



Ministry of Environment,
Forest and Climate Change



Cover

Himalayan Monal
Lophophorus impejanus
(Latham, 1790)
[Photo: ZSI Headquarters]

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Edited by

Dr. Kailash Chandra
Dr. C. Raghunathan
Dr. S. Sheela

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Monthly E-Newsletter from
Zoological Survey of India



I am proud to present the first issue of E-News for the year 2021 to the readers. First of its kind in the history of Zoological Survey of India, tagging programme was initiated for Olive Ridley turtles in Odisha coast. This program intends to understand the migratory routes of the turtles those who visits Indian coast for nesting. A book on *Biodiversity Profile of East Kolkata Wetlands* dealing 1925 species of flora and fauna has been published while a *Handbook on Birds of Sunderbans* covering the illustrated

information of 428 species was released by the Principal Chief Conservator of Forests and Head of Forest Force, Government of West Bengal. As an effort for species identification and documentation, 1647 species under 15665 specimens have been identified from Protozoa to Mammalia while describing 12 species under Annelida, Insecta and Pisces and reporting 6 species for the first time from India. Besides two books, 43 papers are published during the month and it is interesting to note that all of them are under either SCI or NAAS rated journals. The DNA barcoding of animals have been added with 265 sequences generated out of Mammals, Reptiles, Amphibians, Fishes, Molluscs, Insects and Nematodes. The outreach activities such as webinar on Herpetofauna of India, hands-on training on marine animals, and a workshop on coastal and marine biodiversity of marine ecosystem were organized. Marine EIA study for the development of Great Nicobar Island under Niti Aayog programme of Government of India has been initiated. I congratulate all the officers and staff of ZSI for making a significant progress on the beginning of new year.

Jai Hind.

Dr. KAILASH CHANDRA
Director

February 8, 2021
Kolkata

ZSI E-NEWS

HEADQUARTERS, KOLKATA



Republic Day 2021
Celebration at ZSI
Headquarters

Surveys conducted to Uttarakhand, Puducherry and Bibhutibhushan Wildlife Sanctuary. In addition, a field survey conducted along the Odisha coast for offshore congregation monitoring of Olive Ridley sea turtles and tagging of mating pairs in the nearshore waters from 8th January 2021 to 18th January 2021. A total of 841 species have been identified from 7733 specimens under different faunal groups comprising

Protozoa, Copepoda, Nematelminthes, Platyhelminthes, Echinodermata, Porifera, Crustacea, Mollusca, Acari, Arachnida, Thysanoptera, Diptera, Hymenoptera, Orthoptera, Odonata, Lepidoptera, Hemiptera, Pisces, Amphibia, Reptilia, Aves and Mammals. Two species of Trichoptera *Hydromanicus religious* Pandher *et al.* 2021 and *Hydromanicus sikkimensis* Pandher *et al.* 2021 have been described while

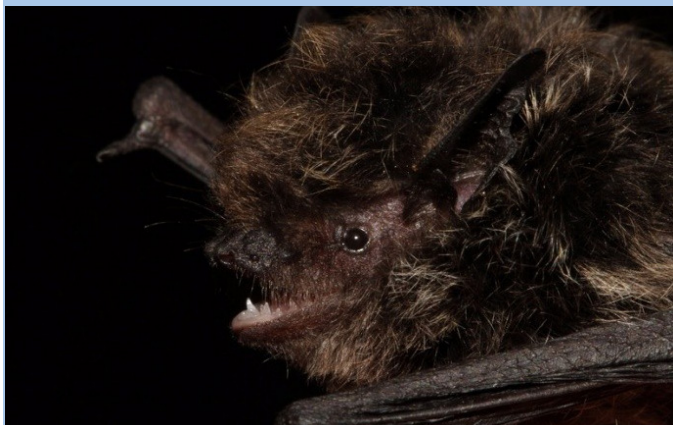
Potamyia phaidra Malicky & Chantaramongkol, 1997; *Cheumatopsyche chrysothemis* Malicky & Chantaramongkol 1997; *Hydromanicus inferior* Chantaramongkol & Malicky, 1995) under Trichoptera reported as new to India. The population of migratory birds has been assessed in Pulicat Lake as a part of environmental impact assessment study. Altogether 121 species were augmented to National Zoological Collections which

