



ZSI e-NEWS

The Monthly Electronic Newsletter of Zoological Survey of India

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October 2013

ZSI in the 98th years of Service to the Nation (1916 to 2013)

From the Director's desk

The effects of Climate Change are more prevalent and evident globally, and India is also experiencing various events that one could say all because of dramatic changes that happen to our environment. The recent Cyclone Philin and its devastating effects on the people and their properties are enormous. I visited Gopalpur of Odisha, a week after the Philin made its landfall in the very same coastal town where we have our office. Though I could see the material damages visibly, the effect of cyclone on the local biodiversity will only be revealed much later. The world famous Chilika Lake is not far from the landfall place. Some newspaper reports highlighted the plight of young birds on their nests both in Odisha and the neighbouring Andhra Pradesh. Burgeoning developmental activities and their impacts on the local natural resources, compound problems many folds. Though certain places are devoid of any developmental activities, over pollution and increased carbon emissions in cities and towns impact even those far off virgin places severely. The ZSI is involved in conducting Environmental Impact Assessment studies in various places on array of industries and this reflects the fact that industrial and overall development of India is really progressing, but in majority of the cases, only at the cost of natural resources. Development is crucial and inevitable, but the need of the hour is to devise strategies thereby development takes place but not entirely at the cost of local biodiversity.

Dr. K. Venkataraman
Director, Zoological Survey of India, Kolkata

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Headquarters, Kolkata

During the month, extensive field surveys have been undertaken in the States of Himachal Pradesh, Maharashtra, Chhattisgarh, Mizoram and West Bengal. In addition to that, local survey has been undertaken in Sundarban Biosphere Reserve, West Bengal.

Scientists of Headquarter office have identified, 9 species of Protozoa, 6 Genera of soil and plant parasitic Nematodes, 2 species of Platyhelminthes, 12 species of Crustacea, 18 species of Hemiptera, 4 species of Odonata, 10 species of Coleoptera, 6 species of Hymenoptera, 1 species of Orthoptera, 30 species of Fishes and 4 species of Mammals from the States of Himachal Pradesh, Maharashtra, Andhra Pradesh, Assam, Karnataka, Kerala, Meghalaya, Mizoram, Nagaland, Sikkim, Tamil Nadu, Tripura, Uttarakhand, Odisha, Chhattisgarh, Uttar Pradesh, West Bengal and Andaman and Nicobar Islands.

Dorylaimus thornei Andrassy, 1969 has been reported for the first time from India. *Dorylaimus neominimus* Gantait *et al.*, 2010 and *Aporcelaimellus heynsi* Baqri and Jairajpuri, 1968 are newly recorded from Himachal Pradesh. *Indodynerus capitatus* Gusenleitner (Hymenoptera: Vespidae: Eumeninae) reported for the first time from Chhattisgarh and Kerala.

Similarly, *Elasmus rajasthanicus* Verma & Hayat, *E. fulvicornis* Verma & Hayat, *E. caligneus* Narendran, *E. khandalus* Mani & Saraswat, *E. longiventris* Verma & Hayat and *E. kollimalainus* Mani & Saraswat (Hymenoptera: Eulophidae: Eulophinae) have been reported for the first time from West Bengal.

Type specimens received from Prof. Y. Ranga Reddy, Acharya Nagarjuna University, Nagarjunanagar, Andhra Pradesh have been entered in the type specimen register and the registration numbers (C 6106/2) issued.

Identification and advisory services have been

rendered on twenty nine lots of specimens, received from different institutions and organizations. In addition, identification and advisory services also have been rendered to Swami Yugeswarananda, Ramkrishna Mission Ashram, Narendrapur, Kolkata. Twenty-seven examples under the family Chrysomelidae, Coccinellidae, Lycidae, Scarabaeidae, Hydrophilidae, Curculionidae, and Hemiptera have been identified. All these specimens have been received from Salil Kumar Gupta, Anandam Housing, Kolkata. One example under the family Coccinellidae has also been identified. One sealed packet of bird feather received from WCCB (NR) for identification on 17 October, 2013 and for which report is yet to be submitted. Two photographs of crabs sent by Dr. G. Innocenti, Manager, Crustacean & Echinoderm Collections, Museo di Storia Naturale dell'Universita degli Studi di Firenze Sezione di Zoologia "La Specola" via Romania, 17-I-50125 Firenze have been identified as *Sartoriana spinigera* (Wood-Mason, 1871).

Two higher officials from Gujarat forest department visited bird section on 24 October, 2013. Six (06) students from EL-Bethel College (for B.ED), Kolkata also visited bird section on 28 October, 2013.

Dr. K. Venkataraman, Director, ZSI, has attended a meeting on Criteria for Ecologically Sensitive Areas at National Centre for Sustainable Development, Chennai on 9 and 10 October, 2013. Dr. Venkataraman, also has attended the departmental Promotion Committee Meeting (DPC) on 25 October, 2013 at the Ministry of Environment and Forests (MoEF), New Delhi, besides attending a meeting at the National Biodiversity Authority (NBA) Chennai on 1st and 21st October, 2013. Dr. Venkataraman also attended a meeting at Mangalore on the Integrated Coastal Zone Management (ICZM) from 28-31 October, 2013 and delivered a lecture on the conservation of marine resources of India.

Dr. Kailash Chandra, Scientist-F and Additional Director has attended the 'National Conference on Insect Diversity and Systematics: Special Emphasis on Molecular Approaches (NCIDS)' at Aligarh Muslim University, Aligarh organised by the department of Zoology (Entomology Section) from 28-30 October, 2013 and delivered an invited lecture on 'State of Information on Insect Diversity of States and Union Territories in India and Challenges Ahead' in the conference.

Dr. Gopinathan Maheswaran, Scientist-C & Officer-in-Charge, Bird Section, HQ office, visited La Martiniere for Boys school on 8 October, 2013 on request of school authorities to identify the skeletons of birds recovered from the walls of the school while making renovations. Out of 22 skeletons recovered from within the walls 20 belong to crow and one of pigeon and other of bat. Dr. Maheswaran, along with Director, ZSI and Dr. G. Srinivasan, Scientist-C visited ZSI's Estuarine Biology Regional Centre, Berhampur, Orissa from 18-20 October, 2013 to assess the damages inflicted by the cyclone Phailin. Dr. Maheswaran, also made a trip to Namdapha Tiger Reserve of Arunachal Pradesh from 25 October 2013 for 15 days to supervise his ongoing DST-sponsored project on the 'Critically Endangered' White-bellied Heron *Ardea insignis*.

Drs. Basudev Tripathy, Gopinathan Maheswaran of HQ office, Anil Mohapatra of MARC, Digha and Shri. S.S. Mishra, of Fish Division, HQ office, visited Digha coast to carry out studies regarding proposed offshore floating LNG terminal proposed near the Petuaghat in Contai of Purba Medinipur district West Bengal by H-Energy East Coast Private Limited for marine and coastal ecological study.

Shri. Shuvajit Chakrabarti, Sr. Zool. Asstt. has briefed DD Bangla Channel on 'Utility of conservation of wildlife and the role of Zoological Survey of India' on 7 October, 2013.

