaea* (Dobson, 1871)

6. Spider (Order: Araneae) fauna of Agro-ecosystem in South Andaman

Investigators: Dr. C. Sivaperuman

Date of start: April 2013

Date of completion: March 2016

Objectives:

i. To document the status and distribution of spider fauna of Agroecosystem in South Andaman.

ii. To study their distribution and habitat ecology.

Progress: 22 species of spiders belong to 8 families, 12 genera and 45 species birds belong to 9 Orders and 19 families were observed.

Four types of spider webs were observed namely Orb web, Irregular mesh web, Sheet web and Funnel web.

Significant highlights: Orb webs are common in the

paddy field. *Argiope catenulata*, *Argiope pulchella* and *Gasteracantha kuhli* were commonly observed in the study area.



Argiopeaemula (Walckenaer, 1842)

Initiated Programmes

1. Status survey of Nicobar Megapode *Megapodius nicobariensis* Blyth in Nicobar Islands

Investigators: Dr. C. Sivaperuman

Date of start: April 2015

Date of completion: March 2018

Objectives:

- Assess present status and distribution of Nicobar Megapode
- Study the habitat relationship of Megapode during nesting & breeding season

Progress: Two surveys conducted in the following areas of Great Nicobar Island and Little Nicobar Island: In addition, the following Nicobar endemic bird species have been observed namely, Great Nicobar Serpent-Eagle *Spilornis klossi* Richmond, Nicobar Megapode *Megapodius nicobariensis* Blyth, Nicobar Imperial-Pigeon *Ducula nicobarica* Blyth, Nicobar Parakeet *Psitta culacaniceps* (Blyth), Nicobar Scops-Owl *Otus alius* Rasmussen, Nicobar Bulbul *Hypsipetes nicobariensis* Moore, Nicobar Jungle-Flycatcher *Rhinomyias nicobaricus* Richnond, Great Nicobar White-breasted Waterhen, *Amauornis phoenicurus* mid *nicobaricus* Abdulali, Nicobar Wood-Pigeon *Columba palumboides nicobarica* (Abdualali), Nicobar Cuckoo-Dove *Macropygia rufipennis* Tiwarii Abdulali, Nicobar Red-Cheeked Parakeet *Psittacula*

longicauda nicobarica (Gould), Nicobar Oriental Scops-Owl *Otus sunia nicobaricus* (Hodgson), Nicobar Stork-billed Kingfisher *Pelargopsis capensis intermedia* Hume.



Nicobar Megapode, *Megapodius nicobariensis* Blyth, 1846



Breeding mount

2. Status survey of Robber Crab *Birgus latro* in Nicobar Islands

Investigators: Dr. C. Sivaperuman

Date of start: April 2015

Date of completion: March 2018

Objectives:

- Assess present status and distribution of Robber crab
- Study the habitat relationship of Robber crab during nesting & breeding season

Progress: Two surveys conducted along with the project of Nicobar Megapode.



Four nests and one direct sighting of Coconut Crab *Birgus latro* Linnaeus has been observed in Little Nicobar group of Islands.



Birgus latro Linnaeus-Breeding site

SUNDERBAN REGIONAL CENTRE , CANNING

Ongoing Programmes

1. Diversity and ecology of insects with special reference to Orthoptera in and around Sunderbans.

Investigators: Dr. D. Suresh Chand.

Date of start: April 2013

Date of completion: March 2015

Objectives: To Study Diversity and ecology of insects with special reference to Orthoptera in and around Sunderbans.

Progress: Total of Four Surveys were conducted in Sunderbans during the project tenure. Total number of 997 faunal examples were collected from all the four surveys, belonging to different groups, Fishes 396 exs., Gastropods 10 exs., Prawns 212 exs., Crabs., 10 exs., Orthoptera 189 exs., Lepidoptera 54 exs., Coleoptera 104 exs., Odonata 22 exs., Identified, 173 specimens, which are as follows: Acrididae – 93 exs, (8 genera 11 species) Pyrgomorphidae – 13 exs. (1 genus 1 species) Gryllidae – 26 exs. (2 genera 4 species) Gryllotalpidae – 6 exs. (1 genus 1 species) Tettigoniidae – 35 exs. (3 genera 3 species).

All the tour reports have been submitted.



2. Diversity of Sharks and Rays in different landing centres of Sunderbans.

Investigators: Mrs. Supriya Nandy,
Dr. D. Suresh Chand

Date of start: April 2014

Date of completion: March 2016

Objectives: To study Diversity of Sharks and Rays in different landing centres of Sunderbans.

Progress:

Total 12 one day local surveys were conducted.

A total of 1092 specimens were collected from different faunal groups, which are as follows: Fishes - 874 specimens, Crabs-54 specimens, Prawn-162 specimens and Molluscs-02. These includes 14 Sharks and 41 Ray fishes. Identification of the collected specimens in progress. Manuscript will be submitted shortly.



Himantura imbricate (Bloch and Schneider)

FRESHWATER BIOLOGY REGIONAL CENTRE HYDRABAD

Completed Programmes

1. Studies on Aquatic beetles' w.s.r molecular characterization of Dytiscidae.

Investigators: Dr. Deepa Jaiswal

Date of start: April 2012

Date of completion: June 2016

Objectives: To study Aquatic coleopteran of India w.s.r molecular characterization of Dytiscidae.

Progress: Project completed and Final Report submitted vide F.26 Pt.1/2004/Estt/297 dated 6th Nov., 2015.



Collection of Aquatic Insects from different wetlands



Haliplus pulchellus Clark, 1863

2. Studies on the fauna and ecology of the Chandratal Lake, Lahul and Spiti Dists. Himachal Pradesh w.s.r. Ichthyofauna, aquatic insects and zooplankton.

Investigators: Dr. D.V. Rao
Dr. Deepa Jaiswal,
Dr. S.V.A. Chandrasekhar

Date of start: April 2012

Date of completion: March 2014

Objectives: Studies on the fauna and ecology of the Chandratal Lake, Lahul and Spiti Dists. Himachal Pradesh w.s.r. Ichthyofauna, aquatic insects and zooplankton.

Progress: Project completed and Final Report submitted vide No.51-pt.4/2015/Tech/Chandratal/414 dated 10th March, 2016.





Chandratal lake, Himachal Pradesh

3. Macro-invertebrate fauna diversity of Gobind Sagar reservoir, Himachal Pradesh.

Investigators: Dr. Prasanna Yennawar,
Dr. Deepa Jaiswal,
Dr. S.V.A. Chandrasekhar

Date of start: April 2012

Date of completion: March 2016

Objectives: To Study the Macro-invertebrate fauna diversity of Gobind Sagar reservoir, Himachal Pradesh.

Progress: Project completed and Final Technical report submitted vide No. 51-Pt.2/2013-Tech/427 dated 22nd March, 2016 and Manuscript submitted vide No.51.Pt.2/2013-14/425-11th March, 2016. 2015-16



Gobind Sagar, H.P.

4. Study of macrobenthic invertebrate fauna of major wetlands in Andhra Pradesh.

Investigators: Dr. Prasanna Yennawar,
Dr. S.V.A. Chandrasekhar

Date of start: April 2013

Date of completion: June 2016

Objectives: Study of macrobenthic invertebrate fauna of major wetlands in Andhra Pradesh.

Progress: Project completed and Technical Report submitted vide office letter No. 51-pt.3/2013/Tech./3, dtd.06.04.2016.

Initiated Programmes

1. Studies on the faunal diversity of Bhoj wetland, Bhopal: A Ramsar Site of Madhya Pradesh

Investigators: Dr. D.V. Rao
Sk.Rehanuma Sulthana

Date of start: April 2015

Date of completion: March 2017

Objectives: Studies on the faunal diversity of Bhoj wetland, Bhopal: A Ramsar Site of Madhya Pradesh.

Progress: Four surveys conducted, 18th-27th April, 2015; 4th-13th Sept, 2015, 17th-26th Dec, 2015 and 19th-26th Feb., 2016. The identification and registration of aquatic insects, Fishes and Molluscs is in progress. Identified and Registered during 2015-2016:
Fishes-597 exs.
Insects: 363 exs.
Mollusca-510 exs.



Osteobrama peninsularis Silas, 1952



Parreysia favidens (Benson, 1862)



Mycteria leucocephala (Pennant, 1769)

WESTERN GHAT REGIONAL CENTRE, KOZHIKODE

Completed Programmes

1. Taxonomic Studies: Taxonomic studies on the Mantid fauna (Insecta: Mantodea) of southern Western Ghats.

Investigators: Dr. P.M. Sureshan

Date of start: April 2012

Date of completion: March 2016

Objectives: Taxonomic Studies: Taxonomic studies on the Mantid fauna (Insecta: Mantodea) of southern Western Ghats.

Progress: A total of 65 species of mantids belonging to 42 genera, 23 subfamilies and 9 families reported from southern Western Ghats. About 250 examples of specimens collected through field surveys, and specimens deposited in the faunal holdings of ZSI identified. 3 species of mantids reported for the first from the southern Western Ghat region of Kerala and Tamil Nadu. One manuscript sent for publication and final manuscript prepared and submitted.



Dipara angulata Sureshan & Nikhil, 2015

2. Reptile Fauna of Himachal Pradesh (Transferred from ZSI, Kolkata)

Investigators: Dr. B.H. C, Murthy

Date of start: April 2012

Date of completion: March 2015

Objectives: To study Reptile Fauna of Himachal Pradesh

Progress: 61 examples were collected from 2010 and 2012, 2013 surveys which consists of 24 species (19 reptiles and 4 species of Frogs), 17 genera under 10 families, all of them were identified and registered, kept it in National Zoological Collection (NZC), Herpetology Division, FPS Building, Kolkata. The taxonomy work is under progress, the manuscript writing is in progress.

Final Technical Report has been submitted.

Significant highlights: The *Eublepharis cf. macularia* is new record for the state and new species discovery to the Science, the taxonomy work is under progress.



Cleonymus indicus Sureshan, 2015

Ongoing Programmes

1. Grassland Ecosystem: Survey and documentation of faunal resources of Shola grasslands of Western Ghats-Phase-I

Investigators: Officer- In- Charge and Other scientific staffs.

Date of start: April 2014

Date of completion: March 2017



Objectives: To study Grassland Ecosystem: Survey and documentation of faunal resources of Shola grasslands of Western Ghats-Phase-I

Progress: Two intensive surveys to shola grassland ecosystems of Periyar TR, Idukki district, Kollam and Thiruvananthapuram district completed and 1798 exs. of various faunal samples collected. Of these, 6 species of Platygastriidae, 2 sp. of Diapriidae, 15 sp. of Pteromalidae, 2 sp. of Vespidae (Hymenoptera), 14 sp. of Odonata, 4 sp. of Dermaptera including 2 new records to Kerala, 6 sp. of Mantodea and 9 sp. of spiders were identified. Further identification of specimens in progress. Observed 120 species of birds, 9 species of mammals and 145 species of butterflies during the survey.



Dipara kannurensis Sureshan & Raseena, 2015

2. Fauna of Conservation Areas: Thattekkad Bird Sanctuary, Ernakulam District, Kerala

Investigators: Officer- In- Charge and Other scientific staffs.

Date of start: April 2014

Date of completion: March 2017

Objectives: To study the Fauna of Conservation Areas: Thattekkad Bird Sanctuary, Ernakulam District, Kerala

Progress: All the three surveys assigned were completed and 1295 exs. of various faunal samples collected. The findings include a new genus and two new species of Isoptera (Insecta) and a new record of the genus *Coeleumenes* van der Vecht from Peninsular India with species *C. burmanicus* from Kerala (Hymenoptera: Vespidae). All species were described and MS submitted for publication. Besides, 10 species of Vespidae (Hymenoptera); 9 species of Odonata;

6 species of Mantodea; 3 species of Pteromalidae (Hymenoptera); 4 species of Platygastriidae (Hymenoptera); 4 species of Butterflies; 2 species of spiders; 2 species of Dermaptera and 7 species of Reptilia also were identified. Further identification of specimens in progress.

During the survey, 54 species of birds, 15 species of reptiles and 5 species of mammals were observed and recorded.

3. State Fauna: Kerala

Investigators: Officer- In- Charge and Other scientific staffs.

Date of start: April 2014

Date of completion: March 2017

Objectives: To study the Fauna of Kerala State.

Progress: The compilation of all available information on Vertebrate fauna from earlier surveys and from published documents are progressing. Manuscript on Fauna of Kerala Part-I Vertebrata is under preparation.



Rhene wesolowskai Saha et al. 2015



Buthoscorpio chinnarensis Aswathi, Sureshan & Lourenc, 2015

4. Tropical Rainforests-Western Ghats, Kerala/ Karnataka/ and Tamil Nadu

Investigators: Officer- In- Charge and Other scientific staffs.

Date of start: April 2014

Date of completion: March 2017

Objectives: To study the Fauna of Tropical Rainforests- Western Ghats, Kerala/Karnataka/ and Tamil Nadu

Progress: Compilation of all available information on the fauna of Tropical rainforest ecosystems of Kerala is progressing. Since the Tropical rain forest areas of the three states has almost the similar biogeography and faunal components, a common document including all the areas has to be prepared by compiling all the available information.



Fejervarya gomantaki Dinesh et.al. 2015

Initiated Programmes

1. Agroecosystems: Rice ecosystems of Kerala – Phase I

Investigators: Officer- In- Charge and Other scientific staffs.

Date of start: April 2015

Date of completion: March 2020

Objectives: To study the Agroecosystems: Rice ecosystems of Kerala – Phase I

Progress: 7 local surveys conducted during the year. Scientists of the centre, identified 6 species of Pteromalidae (Hymenoptera) and 20 species of Platygasteridae (Hymenoptera). The studies included a new species of Paratelenomus (Platygasteridae: Hymenoptera) attacking Coptosoma cribraria (Heteroptera: Plataspididae), on lab. DNA barcode has been worked out and also procured SEM of the new species, manuscript work under progress. Also recorded a new host (Coreidae: Heteroptera) for a Eupelmid egg parasitoid.

2. Systematic studies on Teleasinae (Platygasteridae: Hymenoptera) of South Western Ghats

Investigators: Dr. K. Rajmohana

Date of start: April 2015

Date of completion: March 2018

Objectives: To study the Systematic studies on Teleasinae (Platygasteridae: Hymenoptera) of South Western Ghats

Progress: The PI conducted two intensive faunal surveys to Western Ghats of Thiruvananthapuram, Kollam and Idukki districts of Kerala. The specimens collected are being sorted, mounted and identification work is in progress.



Plexippus levii Saha et al., 2015

ESTUARINE BIOLOGY REGIONAL CENTRE GOPALPUR-ON-SEA, ORISSA

Completed Programmes

1. Fauna of Subhadra Estuary, w.s.r. to Benthic community

Investigators: Officer- In- Charge and Other scientific staffs.

Date of start: April 2013

Date of completion: March 2015

Objectives: To study Fauna of Subhadra Estuary, w.s.r. to Benthic community

Progress: Project completed and Altogether 1099 Mollusca examples were collected from Subdhra estuary. Fifty-nine Mollusca species were identified from the study, of which 35 belongs to Gastropoda under 4 orders and 15 families and remaining 24 species belongs to bivalvia which comes under 5 orders and 7 families including an unidentified bivalve species. A Classified list of 12 crab species and 4 Hermit crab species is given in the Report. A total of 132 specimen of Hemiptera and coleopteran were identified from the Aquatic insects collection from the estuary, out of

which 18 species belongs to Hemiptera and 6 Coleoptera species.

Significant highlights:

All Species are first record from the study Site. 2 species of *Halobates* and one species of Coleoptera are first time recorded from Odisha.

2. Species Diversity and Richness of Mollusca fauna of Himachal Pradesh

Investigators: Officer- In- Charge and Other scientific staffs.

Date of start: April 2013

Date of completion: March 2015

Objectives: To study Species Diversity and Richness of Mollusca fauna of Himachal Pradesh

Progress: Manuscript of the paper submitted. The paper deals with systematic study of molluscs of Himachal Pradesh and reports 32 species of molluscs (Both land and freshwater) under 18 genera and 15 families. Out of which 15 are freshwater species under 9 genera and 9 families and 17 are land forms belonging to 9 genera and 6 families. During total four surveys different habitats under districts of Chamba, Kangra, Mandi, Kulu, Shimla, Solan, Sirmaur, Bilaspur, Una and Hamirpur of Himachal Pradesh have been covered.

Ongoing Programmes

1. Taxonomical studies on Molluscs of Cauvery estuary

Investigators: Mr. A. Mohapatra

Date of start: April 2014

Date of completion: March 2018

Objectives: Taxonomical studies on molluscs of Cauvery estuary

Progress: One survey tour from 14-3-2016 to 24-3-2016 (11 days) has been conducted.

Specimens collected:- (i) Mollusca = 631 exs [Gastropods = 216 + Bivalves = 398 + Cephalopods = 17 exs.]



ARUNACHAL PRADESH REGIONAL CENTRE, ITANAGAR

Completed Programmes

1. Taxonomy and diversity of zooplankton in Lower Arunachal Pradesh in the Eastern Himalayas

Investigators: Dr. Bikramjit Sinha

Date of start: April 2012

Date of completion: March 2015

Objectives: To study Taxonomy and diversity of zooplankton in Lower Arunachal Pradesh in the Eastern Himalayas.

Progress: 10 surveys conducted covering 9 districts and 6 protected areas of Arunachal Pradesh. The PA covered are Itanagar Wildlife Sanctuary, Pakke Tiger Reserve, Dihang-Dibang biosphere reserve, Kamlang Wildlife Sanctuary, Dêring Memorial Wildlife Sanctuary and Mehao Wildlife Sanctuary. 154 no. of water samples collected from lentic and lotic water bodies located in altitudinal range of 71-1938 m.a.s.l. 50 species of rotifera, 20 species of cladocera and 3 species of copepoda recorded. 53 specimens registered.

FTR & MSS under final stage of preparation & will be submitted soon.



Faunal sampling on a drainage inside the forest of Mehao Wildlife sanctuary, Arunachal Pradesh

Ongoing Programmes

1. Computerization of data on collection present in the station

Investigators: Officer- In- Charge and Other scientific staffs.

Objectives: Computerization of data on collection present in the station

Progress:

Group	Examples	Regn. No.
Fish	779	177
Mollusca	222	16
Reptilia	37	28
Aves	4	4
Hemiptera	11	6
Isoptera	61	2
Coleoptera	27	4
Total	1141	237

Initiated Programmes

1. Biodiversity of Selected Faunal groups of Talle Valley Wildlife Sanctuary in the Eastern Himalayas of India

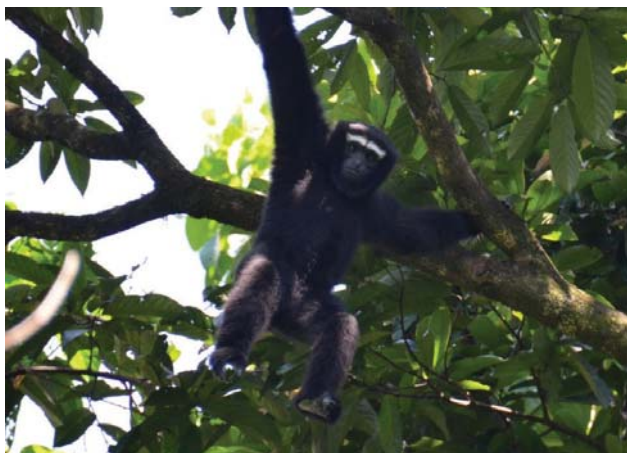
Investigators: Dr. B. Sinha
Dr. S. D. Gurumayum
Dr. L. K. Singh

Date of start: April 2015

Date of completion: March 2018

Objectives: To study Biodiversity of Selected Faunal groups of Talle Valley Wildlife Sanctuary in the Eastern Himalayas of India

Progress: 2 surveys conducted. Mammals: 24 species recorded. Birds: 171 species recorded. Reptiles: 08 Exs. Amphibia: 12 Exs. Pisces: 29 Exs. Others: 1000 Exs.



Eastern hoolock Gibbon (*Hoolock leuconedys*)

2. Faunal Diversity of Mehao forest Reserve w.r.t. Fish, Amphibia, Mollusca and Zooplankton, Arunachal Pradesh

Investigators: Dr. S. D. Gurumayum
Dr. L. K. Singh
Dr. B. Sinha

Date of start: April 2015

Date of completion: March 2017

Objectives: To study the Faunal Diversity of Mehao forest Reserve w.r.t. Fish, Amphibia, Mollusca and Zooplankton, Arunachal Pradesh

Progress: Completed three surveys and collected 1021 different faunal examples from the first two surveys. Identification of fish and mollusca samples collected from the first two surveys were completed and found out 36 fish species and 22 mollusca species.



Rhacophorus burmanus, Andersson, 1939



Papilio paris Linnaeus

MARINE AQUARIUM & REGIONAL CENTRE, DIGHA

Completed Programmes

1. Study of Ornamental fauna along east Coast of India

Investigators: Dr. Anil Mohapatra
P.C. Tudu

Date of start: April 2012

Date of completion: March 2015

Objectives: To study Ornamental fauna along east Coast of India

Progress: The entire east coast was covered during survey by selecting twenty seven survey locations, i.e. Bokhali, Gangasagar, Shankarpur, Digha- Mohana, Chandipur-on-Sea, Dhamra, Paradip, Puri, Kalupada ghat (Chilka Lake), Soran (Chilka Lake), Balugaon (Chilka Lake), Gopalpur-on-Sea, Matchiliesam, Bandaru- vanipeta, Komaravanipeta, Vishakhapatnam fishing harbor, Vishakhapatnam beach, Machilipatnam fishing harbor, Manginapudi beach, Chennai fishing harbor, Covelong beach, Pulicat lake, Pulicat, Kalpakam fishing harbor, Puduchery fishing harbor, Rameswar- am, Thoothukudi and Kanyakumari. In total 116 species belonging to 36 families of ornamental fish and 291 species of invertebrates are collected and identified.

Significant highlights:

- One species, *Hepalogenys bengalensis*

Mohapatra, Ray and Kumar, 2014 is discovered as new to science and published in *Zootaxa*.

- One species (*Parapercis ommatura* Jordan & Snyder, 1902) is discovered as the new records to Indian Ocean and published in *Acta Ichthyologica et Piscatoria*.
- Seven species i.e. *Naso reticulatus*, *Scorpaenopsis ramaraoui*, *Neomarinthe rotunda*, *Parascorpaena mcadamsi*, *Neenchelys cheni*, *Parapercis diplospilus* and *Fulvia nienkeae* are discovered as first record for Indian waters and published in different peer reviewed reputed journal.
- Several species of fishes and mollusc are discovered new to northern east coast, new to different state of east coast and published in different journal

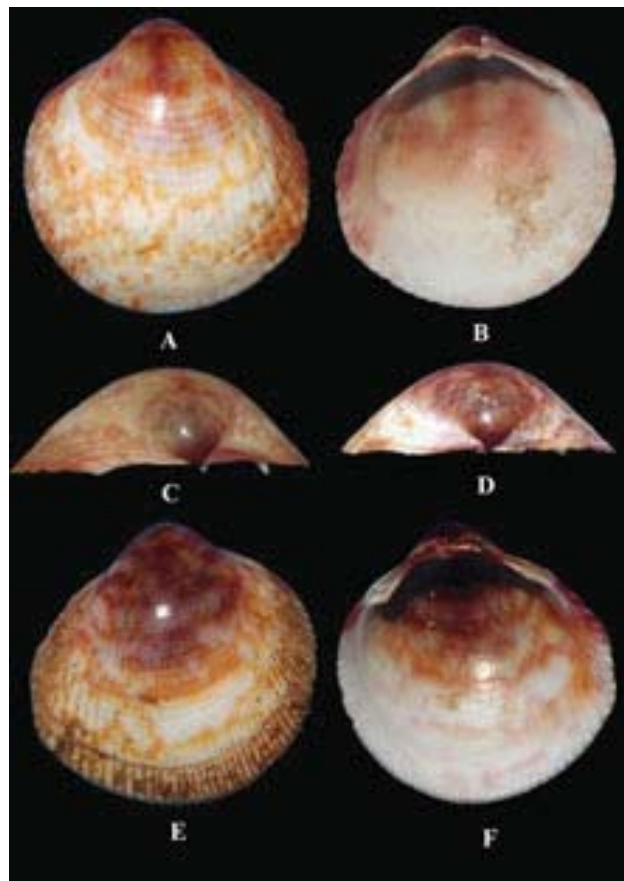


Gymnothorax mishrai Ray, Mohapatra, Smith, 2015



Neomerinthe megalepis (Fowler, 1938)

Ongoing Programmes



Fulvia nienkeae Poorten, 2012

2. Taxonomic accounts on marine crabs in and around coastal areas of Digha Islands.

Investigators: Dr. O. P. Srivastava

Date of start: April 2014

Date of completion: March 2016

Objectives: To study the Taxonomic accounts on marine crabs in and around coastal areas of Digha Islands.

Progress: 195 specimens collected and all specimens were identified till date.



RESEARCH PROGRAMMES

Externally Funded Projects



Zoological Survey of India



1. Fauna study in respect of EIA/EMP of Kapurdi Lignite Mine of Barmer District, Rajasthan belonging to Barmer Lignite Mining Company Ltd.

Funding Agency: MoEF&CC

Investigators: Dr. S. Kumar

Dr. H.S. Banyal

Santioned at DRC, ZSI-Jodhpur.

Date of start: July 2014

Date of completion: March 2017

Objectives: Fauna study in respect of EIA/EMP of Kapurdi Lignite Mine of Barmer District, Rajasthan belonging to Barmer Lignite Mining Company Ltd.

Progress: 49 localities were surveyed in the Kapurdi block and Jalipa block.

Threat and disturbance factors were recorded based on the on-going activities of the mining in the Kapurdi block and human activities in Jalipa block. Final report is compiled & will be submitted soon.

Significant highlights:

2 species of fishes, 4 species of amphibians, 6 species of reptiles, 126 species of aves especially winter migrants and 10 species of mammals were recorded so far from the entire study area of the project.

2. Abundance and diversity of soil nematodes in Agro-ecosystems of Dehradun, Uttarakhand, India.

Funding Agency: DST-SERB

Investigators: Dr. Anjum N. Rizvi

Date of start: February 2012

Date of completion: February 2015

Santioned at NRC, ZSI- Dehradun

Objectives: to study abundance and diversity of soil nematodes in Agro-ecosystems of Dehradun, Uttarakhand, India.

Progress: Final Project Completion Report submitted to DST-SERB on 15th Oct'15

3. Molecular study of *Ratufa indica* (Erxleben), *Ratufa macroura* (Pennant), *Ratufa bicolor* (Sparrman), *Petionomys fuscocapillus* (Jerdon), *Funambulus palmarum* (Linn.), *Funambulus pennantii* Wroughton, *Petaurista petaurista* (Pallas), *Petarista philippensis* (Elliot) (Mammalia: Rodentia: Sciuride).

Funding Agency: DST-SERB

Investigators: Dr. Archana Bahuguna

Date of start: February 2012

Date of completion: February 2015

Santioned at NRC, ZSI-Dehradun

Objectives: Molecular study of *Ratufa indica* (Erxleben), *Ratufa macroura* (Pennant), *Ratufa bicolor* (Sparrman), *Petionomys fuscocapillus* (Jerdon), *Funambulus palmarum* (Linn.), *Funambulus pennantii* Wroughton, *Petaurista petaurista* (Pallas), *Petarista philippensis* (Elliot) (Mammalia: Rodentia: Sciuride).

Progress: Final Project Completion Report Submitted to DST-SERB in Jan'16.

4. Taxonomic studies on nematodes of Rajaji National Park, Uttarakhand

Funding Agency: UCOST

Investigators: Dr. Vinita Sharma

Date of start: February 2013

Date of completion: February 2015

Santioned at NRC, ZSI-Dehradun

Objectives: Taxonomic studies on nematodes of Rajaji National Park, Uttarakhand.

Progress: Conducted walk in interview for JRF on 15th Sept, 2015 and JRF joined on 17th Sept. 2015. Registered 66 examples of 17 nematodes species, Reg. No. IV/N 872-895, IV/N 904-944, IV/N 958.

5. Taxonomic Revision of Indian Pyralinae (Pyralidae: Lepidoptera)

Funding Agency: Science & Engineering Research Board (SERB), DST, New Delhi.

Investigators: Dr. Navneet Singh



Date of start: June 2012

Date of completion: June 2015

Santioned at GPRC, ZSI-Patna

Objectives: Taxonomic Revision of Indian Pyralinae (Pyralidae: Lepidoptera)

Progress: Project Completion Report Submitted to the funding Agency.

Significant highlights:

As many as thirteen survey tours were conducted to cover a record number of eighty nine localities under eleven states.

A total number of 75 species under 1150 examples of subfamily Pyralinae were identified. External male and female genital attributes of all the included species were studied.

In the present project many of the new area like Chaten, Dzangu (Sikkim), Mandar, Rohtas, Rajgir (Bihar), Dangar, Ranikher, Reat Khwan, Umkiyang, Pinursala (Meghalaya), B.R. Hills, Gundlupet, Madikeri, Mudigere, Kalasa, Kudremukh, Shimoga, Magharvalli, Agumbe, Jog falls, Yellapur, Ganeshgudi (Karnataka) were first time visited for the collection of Indian Pyralinae.

As many as 10 species i.e. *Bostra indicator* Walker, *Herculia marthelis* Walker, *Herculia palasgalis* Walker, *Sacada erythropis* Hampson, *Sacada flexuosa* Snellen, *Sacada inordinate* Walker, *Pyralis gractitella* Walker, *Stemmatophora valida* (Butler), *Curena externalis* Walker and *Orthopygia nannodes* (Butler) have been reported for the first time from India.

Whereas, three species i.e. *Bostra salmo* Hampson, *Endotricha albicilia* Hampson, *Endotricha mesenterialis* (Walker), have been reported for the first time from North East India.

In the present research work 25 species under 7 genera are reported as new to science and will be published very soon.

It is worth to mention here that in the present research work types of eight species have been studied. FTR has been compiled and submitted to the funding agency.

6. Preparation of Dolphin Management plan of Vikramshila Gangetic Dolphin Sanctuary from Sultanganj to Kahalgaon in Bihar.

Funding Agency: Department of Environment and Forests, Government of Bihar.

Investigators: Gopal Sharma

Santioned at GPRC, ZSI-Patna

Objectives: Preparation of Dolphin Management plan of Vikramshila Gangetic Dolphin Sanctuary from Sultanganj to Kahalgaon in Bihar.

Progress: Draft Report is ready and will be presented through PPT on 29 April 2016 before the higher official of forest Department Govt. of Bihar.

7. An Inventorisation of the corals and other associated marine resources of Malvan Marine Sanctuary

Funding Agency: MoEF&CC

Investigators: Dr. Basudev Tripathy
Dr. Rajkumar Rajan

Date of start: January 2014

Date of completion: December 2015

Santioned at MBRC, ZSI- Chennai

Objectives: An Inventorisation of the corals and other associated marine resources of Malvan Marine Sanctuary.

Progress: The Report of the study undertaken has been prepared and submitted to the funding agency for approval in December 2015.

8. Long Term Monitoring of Coral reefs of Lakshadweep Islands

Funding Agency: Department of Science and Technology, Lakshadweep

Investigators: Dr. Rajkumar Rajan

Santioned at MBRC, ZSI- Chennai

Date of start: November 2015

Date of completion: October 2025



Objectives: An inventorisation of the corals and other associated marine resources of Malvan Marine Sanctuary.

Progress: Project initialized. In the month of November 2015 and recruitment of project staff was done.

One Project Scientist and six Junior Research Fellows joined in the project.

The Research Fellows joined have submitted their application for PhD to the Department (MBRC), which has been placed before the Departmental Selection Committee and approved for submission to Madras University for registration. The interviews for the monitoring staff is was held on 10th March, at Kavaratti Island, Lakshadweep, and approval of Director, ZSI on the Selection List obtained.

The Secretary, Department of Science and Technology, Lakshadweep has been briefed on the progress of the project and urged the necessity of releasing the balance money of the current financial year.

The funding agency released the balance money on 31 March 2016, which was credited to the project account.

9. Reproductive Biology of Scleractinian corals of Andaman and Nicobar Islands

Funding Source: MoEF&CC/GOI

Investigators: Dr. C. Raghunathan

Date of start: July 2014

Date of completion: June 2017

Santioned at ANRC, ZSI- Andaman

Objectives:

- Studies on fecundity of corals in selected families at different seasons
- Studies on growth and regeneration pattern by sexual and asexual mode of reproduction.
- Studies on substrate specificity for the settlement of coral's Planula larvae
- Coral replantation studies on selected species in permanent monitoring plots

- Studies on coral life cycle from Planula to adult in ex-situ condition.

Progress:

- Eighteen surveys were conducted during August 2014 to July 2015 at four selected sites of South Andaman to acquire the quantitative and qualitative data on diversity, density, distribution of scleractinian corals and to conduct the in-situ experimental studies.
- The growth pattern of the scleractinian corals was monitored. The quarterly mean growth rate of *Fungia paumotensis* was 0.323 ± 0.028 cm and for *Fungia repanda* was 0.236 ± 0.045 cm.
- Monthly growth rate of *Acropora formosa* was 2.34 ± 0.18 at Pongibalu while 1.19 ± 0.14 at North Bay area.
- Eleven species of corals were studied for an experimental regeneration in their natural habitat. It was seen that the colonial species *Polyphyllia talpina* showed highest (0.333cm) development in unit length whereas the *Fungia scruposa* showed the lowest (0.033cm).
- The recruitment and growth pattern of scleractinian corals under eight families viz. Acroporidae, Faviidae, Siderastreidae, Mussidae, Agariciidae, Poritidae, Pectinidae and Fungiidae observed in one square meter area from North Bay and Pongibalu.
- The data indicated that, an average growth rate at North Bay for the species under the family Poritidae was 7mm/yr. while for Mussidae it was 9.5mm/yr. However for the species under the family Acroporidae was 60mm/yr. The growth data obtained from the corals of Pongibalu shown that 11mm/yr., 43mm/yr. and 24.25mm/yr. for the families Poritidae, Pocilloporidae and Acroporidae respectively.

Significant highlights:

New Discoveries/New Species:

Three species of ascidians, two species of polyclads and three species of opisthobranchs are new record to India.



10. Determination of the conservation value of the coral reefs of Andaman

Funding Source: MoEF&CC/GOI

Investigator: Dr. C. Raghunathan

Date of start: August 2014

Date of completion: May 2015

Santioned at ANRC, ZSI- Andaman

Objectives:

- Identifications of contiguous patches of coral reefs along the coastal region of Andaman Islands.
- Preparation of boundaries of all such reef patches, which lie outside the marine protected areas.
- Collection of biological data with respect to each of the above identified reef patches.
- Organization of a stakeholders' consultation for determining the threshold conservation value for delineation of "highly sensitive area" (based on the criteria to be developed by NCSCM).

Progress:

72 patches of coral reefs were identified and mapped in Andaman Islands. 256 species of corals and over 400 species of coral associated faunal communities were observed in these patches. Status and health of the corals have also been assessed in the study.

Significant highlights:

New Discoveries/New Species:

Seven species of corals, two species of ascidians and two species of sea anemones are recorded as new to India.

11. Preparation of Coastal and Marine Biodiversity registers

Funding Source: MoEF&CC/GOI

Investigator: Dr. C. Raghunathan

Date of start: January 2014

Date of completion: May 2015

Santioned at ANRC, ZSI- Andaman

Objectives: Preparation of Biodiversity register on Coastal and Marine Biodiversity.

Progress: Register for a total of 1200 species of fishes has been prepared and report submitted.

12. Studies on Scleractinian Coral and its associated faunal communities on the continental shelf of Great Nicobar Biosphere Reserve

Funding Source: Science & Engineering Research Board, Department of Science & Technology.

Investigator: Dr. Tamal Mondal

Date of start: November 2015

Date of completion: October 2018

Santioned at ANRC, ZSI- Chennai

Objectives:

- Assess the extent coral reefs in GNBR.
- Study distribution and diversity pattern of corals.
- Study the coral associated macro invertebrates.
- Study the coral recruitment and growth.
- Study the factors affecting the corals and its associated organisms.

Progress: Surveys are under progress, as the project is initiated only November 2015.

13. Diversity and distribution of Gorgonian octocorals in and around the Andaman and Nicobar Islands – A baseline study for the management of soft corals

Funding Source: Science & Engineering Research Board, Department of Science & Technology

Investigator: Dr. J. S. Yogesh Kumar

Date of start: June 2013

Date of completion: May 2016

Santioned at ANRC, ZSI- Andaman

Objectives:

- To determine the gorgonian diversity and distribution in the reef Islands at Andaman and Nicobar Islands.
- To assess the gorgonian species distribution at different depth of reef areas.



- iii. To assess the growth rate of gorgonians at different depths.
- iv. To assess the fishes associated with the gorgonians.
- v. To determine the ecological variation of gorgonian coral beds.
- vi. To assess the impact of climate change on gorgonian diversity.

Progress:

During the study period 196 gorgonian, 30 soft corals, 3 sea pens, 4 black corals, gorgonian associated 2 crabs, 4 fishes, 3 molluscs and 1 shrimp were collected Andaman and Nicobar Islands.

Significant highlights:

New Discoveries/New Species:

Four species of Octocorals are newly recorded under this project.

14. REIA studies on biotic components in the proposed site for the construction of cement concrete Dam at Khudirampur village, North Andaman, Diglipur

Funding Source: APWD, Andaman & Nicobar Administration

Investigator: Dr. C. Raghunathan

Date of start: May 2015

Date of completion: December 2015

Santioned at ANRC, ZSI- Andaman

Objectives:

- i. To assess the faunal communities in the marine and terrestrial environment of the proposed project site and adjoining areas
- ii. To predict the environmental impact
- iii. To suggest the suitable management plan

Significant highlights:

- i. The proposed site for construction of cement dam is an area with forest cover or vegetation.
- ii. The proposed site is about 3.59 km (aerial distance) away from Saddle Peak National Park. Apart from

that there is no Wildlife Sanctuary in the proximity of the project site.