includes, 2 species of soil Nematodes, 4 species of Ciliophora, 1 species of Platyhelminthes, 5 species of Hymenoptera, 5 species of Hemiptera, 10 species of Trichoptera, 67 species and subspecies of Butterflies 27 species of Moths and 1 species of Mammal. Two hundred and ten DNA sequences have been generated from Rhesus macaque, White cheeked macaque, Ibex, Blue sheep, Barking deer, Red Panda, Fishes, Amdoparvovirus, Nematodes and Diptera. Generated acoustic data for 3 species of mosquitoes with male and female individuals for integrated taxonomy. Earthworm species for Agriculture Development Officer, Mahasamund, Chhattisgarh; Isopteran species for Tocklai Tea Research Institute, Assam and Department of Agricultural Entomology, Coimbatore, Tamil Nadu have been identified upon request. Confiscated material of mammal identified for Forest Department, West Bengal. Scientists reviewed 4 manuscripts for different journals. Comments for the delisting of *Trochus niloticus* from Schedule – IV of Wildlife Protection Act, 1972 and on the Master Plan of Sultanpur Wildlife Sanctuary, Haryana have been submitted to the administrative Ministry. Dr. Kailash Chandra, Director, Zoological Survey of India, unfurled the National flag on the occasion of 72nd Republic Day.

NORTH EASTERN REGIONAL CENTRE, SHILLONG, MEGHALAYA

Republic Day Celebration in NERC, Shillong

Submyotodon caliginosus (Tomes, 1859)



Scientists of the Centre identified 97 spp. comprising six spp. of Mammalia, 7 spp. of Reptilia, 4 spp. of Amphibia, 23 spp. of Pisces, 7 spp. of Coleoptera, 3 spp. of Crustacea and 50 spp. of Lepidoptera. A bat *Submyotodon caliginosus* (Tomes, 1859) has been described as a new generic record from India and South Asia as a whole. Identification and Advisory services provided to WGRC, Calicut on beetles and to ICAR, Umiam, and Guwahati University.

WESTERN REGIONAL CENTRE, PUNE, MAHARASHTRA

Survey conducted to Gautala Autramghat Wildlife Sanctuary, Maharashtra from 4th to 13th January 2021. Identified 4 spp. of Decapoda, 34 spp. of Lepidoptera 17 spp. of Orthoptera, 19 spp. of Amphibia and 1 sp. of Mammalia. One DNA sequence was published while 3 DNA sequences were submitted to the GenBank. A confiscated material of antlers of Sambar Deer *Rusa unicolor* was identified for the Forest Department, Mandvi, Vasai Taluk, Maharashtra, which is in schedule III of the Indian Wildlife (Protection) Act, 1972. Identification and

Republic Day Celebration in WRC, Pune



advisory services provided to Maharashtra State Biodiversity Board, Nagpur on an application for access to biological resources and associated traditional knowledge and to P.G. &

Research Department of Zoology, Thiru Kolanjiappar Government Arts College, Tamil Nadu. New records of dung beetles, damselflies and frogs were reported.

CENTRAL ZONE REGIONAL CENTRE, JABALPUR, MADHYA PRADESH

Scientists of the Centre identified 83 species comprising of 18 species of Lepidoptera (Butterflies), 26 species of Lepidoptera (Moths), 14 species of Orthoptera, 11 species of Mollusca, 8 species of Amphibia, 5 species of Reptilia and 1 species of Mammalia during this month. Described three new species of the genus *Mata* Distant,

.....
Hemidactylus sahgali
Mirza, et al. 2018



.....
Cheilomenes sexmaculata Fabricius,
1781 preys on aphids



1906 (Hemiptera: Cicadidae: Cicadinae: Oncotympanini) *Mata lenonia* sp. nov., *Mata ruffordii* sp. nov. and *Mata meghalayana* sp. nov. from the State of Meghalaya. Scientist of the Centre reviewed a project completion report received from the Director, Tropical Forest Research Institute, Jabalpur.