Publications

- Barman, R.P., Mishra, S.S., Kar, S. and Saren, S.C. (2013) Marine and estuarine fishes. In, Fauna of Karnataka, State Fauna Series, 21: 277-388.
- Chandra, K., and Kushwaha, S. (2013) New Distributional Record of Hemiptera Bugs from Kanger Valley National Park. Jagdalpur, Chhattisgarh. *BIONOTES* 15(3): 86-87.
- Chandra, K., and Kushwaha, S. (2013) Report of *Usilanus burmanicus* Distant (Hemiptera: Lygaeidae) from Andaman and Nicobar Islands, New Record to India. *Journal of the Andaman Science Association* 18(1): 121-122.
- Dev Roy, M. K., and Nandi, N. C. (2013) Diversity of brachyuran crabs in mangroves of west coast of India. In: J. R. Bhatt, Ramakrishna, M. Sanjappa, O. K. Remadevi, B. P. Nilaratna and K. Venkataraman (eds.), *Mangroves in India: their biology and uses*, pp. 389-404. Zoological Survey of India, Kolkata.
- Gantait, V.V. (2013) Diversity of entomopathogenic nematodes of India: an overview. In: Animal Diversity, Natural History and Conservation, Ed. V.K. Gupta & Anil K. Verma: pp 19-27.
- Girish Kumar, P., Kishore, L., and Shareef, K.P.M. (2013) New distributional records of *Indodynerus capitatus* Gusenleitner, 2008 (Hymenoptera: Vespidae: Eumeninae). *Uttar Pradesh Journal of Zoology* 33(1): 81-83.
- Hegde, V.D. (2013) Insecta: Coleoptera: Tenebrionidae p.167-173, In: Fauna of Karnataka- State fauna series, *Zool. Surv.India* 21: 1-595.
- Kazmi, S.I., and Kumar, K.G. (2013) The species of *Elasmus* Westwood (Hymenoptera: Eulophidae: Eulophinae) from West Bengal, India. *Prommalia* 1: 79-92.
- Lal, B., and Hegde, V.D. (2013) Dermaptera p.123-124. In: Fauna of Karnataka- State fauna series, *Zool. Surv.India*, 21: 1-595.
- Thilak, J. and Chandra, K. (2013) Some observations on vultures in Veerangana

Durgavati Wildlife Sanctuary, Dist. Damoh, Madhya Pradesh. *BIONOTES* 15(3): 82.

Abstracts published

- Chandra, K. (2013) State of Information on 'Insect Diversity of States and Union Territories in India and Challenges Ahead' in 'National Conference on Insect Diversity and Systematics: Special Emphasis on Molecular Approaches (NCIDS) at Aligarh Muslim University, Aligarh from 28th to 30th October, 2013: p: 3.
- Chandra, K., and Kushwaha, S. (2013) Family Reduviidae (Hemiptera: Insecta) from Madhya Pradesh in 'National Conference on Insect Diversity and Systematics: Special Emphasis on Molecular Approaches (NCIDS) at Aligarh Muslim University, Aligarh from 28th to 30th October, 2013: p: 25.
- Gupta, D., and Chandra, K. (2013) Taxonomic significance of Cephalic horns in

Indian Dung beetles (Scarabaeidae : Coleoptera)' in 'National Conference on Insect Diversity and Systematics: Special Emphasis on Molecular Approaches (NCIDS) at Aligarh Muslim University, Aligarh from 28th to 30th October, 2013: p: 17.

- Hassan, M.E., and Biswas, B. (2013) Record on some Stink bugs (Hemiptera: Pentatomidae) from Maharashtra in 'National Conference on Insect Diversity and Systematics: Special Emphasis on Molecular Approaches (NCIDS) at Aligarh Muslim University, Aligarh from 28th to 30th October, 2013: p: 20.
- Biswas, B., Hassan, M.E., and Mukherjee, P. (2013) On an account of Assassin Bugs (Hemiptera: Heteroptera: Reduviidae) of Maharashtra' in 'National Conference on Insect Diversity and Systematics: Special Emphasis on Molecular Approaches (NCIDS) at Aligarh Muslim University, Aligarh from 28th to 30th October, 2013: p: 64.



Officials from Gulf of Kutch Marine National Park visited ZSI and had a meeting with Director and staff of ZSI and also visited various Sections of HQ office including bird, mammal and DNA lab.



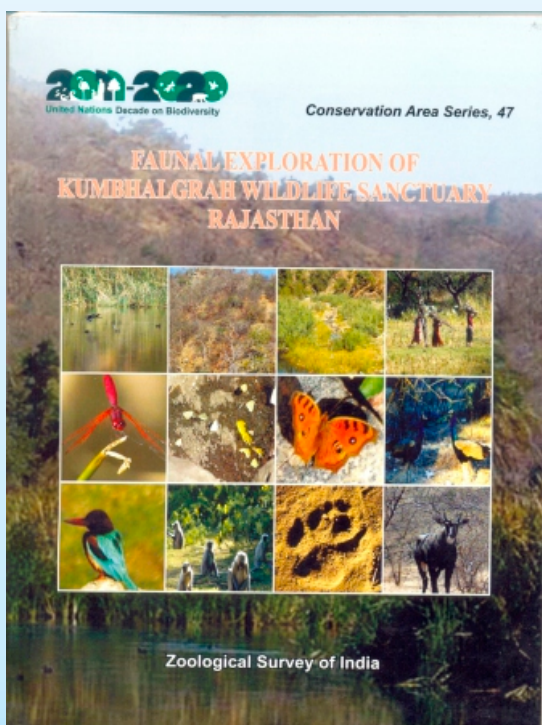
Shri. W.S. Lakra, Director and Vice Chancellor, Central Institute of Fisheries Education, Versoa visited various Sections of ZSI on 3 October 2013.



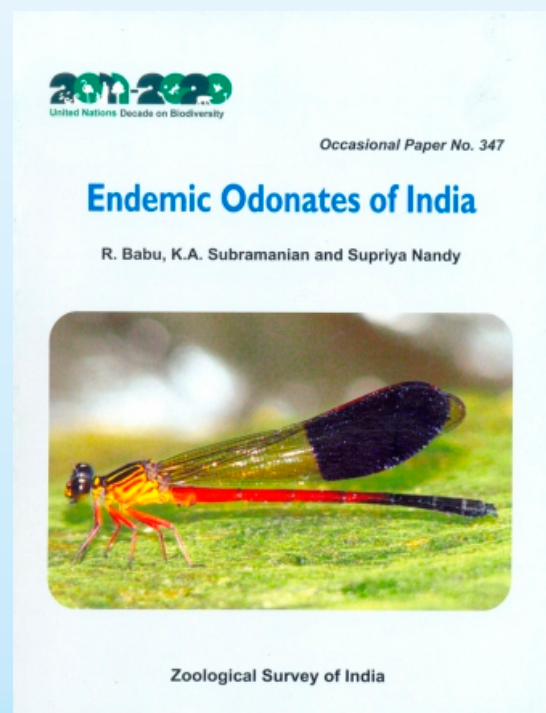
Collection of Freshwater crabs and Shrimps at Aizawl, Mizoram



Dr. Gaurav Sharma delivered lecture in national conference held at University of Kashmir, Srinagar on 4 October, 2013



Fauna of Kumbalgarh Wildlife Sanctuary, Rajasthan



Endemic Odonates of India



Fake Rhinoceros Horn received from Deputy Commissioner of Police, Jalpaiguri



Freshwater crab at Champhai, Mizoram



Indodynerus capitatus
Gusenleitner

Andaman & Nicobar Regional Centre, Port Blair

During the month, surveys have been conducted on the coastal waters of John Lawrence Island, Inglis Island, Peel Island, Nicolson Island, Wall Island and Havelock Island in Ritchie's Archipelago from 19-25 October, 2013; Burmanella in South Andaman on 4 October, 2013; Saddle Peak National Park from 19-29 October, 2013 beside local surveys in Port Blair to assess the marine and terrestrial faunal communities. As a result of these surveys, a total of 374 species have been identified from these areas. Among them, 97

species of scleractinian corals, 6 species of gorgonians, 3 species of octocorals, 1 species of ctenophore, 1 species of polyclad, 5 species of sea anemones, 14 species of opisthobranchs, 15 species of echinoderms, 66 species of gastropods, 5 species crabs, 1 species of lobster and 78 species of fishes have been identified from marine habitat while, 7 species of insects (excluding butterflies), 18 species of butterflies, 4 species of amphibians, 7 species of lizards, 1 species of snake and 45 species of birds have been identified/

observed from terrestrial environments. A total of 103 specimens comprised of 45 specimens of corals, 40 specimens of molluscs, 14 specimens of Lepidoptera and 4 specimens of diptera have been registered in the National Zoological Collections.