- iii. There were no Coral reefs at the proposed project adjoining site as marine ecosystem is approximately 9 km away from the site. No coral bed has been found in and near vicinity of the Ariel Bay where Kalpong River meandering in the sea.
- iv. There is no mangrove at proposed project site of Khudirampur area.
- v. Mangrove patches exist at the Ariel Bay area which is far apart from the vicinity of the proposed project site.
- vi. There is no turtle nestiting site at vicinity of the project site. Turtle nesting ground exists in the Kalipur beach which is located about 10 km away from proposed project site.
- vii. No migratory birds could be noticed in the project area during the surveys.
- viii. No endangered species could be found in the proposed project site during the surveys.
- ix. Even though North Andaman harbours several endemic/endangered fauna, some of the important endangered faunal communities such as Andaman wild pig *Sus scrofa andamnensis* and Edible-nest Swiftlet *Aerodramus fuciphagus* have not found in the proposed project site.
- x. There were no nesting/breeding grounds for endemic of migratory birds in and around the proposed project area.
- xi. No critical habitats could be found in the proposed construction of cement dam at Khudirampur.

15. REIA studies on the biotic components in the proposed site for the construction of rural road from Kalighat Jetty to Nischintapur including bridge over Kalighat Nallahat North Andaman

Funding Source: APWD, Andaman & Nicobar Administration

Investigator: Dr. C. Raghunathan

Date of start: May 2015



Date of completion: December 2015

Santioned at ANRC, ZSI- Andaman

Objectives:

- i. To assess the faunal communities in the marine and terrestrial environment of the proposed project site and adjoining areas.
- ii. To predict the environmental impact.
- iii. To suggest the suitable management plan.

Significant highlights:

- i. The proposed site for construction is located in the mangrove forest area. However the formations mangrove is patchy with low tree density.
- ii. There is no Protected Areas under the Wildlife (Protection) Act, 1972 in the vicinity of proposed project site.
- iii. There is no existence of coral reefs at proposed project area and its adjoining places.
- iv. Turtle nesting ground exists in the Rampur beach which is located about 10 km away from proposed project site.
- v. No migratory birds could be noticed in the project area during the surveys.
- vi. No endangered species could be found in the proposed project site during the surveys.
- vii. Frequency of occurrence of salt water crocodile is high in the Kalighat Nallah.
- viii. Even though North Andaman harbours several endemic/endangered fauna, some of the important endangered faunal communities such as Andaman wild pig *Sus scrofa andamensis* and Edible-nest Swiftlet *Aerodramus fuciphagus* have not found in the proposed project site.
- ix. There were no nesting/breeding grounds for endemic of migratory birds in and around the proposed project area.
- x. No critical habitats could be found in the proposed rural road and bridge construction area.

16. REIA studies on the biotic components of the quarry measuring an area of 4.00 hect. Bearing Survey No. 700/P situated at Nabagram village, under Diglipur Tehsil, North Andaman.

Funding Source: APWD, Andaman & Nicobar Administration

Investigator: Dr. C. Raghunathan

Date of start: August 2015

Date of completion: January 2016

Santioned at ANRC, ZSI- Andaman

Objectives:

- i. To assess the faunal communities in the marine and terrestrial environment of the proposed project site and adjoining areas.
- ii. To predict the environmental impact.
- iii. To suggest the suitable management plan.

Significant highlights:

- i. The proposed site for the quarry operation is an area with mostly without forest cover while some portion of the area is covered with forest.
- ii. The proposed site is about 6.5 km away (aerial distance) from Saddle Peak National Park and there is no Wildlife Sanctuary in the proximity of the project site.
- iii. There were no Coral Reefs at the proposed project adjoining site as marine ecosystem is approximately 9 km away from the site. No coral bed has been found in the vicinity of the proposed project sea.
- iv. There is no mangrove at proposed project site of Nabagram village area. Mangrove patches exist at Kalighat Nallah area which is around 1.5 km. (aerial distance) away from the proposed project area.
- v. There is no turtle nesting site at vicinity of the project site. Turtle nesting ground exists in the Rampur beach which is located about 12 km away from proposed project site.
- vi. No migratory birds could be noticed in the



project area during the surveys.

- vii. No endangered species could be found in the proposed project site during the surveys.
- viii. Even though North Andaman harbours several endemic/endangered fauna, some of the important endangered faunal communities such as Andaman wild pig *Sus scrofa andamensis* and Edible-nest Swiftlet *Aerodramus fuciphagus* have not found in the proposed project site.
- ix. There were no nesting/breeding grounds for endemic of migratory birds in and around the proposed project area.
- x. No critical habitats could be found in the proposed area for the quarry operation at Nabagram village, Diglipur.

17. REIA study for construction of protective walls to arrest soil erosion along the coastline of Ross Island

Funding Source: Ministry of Defence, Govt. of India

Investigator: Dr. C. Raghunathan

Date of start: September 2015

Date of completion: March 2016

Santioned at ANRC, ZSI- Andaman

Objectives:

- i. To assess the distribution, density and diversity of marine faunal communities in the proposed construction site at Ross Island.
- ii. To assess the coral and coral associated communities in the project site and its adjoining areas.
- iii. To assess the distribution, diversity and density of terrestrial fauna (Insect, Amphibians, Reptiles, Fishes, Birds and Mammals) in the adjacent terrestrial environment of the project sites.
- iv. To assess the distribution, diversity and density of flora including herbs, shrubs and trees in the proposed project site.
- v. To assess and predict the impact of construction of protective walls in the proposed site.

Progress: Surveys are under progress

18. REIA studies for the Provision of sea wall and protective works along the shoreline at INS Kardip, Kamorta

Funding Source: Ministry of Defense, Govt. of India

Investigator: Dr. C. Raghunathan

Date of start: September 2015

Date of completion: March 2016

Santioned at ANRC, ZSI- Andaman

Objectives:

- i. To assess the distribution, density and diversity of marine faunal communities in the proposed construction site in Kamorta.
- ii. To assess the coral and coral associated communities in the project site and its adjoining areas.
- iii. To assess the distribution, diversity and density of terrestrial fauna (Insect, Amphibians, Reptiles, Fishes, Birds and Mammals) in the adjacent terrestrial environment of the project sites.
- iv. To assess the distribution, diversity and density of flora including herbs, shrubs and trees in the proposed project site.
- v. To assess and predict the impact of construction of sea wall in the proposed site.

Significant highlights:

- i. The proposed site for construction of seawall and protective works along the shoreline of INS Kardip is located on the near shore area of Kamorta Island.
- ii. There is no Protected Areas under the Wildlife (Protection) Act, 1972 in the vicinity of proposed project site. The Great Nicobar Biosphere Reserve and Campbell Bay National Park is located at Great Nicobar Island which is 98 km (aerial distance) away and Tillongchang Island Wildlife Sanctuary is 43 km away (aerial distance) from the proposed project site.
- iii. Coral reefs and seagrass bed are exist about 200 m



and 100 m away from the proposed construction site respectively.

- iv. The transparency of seawater column is low coupled with comparatively high turbidity due to sedimentation caused by heavy wave action at INS Kardip coast. Hence the faunal communities are distributed in low diversity and density at this region.
- v. In general, diversity and density of all marine and terrestrial faunal communities reported during the present study at proposed project site is less when compared to other study areas of Nancowry group of islands.
- vi. The project site falls under CRZ-I as well as the seismic zone category-V according to IS: 1893-2002.

19. REIA studies for the Consultancy for provision and installation of automatic Reverse Osmosis plant to supply water at INS Kardip, Kamorta

Funding Source: Ministry of Defense, Govt. of India

Investigator: Dr. C. Raghunathan

Date of start: September 2015

Date of completion: March 2016

Santioned at ANRC, ZSI- Andaman

Objectives:

- i. To assess the distribution, density and diversity of marine faunal communities in the proposed RO plant installation site in Kamorta.
- ii. To assess the coral and coral associated communities in the project site and its adjoining areas.
- iii. To assess the distribution, diversity and density of terrestrial fauna (Insect, Amphibians, Reptiles, Fishes, Birds and Mammals) in the adjacent terrestrial environment of the project sites.
- iv. To assess the distribution, diversity and density of flora including herbs, shrubs and trees in the proposed project site.
- v. To assess and predict the impact by installation of

Reverse Osmosis Plant in the proposed site.

Significant highlights:

- i. The proposed site for automatic RO plant at Kardip is located on the near shore area of Kamorta Island.
- ii. There is no Protected Areas under the Wildlife (Protection) Act, 1972 in the vicinity of proposed project site. The Great Nicobar Biosphere Reserve and Campbell Bay National Park is located at Great Nicobar Island which is 98 km (aerial distance) away and Tillongchang Island Wildlife Sanctuary is 43 km away (aerial distance) from the proposed project site.
- iii. Coral reefs and seagrass bed are exist about 200 m and 100 m away from the proposed construction site respectively.
- iv. The transparency of seawater column is low coupled with comparatively high turbidity due to sedimentation caused by heavy wave action at INS Kardip coast. Hence the faunal communities are distributed in low diversity and density at this region.
- v. In general, diversity and density of all marine and terrestrial faunal communities reported during the present study at proposed project site is less when compared to other study areas of Nancowry group of islands.
- vi. The project site falls under CRZ-I as well as the seismic zone category-V according to IS: 1893-2002.

20. REIA studies on the biotic components in the proposed area for construction of Coast Guard Jetty at Hut Bay, Little Andaman

Funding Source: Ministry of Defence, Govt. of India

Investigator: Dr. C. Raghunathan

Date of start: August 2015

Date of completion: March 2016

Santioned at ANRC, ZSI- Andaman

Objectives:

- i. To assess the distribution, density and diversity of



marine faunal communities with special emphasis to coral reefs and its associated organisms in the adjoining area of the proposed project site at Hut Bay, Little Andaman Island.

- ii. To assess the distribution, diversity and density of terrestrial fauna (Insect, Amphibians, Reptiles, Fishes, Birds and Mammals) in the adjacent terrestrial environment of the proposed project site.
- iii. To assess and predict the impact on faunal components of the proposed construction of facilities.

Significant highlights:

- i. The proposed site for the construction of Coast Guard Jetty is located in the near shore area of Hut Bay.
- ii. There is no vegetation and mangrove at the proposed project area.
- iii. There is no Protected Areas under the Wildlife (Protection) Act, 1972 in the vicinity of proposed project site. The South Brother Island Wildlife Sanctuary is situated at South Andaman which is 37.50 km (aerial distance) away from the proposed project site.
- iv. There is no existence of coral reefs at proposed project area and its adjoining places. Coral reefs are located about 6.5 km (Aerial distance) away from the project site.
- v. Four nesting grounds of leatherback turtles such as South Bay (13.77 km in aerial distance), West Bay (16.04 km in aerial distance), Jackson Creek (27.35 km in aerial distance) and Ekiti Bay (32.3 km in aerial distance) are reported from Little Andaman Island which located in far away distance from the proposed construction area..
- vi. Intensive undersea surveys conducted in the proposed area for the construction of jetty revealed that the transparency of water column was 4.5 m and the bottom portion is covered with sand and mud. Hence the distribution of marine endangered faunal communities such as corals is meagre due to muddy substratum.

- vii. No endangered marine mammals such as Dolphin and Dugong and seabirds were found the proposed area for the construction of jetty.
- viii. No sea bird and migratory birds could be noticed in the project area during the surveys.
- ix. No endangered species could be found in the proposed project site during the surveys.
- x. In general diversity and density of all marine and terrestrial faunal communities reported during the present study at proposed project site is very low when compared to other study areas of Little Andaman Island.
- xi. Even though Little Andaman Island harbours several endemic/endangered fauna, some of the important endangered faunal communities such as Andaman wild pig *Sus scrofa andamanensis* and Edible-nest Swiftlet *Aerodramus fuciphagus* have not found in the proposed project site.
- xii. There were no nesting/breeding grounds for endemic of migratory birds in and around the proposed project area.
- xiii. No critical habitats could be found in the proposed rural road and bridge construction area.
- xiv. The project site falls under CRZ-IV as well as the seismic zone category-V according to IS: 1893-2002.

New Discoveries/New Species: Three species of ascidians, two species of opisthobranch, two species of polyclads, two species of corals and two species of octocorals are new record to India

21. REIA studies for alternate allotment of land at Bimblitan and Ograbraj, South Andaman

Funding Source: Ministry of Home Affairs, Govt. of India, Andaman & Nicobar Administration

Investigator: Dr. C. Raghunathan

Date of start: October 2015

Date of completion: March 2016

Santioned at ANRC, ZSI- Andaman

Objectives:



- i. To assess the distribution, density and diversity of terrestrial fauna (Insect, Amphibians, Reptiles, Fishes, Birds and Mammals) in the adjacent terrestrial environment of the proposed project site of Bimblitan and Ograbraj area.
- ii. To assess and predict the impact on faunal components of the proposed project of facilities.

Progress:

Surveys are completed; analysis of data is under progress

22. Ecological Studies of Bird Hazards at Airports in Shibpur, North Andaman

Funding Source: INS Utkrosh, C/o. Navy Office, Ministry of Defence, Government of India, Port Blair

Investigator: Dr. C. Sivaperuman,

Date of start: March 2015

Date of completion: March 2016

Santioned at ANRC, ZSI- Andaman

Objectives:

- i. To document the status, distribution and abundance of avifauna
- ii. To study the community composition in different season
- iii. To study the habitat relationship of avian communities
- iv. To train the aviation support personnel to identify bird species and apply the proper habitat management
- v. To suggest and provide suitable control measures

Progress:

- i. Ninety field surveys were conducted during the period of study to assess the avifauna and its associate faunal groups e.g. butterflies, odonates, beetles, moths, reptiles & amphibians and mammals in the airport campus and 10 km radius from the aerodrome.
- ii. Following areas were surveyed besides airport campus, viz. Durgapur, Lamiya Bay, Saddle Peak National, Aerial Bay, Ross & Smith Island, Landfall Island, East Island, Radhanagar, Hathilevel, Pathilevel, Ramnagar, Kishorinagar, Bamboo

Island, Kalpond Dam and Kuthirampur Dam.

- iii. Twenty night surveys were carried out to assess the Nocturnal Insect, birds and other fauna.
- iv. Overall 163 species of birds belongs to 51 families and 19 orders have been observed during the period of survey.
- v. Thirty four species of Odonates were recorded from the study sites.
- vi. Forty two species of butterflies, belong to five families were recorded.

Significant highlights:

New Discoveries / New Species

During the period of survey two species of birds were recorded which are new to Andaman and Nicobar Islands

Order: Charadriiformes

Family: Laridae

a. Black Headed Gull

Chroicocephalus ridibundus Linnaeus, 1766

Order: Procellariiformes

Family: Procellariidae

b. Wedge-tailed Shearwater

Puffinus pacificus Gmelin, 1789

23. Ecology and habitat modelling of wetland birds in the tsunami inundated wetlands of South Andaman

Funding Source: SERB, Department of Science & Technology, Ministry of Science and Technology, Government of India.

Investigator: Dr. C. Sivaperuman

Date of start: October 2012

Date of completion: October 2015

Santioned at ANRC, ZSI- Andaman

Objectives:

- i. To assess the status and distribution of wetlands birds in the tsunami inundated wetlands of South Andaman.



- ii. To estimate the population size, arrival and departure, duration of stay and passage migration of waders.
- iii. To study the foraging behaviour of wetland birds and assess their food composition in different microhabitats.
- iv. To investigate the relationship between the birds and their prey, physical and chemical parameters of atmosphere and water.
- v. To develop Habitat Suitability Index (HSI) Model for selected bird species based on critical habitat variable.

Progress:

- i. One hundred and forty five surveys have been conducted Garacharma, Sippighat, Chouldhari, Ograbraj, Whimberligunj, Shoalbay, Stewardgunj, Wandoor, and Chidiyatappu, during the reporting period to survey the wetland birds.
- ii. Ninety three species of wetland birds, belongs to 14 families and 7 orders were recorded and foraging behavior of selected species also collected.

Significant highlights:

New Discoveries / New Species

During the period of survey four species of birds were recorded which are new to Andaman and Nicobar Islands

Order: Pelecaniformes

Family: Threskiornithidae

Glossy Ibis *Plegadis falcinellus* (Linnaeus)

Order: Anseriformes

Family: Anatidae

Ferruginous Pochard *Aythya nyroca* (Guldenstadt)

Order: Charadriiformes

Family: Recurvirostridae

Black-winged Stilt *Himantopus antopus* (Linnaeus)

Order: Cuculiformes

Family: Cuculidae

Pied Crested Cuckoo *Clamator jacobinus* (Boddeart)

24. Foraging ecology and habitat use of wading birds and shorebirds in the mangrove ecosystem of the Andaman Islands

Funding Source: Ministry of Environment, Forests and Climate Change, Government of India

Investigator: Dr. C. Sivaperuman

Date of start: December 2014

Date of completion: December 2017

Santioned at ANRC, ZSI- Andaman

Objectives:

- i. To describe the avian community at the Mangrove ecosystem of Andaman Islands,
- ii. To investigate the relationship between the birds and their prey,
- iii. To provide knowledge about the intertidal of the mangrove ecosystem as a foraging habitat for the birds,
- iv. To evaluate the consumption of the birds in the intertidal of the mangrove ecosystem and its meaning for the avian and the benthic community

Progress:

- i. 150 surveys have been conducted in South Andaman, Middle Andaman and North Andaman Islands.
- ii. 14 species of wading birds belongs to the order Ciconiiformes and family Ardeidae were recorded
- iii. 28 species of shorebirds, belongs to 4 families under the order Charadriiformes were sighted.

Significant highlights:

New Discoveries / New Species

During the period of survey four species of birds were recorded which are new to Andaman and Nicobar Islands.

25. Pteromalidae (Hymenoptera) of India

Funding Agency: MoEF&CC

Investigators: Dr. P.M. Sureshan

Date of start: April 2011

Date of completion: March 2015

Santioned at WGRC, ZSI- Kozhikode



Objectives: To study Pteromalidae (Hymenoptera) of India

Progress:

About 700 exs. of specimens collected from different states of India were card mounted and made ready for taxonomic studies. About 400 exs. of specimens identified belonging to 35 species under 20 genera from collections from Tamil Nadu, Kerala, Uttar Pradesh, Karnataka, Maharashtra and Gujarat.

Significant highlights:

Revision of the genus *Netomocera* Boucek completed. The revision includes 10 species including one new species described from Kerala, India and key to the world species.

Revision of the genus *Dipara* Boucek completed from the Oriental region. *Dipara ponmudiensis* sp.nov. (Subfamily: Diparinae) described from southern Western Ghats. Revised keys to the Oriental species of *Dipara* published.

26. Strengthening of facilities at Marine Aquarium.

Funding Agency: MoEF&CC

Investigators: Dr. K. Chandra

Dr. Anil Mohapatra

Date of start: April 2011

Date of completion: March 2015

Santioned at MARC, ZSI- Digha

Objectives:

Strengthening of facilities at Marine Aquarium.

Progress:

Eight training programmes are conducted. Interpretation centre work & marine museum and renovation progress. The renovation of Aquarium work completed

27. Outreach programme on Management of Sucking Pest in Horticultural crops" "Cataloguing thrips (Thysanoptera: Insecta) species on Horticultural Crops from India

Funding agency: ICAR

Investigator: Dr. Vikas Kumar

Date of start: March 2015

Date of completion: March 2016

Santioned at HQ, ZSI- Kolkata

Objectives:

- Collection and identification, on thrips species on major horticultural crops in India.
- Host plant based cataloguing of thrips species.
- Analysis of variation patterns of some pest and vector thrips species based on host plant and geographical area of India. Molecular tools will also be used to corroborate the morphological evidences and vice versa.
- Resolving species complex of pest thrips and provide easy to use diagnostic tools for their identification. Molecular tools will also be used to corroborate the morphological evidences.

Progress: Nearly 500 specimens are mounted onto the slides from different parts of India.

Significant Highlights: First report of Western Flower Thrips, *Frankliniella occidentalis* (Pergande) (Thripidae: Thysanoptera) from India-

- Morphological and DNA Barcoding Evidence for Invasive Pest Thrips, *Thrips parvispinus* (Thripidae: Thysanoptera), Newly Recorded From India
- Two papers published

28. Molecular Systematics and Phylogeny of Economically Important Thrips in India

Funding agency: DST (SERB)

Investigator: Dr. Kaomud Tyagi

Date of start: Januray 2013

Date of completion: December 2015

Santioned at HQ, ZSI- Kolkata

Objectives: i. Collection, morphological identification and population studies of economically important species of thrips

- Analysis of the variation patterns, construction of diagnostic accounts and development of identification keys to the species and genera.
- Geographical and Host associated morphological



variations in populations of pest and vector thrips species.

- iv. To prepare an identification handbook for economically important species of thrips of India

Progress: Nearly **1500** specimens are mounted onto the slides from Himachal Pradesh, West Bengal, Odisha, Rajasthan, Jammu & Kashmir, Kerala and Karnataka etc. Critical examination of morphological features from slide mounted specimens (1-2 mm in size) have revealed the identification of 95 species, Out of which 12 are serious pest of various agricultural and Horticultural crops. *Thrips palmi* Karny, *Thrips tabaci* Lindeman, *Frankliniella schultzei* (Trybom), and *Scirtothrips dorsalis* Hood are vectors for tospoviruses. A detailed list of the species are provided here.

Significant Highlights: A new thrips species of the grass-inhabiting *Anaphothrips* genus-group, *Tameothrips arundo* sp. n., is described from specimens collected on *Arundo donax* (Poaceae) from high altitude in Himachal Pradesh State of India. Four species of thrips in two subfamilies of family Thripidae are also reported for the first time from India, all of them well outside their known range: One new species, *Thrips moundsi* sp. n., is described in this group from specimens collected on grasses in Himachal Pradesh State of India. A key to the seven species of *Thrips formosanus* group is also provided. Partial sequence data for the gene mitochondrial cytochrome oxidase (mtCOI) from the holotype and paratype of this new species is provided.

29. Combined molecular (COI barcode) and morphological based inventorying of freshwater fish diversity from three selected protected areas on south bank landscape of river Brahmaputra in Assam, Arunachal Pradesh and Nagaland

Funding agency: DST (SERB)
Investigator: Dr. Boni Amin Laskar
Date of start: August 2013
Date of completion: June 2016
Santioned at HQ, ZSI- Kolkata

Objectives:

- i. Protected Area wise documentation of fish diversity inhabiting both lentic and lotic water ecosystems based on morphological parameters
- ii. Development of DNA barcode of the fishes inhabiting the proposed localities
- iii. Validation of cryptic species taxonomy through molecular evidence
- iv. Extensive exploration on possibility of new species discovery
- v. Necessary reviewing and description of certain endemic species
- vi. Assessment of population status and pertaining threats to biodiversity

Progress: A total of 187 specimens of fishes have been processed for gene sequencing. Of them, a total of 41 mtCOI sequences and 20 mtCytb sequences of Mahseer fishes have been developed. These sequences have been analysed and being prepared for publication in Molecular Ecology Resource journal. The study resolve the taxonomic doubtfulness on the identification of an important mahseer (*Tor mosal*). The species was synonymised with *T. putitora*, but our study suggests to resurrect it as distinct species. This study provides additional morphological description of *T. mosal* along with the authenticated DNA barcode. The study further validated the occurrence of an endemic species of Mahseer (*T. barakae*) in Barak basin. The species was synonymised with *T. tor*, but our study not only suggests to resurrect this species but also provide with the details on the taxonomic description of the species. The study also provide the taxonomic keys to accommodate the species in the list of Indian pride mahseer fishes. The entire study is being prepared for publication in MER. The study with other samples is in progress and looking ahead the study will resolve the taxonomic problem with the freshwater fishes in the region.

30. Molecular Identification of Archival Chelonians (Turtle and Tortoise) by using contemporary genome technologies



Funding agency: DBT
Investigator: Dr. Shantanu Kundu
Date of start: January 2014
Date of completion: June 2016
Santioned at HQ, ZSI- Kolkata

Objectives: i.Exploration of Chelonians specimens in Zoological Survey of India through DNA sequences.

ii. Validation of disputed Chelonians specimens through combined traditional and molecular approach.

iii. Estimation of Chelonians speciation through molecular phylogeny and relaxed molecular clock approaches.

Progress: The study recorded eight hard-shell turtle species (Family: Geoemydidae) in northeast India. The morphological data clearly shows different scutes anomalies present in both carapace and plastron of *Panghsura tentoria*, *Cyclemys gemeli* and *Cuora amboinensis* found in Assam and Arunachal Pradesh state of Northeast India. The present study also evidenced the footmarks of the non-native species, *Cyclemys fusca* in northeast India. Thus, knowing the actual distribution pattern of *C. fusca*, this might be the new record of this species from Indian sub-continent. The comprehensive study will further strengthen the biogeographic pattern of *Cyclemys congeners* in northeast India.



At a Glance: Scientific Programmes 2015-16

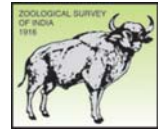
	Completed	Ongoing	Initiated	Total
Headquarters ZSI	17	28	05	50
Regional Centres	32	47	25	104
Externally-Funded Projects	14	08	08	30
Total	63	83	38	184



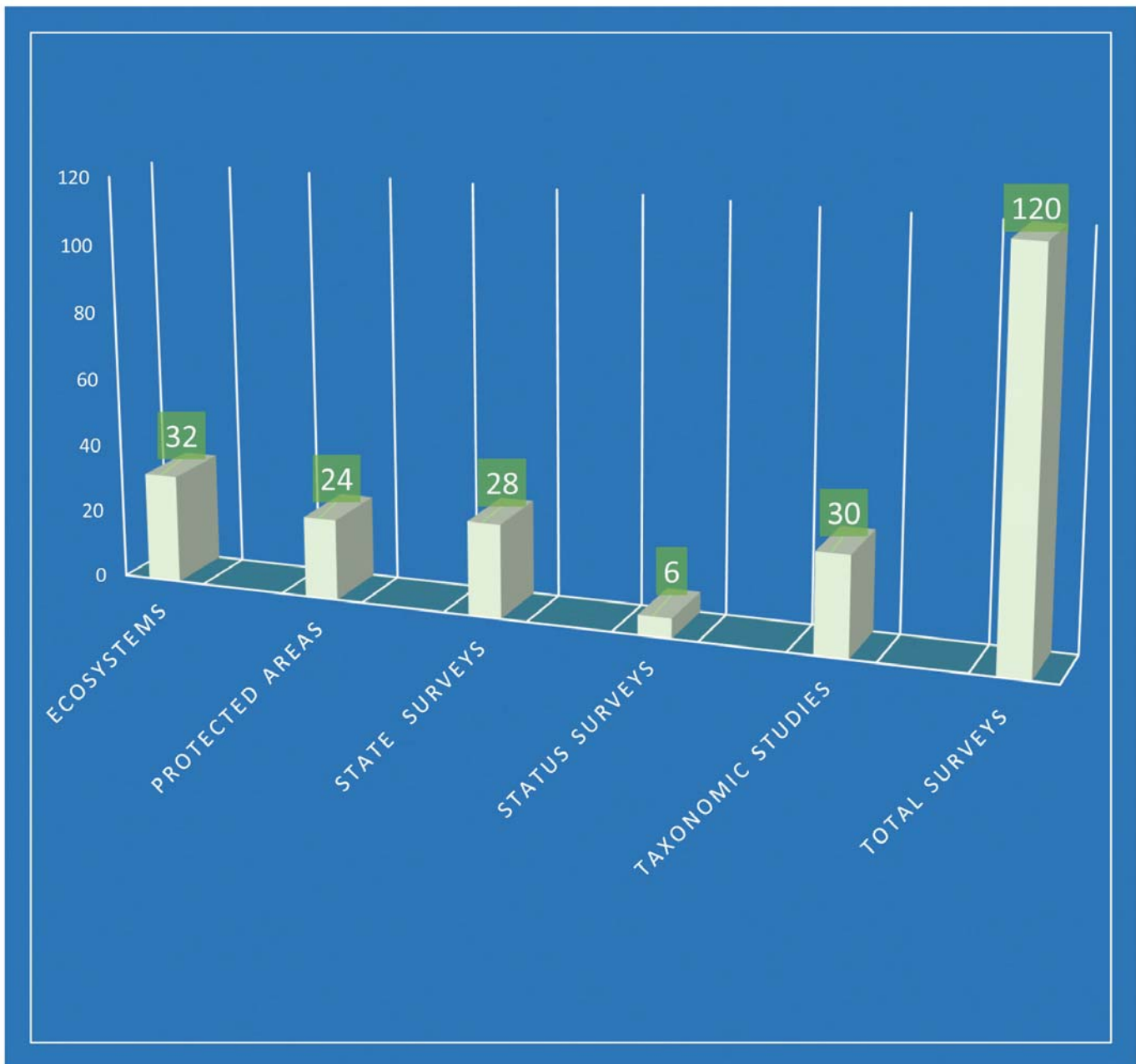
SURVEYS



Zoological Survey of India



Details of Surveys conducted 2015-16



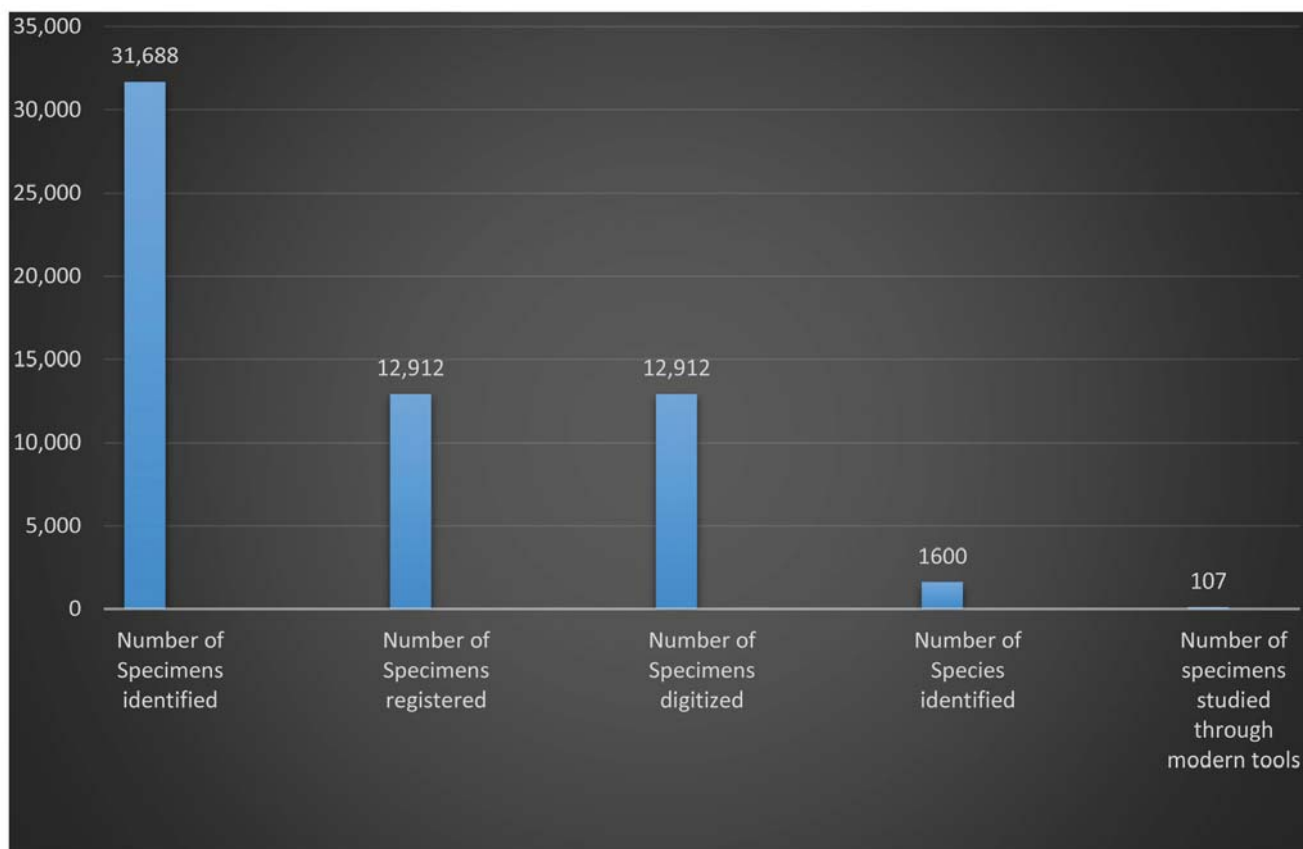


Details of Surveys conducted 2015-16

Ecosystems	Areas/ localities surveyed
Mountain Ecosystem	Sangla Valley (Himachal Pradesh) Western Ghats of Kanyakumari Tirunelveli, Virudhunagar, Theni and Dindigul Districts (Tamil Nadu) Western Ghats in Ratnagiri and Raigad districts (Maharashtra).
Estuarine ecosystem	Cauvery Estuary and Point Calimere (Tamil Nadu).
Marine/Island ecosystem	Andaman coast, Odisha coast, Digba, Frazergunj and Kakdwip (West Bengal).
Grassland ecosystem	Shola grassland ecosystems of Periyar Tiger Reserve (Kerala).
Freshwater ecosystem	Ropar Wetland (Punjab), Gobind Sagar Reservoir (Himachal Pradesh), Escape Reservoirs of Indira Gandhi Nahar Pariyojna (IGNP) Canal (Rajasthan), wetlands of Andhra Pradesh, Umda Sagar & Talpalli (Andhra Pradesh) Bhoj Wetland (Madhya Pradesh).
Desert Ecosystem	Dry Grasslands of the Thar Desert and Kapurdi Lignite Mine of Barmer District (Rajasthan).
Protected Areas	
Biosphere Reserve/ Conservation areas	Gulf of Mannar Biosphere Reserve (Tamil Nadu) Sunderban Biosphere Reserve (West Bengal).
National Parks:	Hazaribagh WLS, Saranda WLS, Dalma WLS and Lawalong WLS (Jharkhand), Mahatma Gandhi Marine National Park (Andaman & Nicobar Is.), Valley of Flower NP (Uttarakhand), Rajaji National Park (Uttarakhand) and Nandapha Tiger Reserve (Arunachal Pradesh), Jaldapara-Gorumara NP and Chilapata Reserve Forest (West Bengal). (Uttarakhand), Malabar WLS (Kerala), Thattekad Bird Sanctuary (Kerala), Sainj WLS (Himachal Pradesh) and Mehao WLS (Arunachal Pradesh).
States and Union territories	Odisha, Karnataka, Andhra Pradesh, Arunachal Pradesh, Himachal Pradesh, Madhya Pradesh, Gujarat, West Bengal, Uttarakhand, Maharashtra, Mizoram and Rajasthan.
Status Survey of endangered species	Great Indian Bustard was undertaken in the grasslands of Pali, Jalore, Barmer, Jaisalmer and Bikaner districts were undertaken. Status survey of western Hoolock Gibbon in Assam



Outcomes of Surveys conducted 2015-16





NEW DISCOVERIES



Zoological Survey of India



New Discoveries

78 new species were described belonging to different faunal groups: 6 New species of Nematelminthes, 1 New species of Platyhelminthes, 2 New species of annelids, 57 New species of Insects, 2 New species of Spiders, 1 new species of Spider, 2 New species of Crab, 1 New species of Amphibians, 2 New species of Reptiles, 4 New species of Fish.

New records to India

129 species of various faunal groups recorded as new to India: 6 New records of Sea anemone from India, 45 New records of corals from India, 15 New records of Molluscs from India, 21 New records of Insects from India, New records of Spiders from India, 5 New records of Crabs from India, 3 New record of Shrimp from India, 1 New records of polyclad from India, 1 New Record of Annelid from India, 8 New Record of Ascidians from India, 2 New Record of echinoderms from India, 7 New Record of fishes from India, 1 New record of Protozoans, 10 New record of Platyhelminthes and 1 New record of Nematelminthes.

