



Cover

Pheasant-tail Jacana
Hydrophasianus chirurgus
(Scopoli, 1786)
[Photo: ZSI Headquarters]

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Monthly E-Newsletter from
Zoological Survey of India



I am glad to present the December 2020 issue of E News to the readers. Though most of the months in the year 2020 witnessed the lockdown due to pandemic, the scientific progress of ZSI in terms of faunal identification, new species description, publication, conducting various webinars on biodiversity conservation are quite appreciable. However, faunistic surveys were under hold and it is resumed gradually from October 2020 onwards. Like other months of the year, December 2020 also passed by providing magnificent outcome in faunistic studies. A book on *Faunal Diversity of Biogeographic Zones: Coasts of India* has been published. The book provides the comprehensive information on faunal diversity covering Protozoa to Mammalia and also seaweeds, seagrass and mangroves with 12756 species in 61 chapters by the contribution of 48 authors mostly from

ZSI. Surveys have been conducted to the protected areas in Assam, Uttar Pradesh, Uttarakhand, Arunachal Pradesh, Gujarat, Andhra Pradesh, West Bengal and Andaman and Nicobar Islands, besides a survey on Golden Quadrilateral Highway to assess the faunal diversity. Altogether, 12750 specimens have been identified during the month. Ten species under Insects, Crustacea and Pisces were described as new to science while 6 species found to be new record to the country. Ninety-two species of animals are newly augmented to the National Zoological Collections. A webinar on "Ornamental Fishes of India: Diversity & Prospects" was organized during the month in which large number of students and researchers participated. As a part of barcoding of fauna, 155 DNA sequences have been generated for various species under insects, fishes and mammals. ZSI published 32 papers during the month and 30 out of them are under SCI and NAAS rated journals. In order to promote the collaborative research, ZSI entered a Memorandum of Understanding with Patna University, Patna, Bihar which will also encourage the Scientists of ZSI for guiding Ph.D. students in various aspects of Zoology. I sincerely acknowledge all the Officers and Staff of ZSI for making the year 2020 as progressive amidst the period of unrest caused by pandemic.

Happy and Prosperous New Year 2021
Wishes.

Jai Hind.

Dr. KAILASH CHANDRA
Director

January 4, 2021
Kolkata

ZSI

E-NEWS

HEADQUARTERS, KOLKATA



Golden Langur *Trachytatus geei*
(Khajuria, 1956)

Surveys conducted along the periphery of Golden Quadrilateral Highway of India covering 5846 km in 13 States of the country by two teams for a period of 33 days to assess the faunal diversity, In addition, Purulia District in West Bengal to study the diversity of mammals and Kaimur Wildlife sanctuary, Bibhutibhushan Wildlife Sanctuary for insect diversity have also been surveyed. The faunal identification was made from 5743 specimens comprising 682 species

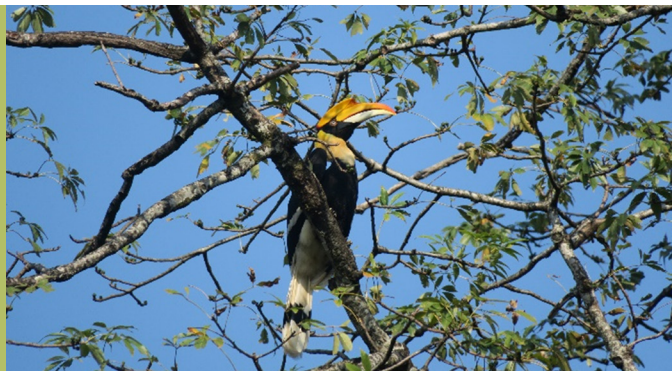
under different groups viz. Protozoa, Platyhelminthes, Nematoda, Acari, Arachnida, Collembola, Isoptera, Hemiptera, Hymenoptera, Lepidoptera, Odonata, Orthoptera, Diptera, Coleoptera, Annelida, Echinodermata, Crustacea, Mollusca, Pisces, Reptilia, Birds and Mammals. A new species of Lepidoptera *Mitochrista jarawa* N. Singh, Volynkin, Kirti & Datta, 2020 has been described while the Lepidopteran insects *Leucobaeta hemiphea* (Hampson, 1905), *Nola infralba* Inoue,

1976 and *Nola atrocinta* Inoue, 1998 were reported as new record to India. A monotypic Lepidopteran genus *Purenola* Qi, László, Ronkay, Bae & Han, 2013 is synonymized with genus *Membranola* Pellinen (2012). Altogether 75 species including Platyhelminthes, Lepidoptera and Crustacea were augmented to the National Zoological Collections. Eighty two DNA sequences under 15 species comprising Diptera and Mammals viz. Siberian Ibex, Blue Sheep, Pangolin, Arunachal Macaque,