An Environmental Impact Assessment (EIA) proposal entitled 'Studies on the biotic components in the proposed site for installation of Reverse Osmosis Plant at INS Kardi, Kamorta Island, Andaman and Nicobar Archipelago' has been submitted to Indian Navy, Ministry of Defence on request. Proposal for the preparation of People's Biodiversity Register on Coastal and Marine Biodiversity of Andaman and Nicobar Islands has been submitted to the National Biodiversity Authority, Ministry of Environment and Forests, Chennai for possible funding.

The closing ceremony of Hindi Fortnight was held at the Centre on 7th October 2013 and the certificates have been handed over to the participants of various competitions.

Dr. C. Raghunathan, Scientist-C and Officer-in-Charge has served as a Mentor in the INSPIRE programme of Department of Science and Technology, Government of India organized for senior secondary school students held at Department of Coastal Studies and Marine Biology, Pondicherry University, Port Blair on 27 October, 2013 and delivered a lecture on 'Coastal and Marine Ecosystems of India with special reference to Coral Reef Ecosystem of Andaman and Nicobar Islands'; he also served as a member in Research Advisory Committee meeting of Department of Environment and Forests, Andaman and Nicobar Administration on 7 October, 2013; also served as an Expert Member in the Executive Council Meeting of Andaman Adim Janjati Vikas Samit held at Secretariat of Andaman and Nicobar Administration on 15 October, 2013 chaired by the Chief Secretary; served as a Member in Doctoral Committee for Ph.D. students held at Department of Coastal Studies and Marine

Biology, Pondicherry University, Port Blair on 17 October, 2013. Dr. C. Raghunathan also has evaluated a Ph.D. thesis on coral diversity from Annamalai University and reviewed a manuscript on fishes for ZSI publication and report submitted to the respective organizations.

Dr. C. Sivaperuman, Scientist-C has made a presentation on 'Ecosystem service of birds with special reference to A&N Islands' in the workshop on People, Forests and Wildlife Conservation organized by Department of Environment and Forests, A & N Administration on 7 October, 2013 in which Mr. Tamal Mondal, SRF also delivered a lecture on 'Diversity of corals and its importance in Andaman and Nicobar Islands'; Dr. Sivaperuman has delivered a lecture on 'Faunal diversity of A&N Islands with special reference to avifauna' at CPREEC, Port Blair on 8th October 2013 and also served as a member in the selection committee for Research Assistant at RMRC, Port Blair on 17 October, 2013; served as a member in Doctoral Committee for Ph.D. on 18 October, 2013 at Department of Coastal Studies and Marine Biology, Pondicherry University, Port Blair. Mrs. Kamla Devi, Assistant Zoologist has attended a training programme on Tax Laws from 18-19 October, 2013 at Rajiv Gandhi Training Institute, Port Blair. Mr. Kumaralingam, SRF has participated in the 13th International Course on Mangrove Ecosystems' organized by UNESCO-MAB and Annamalai University from 23 September 2013 to 7 October, 2013 held at CAS in Marine Biology, Parangipettai, Tamil Nadu.

Publication

- C. Raghunathan, 2013. Coral reef ecosystem of Andaman and Nicobar Islands: A Hotspot for Indian Marine Biodiversity. *Proceedings of Innovation in Science Pursuit for Inspired Research (INSPIRE) – DST, Government of India*, organized by Pondicherry University, 25th to 29th October 2013.p.14-15.



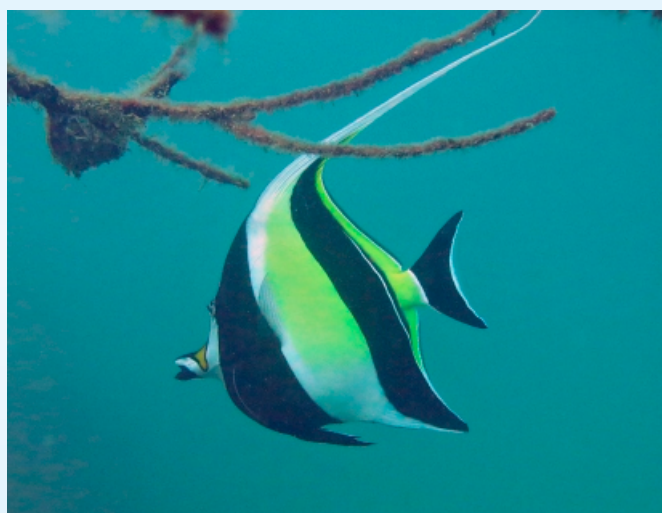
Reef fish *Siganus stellatus* Forsskal 1775



Reef fish *Pterois antennata* Bloch 1787



Reef fish *Dendrochirus zebra* Cuvier 1829



Reef fish *Heniochus accuminatus* Linnaeus 1758



Gorgonid *Rumphella torta* Klunzinger 2



Corcodile fish *Cymbacephalus beauforti* L.W. Knapp 1973

Western Ghat Regional Centre, Kozhikode (Calicut)

During the month, description of a new species viz. *Eurydinotomorpha indica* sp.nov. (Hymenoptera: Pteromalidae) has been completed from the collections made from the southern Western Ghats ecosystems of Mannavanshola N.P., Idukki district Kerala. Digital imaging of the species and drawings have been prepared and a manuscript has been finalized for submission.

During the month, we have completed the revision of genus *Calliscelio* Ashmead (Hymenoptera: Platygasteridae) of India and a manuscript dealing with 13 species has been finalized and submitted for publication. Three new species *Calliscelio neogaliensis* sp. nov., *Calliscelio sitalis* sp. nov. and *Calliscelio vaalan* sp. nov. have been described, along with 2 new generic transfers. Other identification includes 7 species of Pteromalidae (Hymenoptera), 4 species of Platygasteridae (Hymenoptera), 4 species of butterflies (Lepidoptera), 3 species of Mantodea and 2 species of Dermaptera.

Five identification and advisory services have been rendered to students and other researchers. Dr. P. M. Sureshan, Scientist-C and Dr. Md. Jafer Palot, Asstt. Zoologist have participated in the "International symposium on ecosystem approaches to the management and conservation of fisheries and marine biodiversity in the Asia region" organized by MoEF, New Delhi, MFF (IUCN) and CMFRI, Kochi on 27 and 28 October, 2013. The Centre has celebrated Wildlife Week-2013, in collaboration with Kerala State Wildlife and Forest Department on 04 October, 2013 by organizing a one-day seminar on "The Wildlife (Protection) Act and Illegal wildlife scenario in India". About 60 participants from Kerala Forest Department, Police Department and Pet shop owners have attended the event. Dr. P.M. Sureshan, Scientist-C has delivered a lecture on "Wildlife wealth of India".

Dr. K.Rajmohana, Scientist-C has delivered a lecture on 'Biodiversity Act and international

treaties towards conservation of Wildlife in India'; Mrs. K.G. Emiliyamma, Scientist-C has delivered a lecture on "Illegal Trade in invertebrates" and Dr. Md. Jafer Palot, Asstt. Zoologist has delivered a lecture on "Pictorial presentation on Scheduled Animals of Indian Wildlife (Protection) Act". The scientists of the Centre also delivered another three lectures.