Details of the new discoveries by the scientists of ZSI and other institutes //Colleges are published yearly in the Book "Animal Discoveries" and is available on ZSI website

(URL: <http://zsi.gov.in/WriteReadData/userfiles/file/Animal%20Discovery/Animal%20Discoveries%202015.pdf>)

New Discoveries by ZSI Scientists during 2015-16

57 New species of Insects

1. *Alastor (Alastor) venkataramani* Kumar & Carpenter, 2015
2. *Amblyaspis emarginata* Anjana & Rajmohana, 2015
3. *Amblyaspis hirsuta* Anjana & Rajmohana, 2015
4. *Amblyaspis narendrani* Anjana & Rajmohana, 2015
5. *Aulacogenia darjeelingensis* Mukherjee *et al.*, 2015
6. *Braunsapis chandrai* Gupta, Sharma & Kumar, 2015
7. *Brachypeplus riang* Dasgupta, Pal & Hegde, 2015
8. *Cleonymus indicus* Sureshan, 2015
9. *Coelopisthia indica* Sureshan, 2015
10. *Cyana bhatejai* Singh & Kirti, 2015
11. *Dicranocentroides duduaensis* Hazra & Mandal, 2015
12. *Dipara andamanensis* Sureshan & Raseena, 2015
13. *Dipara angulata* Sureshan & Nikhil, 2015
14. *Dipara kannurensis* Sureshan & Raseena, 2015
15. *Dipara ponmudiensis* Sureshan & Farsana 2015
16. *Dipara yercaudensis* Sureshan, 2015
17. *Drepanosira ravi* Baquero, Mandal & Jordana, 2015
18. *Drepanosira shimlai* Baquero, Mandal & Jordana, 2015
19. *Encyrtoscelio circumeo* Abhilash & Rajmohana, 2015
20. *Encyrtoscelio latus* Rajmohana & Abhilash, 2015
21. *Encyrtoscelio malabarensis* Abhilash & Rajmohana, 2015
22. *Encyrtoscelio nigrum* Rajmohana & Abhilash, 2015
23. *Entomobrya barogii* Baquero, Mandal & Jordana, 2015
24. *Entomobrya kajjarensis* Baquero, Mandal & Jordana, 2015
25. *Epuraea (Micruria) viraktamathi* Dasgupta, Pal & Hegde, 2016



26. *Exostoma tenuicaudata* Tamang, Sinha & Gurumayum, 2015
27. *Gastrotrypes keralensis* Anjana & Rajmohana, 2016
28. *Gryon ingens* Veenakumari & Rajmohana, 2016
29. *Gymnothorax mishrai* Ray, Mohapatra & Smith, 2015
30. *Halticoptera indica* Sureshan & Gupta, 2015
31. *Hara nareshi* Mahapatra & Kar, 2015
32. *Himalanura chailii* Baquero, Mandal & Jordana, 2015
33. *Himalanura himachalesnis* Baquero, Mandal & Jordana, 2015
34. *Homidia lakhanpurii* Baquero, Mandal & Jordana, 2015
35. *Kailasha gulmargensis* Singh, Kirti & Singh, 2015
36. *Lepidocyrtus (Acrocyrtus) himachalensis* Baquero, Mandal & Jordana, 2015
37. *Lepidocyrtus (Cinctocyrtus) kulluensis* Baquero, Mandal & Jordana, 2015
38. *Leptochilus (Neoleptochilus) hassani* Kumar & Carpenter, 2015
39. *Lissodynerus rutlandicus* Kumar, Srinivasan & Carpenter, 2015
40. *Lyclene terminospota* Singh, Kirti & Joshi, 2015
41. *Neoaloe pseudoflavimargo* Singh, Kirti & Kaleka, 2015
42. *Netomocera minuta*, Sureshan & Nikhil, 2015
43. *Notanisus indicus* Sureshan, 2015
44. *Oreoglanis pangenensis* Sinha & Tamang, 2015
45. *Platecrizotes keralensis* Sureshan, Farsana & Nikhil, 2015
46. *Ropalidia narendrani* Shareef, Kishore & Kumar, 2015
47. *Seira prabhooi* Baquero, Mandal & Jordana, 2015
48. *Seira simbalwaraii* Baquero, Mandal & Jordana, 2015
49. *Stenolemus annulatus* Mukherjee *et al.*, 2015
50. *Strongylovelia lillyae* Jhamamalar, 2015

51. *Tameothrips arundo* Tyagi, Kumar & Chauhan, 2015
52. *Thrips moundi* Tyagi & Kumar, 2015
53. *Thysanoptyx pseudotetragona* Joshi, Singh & Kirti, 2015
54. *Trichomalopsis uziae* Sureshan & Narendra
55. *Willowsia kalatopii* Baquero, Mandal & Jordana, 2015
56. *Zadadra cucullata* Joshi, Kirti & Singh, 2015
57. *Zadadra neodistorta* Joshi, Kirti & Singh, 2015

6 new species of Nematodes

58. *Labronema mannai* Dattaray, Roy & Gantait, 2015
59. *Labronema minimus* Dattaray, Roy & Gantait, 2015
60. *Mesodorylaimus chatterjeei* Dattaray, Roy & Gantait
61. *Mesodorylaimus sukuli* Dattaray, Roy & Gantait
62. *Nygellus shamimi* Sen, 2015
63. *Rhynchonema dighaensis* Datta, Navarrete, Mohapatra, 2015

1 New species of Trematodes

64. *Prosotocus punjabensis* Bursey, Rizvi & Maity, 2015

2 New species of Annelida

65. *Paraclepsis jorapariensis* Mandal, 2015
66. *Placobdella godavariensis* Mandal & Dhani, 2015

2 New species of Spiders

67. *Plexippus levii* Saha, Roy, Dhali & Raychaudhuri, 2016
68. *Rhene wesolowskai* Saha, Roy, Dhali & Raychaudhuri, 2016

1 new species of Scorpion

69. *Buthoscorpion chinnaensis* Aswathi, Sureshan & Lourenc, 2015

2 New species of Crabs

70. *Arcithelphusa cochleariformis* Pati & Sudha Devi, 2015



71. *Spiralothelphusa gibberosa*, Pati & Sudha Devi, 2015

4 New species of Fish

72. *Amblyceps waikhomi* Darshan et al., 2016

73. *Oreoglanis pangenensis* Sinha & Tamang, 2015

74. *Gymnothorax mishrai* Ray, Mohapatra & Smith, 2015

75. *Exostoma tenuicaudata* Tamang, Sinha & Gurumayum, 2015

1 New species of amphibian

76. *Fejervarya gomantaki* Dinesh et al., 2015

2 New species of Reptiles

77. *Hemidactylus yajurvedi* Murthy et al., 2015

78. *Sitana kalesari* Bahuguna, 2015

6 New records of Sea anemone from India

1. *Actinodendron plumosum*, Haddon, 1898

2. *Diadumene leucolena*, (Verrill, 1866)

3. *Edwardsianthus pudicus*, (Klunzinger, 1877)

4. *Nemanthus annamensis*, Carlgren, 1943

5. *Telematactis cricoides*, (Duchassaing, 1850)

6. *Verrillactis paguri*, (Verrill, 1869)

45 New records of corals from India

7. *Acropora acuminata*, Verrill, 1864

8. *Acropora akajimensis*, Veron, 1990

9. *Acropora azurea*, Veron & Wallace, 1984

10. *Acropora branchi*, Riegl, 1995

11. *Pocillopora molokensis* Vaughan, 1907

12. *Acropora cervicornis*, Lamarck, 1816

13. *Acropora lovelli*, Veron & Wallace, 1984

14. *Acropora meridiana*, Nemenzo, 1971

15. *Acropora rosaria*, Dana, 1846

16. *Anacropora spinosa*, Rehberg, 1829

17. *Astreopora scabra*, Lamberts, 1982

18. *Acropora willisae*, Veron & Wallace, 1984

19. *Cladiella kashmani*, Benayahu & Schleyer, 1996

20. *Coscinaraea wellsi*, Veron & Pichon, 1980

21. *Favia fragum*, Esper, 1797

22. *Favites styliifera*, Yabe & Sugiyama, 1937

23. *Favia vietnamensis*, Veron, 2000

24. *Halomitra meierae*, Veron and Maragos, 2000

25. *Isophyllia sinuosa*, (Ellis & Solander, 1786)

26. *Lobophytum compactum*, Tixier-Durivault, 1956

27. *Lobophyllia flabelliformis*, Veron, 2000

28. *Lobophytum irregulare*, Tixier-Durivault, 1970

29. *Lobophytum rotundum*, Tixier-Durivault, 1957

30. *Lobophytum venustum*, Tixier-Durivault, 1957

31. *Melithaea biserialis*, Kukenthal, 1908

32. *Melithaea retifera*, (Lamarck, 1816)

33. *Melithaea variabilis*, (Kickson, 1905)

34. *Mussismilia braziliensis*, Verrill, 1867

35. *Mycetophyllia lamarckiana* Milne, Edwards & Haime, 1848

36. *Nemanthus annamensis*, Carlgren, 1943

37. *Paracyathus pruinosis*, Alcock, 1902

38. *Porites cumulatus*, Nemenzo, 1955

39. *Porites mayeri*, Vaughan, 1918

40. *Psammocora vaughani*, Yabe & Sugiyama, 1936

41. *Sarcophyton acutum*, Tixier-Durivault, 1970

42. *Sarcophyton birkelandi*, Veseveldt, 1978

43. *Sarcophyton boettgeri*, Schenk, 1896

44. *Sarcophyton boletiforme*, Tixier-Durivault, 1958

45. *Sarcophyton cinereum*, Tixier-Durivault, 1946

46. *Sarcophyton latum* (Dana, 1846)

47. *Sarcophyton spongiosum*, Thompson & Dean, 1931

48. *Sarcophyton turschi*, Verseveldt, 1976

49. *Stylophora wellsi*, Scheer, 1964

50. *Turbinaria irregularis*, Bernard, 1896

51. *Viminella erythraea*, (Kukenthal, 1914)

15 New records of Molluscs from India

52. *Ceratosoma tenue*, Abraham, 1876

53. *Costasiella usagi*, Ichikawa, 1993

54. *Cyerce pavonina*, Bergh, 1888

55. *Dendrodoris elongata*, Baba, 1936

56. *Dendrodoris guttata* (Odhner, 1917)

57. *Glossodoris poliahu*, Bertsch & Gosliner, 1989

58. *Halgerda formosa*, Bergh, 1880



59. *Hypselodoris zephyra*, Gosliner and Johnson, 1999
60. *Lomonatus vermiformis*, Eliot, 1908
61. *Miamira magnifica*, Eliot, 1904
62. *Phestilla minor*, Rudman, 1981
63. *Phyllidia exquisita*, Brunckhorst, 1993
64. *Platydorid sabulosa*, Drogan, Valdes & Gosliner, 2002
65. *Pseudonoba columen*, (Melvill)
66. *Salinator fragilis*, (Lamarck)

21 New records of Insects from India

67. *Bagauda splendens*, Distant, 1906
68. *Belciades sugii*, Kononenko, 1997
69. *Brunia gibonica*, (Cerný)
70. *Chamaita nympha*, (Moore)
71. *Churinga metaxantha*, Hampson
72. *Cyana intercoma*, Cerný
73. *Dolgoma recta*, Cerný
74. *Drepanosira hussii*, Neuhertz, 1976
75. *Encyrtoscelio mediterraneus*, Caleca, 1995
76. *Encyrtoscelio mirissimus*, Dodd, 1914
77. *Gampola fasciata*, Moore
78. *Gampola sinica* Dubatolov, Kishida & Wang
79. *Hemonia rotundata*, Snellen
80. *Katha montana*, Bucsek
81. *Macrobrochis albifascia*, Fang
82. *Macrobrochis tibetensis*, Fang
83. *Ochropleura leucogaster*, Freyer, 1831
84. *Odontomutilla speciosa*, Smith, 1855
85. *Padenia duplicana*, Walker
86. *Pseudeustrotia semialba*, Hampson, 1904
87. *Thysanoptyx incurvata*, Wileman & West

3 New records of Spiders from India

88. *Neoscona yptinika*, Barrion & Litsinger, 1995
89. *Oxyopes hotingchiehi*, Sckenkel, 1963
90. *Tetragnatha hasselti*, Thorell, 1890

5 New records of Crabs from India

91. *Lauriea simulata*, Macpherson & Robainas-Barcia, 2013
92. *Novorostrum phuketense*, Osawa, 1998
93. *Petrolistes kranjiensis*, Johnson, 1970
94. *Petrolisthes unilobarus*, Henderson, 1888
95. *Phricotelphusa elegans*, (de Man, 1898)

3 New records of Shrimp from India

96. *Nematopalaemon karnafuliensis*, (Ali Azam Khan et al., 1980)
97. *Neopetrolisthes spinatus*, Osawa & Fujita, 2001
98. *Odontodactylus scyllarus*, (Linnaeus, 1758)

1 New record of polyclad from India

99. *Pericelis hymanae*, Poulter, 1974

1 New record of Annelid from India

100. *Hydroides operculatus*, (Treadwell, 1929)

8 New records of Ascidians from India

101. *Ascidia conchilega*, Muller, 1776
102. *Clavelina australis*, (Herdman, 1899)
103. *Clavelina fecunda*, (Sluiter, 1904)
104. *Hardmania papietensis*, (Herdman, 1882)
105. *Polycarpa mytiligera*, (Savigny, 1816)
106. *Pyura isobella* Kott, 1985
107. *Pyura sacciformis* (Drasche, 1884)
108. *Pyura stolonifera* (Heller, 1878)

2 New records of echinoderms from India

109. *Colobometra perspinosa* (Carpenter, 1881)
110. *Petasometra clarae* (Hartlaub, 1890)

7 New records of fishes from India

111. *Bodianus dictyna*, Gommon, 2006
112. *Cirripectes auritus*, Carlson, 1981
113. *Gymnothorax dorsalis*, Seale, 1917
114. *Gymnothorax prolatus*, Sasaki & Amaoka, 1991



115. *Opistognathus cyanospilotus*, Smith-Vaniz, 2009
116. *Ophichthus lithinus*, (Jordan et Richardson, 1908)
117. *Parapercis ommatura*, Jordan & Snyder, 1902

1 New record of Protozoans

118. *Centropyxis delicatula*, Penard, 1902

10 New records of Platyhelminthes

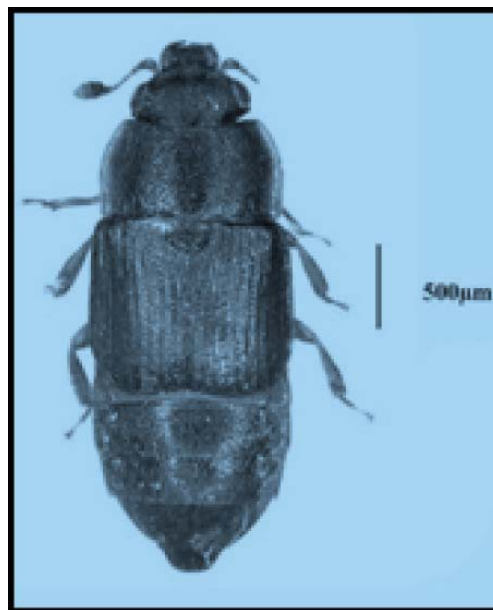
119. *Acanthozoon* sp.
120. *Cycloporus venetus*, Newman & Cannon, 2002
121. *Phrikoceros mopsus*, Marcus, 1952
122. *Pseudoceros cruentus*, Newman & Cannon, 1998
123. *Pseudoceros goslineri*, Newman & Cannon, 1994.
124. *Pseudobiceros hymanae*, Newman & Cannon, 1997
125. *Pseudoceros irretitus*, Newman & Cannon, 1998
126. *Pseudobiceros stellae*, Newman & Cannon, 1994
127. *Pseudobiceros uniarborensis*, Newman & Cannon, 1994
128. *Tytthosoceros lizardensis*, Newman & Cannon, 1996

1 New record of Nemathelminthes

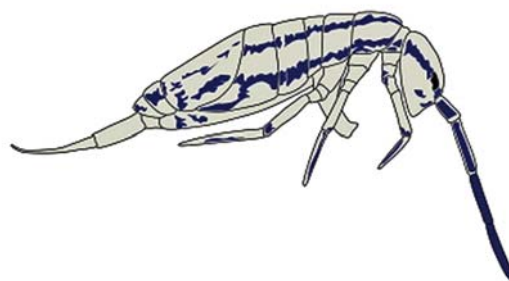
129. *Granonchulus subdecurrens*, Coetzee, 1966



Amblyaspis narendrani Anjana and Rajmohana, 2015



Brachypeplus riang Dasgupta, Pal & Hegde, 2015



Drepanosira ravi Baquero, Mandal and Jordana, 2015



Paraclepsis jorapariensis Mandal, 2015



Gymnothorax mishrai Ray, Mohapatra & Smith, 2015



Arcithelphusa cochleariformis Pati and Sudha Devi, 2015



Fejervarya gomantaki Dinesh *et al.*, 2015



DNA SEQUENCE SUBMISSIONS



Zoological Survey of India



Sequence Submission at Bold (Barcoding Life Data Systems) & NCBI (National Centre for Biotechnology Information): 277

1. Chandra, K., Kumar, R., Kumar, V., 2015. Partial cds of mitochondrial cytochrome oxidase I (mtCOI) gene *Antheraea assamensis*, partial sequence from *Antheraea assamensis* (Seq-1): DNA Barcoding Silk moth of India. Nucleotide sequence accession number KT200181 Sequence publication in National Centre for Biotechnological Information (NCBI), GenBank Database, USA. (<http://www.ncbi.nlm.nih.gov>).
2. Chandra, K., Kumar, R., Kumar, V., 2015. Partial cds of mitochondrial cytochrome oxidase I (mtCOI) gene *Antheraea assamensis*, partial sequence from *Antheraea assamensis* (Seq-2): DNA Barcoding Silk moth of India. Nucleotide sequence accession number KT200182 Sequence publication in National Centre for Biotechnological Information (NCBI), GenBank Database, USA. (<http://www.ncbi.nlm.nih.gov>).
3. Chandra, K., Kumar, R., Kumar, V., 2015. Partial cds of mitochondrial cytochrome oxidase I (mtCOI) gene *Antheraea assamensis*, partial sequence from *Antheraea assamensis* (Seq-3): DNA Barcoding Silk moth of India. Nucleotide sequence accession number KT200183 Sequence publication in National Centre for Biotechnological Information (NCBI), GenBank Database, USA. (<http://www.ncbi.nlm.nih.gov>).
4. Chandra, K., Kumar, R., Kumar, V., 2015. Partial cds of mitochondrial cytochrome oxidase I (mtCOI) gene *Antheraea assamensis*, partial sequence from *Antheraea assamensis* (Seq-4): DNA Barcoding Silk moth of India. Nucleotide sequence accession number KT200184 Sequence publication in National Centre for Biotechnological Information (NCBI), GenBank Database, USA. (<http://www.ncbi.nlm.nih.gov>).
5. Chandra, K., Kumar, R., Kumar, V., 2015. Partial cds of mitochondrial cytochrome oxidase I (mtCOI) gene *Antheraea assamensis*, partial sequence from *Antheraea assamensis* (Seq-5): DNA Barcoding Silk moth of India. Nucleotide sequence accession number KT200185 Sequence publication in National Centre for Biotechnological Information (NCBI), GenBank Database, USA. (<http://www.ncbi.nlm.nih.gov>).
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7. Chandra, K., Kumar, R., Kumar, V., 2015. Partial cds of mitochondrial cytochrome oxidase I (mtCOI) gene *Antheraea assamensis*, partial sequence from *Antheraea assamensis*, (Seq-7): DNA Barcoding Silk moth of India. Nucleotide sequence accession number KT200187 Sequence publication in National Centre for Biotechnological Information (NCBI), GenBank Database, USA. (<http://www.ncbi.nlm.nih.gov>).
8. Chandra, K., Kumar, R., Kumar, V., 2015. Partial cds of mitochondrial cytochrome oxidase I (mtCOI) gene *Antheraea assamensis*, partial sequence from *Antheraea assamensis*, (Seq-8): DNA Barcoding Silk moth of India. Nucleotide



sequence accession number KT200188
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Database, USA. (<http://www.ncbi.nlm.nih.gov>).

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10. Kumar, V. Tyagi, K., Singha, D. Chakraborty, R., Kundu, S., & Chandra, K. 2016. Partial cds of mitochondrial cytochrome oxidase I (mtCOI) gene from *Anaphothrips obscurus* (TH-317F), partial sequence from *Anaphothrips obscurus* (TH-317F): DNA Barcoding Thrips of India. Nucleotide sequence Process ID: THH098-15 Sequence publication in The Barcode of Life Data Systems (BOLD), BOLD Database. (<http://www.boldsystems.org/>).
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mitochondrial cytochrome oxidase I (mtCOI) gene from *Anaphothrips obscurus* (TH-817), partial sequence from *Anaphothrips obscurus* (TH-817): DNA Barcoding Thrips of India. Nucleotide sequence Process ID: THH171-15 Sequence publication in The Barcode of Life Data Systems (BOLD), BOLD Database. (<http://www.boldsystems.org/>).

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17. Kumar, V. Tyagi, K., Singha, D. Charkraborty, R., Kundu, S., & Chandra, K. 2016. Partial cds of mitochondrial cytochrome oxidase I (mtCOI) gene from *Anaphothrips sudanensis* (TH-816), partial sequence from *Anaphothrips sudanensis* (TH-816): DNA Barcoding Thrips of India. Nucleotide sequence Process ID: THH170-15 Sequence publication in The Barcode of Life Data Systems (BOLD), BOLD Database. (<http://www.boldsystems.org/>).
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113. Kumar, V. Tyagi, K., Singha, D. Chakraborty, R., Kundu, S., & Chandra, K. 2016. Partial cds of mitochondrial cytochrome oxidase I (mtCOI) gene from *Thrips andrewsi* (TH-536), partial *Thrips andrewsi* (TH-536): DNA Barcoding Thrips of India. Nucleotide sequence Process ID: THH062-15 Sequence publication in The Barcode of Life Data Systems (BOLD), BOLD Database. (<http://www.boldsystems.org/>).

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andrewsi (TH-534): DNA Barcoding Thrips of India. Nucleotide sequence Process ID: THH047-15 Sequence publication in The Barcode of Life Data Systems (BOLD), BOLD Database. (<http://www.boldsystems.org/>).

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flavus (TH-539): DNA Barcoding Thrips of India. Nucleotide sequence Process ID: THH071-15 Sequence publication in The Barcode of Life Data Systems (BOLD), BOLD Database. (<http://www.boldsystems.org/>).

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124. Kumar, V. Tyagi, K., Singha, D. Charkraborty, R., Kundu, S., & Chandra, K. 2016. Partial cds of mitochondrial cytochrome oxidase I (mtCOI) gene from *Thrips flavus* (TH-530), partial *Thrips*

flavus (TH-530): DNA Barcoding Thrips of India. Nucleotide sequence Process ID: THH056-15 Sequence publication in The Barcode of Life Data Systems (BOLD), BOLD Database. (<http://www.boldsystems.org/>).

125. Kumar, V. Tyagi, K., Singha, D. Charkraborty, R., Kundu, S., & Chandra, K. 2016. Partial cds of mitochondrial cytochrome oxidase I (mtCOI) gene from *Thrips flavus* (TH-314R), partial *Thrips flavus* (TH-314R): DNA Barcoding Thrips of India. Nucleotide sequence Process ID: THH096-15 Sequence publication in The Barcode of Life Data Systems (BOLD), BOLD Database. (<http://www.boldsystems.org/>).

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131. Kumar, V. Tyagi, K., Singha, D. Chakraborty, R., Kundu, S., & Chandra, K. 2016. Partial cds of mitochondrial cytochrome oxidase I (mtCOI) gene from *Thrips florum* (TH-382), partial *Thrips florum* (TH-382): DNA Barcoding Thrips of India. Nucleotide sequence Process ID: THH042-15 Sequence publication in The Barcode of Life Data Systems (BOLD), BOLD Database. (<http://www.boldsystems.org/>).

132. Kumar, V. Tyagi, K., Singha, D. Chakraborty, R., Kundu, S., & Chandra, K. 2016. Partial cds of mitochondrial cytochrome oxidase I (mtCOI) gene from *Thrips florum* (TH-785), partial *Thrips*

florum (TH-785): DNA Barcoding Thrips of India. Nucleotide sequence Process ID: THH186-15 Sequence publication in The Barcode of Life Data Systems (BOLD), BOLD Database. (<http://www.boldsystems.org/>).

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134. Kumar, V. Tyagi, K., Singha, D. Chakraborty, R., Kundu, S., & Chandra, K. 2016. Partial cds of mitochondrial cytochrome oxidase I (mtCOI) gene from *Thrips hawaiiensis* (TH-286), partial *Thrips hawaiiensis* (TH-286): DNA Barcoding Thrips of India. Nucleotide sequence Process ID: THH136-15 Sequence publication in The Barcode of Life Data Systems (BOLD), BOLD Database. (<http://www.boldsystems.org/>).

135. Kumar, V. Tyagi, K., Singha, D. Chakraborty, R., Kundu, S., & Chandra, K. 2016. Partial cds of mitochondrial cytochrome oxidase I (mtCOI) gene from *Thrips hawaiiensis* (TH-553), partial *Thrips hawaiiensis* (TH-553): DNA Barcoding Thrips of India. Nucleotide sequence Process ID: THH076-15 Sequence publication in The Barcode of Life Data Systems (BOLD), BOLD Database. (<http://www.boldsystems.org/>).

136. Kumar, V. Tyagi, K., Singha, D. Chakraborty, R., Kundu, S., & Chandra, K. 2016. Partial cds of mitochondrial cytochrome oxidase I (mtCOI) gene from *Thrips hawaiiensis* (TH-552), partial



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138. Kumar, V. Tyagi, K., Singha, D. Charkraborty, R., Kundu, S., & Chandra, K. 2016. Partial cds of mitochondrial cytochrome oxidase I (mtCOI) gene from *Thrips hawaiiensis* (TH-763), partial *Thrips hawaiiensis* (TH-763): DNA Barcoding Thrips of India. Nucleotide sequence Process ID: THH184-15 Sequence publication in The Barcode of Life Data Systems (BOLD), BOLD Database. (<http://www.boldsystems.org/>).

139. Kumar, V. Tyagi, K., Singha, D. Charkraborty, R., Kundu, S., & Chandra, K. 2016. Partial cds of mitochondrial cytochrome oxidase I (mtCOI) gene from *Thrips hawaiiensis* (TH-92A), partial *Thrips hawaiiensis* (TH-92A): DNA Barcoding Thrips of India. Nucleotide sequence Process ID: THH004-15 Sequence publication in The Barcode of Life Data Systems (BOLD), BOLD Database. (<http://www.boldsystems.org/>).

140. Kumar, V. Tyagi, K., Singha, D. Charkraborty, R., Kundu, S., & Chandra, K. 2016. Partial cds of mitochondrial cytochrome oxidase I (mtCOI) gene from *Thrips hawaiiensis* (TH-571), partial

Thrips hawaiiensis (TH-571): DNA Barcoding Thrips of India. Nucleotide sequence Process ID: THH105-15 Sequence publication in The Barcode of Life Data Systems (BOLD), BOLD Database. (<http://www.boldsystems.org/>).

141. Kumar, V. Tyagi, K., Singha, D. Charkraborty, R., Kundu, S., & Chandra, K. 2016. Partial cds of mitochondrial cytochrome oxidase I (mtCOI) gene from *Thrips hawaiiensis* (TH-554), partial *Thrips hawaiiensis* (TH-554): DNA Barcoding Thrips of India. Nucleotide sequence Process ID: THH077-15 Sequence publication in The Barcode of Life Data Systems (BOLD), BOLD Database. (<http://www.boldsystems.org/>).

142. Kumar, V. Tyagi, K., Singha, D. Charkraborty, R., Kundu, S., & Chandra, K. 2016. Partial cds of mitochondrial cytochrome oxidase I (mtCOI) gene from *Thrips moudi* (TH-608B), partial *Thrips moudi* (TH-608B): DNA Barcoding Thrips of India. Nucleotide sequence Process ID: THH124-15 Sequence publication in The Barcode of Life Data Systems (BOLD), BOLD Database. (<http://www.boldsystems.org/>).

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144. Kumar, V. Tyagi, K., Singha, D. Charkraborty, R., Kundu, S., & Chandra, K. 2016. Partial cds of mitochondrial cytochrome oxidase I (mtCOI) gene from *Thrips moudi* (TH-587R), partial *Thrips*



moundi(TH-587R): DNA Barcoding Thrips of India. Nucleotide sequence Process ID: THH113-15 Sequence publication in The Barcode of Life Data Systems (BOLD), BOLD Database. (<http://www.boldsystems.org/>).

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147. Kumar, V. Tyagi, K., Singha, D. Chakraborty, R., Kundu, S., & Chandra, K. 2016. Partial cds of mitochondrial cytochrome oxidase I (mtCOI) gene from *Thrips palmi* (TH-1048), partial *Thrips palmi* (TH-1048): DNA Barcoding Thrips of India. Nucleotide sequence Process ID: THH231-15 Sequence publication in The Barcode of Life Data Systems (BOLD), BOLD Database. (<http://www.boldsystems.org/>).

148. Kumar, V. Tyagi, K., Singha, D. Chakraborty, R., Kundu, S., & Chandra, K. 2016. Partial cds of mitochondrial cytochrome oxidase I (mtCOI) gene from *Thrips palmi* (TH-971), partial *Thrips*

palmi (TH-971): DNA Barcoding Thrips of India. Nucleotide sequence Process ID: THH196-15 Sequence publication in The Barcode of Life Data Systems (BOLD), BOLD Database. (<http://www.boldsystems.org/>).

149. Kumar, V. Tyagi, K., Singha, D. Chakraborty, R., Kundu, S., & Chandra, K. 2016. Partial cds of mitochondrial cytochrome oxidase I (mtCOI) gene from *Thrips palmi* (TH-240), partial *Thrips palmi* (TH-240): DNA Barcoding Thrips of India. Nucleotide sequence Process ID: THH139-15 Sequence publication in The Barcode of Life Data Systems (BOLD), BOLD Database. (<http://www.boldsystems.org/>).

150. Kumar, V. Tyagi, K., Singha, D. Chakraborty, R., Kundu, S., & Chandra, K. 2016. Partial cds of mitochondrial cytochrome oxidase I (mtCOI) gene from *Thrips palmi* (TH-230), partial *Thrips palmi* (TH-230): DNA Barcoding Thrips of India. Nucleotide sequence Process ID: THH138-15 Sequence publication in The Barcode of Life Data Systems (BOLD), BOLD Database. (<http://www.boldsystems.org/>).

151. Kumar, V. Tyagi, K., Singha, D. Chakraborty, R., Kundu, S., & Chandra, K. 2016. Partial cds of mitochondrial cytochrome oxidase I (mtCOI) gene from *Thrips palmi* (TH-877), partial *Thrips palmi* (TH-877): DNA Barcoding Thrips of India. Nucleotide sequence Process ID: THH262-15 Sequence publication in The Barcode of Life Data Systems (BOLD), BOLD Database. (<http://www.boldsystems.org/>).

152. Kumar, V. Tyagi, K., Singha, D. Chakraborty, R., Kundu, S., & Chandra, K. 2016. Partial cds of mitochondrial cytochrome oxidase I (mtCOI) gene from *Thrips palmi* (TH-874), partial *Thrips*



palmi (TH-874): DNA Barcoding Thrips of India. Nucleotide sequence Process ID: THH261-15 Sequence publication in The Barcode of Life Data Systems (BOLD), BOLD Database. (<http://www.boldsystems.org/>).

153. Kumar, V. Tyagi, K., Singha, D. Charkraborty, R., Kundu, S., & Chandra, K. 2016. Partial cds of mitochondrial cytochrome oxidase I (mtCOI) gene from *Thrips palmi* (TH-873), partial *Thrips palmi* (TH-873): DNA Barcoding Thrips of India. Nucleotide sequence Process ID: THH260-15 Sequence publication in The Barcode of Life Data Systems (BOLD), BOLD Database. (<http://www.boldsystems.org/>).

154. Kumar, V. Tyagi, K., Singha, D. Charkraborty, R., Kundu, S., & Chandra, K. 2016. Partial cds of mitochondrial cytochrome oxidase I (mtCOI) gene from *Thrips palmi* (TH-997), partial *Thrips palmi* (TH-997): DNA Barcoding Thrips of India. Nucleotide sequence Process ID: THH199-15 Sequence publication in The Barcode of Life Data Systems (BOLD), BOLD Database. (<http://www.boldsystems.org/>).

155. Kumar, V. Tyagi, K., Singha, D. Charkraborty, R., Kundu, S., & Chandra, K. 2016. Partial cds of mitochondrial cytochrome oxidase I (mtCOI) gene from *Thrips palmi* (TH-1007), partial *Thrips palmi* (TH-1007): DNA Barcoding Thrips of India. Nucleotide sequence Process ID: THH201-15 Sequence publication in The Barcode of Life Data Systems (BOLD), BOLD Database. (<http://www.boldsystems.org/>).

156. Kumar, V. Tyagi, K., Singha, D. Charkraborty, R., Kundu, S., & Chandra, K. 2016. Partial cds of mitochondrial cytochrome oxidase I (mtCOI) gene from *Thrips palmi* (TH-1008), partial *Thrips*

palmi (TH-1008): DNA Barcoding Thrips of India. Nucleotide sequence Process ID: THH202-15 Sequence publication in The Barcode of Life Data Systems (BOLD), BOLD Database. (<http://www.boldsystems.org/>).

157. Kumar, V. Tyagi, K., Singha, D. Charkraborty, R., Kundu, S., & Chandra, K. 2016. Partial cds of mitochondrial cytochrome oxidase I (mtCOI) gene from *Thrips palmi* (TH-1009), partial *Thrips palmi* (TH-1009): DNA Barcoding Thrips of India. Nucleotide sequence Process ID: THH203-15 Sequence publication in The Barcode of Life Data Systems (BOLD), BOLD Database. (<http://www.boldsystems.org/>).

158. Kumar, V. Tyagi, K., Singha, D. Charkraborty, R., Kundu, S., & Chandra, K. 2016. Partial cds of mitochondrial cytochrome oxidase I (mtCOI) gene from *Thrips palmi* (TH-1010), partial *Thrips palmi* (TH-1010): DNA Barcoding Thrips of India. Nucleotide sequence Process ID: THH204-15 Sequence publication in The Barcode of Life Data Systems (BOLD), BOLD Database. (<http://www.boldsystems.org/>).

159. Kumar, V. Tyagi, K., Singha, D. Charkraborty, R., Kundu, S., & Chandra, K. 2016. Partial cds of mitochondrial cytochrome oxidase I (mtCOI) gene from *Thrips palmi* (TH-230A), partial *Thrips palmi* (TH-230A): DNA Barcoding Thrips of India. Nucleotide sequence Process ID: THH256-15 Sequence publication in The Barcode of Life Data Systems (BOLD), BOLD Database. (<http://www.boldsystems.org/>).

160. Kumar, V. Tyagi, K., Singha, D. Charkraborty, R., Kundu, S., & Chandra, K. 2016. Partial cds of mitochondrial cytochrome oxidase I (mtCOI) gene from *Thrips palmi* (TH-770), partial *Thrips*



- palmi* (TH-770): DNA Barcoding Thrips of India. Nucleotide sequence Process ID: THH258-15 Sequence publication in The Barcode of Life Data Systems (BOLD), BOLD Database. (<http://www.boldsystems.org/>).
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Nucleotide sequence Process ID: THH210-15
Sequence publication in The Barcode of Life
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Nucleotide sequence Process ID: THH224-15
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Nucleotide sequence Process ID: THH227-15
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Nucleotide sequence Process ID: THH232-15
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Nucleotide sequence Process ID: THH236-15
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Nucleotide sequence Process ID: THH241-15
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Nucleotide sequence Process ID: THH217-15
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Nucleotide sequence Process ID: THH221-15
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Nucleotide sequence Process ID: THH059-15 Sequence publication in The Barcode of Life Data Systems (BOLD), BOLD Database. (<http://www.boldsystems.org/>).

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PUBLICATIONS



Zoological Survey of India



A. BOOK PUBLISHED BY ZSI

1. Records of ZSI Vol. 115(1)
2. Records of ZSI Vol. 115(2)
3. Records of ZSI Vol. 115(3)
4. Records of ZSI Vol. 115(4)
5. Occasional Paper No. 362, Ichthyofauna of the Inland water bodies of Pondicherry
6. Occasional Paper No. 365, An annotated checklist of the snappers (Pisces : Perciformes: Lutjanidae) of India
7. Occasional Paper No. 366, Studies on the Reptilian and Amphibians of the Loktak Lake, Keibuli Lamjao National Park
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9. Occasional Paper No. 368, A review on Paronellinae (Collembola : Paronellidae) of India
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11. Occasional Paper No. 373, On the fauna of

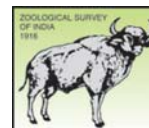


- Pteromalidae (Hymenoptera: Chalcidoidea) of South Western Ghats
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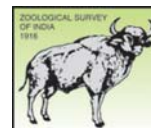
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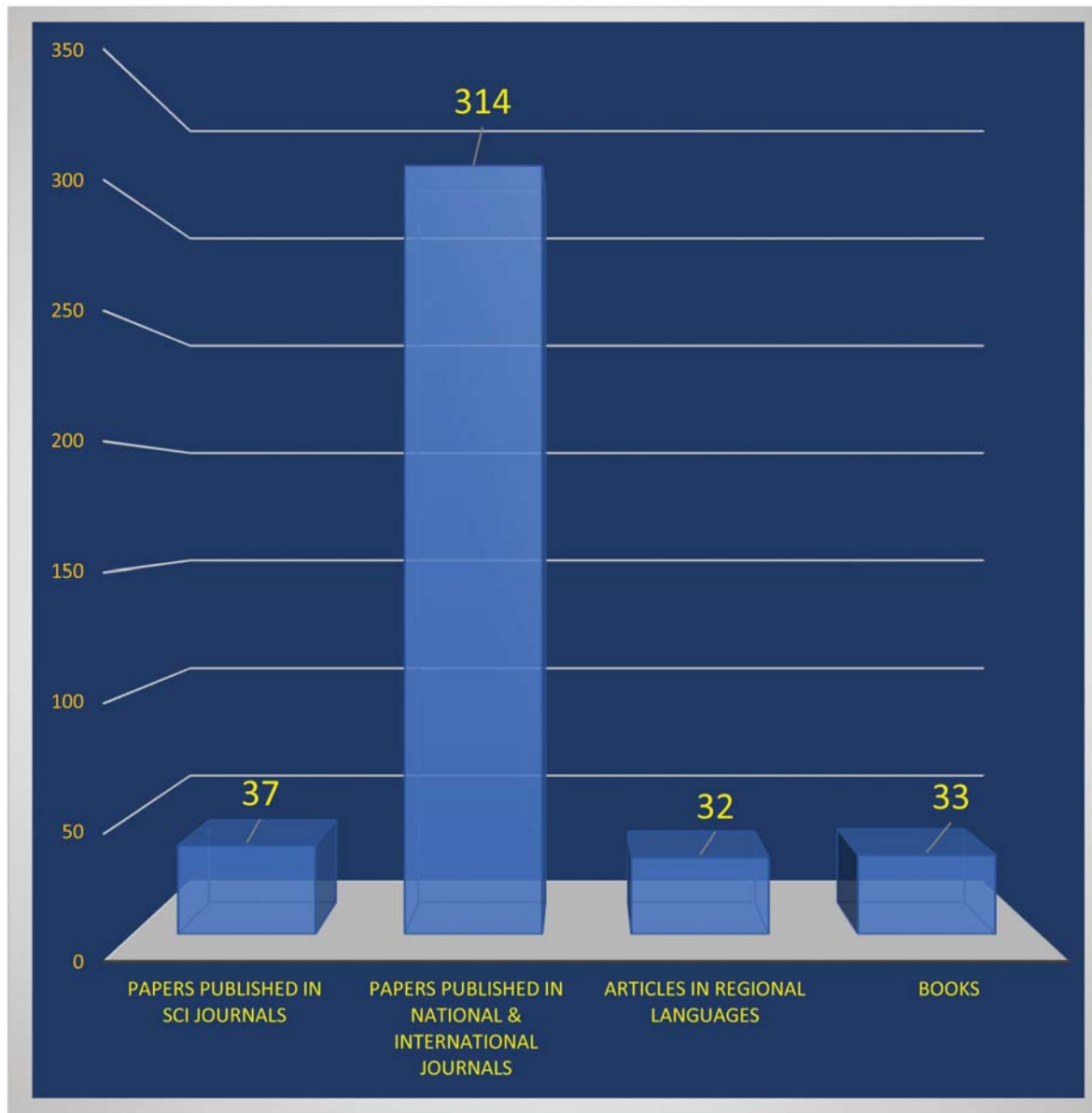
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Summary of Publications 2015-16





LIBRARY & PUBLICATION DIVISION



Zoological Survey of India



LIBRARY DIVISION

Collection of books and journals on zoology in India and Asia.