DESERT REGIONAL CENTRE, JODHPUR, RAJASTHAN

Surveys conducted to Desuri and Sadri Region, Pali district on 20th January 2021. Identified 53 species comprising 45 species of insects and 08 species of Pisces. In addition, 01

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Republic Day Celebration at DRC, Jodhpur



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Accipiter badius Gmelin, 1788

species of amphibia, 02 species of reptiles, 33 spp. of aves and 03 spp. of mammals were identified by direct sighting. Scientists of the Centre reviewed four manuscripts for the Journal Records of Zoological Survey of India.

NORTHERN REGIONAL CENTRE, DEHRADUN, UTTARAKHAND

||||| Northern Pintail, *Anas acuta* Linnaeus, 1758



Survey was conducted to the Chakrata Forest Division, Dehradun, Uttarakhand on 08th January 2021, where, 09 species of Aves, 02 species of Mammals were observed. Identified 81 species of different faunal groups i.e. 08 spp. of Protozoa, 07 spp. of Nematoda, 39 spp. of Lepidoptera, 09 spp. of Annelida, 07 spp. of Pisces, 01 sp. of Amphibia and 10 spp. of Aves from Uttarakhand, Himachal Pradesh and Uttar Pradesh. Two DNA barcode sequences belonging to Coleoptera and Orthoptera have been generated. Two new species of Annelida, *Haemadipsa satyanarayanai* Mandal et al., 2020 from Jharnapani Nagaland and *Theromyzon jaleswarensis* Mandal et al., 2020 from Jaleswar, Distt. Etah, Uttar Pradesh have been discovered.



||||| Republic Day celebration at NRC, Dehradun.

SOUTHERN REGIONAL CENTRE, CHENNAI, TAMIL NADU



||||| *Calotes versicolor* (Daudin, 1802)

||||| Open billed Stork *Anastomus oscitans* (Boddaert, 1783)



During the month, the scientists identified 100 species belonging to Odonata, Lepidoptera, Mollusca, Psocodea, Hemiptera and Reptiles. DNA sequences of 17 species of reptiles and insects were published. Survey was conducted to state of Karnataka, Goa and Telangana to undertake phylogeographic studies of Black Buck and Rhesus Macaque. The scientists reviewed manuscripts for three journals.

GANGETIC PLAINS REGIONAL CENTRE, PATNA, BIHAR

Red Crested Pochard *Netta rufina* Pallas 1773



Mother Dolphin with Calf *Platanista gangetica gangetica* Roxburgh 1801

Altogether 468 examples under 18 species in Mollusca from backlog collection and 84 examples representing 18 species of Lepidoptera were identified. Three manuscripts reviewed for different journals. Republic Day 2021 was celebrated in the office campus ZSI Patna Sri Navin Kumar, Former General manager, Bihar State Tourism Development Corporation Bihar and the member of IBCN, BNHS was invited as the special guest on the occasion.



HIGH ALTITUDE REGIONAL CENTRE, SOLAN, HIMACHAL PRADESH

Republic day Celebration at ZSI, Solan



Open Grass land surveyed at Gaura, Solan, HP.



Survey to Pong Dam Wetland in District Kangra of Himachal Pradesh has been undertaken on 4th January 2021 in view of mass death of migratory birds especially Bar Headed Geese due to avian influenza or H5N1 virus. During Survey the localities Dhameta, Dehra and Dada

Siba have been covered. The population of Bar Headed geese has been observed in abundance along with the Pochard, Pin tail, Black Stilt, Sand Plovers, Mallard, Spot billed Duck, Coot, Gul, Common Teal, Lapwing etc. Mortality of birds is less in Dehra and Dada Siba than

Dhameta. Another survey to Grasslands of District Solan conducted on 13th January 2021. Scientists identified 50 species, out of which 27 species belongs to Lepidoptera, 09 species to EPT complex and 05 species to Orthoptera, 6 species of Amphibia and 03 species of

Reptilia by examining 297 specimens. Identification services provided to Punjabi University, Patiala and Panjab University, Chandigarh on Butterflies. Scientists reviewed four research papers on Lepidoptera in National Journals. Centre have received 1321 examples containing 24 species of Family Geometridae (Order Lepidoptera) from Prof V.K Walia, Panjab University, Chandigarh.

MARINE BIOLOGY REGIONAL CENTRE, CHENNAI, TAMIL NADU



Porites lutea Milne Edwards 1860 on the Biorock.