Dr. P.M.Sureshan, delivered a lecture on "Biodiversity of India and the role and functions of Zoological Survey of India" delivered to the higher secondary school students of Govt. Higher secondary school, Kunnamangalam, Calicut on 31 October, 2013. Dr. K.Rajmohana, has delivered an invited lecture on 'Ants, Bees and Wasps: A Taxonomic overview', at a National Seminar on 'Changing Perspectives in Taxonomy and Systematics', at Kodanchery Govt. College, on 8 October, 2013.

Dr. Md. Jafer Palot, has delivered a talk on 'Biodiversity of Kerala' at the one-day seminar organized in connection with Wildlife Week Celebration on 7 October, 2013 at the Post graduate Department of Wildlife Sciences, Farook College, Kozhikode. Dr. K.Rajmohana, Sci.C, served as an external examiner for M.Sc., Semester Examination, Dept of Zoology, University of Calicut, Kerala on 10 October, 2013. Dr. Md. Jafer Palot, Asstt .Zoologist, performed as a judge at the Wildlife Photography competition (Bioblitz) conducted at Aralam WLS by the Kerala Forests & Wildlife Department & Malabar Natural History Society on 5 October, 2013. The Centre also participated in the an Exhibition "SUVARNA" - in connection with the Golden Jubilee Celebrations of Govt. Arts & Science College Calicut, by arranging a stall for three days from 24-26 October, 2013. During the month, 688 visitors paid their visits to the museum.

Publications

- Sureshan, P.M., Girish Kumar, P., & Kazmi, S.I. (2013). Taxonomic studies on collection

of Pteromlaidae (Hymenoptera: Chalcidoidea) from Maharashtra, India. *Prommalia* 1: 136-154.

- Kulkarni, N., Dinesh, K.P., Prashanth, P., Bhatta, G., and Radhakrishnan. C. (2013) Checklist of Amphibians of Goa. *Frog leg*, Newsletter of the Amphibian Network of South Asia and the Amphibian Specialist Group - South Asia, 19: 7-12.
- Poovoli, A., and Rajmohana K. (2012) New distribution records of the invasive termite *Cryptotermes dudleyi* Banks (Kalotermitidae) from Kerala, along with a report on its attack. *Malabar Trogon* 10(3): 11-15.
- Palot, M.J. (2013) Reptiles. 179-210 pp. In:

Venkatraman, K, Chattopadhyay, A and Subramanian, K.A. (Editors). *Endemic Animals of India (Vertebrates)*: 1-235+ 26 Plates. Published by the Director, Zoological Survey of India, Kolkata.

- Praveen J., Palot, M. J. and Dipu, K. (2013) Recovery of a Cory's Shearwater *Calonectris borealis* from Thaikadapuram beach, Kasaragod district, Kerala. *Indian Birds* 8(6): 152-153.
- Palot, M.J. (2013) Urugangal: Kadalpambukal. (Reptiles: Sea snakes of Kerala) *Koodu-* An environmental Magazine in Malayalam. 1(6): 44.



Open forum on Illegal Trade of Animlas, Wildlife Week Celebrations- 2013



Sri. D.K. Varma IFS, Addl. PCCCF, Kozhikode, addressing the audience-Wildlife Week Celebration



ZSI pavilion at the exhibition at Govt. Arts and Science College, Calicut



Students at ZSI pavilion



Ceratobaes dunensis
Mukerjee



Heterotermes indicola
(Wasmann)

Estuarine Biology Regional Centre, Gopalpur-on-Sea

During the month, a faunal survey has been conducted in Himachal Pradesh and 361 specimens of freshwater mollusks have been collected from different districts of Himachal Pradesh. A total of six species of fresh water mollusks under five Families has been identified from 38 examples collected from Himachal Pradesh. Four mollusks species belongs to 3 Families and 2 species of aquatic Hemiptera under 2 genera and 2 Families from 10 examples have been identified from the collections made during Narmada and Tapi surveys.

One species of Amphipod belonging to one Genus and one Family out of 23 examples has been identified from the collections made at Bahuda Estuary, Ganjam. A total of 16 species

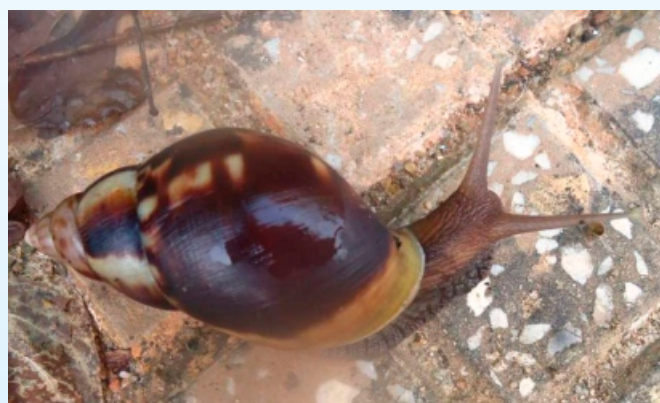
belonging to 11 Families and one species of aquatic Hemiptera belonging to one Genus and one Family have been studied from Subhadra Estuary, Ganjam, Odisha. A delegation from Headquarter, Kolkata headed by Director, ZSI visited the Centre during the month to inspect and survey the damages caused by the Cyclone Philin. Nineteen museum specimens have been digitized. During the month, about 30 visitors have visited our National Zoological Collections.

Publication

- Gurumayum S.D., Choudhary, M., and Goswami, U.C. (2013) *Phytoplankton primary productivity of Imphal, Thoubal and Khuga rivers Manipur*. Ecology and Environment 31(2): 582-587.



Macrochlamys sps. at EBRC, Gopalpur-on-Sea Campus.



A Giant African Land snail *Achatina (Lissachatina) fulica fulica* (Bowdich) at EBRC, Gopalpur-on-Sea Campus.



Lymanea (Pseudosuccinea) acuminata f. *gracilior* Martens



Lymanea (Pseudosuccinea) luteola f. *typica* Lamarck

Sunderbans Regional Centre, Canning

One faunistic survey has been undertaken by Dr. D. Suresh Chand, Scientist-C and Officer-in-Charge of this Centre, in and around Sunderbans. A total of 1026 faunal examples have been collected from Sunderbans are as follow: Fishes 412 exs., Gastropods 12 exs., Prawns 136 exs., Crabs, 22 exs., Orthoptera 77 exs., Lepidoptera 186 exs., Coleoptera 108

exs., Odonata 23 exs., Zygoptera 19 exs., Hemiptera 19 exs., Hymenoptera 12 exs.

Twenty two examples of insects have been identified and registered by the Scientists of this Centre, which includes 10 examples of Orthoptera, 09 examples of Odonata and 03 examples of Lepidoptera.

Northern Regional Centre, Dehradun

One general faunistic survey has been undertaken in three districts of Punjab and representative faunas collected, besides observing 33 species of birds. One local survey in and around Dehradun district has been undertaken for the collection of butterflies for molecular characterization. Faunal identification during the month includes 4 species of Amphibia, 4 species of Reptilia, 2 species of Acridoidea and 15 species of Nematodes from Punjab; 9 species of Nematodes from Sultanpur National Park, Haryana; 5 species of Nematodes from Govind WLS (Uttarakhand); 8 species of Nematodes and 28 species of Butterflies from Dehradun.

DNA extracted from three samples of two species of Lepidoptera (Lycaenidae), nine samples of Golden cat (Felidae) and 13 samples of four species of Squirrels (Sciuridae).

PCR amplification of COI gene has been obtained from four samples of 2 species belonging to Family Lycaenidae (*Dodona durga* Kollar; *Dodona eugenes* Bates) and 12SrRNA and Cyt b gene has been obtained from four species of Sciuridae (*Funambulus palmarum* (Linn), *Funambulus pennanti* (Wroughton), *Petionomys fuscicapillus*

(Jerdon), *Ratufa indica* (Erxleben).