Additions during the year

Details	Numbers
Books	10,500
Issues of Indian Journals	346
Issues of foreign Journals	204
Bound Journals	613
Cataloguing	857
Services Provided	
Books and Journals Issued	369
Books and Journals returned	327
Cataloguing of Books/Journals	857
Classification of Books/Journals	857
Reader's Service	6072
Reader's Service	6072
Other Institutions	154
Reprography Services- Hard copy	13200

Digitization of Rare and Old documents of Z.S.I Library

- As per recommendations of task force constituted by MoEFCC vide ref. no.9/20/2009-CSB DT. 25.07.2012 for conservation of faunal diversity of India, the work of digitizing all rare and old books and journals (beyond 60 years) have been started. M/S Informatics Publishing Limited No.194 R.V. Road Basavanagudi, Bangalore-560004. is doing the digitizing work and already Completed digitizing 1,34,387 pages from very old and rare

books (16th and 17th century) in the first phase and another 2 Lakhs pages from old and rare Journals (beyond 60 years) in the IInd phase.

- The digitizing work is in progress which is the continuation of the IInd phase i.e digitization of rare and old journals (beyond 60 years).
- The entire archive of the above mentioned publications would be contained in searchable Hard disk. This Archive of rare and old documents of ZSI will be uploaded in the web site of ZSI by NIC.

PUBLICATION DIVISION

- **Records of Zoological Survey of India: Two** (Vol.115: Part-1 and Part-2)

- **Occasional Papers: Eight** (No. 362, 365, 366, 369-373)

Ichthyofauna of the Inland water bodies of Pondicherry.

An Annotated Checklist of the Snappers (Pisces: Perciformes: Lutjanidae) of India.

Studies on the Reptilian and Amphibians of the Loktak Lake, Keibul Lamjao National Park and its adjoining areas, Manipur.

Littoral Faunal Diversity of Great Nicobar Island.

Diversity of Reef associated Macrofauna of Rutland Island, Andaman and Nicobar Islands.

Trichotaxonomy of species of Lagomorpha.

The Genus *Mesodorylaimus* Andrassy, 1959 (Nematoda: Dorylaimida) A Monographic Study.

On the fauna of Pteromalidae (Hymenoptera: Chalcidoidea) of South Western Ghats.

- **Special Publications: Three**

The Type specimens in the National Zoological Collection: Phthiraptera.

The Type specimens in the National Zoological Collection: Thysanoptera.

Training manual on monitoring and reporting of Coral Reef ecosystem.



➤ **Memoirs: One**

A monograph on Indian Tenuipalpidae (Acari: Prostigmata) with their Economic Importance and Keys to Genera and Species.

➤ **Handbook/Pictorial Guides: Seven**

Pictorial Handbook on Dipteran Fauna of Himachal Pradesh.

Faviids of Andaman and Nicobar Islands.

Handbook on common Aquatic Coleoptera w.s.r. to family Gyrinidae, Noteridae, Dytiscidae and Hydrophilidae of India.

Rangne wale jeevo ki sachitra pustika (Bihar evang Jharkhand) [in Hindi].

Pictorial Handbook on Damselflies and Dragonflies (Insecta: Odonata).

Raptors of India.

Fascinating seaslugs and flatworms of Indian Seas.

➤ **State Fauna Series: Two**

Fauna of Uttar Pradesh. Part- I. Vertebrates.

Fauna of Uttar Pradesh. Part- II. Invertebrates.



MUSEUM AND TAXIDERMY DIVISION



Zoological Survey of India



Museum and Taxidermy Division

Museum and Taxidermy Division is supervising and maintaining the Insetcs, Fish, Amphibia, Reptilia, Mammal and Ecological Gallery of Zoological Survey of India at Indian Musium.

Exhibition: For creating awareness on environmental

and its faunal resources, Museum & Taxidermy Section participated in three melas / exhibition in this year. Muraripukur Mela, 25th to 30th December, 2016. Damodar Mela organised by Agragati, Kolkata, Raspur, Amta, Howrah from 6th to 14th December, 2015.



Exhibition at Gosaba, West Bengal, on 2nd February, 2016 for Union Minister's visit program and celebration of Wetland Day.



Number of specimens cleaned, repaired, retouched: 83 nos. Birds in the showcases have been cleaned, repaired and retouched. All the Crocodiles and turtles were polished. Exhibits of 41 Reptiles and 21 Amphibians were filled with fresh preservative. All the mounted exhibits of fish gallery has been cleaned and polished and the wet collections were filled with fresh spirit. All the exhibits in the ecological gallery were cleaned and Para dichlorobenzene has been added to all the showcase. Cleaning, repairing and

retouching of mammals gallery exhibits are going on for renovation.

274 examples (19 species) of amphibian fauna under five families and 15 genus have been identified from the unnamed collections of Amphibia section.

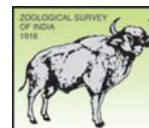
Field surveys: participated in a faunistic survey to Odisha for the study of Amphibia fauna in the mangrove areas of Odisha in December, 2015.



CAPACITY BUILDING (TRAININGS & WORKSHOPS)



Zoological Survey of India



Capacity Building (Trainings, Seminars & Workshops)

Training modules

ZSI is regularly organising training programmes, symposia, seminars etc. regularly on different topics like Leadership course on Collection, Preservation and Identification of Insects, Mites of Economic Importance, Field ornithology, Herpetology, Taxidermy, GIS, GPS, Scanning electron Microscopy, DNA barcoding, Photography, Scheduled animals, Coastal zone management, administrative trainings, Seminar on Global Warming; Climate Change and Sustainable Development, Leadership course on Environmental Awareness of Protected areas and Conservation of Wildlife, Earth Day Celebration, Biodiversity day celebration, World Environment day celebration, Wildlife Week; Conferences on Animal taxonomy, Marine diversity, Freshwater diversity, mangrove ecosystem diversity, Coral reef ecosystem diversity.

Apart from these many training programs, workshops and seminars were additionally organized as part of Centenary Celebration Programmes

Category of trainees

Frontline staff of Wildlife and Forest Department of State government (Forest Officials of Range Officers and Forester)

Field Staff of Custom & Central Excise Department and Coast Guard (Assistant Commandant level)

Intelligence Bureau, CID & Revenue Intelligence (Field Level Staff)

State Biodiversity Boards (SBB)

Staffs of ZSI

Graduate/ postgraduate students of school/colleges/ universities

Research scholars

Training Conducted during 2015-16

Zoological Survey of India is a leading institution in faunal survey, exploration and identification. As per its mandate the organization conducts training courses

by Training and Extension Division every year. During the year i.e., 01st April 2015 to 31st March, 2016, four training programmes were conducted at ZSI, HQ as below:

1. Title: Use of GPS

Date: 22nd December, 2015

Venue: Acharya Jagadish Bose Indian Botanic Garden, Howrah, W.B

Participants: 10

Faculties: Dr. G. Maheswaran, Dr. Basudev Tripathy, ZSI





2. Title: **Protected Animals of India**

Training Period: 1 day

Date: 27th January, 2016

Venue: ZSI, Kolkata

Participants: 132 trainees from Sashastra Seema Bal

Faculties: Dr. G. Maheswaran, Dr. Basudeb tritathy, Dr. Gaurav Sharma, Dr. Kaushik Deuti, Dr. S.S. Mishra, Dr. Bulganin Mitra, ZSI



3. Title: **DNA Barcoding**

Training Period: 2 days

Date: 7th- 8th March, 2016

Venue: ZSI, Kolkata

Participants: 26

Faculties: Dr. Praveen Karanth, IISC, Bangalore; Dr. Vikas Kumar, ZSI; Prof. Uriel Safriel, Univ. of Jerusalem, Dr. Alan Warren, Natural History Museum, London

The training was undertaken to learn the basics of DNA Barcoding methods and its application in faunal research. Shri Hem Pande, Special Secretary, MoEF&CC, New Delhi was present as the Chief Guest. Prof. Uriel Safriel, Univ. of Jerusalem, Dr. Praveen K. Karanth, IISc Bangalore and Dr. Alan Warren, Natural History Museum, London were invited as Guest of Honour.





4. Title: Media workshop on Faunal Diversity and Conservation

Training Period: 1 day

Date: 14th March, 2016

Venue: ZSI, Kolkata

Participants: 22

Faculties: Dr. Kailash Chandra, Dr. Basudeb Tripathy, Dr. CH Satyanarayana, Dr. Gaurav Sharma, Dr. S.S. Mishra, Dr. Kaushik Deuti, Dr. Bulganin Mitra, Dr. Chitra, J., ZSI

The main objective of the workshop was to sensitize the media personnel on faunal diversity and conservation to facilitate better understanding of various issues on the subject. Shri Debanjan Chakrabarti, Addl. Director, Press Information Bureau was present as chief guest. Participants from different print, audio and visual media of Kolkata participated in the workshop.



Capacity building Programmes organized at Regional Centres as part of Centenary Celebration of ZSI from 2015-16

1. **A National Workshop** on 'Lesser Known Marine Animals of India' was organized at ANRC, Andaman from 11th to 13th June 2015 as part of Centenary Celebration Programme of Zoological Survey of India. A total of 45 research scholars, forest range officers, researchers and scientists were participated in this workshop from various universities and institutions across the country. Nineteen lectures pertaining to lesser known marine animals of India were delivered by the eminent scientific personalities of our country during the workshop including an endowment lecture on Founder Director of Zoological Survey of India, Thomas Nelson Annandale delivered by Dr. K. Venkataraman, Director, Zoological Survey of India.

2. **National Training Workshop** on "The identification of the fauna of Western Ghats" in connection with the centenary celebrations of ZSI, during 05-09th February 2016 at WGRC, ZSI, Kozhikode.

3. **National Training Workshop** on Fauna of Shivalik Ecosystem (Uttarakhand) and the Applications of GIS in Conservation of Fauna (20th to 24th July 2015) Organized by Zoological Survey of India, Northern Regional Centre, Dehradun, in collaboration with Indian Institute of Remote Sensing, Dehradun and Uttarakhand State Council for Science & Technology, Dehradun





Zoological Survey of India

4. **National Seminar on Faunal Diversity of the Desert Ecosystem** held on 11-12 March, 2016 as part of the Centenary Celebration of Zoological Survey of India at DRC, ZSI, Jodhpur around **95 delegates** including eminent dignitaries from the field of

Zoology, administration, educational and research Institutions, researchers attended the seminar from different scientific institutions across the country. All the dignitaries including the delegates visited library and museum of DRC, ZSI



5. **National Training Workshop** on fauna of Hotspot-2: Western Himalaya, a five day event was organized successfully by the ZSI, Solan Centre from July 24th-28th, 2015. Sh. J.S. Walia, PCCF (WL) Himachal Pradesh, Prof. Jagbir Singh, HOD

Department of Zoology & Environmental Sciences, Punjabi University, Patiala (Punjab), Dr. K. Venkataraman, Director, Zoological Survey of India, and Dr. J.M. Julka, Retired Scientist Inaugurated the Workshop.



6. Gangetic Plains Regional Centre, ZSI, Patna organized two days seminar from February 22-23, 2016 on the topic 'Faunal diversity of Gangetic plains Ecosystems'



7. National Training Workshop on Fauna of Hotspots-3: Eastern Himalaya' from the 17th – 21st March, 2016 was organized by ZSI, Shillong.





Other Training Programmes & Seminar organized at Regional Centres

1. Fourth training Programme on ICZMP for State Govt. Officials (23rd, September, 15 to 29th September, 15)
The training programme was sponsored by the World Bank sponsored ICZMP and total 19 participants got trained by this seven days programme. Both theory

and practical trainings by about 20 trainers were provided to the trainees. Peoples from different departments like Fishery dept., Forest Dept., DSDA, Coastal Police, BDO Offices, Tourism dept. etc. were trained by this training.



Glimpses of the training programme



Release of Leaflets



Dr. Kailash Chandra, Director, ZSI, addressing the trainees



Dr. Kailash Chandra, Director, ZSI, delivering the lecture



Dr. A.K. Sanyal, Chairman WB Biodiversity Board, delivering the lecture



Dr. C. Raghunathan, Scientist, ANRC, Andaman delivering the lecture



**Dr. A.K. Ghosh, Former Director, ZSI,
delivering the lecture**



**Dr. Prasanna Yennawar, FBRC, ZSI, Hyderabad,
delivering the lecture**



**Dr. Basudev Tripathy, Scientist, ZSI,
delivering the lecture**



**Dr. Rajkumar Rajan, Scientist, MBRC, ZSI, Chennai,
delivering the lecture**



Field training



Field training



Validictory Speech by Shri R. Jakher, IESWM, Kol

2. National Seminar organized on Recent Innovations in Technical Terminology & Biodiversity sponsored by Commission of Scientific and Technical Terminology (CSTT), Ministry of HRD, (Deptt. of Higher Education), New Delhi at DRC, ZSI Campus, Jodhpur, Rajasthan on 11th - 12th August, 2015. A total of 105 delegates attended the seminar from different scientific institutions across the country. The programme was inaugurated by Prof. Nand Lal Kalla, Retd. Professor and Head, Deptt. of Hindi, JNV University, Jodhpur. All the dignitaries including the delegates visited library and museum of DRC, ZSI & they were provided



Release of CD by the Dignitaries on the validictory day

the information by Dr. Sanjeev Kumar, Scientist-D & Officer-in-charge regarding the research work carried out by the Centre.

3. Regional Seminar on Importance of Taxonomy in Conservation of Faunal diversity- Kerala Scenario" (in Malayalam) to the UP School teachers on 21-22nd March 2016 jointly with ENVIS centre on faunal diversity, ZSI, Kolkata at WGRC, ZSI, Calicut.

4. GPRC, ZSI, Patna celebrated its Golden Jubilee by organizing a seminar on 'Faunal Diversity of Bihar & Jharkhand' on 30th December, 2015.



IDENTIFICATION & ADVISORY SERVICES



Zoological Survey of India



Identification, Advisory Services & Other Scientific Activities

Identification and Advisory Division rendered services to the Nation and providing advisory as well as identification services to the students, scholars, scientists, academicians, enforcement agencies, NGOs, Universities, Research organization and Institutions.

1. Eleven specimens of Hemiptera and 2 specimen of Chrysomelidae received from Department of Zoology and Biotechnology, St. Aloysius College, Jabalpur, M.P. and were identified into 9 species and 9 genera and 2 species and 2 genera respectively.
2. Twelve specimens of Hemiptera received from Sonia Sinha, PhD Scholar, RDVV, Jabalpur, Madhya Pradesh for identification and were identified into belonging to 5 species and 5 genera.
3. 120 students and 6 faculty members of Times World School, Dehradun visited the museum on 15.02.16 and 16.02.16.
4. Two vials identified as *Odontotermes obesus* received from Dr. P. Mukhopadhyay, Associate Professor, Victoria College, Kolkata.
5. 422 students of different local school visited the Museum & Library of NRC
6. 46 specimens of Hemiptera received from Dr. Moni Thomaos JNKVV, Jabalpur, Madhya Pradesh identified into 28 species and 26 genera.
7. A detailed report on recovered bird Wedge-tailed Shearwater *Ardenna pacifica* from Buniyadabad, Port Blair to the Range Officer, Zoo Range, Mini Zoo, Haddo, Port Blair on request.
8. A group of 22 PG students and 4 faculty members from 'Doon Paramedical College, Dehradun' visited the museum. Information of birds of Western Himalaya and important species of mammals was disseminated through verbal talk and interactions by Dr Anil Kumar on 4th November 2015.
9. A group of 36 students of B.Sc Microbiology and Biotechnology from Life and Allied Health Sciences, Global University, Mirzapur Pole, Saharanpur, UP, India visited ZSI on 7th October. Information of birds of Himalaya, their conservation, taxidermy, museology and taxonomy was disseminated by Dr. Anil Kumar.
10. A group of about 20 PG students from Doon College, Dehradun was attended for the dissemination of information on birds and mammals of Himalaya, on 28.10.2015 (AN) and 26 local school students visited the museum.
11. A paper was reviewed for the Journal 'Records of Zoological Survey of India' and the report sent.
12. Advisory services were rendered to Dr Ranu Naskar, Asst. Professor, Zoology Department, Jogamaya Devi College, Hazra More, Kolkata on brachyuran crabs of Sundarbans, burrow pattern, population ecology etc.
13. Advisory services were rendered to Sri. Koshal kumar, Research scholar, Hemwati Nandan Garhwal University Srinagar, Uttarakhand through e-mail regarding freshwater shrimps and some important references related to the cyto taxonomy of freshwater shrimps were also sent.



14. As per the direction of DZSI, the details and photographs of five species of Brachyuran crabs (Types) were sent to Dr. Reza, Assistant Professor, School of Biology, and Center of Excellence in Phylogeny of Living Organisms, College of Science, University of Tehran, Iran.
15. As requested by the Assistant Director, Department of Industries, Andaman and Nicobar Administration, significance of marine diversity has been imparted to 32 participants of 'Marine Capture Fisherman- a National Occupational Standard Course' training programme under Pradhan Mantri Kausal Vikas Yojna, Ministry of Skill Development & Entrepreneurship during their visit to ZSI regional museum on 3rd November 2015.
16. As requested by the Conservator of Forests (Wildlife), Department of Environment Forests, A & N Administration, 11 scientific personnel of the Centre have been deputed to participate in the census of saltwater crocodile organized during 30th and 31st January 2016.
17. As required by Department of Agriculture and Farmer's Welfare, Ministry of Agriculture, Dairying and Fisheries, Government of India comments on the ban on fishing and trade in Sea cucumber (Holothurians) has been provided to ZSI headquarters for onward transmission.
18. Based on the field surveys conducted on 30th April 2015, necessary inputs have been provided to Deputy Conservator of Forest, South Andaman for establishing tourism in Cinque Island Sanctuary and for the preparation of Management Action Plan as requested.
19. Beetle specimens received for identification from National Botanical Research Institute, Lucknow. Identification:
20. Bivalve specimens received for identification from Dr. D. V. Muley, Professor, Dept. of Zoology, Shivaji University, Kolhapur-416004.
21. Bulganin Mitra, Scientist - C & O/C Lepidoptera Section In Charge, Sunderban Pollinator Project. (Z.S.I Lot no:62 /2015)
22. Bulganin Mitra, Scientist-C, Lepidoptera Section, ZSI, Headquarters, Kolkata. (Z.S.I Lot no:25/2015)
23. Checklist of Migratory birds in view of risk of Avian Influenza virus was given to Divisional Forest Officer, Middle Andaman on request.
24. Comments submitted to Maharashtra State Biodiversity Board, Nagpur on the application for seeking prior approval of NBA for IPR on project "*Bacillus subtilis* ZB-97 cell free extract as a potential fungicide and plant growth promoter".
25. Comments submitted to Maharashtra State Biodiversity Board, Nagpur on the application "Access for non-invasive biological sample (fecal matter)" for a doctoral research project assessing the effect of climate change on small wild cats occurrence.
26. Comments submitted to Maharashtra State Biodiversity Board, Nagpur on the application "Study of insect biodiversity found in forest of Maharashtra".
27. Comments submitted to Maharashtra State Biodiversity Board, Nagpur on the application "Taxonomic revision of Indian Arctiidae (Lepidoptera) Partt-III".



28. Comments submitted to Maharashtra State Biodiversity Board, Nagpur on project proposal on "Accessing freshwater fishes for research purpose".
29. Comments submitted to Maharashtra State Biodiversity Board, Nagpur on project proposal on "Taxonomic study of Tachinid (Diptera: Tachinidae) from Western Maharashtra".
30. Comments submitted to Maharashtra State Biodiversity Board, Nagpur on project proposal on "Accessing and using the insect pests for screening the rice and maize crop varieties for resistance to the insect pests".
31. Confiscated live two molluscs specimens of *Tridacna crocea* Lamarck, 1819 and 32 specimens of *Amphiprion ocellaris* Cuvier, 1830 were identified for the Range Officer, Garacharma Range, Port Blair, South Andaman on request.
32. Confiscated sea cucumber specimens received from the Range Officer, Department of Environment and Forests, Mannarghat have been identified and report submitted on request
33. Confiscated teeth of *Alligator* sp. were identified for the Range Officer, Protection Range, Haddo, South Andaman as requested.
34. Confiscated turtle fin was identified for the Wildlife Division, Department of Environment and Forest, Andaman and Nicobar Administration on request.
35. Detailed faunal report of Landfall Island Sanctuary, East Island Sanctuary and West Island Sanctuary has provided to the Divisional Forest Officer, Wildlife Division, Mayabunder on request
- for the preparation of Management Plan for the few important sanctuaries of North and Middle Andaman District.
36. Details of newly recorded species of corals and sea anemones along with species and locality images during the year 2014 was provided to Mr. Ratnadeep Banerjee, Delhi based newspaper correspondence on request for the publication.
37. Details of snake species found in Andaman Islands were provided to the Deputy Conservator of Forests, Wildlife Division, Port Blair on request.
38. DFO wildlife, Govt. of Meghalaya, Jaintia Hills, Jowai: was provided advisory service on the number of bats species found in Jaintia Hills on 03.09.2015.
39. Diagnosis of two species of Isopod, *Nerocila loveni* and *Nerocila depressa* were send to Sri Dipanjan Roy, SRF, MARC, DIGHA
40. Dr A. Bahuguna provided information on Molecular systematic Lab and Dr Vinita Sharma provided information on the Wet Invertebrate collections and Mr Parmod Kumar demonstrated the Insect settings to the MSc. Final Sem students of A.M.U-Aligarh on 10th April'15.
41. Dr A. N. Rizvi, Dr A. Bahuguna, Dr S.I.Kazmi, Dr N. Sharma & Dr A. Kumar delivered lecture to 52 M. Sc. students of Uttaranchal College of Bio-medical Science and Hospital, Dehradun on 11th, September, 2015.
42. Dr A.N. Rizvi, Delivered invited lecture on Molecular Taxonomy to M.Sc. Zoology Ist Sem of Dolphin (PG) Institute of Biomedical and Natural Sciences, Dehradun on 28th Nov'15.



43. Dr A.N. Rizvi, Scientist-D, reviewed Mss on Soil nematode for the International Journal, Zootaxa.
44. Dr Anjum N. Rizvi reviewed Mss on Helminths for Springer's international Journals.
45. Dr Avtar Kaur Sidhu, Scientist-D reviewed a paper for National Journal on Lepidoptera.
46. Dr Rizvi reviewed papers on soil nematodes for departmental Journals
47. Dr S.I.Kazmi, Scientist-D reviewed of one Mss received from HQ. Kolkata
48. Dr Swetapadma Dash, Scientist D reviewed a research paper entitled "Pronotal Color Variants and Influence of Weather Parameters on Population trends of the Capsid bugs, *Helopeltis antonii* and *H. bradyi* in Cashew ecosystem" of *Entomologia Generalis*, Journal of general and applied Entomology, Berlin.
49. Dr Swetapadma Dash, Scientist D reviewed one research paper entitled "Pronotal Color Variants and Influence of Weather Parameters on Population trends of the Capsid bugs, *Helopeltis antonii* and *H. bradyi* in Cashew ecosystem" of *Journal of Asia- Pacific Entomology*.
50. Dr. (Mrs.) Patralekha Mukhopadhyay, Asstt. Prof. Victoria College Kolkata (Z.S.I Lot no: 10 /2016)
51. Dr. A.N.Rizvi, Scientist-D reviewed one paper on nematodes of Fishes for Pakistan Journal of Zoology and two Mss on soil nematodes for the departmental Journal.
52. Dr. Aravind Kumar, Scientist -D & Head Forest Protection Division, Institute of Forest Productivity, Ranchi, Jharkhand, 835303. (Z.S.I Lot no: 31/2015)
53. Dr. Aravind Kumar, Scientist -D & Head Forest Protection Division, Institute of Forest Productivity, Ranchi, Jharkhand, 835303 (Z.S.I. Lot No. 31 /2015)
54. Dr. Avtar Kaur Sidhu, Scientist-D identified 25 examples referable to 7 species of the butterflies from Middle Eastern Ghat Survey received from Southern Regional Centre, Zoological Survey of India, Chennai.
55. Dr. Avtar Kaur Sidhu, Scientist-D identified 26 pictures of butterflies sent by Dr. A. N Rizvi, Scientist-D, Northern Regional Centre, ZSI, Dehradun and submitted the report
56. Dr. Avtar Kaur Sidhu, Scientist-D identified 80 examples referable to 16 species of the butterflies from Middle Eastern Ghat Survey received from Southern Regional Centre, Zoological Survey of India, Chennai.
57. Dr. Avtar Kaur Sidhu, Scientist-D identified outside lot of Lepidoptera sent by Ms. Ravjeet Kaur, JRF, Department of Zoology and Environment Sciences, Punjabi University, Patiala.
58. Dr. Avtar Kaur Sidhu, Scientist-D identified two species of butterflies received from Ms. Deepika JRF, Department of Zoology and Environment Sciences, Punjabi University, Patiala for her Ph.D. work.
59. Dr. Avtar Kaur Sidhu, Scientist-D reviewed a paper on Lepidoptera and sent the comments to Kansas Entomological Society, USA on 2.12.2015.
60. Dr. B.H.C.K. Murthy, Scientist-C, rendered advisory



services to the Research Scholars of Guwahaty University, Assam during their visit to WGRC from 09.04.2015 to 13.04.2015.

61. Dr. Bikramjit attended the 166th Foundation Day of Geological Survey of India, Itanagar on 4th March 2016.
62. Dr. Bikramjit Sinha acted as an expert for the selection of a JRF in a DST funded project implemented by SFRI, Itanagar on 29/02/2016.
63. Dr. Bikramjit Sinha also invited and served as a Visiting Faculty in the Center with Potential for Excellence in Biodiversity, Rajiv Gandhi University, Itanagar during 15-30 October, 2015 and delivered theoretical lectures and imparted hands-on training to the students of Advanced Post Graduate Diploma Course.
64. Dr. Bikramjit Sinha and others organized a one day workshop on the Centenary Foundation Day of ZSI on July 01, 2015 and delivered a lecture on the activities of ZSI in general & APRC in particular on this occasion.
65. Dr. Bikramjit Sinha attended a 3-day training on Functions of Heads of Offices/DDO organized by Institute of Government Accounts and Finance, Kolkata during 13-15 May 2015.
66. Dr. Bikramjit Sinha attended as a member in the meeting of Technical Committee of Protected Areas of Arunachal Pradesh in o/o PCCF, Itanagar on 11th May 2015.
67. Dr. Bikramjit Sinha attended as a member in the meeting of the Arunachal Pradesh Forest Research committee in the O/o PCCF (WL&BD) on 15/03/2016.
68. Dr. Bikramjit Sinha attended as member in the meeting of the Arunachal Pradesh Forest Research Committee for Wildlife Protected Areas in the O/O PCCF (WL), Govt. of Arunachal Pradesh, Itanagar on 15th September 2014 and offered inputs in granting research proposals.
69. Dr. Bikramjit Sinha attended as member in the meeting of the Arunachal Pradesh Forest Research Committee for Wildlife Protected Areas in the O/O PCCF (WL), Govt. of Arunachal Pradesh, Itanagar on 16th November 2015 and offered inputs in granting research proposals.
70. Dr. Bikramjit Sinha delivered a lecture entitled *"Realizing the importance of biodiversity for sustainable development: the sooner the better"* on the eve of International Day on May 22, 2015 celebrated by the Board at Hapoli, Lower Subansiri district, Arunachal Pradesh.
71. Dr. Bikramjit Sinha participated in a discussion meeting on Normally Traded Commodities (NTCs) organized by Arunachal Pradesh Biodiversity Board on 14th September 2015 in SFRI, Itanagar and offered inputs.
72. Dr. Bikramjit Sinha rendered advisory services to 2 student of B. Sc. 5th Semester Zoology of D. N. Government College (Miss A. Bhatt and another) regarding dissertation on Fauna of Arunachal Pradesh on 16/02/2016.
73. Dr. Bikramjit Sinha rendered advisory services to Dr. P. Nanda, Head, Department of Zoology, D. N. Govt. College, Itanagar regarding dissertation by B. Sc. 5th Semester students of his department as well as documentation and identification of different specimens collected by his students.
74. Dr. Bikramjit Sinha rendered advisory services



to Mr. Sorang Tania, Chairman, Kongto-Raba Mountain Flora-fauna Protection Society of Kra-Dadi district regarding documentation of fauna diversity in Kra-dadi district.

75. Dr. Bikramjit Sinha rendered advisory services to Ms. Pratistha Srivastava, a student of RGU towards her dissertation works on praying mantids of Arunachal Pradesh.

76. Dr. Bikramjit Sinha rendered advisory services to Sh. Kalung Richo, an M. Sc. Life Sciences student of University of Kota regarding dissertation and internship in Zoological Survey of India on 25/1/2016.

77. Dr. Bikramjit Sinha Scientist-C & Officer-in-Charge of the centre participated as a resource person/panelist in the 2nd Regional Consultation on Multi-stakeholder Himalayan Sustainable Development Forum on October 05, 2015 at National Institute of Rural Development & Panchayat Raj, North Eastern Regional Centre (NIRD&PR-NERC), Khanapara, Guwahati, organized by G.B. Pant Institute of Himalayan Environment & Development (GBPIHED) in collaboration with Indian Himalayas Climate Adaptation Programme (IHCAP)-Swiss Agency for Development and Cooperation (SDC), Embassy of Switzerland, New Delhi and Department of Science and Technology (DST), New Delhi.

78. Dr. Bikramjit Sinha Scientist-D & Officer-in-Charge of the centre rendered advisory services to Sri Navin Kumar, ex-GM, Bihar State Tourism Development Corporation regarding prospects of wildlife based tourism in Arunachal Pradesh 14th August 2015.

79. Dr. Bikramjit Sinha Scientist-D & Officer-in-Charge

of the centre offered comments on a proposal from CII to MoEFCC to be Govt. partner in the 2nd International Conference on IP Laws and Enforcement of IPR and knowledgeexpo 2015 and submitted to DZSI.

80. Dr. Bikramjit Sinha was invited and participated as an expert in a 3-day "National Consultation Workshop on Understanding Ecosystem Services Perspectives for Effective Resource Management in the Far Eastern Himalayan Landscape" jointly organized by GBPIHED & ICIMOD at Itanagar during 25-27 May, 2015.

81. Dr. Bikramjit Sinha, Scientist-C & Officer-in-Charge of the centre attended a one day workshop on World Environment Day, 2015 organised by Arunachal Pradesh State Pollution Control Board in collaboration with Department of Environment & Forests, Itanagar on 5th June 2015.

82. Dr. Bikramjit Sinha, Scientist-C and Officer-in-Charge of the centre attended the OC's meeting on 17th July 2015 in ZSI, Kolkata and presented the progress of scientific, administrative activities and commemoration of Centenary Foundation Day of ZSI at APRC, Itanagar.

83. Dr. Bikramjit Sinha, Scientist-D & Officer incharge of the centre acted as an interview panel member for selection of project personnel for a project on Bats of Siang basin in State Forest Research Institute on 11/12/2015.

84. Dr. Bikramjit Sinha, Scientist-D & Officer incharge of the centre rendered advisory services to 2 student of B. Sc. Zoology (Mis. A. Bhatt and Miss. RC Bani) of D. N. Government College, Itanagar regarding dissertation on zooplankton diversity of Ganga Lake, Arunachal Pradesh on 21/1/2016.



85. Dr. Bikramjit Sinha, Scientist-D & Officer-in-Charge attended as a resource person in the *National Training Workshop on Fauna of Hotspots-3: Eastern Himalayas* at NERC, ZSI, Shillong during 17-21 March 2016 and delivered theory and practical lectures on freshwater zooplankton of Eastern Himalayas-collection, preservation and identification.
86. Dr. Bikramjit Sinha, Scientist-D & Officer-in-Charge of the centre attended as a member in the 2nd meeting of the Standing Committee of State Board of Wildlife, Arunachal Pradesh in o/o PCCF, Itanagar on 8th May 2015.
87. Dr. Bikramjit Sinha, Scientist-D and Officer-in-Charge of the centre rendered advisory services to 2 persons, Kipa Nai & Kipa Talley from Kurung Kumey regarding documentation and conservation fauna in their places on 10 th July 2015.
88. Dr. Biplab Mukhopadhyay from Kanchrapara College, Kanchrapara, Nadia asked for reprints.
89. Dr. C. Venkatraman, Scientist C reviewed a manuscript for Journal of Marine Biological Association of India and comments were sent (Ms no: 1860/07/2015).
90. Dr. D. Suresh Chand, Scientist-D, evaluated two Ph.D Thesis received from the University of Madras during July 2015 and November 2015.
91. Dr. Girish Kumar, P., Sr. Zoological Assistant, identified 85 Hymenoptera specimens of the family Vespidae and Scoliididae for Mr. Altaf Hussain, Ph D Scholar, Jawaharlal Nehru Krishi Viswa Vidyalyaya, Jabalpur.
92. Dr. Gopal Sharma Scientist D guided 2 M. Sc. students of Department of Environmental Sciences and managements, Patna University for compilation of their desertion.
93. Dr. H. S. Banyal, Scientist- D provided scientific information on the fauna displayed in the museum of the Centre to a group of the M.Sc. (Zoology) students of JNV University, Jodhpur on 9th October, 2015.
94. Dr. H. S. Banyal, Scientist-D provided scientific information on the fauna displayed in the museum to the students of the Shanti Niketan School, Jodhpur on 10th July, 2015 at the Centre.
95. Dr. H. S. Banyal, Scientist-D provided scientific information on the fauna displayed in the museum of the Centre to the M.Sc. (Zoology) students of AMU, Aligarh on 10th February, 2016.
96. Dr. H. S. Banyal, Scientist-D provided scientific information on fauna of Rajasthan state to a group of teachers from DIET, Jodhpur on 18th February, 2016.
97. Dr. H. S. Banyal, Scientist-D provided scientific information on the role of DRC, ZSI, Jodhpur in exploring faunal resources of Rajasthan and Gujarat state to the students of New Saint Paul School, Bikaner on 10th March, 2016 at the Centre.
98. Dr. K. A. Subramanian, Scientist D participated in the Viva-voce examination of PhD candidate at Madras Christian College, Tambaram, Chennai
99. Dr. K. A. Subramanian, Scientist D reviewed two manuscripts, one each for the Journals 'Current Science' and 'Journal of Threatened Taxa'
100. Dr. Kamal Saini, Assistant Zoologist identified 28



- species of Orthoptera comprising of 112 examples received from Desert Regional Centre, ZSI, Jodhpur.
101. Dr. Kamal Saini, Assistant Zoologist provided the Orthoptera Literature on Western Himalaya to Ms. Fakhra Soomro, Lecturer, Shah Abudal Latif University, Kairpur, Sindh, Pakistan
 102. Dr. Kamal Saini, Assistant Zoologist reviewed a paper on Aves for the National Journal.
 103. Dr. Kamal Saini, Asstt. Zoologist reviewed a paper for the International Journal on Avian Biochemistry.
 104. Dr. L. Kosygin Singh attended Centenary seminar on "Faunal Diversity of Gangetic Plain Ecosystem" organized by the GPRC, ZSI at Patna on 23rd February, 2016.
 105. Dr. L. Kosygin Singh attended National Training Workshop on "Fauna of Hotspots-3: Eastern Himalaya" organized by the NERC, ZSI at Shillong from 17th to 21st March, 2016 as resource person. Given a lecturer on the "Diversity and Conservation of fishes of Eastern Himalaya".
 106. Dr. L. Kosygin Singh, attended a meeting to review the status of ongoing basin studies for Brahmaputra River valley in the state of Arunachal Pradesh on 5th June, 2015 in the Ministry of Environment, Forest & Climate Change, New Delhi.
 107. Dr. L. Kosygin Singh, Scientist 'D' attended the World Environment Day celebration organized by the Ministry of Environment, Forest & Climate Change at New Delhi on 5th June, 2015.
 108. Dr. L. Kosygin Singh, Scientist 'D' attended the World Environment Day celebration organized by the Ministry of Environment, Forest & Climate Change at New Delhi on 5th June, 2015.
 109. Dr. L. Kosygin Singh, Scientist-D & Officer-in-Charge of the Freshwater Fish Section attended one meeting at the Indian Institute of Bio - Social Research and Development (EBRAD), Kestopur, Kolkata on 2nd November, 2015.
 110. Dr. L. Kosygin Singh, Scientist-D attended a workshop on "Mitigating Environment and Social impact of the Jal Marg Vikas Project" organized by the Inland Waterways Development Authority at Patna on 22nd February, 2016.
 111. Dr. L. Kosygin Singh, Scientist-D attended workshop on use of GPS which was organized by the ZSI on 16th December, 2015.
 112. Dr. L. Kosygin Singh, Scientist-D delivered a lecture on Diversity and Conservation of Freshwater Fishes of India in the training programme on 'EIA/EMP Preparation of Ecology & Biodiversity (EB) & Soil Conservation (SC)' at the Indian School of Mines, Industry-Institute Interaction Facility, New Town, Kolkata which was organized by the Department of Environmental Sciences & Engineering, ISM, Dhanbad on 3rd December, 2015.
 113. Dr. M. E. Hassan, Scientist-D and Officer-in-charge, Hemiptera Section provided Identification and Advisory services on the Hemipteran specimens received from Dr. Tariq Ahmad, Sr. Assistant Zoologist, Entomology Research Division, P.G. Department of Zoology, University of Kashmir, Hazratbal, Srinagar – 190006, on the Hemipteran fauna collected from Walnut plant.