Himalayan Black Bear, Barking Deer, Brown Bear, Goral, Leopard, Sambar Deer, Snow Leopard, Red Panda and Himalayan Tahr have been generated. Confiscated coral specimens for Forest Range Officer, Coimbatore Forest Range, Tamil Nadu have been identified and report submitted upon request while birds have been identified for Forest Range Officer, Tehatta Range, Nadia, West Bengal. The images of skin pattern of pre-genital area of Acari *Eotetranychus kankitus* to Dr. Jenny Beard, Queensland Museum, Australia and the images of dorsal and lateral views and epigyne of Arachnid *Pardosa mukundi* to Dr. Petr Dolejs, Curator of Invertebrates, Department of Zoology, Natural History Museum, Czech Republic provided upon request. Three DST-SERB sponsored projects on Gelatinous Zooplankton to Dr. Jasmine, P., Scientist-E; Integrated Marine Conservation and Sea Turtle Biology Internship to Dr. B. Tripathy, Scientist-E; Parasitic wasp to Dr. A. Rameshkumar, Scientist-C were sanctioned against their research proposals. Scientists of the Headquarters reviewed three project proposal from Conservation Leadership Programme (CLP) a UK based- agency who supports conservation projects across the world, adjudicated three Ph.D. theses for Alagappa University and Tamil University in Tamil Nadu, Central University, Kasaragod, Kerala, and reviewed four papers for different scientific journals.

NORTH EASTERN REGIONAL CENTRE, SHILLONG, MEGHALAYA

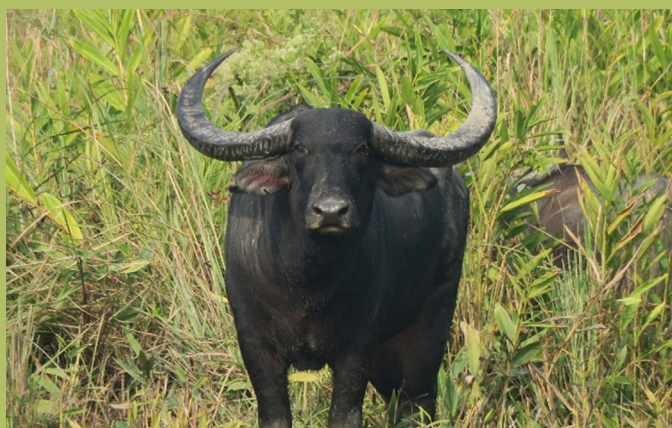
Great Indian
Hornbill,
Buceros bicornis
Linnaeus, 1758



Survey conducted to Manas National Park, Assam during 10th to 18th December 2020. Two hundred and ninety nine specimens comprising 98 species have been identified which includes 44 spp. of Lepidoptera, 15 spp. of Coleoptera, 2 spp. of Crustacea, 28 spp. of Pisces, 3 spp. of

Amphibia, 4 spp. of Reptilia and 2 spp. of Mammalia. Rohit Chakravorty, Leibniz Institute of Zoo and Wildlife Research and Dr. R. Krishan, IISER, Pune deposited 8 specimens of bats to the National Zoological Collections.

Asiatic Wild Buffalo, *Bubalus arnee* (Kerr, 1792)



WESTERN REGIONAL CENTRE, PUNE, MAHARASHTRA

Identified 49 species containing 7 spp. of Coleoptera, 2 spp. of Hymenoptera, 1 sp. of Diptera, 10 spp. of Orthoptera, 8 spp. of Lepidoptera, 9 spp. of Amphibia and 2 spp. of Mammalia. Seven DNA Barcode sequences were released for the public access on the GenBank. One new species of burrowing frog, *Sphaerotheca bengaluru* Deepak et al. described. Identification services rendered to Police Department, Pune, Maharashtra for fake skin of tiger, Police Department, Mumbai, Maharashtra for skin of Blackbuck *Antelope*

Burrowing frog, *Sphaerotheca bengaluru* Deepak et al., 2020



cervicapra, Wildlife Crime Control Bureau (WCCB), Regional Office, Cochin and Hutatma Rajguru College, Rajgurunagar, Pune. Submitted comments to the Maharashtra State Biodiversity Board, Nagpur, Maharashtra for confiscated

mammalian materials on an application for access to biological resources and associated traditional knowledge under rule 17 of the Maharashtra Biological Diversity Rules, 2008 for research purpose.