Permanent wax slides of 350 examples of nematodes have been prepared from soil samples collected from Punjab, Sultanpur NP, Dehradun and Govind WLS mainly for morphological studies. Slides of primary guard hair (collected from dorsal, ventral, head and tail) from four specimens of *Felis chaus* and 4 specimens of *Profelis temminckii* have been prepared for trichotaxonomy. The systematic list of 33 species of birds recorded from Punjab has been prepared.

During the month, we have digitised 9 examples of Amphibia, 9 examples of Reptilia, 15 examples of Acridoidea, 7 examples of Hymenoptera and 95 examples of soil nematodes. Database entries for 20 examples of nematodes have been made in the invertebrate datasheet. Digitization of 30 Amphibians has been done and their metadata entered.

Dr. Vinita Sharma, Scientist-C has attended a training programme from 21-25 October, 2013 for scientists and technologists working in Government sector on climate change and carbon mitigation held at ICFRE, Dehradun Sponsored by DST. During the month, 7 local students have visited our museum.

Marine Aquarium & Regional Centre, Digha

During the month, around 201 examples of live marine ornamental exhibits have been collected for exhibition in aquarium galleries. During the month, our aquarium has received an average of 410 tourists per day. In total, 157 specimens belonging to 54 species (37 species of fishes 3 arthropods, 2 echinoderms and 12 molluscs) have been identified.

The identified specimens include *Parapercis ommatura* Jordan & Snyder, 1902 first report from Indian Ocean, *Parapercis diplospilus* Ogilby, 1910 first report from India, *Pterygotrigla arabica* (Boulenger, 1888) and *Pterygotrigla hemistictus* (Temminck & Schlegel, 1843) first report from the East coast of India, *Cypselurus naressi* (Gunther, 1889),

Ophichthus cephalozona Bleeker, 1864, *Parapercis albogutata* Gomon, 1981 which are new to West Bengal coast and *Oipstognathus nigromarginatus* Ruppell, 1830 new to Andhra Pradesh Coast.

One new fish species *Hapalogenys bengalensis* Mohapatra, Ray and Kumar, 2013 is been reported by this Centre.

Publication

- Mohapatra, A., Ray, D., Kumar, V. (2013) A new fish species of the Genus *Hapalogenys* (Perciformes: Hapalogenyidae) from the Bay of Bengal, India. *Zootaxa* 3718 (4): 367-377. doi: <http://dx.doi.org/10.11646/zootaxa.3718.4.6>



Cypselurus naressi



Oipstognathus nigromarginatus



Hapalogenys bengalensis Mohapatra, Ray and Kumar, 2013



Parapercis albogutata



Ophichthus cephalozona

*Parapercis diplospilus**Parapercis ommatura**Pterygotrigla arabica**Pterygotrigla hemistictus*

Freshwater Biology Regional Centre, Hyderabad

Scientists of the Centre have examined 142 examples of molluscs from the collections of various wetlands of Andhra Pradesh and identified 15 species of mollusks viz. *Angulyagra microchactophora*, *Bellamya bengalensis*, *Bellamya bengalensis* f. *annandalei*, *Bellamya bengalensis* f. *balteata*, *Bellamya bengalensis* f. *colairensis*, *Bellamya bengalensis* f. *eburnean*, *Bellamya bengalensis* f. *gigantean*, *Bellamya dissimilis*, *Gyraulus convexiusculus*, *Gyraulus lebiatus*, *Lymnea luteola*, *Lymnea luteola* f. *succinea*, *Perreysia corrugate*, *Pila virens*, *Terebia lineata*; examined 110 examples of Ostracods and identified as 4 species viz. *Cypris subglobosa*, *Chrissia hislopi*, *Chrissia humilis*, *Chrissia ousmana* and one species of crustacea, *Hydaena conjecta*

The DNA barcode laboratory of the Centre isolated Genomic DNA from fresh insect samples of *Diplonycus rusticus*, *Aquarius adelaides* and *Ranatra filiformis*. PCR standardization of above species is in the

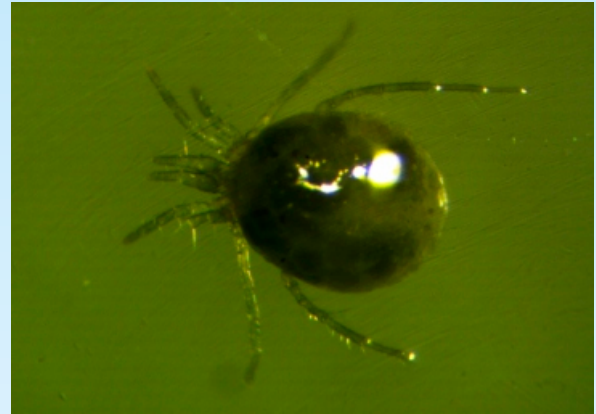
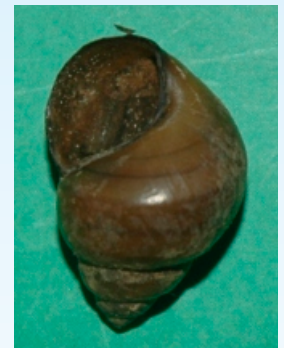
process for amplification of Cytochrome C oxidase Subunit I gene. Efforts are being made for genomic DNA isolation from formalin-preserved fish species.

As part of the digitisation of the freshwater fauna, 90 specimens have been digitized pertaining to 14 species of fishes, 22 species of mollusks and one species of crustacean.

Dr. D.V. Rao, Scientist-C and Officer-in-Charge and Dr. Prasanna Yennawar, Scientist C have attended 'Launch of Special Publication on Valuation of Biodiversity' being organized by the National Biodiversity Authority and Andhra Pradesh State Biodiversity Board at Dr. MCR HRD Institute, Hyderabad on 24 October, 2013.

Publication

- Jaiswal, D. (2013) Aquatic Insects of lakes in and around Hyderabad (Hemiptera & Coleoptera). Records Zoological Survey of India, Occasional paper no.360: 1-75.

*Hydrachna conjecta**Hygrobatulus longipalpis**Tarebia lineata**Gyraulus convexiusculus**Bellamya bengalensis f. balteata**Angulyagra microchaetophae*

Arunachal Pradesh Regional Centre, Itanagar

During the month, a total of 107 old registered specimens (38 insects and 69 fishes) has been photographed and digitized. Among the old fishes digitized, two holotypes, *Barilius arunachalensis* (Nath, Dam & Anil Kumar, 2010), *Bhavania arunachalensis* (Nath et al., 2007) and 1 paratype, *Bhavania arunachalensis* (Nath et al., 2007). Further, 69 examples of fishes from the old collections have been studied and are found to belong to 4 orders, 9 families, 16 genus and 19 species and these have been registered under 30 identified registration numbers. Data of these 30 specimens have been computerized and digitized. Also 14 exs of moths, 8 exs of butterflies and 3 exs of beetles have been collected from Itanagar Wildlife Sanctuary

during the month. Thirteen species of butterflies and 4 species of moths have been identified during the month. Of these, 6 species have been registered and data have been computerized and digitized.

Dr. Bikramjit Sinha, Scientist-C and Officer-in-Charge has participated in the meeting of the Arunachal Pradesh Forest Research Committee for Wildlife Protection Areas for technical evaluation of research proposals received from various organizations on 18 October, 2013 in the office of the PCCF, Itanagar, Arunachal Pradesh. Dr. Kento Kadu, Asstt. Prof. Department of Zoology, J. N. College, Pasighat visited the Centre and discussed about exploration and identification of fish fauna of the state.