114. Dr. Muhamed Jafer Palot, Assistant Zoologist, rendered advisory services to Shri. V.K. Anoop, Department of Zoology, Bharathiyar University, Coimbatore on butterfly diversity studies in southern Western Ghats, Guided four M.Sc. students of School of Environmental Sciences, Kannur University and a M.Sc. final year student of Indira Gandhi College of Arts & Science, Kothamanglam, Ernakulam district for their final dissertation work. Rendered Identification & Advisory Services to Ms. Shyamna, K., Research Fellow, Systematic Entomology Laboratory, University of Calicut, on the identification of butterfly photographs (71 photographs in to 34 species) for her doctoral work. Identification and advisory services were offered to the Divisional Forest Officer, Malayattur division on the confiscated 36 specimens of reptiles, insects, centipedes and scorpion from the foreign nationals, to be submitted before the honourable court. Identification services were rendered to Shri. Vivek Philip Cyriac, Research Fellow, School of Biology, Indian Institute of Science Education and Research (IISER), Thiruvananthapuram on the Uroelid snakes in collections at WGRC.
115. Identification & advisory services rendered to Dr. David Gower, Herpetology Researcher, Natural History Museum, Dept of Life Sciences, London on the type of specimens of Caecilians and snakes deposited at our Centre on 13.07.2015. Identification & advisory services rendered to the Vengeri Resident Association members on the identification of Snake Eels (*Monopterus digressus*) present in their well waters on 28.07.2015.
116. Identification & advisory services rendered to Kerala State Biodiversity Board on the diversity of vertebrate faunal diversity of Kerala.
117. Identification & advisory services rendered to Thamarasserry Range Forest Officer, Kozhikode Forest Division on the identification of confiscated specimens (10 nos.) of Parakeets (Rose-ringed Parakeet, *Psittacula krameri*) to be submitted before the honourable Judicial Magistrate Court, Thamarasserry, Kozhikode. Guided Shri. Anuraj R. Kaimal, Final semester student of M.S Wildlife Studies, Centre for Wildlife Studies, Kerala Veterinary & Animal Sciences University, Pookode, Wayanad for his Master's Degree thesis work. Served as a Judge for the District level Children's Science Congress conducted at Govt. Arts & Science College, Meenchanda on 6th November 2015 organised by the Kerala State Council for Science, Technology and Environment (KCSTE), Thiruvananthapuram. Co-chaired a session on 'Wildlife Management & Veterinary Science' at the 7th Kerala Veterinary Science Congress on 14th November 2015 at the Kerala Veterinary & Animal Sciences University, Pookode, Wayanad. Guided plus two students of Menmunda Higher Secondary School, Vatakara for their research Project work in District Level School Science Fair. Guided students of Govt. Higher Secondary School, Medical College Campus, Kozhikode for their research Project in the State Level competition of 23rd National Children's Science Congress (NCSC)-2015.
118. Identified 45 butterfly photographs for Shri. Rajesh K.M., Research Fellow, Division of Entomology, Department of Zoology, University of Calicut, Kerala. Identified 19 butterfly species to the B.Sc. (final semester) students of Providence Women's College, Calicut for their dissertation work.
119. Identified two confiscated specimens of Indian Pond Terrapin (*Melanochelys trijuga*) for the



- Kerala Forests & Wildlife Department (Kuttiady Range) to be presented before the First Class Judicial Magistrate Court, Nadapuram, Kozhikode district. Appeared before the First Class Magistrate Court at Manjeri (Forest Tribunal) as expert witness to give details on confiscated bird specimens on 19.02.2016. Appeared before the First Class Magistrate Court at Manjeri (Forest Offences), Malappuram district, as an expert witness to give details on confiscated bird specimens on 9.03.2016.
120. Dr. Murali Jadesh, Chairman, Deptt. of Zoology, Gulbarga University, Gulbarga. (Z.S.I. Lot No. 58/2014)
 121. Dr. Narender Sharma attended interview as external subject expert on 18th August, 2015 at Wildlife Institute of India.
 122. Dr. Navneet Singh, Scientist D guided Mr Devinder Singh, M.Phil. Student of Department of Zoology & environmental studies, Punjabi University, Patiala for compilation of his M. Phil thesis. He visited ZSI, Patna from December 06, 2014 to February 26, 2015.
 123. Dr. P. Justin Kumar, Dept. of Zoology, Scott Christian College, Nagercoil-3. (Z.S.I Lot no: 3/2016)
 124. Dr. P. Pravakaran, SRF Entomology Division, UPASI, TRF, TRI, Velparai, T. N. (Z.S.I Lot no: 32/2015)
 125. Dr. P.M. Sureshan, Scientist-D & Officer-in-Charge, reviewed 6 research manuscripts for *Journal of Threatened Taxa*; 1 for Entomon; 1 for Journal of Biological Control; and 4 for Records of the Zoological Survey of India. Identified 60 exs. of pteromalid wasp specimens (Hymenoptera:

Pteromalidae) received from Central University of Kerala India belonging to 5 species under two genera. Identified 25 exs. of Pteromalidae (Hymenoptera) for Dr. Babasaheb B. Fand, National Institute of Abiotic stress Management, Pune.

126. Dr. R. Madhavi, Andhra University sent 33 specimens in 19 slides for registration in NZC register.
127. Dr. R. Paliwal, Scientist-B determined 37 examples received from Mr. Suresh Kumar, TRF, Dept. of Zoology, J.N.V. University, Jodhpur (Rajasthan) and report was communicated.
128. Dr. R. Paliwal, Scientist-B determined seven lots of earthworms sent by Mr. Suresh Kumar, Dept. of Zoology, J.N.V. University Jodhpur (Rajasthan) and identification details were communicated.
129. Dr. R. Paliwal, Scientist-B identified thirteen examples of earthworms received from Ms. Shilpa Panjgotra, Ph.D. Scholar, Punjab Agricultural University, Ludhiana (Punjab) and identification report sent.
130. Dr. R. Paliwal, Scientist-B identified two lots of earthworms received from Dr. P.S. Chaudhury, Associate Professor of Zoology, Tripura Central University, Suryamaninagar (Tripura).
131. Dr. Rajmohana K, Scientist-D, reviewed 1 paper for the Journal *Halteres*; 1 for JSPR journal; 1 for State Fauna Series, Zoological Survey of India, served as Chairman at 3rd Semester Practical exam of M.Sc. Zoology, for General Entomology and Systematics paper, on 29.5.2015, at Dept. of Zoology, University of Calicut. Rendered identification and advisory service to Dr. Nasser, Associate Professor, Dept.



of Zoology, University of Calicut, by identifying 485 specimens. Guided two M.Sc. students of Kannur University, Mananthavady Campus, for their dissertation works. Rendered identification and advisory service to a Research Scholar in Gulbarga University Karnataka, by identifying about 30 specimens under 8 genera and 11 species of Platygasteridae (Hymenoptera). Rendered identification and advisory service for a researcher, Mr. Ashish Nerlekar from Pune. Identity of two species were confirmed and digital image of Holotype of *Entomacis spinosus* Rajmohana and Narendran (Diapriidae) were sent on request from a researcher Vasilisa Chemyreva from Russia. One species of (Hymenoptera: Platygasteridae) was identified as new for Dr. Sachin, Assistant Professor, Malabar Christian College, Calicut. Served as an external guide for the M. Sc. dissertation work of Sujila, P.S., Dept. of Zoology, Kannur University Campus, Mananthavady, Wayanad, Kerala. Provided Advisory services to Students of Nadakkavu GHSS, on bioecology of termites for their project to be presented at Science Fair, 2015. Identified two species of parasitic hymenopterans for a researcher at KFRI. Identified 25 exs. Of platygastid wasp specimens (Hymenoptera: Platygasteridae) and 97 exs. Of parasitic wasp specimens (Hymenoptera: Ceraphronoidea) received from Central University of Kerala India were identified belonging to 4 species under three genera.

132. Dr.S.D.Gurumayum attended a training program on Income tax on salaries and tax deduction at source held on 20-21 April 2015 at INGAF/RTC/ Kolkata.
133. Dr. S. K. Singh, Principal Scientist, ICAR-NCIPM, New Delhi-12 (Lot no:13 /2016).

134. Dr. Sanjeev Kumar, Scientist-D & Officer-in-charge has participated as a Special Guest and attended the EARTH DAY 2015 celebration organized by an NGO *Shrashti Seva Sansthan*, Jodhpur on 22nd April, 2015 at *Suchna Kendra*, Jodhpur and delivered lecture on role of human society in animal conservation and how to save the mother earth in the present day scenario. On this occasion Dr. Sanjeev Kumar, Scientist-D also distributed Y.D.Singh Memorial prizes to the school students.
135. Dr. Sanjeev Kumar, Scientist-D attended Awareness Camp at Kumbhalgarh Sanctuary, Sadari, Pali and Udaipur, Rajasthan to address Camp under Van Dhan Yojna on 19th and 20st March, 2016 at two places: Ghanerao and Photadevla in Kumbhalgarh Sanctuary and delivered a talk in a awareness programme for Reducing Human Wildlife Conflict organized by the Office of the ACF and a Nodal Officer, Van Dhan Yojna, Kumbhalgarh Sanctuary, Main Sadari, Rajasthan.
136. Dr. Sanjeev Kumar, Scientist-D has delivered a lecture entitled "*Jeev vigyaan mein bhaaratyee praanee sarvekshan kee bhaageedaaree evam 100 varsh kee upalbdhiyaana*" to a batch of 71st (Foundation) Forest Guard Training Course of Rajasthan State Forest Deptt. on 15th January, 2016 during their visit to the Centre.
137. Dr. Sanjeev Kumar, Scientist-D has delivered invited lecture on Wildlife Identification under Refreshers Course training programme for the Foresters/Asstt. Foresters organized by Office of the Dy. Conservator of Forest at Desert Forest Training Centre, Jodhpur on 10th September, 2015.



138. Dr. Sanjeev Kumar, Scientist-D has delivered invited lecture on Wildlife Behavior and Ecosystem Importance under Refreshers Course training programme for the Foresters/ Asstt. Foresters organized by Office of the Dy. Conservator of Forest at Desert Forest Training Centre, Jodhpur on 10th September, 2015.
139. Dr. Sanjeev Kumar, Scientist-D has delivered scientific information to a group of twenty (20) Senior citizens of Rajouri district of Jammu & Kashmir (J & K) State who visited DRC, ZSI, Jodhpur on 6th February, 2016 as part of the National Integration Tour programme of SADHBHVANA conducted by the Indian Army under the leadership of Major Mohit Bansal of 19B Battalion, The Rajput Regiment, Bikaner, they were given information about the establishment of ZSI and its role in Faunal studies of the country. Some conservation measures were also discussed with them sharing their own experiences in wildlife conflict and conservation.
140. Dr. Sanjeev Kumar, Scientist-D provided advisory services on identification of pugmarks of mammals to Shri Aazad P. Ojha, Research Scholar, and J.N.V. University, Jodhpur on 24th August, 2015.
141. Dr. SD Gurumayum attended attending 28th Hindi Conference and Workshop, 14- 16 May, 2015 at Kodaikanal, Tamil Nadu. (SD Gurumayum)
142. Dr. SD Gurumayum attended *Town Official Language Implementation Committee*, Itanagar meeting on 7th July 2015 at GSI Itanagar.
143. Dr. SD Gurumayum advised Miss Hage Sunya KV teacher research guidance and to a research scholar of Forestry Department NERIST.
144. Dr. SD Gurumayum attended National Consultation workshop on *Developing Livelihood Interventions for the Far Eastern Himalayan Landscape*, 28 to 29 May 15, Itanagar organised by GB Pant Inst. of Him. Env. and Development, Itanagar and ICIMOD, Nepal.
145. Dr. SD Gurumayum attended National training workshop on fauna of Hotspots-3: Eastern Himalaya at NERC Zoological survey of India, Shillong from 17-21 March 2016 as resource person and given talk on Ornamental fish of north eastern India –Identification and Resources
146. Dr. SD Gurumayum attended *Town Official Language Implementation Committee* on 13th October 2015 at ITBP, Itanagar.
147. Dr. SD Gurumayum given a talk on *The role of taxonomy in species conservation* on 1st July 2015 in a seminar Organized by APRC, as a Part of Centenary Celebration of ZSI by APRC, Itanagar.
148. Dr. SD Gurumayum given guidance to seven students of BSc Zoology Final Year Students, DN College, Itanagar on how to identify fish for a project on Fish taxonomy and also help the students in identification of fish examples collected by them from different rivers of the state.
149. Dr. SD Gurumayum interacted and give advisory service to 40 students doing degree course in Forestry at North Eastern Regional Institute of Science and Technology (NERIST), Arunachal Pradesh on 21/12/2015.
150. Dr. SD Gurumayum interacted and give advisory service to more than hundred students doing BHMS course in North East Homoeopathic



- Medical College & Hospital, Itanagar while visiting the centre on 6/11/2015.
151. Dr. Sinha also rendered advisory services to three scientists, Mr. Vivek Jhaladiyal, Raveesh Chandra and SK Yadav from RS Envirolink Technologies Pvt. Ltd., New Delhi regarding collection and collation of site specific data of Dibang basin on 17th September, 2015.
152. Dr. Tariq Ahamad, Sr. Assistant Prof. P.G. Deptt. of Zoology, University of Kashmir, Hajaratbal, Srinagar- 190006 (Z.S.I Lot no: 60/2015)
153. Dr. Tariq Ahamed, Sr. Asstt. Prof., Entomology Research Division, P.G. Deptt. of Zoology, University of Kashmir, Hazaratbal, Srinagar, 4900. (Z.S.I. Lot No. 59/2014)
154. Dr. Avtar Kaur Sidhu identified 10 examples referable to 7 species and 3 genera of the butterflies of Western Ghats sent by SRC, Zoological Survey of India, Chennai.
155. Enquiry from Officer-in-Charge, APRC, Itanagar, Arunachal Pradesh, on 15.01.2016. For identification of two lots of Images.
156. Expert advise extended regarding the brachyuran crabs of Sundarbans, burrow pattern, population ecology etc. to Dr Ranu Naskar, Asst. Professor, Zoology Department, Jogamaya Devi College, Hazra More, Kolkata.
157. Facility of National Zoological Collections was extended to Mr. Pradeep Kumkar, Student, Modern College of Arts, Science and Commerce to refer selected freshwater fish specimens on request.
158. Faunal list of Cinque Island Sanctuary along with photographs was submitted to Deputy Conservator of Forests, Wildlife Division, South Andaman on request for the preparation management plan.
159. Fish photographs received by e-mail for identification from Mr. A.P. Mirange, Pandharpur. Identification report sent by e-mail.
160. Fish specimens received for identification (Navegaon bandh) from Shri Swapnil Ghatge, College of Fishery Science, Nagpur Fish specimens received for identification from Dr. Veena Rambal, Nowrosjee Wadia College, Pune Fish specimens received for identification from Shri. Jigar Rana, Jai Research Foundation, Vapi, Gujarat- 396 105 Molluscan specimens received for identification from Mr. Animish Vijay Limaye, Dept. of Biodiversity, M.E.S. Abasaheb Garware College, Pune Honeybee specimens received for identification from Shri. Jigar Rana, Off NH 8, Near Daman Ganga Bridge, Valvada 396 105, Dist. Valsad, Gujarat Spider specimens received for identification from Dr. N.A. Kamble, Asst. Professor, Dept. of Zoology, Shivaji University, Kolhapur-416004, Maharashtra Insect specimens received for identification from Dr. N.A. Kamble, Asst. Professor, Dept. of Zoology, Shivaji University, Kolhapur-416004, Maharashtra Insect specimens received for identification from Mr. U.K. Patil, Dept. of Zoology, Moolji Jaitha College, Jalgaon- 426002, Maharashtra) Fish specimens received for identification from Miss. Chaitali Kale, New Arts, Commerce and Science College, Ahmadnagar-414 001. Fish specimens received for identification from Mr. Sandip Kawade, New Arts, Commerce and Science College, Ahmadnagar-414 001. Fish specimens received for identification from Shri. Jigar Rana,



- Jai Research foundation, Valsad, Gujarat-396108
Spider specimens received for identification from Dr. Abhay Khandagale, Co-ordinator, Research Centre in Zoology, Ramkrishna More Arts, Commerce & Science College, Akurdi, Pune-411044.
161. Fish specimens received for identification from Dr. Veena Rambal, Head, Dept. of Zoology, Nowrosjee Wadia College, Pune-411001. Bivalve specimens received for identification from Dr. P. R. Bhamre, Head, Dept. of Zoology, K.T.H.M. College, Gangapur Road, Shivaji Nagar, Nashik-422 002.
162. Fish specimens received for identification from Mr. Akash Thakare, Dept. of Zoology, R.A. College, Washim, Maharashtra.
163. Fish specimens received for identification from Jai Research Foundation, Vapi, Dist. Valsad, Gujarat-396 195.
164. Fish specimens received for identification from Jai Research Foundation, Vapi, Dist. Valsad, Gujarat-396 195.
165. Fish specimens received for identification from Mr. A.S. Dede, Pandharpur, Maharashtra.
166. Five Mollusca specimens received for identification from Dr. D.V. Muley, Professor, Dept. of Zoology, Shivaji University, Kolhapur-416004.
167. Four freshwater crab specimens received for identification from Shri Pradipta Kumar Pati, Christ College, Cuttack Fish specimens received for identification from the Principal, New Arts, Science and Commerce College, Ahmednagar.
168. Guest lecture titled, "Communication: Visual, Olfactory and Acoustic Modalities (Bird Songs and Calls)" targeted to P.G. Students, was delivered on 05.03.2016 in Uttaranchal (P.G.) College of Bio-Medical Sciences and Hospital, Dehradun by Dr anil
169. Dr A. N Rizvi provided guidance to ZSI-JRF on Approved Research Programme "Studies on the Helminthes Parasitic in Amphibia and Reptilia of District Dehradun."
170. Identification and advisory service rendered to Dr. Amit Kumar Sharma, Asst. Professor/scientist, Department of Entomology, Jawaharlal Nehru Krishi Vishwa Vidyalaya, Adhartal, Krishi Nagar, Jabalpur (M.P.) for identification of moths (Lepidoptera) and praying mantids (Mantodea) collected from Rice fields were identified into 18 species and 18 genera under 05 families. The identification report sent to the concerned scientist.
171. Identification and advisory services has been provided to one Research Scholar from Department of Zoology, Sri Krishnadevaraya University, Andhra Pradesh by Dr Swetapadma Dash, Scientist D.
172. Identification and advisory services was rendered to Dr. Dipti Raut, Assistant Professor, Ravenshaw University, Cuttack on estuarine crabs of Odisha coast. Crab specimens collected from Devi estuary and brought for identification were found to belong to 24 species under genera and families.
173. Identification of avian species was done on three images received from a Dr Harish Kumar Sharma, Principal Scientist (Entomology), Department of Entomology, Y.S. Parmar University of Horticulture and Forestry, Nauni, Solan, Himachal Pradesh, India



174. Identification report 11 examples of fishes sent to Dr. Kousik Pramanick, Assistant Professor, Department of Biological Science, Presidency University, Kolkata.
175. Identification service on Lepidoptera (Butterflies) collected from city Jabalpur provided to Ms. Khuboo Bunker, as Ph.D. student of JNKVV, Jabalpur, M.P.
176. Identified 1 lot of termite as *Odontotermes horni* (Wasmann) and 2nd lot as *O. bellahunisensis* Holm. & Holm. and sent to Cibichakravarthy B, Ph. D student, Department of Biotechnology, Bharathiar University, Coimbatore, Tamil Nadu, 641046.
177. Identified 1 vial of termite as *Odontotermes obesus* Rambur and sent Identification Report to Shubhra Kanti Sinha, Sonamukhi College, Bankura.
178. Identified 30 vials of Termites : 6 species under 3 genera ; received from Srinivasa, Regional Museum of Nat. History, Roopa nagar, Mysore.
179. Identified Mammal bones samples isolated from owl pellets of Barn owl collected from Melghat Tiger Reserve, Amaravati, Maharashtra, received from Dr. Varsha Zade, Associate Professor, Department of Zoology, Govt. Vidarbha Institute of Science & Humanities, Amravati, Maharashtra. Reported eight species of rodents and two species of shrews from pellet samples of Barn Owl. Identification report has been sent.
180. Identified Odonata specimens received from Dr. Amit K. Sharma, JNKVV, Jabalpur.
181. Identified scales and claw samples isolated from Leopard scat collected from Sangameshwar Taluka, Ratnagiri District, Maharashtra, received from Dr. Archana Godbole, Director, Applied Environmental Research Foundation, Pune, Maharashtra. Identified the remains are of Indian Pangolin, *Manis crassicaudata* E. Geoffroy (Class : Mammalia, Order : Pholidora, Family : Manidae). Identification report has been sent.
182. Images of scheduled faunal communities and marine biodiversity were submitted to the Deputy Conservator of Forests (WL), South Andaman as requested.
183. Images of some birds and mammals (12+11+8 images) along with brief write up were submitted to Head Office, for the development of ZSIFIS website.
184. Information and guidance regarding the taxonomical study of freshwater shrimps were provided to Pforini Jane Sapriina and Mebari V.R. DoePhang PG students from Loyola College Chennai.
185. Information on birds and mammals of western Himalaya was delivered to students from Times World School, Dehradun on 15.02.16 and 16.02.16. Over 60 students and 3 faculty members visited the museum each day.
186. Laboratory facility of stereo zoom microscope (LEICA M 205 A) was extended to Mr Prasath D., Ph.D. Scholar, Pondicherry University, Port Blair on request.
187. Lady Keane College, Shillong: Rendered identification service to Mr. G.G. Syngai, Asst. Prof. on the identity of one species of fish on 01.10.2015.



188. Lot No. 03/2016, Dr. P. Justin Kumar, Professor, Dept. of Zoology, Scott Christian College, Nagercoil, Tamil Nadu.
189. Lot No. 09/2015, Prof. N. Rastogi, Professor, Dept. of Zoology, Banaras Hindu University, Varanasi, UP.
190. Lot No. 16/2015, Dr. A.K. Gupta, Scientist, SJCARS, Jagdalpur, Chattisgarh.
191. Lot No. 18/2015, Dr. G.K. Saha, Professor, Dept. of Zoology, Calcutta University, Kolkata, West Bengal.
192. Lot No. 26/2015, Niladrita Sardar, Research Scholar, WBSU, Barasat, West Bengal.
193. Lot No. 33/2015, P. Prabhakaran, SRF, Entomology Division, UPASI, TRF, Coimabator, Tamil Nadu.
194. Lot No. 64/2015, Ramanjan Ghanta, SRF, Dept. of Botany, Viswa Bharati University, Santiniketan, Bolpur, West Bengal.
195. Lot. No. 64/2015, Received from Mr. Ramanjan Ghanta, Viswa Bharati University, on 18/12/2015.
196. Maharashtra State Biodiversity Board, Nagpur on project on "Effect of Linear Alkyl Benzene Sulphonate on tissue of locally available fish"
197. MARC, ZSI, Digha extended identification and advisory services to Vidyasagar University, West Bengal, Geological Survey of India, Kolkata; Babasaheb Bhimrao Ambedkar University, Lucknow; CMFRI, Lucknow Biswavidyalaya, Lucknow; School of Architecture, Maharshi Markandeswara University, Haryana; Digha Science Centre & National Science Camp; Institute of Environmental Studies & Wetland Management (IESWM); Vivekananda Mission Mahavidyalaya; Panskura Banamali College, Panskura. Asutosh College, Kolkata; DSDA, Digha; DFFTA, Digha, Mohana; Deputy commissioner, East Khasi Hills District, Shillong and North Orissa University, Odisha.
198. Miss. Darshana Rathod, Ph. D. Student from Anand Agricultural University, Anand, Gujarat visited office from 17.08.2015 to 22.08.2015 for identification of odonata (Dragonflies & Damselflies) collected from south Gujarat.
199. Mollusca specimens received for identification the Principal, Ahmednagar College, Post Box No. 21, Station Road, Ahemadnagar-414 001.
200. Mr A. Mohapatra, Scientist-B rendered to one research scholar of Dept. of Zoology, Berhampur University, Odisha
201. Mr. Jitender Kumar, Zool. Asstt. has provided scientific information on fauna displayed in the museum of the center to the students of Govt. Upper Primary School, Singhasani, Luni, Jodhpur on 9th March, 2016 and to the students of New ST. Paul Sec. School, Bikaner on 10th March, 2016 at the Centre.
202. Mr. Parmod Kumar, Assistant Zoologist, provided guidance to the 17 students (B.Sc. and M.Sc.) of Department of Fisheries Science, DCAST, Selaqui for collection and preservation.
203. Ninety one Freshwater and Land Mollusca specimens received for identification from Dr. S. R. Magare, Associate Professor, Dept. of Zoology, A.S. Mandal's, Arts, Science & Commerce College, Taloda-425413, Dist. Nandubar, Maharashtra.
204. On mammal specimen received for identification



from Kolsewadi Police Station, Kalyan (East), Maharashtra.

205. One Echinoderm species *Pentacaster regulus* (Müller & Troschel, 1842) was identified to Ms. Blessy, Research Scholar, Department of Zoology, Holy Cross College, Nagercoil.
206. One identification report sent to Dr. Indrani Sakar, Assistant Professor, Vidyasagar College, Kolkata.
207. One month Internship training on Collection, Identification and Preservation of major insect groups provided to 8 students (B.Sc., Final Year) of Department of Life Science and Biotechnology, St. Aloysius College, Jabalpur w.e.f. 01.03.2016 to 31.03.2016.
208. One photographed material received from Mrs. Mithila Das, Lecturer in Zoology, S.N. College, Rajkanika, Kendrapara, Odisha has been identified and report sent.
209. One species of Formicidae (Hymenoptera) identified for S. B. College of Pharmacy, Tamil Nadu as per Lot No. 27/2015.
210. One species of Formicidae identified for Calcutta University as per Lot No. 61/2015.
211. One species of Formicidae identified for Navsari Agricultural University, Gujarat as per Lot No. 63/2015.
212. One species of Formicidae identified for Tea Research Centre, North Bengal as per Lot No. 44/2015.
213. Pertinent details about the tidal amplitudes as well as intertidal exposure on the Carbyn's Cove region of South Andaman have been

provided to the Station House Officer, Police Station, Aberdeen, Port Blair in connection with investigation of criminal case filed.

214. Proposal on Rapid Environmental Impact Assessment Studies on biotic components for the Augmentation of Security Infrastructure at Haddo area was submitted to the Garrison Engineer (I) (P) South, Prothrapur, Calicut on request.
215. Proposal on Rapid Environmental Impact Assessment Studies on biotic components for the construction of Eco-hut at Cinque Island Wildlife Sanctuary was submitted to the Office of the Deputy Conservator of Forests, Wildlife Division, Haddo, Port Blair on request.
216. Proposal on Rapid Environmental Impact Assessment Studies on biotic components for the provision of perimeter security infrastructure at Minnie Bay and Garacharma Defence Land, Port Blair was submitted to the Garrison Engineer (I) (P) North, Military Engineer Services, Minnie Bay, Junglighat-Post, Port Blair on request.
217. Proposal on Rapid Environmental Impact Assessment studies on the biotic components of the quarry measuring an area of 4.00 hect. bearing Survey No. 700/P situated at Nabagram village, under Diglipur Tehsil, North Andaman was submitted to the Executive Engineer, Office of the Executive Engineer, Andaman Public Works Department, Diglipur on request.
218. Provided faunal data base of Chamoli District for submission to DFO, Chamoli distt.
219. Received Eleven rodent specimens from Dr. T. Bharathimeena, Scientist (Entomology), Division of Field Crop Improvement and Protection,



Central Island Agricultural Research Institute,
Indian Council of Agricultural Research, Port Blair
(Andaman and Nicobar Islands).

220. Received odonata specimens (11exs.) for identification from Ms. Shradhanjali Koshta, Ph. D. Student, M. H. College of Science and Home Science, Jabalpur (M.P.). Specimen identified.

221. Received one rat specimen from Officer-in-Charge, All India Network Project on Vertebrate Pest Management, Kerala Agricultural University, College of Horticulture, Vellanikkara, Thrissur, Kerala. Specimen identified.

222. Received one rat specimen from Officer-in-Charge, All India Network Project on Agricultural Ornithology, Kerala Agricultural University, College of Horticulture, Vellanikkara, Thrissur, Kerala. Specimen identified.

223. Reptilia Section, FPS Building, ZSI, organised one day workshop on Snake Bites and Superstitions in collaboration with Indian Museum on 22.12.2015 at Indian Museum, Kolkata and Dr.Varadaraju-Scientist C" delivered a lecture on Role of Snakes in Ecosystem.

224. Seized fish specimens have been identified for the Range Officer, Mahatma Gandhi Marine National Park, South Andaman, and fish specimen for ICAR-Central Island Agricultural Research Institute, Port Blair on request.

225. Seized specimens of gorgonian have been identified and report submitted to the Range Officer, Garacharma, South Andaman.

226. Several dead and dried sea shell specimens received for identification from Gumpro Drilling Fluids Pvt. Ltd., (Unit No.2), Gut No. 190, Dheku-410

203, Khalapur Taluk, Raigad district, Maharashtra.

227. Shailendra Ray, Lucknow University sent slides for registration in NZC register.

228. Shillong College, Shillong: Rendered identification service to the Vice Principal on the identity of 16 species of fishes on 08.06.2015.

229. Shri Hrishikesh Choudhury and Shri Sarbojit Thaosen of Gauhati University visited Freshwater Fish Section of ZSI from 16th to 24th November, 2015.

230. Shri S.S. Mishra, Sci-C, has been deputed to participate in a Workshop on 'Nature Index' organized by National Biodiversity Authority, Chennai at Bhubaneswar, Odisha during 27th – 29th Jan. 2016

231. Shri S.S. Mishra, Sci-C, participated a training Workshop on 'Use of GPS' at Z.S.I., Kolkata on 22nd Dec. 2015.

232. Shri.K.C.Gopi, Scientist 'E' and Dr.L.Kosygin Singh, Scientist 'D' attended the World Biodiversity Day celebration organized by the West Bengal Biodiversity Board, Kolkata on 22nd May, 2015 at Science City Auditorium, Kolkata.

233. Shri. Nandini V. Belamkar H.No. 124, Vidya Nagar Colony, S. B. College Road, Gulbarga-585103, Karnataka. (Z.S.I. Lot No. 40 /2015).

234. Shri. Niladrita Sardar, Student, West Bengal State University, Barrackpore-700126 (Z.S.I. Lot No.26 /2015)

235. Smt. K.G. Emiliyamma, Scientist-D Guided one M.Sc. student of Kannur University, Mananthavady Campus, for her dissertation



work. Provided literatures regarding faunal studies conducted by WGRC in the Munnar landscape area, to Dr. V. P. Praveen, Research Scholar, JNTBGRI, Palode, Thiruvananthapuram for his project work. Identified 17 exs. of Odonata belonging to 10 species under 9 genera and another 15 exs. Belonging to 10 species and 32 photographs of Odonata belonging to 12 species under 9 genera for Jisha Krishnan, Research Scholar, KSCSTE Research Project, Calicut University for her project work on the molecular aspect of odonates in Northern Kerala. Advisory services were also rendered to Sridhar Halali, M.Sc. Zoology student of A.V.C. College, Chennai regarding the clarification of species under the genus *Elattonura*, their seasonality, distribution, etc. Identified 42 exs. of Odonat belonging to 18 species under 13 genera and provided literatures and write-ups for an M.Sc. student (Zoology), Malabar Christian College, Kozhikode for his project work. Identified 13 exs. of Odonata belonging to 9 species under 5 genera for Usha Sharma, Ph.D., Research Scholar, Himachal Pradesh University, Shimla for her thesis work. 22 exs. of Odonata were identified belonging to 16 species under 12 genera and another set of 12 exs. as 6 species for Sujila P.S., M.Sc. Zoology, Calicut University, Mananthavady Campus, Wayanad for her dissertation work. Identified 15 exs. of Odonata belonging to 9 species under 7 genera, received from DRC, ZSI, Jodhpur.

236. Spider specimens received for identification from Dr. A. J. Khandagale, P.G. Incharge, P.G. Dept. of Zoology, Prof. Ramkrishna More A.C.S. College, Akurdi, Pune-411044.
237. Spider specimens received for identification the Principal, Ahmednagar College, Post Box No. 21, Station Road, Ahmednagar-414 001.

238. Sri S.S. Mishra, Sci.-C was deputed to review a project work done at Chilika Development Authority, Barakul, Odisha on 02-09-2015.
239. Submitted comments to Maharashtra State Biodiversity Board on proposal "Biological diversity of Spider webs from North Western Maharashtra region".
240. Submitted comments to Maharashtra State Biodiversity Board on proposal "Human and Leopard Territories – Landscape and Urban ecology of Protected Areas in the Megacity, Mumbai, India and "Urban National Parks: Geographical and historical perspectives on the Construction/management of protected Areas in Brazil and Mumbai, India".
241. Submitted comments to Maharashtra State Biodiversity Board on proposal "Study of freshwater plankton" (Pune and Thane district).
242. Submitted comments to Maharashtra State Biodiversity Board on proposal "Study of Ants diversity in some areas of Mumbai" (Navi Mumbai region).
243. Submitted comments to Maharashtra State Biodiversity Board on proposal "DNA barcoding of aquatic coleopteran of Melghat region using mitochondrial COI gene".
244. Submitted comments to Maharashtra State Biodiversity Board on proposal "Study of freshwater plankton".
245. Submitted comments to Maharashtra State Biodiversity Board on proposal "Identification and ecological studies of ants".
246. Submitted comments to Maharashtra State



- Biodiversity Board on proposal "To study ant species in the natural habitat".
247. Submitted comments to Maharashtra State Biodiversity Board on proposal "Survey and collection of insect specimens for PhD research in Bor WLS area.
248. Submitted comments to Maharashtra State Biodiversity Board on proposal "Sampling of Chiroptera (bats) species for research purpose".
249. Submitted comments to Maharashtra State Biodiversity Board on proposal "Isolation, identification and characterization of micro-organism from rice fields (mainly focused on methane oxidizing bacteria)".
250. Submitted comments to Maharashtra State Biodiversity Board on proposal "Study of gut microbiota of *Panthera tigris tigris*."
251. Submitted comments to Maharashtra State Biodiversity Board, Nagpur on project on "Study of Ant diversity".
252. Submitted comments to Maharashtra State Biodiversity Board, Nagpur on project on "Effect of environmental pollutants on growth and sexual development of Frogs". Forty nine biofouling specimens received for identification from the Scientist-in-Charge, WBD Centre (Marine), Institute of Wood Science & Technology, Visakhapatnam. Three freshwater crabs specimens received for identification from Dr. P. Sreenivasula Reddy, Department of Zoology, Sri Venkateswara University, Tirupati. Fish specimens received for identification from Mrs. P.D. Sawant, Ramkrishna More Mahavidyalaya, Akurdi, Pune. Molluscan specimens received for identification from the Principal, C.H.C. Arts, S.G.P. Commerce & B.B.J. P. Science College, Taloda-425 413, Dist. Nandurbar, M.S. Spider specimens received for identification from the Principal, Ahmednagar College, Post Box No.21, Station Road, Ahmednagar-414001, M.S. Three marine crab specimens received for identification from Dr. P. Sreenivasula Reddy, Department of Zoology, Sri Venkateswara University, Tirupati. Two freshwater bivalve specimens received for identification from Smt. Mayura S. Patil, Department of Zoology, K.S.K.W. Arts, Science & Commerce College, Nashik.
253. The details of Horsefly of Andaman and Nicobar Islands have been provided to the PCCF(WL), Andaman and Nicobar Administration.
254. Thirty Post graduate students of Department of Ocean Science and Marine Biology, Pondicherry University, Brookshabad Campus, Port Blair and sixty students of Khalsa Public School visited Regional Museum as part of their subject curricula on 4th and 14th August 2015 respectively and guidance was extended.
255. Threatened faunal list of Andaman and Nicobar Island was submitted to the Assistant Conservator of Forests, Office of the Principal Chief Conservator of Forests (Wildlife) on request for the preparation of Draft Wildlife Policy framework as the reviewing work of existing Wildlife (Protection) Act, 1972.
256. Three species of Formicidae identified for Sonamukhi College, Bankura as per Lot No. 43/2015.
257. Twenty one marine fouling organisms were identified for National Institute of Ocean Technology, Andaman and Nicobar Center for



Ocean Science and Technology (ANCOST), Port Blair on request.