CENTRAL ZONE REGIONAL CENTRE, JABALPUR, MADHYA PRADESH

Survey conducted to collect Dinosauria egg from Sri Prashant Srivastava, a school teacher in Mandla, who has found a nest of Dinosaur with seven eggs in Mohantola, Nandia, Mandla, Madhya Pradesh. A proposed Community Reserve near Kakiya, Anjaniya, Mandla has also been visited and observed 30 python dens marked by the Forest Department. During observations, 5 individuals of *Python*



===== Fossil of Dinosaur egg



===== Dinosaur Egg nest site at Mandla

molurus Linnaeus, 1758 were found basking on the rocks. Another field visit was made at fossils bed of Mollusca at Palasundar of Balaghat district of Madhya Pradesh and collected 14 molluscan fossils. Scientists of the Centre identified 58 species containing 34 species of Lepidoptera (moths), 13 species of Mollusca, 4 species of Amphibia and 4 species of Reptilia. One manuscript for Records of ZSI has been reviewed while evaluating Comprehensive Examination Course of Ph.D. (Forestry) students of Jawaharlal Nehru Krishi Vishwavidyalaya, Jabalpur.

DESERT REGIONAL CENTRE, JODHPUR, RAJASTHAN

===== Common Hawk Cuckoo *Hierococcyx varius* (Vahl, 1797)



Surveys conducted to Purna Wildlife Sanctuary, Gujarat from 03rd to 15th December 2020 and identified 3 spp. of amphibians, 09 species of reptiles, 74 spp. of aves and 9 spp. of mammals by direct sighting. One local survey was conducted to Luni River basin on 24th December 2020. Scientists of the Centre identified 61 species of insects belonging to 04 species of Coleoptera, 21 species of Lepidoptera and 36 species of Hymenoptera and 6 species of group Pisces. Organized quarterly workshop on Official Language Hindi on 30th December 2020.



===== Greater racket-tailed Drongo *Dicrurus paradiseus* (Linnaeus, 1766)

NORTHERN REGIONAL CENTRE, DEHRADUN, UTTARAKHAND

Waterbirds
at Asan
Reservoir

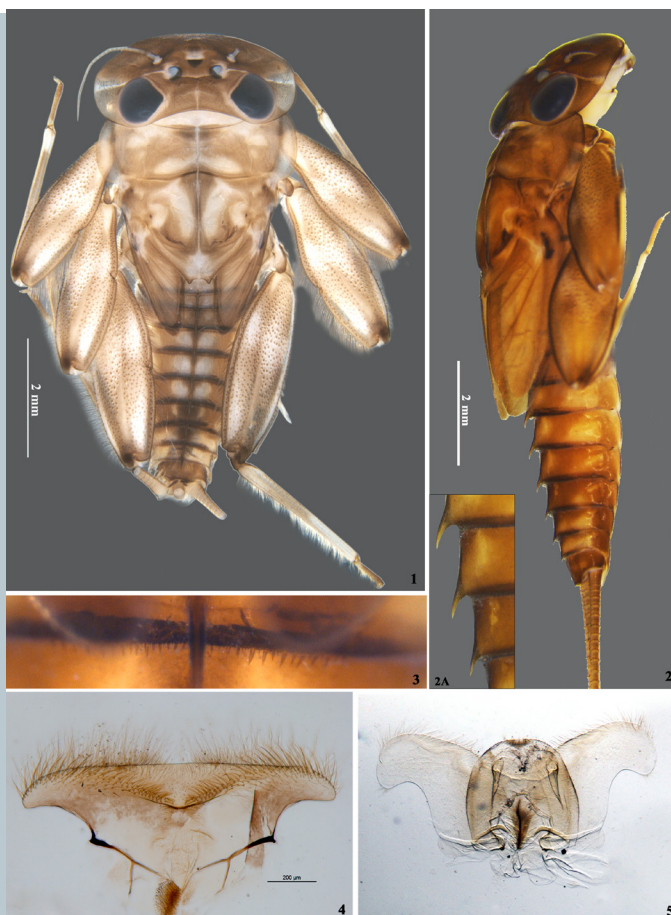


Red vented Bulbul
Pycnonotus cafer
Linnaeus 1766

Undertook one local faunistic survey to the Asan Conservation Reserve a designated Ramsar site, Dehradun, Uttarakhand on 18th December 2020 and observed 24 species of Water birds. Scientists of the Centre identified 68 species from 291 examples, including 10 spp. of Protozoa, 3 spp. of Nematoda, 32 spp. of Lepidoptera, 02 spp. of Pisces; 01 sp. of Amphibia and 10 spp. of Aves from Haryana, Uttarakhand and Uttar Pradesh. Two DNA barcode sequences belonging to Coleoptera and Orthoptera have been generated. Sh. Pritam Singh, Field Assistant superannuated on 31st December 2020.