During the month, the scientists of the centre identified and registered a total of 63 species which include 18 species of moss

inhabiting testate amoebae, 12 species of marine sponges, 03 species of crabs, 04 species of molluscs, 01 species of echinodermata,



Turbinaria mesenterina (Lamarck 1816) on the Biorock

18 species of fishes and 07 species of Orthoptera. The Research Fellows of the project 'Restoration of reefs using Electricity – A suitable technology to enhance and conserve Gulf of Kachchh reefs' undertook two surveys at Marine National Park, Gujarat as part of the regular maintenance of the 'bio-

rock' structures, and video documentation. A total of 18 species of scleractinian corals belonging to 12 genera were identified during these field surveys. Eight identification and advisory services have been rendered, which include two lectures delivered in two training programmes.

ANDAMAN AND NICOBAR REGIONAL CENTRE, PORT BLAIR



Macrorhynchia philippina Kirchenpeuner 1872

Four days long-term surveys conducted to North and Middle Andaman from 26th to 29th January 2021 for the Asian Water Bird Census; Seven days local surveys were conducted

during 13th – 19th, 23rd and 24th January to Mount Harriet, Shaitan Khadi, Badabalu, Kodiyaghat, Collinpur, Makkapahad to Teylarabad, Burmanalla, South Andaman to assess the terrestrial faunal diversity; Five days local surveys from 13th -19th



Monetaria moneta Linnaeus 1758

January 2021 to Chidiyatapu, Scisosstris Bay, Chatham, Burmanella, Kodiyaghat to assess the marine faunal diversity. A total of 378 species comprising of 13 spp. of Echinoderms, 24 spp. of Pisces, 86 spp. of Corals, 06 spp. of Crustaceans, 79 spp. of Molluscs, 19 spp. of Hydrozoans, 09 spp. of Bryozoan, 05 spp. of fish parasite, 01 sp. of Mammal were identified from marine environment

and 40 spp. of Spiders, 09 spp. of Hemiptera, 75 spp. of Lepidoptera, 03 spp. of Hymenoptera, 06 spp. of Odonata, 01 sp. of Mantodea and 02 spp. of Coleoptera were identified from terrestrial environment. One species of bird identified to the INS Utkrosh and one species of scheduled mollusc to Forest Department, A & N Islands.

Republic Day Celebration
at ZSI, Canning

Twenty-four species containing 19 species of Mollusca and 5 species of Pisces were identified, of which one species of fish and nine species of Molluscs were new augmentation to the National Zoological Collections of the Centre. DNA sequences for three species of molluscs and three species of fishes were generated and uploaded.

Varanus salvator
(Laurenti, 1768)

SUNDERBAN REGIONAL CENTRE, CANNING, WEST BENGAL

FRESHWATER BIOLOGY REGIONAL CENTRE, HYDERABAD, TELANGANA

Pied Bushchat *Saxicola caprata*
(Linnaeus, 1766)

Numenius phaeopus
(Linnaeus, 1758) Whimbrel

The scientists, staff and research scholars of the Centre examined 1621 specimens from Himayatsagar, Nagarkurnool district, River Krishna,

Koil Sagar, Jurala Dam in Telangana; Amravati and Visakhapatnam in Andhra Pradesh; Kolhapur district in Maharashtra and identified 8 species

of Decapoda, 15 species of aquatic Coleoptera, 7 species of aquatic Hemiptera, 14 species of Ostracoda and Branchiopoda, 14 species of Mollusca, 62 species

of Pisces and 18 species of Lepidoptera during the month. Fourteen DNA sequences of fishes have been uploaded in NCBI. A field survey was conducted to Smart Cities of Andhra Pradesh, Amravati and Visakhapatnam from 19th December 2020 to 3rd January 2021.

WESTERN GHATS REGIONAL CENTRE, KOZHIKODE, KERALA

|||||
*Eumyias
albicaudatus*
(Jerdon, 1840)



|||||
Halpe homolea
(Hewitson, 1868)

Scientists of the Centre identified 45 species which includes Spider-16 spp., Hymenoptera-17 spp., Lepidoptera-04 spp., Coleoptera- 01 sp., and Reptilia -07 spp. A new species *Dasyproctus geethae* Binoy & Girish Kumar, 2021 (Hymenoptera: Crabronidae) discovered and published. Three identification and advisory services rendered and M.Sc. student has been guided to complete her dissertation. Reviewed a manuscript for a journal of Entomology.