Barilius arunachalensis (Nath, Dam & Anil Kumar, 2010)



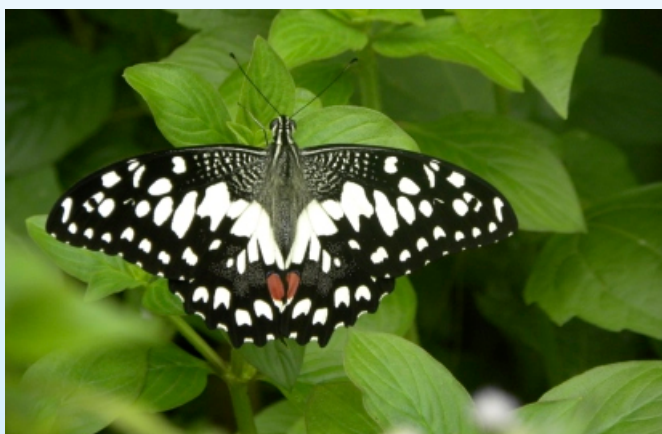
Bhavania arunachalensis (Nath et al., 2007)



Cethosia biblis (Drury, 1773)



Graphium cloanthus Westwood, 1841



Papilio demoleus Linnaeus, 1758



Papilio paris Linnaeus, 1758

Central Zone Regional Centre, Jabalpur

During the month, faunistic surveys have been undertaken in Ratapani and Narsingharh Wildlife Sanctuaries of Madhya Pradesh. A total of 21 species of moths (Lepidoptera), 19 species of Odonata, 14 species of Mollusca and 3 species of

Mammalia (Sciuridae, Muridae and Soricidae) have been identified and registered in our National Zoological Collections.

Dr. S. Sambath, Scientist-C and Officer-in-Charge has been nominated as one of the members in the Departmental Recruitment

Committee (DRC) of the Tropical Forest Research Institute, Jabalpur (ICFRE), where recruitment of various Group-C posts has been carried out on 25 October, 2013. Twenty-five students (11th and 12th) of Kendriya Vidhyalaya, Jabalpur have visited our Centre on 23 October, 2013 and appraised about the fauna of this region. On the occasion of the Wildlife Week celebration, students from various schools have participated in the drawing competition on wildlife conservation being organized by our Centre from 01-07 October, 2013 and in the concluding session, prizes and certificates have been issued to the first three students.

Publications

- Chandra, K., Kushwaha, S, and Biswas, B. (2013) *Usilanus burmanicus* Distant 1909 (Heteroptera: Lygaeidae) New Record to India reported from Andaman and Nicobar Islands. *Journal of Andaman Science*

Association 18(1):121-122.

- Patil, S.R., Sambath, S., and Bhandari, R. (2013) Preliminary investigation on spiders (Arachnida:Araneae) in Rani Veerangana Durgawati Wildlife sanctuary, Damoh, Madhya Pradesh. *Indian Forester* 139(10): 943-946.
- Patil, S.R. (2013) A Preliminary study on Molluscan fauna of Singhori Wildlife sanctuary, Raisen, Madhya Pradesh, India. *Indian Forester* 139(10): 932-935.
- Chandra, K., and Kushwaha, S. (2013) Family *Reduviidae* (Hemiptera: Insecta) from Madhya Pradesh, India. In National Conference on Insect Diversity and Systematics: Special Emphasis on Molecular Approaches (28 - 30 October 2013) Department of Zoology, Aligarh Muslim University, Aligarh Uttar Pradesh 202 002, India. Abstract No. NCIDS/TAS/84,



Students of Kendriya Vidhyalaya, Jabalpur visiting exhibits at CZRC, Jabalpur.



Staff of CZRC, ZSI, Jabalpur during Wildlife Week Celebration.



Dr. S.S. Talmale, Assist. Zoologist, addressing during Wildlife Week celebration.

Desert Regional Centre, Jodhpur

During the month, scientists of the Centre have identified and registered 4 species of ants and 11 species of fishes from the jurisdiction area. Two species of ants also identified from material received from A & N Islands. Also identified a live specimen of snake as *Spalerosophis arenarius* (Boulenger, 1890) sent by the Range Forest Officer, Raniwara Forest Range, Jalore, State Forest Deptt., Rajasthan. During the month, we have digitized 25 specimens from NZC for RFD. Dr. Sanjeev Kumar, Scientist-C and Officer-in-charge has conducted the 3rd survey of the research programme on State Fauna of Rajasthan - Gaps in Research from 20-29 October, 2013 in Jhunjhun, Hanumangarh and Sri Ganganagar districts of Rajasthan. Sixteen localities of aforementioned district(s) of Rajasthan have been surveyed as part of the

faunal diversity studies.

Mrs. Neena Tak, Assistant Zoologist has prepared and submitted survey tour report of 2nd survey of the research programme on Studies on State Fauna of Rajasthan - Gaps in Research. Dr. Sanjeev Kumar, Scientist-C and Officer-in-charge has organized one-day programme during Wildlife Week-2013 and delivered a talk on importance of wildlife and role of ZSI on 8 October, 2013 at the Centre. All the officers and staff members have participated in the programme. Dr. Sanjeev Kumar, Scientist-C and Officer-in-charge has attended as Special Guest, the closing and prize distribution ceremony of 59th Wildlife Week celebrations being organized by the State Forest Department (SFD), Rajasthan at Umaid Garden, Jodhpur on 8 October, 2013.



Spalerosophis arenarius (Boulenger, 1890)



Eryx johnei (Russell, 1801)



Recurvirostra avosetta Linnaeus, 1758



Antelope cervicapra (Linnaeus, 1758)

Marine Biology Regional Centre, Chennai

Scientists of this Centre have identified 9 species of Tintinnids, 10 species of Nematodes, 4 species of Arthropoda, 14 species of Mollusca, 1 species of Echinodermata and 5 species of Pisces out of the materials collected from Palkbay and Gulf of Mannar Biosphere Reserve. During the month, 42 species have been digitized and their metadata compiled. Dr. C. Venkatraman Scientist-C and Officer-in-Charge served as member for selection of project fellow in an UGC sponsored major project at Presidency College, Chennai and served as member for Ph.D., doctoral committee. He also participated as chief guest and delivered lecture on "Importance of Wildlife" to the students on the occasion of Wildlife week celebrations being organized by the WWF-India at Chennai and attended Institutional Animal Ethics Committee (IAEC) meeting at

SRM College of pharmacy, Kattangulathur as a CPCSEA nominee nominated by Animal Welfare Division, MoEF, New Delhi.

Drs. C. Venkatraman and Rajkumar Rajan, have supervised the research projects of SRF's of the Centre. One advisory service has been rendered to Shri. D.K. Gupta, Addl. Dy. Commissioner of Police, Police station Anand Vihar, East district, Delhi regarding confiscated items. During the month, around 2080 tourists visited the marine aquarium and museum. Drs. C. Venkatraman and Rajkumar Rajan, have participated in the workshop on "Consultation on Coastal ESAs - Mangroves, Coral reefs, Seaweeds and Littoral forests" at National Centre for Sustainable Coastal management, Chennai.