SOUTHERN REGIONAL CENTRE, CHENNAI, TAMIL NADU

Scientists of the Centre discovered one new species of mayfly (Insecta: Ephemeroptera: Heptageniidae) belonging to the genus *Notacanthurus* Tshernova, 1974 based on collections made from Arunachal Pradesh, Sikkim and Meghalaya. The scientists also rediscovered *Psocathropos lachlani* Ribaga, 1899 (Psocodea: 'Psocoptera') after a gap of 80 years from the southern Western Ghats. Identified 1213 examples belonging to 98 species from Coleoptera, Lepidoptera, Odonata, Mollusca, Psocodea, Cicadellidae, Ephemeroptera and Blattodea. 51 DNA sequences belonging to 26 species published during the month. One webinar on Odonata of Himalaya was conducted to the students of Islamic University, Awanipura, Srinagar, Jammu and Kashmir.



Notacanthurus pange Vasanth et al., 2020

GANGETIC PLAINS REGIONAL CENTRE, PATNA, BIHAR

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Gharial *Gavialis
gangeticus* Gmelin
1789



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Exhibition on SAVE GAURAIYA

The Centre identified and registered 75 examples under 20 species of Lepidoptera. 687 examples of backlog specimens were sorted out and identified. Hindi Rajbhasha Karyanvayan Samiti Meeting was organized on 29.12.2020.

HIGH ALTITUDE REGIONAL CENTRE, SOLAN, HIMACHAL PRADESH

Identified 66 species containing 49 species of Lepidoptera, 14 species of EPT complex, 2 species of Orthoptera and 6 species of Hymenoptera. Scientist of the Centre evaluated the M. Sc. Dissertation of student from Department of Zoology, Eternal University, Baru Sahib, Himachal Pradesh. Hindi Karyashala was organized in the Centre on 29th December 2020. A total of 1215 examples comprising 25 species of Family Geometridae (Order Lepidoptera) were received from Prof. V.K Walia, Panjab University, Chandigarh as an addition in National Zoological Collections.



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Common Pochard *Aythya
ferina* (Linnaeus, 1758)
Male



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Painted Lady
Vanessa cardui
(Linnaeus, 1758)

MARINE BIOLOGY REGIONAL CENTRE, CHENNAI, TAMIL NADU



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Cylpeaster rarispinus
De Meijere, 1903

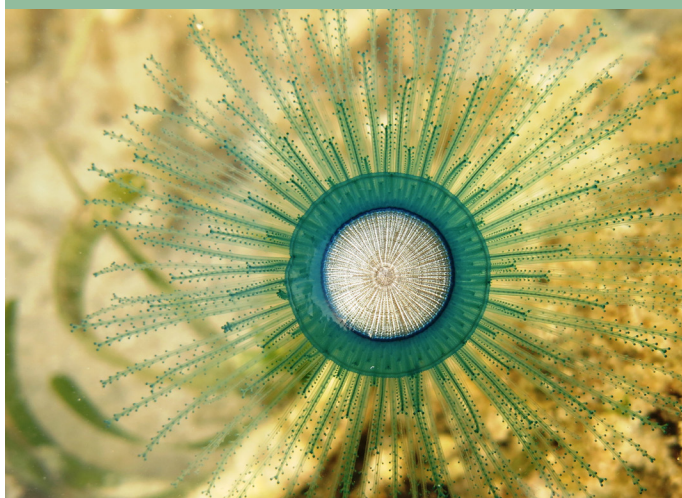


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Monoplex pilearis (Linnaeus, 1758)

Scientists of the Centre identified 76 species which includes 26 spp. of Moss inhabiting Testate Amoebae,

1 sp. of Cnidaria, 12 spp. of Marine Sponges, 9 spp. of Crabs, 6 spp. of Molluscs, 2 spp. of Echinoderms and 20 spp. of Fishes. Identification services rendered to Shri. S. Majarajan, Judicial Magistrate, Devakottai, Tamil Nadu on *Holothuria (Metriatyla) scabra* Jaeger, 1833 which is protected under Schedule I of Wild Life Protection Act 1972. Four species of decapod crustaceans, 9 species of fishes received from Annamalai University and four species of bivalves received from Madras University and Manipur University were deposited in National Zoological Collections.