258. Two freshwater crab photographs were identified as *Sartoriana spinigera* (wood mason, 1871) and *Maydelliathelphusa* sp to Mr. Arjan basu Roy, Secretary, Nature mates.
259. Two freshwater crab specimens received from Shri H.G. Jijaba, S.N. Arts, D.J.M. Commerce & B.N.S. Science College, Sangamner, Ahmednagar district, Maharashtra.
260. Two lots of images (21+9) of birds were examined for the identification of avifaunal species, and identification report was submitted
261. University of Jammu, department of Botany, J& K, India: Rendered identification service to Ms. Madhu Raina on the identity of one species of bat on 29.06.2015.
262. Dr. Avtar Kaur Sidhu, Scientist-D and Officer-in-Charge provided information/literature of Simbalbara butterflies species and nectar food plant to Chief Conservator of forests, Sh. P. L. Chauhan, Shimla on 12.05.2015.
263. Dr. Avtar Kaur Sidhu, Scientist-D and Officer-in-Charge rendered the technical assistance to the Principal Conservator and Chief Conservator of forest for the developing Butterfly Park in Simbalbara Wildlife Sanctuary on 13.05.2015.
264. Dr. Avtar Kaur Sidhu, Scientist-D and Officer-in-Charge attended Wildlife Board meeting (Himachal Pradesh) on 8th May, 2015 as member and representative of Director, ZSI with Honorable Chief Minister Himachal Pradesh Sh. Virbhadra Singh and Forest Minister Sh. Thakur Singh Bharmouri.
265. Dr. Avtar Kaur Sidhu, Scientist-D and Officer-in-Charge gave the presentation to Wildlife officials on two new programmes of the Centre viz. Sainj Wildlife Sanctuary Distt Kinnaur and Sangla Valley District Kullu for permission to conduct the surveys in the areas on 13.05.2015.
266. Dr. Avtar Kaur Sidhu, Scientist-D & Officer-in-Charge is attending to enquires of CPWD (civil) for construction of repository and minor works and sent estimate of CPWD (Civil) to DZSI, on 01.05.2015.
267. Dr. Avtar Kaur Sidhu, Scientist D & Officer-in-Charge, assigned and guided the work to Ms. Anjoo Dhar, Zoological Assistant on the group Trichoptera & Mr. Akhil Nair, Zoological Assistant on Microlepidoptera taxonomy and also gave the training on collection and preservation of insects and maintenance of insect collections.
268. About 550 photographs have been under taken during the Centenary Run and National Training Workshop.
269. 04 posters and abstract book were released during National Training Workshop on fauna of Hotspot-2: Western Himalaya held at Solan on 24th July, 2015.
270. Sh. C.D. Kalra, Retd. Station Master along with five members from Circular Road, Solan (H.P.) visited the Museum of the Centre on 16-06-2015.
271. HARC, Zoological Survey of India, organized the Centenary Run on auspicious occasion of Centenary Celebration on 1st July, 2015. Deputy Commissioner, Solan (HP) flag off the run from Circuit House to ZSI Office and more than 175 persons participated in the run. The Centenary



run programme got the wide publicity through video news in DD National, ETV Himachal Pradesh and 11 daily newspapers.

272. Dr Avtar Kaur Sidhu, Officer-in-Charge attended the Officer meeting at ZSI, HQ Kolkata on July 17, 2015.

273. HARC, Zoological Survey of India, organized the Five day National training Workshop on Fauna of Hotspot-2: Western Himalaya from July 24-28, 2015. Total of 30 Research Scholar Participating in this workshop and Sh. J.S. Walia, PCCF (WL) Himachal Pradesh, Prof. Jagbir Singh, HOD Department of Zoology, Punjabi University, Patiala (Punjab), Dr. K. Venkataraman, Director, Zoological Survey of India, and Dr. J.M. Julka, Retired Scientist Inaugurated the Workshop. The Participants were provided with free loading and boarding. One day scientific tour to periphery of Chail Wildlife Sanctuary was organized during workshop. Total of 20 invited lectures delivered in the Workshop and hands on training was given in afternoon sessions.

274. Director, Zoological Survey of India laid down the foundation stone of Himalayan Repository at HARC, Solan dated on July 24, 2015. In the function CPWD Suptd. Engineer, Executive Engineer, Asstt. Engineer, Jun. Engineer, Officer-in-Charge with ZSI Staff, & Retired persons of ZSI were present there.

275. Two Students from Shoolini University, Solan (H.P.) visited the Museum of the Centre on 24-8-2015.

276. Hindi Divas and Hindi Karayshala have been organized in the Centre from 14th to 15th September, 2015. Various competitions viz. Story writing, Poem writing, and Noting, Drafting &

letter writing have been organized in the centre on 14th September, 2015 during Hindi Divas among the staff. The workshop on Knowledge of Hindi has also been organized on 15th September, 2015 in the Centre. Dr. Baldev Thakur, Associate Prof., Govt. PG College, Solan and Dr. Uttam Kumar, Associate Prof., Govt. Sanskrit College, Solan were the guest faculty for giving the lectures on the skill of Hindi writing and use of Hindi in noting and drafting to the HARC, ZSI, staff. Besides, Hindi Pakhwara has been celebrated in collaboration with Town Official Language Implementation Committee (TOLIC). Five persons from the Centre participated in story writing, poetry & extempore competitions organized by Town Official Language Implementation Committee (TOLIC), Solan at MSME, Solan on 10th and 23rd September, 2015. Dr. Kamal Saini, Assistant Zoologist and Sh. Akhil Nair, Zoological Assistant won the 3rd and 2rd prizes respectively in the extempore contest and Ms. Saveena, J.R.F. won 3rd prize in the poetry competition.

277. Three officials from DPRO office and four from revenue department visited the Museum of the Centre 23-10-2015.

278. Dr. Avtar Kaur Sidhu, Scientist-D and Officer-in-Charge and Dr. Indu Sharma, Scientist-D attended Hindi Karayashala and acted as guest of honour in Urdu Teaching Centre on 23.11.2015.

279. Dr. Avtar Kaur Sidhu, Scientist-D and Officer-in-Charge attended Town Official Language Implementation Committee meeting at MSME, Chambaghat, Solan on 24.11.2015.

280. Two persons from Shimla, BCS and one from Solan visited the Museum of the Centre on 03-11-2015.

281. New EPBAX (intercommunication system) has been installed in the Centre.



282. Three persons from RGGPGAC, Paprola, district Kangra and one official from
283. NRC, ZSI, Dehradun visited the Museum of the Centre 29-12-2015.
284. The 67th Republic day flag hosting ceremony has been celebrated in the Centre on 26-01-2016.
285. Three Departmental Publications viz. Fauna of Western Himalaya, Part-1(U.P), Fauna of Western Himalaya Part-2 (H.P) and Fauna of Pin Valley National Park (H.P) have been sold to a Professor from Nauni University, Solan.
286. Sh. Parveen Kumar Agarwal, Superintending Engineer along with three members from Shimla visited the Museum of the Centre dated on 28-02-2016.
287. The Officer-in-Charge attended the TOLIC meeting of Hindi at Urdu Research Centre, Solan on 05-03-2016.
288. The quarterly meeting of Hindi has been conducted in the Centre on 30.3.2016 with Hindi committee of HARC.
289. Prof. Devinder Singh, Registrar and 05 faculty Sr. Teachers from Department of Zoology & Environmental Sciences, Punjabi University, Patiala along with 60 post graduate students visited the Museum of the Centre on 11.03.2016. The Scientists of the Centre provided the demonstration/ knowledge of invertebrate and Vertebrate Himalayan Fauna display in the Museum and laborites of the Centre to the Students.



IDENTIFICATION OF CONFISCATED WILDLIFE MATERIALS



Zoological Survey of India



Identification of Confiscated Wildlife Materials Received from Govt. Offices/ Law Enforcing Directorates / Police Department

Confiscated materials received from Govt. Offices/ law enforcing directorates / police department by Amphibia Section, General Non-chordate Section, Mammal Section, Marine Fish Section, Mollusca Section, Reptilia Section, Andaman & Nicobar Regional Centre, Port Blair, Central Zone Regional Centre, Jabalpur, Marine Biological Research Centre, Chennai and Western Ghat Regional Centre, Calicut were identified.

1. Identified the bird remnants received from Range Officer, Jhargram Division, West Bengal forest Department as Barn Owl *Tyto alba*.
2. 7 live parakeets were seized and brought to us by Regional Deputy Director, WCCB, Kolkata for its identification on 22nd April, 2016. The same were identified as mutant variety of Rose-ringed Parakeets.
3. Identified the bird remnants received from DFO, Gorumara Wildlife Division, Jalpaiguri. The carcass were identified as Oriental Bay-Owl *Phodilus badius*.
4. Received a letter from the Regional Deputy Director, WCCB (ER) asking us to identify the seized bird feathers. In this regard we have send them the identification report on 22nd September, 2015.
5. Advisory services provided to the WCCB (ER) for rehabilitation of seized birds to hand over the seized parakeets to Zoo as they are the Mutant Varieties.
6. On 29th July, 2015, Dr Gopinathan Maheswaran, Scientist –D and Officer-in-charge of Bird Section, have appeared before a CBI Officer as a witness in an identification case related to bird identification that he has done on 13th June, 2014.
7. The Regional Deputy Director, WCCB (ER), Kolkata, send the photographs of seized live birds on 30th September, 2015, for its identification. We have identified the birds and replied to them on 13th October, 2015. The bird species were Macaw, parakeet, Cockatoo and parrots.
8. Replied provided to the identification query raised by WCCB (ER) Kolkata. They have sent us 96 bird neck capes, all were identified as a mix of Red Jungle fowl and Domestic Fowl.
9. The Regional Deputy Director, WCCB (ER), Kolkata, sent 10 bird neck capes for its identification on 30th November, 2015, for its identification. And the same were identified as Domestic fowl feathers.
10. Identified two live specimens of turtles as *Pangshura tectum* and *P. tentoria* to The Range officer Sajnekhali WLS, STR, WB
11. Identified two seized snake skin as *Ptyas mocosca* & *Xenochrophis piscator* to Regional Deputy Director, WCCB, Kolkata
12. Provided source of origin of Black pond turtle in India to Additional Director, WCCB, New Delhi.
13. Identified seized live reptile specimen as *Gekko gecko* to DFO, Alipore, Kolkata
14. Identified three seized lizard specimes as *Calotes versicolor* to Regional Deputy Director WCCB, Kolkata
15. Identified meat sample and shell pieces as Indian flapshell turtle, *Lissemys punctata* to DFO, Raiganj division, Uttar Dinajpur.
16. Confiscated turtle fin was identified for the Wildlife Division, Department of Environment and Forest, Andaman and Nicobar Administration on request.
17. Confiscated sea cucumber specimens received from the Range Officer, Department of



Environment and Forests, Mannarghat have been identified and report submitted on request

18. Seized fish specimens have been identified for the Range Officer, Mahatma Gandhi Marine National Park, South Andaman, and fish specimen for ICAR-Central Island Agricultural Research Institute, Port Blair on request.
19. Threatened faunal list of Andaman and Nicobar Island was submitted to the Assistant Conservator of Forests, Office of the Principal Chief Conservator of Forests (Wildlife) on request for the preparation of Draft Wildlife Policy framework as the reviewing work of existing Wildlife (Protection) Act, 1972.
20. Ten specimens of seahorses received from Alipurduar have been identified
21. Images of scheduled faunal communities and marine biodiversity were submitted to the Deputy Conservator of Forests (WL), South Andaman as requested.
22. As requested by the Conservator of Forests (Wildlife), Department of Environment Forests, A & N Administration, 11 scientific personnel of the Centre have been deputed to participate in the census of saltwater crocodile organized during 30th and 31st January 2016.
23. Seized specimens of gorgonian have been identified and report submitted to the Range Officer, Garacharma, South Andaman.
24. Confiscated teeth of *Alligator* sp. were identified for the Range Officer, Protection Range, Haddo, South Andaman as requested.
25. Confiscated live two molluscs specimens of *Tridacna crocea* Lamarck, 1819 and 32 specimens of *Amphiprion ocellaris* Cuvier, 1830 were identified for the Range Officer, Garacharma Range, Port Blair, South Andaman on request.
26. One skin sample received for identification from

Forest Department, Narayangaon, Maharashtra. Identification: Skin of Leopard (*Panthera pardus*).

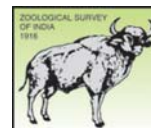
27. One skin sample received for identification from Badlapur Purva Police Station, Thane city. Identification: Skin of Leopard (*Panthera pardus*).
28. 99 exs. Of Star tortoise received for identification from DCF, Thane. Identification: Star Tortoise (*Geochelone elegans*).
29. One skin received for identification from Police department, Police station Etwara, Nanded, Maharashtra. Identification: Fake tiger skin of *Panthera tigris*.
30. One skin received for identification from Police department, Police station Uttam Nagar, Pune, Maharashtra. Identification: Fake tiger skin of *Panthera tigris*.
31. One tortoise specimen received for identification from RFO, Satara. Identification: Star Tortoise, *Geochelone elegans* (Family: Testudinidae).
32. One skin received for identification from Police department, Vikramgarh, Maharashtra. Identification: Fake tiger skin of *Panthera tigris*.
33. 26 tortoise specimen received for identification from DFO, Mumbai. Identification: Star Tortoise, *Geochelone elegans* (Family: Testudinidae).
34. One skin received for identification from Police Thane, Kalsewadi, Maharashtra. Identification: Skin of Blackbuck (*Antelope cervicapra*), which is in schedule I of Wildlife protection Act, 1972.



**SYMPOSIA & SEMINARS
ATTENDED BY SCIENTISTS**



Zoological Survey of India



Symposia/Seminar/Workshop/ Training Programmes attended by the Scientists

1. Dr. Sanjeev Kumar, Scientist-D & Officer-in-charge has delivered a lecture as a resource person in Hindi entitled *Takaniki shbadavali evum vigyan shikshan: Jeev vigyaan mein bhaarateey praanee sarvekshan kee bhaageedaaree evam 100 varsh kee upalbdhiyaan* in the National Seminar organized by the Commission for Scientific and Technical Terminology (CSTT), Ministry of HRD and Shri Ratan Lal Kanwar Lal Patani Govt. P.G. College, Kishangarh, Ajmer, Rajasthan on 8th February, 2016.
2. Dr. H. S. Banyal, Scientist-C has attended inaugural function of first group meeting of Vertebrate Pest Management at CAZRI, Jodhpur on 15th October, 2015.
3. Dr. Sanjeev Kumar, Scientist-D attended meeting of Town Official Language Implementation Committee (TOLIC) at DRM office, Jodhpur on 18th December, 2015.
4. Dr. Sanjeev Kumar, Scientist-D & Officer-in-charge attended Rajasthan State Wildlife Board meeting convened by Chief Minister of Rajasthan State at CM Office, Jaipur on 22nd February, 2016 and agenda items were proposed by CWLW, SFD, Rajasthan. O/C, DRC, ZSI, Jodhpur participated in the proceedings of the meeting and supplemented some of the published information on fauna of some of the important wetlands of Rajasthan.
5. Dr. Sanjeev Kumar, Scientist-D has attended & delivered an invited lecture in the *Rajbhasha Workshop* organized by Desert Medicine Research Centre, (ICMR), Jodhpur on 30th December, 2015.
6. Dr. Sanjeev Kumar, Scientist-D participated and delivered invited lecture as a resource person in Hindi entitled *Takaniki shbadavali evum vigyan shikshan: Jeev vigyaan mein bhaarateey praanee sarvekshan kee bhaageedaaree evam 100 varsh kee upalbdhiyaan* in the two-day National Seminar on Recent Innovations in Technical Terminology & Biodiversity sponsored by Commission of Scientific & Technical Terminology, Ministry of HRD, (Deptt. of Higher Education), New Delhi and organized by Desert Regional Centre, Zoological Survey of India, Jodhpur on 11th - 12th August, 2015 at DRC, ZSI Campus, Jodhpur, Rajasthan.
7. Dr. Sanjeev Kumar, Scientist-D & Officer-in-charge has participated as a Special Guest and attended the EARTH DAY 2015 celebration organized by an NGO *Shrashti Seva Sansthan*, Jodhpur on 22nd April, 2015 at *Suchna Kendra*, Jodhpur and delivered lecture on role of human society in animal conservation and how to save the mother earth in the present day scenario. On this occasion Dr. Sanjeev Kumar, Scientist-D also distributed Y.D. Singh Memorial prizes to the school students.
8. Science, Education and Business exhibition at Govt. Brennen College, Thalassery, Kannur dist. on 14 to 18th January 2016.
9. 24th November, 2015 in the conference Hall of the office of the PCCF, govt. of Meghalaya, Shillong to offer inputs on the Meghalaya State Biodiversity Action Plan.
10. Dr. H.S. Banyal, Scientist-D participated and delivered invited lecture as a resource person in Hindi entitled *Prani Vivdhata aur Vikas-Rajasthan ke Sandarbh mein ek Pariparekshay* in the National Seminar on Recent Innovations in Technical Terminology & Biodiversity sponsored by CSTT, Ministry of HRD, (Deptt. of Higher



- Education), New Delhi and organized at DRC, ZSI Campus, Jodhpur, Rajasthan on 11th - 12th August, 2015.
11. Dr. Sanjeev Kumar, Scientist-D & Officer-in-charge has attended Foundation Stone Laying Ceremony of New ISRO Complex by Smt. Vasundhara Raje Hon'ble Chief Minister, Govt. of Rajasthan at Jodhpur on 13th June, 2015.
 12. Scientia 16, Aqua cum science Expo at MES Asmabi College, Kodungallur on 21-26th January 2016.
 13. Dr. Sanjeev Kumar, Scientist-D participated online in the IPBES e-Conference on Invasive Alien Species (IAS) from 7th -11th September, 2015 on the topic (s): Who are the important stakeholders that should be reached with this assessment of IAS and what are their needs & what should be the scope, rationale & utility of an IAS assessment.
 14. Dr. Sanjeev Kumar, Scientist-D & Officer-in-charge has attended and participated in a Stakeholders meeting held on 27th June, 2015 at Desert Medicine Research Centre, (ICMR), Jodhpur.
 15. Sasthrajalakam National Science Expo, 28th Kerala Science congress at University of Calicut, Kerala on 28-30th January 2016.
 16. Dr. Sanjeev Kumar, Scientist-D delivered invited lecture as a resource person in Hindi entitled Takaniki shbadavali evum vigyan shikshan: Jeev vigyaan mein bhaarateey praanee sarvekshan kee bhaageedaaree evam 100 varsh kee upalbdhiyaan in the National Seminar organized by the Commission for Scientific and Technical Terminology (CSTT), Ministry of HRD at Deen Dayal Upadhyaya College, Delhi University, N. Delhi on 18th September, 2015.
 17. Dr. Sanjeev Kumar, Scientist-D has attended XXIII Prof. D. S. Kothari Memorial Oration on Network Centric Airspace Surveillance: A Force Multiplier delivered by Dr. S. Christopher, Secretary, Department of Defence R & D and Director General, DRDO at Defence Laboratory (DRDO), Jodhpur on 6th July, 2015.
 18. Vinjan-2016- Science Exhibition by St Mary, s higher secondary School, Koodathai, Calicut. 29 Th Dec. 01 st January 2016.
 19. Dr. Sanjeev Kumar, Scientist-D & Officer-in-charge, Dr. H. S. Banyal, Scientist-D, Mr. Sandeep Sirawat, Zoological Assistant, Mr. Jitendra Kumar, Zoological Assistant & Mr. Rakesh Sharma, Taxidermist Grade-III have attended ZSI Postal Stamp Release function at New Delhi on 3rd December, 2015.
 20. Dr. Sanjeev Kumar, Scientist-D delivered lecture on Fauna of Rajasthan and its peculiarities to students of the Shanti Niketan School, Jodhpur on 10th July, 2015 at the Centre.
 21. Dr. Sanjeev Kumar, Scientist-D has attended & delivered an invited lecture as a resource person in the National Seminar organized by the Commission for Scientific and Technical Terminology (CSTT), Ministry of HRD and Chartered Institute of Technology, (Kota University) Abu Road, Distt. Sirohi, Rajasthan on 10th December, 2015
 22. Dr. Sanjeev Kumar, Scientist-D has attended the Officer-in-charge's meeting at ZSI, HQ, Kolkata and presented the progress of Scientific, administrative and financial work of DRC, ZSI, Jodhpur on 17th July, 2015.
 23. Dr. Sanjeev Kumar, Scientist-D & Officer-in-charge participated in Rajasthan State



Biodiversity Board (RSBB) meeting on 12th August, 2015 at FTI, JLN Marg, Jaipur.

24. Dr. Sanjeev Kumar, Scientist-D has attended and presented a research article entitled "Suraksha Kee Drishti Se Mahatavpurn Thar Registaan Ke Seemavartee Kshetron Mein Praanee Vivdhata Ke Sarankshan Mein Bharatiya Praani Servekshan Ka Yogdaan" in a Seminar on Official Language Hindi at Defence Lab (DRDO), Jodhpur on 28th January, 2016. Dr. H. S. Banyal, Scientist-D has also attended aforesaid Seminar.
25. Dr. Sanjeev Kumar, Scientist-D delivered invited lecture in Hindi on "Jev vividhta sarvekshan evum sanrakshran" during Rajbhasha Sanghoshthi at Central Arid Zone Research Institute (CAZRI), ICAR, Jodhpur on 16th September, 2015.
26. A power point presentation was given by Dr. Gopal Sharma on the development of preparation of Management plan of Dolphin Sanctuary from Kahalgaon to Sultanganj, Bihar.
27. Collaboration with the State Council of Science, Technology & Environment, Meghalaya on the 24th Sept., 2015.
28. Delivered a lecture on Requirements of Infrastructure facilities in Educational and Research Organization on 29.1.2016 at SRAP College Bara Chakia, East Champaran, BRAB University, Bihar.
29. Displayed FBRC activities and fauna in the exhibition at International Day for Biological Diversity on 22nd May, 2015 at Indira Priyadarshini Auditorium, Nampally, Hyderabad organized by Telangana State Biodiversity Board.
30. Dr A. Bahuguna attended one meeting with the Director FRI for discussion on Aquatic Fauna of Ganga for Ganga Project (DPR), submitted one write up to FRI for the subject mentioned.
31. Dr A.N. Rizvi was invited as subject expert to conduct a Walk-in-Interview for the selection of Project Biologist at WII on 30th Nov'15.
32. Dr Archana Bahuguna and Dr. Anil Kumar, Participated in Training programme on "Economic Valuation of Ecosystem Services" from 14-17th March, 2016 at WII, Dehradun. This workshop was jointly organized by Wildlife Institute of India (WII) and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.
33. Dr Archana Bahuguna attended a training programme from 3rd to 5th August, 2015 on mainstream Biodiversity of Energy Sector. Organized by wildlife Institute of India.
34. Dr G Maheswaran, Scientist D & O/C Bird Section has delivered a lecture at Sunderban Biosphere Reserve, on 12th March 2016.
35. Dr G Maheswaran, Scientist D & O/C Bird Section has visited NFC and Raj West Power Ltd., Barmer, Rajasthan to assess faunal diversity from 10th to 19th February, 2016.
36. Dr G Maheswaran, Scientist D & O/C Bird Section, has visited to Shilong on 17th March, 2016 to participate in the Seminar organized by Zoological survey of India, Shilong regional Centre to celebrate centenary year of ZSI.
37. Dr Gopal Sharma and Dr Navneet Singh attended a seminar and brain storming meeting on Food and Safety on world health day (07.04.2015) organized by The National Academy of Sciences India (NASI) at Rajendra Memorial Research Institute of Medical Sciences (ICMR), Agamkuan, Patna.



38. Dr Gopal Sharma delivered a lecture on Biodiversity and conservation on 14.10.2015 at RN College, Hazipur.
39. Dr Gopal Sharma Scientist D attended a workshop on Conservation of Gangetic Dolphin for develop framework for future conservation in the state of West Bengal, jointly organized by WWF Kolkata and West Bengal Biodiversity Office, from 16th -17th March 2016.
40. Dr Gopal Sharma Scientist D attended meeting with Additional Chief Conservator of Forests cum Chief Wildlife Warden Dept of Forests and Environment Govt of Bihar on 2.11.2015 for making Sonapur cattle fare free from bird's trade and a workshop on Forests and Natural Ecosystem Policies and Programme implication, adaption under a changing climate on 6.11.2015
41. Dr Gopal Sharma, Scientist D attended a meeting with PCCF Dept of Env and Forests, Govt of Bihar for inputs in formulation of Kavar lake management plan by The Wetland International, New Delhi on 14th May 2015 at Conference Hall Sanjay Gandhi Biological Park, Patna.
42. Dr Gopal Sharma, Scientist D attended a consultation meeting for project on DPR Preparation of "Forestry Interventions for Ganga" on 19-20 May-2015 at ARANYA Bhawan, Bailey Road, Patna.
43. Dr Gopal Sharma, Scientist D attended as participant and resource person in the National Seminar on Recent innovation in technical Terminology and Biodiversity jointly organized by the Commission for Scientific and Technical Terminology and Zoological Survey of India, DRC Jodhpur, Rajasthan from 11-12 August 2015.
44. Dr Gopal Sharma, Scientist D attended participated in the interaction meeting with Govt. and Stakeholder of Baraila Lake in Loma village on 3rd Aug. 2015, organized by Dept of Environment and Forests Govt. of Bihar.
45. Dr Gopal Sharma, Scientist D attended state wild life board meeting on 19.06.2015 in Sambhaad Kaksh, Chief minister Secretariat, Patna
46. Dr Gopal Sharma, Scientist D attended the Word Photography Day organized by the Bihar Photographer's Association Bihar Patna in Patna Museum on 19 August 2015.
47. Dr Gopal Sharma, Scientist D delivered a lecture on Global Warming and impact on Biodiversity in the Shri Arvind Mahila Mahavidyalay, Magadh University, Kazipur, Patna on 16th May, 2015.
48. Dr Navneet Singh, Scientist D attended a meeting regarding 'Bhavishya Software' at MOEF&CC at New Delhi on 12.02.2016.
49. Dr Navneet Singh, Scientist D delivered an invited lecture on 'Entomology and its career prospects' at University Department of Zoology, B.R.A. Bihar University, Muzaffarpur, Bihar on May 9, 2015.
50. Dr Swetapadma Dash, Scientist-D of the Centre attended The Progress monitoring meeting at ZSI HQ, Kolkata on 17/07/2015.
51. Dr. A.N.Rizvi, Dr. Archana Bahuguna, Dr. Narender Sharma, Dr. Anil Kumar, Dr. Vinita Sharma attended the inauguration of Regional Science Centre developed by National Council of Science Museum, Ministry of Culture, Govt. of India in collaboration with Uttarakhand State Council for Science & Technology, Govt. of Uttarakhand on 03.02.2016.



52. Dr. A.N.Rizvi, Scientist-D and Dr A.Bahuguna, Scientist-D, participated as subject experts in Brain storming session on Skill of Scientific Project dissertation and paper writing" organized during 10th Uttarakhand State Science and Technology Congress (USSTC) 2015-16 from 10th -12th February, 2016 at Vigyan Dham, Jhajra, Dehradun."
53. Dr. A.N.Rizvi, Scientist-D was deputed by the Director, ZSI to attend the Tenth Meeting of the Expert Committee for Declaration of Eco-sensitive Zones for Okhla Bird Sanctuary held at MOEFCC, New Delhi on 15th April, 2015.
54. Dr. A.N.Rizvi, Scientist-D, attended 10th Uttarakhand Biodiversity Board meeting held on 30th March'2016.
55. Dr. Anil Kumar, Scientist-D delivered a guest lecture titled, "Communication: Visual, Olfactory and Acoustic Modalities (Bird Songs and Calls)" targeted to P.G. Students, was delivered on 05.03.2016 in Uttaranchal (P.G.) College of Bio-Medical Sciences and Hospital, Dehradun.
56. Dr. Anil Mohapatra, Scientist D and Officer-in-Charge, attended the UGC sponsored One day national Seminar on "Role of Biodiversity and Natural Resources in Sustainable development" on 19th January, 2016, Organised by Department of Zoology, Bajkul Milani Mahavidyalaya, East Medinipur, West Bengal
57. Dr. Aparna Kalawate, Scientist-C chaired a technical session in the International Conference on Natural Polymers-2015 at Mahatma Gandhi University, Kerala from 10th to 12th April 2015.
58. Dr. Aparna Kalawate, Scientist-C delivered an invited talk on "Importance of wood preservation: An Indian Overview" in Fourth International Conference on *Natural Polymers, Bio-Polymers, Bio-Materials, their Composites, Nanaocomposites, Blends, IPNs, Polyelectrolytes and Gels: Macro to Nano Scales (ICNP – 2015)* at Mahatma Gandhi University, Kerala. 10-12th April, 2015.
59. Dr. Archana Bahuguna, Scientist-D delivered two Invitee lectures (from 10 am to 1pm) at Gurukul Kangri University on 30th March 2016 on topic: Trichotaxonomy and Molecular study as tools for Wildlife forensic, for the national workshop on 'Taxonomic keys and identification of different groups of flora and fauna including the molecular tools: during 28-30 March 2016' sponsored by DST and UCOST..
60. Dr. Archana Bahuguna, Scientist-D submitted a write up to the Director FRI for Detailed Project Report on Forestry Interventions for Ganga, to FRI as DPR
61. Dr. Archana Bahuguna, Scientist-D visited Wildlife Institute of India as an external expert for conducting an interview for Project Scientists and Project associate for CAMPA projects on 24th Feb 2016.
62. Dr. Avtar Kaur Sidhu, Officer-in-charge acted as resource person and gave invited talk in national workshop on "National level Training Workshop on Fauna of Shivalik Ecosystem (Uttarakhand) and the Applications of GIS in Conservation of Fauna" at NRC, ZSI, Dehradun on "Diversity of Lepidoptera in Shiwalik Ecosystem" on 20.07.2015.
63. Dr. Avtar Kaur Sidhu, Scientist-D and Officer-in-Charge along with other
64. Dr. Avtar Kaur Sidhu, Scientist-D attended the Training Programme on "Economic valuation of



Ecosystem services" from 14-17 March, 2016 at WII, Dehradun organised jointly by WII and GLZ, GmbH.

65. Dr. Avtar Kaur Sidhu, Scientist-D delivered a talk in "National Training Workshop on Fauna of Hotspots-2: Western Himalayan (24th to 28th July, 2015) held at HARC/ZSI, Solan on "Diversity & "Taxonomy of Lepidoptera and Western Himalaya and Insect Diversity".
66. Dr. Avtar Kaur Sidhu, Scientist-D gave lecture on "An Overview of Faunal Diversity of Indian Himalaya" in the National Seminar on Himalayan Biodiversity and Bio resource unitization held at Himachal Pradesh University, Shimla on 23.03.2016.
67. Dr. B.H.C.K. Murthy, Scientist-C, Delivered a lecture on "Reptilian fauna of Western Ghats" during the National workshop on Identification of fauna of Western Ghats organized during 5-9th Feb.2016 at ZSI, WGRC, Calicut; Delivered a lecture on Historical aspects of ZSI and its taxonomic collection with reference to Reptiles during the Workshop on 'Zoo Taxonomy' at the Department of Applied Zoology, Mangalore University, Mangalangothri, Karnataka on 29th March 2016.
68. Dr. Bikramjit attended the 166th Foundation Day of Geological Survey of India, Itanagar on 4th March 2016.
69. Dr. Bikramjit Sinha acted as an expert for the selection of a JRF in a DST funded project implemented by SFRI, Itanagar on 29/02/2016.
70. Dr. Bikramjit Sinha also invited and served as a Visiting Faculty in the Center with Potential for Excellence in Biodiversity, Rajiv Gandhi University, Itanagar during 15-30 October, 2015

and delivered theoretical lectures and imparted hands-on training to the students of Advanced Post Graduate Diploma Course.

71. Dr. Bikramjit Sinha and others organized a one day workshop on the Centenary Foundation Day of ZSI on July 01, 2015 and delivered a lecture on the activities of ZSI in general & APRC in particular on this occasion.
72. Dr. Bikramjit Sinha attended a 3-day training on Functions of Heads of Offices/DDO organized by Institute of Government Accounts and Finance, Kolkata during 13-15 May 2015.
73. Dr. Bikramjit Sinha attended as a member in the meeting of Technical Committee of Protected Areas of Arunachal Pradesh in o/o PCCF, Itanagar on 11th May 2015.
74. Dr. Bikramjit Sinha attended as a member in the meeting of the Arunachal Pradesh Forest Research committee in the O/o PCCF (WL&BD) on 15/03/2016.
75. Dr. Bikramjit Sinha attended as member in the meeting of the Arunachal Pradesh Forest Research Committee for Wildlife Protected Areas in the O/O PCCF (WL), Govt. of Arunachal Pradesh, Itanagar on 15th September 2014 and offered inputs in granting research proposals.
76. Dr. Bikramjit Sinha attended as member in the meeting of the Arunachal Pradesh Forest Research Committee for Wildlife Protected Areas in the O/O PCCF (WL), Govt. of Arunachal Pradesh, Itanagar on 16th November 2015 and offered inputs in granting research proposals.
77. Dr. Bikramjit Sinha delivered a lecture entitled "Realizing the importance of biodiversity for sustainable development: the sooner the better" on the eve of International Day on May 22,



2015 celebrated by the Board at Hapoli, Lower Subansiri district, Arunachal Pradesh.

78. Dr. Bikramjit Sinha participated in a discussion meeting on Normally Traded Commodities (NTCs) organized by Arunachal Pradesh Biodiversity Board on 14th September 2015 in SFRI, Itanagar and offered inputs.
79. Dr. Bikramjit Sinha rendered advisory services to 2 student of B. Sc. 5th Semester Zoology of D. N. Government College (Miss A. Bhatt and another) regarding dissertation on Fauna of Arunachal Pradesh on 16/02/2016.
80. Dr. Bikramjit Sinha rendered advisory services to Dr. P. Nanda, Head, Department of Zoology, D. N. Govt. College, Itanagar regarding dissertation by B. Sc. 5th Semester students of his department as well as documentation and identification of different specimens collected by his students.
81. Dr. Bikramjit Sinha rendered advisory services to Mr. Sorang Tania, Chairman, Kongto-Raba Mountain Flora-fauna Protection Society of Kra-Dadi district regarding documentation of fauna diversity in Kra-dadi district.
82. Dr. Bikramjit Sinha rendered advisory services to Ms. Pratistha Srivastava, a student of RGU towards her dissertation works on praying mantids of Arunachal Pradesh.
83. Dr. Bikramjit Sinha rendered advisory services to Sh. Kalung Richo, an M. Sc. Life Sciences student of University of Kota regarding dissertation and internship in Zoological Survey of India on 25/1/2016.
84. Dr. Bikramjit Sinha Scientist-C & Officer-in-Charge of the centre participated as a resource person/panelist in the 2nd Regional Consultation

on Multi-stakeholder Himalayan Sustainable Development Forum on October 05, 2015 at National Institute of Rural Development & Panchayat Raj, North Eastern Regional Centre (NIRD&PR-NERC), Khanapara, Guwahati, organized by G.B. Pant Institute of Himalayan Environment & Development (GBPIHED) in collaboration with Indian Himalayas Climate Adaptation Programme (IHCA)-Swiss Agency for Development and Cooperation (SDC), Embassy of Switzerland, New Delhi and Department of Science and Technology (DST), New Delhi.

85. Dr. Bikramjit Sinha Scientist-D & Officer-in-Charge of the centre rendered advisory services to Sri Navin Kumar, ex-GM, Bihar State Tourism Development Corporation regarding prospects of wildlife based tourism in Arunachal Pradesh 14th August 2015.
86. Dr. Bikramjit Sinha Scientist-D & Officer-in-Charge of the centre offered comments on a proposal from CII to MoEFCC to be Govt. partner in the 2nd International Conference on IP Laws and Enforcement of IPR and knowledgeexpo 2015 and submitted to DZSI.
87. Dr. Bikramjit Sinha was invited and participated as an expert in a 3-day "National Consultation Workshop on Understanding Ecosystem Services Perspectives for Effective Resource Management in the Far Eastern Himalayan Landscape" jointly organized by GBPIHED & ICIMOD at Itanagar during 25-27 May, 2015.
88. Dr. Bikramjit Sinha, Scientist-C & Officer-in-Charge of the centre attended a one day workshop on World Environment Day, 2015 organised by Arunachal Pradesh State Pollution Control Board in collaboration with Department of Environment & Forests, Itanagar on 5th June 2015.



89. Dr. Bikramjit Sinha, Scientist-C and Officer-in-Charge of the centre attended the OC's meeting on 17th July 2015 in ZSI, Kolkata and presented the progress of scientific, administrative activities and commemoration of Centenary Foundation Day of ZSI at APRC, Itanagar.
90. Dr. Bikramjit Sinha, Scientist-D & Officer incharge of the centre acted as an interview panel member for selection of project personnel for a project on Bats of Siang basin in State Forest Research Institute on 11/12/2015.
91. Dr. Bikramjit Sinha, Scientist-D & Officer incharge of the centre rendered advisory services to 2 student of B. Sc. Zoology (Mis. A. Bhatt and Miss. RC Bani) of D. N. Government College, Itanagar regarding dissertation on zooplankton diversity of Ganga Lake, Arunachal Pradesh on 21/1/2016.
92. Dr. Bikramjit Sinha, Scientist-D & Officer-in-Charge attended as a resource person in the *National Training Workshop on Fauna of Hotspots-3: Eastern Himalayas* at NERC, ZSI, Shillong during 17-21 March 2016 and delivered theory and practical lectures on freshwater zooplankton of Eastern Himalayas-collection, preservation and identification.
93. Dr. Bikramjit Sinha, Scientist-D & Officer-in-Charge of the centre attended as a member in the 2nd meeting of the Standing Committee of State Board of Wildlife, Arunachal Pradesh in o/o PCCF, Itanagar on 8th May 2015.
94. Dr. Bikramjit Sinha, Scientist-D and Officer-in-Charge of the centre rendered advisory services to 2 persons, Kipa Nai & Kipa Talley from Kurung Kumey regarding documentation and conservation fauna in their places on 10th July 2015.
95. Dr. C. Raghunathan served as a member in MACP promotion committee for the Group-C staff of Central Island Agricultural Research Institute – ICAR on 11th September 2015, Member in Research Advisory Committee meeting of Department of Environment and Forests, A & N Administration on 17th September 2015; Member in Building committee as well as Doctoral Committee at ICMR-RMRC, Port Blair on 22nd September 2015; Resource Person in the training programme on Integrated Coastal Zone Management programme for State Government Officials of West Bengal and delivered lecture on 'An insight to Coast and its Importance' organized by ZSI-MARC, Digha on 24th September 2015; and refereed a manuscript for Indian Journal of Marine-Geo Sciences and comments offered.
96. Dr. C. Raghunathan served as a Mentor in the DST – INSPIRE programme organized by Pondicherry University on 11th January 2016 and made a presentation on 'An Insight to Coastal and Marine Ecosystems'; served as a Member in Research Advisory Committee meeting held on 8th January 2016 at Department of Environment and Forests, Port Blair; served as a Doctoral Committee Member on 5th, 19th and 23rd January 2016 for Pondicherry University.
97. Dr. C. Raghunathan, Scientist-D & Officer-in-Charge served as a Member in Doctoral Committee at Department of Ocean Studies and Marine Biology Pondicherry University on 1st and 30th March 2016 and ZSI on 28th and 29th March 2016; Member in Purchase Committee of RMRC-ICMR, Port Blair on 15th March 2016; Member in State Wildlife Board meeting chaired by Hon'ble Lieutenant Governor of Andaman and Nicobar Islands on 18th March 2016; Special invitee on International Day for Forests 2016 organized at Forest Training Institute, Wimberligunj,



South Andaman on 21st March 2016; Executive Committee Member in Andaman Science Association on 26th March 2016; participant in the Workshop on Administrative Matters organized by Botanical Survey of India, Port Blair on 31st March 2016 with Mr. Sandeep Mukherjee, Under Secretary, DoPT/GOI.