Armina cygnea



Holothuria arneicola Semper, 1868



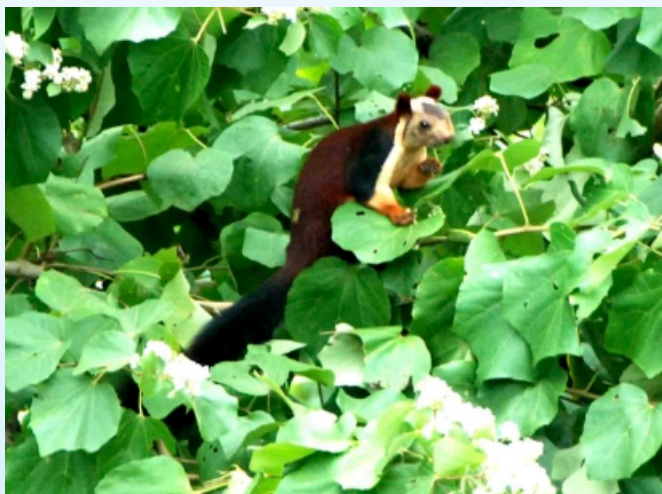
Aplysia dactylomela



Linckia multifora

Gangetic Plains Regional Centre, Patna

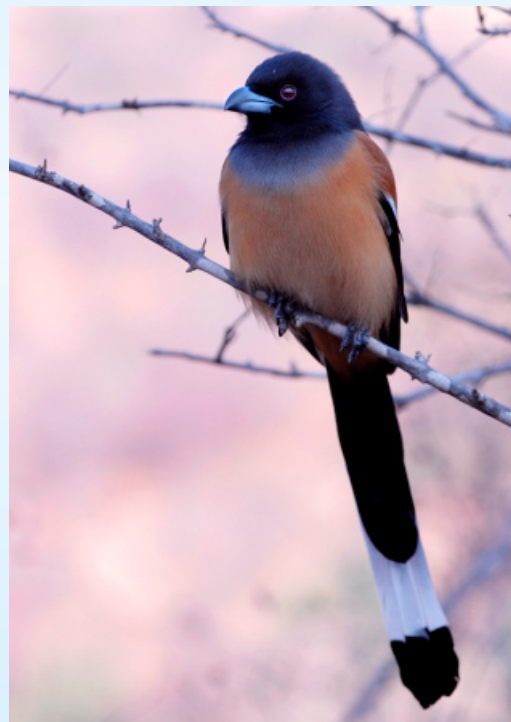
Dr. Navneet Singh, Scientist-C has conducted a survey tour from 17-26 October, 2013 to Saranda forests, Dalma WLS and Urwan (Koderma) of Jharkhand. A total of 396 examples have been collected. Scientist of the Centre have identified 13 species of insects belonging to Family Noctuidae (Lepidoptera) and all these species have been registered in the National Zoological Collections as follows along with others specimens: *Syntomis passalis* Fabricius, *Cyana puella* Drury, *Cretonotus transiens* (Walker), *Cretonotus interruptus* (Linnaeus), *Lymantria marginata* Walker, *Chandica quadripennis* Moore, *Artena dotata* Fabricius, *Grammodes geometrica* Fabricius, *Asota caricae* Fabricius, *Leucania yu* Guenee, *Anoba pectinata* (Hampson), *Syntomoides imaoon* Cramer and *Chalciope mygdon* Cramer



Giant squirrel at Dalma Wild life sanctuary

Scientific staff of the Centre also identified 15 species of Mollusca as follows: *Digoniostoma pulchella*, *Pila globosa*, *Bellamya bengalensis*, *Melanoides tuberculatus*, *Lymnaea acuminata*, *Radix luteola*, *Radix ovalis*, *Indoplanorbis exustus*, *Gyraulus euphraticus*, *Corbicula striatella*, *Pisidium clarkeanum*, *Lamellidens marginalis*, *Radiatula caerulea*, *Radiatula lima*, *Radiatula occata* and *Parreysia favidens*.

Dr. Gopal Sharma, Scientist-C and Officer-in-Charge has delivered a lecture on the status and conservation of freshwater dolphin in the INSPIRE programme at J.P. University, Chhapra.



Dendrocitta vagabunda

Western Regional Centre, Pune

A field Survey has been undertaken in Nasik, Thane and Ahmadnagar districts of Western Ghats from 18-29 October, 2013 by Dr. R. Bano, Scientist-C and staff of WRC. During the month, 03 species of collembolla, 03 species of Coccinellidae and 14 species of fish have been

identified along with 2 species of molluscs and one species of Brachiopoda (Type specimen). Besides, 19 endemic fish species from Maharashtra have been collected for DNA work. Identification and advisory services have been rendered on three land

slug specimens received for identification from one Miss. Pooja V. Vaishya, Durga Mata Ward, Ghatanji, Yavatmal district of Maharashtra.

Publication

- Rao, M.V., Vijay Kumar, P.P.N., Pati, S.K.,

and Balaji, M. (2013) First report and second record of *Indothais blanfordi* (Melvill) [Gastropoda: Neogastropoda: Muricidae] from east coast of India with nomenclature update and bifurcation of Indian Rapaninae. *International Journal of Research in Marine Sciences* 2(2): 50-55.



Atlas moth, *Attacus atlas* (Linnaeus, 1758)
(Arthropoda : Insecta: Lepidoptera : Saturniidae)



Indian red scorpion, *Hottentotta tumulus* (Fabricius, 1798) (Arthropoda: Arachnida: Scorpiones: Buthidae)



Indian cobra, *Naja naja*
(Linnaeus, 1758)
(Chordata: Reptilia:
Squamata : Elapidae)

North Eastern Regional Centre, Shillong

During the month, two field surveys have been undertaken. One survey has been conducted in Mizoram from 14 September 2013 to 04 October 2013 in collaboration with Crustacea Section, Headquarter, Zoological Survey of India, Kolkata and another survey has been conducted in Nongkhylllem Wildlife Sanctuary, Meghalaya from 28 October, 2013. Two local surveys also have been conducted to Mawlyngot village, Meghalaya. Twenty-six

specimens of decapoda (Crabs) collected from Mizoram have been registered in NERC/ZSI, Shillong. From Nongkhylllem Wildlife Sanctuary survey, 214 specimens of Pisces, 32 specimens of prawns, 4 specimens of Amphibia, 36 specimens of Mollusca, 57 specimens of aquatic insects, 1 specimen of earthworm and 27 specimens of crabs have been collected.

From the backlog collections, 190 specimens

of aquatic and semi-aquatic Hemiptera belonging to 10 species, 62 specimens of crustacean (Prawns) belonging to 5 species and 1 subspecies, 14 specimens of Amphibia in 2 species and 150 specimens of fishes belonging to 19 species have been identified and registered.

Digitisation 17 specimens of mammals and 150 specimens of fishes have been carried out during the month and their metadata entered.

From the identified collections, 60 specimens of bats, 222 specimens of reptiles and 150 specimens of fishes have been physically verified.

Mrs. J. Lyngdoh, Scientist-C has been deputed to observe the recruitment of the post of Zoological Assistant by the staff selection commission, North Eastern Region, Guwahati on 01 October, 2013.



Umtrew River, Lailad near Nongkhyllam Wildlife Sanctuary and some of its fishes caught by fishermen



A mahseer *Tor putitora* (Hamilton, 1822).



A black rohu *Labeo calbasu* (Hamilton, 1822).



An Eel fish *Anguilla bengalensis bengalensis* (Gray, 1831)

High Altitude Regional Centre, Solan

During the month, faunistic identification from the Centre includes 03 species of butterflies (out of 6 examples) and 01 species of earthworms (out of 11 examples) collected from the cold desert of Spiti Valley, Lahaul & Spiti, Himachal Pradesh; also 03 species of Pisces (out of 5 examples); 02 species of Orthoptera (out of 4 examples); 04 species of earthworms (out of 36 examples) have been collected from Chail WLS, Solan and also 02 species of pisces (out of 07 examples) have been collected from Haryana.

The physical verification of the named collections has been carried out during the month and as per the RFD format, entries of mammals kept in the National Zoological Collections of the Centre have been undertaken. A Scientist of the Centre has attended 2nd meeting on the collaborative project proposal "Biodiversity Monitoring and Assessment in India" at IIRS, Dehradun on 14 October, 2013 and the methodology to assess butterfly diversity has been provided for the same project. A Scientist of the Centre also provided information on butterflies of North-west India for IIRS project to Director,

ZSI on 23 October, 2013.