ANDAMAN AND NICOBAR REGIONAL CENTRE, PORT BLAIR



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Porpita porpita Linnaeus 1758

Four local surveys were conducted during 4th to 7th & 19th December 2020 to Shoal Bay, Ferrargunj, Shaitankhadi, Meethakhadi, Manjery,

Guptapara, Badabalu, Chidiyatappu, South Andaman to assess the terrestrial faunal diversity. In addition, five local surveys conducted during



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Leptaulax dentatus Fabricius 1792

11th - 14th & 29th December 2020 to Burmanella, Kodyaghat, Corbyncove, Scissostris Bay, North Bay to assess the marine faunal diversity. A total of 379 species comprised of 24 spp. of Echinoderms, 11 spp. of Fishes, 88 spp. of Corals, 04 spp. of Octocorals, 17 spp. of Crustacea, 71 spp. of Molluscs, 09 spp. of Hydrozoa, 03 spp. of Sea anemone were identified

from marine environment; 86 spp. of Lepidoptera, 05 spp. of Odonata, 06 spp. of Hemiptera, 40 spp. of Arachnida, 02 spp. of Hymenoptera, 02 spp. of Diptera, 04 spp. of Coleoptera, 01 sp. of Amphibians, 03 spp. of Reptiles, 02 spp. of Birds and 01 sp. of Mammal were identified from terrestrial environment.

SUNDERBAN REGIONAL CENTRE, CANNING, WEST BENGAL



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Aiteng ater Swennen &
Buatip, 2009

Survey conducted to Coringa Wildlife Sanctuary, Andhra Pradesh for 10 days. A total of 516 examples of fauna (Fishes: 405; Mollusca: 109; Cnidaria: 1; Amphibia: 1)



were identified during the month which accounted for 175 species. Out of the identified examples of fauna four species including mollusc *Aiteng ater* Swennen & Buatip, 2009 and fishes *Eugnathogobius kabilia* (Herre, 1940); *Pseudogobius fulvicaudus* Huang, Shao & Chen, 2014; *Eugnathogobius stictos* Larson, 2009 collected from Coringa Wildlife Sanctuary, Andhra Pradesh were found to be new distribution record for Indian Ocean Region, and four other species such as fishes *Mugilogobius tigrinus* Larson, 2001; *Hemigobius hoevenii* (Bleeker, 1851) and molluscs *Melayonchis aileenae* Dayrat & Goulding, 2017; *Paramoionchis tumidus* (C. Semper, 1880) were found to be new distributional record for Andhra Pradesh.

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Eugnathogobius kabilia (Herre, 1940)

FRESHWATER BIOLOGY REGIONAL CENTRE, HYDERABAD, TELANGANA

One local survey was conducted to Koil sagar and Jurala dam. The scientists, staff and research scholars of the centre identified 8 species of Decapoda, 11 species of aquatic Coleoptera, 7 species of aquatic Hemiptera, 8 species of Ostracoda & Branchiopoda, 5 species of Cladocera, 17 species of Mollusca, 21 species of Pisces and 10 species of Amphibia



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Stream near Buratal village, Mahendragiri mountain Eastern Ghat, Odisha



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Lepidocephalichthys berdmorei (Blyth, 1860)

from river Korangi, Kakinada, Andhra Pradesh, River Krishna, Telangana, Krishna raj sagar, Karnataka, Koil

sagar, Jurala dam, Telangana; Amrabad and Kawal Tiger Reserve, Telangana. 17 DNA sequences of fishes have been generated.

WESTERN GHATS REGIONAL CENTRE, KOZHIKODE, KERALA

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Kaestlea palnica
(Boettger, 1892)



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Rhombodera woodmasoni
Werner 1931

A local survey has been conducted in Thalimala and Chundal area of Waynad district, Kerala on 24th December 2020. 64 species (Spider-16 spp., Scorpions- 2 spp., Chilopoda (Scolopendromorpha) – 02 spp., Mantodea-01 sp., Hymenoptera-31 spp., Lepidoptera-04 spp., Reptiles-08 spp. were identified. The genus *Kohliella* Brauns, 1910 (Crabronidae: Hymenoptera), reported for the first time from India with the species *K. anula* Pulawski, 1991. Three M.Sc. students have been guided to complete their dissertations.

ESTUARINE BIOLOGY REGIONAL CENTRE, GOPALPUR-ON-SEA, ODISHA

During the month 534 specimens were identified which includes fish, molluscs, crab, prawn, lizard and lice. *Ophichthus chennaiensis* Das, Mohapatra, Rajendar Kumar, Bhaskar, 2020, a new species of marine eel was described from single specimen collected from Tamil Nadu

coastal waters. A survey to Tampara Lake was carried out in which 21 specimens were collected and 23 bird species were photographed.



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Anastomus oscitans (Boddaert, 1783)



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Ardea purpurea (Linnaeus, 1766)

Also two days local Survey of *Phthirapteran ectoparasites* infesting Common Poultry of Odisha along Ganjam district was conducted and 3 lots of specimens were collected. Scientist of the Centre Served as Expert Member in the Ph.D. Supervisor Selection Committee of Khallikote University, Berhampur, Odisha.