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



|||||
Ariosoma majus (Asano, 1958)

A new species *Cirrhimuraena indica* Mohapatra *et al.*, 2021 was described from 6 specimens collected from Paradip, Odisha and 2 specimens from Petuaghat fishing harbor of West Bengal using both morpho and molecular taxonomy. *Ariosoma majus* (Asano, 1958), a species of conger eel is reported for the first time from Indian Ocean. A total of 362 specimens were identified which includes lice, tick, crab, prawn and fishes. A survey to Tampara Lake was carried out and two days local Survey of *Phthirapteran ectoparasites* infesting Common Poultry of Odisha along Ganjam district was conducted. Olive Ridley sea turtle tagging programme was implemented at Odisha coast.

ARUNACHAL PRADESH REGIONAL CENTRE, ITANAGAR



|||||
Catopsilia pomona (Fabricius, 1775)

Conducted 5 local surveys at Nyorch river, Ganga village, Ganga Lake and adjoining Forest area of Itanagar Wild Life Sanctuary during the month. A total of 78 species belonging to 6 species of Rotifera, 4 species of Cladocera, 3 species of Millipedes, 49

species of Lepidoptera, 14 species of Mollusca and 2 species of Amphibia were identified. Advisory services rendered to Arunachal Vikash Parishad regarding faunal

resources of Arunachal Pradesh and its applied utilization. Scientist of the Centre reviewed one manuscript for the Journal.



|||||
Survey at Nyorch river,
Itanagar WLS

MARINE AQUARIUM AND REGIONAL CENTRE, DIGHA, WEST BENGAL

Field survey from 18th – 29th January 2021 was conducted to Vishakhapatnam coast and local surveys conducted to Digha, Mohana and Talsari mud flats. A total of 59 species containing 54 spp. of Mollusca, 1 sp. of Pisces, 3 spp. of Crabs and 1 sp. of Brachiopoda were identified during the month. Scientists of the Centre evaluated two Ph. D. theses for Bharathidasan University, Tamil Nadu and reviewed six research papers for various journals.



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*Hiatula diphos*  
(Linnaeus, 1771)



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Republic Day Celebration
at MARC, Digha.

NEW DISCOVERIES

Twelve New Species under
Annelida, Hemiptera,
Hymenoptera and Pisces

~~~~~  
*Mata meghalayana*  
Sarkar et al.



~~~~~  
Mata lenonia Sarkar et al.