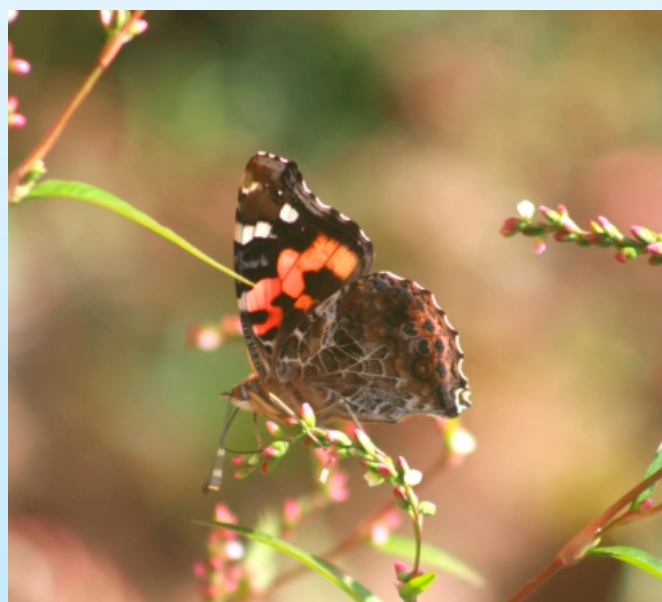
A Scientist of the Centre has submitted an abstract for an workshop on "Mountain Specific research in context of Himalayas" to be held at Indian National Science Academy, New Delhi. Two Scientists of the Centre reviewed the research papers for the national Journal. Senior Architect, Er. Rajesh Kumar Dhiman, and Er. Sharma (Civil) CPWD visited the Centre on 03 October, 2013 for development of museum. A Scientist of the Centre also participated in the DST-sponsored one-week training programme on "*Climate change & Carbon Mitigation*" organized by ICFRE, Dehradun from 21-25 October, 2013. The advisory service has been provided to Research scholar in HNBGU (Department of Zoology), Sri Nagar (Uttarakhand) regarding the information about distribution of *Oreinus richardsonii* (Gray) in Himachal Pradesh.

Publication

- Sharma, I., and Dhanze, R. (2013) Ecology of river Spiti, Lahaul-Spiti (Himachal Pradesh), India, *International Journal of Fisheries and Aquaculture Sciences* 3(2): 131-141.



Catopsilia pomona from Chail WLS



Vanessa indica from Chail WLS



White-throated Fantail *Rhipidura albicollis*

Southern Regional Centre, Chennai

A survey tour has been undertaken to Western Ghats of Tamil Nadu from 15 October 2013 for fifteen days by Dr. R. Venkitesan, Scientist-C along with the staff of SRC. Approximately 1700 examples belonging to different faunal groups have been collected but in case of higher vertebrates, only observations and photographs taken in the field. Collected materials have been sorted out for identification. Field survey to Pallikarnai marshland has been undertaken on 09 October, 2013 and during the survey light traps installed only to attract the insects. Dr. R. Babu, Scientist-C has studied and identified 28 specimens of Odonata belonging to 8 species, 2 Families under 7 Genera from the recent survey materials collected from Southern Western Ghats of Tamil Nadu. Dr. R. Venkitesan, Scientist-C has identified 143 Mollusca specimens belonging to 24 species under 11 Genera of 8 Families from the existing collections of NZC-SRC Chennai.

Dr. Jayasree Thilak, Scientist-'C' has identified 8 exs of Rotifers belonging to 3 species, under 2 Genera, 1 Order and 2 Families; 30 exs of Cladocera belonging to 9 species, 9 Genera, 2 Orders, 5 Families; 16 exs of Ostracoda belonging to 4 species, 3 Genera, 1 Order, 1 Family from the zooplankton samples

collected from the different localities of Villupuram and Thiruvannamalai districts of Tamil Nadu. Dr. S Prabakaran, Scientist-C has identified 10 species of Lepidoptera belonging to 8 Genera from Andhra Pradesh survey and he also rendered identification services on Lepidoptera specimens belonging to 10 species, 5 Families under 8 Genera received from Ethiraj College for Women, Chennai.

Dr. R. Babu, Scientist-C has attended a lecture on "Elephants Biology, Culture and Conservation" delivered by Prof. R. Sukumar, IISc, Bangalore at the C.P. Ramaswami Aiyar Foundation, Chennai on 26 October, 2013. Dr. S. Prabakaran, Scientist-C has delivered a lecture on Recent Trends on Biology, Diversity of Insects, conducted by D. G. Vaishnav College, Arumbakkam, Chennai. Dr K. Ilango, Scientist-D and Officer-in-Charge has attended a national seminar on 'Library-Publisher Partnership' being organized by the Informatics, Bangalore on 21 October, 2013 in Chennai.

Publication

- Srinivasan, G. and Prabakar, D. (2013) A pictorial handbook on grasshoppers of Western Himalayas, Zoological Survey of India, Pp. 1-76.

ANIMAL OF THE MONTH

Lesser Adjutant *Leptoptilos javanicus* (Horsefield, 1821)

The Lesser Adjutant *Leptoptilos javanicus* stork is a large wading bird in the stork family Ciconiidae. It is been recorded as resident nomadic and also a local migrant, found in India and Sri Lanka to S China, Indochina and Indonesia. It has a dirty yellowish wedge shaped bill glossy metallic black above and white below, with hair-like feathers on almost naked reddish yellow head and neck. Usually seen solitarily and does not haunt the human habitations, and is much more shy and retiring. One can see the bird from mangroves, mudflats, coastal swamps, marshes, flooded grasslands, lakes, and paddy fields. This feed on a variety of food from fish, especially mudskippers to frogs, reptiles, crustaceans, locusts, rats and some often carrion too. Breeds chiefly during November-January in Assam-one of the States where this species has been recorded in more numbers. It is a tree-nester and uses large sticks often to make the nest that is usually off the ground in large tree, such as silk cotton.



Text Imran Alam and photo Gopinathan Maheswaran,
Bird section, HQ office, ZSI, Kolkata

The population has declined greatly throughout its range, due to habitat destruction and direct persecution, as well as disturbance. Small groups recorded at several sites scattered over India, such as Kaziranga and other parts of Assam, Indian Sunderbans (where probably still breeds) and Keoladeo National Park in Rajasthan, elsewhere its numbers much lower. Effective protection of species and its habitat is essential.

OUT OF THE BOX

Himalayan mystery solved? The Yeti existed, finds British geneticist

<http://timesofindia.indiatimes.com/home/science/Himalayan-mystery-solved-The-Yeti-existed-finds-British-geneticist/articleshow/24293069.cms>

East Himalayan forests turning brown: Study

<http://timesofindia.indiatimes.com/home/environment/global-warming/East-Himalayan-forests-turning-brown-Study/articleshow/24455913.cms>

Number of migratory birds declines

<http://timesofindia.indiatimes.com/home/environment/flora-fauna/Number-of-migratory-birds-declines/articleshow/26116149.cms>

Amur falcons, satellite-tagged in Nagaland, tracked over Arabian Sea

<http://www.thehindu.com/sci-tech/energy-and-environment/amur-falcons-satellitetagged-in-nagaland-tracked-over-arabian-sea/article5353044.ece>

Invasive alien species are sneaking into our cities...

<https://portals.iucn.org/blog/2013/09/27/invasive-alien-species-are-sneaking-into-our-cities/>

Local knowledge for successful marine conservation

<https://portals.iucn.org/blog/2013/10/24/inspiring-solutions/>