ARUNACHAL PRADESH REGIONAL CENTRE, ITANAGAR

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Bosmina longirostris (O.F.Müller, 1776)

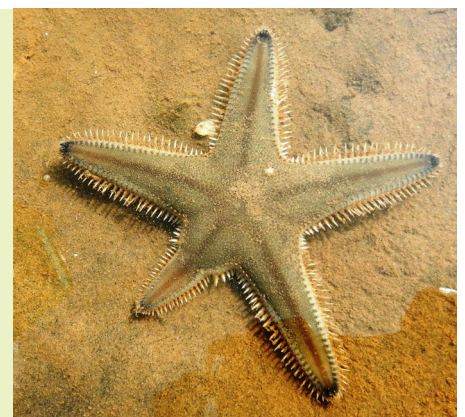


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Survey in Itanagar Wildlife Sanctuary

Conducted a survey to Siang River at Yingkiong, Upper Siang district and Pasighat, Lower Siang district for 13 days from 30th November 2020 to 12th December 2020. Further, three local surveys conducted to Lobby, Sagaleehapa and Upper Hollongi area of Itanagar Wildlife Sanctuary on 8th and 24th December 2020 and identified 30 species of Lepidoptera, 5 species of Rotifera, 4 species of Cladocera, 2 species of Diplopoda, 15 species of Pisces and 4 species of Reptiles.

MARINE AQUARIUM AND REGIONAL CENTRE, DIGHA, WEST BENGAL

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Astropecten indicus Döderlein, 1888



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Onchidium typhae
Buchanan, 1800



Conducted surveys to Coringa Wildlife Sanctuary, Andhra Pradesh from 7th to 16th December 2020 and to Khadibil Mangroves, Odisha from 18th to 23rd December 2020. Fifty one species were identified and deposited in National Zoological Collections. They are 28 spp. of Mollusca, 12 spp. of Fishes, 05 spp., of Cnidaria, 03 spp of Echinodermata, 01 sp. of Ctenophora , 01 sp. of Prawn and 01 sp. of Snake. Scientists reviewed Ph. D. thesis for Department of Zoology, Muslim Arts College, Manonmaniam Sundaranar University, Tamil Nadu and reviewed manuscript for *Indian Journal of Geo-Marine Sciences*.

PUBLICATIONS

Book

Kailash Chandra, Raghunathan, C. and Tamal Mondal, 2020. Faunal Diversity of Biogeographic Zones: Coasts of India. 1-807p. (Published by the Director, Zool. Surv. India, Kolkata), ISBN 978-81-8171-543

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31. Vasanth, M., Selvakumar C., Subramanian, K., A., Sivaramakrishnan, R., G., and Sinha, B. 2020. A new species of *Notacanthurus* Tshernova, 1974 (Ephemeroptera: Heptageniidae) from India. *Zootaxa*, 4894 (3): 437-444.
32. Wang, C-C., Kwan, K.Y., Shin, P.K.S., Cheung, S.G., Itaya, S., Iwasaki, Y., Cai, L., Mohamad, F., Fozi, N.F., Zauki, N.A.M., Raman, N.J.A., Chatterji, A., Tripathy, B., Sajjan, S., Min, W.W., Tan, L.J.X., Supadminingsih, F.N., Wardiatno, Y. and Hsieh, H-L. 2020. Future of Asian horseshoe crab conservation under explicit baseline gaps: A global perspective. *Global Ecology and Conservation* 24: e01373.

Book Chapter

1. Jabin, G., Sahajpal, V., Chandra, K. and Thakur, M. 2020. DNA Forensics in Combating Illegal Wildlife Trade: Present, Past, and Future Perspectives. In *Forensic DNA Typing: Principles, Applications and Advancements*. P. Shrivastava et al. (eds.). Springer. https://doi.org/10.1007/978-981-15-6655-4_20. Pp.399-404.

Popular Article

1. Palot, M.J. 2020. *Jaiva Samridhiyude Makudam Charthiya Madayipara* [Biodiversity of Midland laterite ecosystem of Madayiapra]. Aranyam (A science Magazine in Malayalam published by Kerala Forests & Wildlife Department), 41 (5): 18-23. [in Malayalam]

Webinars Organized

1. Zoological Survey of India, Training and Extension Division, Kolkata, Organized National Webinar on "Ornamental Fishes of India: Diversity & Prospects" on 1st December, 2020.
2. A virtual study tour and lecture series was organized by Central Zone Regional Centre, Jabalpur on 18.12.2020 for the students and faculty members of SCS College, Puri and other three Government colleges of Odisha (Sailabala Women's College, Rajdhani College and KKS College).