98. Dr. C. Raghunathan, Scientist-D & Officer-in-Charge served as Member in the doctoral committee meeting at Pondicherry University, on 11th, 12th, 13th and 24th and 30th November 2015; and served as an External Examiner for the practical examinations of the subjects Marine Biology and Ecology at Pondicherry University; offered a comments on the project proposal entitled, 'Assessment to threats, status and conservation needs to the Gulf of Mannar Biosphere Reserve coral reef ecosystem, India' as required by Rufford Small Grants for Nature Conservation.
99. Dr. C. Raghunathan, Scientist-D & Officer-in-Charge served as Member in the doctoral committee meeting held at ZSI/ANRC on 2nd and 14th December 2014, at Department Marine Biology and Coastal Studies, Pondicherry University on 3rd, 13th and 19th December 2015; served as an Observer for examinations conducted by IGNOU Regional Centre, Port Blair on 7th December 2015; served as a Member in building committee meeting at RMRC-ICMR, Port Blair on 10th December 2015; served as an External Examiner for M.Sc. Marine Biology degree students of Pondicherry University for the practical papers, Ecology and Fisheries on 10th December 2015; served as a witness at Sessions Court, Port Blair on 23rd December 2015 for the identification of seized Water Monitored Lizard.
100. Dr. C. Raghunathan, Scientist-D and Officer-in-

Charge delivered a keynote lecture on Marine Biodiversity and Climate Change in National seminar on Harmonizing Biodiversity and Climate Change: Challenges and Opportunity held during 17th-19th April 2015 organized by Andaman Science Association at ICAR-CIARI, Port Blair and also served as a Co-chair in biodiversity session; served as a member in Research Advisory Committee at Department of Environment and Forests, A & N Administration, served as a member in doctoral committee at ZSI, Port Blair on 10th April 2015 and at Pondicherry University on 13th, 27th, 28th, 29th April 2015, served as an Examiner for the practical examination of post graduate students of Marine Biology at Pondicherry University; served as a Member in the interview committee for the recruitment of Lower Division Clerk at Fishery Survey of India on 22nd April 2015.

101. Dr. C. Raghunathan, Scientist-D and Officer-in-Charge has refereed the manuscript on corals for Indian Journal of Geo-marine Sciences and on fishes for the journal Marine Biodiversity on request; served as a member in Doctoral Committee meeting at Pondicherry University on 1st February 2016; TOLIC meeting at CIARI, Port Blair on 2nd February 2016; attended meeting at Andaman and Nicobar Command in connection with REIA study for the installation of surveillance camera at west coast of North Andaman on 25th February 2016,
102. Dr. C. Raghunathan, Scientist-D and Officer-in-Charge, attended a meeting of the Advisory Committee for Ecosystem Research Programme and presented annual progress report for the project entitled as 'Reproductive Biology of Scleractinian Corals in Andaman and Nicobar Islands' on 4th August 2015 at Ministry of Environment, Forest and Climate Change, New Delhi; Reviewed and offered the comments



on the final technical report entitled, 'Studies on Polychaetes of Great Nicobar Island' and submitted to MoEF&CC, Served as a Member in Doctoral Committee of Department of Ocean Studies and Marine Biology, Pondicherry University, Served as a Chief Guest in the 28th Convocation of Indira Gandhi Open University, Regional Centre, Port Blair on 8th August 2015 and delivered the convocation address and handed over the degrees; Attended the IPBES First Authors Meeting on the Regional Assessment for the Asia-Pacific Region during 17th to 21st August, 2015 at Tokyo, Japan; Attended the half yearly meeting of TOLIC at CIARI, Port Blair on 26th August 2015; Convened the interview for admission in Ph.D. programme at ZSI, Port Blair on 27th August 2015; Reviewed the manuscript on new record of Opisthobranch for the journal 'Records of Zoological Survey of India' and offered the comments.

103. Dr. C. Raghunathan, Scientist-D and Officer-in-Charge, attended meeting pertaining to IGNFA and UNDP projects for capacity building of IFS officers on Biodiversity Conservation with special reference to Aquatic, Marine and Coastal Biodiversity held at Department of Environment and Forests, Port Blair on 1st May 2015; completion of one year in the office of the NDA Government chaired by Hon'ble Lieutenant Governor of Andaman and Nicobar Islands on 25th May 2015

104. Dr. C. Raghunathan, Scientist-D and Officer-in-Charge, delivered a lecture on 'Lesser Known Marine Fauna of India' during the National Workshop on 'Lesser Known Marine Animals of India' on 12th June 2015; served as a member in selection of ICAR-CIARI awards under 10 scientific categories in Central Island Agricultural Research Institute, Port Blair on 20th June 2015; served as a member in Andaman Aadim Janjati

Vikas Samiti meeting held at Rajniwas on 22nd June 2015 chaired by Hon'ble Lt. Governor of A & N Islands; served as a Guest of Honour in the 38th Foundation Day celebration of Central Island Agricultural Research Institute, Port Blair on 23rd June 2015.

105. Dr. C. Raghunathan, Scientist-D and Officer-in-Charge, delivered a lecture on 'History of Zoological Survey on India' during the 100th Foundation Day of ZSI on 1st July 2015. Besides he has made a presentation on 'Achievements of ZSI, Port Blair' in the general body meeting of Andaman Science Association held at ZSI Auditorium on 14th July 2015. On 17th July 2015, he has attended the O/Cs of Regional Centres meeting held at ZSI headquarters and made a presentation on the annual progress report of ZSI/ANRC. Served as a member in the infrastructure development committee of RMRC/ICMR at Port Blair on 7th July 2015; member in the interview committee for the recruitment of Field Officers for National Sample Survey Organization at Port Blair on 7th July 2015; and attended the meeting with PCCF (WL) for the scrutinizing the project proposal on DNA barcoding of birds of Andaman on 29th July 2015.

106. Dr. C. Sivaperuman, P.T. Rajan, Mr. J. Dinesh, SRF, Mr. Gokulakrishnan, JRF and Mr. J. Dharmaraj, JRF attended a National seminar on Harmonizing Biodiversity and Climate Change: Challenges and Opportunity during 17th-19th April 2015 at Central Island Agricultural Research Institute (CIARI), Port Blair.

107. Dr. C. Sivaperuman, Scientist-D delivered a talk on Avifauna of Andaman and Nicobar Islands and its conservation to the Forester Trainees at Forest Training School, Wimberligunj on 2nd January 2016.



108. Dr. C. Sivaperuman, Scientist-D has been deputed for attending a meeting at Department of Tourism convened by the Secretary (Tourism), A & N Administration to discuss the creation of bird watching centres in the selected wetlands of Port Blair on 23rd December 2015.
109. Dr. C. Sivaperuman, Scientist-D, attended a meeting of the Advisory Committee for Ecosystem Research Programme on 4th August 2015 at Ministry of Environment, Forest and Climate Change, New Delhi; served as Ph.D. Doctoral Committee Member for the annual Ph.D. progress review meeting at Department of Ocean Studies and Marine Biology, Pondicherry University, Port Blair Campus on 14th and 19th August 2015; delivered a talk on an Overview Biodiversity of India with special reference to Andaman & Nicobar Islands to School Teachers organized by CPREE Foundation, on 20th August 2015 on request.
110. Dr. C. Sivaperuman, Scientist-D, attended Doctoral committee meeting at Department of Ocean Studies and Marine Biology, Pondicherry University on 16th, 24th, 28th and 30th April 2015 to review the progress of the Ph.D. research work and served as a member in the Departmental Promotion Committee meeting at Regional Medical Research Institute, Port Blair on 22nd April 2015.
111. Dr. C. Sivaperuman, Scientist-D, attended Ph.D. Doctoral Committee meeting at Department of Ocean Studies and Marine Biology, Pondicherry University, Brookshabad Campus on 26th February 2016.
112. Dr. C. Sivaperuman, Scientist-D, attended training programme on 'Statistical Techniques on Biological Sciences' at NDRI, Bangalore during 2nd to 4th March 2016; participated and presented a paper in the 'National Seminar on Faunal Diversity in the Desert Ecosystem' at Desert Regional Centre, Zoological Survey of India, Jodhpur, Rajasthan during 11-12th March 2016; attended doctoral committee meeting on 18th March 2016 at Department of Ocean Studies and Marine Biology, Pondicherry University and on 29th March 2016 at ZSI; delivered a lecture on 'Bird watching and Avifauna of Andaman and Nicobar Islands' on 18th March 2016 at Directorate of Tourism to the volunteers, tour operators and journalists to promote bird watching tourism in A & N Islands; delivered a lecture on 'Avifauna of Andaman and Nicobar Islands with special reference to conservation of Sparrow' at Jawaharlal Nehru Rajkeeya Mahavidyalaya, Port Blair on 20th March 2016 on the occasion of Sparrow Day.
113. Dr. C. Sivaperuman, Scientist-D, delivered a lecture on 'Diversity of Coastal Bird of India' during the National Workshop on 'Lesser Known Marine Animals of India' on 12th June 2015, served as a member in the Institutional Animal Ethics Committee Meeting and conducted annual inspection of Animal House Facility of Central Island Agricultural Research Institute (CIARI) on 8th June 2015.
114. Dr. C. Sivaperuman, Scientist-D, served as a member for selection of research scientist under various research projects and the review meeting of the ongoing research project titled "Establishment of diagnostic virology laboratory on 11th May 2015 and attended IAEC meeting on 30th May 2015 at Regional Medical Research Institute, Port Blair.
115. Dr. C. Sivaperuman, Scientist-D, served as a member for selection of Scientist-B (Non Medical) at Regional Medical Research Centre (RMRC), ICMR, Port Blair on 20th July 2015;



served as Ph.D. Doctoral Committee Member for the Ph.D. thesis synopsis presentation at Department of Ocean Studies and Marine Biology, Pondicherry University, Port Blair Campus on 27th July 2015.

116. Dr. C. Sivaperuman, Scientist-D, served as Ph.D. Doctoral Committee Member for review the annual progress of the Ph.D. research work at Regional Medical Research Centre, Port Blair on 22nd September 2015; delivered a talk on an Coastal and Marine bird diversity and ecosystem services at Department of Ocean Studies and Marine Biology, Pondicherry University on 11th September 2015.
117. Dr. C. Venkatraman, Scientist C attended an Institutional Animal Ethics Committee (IAEC) meeting at Government Medical College, Villupuram as CPCSEA nominee nominated by Animal Welfare Division, MoEF&CC, New Delhi.
118. Dr. C. Venkatraman, Scientist C participated in National Seminar on "Recent Innovations in Technical terminology & Biodiversity" organised by Commission for scientific and technical terminology held at Desert Regional Centre, Zoological Survey of India, Jodhpur, Rajasthan on August 11-12, 2015.
119. Dr. D. Suresh Chand, Scientist-D, was conferred Dr. Anand Prakash Award 2016 for Taxonomy studies in Arunachal Pradesh and WB, by Applied Zoologists Research Association at Ehiraj College Chennai on February 2016.
120. Dr. D. Vasantha Kumar and Shri Sreejith S. Kumar, Senior Zoological Assistants have been trained on 'Prododh' and 'Parangat' courses, respectively by the Central Hindi Teaching Institute, Pune.
121. Dr. Deepa Jaiswal attended meeting as a

Member of Board of Studies at St. Ann's College, Mehdipatnam, on 6th June, 2015.

122. Dr. Dhriti Banerjee delivered a lecture in Bengali "POKADER KATHA" in Maulana Azad College, Govt. of West Bengal.
123. Dr. Dhriti Banerjee delivered a lecture on "The world of Taxonomy around you" in Maulana Azad College, Govt. of West Bengal.
124. Dr. G. Maheswaran has participated in the IPBES first author meeting held from 17-21 August, 2015 at Tokyo, Japan.
125. Dr. G. Maheswaran has participated in the second International workshop on the Critically Endangered White-bellied Heron *Ardea insignis* at Punacca, Bhutan from 1-4 December, 2015.
126. Dr. G. Sivaleela, Scientist B participated and delivered a lecture on Marine Sponges of India in State level Seminar on Science indigenous in India on 28th March, 2016 in Gurunank College.
127. Dr. G.P. Mandal, Scientist-D, attended "4TH Congress on Insect Science" during 16th to 17th April, 2015, at Punjab Agriculture University, Ludhiana.
128. Dr. G.P. Mandal, Scientist-D, attended Training workshop on "Use of GPS" held at ZSI, Hq, Kolkata & Field training in Indian Botanical Garden, Shibpur, Howrah, on 22nd December, 2015.
129. Dr. Gopal Sharma attended a group discussion on Development of Rajgir Lion and Deer Safari on April 09, 2015 in the conference hall of Sanjay Gandhi Biological Park Patna organized by the PCCF, Department of Environment and Forests Govt. of Bihar.



130. Dr. Gopal Sharma, Scientist D attended a departmental scientific, administration and budget progress meeting from 16-17 July 2015 at Zoological Survey of India, Kolkata.
131. Dr. Gopal Sharma, Scientist D attended the Nagar Rajbhasha Karyanvayan Samiti meeting on 28 July 2015 at Income Tax office Patna
132. Dr. Gopal Sharma, Scientist D attended Tiger Divas on 29 July 2015 at Sanjay Gandhi Biological Park Patna organized by the Department of Environment and Forests, Govt. of Bihar.
133. Dr. Gopal Sharma, Scientist D delivered invited lecture on 30 July 2015 on Global Warming and Impact on biodiversity at Baba Saheb Bhim Rao Ambedkar University, Bihar University, Patna.
134. Dr. Gopal Sharma, Scientist D, attended the two days workshop on Man and Animal Conflict on 26th & 27th Aug 2015 organized by Dept of Environment and Forests Govt. of Bihar at Aranya Bhawan, Patna .
135. Dr. Gopal Sharma, Scientist-D attended a meeting on Management Plan of Pant Wildlife Sanctuary, Rajgir prepared and presented by NEERI on 21.12.2015.
136. Dr. Gopal Sharma, Scientist-D delivered a lecture in International Conference on Faunal Diversity and Conservation at B.R.A. Bihar University Muzaffarpur on 16.12.2015.
137. Dr. Gopinathan Maheswaran, Scientist –D and Officer-in-charge of Bird Section has gone to WII Dehradun to discuss regarding NFC Project from 20th July to 23rd July 2015.
138. Dr. H. S. Banyal, Scientist-D has attended Official Training for DDO's regarding Bhavishya Software at MOEF&CC, New Delhi on 12th February, 2016.
139. Dr. H. S. Banyal, Scientist-D has attended Science fair organized by Mahila P.G. Mahavidyalaya, Jodhpur on 19th November, 2015 at Jodhpur.
140. Dr. Indu Sharma, Scientist-D delivered a talk in "National Training Workshop on Fauna of Hotspots-2: Western Himalayan (24th to 28th July, 2015) held at HARC/ZSI, Solan on "Diversity of Vertebrates in Western Himalaya".
141. Dr. K. Rajmohana, Scientist-D, attended the 55th half yearly meeting of Town official language implementation committee, at IIM Kozhikode on 28.04.2015 and attended TOLIC sub-committee Hindi on 27.5.2015, 7.7.2015, 3.8.2015 and 13.11.2015 organised by TOLIC, Calicut.
142. Dr. K. Rajmohana, Scientist-D, Served as a judge for the evaluation of Posters in connection with the competitions on the celebration of International Tiger Day organized jointly by Kerala State Forest Department and ZSI for the general public on 29th July 2015; Functioned as Convener in organizing Environment Conference on 17/10/2015, for Swaraya Bharat-2015 (a Swadeshi Science movement initiative), the Science Festival of Kerala; Functioned as Convener and organized Vigyan-2015, a Science Quiz for high School students, on 21/10/2015, for Swaraya Bharat-2015 (a Swadeshi Science Movement initiative), the Science Festival of Kerala; Delivered an invited talk on "Role of taxonomy in species conservation" at National Seminar, on Methodology of Biological Research Govt. College, Chittur Palakkad, on 10/12/2015; Delivered an invited talk on "The Outdoor Classroom and its relevance in biological research" at National Workshop, on Methodology of Biological Research Govt. Victoria College, Palakkad, on 24/11/2015; Delivered a lecture on "Hymenoptera fauna of Western Ghats" during the National workshop



- on Identification of fauna of Western Ghats organized during 5-9th Feb.2016 at ZSI, WGRC, Calicut; Delivered a lecture on Common Insects of Kerala, to Graduate students from Chittur Govt. College, Palakkad, on 11/2/2016; Delivered an invited lecture on Hymenoptera: A taxonomic introduction at, Zoo Taxonomy Workshop, March 28th 2016, At Dept. of Applied Zoology, Mangalore University Calicut; Delivered an invited Lecture on "Parasitic hymenoptera" at Kerala Forest Research Institute, Peechi, Trichur, on 23rd March 2016; Delivered plenary talk "Taxonomic research on parasitic hymenoptera in India. An update' National Workshop - Insect biodiversity: where does India stand in the global map? On 29th March, 2016, at Central University, Kasaragod.
143. Dr. K. Valarmathi attended the workshop on DNA barcoding Organized by the Centre for DNA Taxonomy, Molecular Systematics Division & Training and Extension Division of Zoological Survey of India, Kolkata from 7-8th March 2016.
 144. Dr. Kamal Saini, Assistant Zoologist attended the two days Seminar cum training Workshop programme on "Recent innovations in Technical Terminology and Biodiversity" Organized by Commission for Scientific and Technical Terminology at Desert Regional Centre, Zoological Survey of India, Jodhpur (Rajsthan) from August 11-12, 2015.
 145. Dr. Kamal Saini, Assistant Zoologist delivered a talk in "National Training Workshop on Fauna of Hotspots-2: Western Himalayan (24th to 28th July, 2015) held at HARC/ZSI, Solan on Diversity and taxonomy of Orthoptera of Western Himalaya".
 146. Dr. Kamal Saini, Asstt. Zoologist as a representative from the Centre attended in Joint Official language Conference of North Region at GNDU Amritsar, dated on 16-10-2015.
 147. Dr.M.E.Hassan, Scientist-D and Officer-in-Charge has attended DPC and Screening Committee meeting as a member/ Representative from Minority Community under the Chairmanship of Dr. Kailash Chandra, Director-in-Charge, Zoological Survey of India on 8th January, 2016 at Zoological Survey of India, Headquarters.
 148. Dr. Muhamed Jafer Palot, Assistant Zoologist attended a one day seminar on "Wetlands – A biome which is rich in biodiversity, insight from past, present and future" at MES Mampad College, Malappuram district on 11.02.2016 and delivered a talk on 'Mangrove biodiversity of Kerala and their conservation" at the Seminar organized jointly by the Department of Zoology, MES Mampad College and Kerala State Council for Science, Technology & Environment (KCSTE), Thiruvananthapuram. Attended National Seminar on 'Vertebrate Faunal diversity of Kerala' and presented an invited talk on 'Herpetofaunal diversity of Kerala' at Baby John Memorial Government College, Chavara, Kollam on 8th March 2016 organized by the Directorate of Collegiate Education, Govt. of Kerala. Delivered two lectures on 'Butterflies of Kerala' and 'Herpetofaunal diversity of Kerala' during the Regional Seminar on Importance of Taxonomy in Conservation of Faunal diversity- Kerala Scenario" (in Malayalam) on 21-22nd March 2016 jointly with ENVIS centre on faunal diversity, ZSI, Kolkata at WGRC, ZSI, Calicut. Delivered a talk on "Diversity, Distribution and Documentation of Birds with special reference to Kerala" as a part of the Two day Training Programme for Higher secondary school teachers on "Biodiversity Conservation and Evaluation" at Tectona Hall, Kerala Forest Research Institute, Peechi, Thrissur on 19th March 2016. Attended a Workshop on 'Zoo Taxonomy' at the Department of Applied Zoology, Mangalore University, Mangalagangothri, Karnataka on 29th March



2016 and delivered an invited talk on "Butterfly diversity of Western Ghats" at the Workshop.

149. Dr. Muhamed Jafer Palot, Assistant Zoologist
Delivered a talk on 'Wildlife Conservation in India' at the One day seminar on 'Wildlife Wealth of India & their Conservation' at our Centre on 13th October 2015 jointly organized by Zoological Survey of India, Swadeshi Science Movement and Indian Institute of Spices Research (IISR); Delivered a lead talk at the 'Eco-interface Meeting' for school students organized in connection with the 'Swashraya Bharath 2015 Exhibition' by Swadeshi Science Movement at Swapna Nagari, Kozhikode on 17th October 2015; Delivered a speech at the function of 'Prof. Johnc Memorial talk' organized at the Environmental Study Centre, Swami Ananthatheertha Campus, Kannur University, Payyanur on 16th October 2015;
150. Dr. Muhamed Jafer Palot, Assistant Zoologist
Delivered a talk on "Faunal diversity of Kerala" to the Zoology students of Zamourin's Guruvayurappan College, Kozhikode on 30.12.2015. Delivered a lecture on "Butterflies of Western Ghats" during the National workshop on Identification of fauna of Western Ghats organized during 5-9th Feb. 2016 at ZSI, WGRC, Calicut. Attended a Regional seminar on 'Wetlands –the boon on the Nature' at Farook College, Kozhikode on 10th Feb. 2016 and delivered a talk on "Mangrove ecosystems of Kerala" organized jointly by the Department of Botany, Farook College and Kerala State Council for Science, Technology & Environment (KCSTE), Thiruvananthapuram.
151. Dr. Muhamed Jafer Palot, Assistant Zoologist
Delivered an invited talk on the theme of the Environmental day at Centre for Water Resources, Development and Management

(CWRDM), Kunnamangalam, Kozhikode on 5th June 2015; Delivered talk on the topic "Biodiversity around us" at Regional Science Centre & Planetarium, Kozhikode on 6th June 2015 organised by Kerala Council for Science, Technology and Environment (KCSTE), Thiruvananthapuram; Delivered an invited talk on "Biodiversity around us" to the trainees of Snehalayam Natya Kala Kshetram, Kakkodi in connection with the National Awareness Training Workshop conducted at our Centre on 15.07.2015; Participated in the Monsoon Camp at Madayipara on 11-12th July 2015 and delivered a talk on "Ecological importance of Laterite hills of North Kerala" organized by MNHS and SEEK, Payyanur; Conducted a workshop on 'Common Birds Monitoring Programme' jointly with Kerala Forests Department (Social forestry wing) and Malabar Natural History Society at the Centre on 19th August 2015 and delivered a talk on 'Common bird monitoring projects in Kerala';

152. Dr. Muhamed Jafer Palot, Assistant Zoologist
Delivered an invited lecture on 'Mangrove Biodiversity of Kerala' at the National Seminar on 'Status and Trends in Biodiversity of Kerala' organized by the Department of Zoology, Govt. Brennen College, Thalasserry, Kannur on 29th October 2015; Delivered a talk on "Biodiversity around us" to the Nature club students of Pantheerankavu Higher Secondary School, Kozhikode on 10th November 2015; Attended a UGC sponsored Two day National Seminar on "Animal species diversity and survival issues in the southern Western Ghats" on 9th and 10th December 2015 at the Department of Zoology, Govt. College, Chittur, Palakkad and presented an invited lecture on "Faunal diversity of Western Ghats – An overview" on 9th December 2015; Delivered a lecture on "Faunal wealth of Kerala and Indian Wildlife (Protection) Act" to



the forester trainees of Kerala Forest Training School, Arippa, Thiruvananthapuram on 16th December 2015;

153. Dr. Muhamed Jafer Palot, Assistant Zoologist Delivered talks on 'Biodiversity around us' to the plus two students of Rahmania Higher Secondary School for Handicapped, Kozhikode at the Centre on 3.8.2015 and 20.08.2015, a talk on 'Butterflies' to the students of Government Vocational Higher Secondary School for Girls, Nadakkavu on 5th August 2015; Delivered a talk on 'Biodiversity around us' to the students and mentors of ULCCS Welfare and Charitable Foundation, Vatakara on 24th August 2015 at the Centre; Participated in the pelagic bird survey off the coast of Calicut on 26th September 2015 organized by Kerala Forests & Wildlife Department & Malabar Natural History Society, Kozhikode; Participated in the nature education camp at M.S. Swaminathan Research Foundation, Kalpetta, Wayanad from 18-20th September 2015 organised by Koodu Nature Society and delivered a talk on "Biodiversity around us" to the participants;

154. Dr. Muhamed Jafer Palot, Assistant Zoologist; Delivered a talk on "faunal diversity of Western Ghats" to the students and other people of A.K.G. Library Puthiyapalam, Kozhikode, in connection with their nature camp, on 17.4.2015 at WGRC; Served as a judge for the evaluation of Posters in connection with the competitions on the celebration of International Tiger Day organized jointly by Kerala State Forest Department and ZSI for the general public on 29th July 2015; Delivered a talk on "Mangrove Biodiversity of Kerala" at a seminar on "Mangrove Conservation in Kerala" organized jointly by Kerala Forests & Wildlife Department, Koodu Nature Society, SEEK & Malabar Natural History Society at Shikshak Sadan Conference

Hall, Kannur on 11.05.2015; Delivered a talk on "Reptilian diversity of Kerala" at State level Residential Vacation Training programme for School students at Agrobiodiversity Centre, M.S. Swaminathan Research Foundation (MSSRF), Kalpetta, Wayanad on 16.05.2015 organised jointly by MSSRF & Department of Biotechnology (DBT), New Delhi;

155. Dr. P. M. Sureshan, Dr. Rajmohana K and Sri. P. Ratnakaran attended Rajbhasha seminar organised by TOLIC, Calicut, on 11.08.2015.

156. Dr.P.M.Sureshan, Scientist-D & Officer-in-Charge, attended the 55th half yearly meeting of Town official language implementation committee, at IIM Kozhikode on 28.04.2015; attended the 11th meeting of the advisory committee for ecosystem Research programme of MOEF, New Delhi at KFRI, Peechi on 13th and 14th May 2015; attended the meeting Vigilance awareness week-2015 on 28.10.2015 organized by Regional Science centre & Planetarium, Calicut, attended a meeting at St. Josephs College, Devagiri, Calicut in connection with the release of Devagiri journal of Science by receiving the copy of the journal on 13.11.2015.

157. Dr. P.M. Sureshan, Scientist-D & Officer-in-Charge, Delivered two lectures on the topic "Faunal diversity of India, status, threats and conservation to the High school and Higher secondary school students of Kunnamangalam Higher secondary school and Rahmania Higher secondary school, Calicut on 11.8.15 and 19.8.15.; Served as a judge for the evaluation of Posters in connection with the competitions on the celebration of International Tiger Day organized jointly by Kerala State Forest Department and ZSI for the general public on 29th July 2015; Delivered lecture on topic "Indian Biodiversity, status threats and conservation" at Christ College, Iringalakuda, Kerala in the



- National seminar on Biodiversity conservation trends and prospects held on 18.09.2015 at the college; Delivered a lecture on Biosystematics of Pteromalidae of Indian sub continent. During the National workshop "Parasitic Hymenoptera How and Where they at Annamalai University, Faculty of Agriculture, Tamil Nadu on 25.09.2015; Attended in the Concluding Function of Hindi Fortnight Celebrations of BSNL, Calicut on 28.9.2015 as chief guest and delivered talk on importance of Hindi; Delivered lecture on Indian Wild life status, threats and conservation in the one day seminar organized in the centre Jointly with Swadeshi science movement, Kerala in connection with the Swaraya Bharat, Programme on 13.10.2015; Delivered lecture on Insect diversity of Western Ghats to the field staff of Silent Valley National Park at Mukali on 9 th Nov. 2015; Delivered three lectures on the groups Insecta: Mantodea, Chilopoda: Scolopendromorpha and Arachnida: Scorpions and also catered the hands on training sessions during the National workshop on Identification of fauna of Western Ghats organized during 5-9th Feb.2016 at ZSI, WGRC, Calicut.; Delivered two lectures on Taxonomy and Biodiversity Studies and Invertebrate diversity of Kerala (in Malayalam) during the Regional Seminar on Importance of Taxonomy in Conservation of Faunal diversity- Kerala Scenario" (in Malayalam) on 21-22nd March 2016 jointly with ENVIS centre on faunal diversity, ZSI, Kolkata at WGRC, ZSI, Calicut; Delivered a lecture on Principles and procedures of Taxonomy during the Workshop on 'Zoo Taxonomy' at the Department of Applied Zoology, Mangalore University, Mangalangothri, Karnataka on 29th March 2016.
158. Dr. P.M.Sureshan, Sci.D, K.G. Emiliyamma, Scientist-D, Dr. K. Rajmohana, Scientist-D, and Dr. B.H.C.K. Murthy, Scientist-C participated in a joint Hindi workshop organized by TOLIC (Town Official Language Implementation Committee) for the staff of various central Govt. offices of Kozhikde, on 21.4.2015 at ZSI, WGRC.
159. Dr.P.S.Bhatnagar, Scientist-D & Officer-in-Charge attended a workshop at DRC, ZSI, Jodhpur organized by Commission for Scientific & Technical Terminology on 11 & 12 August 2015.
160. Dr. P.S. Bhatnagar, Scientist-D & Officer-in-Charge delivered an invited talk on "Indian Faunal Diversity and its conservation" at Shivaji University, Kolhapur on 15th January, 2016. He also attended lecture by Hon'ble Minister of MOEFCC Shri. Prakash Javdekar at Shivaji University, Kolhapur on 15th January, 2016 following inauguration of Lead Botanical Garden.
161. Dr.P.S.Bhatnagar, Scientist-D & Officer-in-Charge inaugurated the poster session at National conference on "Recent Trends in Life sciences" organized by Department of Zoology, S.M. Joshi College, Pune, 10-11 July 2015.
162. Dr. Prasanna Yennawar, Scientist D, delivered a lecture on Coastal Zone Management in India at Fourth Training Program on Integrated Coastal Zone Management for State Govt. Officials on 24th September, 2015 at Marine Aquarium & Regional Centre, Zoological Survey of India, and Digha.
163. Dr. Prasanna Yennawar, Scientist D, participated in selection committee at Telangana State Biodiversity Board for selection of project personnel on 13th May, 2015.
164. Dr. R. Babu, Scientist- D, attended the "Conservation Authority of Pallikaralai Marsh Land Project Executive Committee Meeting" on



16.04.2015 at Interpretation Centre, Department of Forests, Government of Tamil Nadu, Chennai.

165. Dr. R. Babu, Scientist D, Participated and presented a research paper entitled "Diversity and Distribution of Dragonflies (Insecta: Odonata) in Maharashtra State, India" at "International Conference on Biodiversity and Biotechnology" held from 25th to 27th February, 2016 at Bharathidasan University, Tiruchirapalli.

166. Dr. R. Bano, Scientist-C presented a poster on "A new record of *Delamarerus immsi* Mitra (Hexapoda: Collembola) from Western Ghats of Maharashtra State" in 4th Congress on Insect Science on "Entomology for Sustainable Agriculture" at Punjab Agricultural University, Ludhiana, 16-17 April, 2015.

167. Dr. R. Bano, Scientist-D attended and chaired a technical session during UGC Sponsored National Seminar on "Current Trends in Biodiversity Conservation and Climate Change" at Bharati Vidyapeeth Deemed University, Yashwantrao Mohite College of Arts, Science and Commerce, Erandwane, Pune from 24th to 25th February 2016.

168. Dr. R. Bano, Scientist-D attended and presented a paper in National Conference on Faunal Diversity: Assessment and Conservation at Modern College of Arts, Science & Commerce, Ganeshkhind, Pune from 22-23rd January, 2016.

169. Dr. R. Paliwal, Scientist-B, delivered a talk in "National Training Workshop on Fauna of Hotspots-2: Western Himalayan (24th to 28th July, 2015) held at HARC/ZSI, Solan on Diversity and taxonomy of earthworms (Oligochaeta) of Western Himalaya".

170. Dr. R. Venkitesan published two abstracts in the proceedings of National seminar on Advances

in Toxicology and Seri-nanotechnology from 23-24th July 2015, Annamalai University, Chidambaram, Tamil Nadu.

171. Dr. Rajkumar Rajan, Scientist D attended a public Viva-voce examination of the University of Madras, held at Fishery Survey of India' Chennai Base, titled 'Studies on the selected snappers (Family: Lutjanidae) of Madras coast with reference to their reproduction strategies.

172. Dr. Rajkumar Rajan, Scientist D attended the 'GEF National Workshop in India' held on 13/05/2015 at Delhi, and participated in the Discussions to identify projects for conservation and Management of Marine and Coastal systems in India.

173. Dr. Rajkumar Rajan, Scientist D delivered a lecture on 'Integrated Coastal Zone Management – its relevance in the contest of protection to living resources and livelihood' at the training programmed on ICZM for the State Government officials of the West Bengal State, held at Marine Aquarium Research Centre, Digha. On 24th September 2015.

174. Dr. Rajkumar Rajan, Scientist D delivered the Dr. Tmt. Shantha Patttabhiraman Endowment Lecture on the topic 'Equipping ourselves for creating awareness about Marine Biodiversity Conservation' at Ethiraj College for Women, Chennai on 17 October 2015.

175. Dr. Rajkumar Rajan, Scientist D participated in the expert consultation meeting held on 17-18 June 2015, in Chennai – organized by Fishery Survey of India, Under the BOBLME Project 'Mainstreaming Ocean Research for Ocean and Resource Management' and made a presentation highlighting the history, completed projects and recent and on-going



- programmes of Marine Biology Regional Centre, Zoological Survey of India, and the need for Mainstreaming Biodiversity Management.
176. Dr. Rajkumar Rajan, Scientist D recorded a talk on 'Marine Biodiversity and its conservation in the National scenario' aired on All India Radio, Chennai 'A' at 8.45 P.M, 8/10/2015
 177. Dr. Rajkumar Rajan, Scientist D recorded a talk on 'Zoological Survey of India – History, Progress and Contributions' to be on All India Radio, Chennai 'A' at 8.45 P.M, 5/11/2015
 178. Dr. Rajmohana, K., Scientist-D, attended two days' Training on Q-GIS, organised by GUBBI Labs, Bangalore from 23rd to 24th May 2015.
 179. Dr. S. D. Gurumayum attended a training program on Income tax on salaries and tax deduction at source held on 20-21 April 2015 at INGAF/RTC/Kolkata.
 180. Dr. S. S. Talmale and Sandeep Kushwaha Attended Seminar on Recent Innovations in Technical Terminology and Biodiversity organized by Commission for Scientific and Technical Terminology, Ministry of Human Resource Development, New Delhi at Desert Regional Centre, ZSI, Jodhpur on 11.08.2015 to 12.08.2015.
 181. Dr. S. S. Talmale. Attended Departmental Promotion Committee Meeting for various posts at Survey of India, Vijaynagar, Jabalpur as outside member on 07.01.2016.
 182. Dr. S. S. Talmale. Attended First Group meeting on all India Network Project on Vertebrate Pest Management held at ICAR-Central Arid Zone Research Institute, Jodhpur from 15th to 17th Oct., 2015. Delivered lecture on "Diversity, Distribution and Taxonomy of Rodents from Deccan Peninsula and Western Ghats"
 183. Dr. S. S. Talmale. Attended Hindi Rajbhasha six monthly meeting on 22.07.2015 organized by Nagar Rajbhasha Karvaynvin Samiti, Jabalpur at Gun Carriage Factory, Jabalpur.
 184. Dr. S. S. Talmale. Attended meetings as a outside member for conducting interview for the post of TTT 'A' in Survey of India, Vijay Nagar, Jabalpur, Madhya Pradesh on 10 to 12th May., 2015.
 185. Dr. S.K. Pati, Senior Zoological Assistant visited Zoological Survey of India, Western Ghat Regional Centre, Kozhikode from 6th to 9th February to attend the "National Workshop on identification of fauna of Western Ghats" and delivered a lecture on "Freshwater Crabs of the Western Ghats" along with hands-on training during the technical session on 8th February 2016.
 186. Dr. S.S. Talmale and Sandeep Kushwaha attained the: Workshop on "Recent trends on Biodiversity", 11-12 August 2015. Organized by CSTT, MHRD of India at ZSI, DRC, Govt. of India, Jodhpur, Rajasthan.
 187. Dr. S.V.A. Chandrasekar, Scientist B, attended the meeting on Technical & Legal Advisory Group at Telangana Biodiversity Board, Hyderabad on 12th August, 2015.
 188. Dr. S.V.A. Chandrasekhar, Scientist B attended Expert Committee meeting on Animal & Fish Biodiversity held on 26th October, 2015 at Telangana State Biodiversity Board, Hyderabad.
 189. Dr. S.V.A. Chandrasekhar, Scientist B, attended a meeting in Telangana State Biodiversity Board, Hyderabad on 18th February, 2016.
 190. Dr. Sanjeev Kumar, Scientist-D & Officer-in-



charge attended as a Special Invitee the Farmers Fair & Innovation Day organized by CAZRI, Jodhpur on 24th September, 2015. Dr. H. S. Banyal, Scientist-D has also participated in aforementioned event and installed a stall of the Centre at the exhibition.