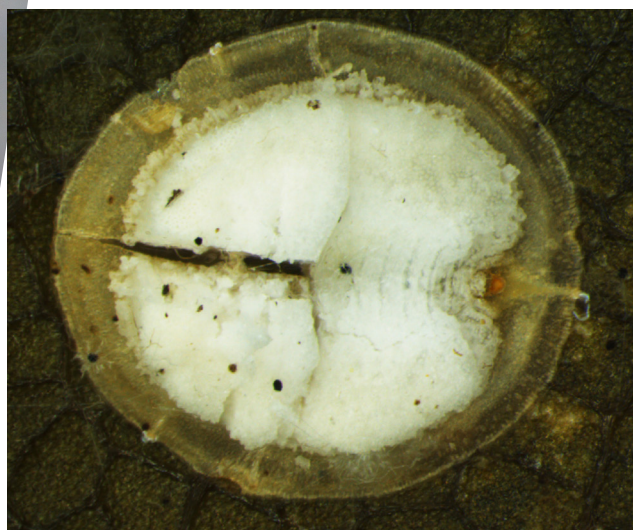
~~~~~  
*Mata ruffordii* Sarkar  
et al.





|||||  
*Dasyproctus geethae*  
 Binoy & Girish Kumar

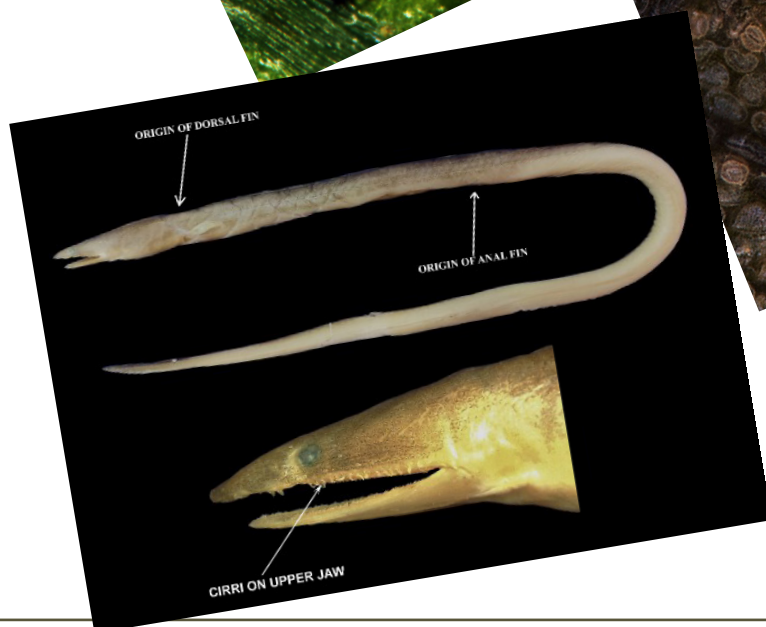
|||||  
*Dialeurodes sagoensis* Dubey



|||||  
*Pealius gallae*  
 Dubey.



|||||  
*Regiminutus ventralis* Dubey



|||||  
*Cirrhimuraena indica*  
 Mohapatra et al.

# PUBLICATIONS

## Books

1. Kailash Chandra, C. Raghunathan and A.A. Mao, 2020. *Biodiversity Profile of East Kolkata Wetlands*, p. 1-326. Jointly published by the Director, Zoological Survey of India, Kolkata and East Kolkata Wetlands Management Authority, Department of Environment, Govt. of West Bengal [ISBN: 978-81-8171-547-0]
2. Chandra, K., Mujumder, A. and Maheswaran, G. 2021. *Birds of the Sundarban Biosphere Reserve*, 1-248 (Published by the Director, Zool. Surv. India, Kolkata).

## Papers

1. Archana, B. and Ashutosh, S., 2020. Forensically Informative Nucleotide Sequences and taxonomic delimitation of *Petaurista philippensis* complex including species from India. *J. Env. Bio-Sci.*, 34 (2): 125-132.
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10. Dubey, A., 2021. *Dialeurodes sagoensis* (Hemiptera, Aleyrodidae), a new whitefly species from north-east India, with interesting body wax secretion behaviour. *Annales Zoologici Fennici*, 58: 41-48.
11. Gokulakrishnan, G. C. Sivaperuman and Dinesh Meena, 2020. Birds of Narcondam Island, Andaman and Nicobar Islands with an Updated Checklist. *Journal of Andaman Science Association* 25(1): 50-69.
12. Harries D., Kharkongor, I. J. and Saikia, U., 2021. The biota of Siju Cave, Meghalaya, India – A comparison of biological record from 1922 and from 2019. *Cave and Karst Science*, 47 (3): 119-130.
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17. Kashyap, P, Rizvi, A. N. and Uniyal, V. P., 2020. Assessment of soil physicochemical properties along an altitude gradient in the high altitude region of Gangotri National Park, Uttarakhand, India. *Journal of Ecophysiology and Occupational Health*, 20 (3&4): 134-139.
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43. Yogesh Kumar, J. S., Raghunathan, C., Geetha, S. and Venkatraman, C., 2021. Diversity and distribution of Scleractinian corals from Mandapam group of Islands in Gulf of Mannar Marine National Park, South East coast of India. *International Journal of Fisheries and Aquatic Studies* 9(1): 113-122.

## Popular Article

1. Kalawate, A.S., Dinesh, K.P. and Shabnam, A., 2021. Nature's Marvels-Discovery of three new species and a subspecies of Tiger moth. *Science Reporter* (A CSIR publication), 58: 54-55.

## Webinars Organized

1. ZSI Headquarters, Kolkata organized National Webinar on "Herpetology" on 20<sup>th</sup> January 2021
2. ANRC, Port Blair organized online workshop on Coastal and Marine Biodiversity of Island ecosystem during 7<sup>th</sup> - 8<sup>th</sup> January 2021.
3. ZSI/MBRC, Chennai organized a hands-on training on identification of marine fauna to the final year M.Sc. Zoology students of Queen Mary's College Chennai, from 19<sup>th</sup> - 28<sup>th</sup> January 2021

## Meetings Attended

1. Dr. Kailash Chandra, Director, ZSI chaired the meeting for discussion on updates with regard to the ongoing collaborative project on Geo - Fauna with scientists from ISRO-National Remote Sensing Centre-RRSC (East), Kolkata and ZSI scientists on 6<sup>th</sup> January 2021 at Baini Prasad Hall, ZSI, HQs., Kolkata