Meetings Attended

1. Dr. Kailash Chandra, Director, attended a meeting on National Meet of State Biodiversity Boards and Union Territories on 11 December 2020, organized by National biodiversity Authority.
2. Dr. Kailash Chandra, Director, attended the 44th Meeting of TRAC of Wildlife Institute of India, Dehradun through video conferencing on 14th December, 2020.
3. Dr. Kailash Chandra, Director, attended the 16th meeting of the CPGB Committee No. XII – 'Geoscience for Sustainable Development' through video conferencing on 15th December, 2020.

4. Dr. Kailash Chandra, Director, chaired the online meeting regarding the discussion on the PG Diploma Course on Integrated Animal Taxonomy on 16th December, 2020.
5. Dr. Kailash Chandra, Director, attended as chief guest the workshop cum webinar on “Post COVID: Environmental Challenge and Livelihood” from 18th December, 2020 to 22nd December, 2020 at Ranchi University Campus, Ranchi.
6. Dr. Kailash Chandra, Director, organized the National Webinar on “*Parasitic and Vector Borne Diseases and their Control*” organized by Chaudhary Bansi Lal University, Bhiwani and Zoological Survey of India on 23rd December 2020.
7. Dr. Kailash Chandra, Director, attended the “Biodiversity Conclave” and presented a paper on ‘Biodiversity Heritage, People, Culture and Livelihood’, organized by National Botanical Research Institute, Lucknow on 23rd December, 2020.
8. Dr. C. Raghunathan attended a meeting to Evolve Mechanisms for Evaluating Peoples Biodiversity Register, convened by West Bengal State Biodiversity Board on 3rd December 2020.
9. Dr. C. Raghunathan attended the 31st State Level Steering Committee Meeting of Sunderban Biosphere convened by Department of Forests, Government of West Bengal on 8th December 2020.
10. Dr. P. M. Sureshan, Scientist-E and Dr. Souvik Sen, Scientist-D attended a virtual meeting of experts for the programme ‘Assessment of Threatened Taxa of Kerala’ (funded by Kerala State Biodiversity Board) on 17th December 2020 through video conferencing.
11. Dr. Dhriti Banerjee, Scientist-E, participated the training programme of General management programme for women scientists in online platform conducted by Administrative staff college of India from 23rd Nov to 4th December, 2020.
12. Dr. L. Kosygin Singh, Scientist-E attended one Regional Capacity Building Program on “Biotechnological Tools in Aquatic Genetic Resource Management and Ex Situ conservation” from 7 - 18 December, 2020 organized by NGFR, Lucknow.
13. Dr. S. Sambath, Scientist-E attended Hindi Half-Yearly Meeting on 18.12.2020 at Rajbhasha Section, Indira Market, Jabalpur.
14. Dr. Jasmine, P., Scientist - E, participated the training programme of General management programme for women scientists in online platform conducted by Administrative staff college of India from 23rd November to 4th December 2020.
15. Deepa J., Scientist-E and Smt. Rehanuma Sulthana, Asst. Zoologist attended TOLIC meeting on 16th December 2020.
16. Dr. Gaurav Sharma Scientist-E participated in the 16th Board Meeting of Uttarakhand Biodiversity Board at Conference hall of UBB, Dehradun on 15th December, 2020 and participated as Member of Research Advisory Committee of Forest Entomology Discipline, Forest Protection Division, Forest Research Institute, Dehradun in the Sixth-Month Progress Evaluation of Research Scholars through virtual mode on 21st December, 2020.
17. Dr. C. Sivaperuman, Scientist-E served as a member in the interview selection committee for selection of Technicians for KVK, CIARI, Port Blair on 19th December 2020 and attended on line training on Science, Administration and Research Management at Administrative Staff College, Hyderabad during 7th – 18th December 2020.
18. Dr. Gopal Sharma Scientist ‘E’ attended an International Online Webinar on “Recreation of interest in fundamental Science” organized by Patna University, Patna in collaboration with Bihar Brain Society, Patna on 3rd -5th Dec. 2020.
19. Dr Gopal Sharma Scientist E participated as jury member in the zoology session oral presentation in the International Seminar on 4th Dec. 2020 organized by Patna University, Patna in collaboration with Bihar Brain Society, Patna on 4th Dec. 2020.
20. Dr Gopal Sharma Sc E inaugurated an exhibition on SAVE GAURAIYA on 13.12.2020 in S.K.PURI Park, organized by Kalamgar Team, Patna.
21. Dr. Gopal Sharma participated as a jury member in the 28th National Science Congress 2020 Patna District Children Science Congress on 12.12.2020 organized by Science For Society, Patna, Catalysis and cooperation by National Council of Science and Technology Communication, Government of India at Sri Krishna Vigyan Kendra, Patna.
22. Dr Gopal Sharma participated in the National Seminar on “Post-COVID Environmental Challenges and Livelihood”, organised by YUGANTAR BHARTY at Ranchi University Ranchi from 19-21 Dec 2020.
23. Dr. D.S. Suman, Scientist-D acted as an Organizing secretary for National Webinar on Parasitic & Vector borne diseases and their control held at Chaudhary Bansi Lal University, Bhiwani, Haryana, 23rd December 2020.
24. Dr. Pratyush P. Mohapatra, Scientist-D is attending one tour to WII, Dehradun to finalize the Zero Draft of National Guidelines on Mitigation of Snake-Human Conflict w.e.f. 24.12.2020 to 02.01.2021 for field testing in different states.
25. Dr. BHCK Murthy, Scientist-D attended a meeting with PCCF & CWLW, Karnataka in connection