191. Dr. Sanjeev Kumar, Scientist-D & Officer-in-charge attended on behalf of Director ZSI, the Rajasthan State Wildlife Board meeting convened by Chief Minister of Rajasthan State at CM Office, Jaipur on 8th May, 2015 and agenda items were proposed by CWLW, SFD, Rajasthan.
192. Dr. Sanjeev Kumar, Scientist-D & Officer-in-charge has attended and participated in Conclave III held on 13th December, 2015 at Desert Medicine Research Centre, (ICMR), Jodhpur.
193. Dr. Sanjeev Kumar, Scientist-D has attended & delivered invited lecture on Diversity and Taxonomy of Mammals in Western Himalaya in the National Training Workshop on Fauna of Hotspots-2: Western Himalaya on 24th July, 2015 organized by High Altitude Regional Centre, ZSI, Solan, (H.P.). Besides, Dr. Kumar has sighted *Nemorhaedus goral goral* (Hardwicke, 1825) NT (Himalayan Grey Goral) in Chail Wildlife Sanctuary, Solan, Himachal Pradesh during his field visit to the Sanctuary under aforesaid Training Workshop.
194. Dr. Sanjeev Kumar, Scientist-D has attended and participated in the Policy Dialogue on 'Environmental Governance for Sustainable Development in India' jointly organized by Konrad Adenauer Stiftung, Germany and The Energy Resources Institute (TERI), New Delhi at Taj Mahal Hotel, New Delhi on 14th - 15th July, 2015.
195. Dr. SD Gurumayum attended attending 28th Hindi

Conference and Workshop, 14- 16 May, 2015 at Kodaikanal, Tamil Nadu. (SD Gurumayum)

196. Dr. SD Gurumayum attended *Town Official Language Implementation Committee*, Itanagar meeting on 7th July 2015 at GSI Itanagar.
197. Dr. SD Gurumayum advised Miss Hage Sunya KV teacher research guidance and to a research scholar of Forestry Department NERIST.
198. Dr. SD Gurumayum attended National Consultation workshop on *Developing Livelihood Interventions for the Far Eastern Himalayan Landscape*, 28 to 29 May 15, Itanagar organised by GB Pant Inst. of Him. Env. and Development, Itanagar and ICIMOD, Nepal.
199. Dr. SD Gurumayum attended National training workshop on fauna of Hotspots-3: Eastern Himalaya at NERC Zoological survey of India, Shillong from 17-21 March 2016 as resource person and given talk on Ornamental fish of north eastern India –Identification and Resources
200. Dr. SD Gurumayum attended *Town Official Language Implementation Committee* on 13th October 2015 at ITBP, Itanagar.
201. Dr. SD Gurumayum given a talk on *The role of taxonomy in species conservation* on 1st July 2015 in a seminar Organized by APRC, as a Part of Centenary Celebration of ZSI by APRC, Itanagar.
202. Dr. SD Gurumayum given guidance to seven students of BSc Zoology Final Year Students, DN College, Itanagar on how to identify fish for a project on Fish taxonomy and also help the students in identification of fish examples collected by them from different rivers of the state.



203. Dr.SD Gurumayum interacted and give advisory service to 40 students doing degree course in Forestry at North Eastern Regional Institute of Science and Technology (*NERIST*), Arunachal Pradesh on 21/12/2015.
204. Dr.SD Gurumayum interacted and give advisory service to more than hundred students doing BHMS course in North East Homoeopathic Medical College & Hospital, Itanagar while visiting the centre on 6/11/2015.
205. Dr.Sinha also rendered advisory services to three scientists, Mr. Vivek Jhaldiyal, Raveesh Chandra and SK Yadav from RS Envirolink Technologies Pvt. Ltd., New Delhi regarding collection and collation of site specific data of Dibang basin on 17th September, 2015.
206. Dr.Tamal Mondal, Research Associate, presented his research achievements at Zoological Survey of India in front of an Executive Expert Committee of Indian National Science Academy (INSA) being the shortlisted candidate for INSA Medal for Young Scientist, 2015.
207. Dr.Tamal Mondal, Young Scientist, demonstrated the significance of marine faunal diversity to 32 candidates under the training programme on 'Marine Capture Fisherman- a National Occupational Standard Course' in Association with Education for Employment Foundation, CIARI, FSI under Pradhan Mantri Kausal Vikas Yojna, Ministry of Skill Development & Entrepreneurship, during their visit to the regional museum of ZSI, Port Blair on 3rd November 2015.
208. Dr.Tamal Mondal, Young Scientist, was deputed to attend 4th Meeting of the Expert Appraisal Committee (Nuclear, Defence and related projects) on 8th January 2016 at Ministry of Environment, Forest and Climate Change, New Delhi.
209. Dr. V. M. Sathish Kumar, Assistant Zoologist, Participated in National Seminar on "Recent Innovations in Technical terminology & Biodiversity" being nominated by the Commission for Scientific and Technical Terminology (CSTT), Ministry of Human Resource Development, West Block-7, R.K. Puram, Sector 1, New Delhi – 110 066, held at Desert Regional Centre, Zoological Survey of India, Jodhpur, Rajasthan on August 11-12, 2015.
210. Dr. V. M. Sathish Kumar, Assistant Zoologist, Participated in National Seminar on "Recent Innovations in Technical terminology & Biodiversity" being nominated by the Commission for Scientific and Technical Terminology (CSTT), Ministry of Human Resource Development, West Block-7, R.K. Puram, Sector 1, New Delhi – 110 066, held at Desert Regional Centre, Zoological Survey of India, Jodhpur, Rajasthan on August 11-12, 2015.
211. Dr. V.D. Hegde, Scientist-D attended and presented a paper in the International Conference at Babasaheb Ambedkar University, Lucknow held during 29th to 31st October 2015.
212. Dr. V.D. Hegde, Scientist-D attended and presented a paper in the National level seminar at Central University of Kerala, Kasaragod held during 29th to 31st March 2016.
213. Dr. Vinita Sharma, Scientist-D attended 10th Uttarakhand State Science and Technology Congress (USSTC) 2016, Organized by Uttarakhand State Council for Science and Technology (UCOST) in collaboration with University of Petroleum and Energy Studies (UPES) Venue: UCOST Campus, Vigyan Dham, Jhajra, Dehradun 10-12 February and Presented a paper on Taxonomic studies on nematodes of Rajaji National Park, Uttarakhand.



214. Dr. D. Suresh Chand, Scientist-D presented one paper entitled "Diversity of Orthoptera fauna in Sunderban Biosphere Reserve", in the XV AZRA (Applied Zoological Research Association), International Conference on "Recent Advances in Applied Zoological Researches, in Ethiraj College, Chennai, during 11-13 February, 2016.
215. Dr. D. Suresh Chand, Scientist-D, was invited as Chief Guest for Hindi Diwas Celebration at the Central Soil Salinity Research Institute (ICAR), Canning on 14th September 2014.
216. Dr. Deepa Jaiswal attended Board of Studies meeting as Board member (Zoology) at St. Ann's College for Women, Mehdipatnam, and Hyderabad on 24th March, 2016. Dr. Swetapadma Dash Scientist D of the centre attended 1st Meeting of State Board of Wildlife, Odisha scheduled on 04/04/2015.
217. Dr. Deepa Jaiswal, Scientist D, attended Hyderabad Metropolitan Development Authority meeting for preparing action plan on Conservation of fauna around Hussainsagar Lake on 6th April, 2015.
218. Dr. P.M. Sureshan, Sci.D Attended a National seminar on Biodiversity conservation trends and prospects on 18.09.2015 and delivered lecture on topic "Indian Biodiversity, status threats and conservation" at Christ College, Iringalakuda, Kerala.
219. Dr. P.M. Sureshan, Sci.D Attended a National workshop "Parasitic Hymenoptera How and Where they are?" at Annamalai University, Faculty of Agriculture, Tamil Nadu on 25.09.2015 and delivered lecture on Biosystematics of Pteromalidae of Indian sub continent.
220. Dr. P.M. Sureshan, Sci.D. Attended the Workshop on 'Zoo Taxonomy' at the Department of Applied Zoology, Mangalore University, Mangalgangothri, and Karnataka on 29th March 2016.
221. Eleven scientific officials of the Centre participated in a brief training programme on Crocodile Census on 29th January 2016 at Haddo Zoo, South Andaman and in Crocodile Census Programme at Department of Environment and Forests, Mini Zoo, Port Blair.
222. FBRC Officers and staff attended two training classes for Presiding Officer/APO/Polling officers for GHMC elections-2016, on 02-2-2016
223. FBRC officers and staff participated in Centenary Run & Foundation day Celebrations at Zoological Survey of India, Hyderabad on 1st July, 2016.
224. Gangetic Plains Regional Centre, ZSI, Patna organized two days seminar from February 22-23, 2016 on the topic 'Faunal diversity of Gangetic plains Ecosystems'
225. GPRC, ZSI, Patna celebrated its Golden Jubilee by organizing a seminar on 'Faunal Diversity of Bihar & Jharkhand' on 30th December, 2015.
226. Imran Alam, Sr. Zoological Assistant of Bird Section has participated in Workshop on DNA Barcoding, Organized by Training and Extension Division of Zoological survey of India, on 7th and 8th March 2016.
227. In-house seminar has been conducted at the Centre on 27th November 2015 in which Mr. G. Gokulakrishnan, Senior Research Fellow, Miss Jhimli Mondal, Mr. Seepana Rajendra and Naveen Kumar Nigam, Junior Research Fellows of this office presented their research works on Wetland Birds, Ascidiaceans, Soft corals and Echinoderms respectively.



228. Miss Smitanjali Choudhury presented her Pre-Ph.D. synopsis on 3rd February 2016 at ZSI Auditorium.
229. Mr A. Mohapatra ,Scientist-B participated in e-conference (7--25, September,2015) of IPBES(Intergovernmental Platform for Biodiversity and Ecosystem Services) and submitted opinion during session on thematic assessment of sustainable use and conservation of biodiversity and strengthening capacities and tool.(With reference to our ministry's circular/letter no. C-12023/3/15-CS-III dated 1-9-20150
230. Mr A. Mohapatra, Scientist-B participated in the meeting conducted by this regional centre of ZSI to celebrate Centenary Celebration of Zoological Survey of India during June ,2015Dr. A.N.Rizvi, Scientist-D was nominated by DZSI to attend 35th TRAC meeting of WII on 20th Feb'16.
231. Mr. Atanu Naskar, Sr. Zoological Assistant delivered a lecture on "Taxonomy and its future Scope" in Maulana Azad College, Govt. of West Bengal.
232. Mr. Manish Chandra Patel, Senior Zoological Assistant, served as a judge in debate competition during the occasion of 61st wildlife week celebration 2015, organized by Wildlife Division, Department of Environment and Forests, Andaman and Nicobar Administration, Port Blair, on 6th October 2015 at Jawaharlal Nehru Rajkeeya Mahavidyalaya, Port Blair.
233. Mr. P. Mishra, Sr. Zool. Asstt. Of Lepidoptera Section attended Hindi course- 'Parangat'.
234. Mr. P.T. Rajan, made physical inspection of two dive centers and SCUBA diving equipment at Port Blair and Havelock Island of South Andaman on 10th and 29th April 2015; attended a meeting on 11th April, 2015 with SCUBA dive operators of A & Islands to discuss issues related to scuba diving.
235. Mr. P.T. Rajan, Senior Zoological Assistant prepared a question paper on marine biology for the final examination of 48th batch of Forest Guards on request; made physical inspection of dive centres and SCUBA diving equipment at Havelock Island, South Andaman on 14th May 2015.
236. Mr. P.T. Rajan, Senior Zoological Assistant served as a member in the Inspection Committee for SCUBA dive operators on 9th, 14th and 16th October, 2015. He also delivered a lecture in the workshop on 'People in fish resource conservation' organized by the Department of Environment and Forests on 7th October 2015.
237. Mr. P.T. Rajan, Senior Zoological Assistant, attended a meeting at the Department of Tourism in the connection with condemnation of unserviceable diving items on 15th June 2015.
238. Mr. P.T. Rajan, Senior Zoological Assistant, delivered a lecture on the topic - Faunal Diversity of Andaman and Nicobar Islands on 22nd January 2016 at Forest Training Institute, Wimberly Gunj, South Andaman; participated in the physical inspection of dive boat at Junglighat, South Andaman Island organized by Directorate of Tourism on 27th January 2016.
239. Mr. P.T. Rajan, Senior Zoological Assistant, delivered a lecture on 'Reef understanding' for the benefits of the forest department personal and tour operators organized by Deputy Conservator of Forests, Wildlife division, South Andaman on 14th March 2016 at Wandoor, South Andaman; attended executive committee meeting of Andaman Science Association on 26th March 2016 at Pondicherry University.



240. Mr. P.T. Rajan, Senior Zoological Assistant, imparted one day training and field identification on schedule fishes of Andaman and Nicobar Islands to the forest officials on 20th August 2015 on request.
241. Mr. P.T. Rajan, Senior Zoological Assistant, imparted training on fish taxonomy at ZSI/MBRC, Chennai from 10th July to 18th July 2015.
242. Mr. S. Kumaralingam, Research Scholar made Pre-Ph.D. synopsis presentation at ZSI on 28th March 2016 in which all officers and staff of ZSI attended.
243. Mr. S. Rajeshkumar, Senior Research Fellow participated in a field trip along with official of Department of Environment and Forest to Cinque Island Sanctuary for the preparation of Management Action Plan from 6th to 7th May 2015 as per the request of Deputy Conservator of Forest, South Andaman.
244. Mr. Seepana Rajendra and Mr. Naveen Kumar Nigam, Junior Research Fellows, attended a workshop on 'Bioinformatics-recent advances in Genomics' organized by Regional Medical Research Centre (ICMR) on 28th and 29th March 2016.
245. Mr. Seepana Rajendra, Junior Research Fellow, attended one day workshop on "ICMR e-consortia & J-Gate plus" for the southern region at Regional Medical Research Center (RMRC), ICMR, Port Blair on 23rd July 2015.
246. Mrs. I.J. Kharkongor, Scientist-D attended the 1st Stakeholder Consultation meeting held on
247. Mrs. Kamla Devi attended a meeting of Tribal welfare, Andaman and Nicobar Administration, on 17th April 2015 at Van Sadan, Haddo.
248. Mrs. Kamla Devi, Scientist-B provided an information freshwater fishes of Andaman and Nicobar Islands to the Scientist of CIARI, Port Blair on 8th May 2015 on request.
249. Mrs. Kamla Devi, Scientist-B, attend the Half Yearly meeting of TOLIC at CIARI, Garacharma on 2nd February 2016; briefed about the marine biodiversity to the trainees from Directorate of Industries, Port Blair who visited ZSI Regional Museum on 5th February 2016; attended the Video Conference regarding uploading of the data of AISHE on 16th February 2016 at Conference Hall of the Secretariat, Port Blair.
250. Mrs. Kamla Devi, Scientist-B, attended a workshop on 'Administrative Matters' at Botanical Survey of India, Port Blair on 31st March 2016.
251. Mrs. Kamla Devi, Scientist-B, attended the Passing out ceremony of 48th batch of Forest Guards at Forest Training Institute, Wimberlygunj on 18th June 2015.
252. Mrs. Kamla Devi, Scientist-B, attended training programme on IT LAWS at Rajiv Gandhi Cooperative Training School, Port Blair from 6th to 9th October 2015.
253. Mrs. Kamla Devi, Scientist-B, guided thirty Post-graduate students Department of Ocean Science and Marine Biology, Pondicherry University, Brookshabad Campus, Port Blair during their visit to ZSI, Regional Museum, Port Blair on 4th August 2015; examined two fresh water fish specimens deposited by J. Raymond Jani Angel, Scientist, CIARI, Port Blair on 12th August 2015; attended the Research Advisory Committee (RAC) meeting at Van Sadan, Haddo, Port Blair on 18th August 2015; attended the TOLIC meeting at CIARI, Garacharma on 26th August 2015.



254. Ms. Rita Deb, Sr. Zool. Asstt. Attended the RTI Training at Meghalaya Training Institute, Shillong on 23rd June, 2015.
255. Officials Dr. Indu Sharma, Scientist-D, Dr. R. Paliwal, Scientist-B, Dr. Kamal Saini, Assistant Zoologist, Ms. Anjoo Dhar, Zoological Assistant, Mr. Akhil Nair, Zoological Assistant attended the ceremony of the release of ZSI Postal Stamp to mark Zoological Survey of India 100 Years Service to Nation, Souvenir, Directory, Contribution of Woman Scientists of ZSI released by Honable Sh. Ravi Sankar Prasad, Minister of Communication and Information Technology in the presence of Sh. Prakash Javadekar, Minister of Environment, Forest and Climate Change, Sh. Hem Pandey, Secretary, Dr. Kailash Chandra, Director-in-Charge, Kolkata at Public information Bureau, Media Centre, Raisan Road, New Delhi on 03.12.2015.
256. One Seminar Organised by Dr. Bulganin Mitra, O/C, Lepidoptera Section & O/C ENVIS, ZSI, HQ, Kolkata - "Seminar on Taxonomy for the Conservation of faunal diversity of Kerala from 21- 22 March, 2016 at ZSI, WGRC, Calicut."
257. Participated and presented a paper "Moth (Insecta: Lepidoptera) Fauna of Tea Gardens and its surrounding Ecosystem Environs in Northern West Bengal, India" in National Conference on Natural Resources, Diversity and Sustainable Development from 11-12 December, 2015 at University of North Bengal.
258. Ph.D. public viva-voce examination has been conducted for research scholar Mr. Koushik Sadhukhan on 8th January 2016.
259. Prepared and submitted Annual Progress Report of NRC for the year 2014-15.
260. Pre-Ph.D. Synopsis presentation was conducted at the Centre for Mr. Rajesh Kumar on 14th December 2015.
261. RAMC meeting was organized at ZSI, GPRC, Patna on February 8, 2016.
262. S. Mitra, Sr. Zool. Asst. Participated in Fourth Community Training Programme as a resource person in Field Training at Shankarpur and mandermani at MARC, Digha on 8th Dec, 2015.
263. Sandeep Kushwaha attained the National Conference on Recent Advances in Zoology, Organized by School Of Studies in Zoology Jiwaji University Gwalior.
264. Sandeep Kushwaha attained the National Workshop on Aquatic Resource Sustainability and Cutting Edge Technologies (ARSCET-2015).
265. Sandeep Kushwaha attained the: National Conference on entomology Organized by Department of Zoology Panjabi University Patiala, Punjab. 29 to 30 October 2015. Organized by Department of Zoology Panjabi University Patiala, Punjab.
266. Set up a stall of ZSI at the 'Swashraya Bharath 2015 Exhibition' organised by Swadeshi Science Movement at Swapnangari, Kozhikode from 15th -21st October 2015.
267. Shri R. Rajendar Kumar, Zoological Assistant, participated One day National Workshop in Stahyabama University on Workshop cum Training on Biotechnological Tools & Techniques in Aquaculture on 15 October 2015, participated national seminar on Bio prospecting of Marine Ascidians in CAS, Marine Biology Parangipettai on March, 11th, 2016. Participated state level seminar on Science indigenous in India on 28th March, 2016 in Gurunanak College.



268. Shri S. S. Mishra, Scientist-C attended one workshop organized by the State Forest Department at Namkhana, South 24 Parganas, West Bengal and delivered a lecture on "Protected Fishes of India" on 12.03.2016.
269. Shri S.S.Mishra, Sci-C, attended the ICZM training programme at MARC, Digha as a resource person.
270. Shri S.S. Mishra, Sci-C, delivered an invited lecture at a National Seminar on "Role of Biodiversity and Natural Resources on Sustainable Development" organized by Bajkul Milani Mahavidhyalaya, Bajkul, Purba Medinipur, W.B. on 19-01-2016
271. Shri. Anand Kumar, A. Assistant Zoologist participated in the expert consultation meeting held on 17-18 June 2015, in Chennai – organized by Fishery Survey of India, Under the BOBLME Project 'Mainstreaming Ocean Research for Ocean and Resource Management' and made a presentation highlighting the history, completed projects and recent and on-going programmes of Marine Biology Regional Centre, Zoological Survey of India, and the need for Mainstreaming Biodiversity Management.
272. Shri. M.J. Jadhav, S.R.F. presented a paper on "Paper wasps (Vespidae) and hairy wasps (Scoliidae) in campus of Shivaji University Kolhapur: An assessment" at International conference on Contempory research in Chemical and Life Science held at SGM college, Karad, District Satara on 22nd -23rd April, 2015.
273. Shri. P. Padmanaban, Assistant Zoologist submitted PhD thesis to Madras University entitled 'Studies on the Sea Snakes of Tamil Nadu Coastal waters'. Delivered a invited talk on "Sea snakes of India : Diversity and Distribution in the state level Seminar on Science for Indigenous India on 28th March, 2016 organised by G.S.Gill Research Institute & Indian Science Congress Association, Gurunanak College Chennai.
274. Shri. Sreejith S. Kumar, Senior Zoological Assistant undergone 21 days (20th June to 10th July 2015) training programme on "Summer School in Geospatial Technologies" at BVIEER, Pune sponsored by DST, Ministry of Science & Technology, New Delhi.
275. Shri. Surendar, C., Zoological Assistant participated One day National Workshop in Stahyabama University on Workshop cum Training on Biotechnological Tools & Techniques in Aquaculture on 15 October 2015.
276. Smt. K. G. Emiliyamma, Scientist-D, Delivered a talk on "earth day and its importance" to the high school students of various schools in Kozhikode district, in connection with Earth Day observation at Regional Science Centre, Planetarium on 22.4.2015; Delivered a lecture on "Western Ghats and its diversity" to the higher secondary students of Rahmania School, Kozhikode on 5.8.2015 at ZSI auditorium; Delivered a lecture on "Odonata fauna of Western Ghats" during the National workshop on Identification of fauna of Western Ghats organized during 5-9th Feb.2016 at ZSI, WGRC, Calicut; Delivered a lecture on "Faunal diversity of Western Ghats" to the students of Devadar H.S School, Tirur, Malappuram on 10th February 2016 at WGRC, Kozhikode on their visit to the office; Attended a Regional Seminar on *Importance of Taxonomy in conservation of Faunal Diversity- Kerala Scenario* (In Malayalam) on 21-22nd March 2016 at WGRC, Kozhikode and delivered a lecture on "Odonata (Dragonflies and Damselflies) diversity of Kerala" to the participants of seminar.
277. Sri S.S. Mishra, Sci.-C delivered an invited lecture on 'Marine Biodiversity with special reference to Fishes' at Sitananda College, Nandigram, WB on 17.10.2015.
278. Staffs of the section attended Hindi Pakhwada, 2015.



279. Terra Madre 2015 held at Mawphlang, Shillong on the 7th November, 2015.
280. The Centre participated and put up an exhibition stall at the Biodiversity Fair at the Indigenous
281. The Centre participated in the Science Day Exhibition at NEHU campus, Shillong on the 26th
282. The Centre participated in the Science Exhibition organized by the Synod College, Shillong in
283. Uttar Pradesh Journal of Zoology, 35 (3) conferred the honor of "Zoologist of Repute" to Dr. Navneet Singh, Scientist d, ZSI, GPRC, Patna
284. ZSI, GPRC, Patna celebrated Biodiversity Day on May 22, 2015. More than 80 M.Sc, M.phil, and Ph.D students were made aware about the role of Biodiversity & its conservation. Dr Gopal Sharma, Scientist D delivered lecture on wetland of Bihar.
285. ZSI, GPRC, Patna organized one day programme on Earth Day on April 22, 2015 in ZSI, GPRC, Patna.
286. ZSI, Patna celebrated "Tree Plantation" on 12th Oct 2015 in the campus of Zoological Survey of India, Gangetic Plains Regional Centre, Patna



EVENTS & ACTIVITIES



Zoological Survey of India



Events & Activities organized by ZSI during 2015-16

1. ANRC: Centenary Run as the part of Centenary Celebration programme of Zoological Survey of India was organized on 1st July 2015 to celebrate the 100th foundation day from the National Heritage- Cellular Jail to ZSI office. One hundred and ninety participants from various Central Government Research Institutes, Schools, Pondicherry University, Annamalai University, Department of Environment and Forests including all the scientists, scientific and administrative staff, research associates, research fellows and scholars of this regional centre participated in the programme. Certificates were handed over to all the participants.
2. Annual meeting of Andaman Science Association was organized at Auditorium of this centre on 14th July 2015. All the scientists, scientific and administrative staff, research associates, research fellows and scholars of this regional centre participated in the programme along with the other members of this association.
3. WGRC: 100th Foundation Day and Centenary year of ZSI was celebrated on 1st July, 2015. Centenary Run was flagged off by Dist. Collector and a Curtain raiser of Scientific sessions were inaugurated by Hon. Mayor of Calicut.
4. A joint Hindi workshop organized by TOLIC (Town Official Language Implementation Committee) for the staff of various central Govt. offices of Kozhikde, on 21.4.2015 at ZSI, WGRC.
5. Organized a function on 18th Sept. 2015, related to celebration of Hindi day at the Centre.
6. Organised a Centenary Run on the same day by inviting School Childrens of Canning and other Dignitaries / Officials from Canning.
7. Hindi Diwas meet was celebrated in the office on 14th September 2014. All the staffs took part in Dictation, Translation and Oral Competition during these meet, for use of Hindi in Office.
8. Sunderban Regional Centre, organized one Stakeholders meeting in collaboration with Centre for Environment and Development for the project "Deltas, Vulnerability and Climate Change: Migration and Adaptation" (DECCMA) on 21st September, 2015, at our office.
9. Co-ordinated with the ZSI HQ, Kolkata for the organization and participation in the International Wetland Day meeting at Gosaba, Sunderban on 2nd February 2016
10. 30th RCM meeting was organized on 8th May'15 at ZSI-Dehradun
11. Environment Day was celebrated on 5th June at NRC, by planting trees and cleaning the office campus
12. Centenary Run was organized at NRC, ZSI to commemorate the foundation day On 1st July'2015. Around 150 people participated Chief Guest: DG-UCOST, Dr Rajendra.Dobhal , Guest of Honour: Director-IIIRS, Dr A.Senthil Kumar Students of Kendriya Vidhyalaya , Scientists from FRI, ASI, BSI, Retired ZSI officers & Staff & present ZSI Officers, Staff & members from CPWD, CCU etc participated in Centenary walk from Radha Krishan Mandir, Kishan Nagar Chowk to NRC, ZSI Campus at 218, Kaulagarh Road. Centenary Pledge received from the Director Zoological Survey of India Dr. K. Venkataraman and also centenary message from the Director was read out by the Officer-in-charge Dr.A.N.Rizvi.
13. Foundation Stone laying event of Western Himalayan Research Laboratory to be constructed at NRC was organized on 21st July'15. Foundation Stone was laid by Dr K Venkataraman, Director, Zoological Survey of India, Kolkata, Dr Rajendra



Dobhal, DG, UCOST, Executive Engineer & Assistant engineer CCU, were also present along with the members of NRC ZSI.

14. Himalayan Day was celebrated by organizing a Seminar for school children on "Biodiversity of Indian Himalayan Region" 15 Students from two Schools along with two faculty participated in the seminar.

15. Hindi Saaftah was Celebrated from 14-18th Sept'15 by organizing Written and Speech Competition

16. FWBC: All officers and staff participated in Centenary Run & Foundation day Celebrations at Zoological Survey of India, Hyderabad on 1st July, 2016. On this occasion, Dr. D.R.K.Sastry, Retd. Joint Director, ZSI and Dr. J.S. Rajeshwari, Head of the Department and Reader in Zoology, St. Ann's Degree College, Hyderabad were invited as Chief Guests and felicitated and conducted the function in a befitting manner.

17. All officers and staff participated in Centenary Run & Foundation day Celebrations at Zoological Survey of India, Hyderabad on 1st July, 2016. On this occasion, Dr. D.R.K.Sastry, Retd. Joint Director, ZSI and Dr. J.S. Rajeshwari, Head of the Department and Reader in Zoology, St. Ann's Degree College, Hyderabad were invited as Chief Guests and felicitated and conducted the function in a befitting manner.

18. CZRC: This Regional Centre celebrated **100th Foundation Day of Zoological Survey of India**. On this occasion, a "Centenary Run" was organised and inaugurated by Shri Sharad Jain, Hon'ble Health Minister of State, Madhya Pradesh. School children, local people and staff of CZRC were participated in the Centenary Run.

19. During September, 2015, Celebrated "Hindi Pakhawada" and organized competitive tests on Shrutilekhan, Prashasnik Shabd Anuwad and Samanya Gyan during the period under report.

Certificates issued to winner in the competition and momentos were given to all the participants for progress of Hindi Rajbhasha.

20. During first week of October, 2015 "**Wildlife Week**" celebrated and drawing competition was organized. Students from various schools were participated in the competition. During concluding day, prize distribution was made to the best drawings made by the students.

21. During Centenary Run on the Foundation Day of Zoological Survey of India on 1st July, 2015 & at DRC, ZSI, Jodhpur, eminent dignitaries from the field of Zoology, administration, educational and research Institutions, researchers and school children visited the Centre & took keen interest in the museum of the centre

22. GPRC, ZSI, Patna celebrated its Golden Jubilee by organizing a seminar on 'Faunal Diversity of Bihar & Jharkhand' on 30th December, 2015.

23. RAMC meeting was organized at ZSI, GPRC, Patna on February 8, 2016.

24. A Centenary Run was organized by the centre on 1st July 2015, which was flagged-off by Dr. A. Benniamin, O/C & Scientist-D, Botanical Survey of India, Pune.

25. World Environment Day celebrated on 05.06.2015.

26. Hindi Saptah observed during third week of September, 2015.

27. Hindi saptah was celebrated at the Centre from 14th-21st September, 2015. Different competitions were organized among all staff members to increase their interest in Rajyabhasha Hindi. Prizes and certificates were distributed among the winners and participants by Dr. N.S. Sayalwar, CMO, CGHS Wellness Centre No. 1, Akurdi, Pune. The function was presided by Dr. P.S.Bhatnagar, Scientist-D & Officer-in- Charge.



28. Wildlife Week observed during first week of October, 2015.
29. International Day for Biological Diversity was observed on 22nd May, 2015 and around 130 students from the dept. of Environmental Science of St. Edmund's College, Shillong participated in the celebration.
30. ZSI-Shillong A run for ZSI was organized on 1st July, 2015 in commemoration of ZSI Foundation Day with active participation from students of local School and colleges
31. Exhibitions stall at the Biodiversity Fair at the Indigenous Terra Madre 7th November, 2015.
32. Science Day Exhibition at NEHU campus, Shillong on the 26th & 27th February, 2016.
33. Himalayan Faunal Repository construction at HARC/ZSI, Solan under supervision of the Director, ZSI. The Budget was sanctioned for said building in financial year 2015-16 and Central Public Work Department (CPWD), Shimla will construct it. foundation stone of Himalayan Repository at HARC, Solan dated on July 24, 2015.
34. High Altitude Regional centre, Zoological Survey of India, organized the Centenary Run on auspicious occasion of Centenary Celebration on 1st July, 2015. Hon'ble Deputy Commissioner, Solan (HP) flagged off the run from Circuit House to ZSI Office and more than 175 persons have been participated in the run.
35. The Inspection Committee of Pondicherry University visited ZSI, Port Blair for granting extension of affiliation to conduct Ph.D. programme, in which Dr. C. Raghunathan, Scientist-D & Officer-in-Charge made a presentation on the progress and achievements of the Centre before the committee.
36. Honourable Justice of Madras High Court, Dr. S. Vimala visited the Centre on 14th November 2015.
- Information about the activities of ZSI as well as faunal resources of Andaman and Nicobar Islands have been provided to the Justice.
37. Dr. Ranjani Warriar, Advisor, MoEF&CC visited the Centre on 12th December 2015. Information about the activities of ZSI as well as faunal resources of Andaman and Nicobar Islands have been provided to the Advisor.
38. Dr. Kailash Chandra, Director, visited the Centre on 17th and 18th January in connection with the visit of Hon'ble Minister for Environment, Forest and Climate Change, Government of India, Mr. Prakash Javadekar to Andaman and Nicobar Islands from 16th to 19th January 2016. The Director-in-Charge briefed about the status of coral reefs in India with special reference to Andaman and Nicobar Islands and handed over the copies of the status report of corals to the Hon'ble Minister on 17th January 2016. On 16th January 2016, Dr. C. Raghunathan, Scientist-D & Officer-in-Charge met the Hon'ble Minister and briefed about the status of *Trochus niloticus* and sea cucumbers in Andaman and Nicobar Islands as asked by the Minister. The Director-in-Charge chaired the review meeting to assess the scientific progress of the Centre held on 18th January 2016 in which the Officer-in-Charge made a presentation of 'Activities and Achievements of ZSI, Port Blair' followed by 17 presentations made by the scientific officials of the Centre.
39. Mr. M.C. Beniwal, Under Secretary, MoEF&CC/GOI visited the Centre on 13th to 16th March 2016.
40. One eminent scientist Dr. Salman Hussain Rawada from Egypt visited Museum of ZSI, GPRC, Patna
41. Students and Teachers from Kendriye Vidyalaya, Kankarbagh visited ZSI Patna museum.
42. Students and Teachers from Patna Central School visited ZSI, Patna museum.



Zoological Survey of India

43. Students and Teachers from Krishna Niketan School visited ZSI, Patna museum.
44. Hon,ble Education minister Government of Bihar Sh. Ashok Chaudhary visited ZSI Patna museum.
45. Hon,ble Minister Gov. of Jharkhand Sh. Saryu Roy visited ZSI Patna



Dr. Yogesh, PCCF (WL & BD) flagged off the centenary run at APRC, Itanagar



A Centenary Run was organized at DRC, ZSI, Jodhpur



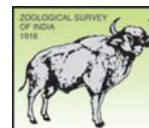
Centenary Run at Canning Centre



Centenary Run Flagged off by DG-UCOST Dehradun & Director, IIRS –Dehradun



Himalayan day celebration on 9th Sept'2015 at NRC, ZSI – Dehradun



30th RCM organized at NRC-Dehradun



Seminar on Coastal Zone Management and Marine Biodiversity at ZSI, Digha



Inauguration of Marine Museum at ZSI, Digha

The marine museum is opened for the public on 3rd February, 2016. the museum is inaugurated by Shri Hem Pande, Special secretary MoEFCC and Shri Sisir Adhikari, honourable member of Parliament, Kontai, in the presence of Dr. Kailash Chandra, Director Zoological Survey of India and Dr. Paramjit Singh, Director BSI



Century Run at ZSI Head quarter



Lead Authors meeting on IPBES at Tokyo, Japan, from 17.08.2015 to 21.08.2015



Century Run organized by EBRC, ZSI



Zoological Survey of India



DRC, Jodhpur ZSI stall during Kissan Mela and Farmers Innovation Day on 24th September, 2015



Golden Jubilee celebration at Gangetic Plains Regional Centre, Patna



A Centenary Run was organized at WRC, ZSI, Pune



A ZSI, BSI joint Review Meeting with Hon'ble Shri. Prakash Jawdekar, Minister, MoEFCC at Van Bhawan, Pune



Dr.P.S.Bhatnagar, Scientist-D & Officer-in-Charge felicitating Hon'ble Shri. Prakash Jawdekar, Minister, MoEFCC at Van Bhawan, Pune



Exhibitions stall at the Biodiversity Fair at Shillong



Science Day Exhibition at NEHU campus, Shillong



Centenary Run organized at ZSI, Solan



Centenary walk at SRC, ZSI, Chennai



National Seminar on the Faunal Diversity of Eastern Ghats and Western Ghats, SRC Chennai



ACCOUNTS



Zoological Survey of India

Annual Report 2015-16



STATEMENT OF ESTIMATE AND EXPENDITURE FOR THE YEAR 2015-16

			Plan
Sub-head	Revised Budget	Expenditure Upto the 31.03.16	Balance
Salary	92200000	91990675	209325
Wages	14200000	14191408	8592
O.T.A.	80000	66837	13163
Medical	4000000	2673068	1326932
D.T.E.	15723000	15254945	468055
F.T.E.	500000	288554	211446
O.E.	53000000	52866682	133318
RRT	1500000	1412558	87442
Publication	8000000	7999012	988
O.A.E.	0	0	0
S. & M.	23300000	23074954	225046
Min. Works	22900000	22899881	119
Grants-in-Aid	0	0	0
Sch. & Stp.	3100000	2831379	268621
Other charges	2100000	2099880	120
Total :	240603000	237649833	2953167

Non Plan

Sub-head	Revised Budget	Expenditure Upto the 31.03.16	Balance
Salary	190500000	190106770	393230
Wages	185000	184424	576
O.T.A.	40000	28981	11019
Medical	2750000	1839843	910157
D.T.E.	1350000	986400	363600
F.T.E.	100000	0	100000
O.E.	2500000	2459138	40862
RRT	150000	14662	135338
Publication	900000	898112	1888
O.A.E.	250000	249806	194
S. & M.	1230000	1227632	2368
Min. Works	0	0	0
Grants-in-Aid	25000	25000	0
Sch. & Stp.	236000	223350	12650
Other charges	120000	119869	131
Total :	200336000	198363987	1972013





Zoological Survey of India
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