with the permission of survey to Mookambika Wildlife Sanctuary on 15th & 16th December 2020 at Bangalore, Karnataka.

Lectures delivered

1. Dr. Kailash Chandra, Director delivered a keynote address in the webinar on “*Biodiversity Conservation: Issues and Challenges*” through video conferencing on 2nd December, 2020.
2. Dr. Kailash Chandra, Director, delivered a keynote address in the webinar on “Biodiversity Heritage, People, Culture and Self-reliant Rural India, IISF-2020” via video conferencing on 23rd December, 2020.
3. Dr. C. Raghunathan, delivered a lecture on Ornamental fishes of India: Trade, Status and Diversity during the Webinar on Ornamental fishes of India: Diversity and Prospects organized by ZSI Headquarters on 1st December 2020.
4. Dr. Deepa J. Scientist-E delivered a lecture in the webinar on “Biodiversity hotspots of India” conducted by St. Anns PG College on 24th December 2020.
5. Dr. K. Rajmohana, Scientist-E delivered an invited talk on 26th December 2020 on the topic, ‘Wonderful World of Insects’ in the National webinar series for students organized by ‘The Space Club’- NGO, Calicut, Kerala.
6. Dr. Gaurav Sharma, Scientist-E delivered a Lecture on “*Faunal Diversity and their Conservation in India*” to M.Sc. Forestry students from the Forest Research Institute (Deemed University), Dehradun during their visit to ZSI, NRC, Dehradun on 15th December, 2020.
7. Dr. C. Sivaperuman, Scientist-E delivered a talk on the Biodiversity of A & N Islands (In Tamil) organized by the Department of Science and Technology, Tamil Nadu and Department of Information and Broadcast, New Delhi on 10th December 2020
8. Dr. D.S. Suman, Scientist-D delivered invited talk on “Arthropod vectors in India with emphasis on management of dengue vectors” at National Webinar on Parasitic & Vector borne diseases and their control at Chaudhary Bansi Lal University, Bhiwani, Haryana 23 December 2020.
9. Dr. K.P. Dinesh, Scientist-D delivered an online talk on “*Amphibian Diversity in India*” in the Biodiversity-13 Webinar organized by the Flora and Fauna Asia Facebook Group, Department of Botany, Seva Bharati Mahavidyalaya, Kapgari, Jhargram, West Bengal in collaboration with DRISHTICON organization on 5th December 2020.
10. Dr. C.R. Sreeraj, Scientist-C delivered one lecture on 18.12.2020 with topic “Introduction to Marine Biology”, in a webinar organized by Dept. of Zoology, Nehru Arts and Science College, Kasaragod, Kerala.
11. Dr. Chitra J, Scientist C participated as Chief guest and delivered lecture on “Introduction and Importance of faunal diversity in soil Health” during “World soil Day” celebrated and organized by Eco club, Sri Akhilnadeshwari Women’s college Wandiwash, Thiruvalluvar University, Tamil Nadu (Video conferencing).
12. Dr. T. Kubendran, Scientist-C delivered lecture on “Personality in Personalities” as motivational speech to post graduate and under graduate students organized by department of Zoology, Ayya Nadar Janaki Ammal College of Arts and Science, Sivakasi, Tamil Nadu on 22.11.2020 through Google meet.
13. Dr. S.S. Talmale, Scientist-B delivered an online talk on “*Small mammals of Indian scenario with special emphasis to conservation in India*” in the Biodiversity Webinar 15 series organized by the Flora and Fauna Asia Facebook Group, Department of Botany, Seva Bharati Mahavidyalaya, Kapgari, Jhargram, West Bengal in collaboration with DRISHTICON.