2. Dr. Kailash Chandra, Director, ZSI inaugurated the "Workshop on Coastal and Marine Biodiversity of Island Ecosystem" via video conferencing on 7<sup>th</sup> January, 2021.
3. Dr. Kailash Chandra, Director, ZSI attended the meeting for the Departmental Promotional

Committee for consideration of promotion of 6 posts of Junior Administrative Officer (JAO), ZSI at New Delhi on 15<sup>th</sup> January 2021.

4. Dr. Kailash Chandra, Director, ZSI inaugurated the "National Webinar on Herpetology" via video conferencing on 20<sup>th</sup> January 2021.
5. Dr. Kailash Chandra, Director, ZSI organized the flag hoisting function of Republic Day on 26.01.2021 at ZSI HQs., Kolkata.
6. Dr. Kailash Chandra, Director, ZSI chaired the Monthly Scientific Consultative Meeting of Regional Centres of ZSI via video conferencing on 29<sup>th</sup> January, 2021 at Baini Prasad Hall, ZSI, HQs.
7. Dr. C. Raghunathan attended the meeting to evaluate the People Biodiversity Register held at West Bengal State Biodiversity Board, Kolkata on 28<sup>th</sup> January 2021.
8. Dr. C. Raghunathan attended the release function of the book entitled "Birds of the Sundarban Biosphere Reserve" at the Central Deer Park, West Bengal Forest Department, Salt Lake, Kolkata on 4<sup>th</sup> January 2021 and delivered a brief lecture on Sunderbans.
9. Dr. C. Raghunathan conducted the Ph.D. Viva voce examination of Ms. Preeti Pareira on 20<sup>th</sup> January 2020 on the topic "Studies on Marine Sponges of Andaman and Nicobar Islands".
10. Dr. Gaurav Sharma, Scientist-E and Dr. Anil Kumar, Scientist-E participated as Team Member in "Planning workshop for Management Effectiveness Evaluation (MEE) of 210 National Parks and Wildlife Sanctuary" organized by the Director, Wildlife Institute of India, Dehradun through online virtual mode on 11<sup>th</sup> January 2021 inaugurated by Hon'ble Minister of MoEFCC, Sh. Prakash Javadekar.

11. Dr. Gaurav Sharma, Scientist-E participated as an External Member in Evaluation of the Research Work of CSIR Fellowship upgradation from JRF to SRF of Mr. Ritesh Kumar Gautam and Ms. Shabnam Rana, Wildlife Institute of India, Dehradun through online virtual mode on 07 January, 2021.
12. Dr. C. Sivaperuman, attended progress review meeting at Central Island Agricultural Research Institute on 18<sup>th</sup> January 2021; Served as Guest of Honour in the GSDP training programme organized by CPREEC, Port Blair on 28<sup>th</sup> January 2021.
13. Dr. Gopal Sharma, Scientist E, attended the Nagar Rajbhasha Karyanvayan Samiti (NARAKAS) meeting on 28<sup>th</sup> Jan. 2021 organized by Chief Commissioner of Income Tax, Department of Income Tax, Patna.
14. Dr. S.S. Talmale, Scientist-B attended 18<sup>th</sup> State Level Forestry and Wildlife Research Advisory Committee Meeting at Aranya Bhavan, Bengaluru, Karnataka on 19<sup>th</sup> January 2021 and presented the programme details for obtaining permission to conduct surveys and collection of small mammals.

## Lectures delivered

1. Dr. C. Raghunathan, Scientist-E delivered a lecture on *Herpetofauna* – an overview in the Webinar on Herpetology organized by ZSI on 20<sup>th</sup> January 2020.
2. Dr. Sanjeev Kumar, Scientist-E delivered an invited lecture in a Webinar organized on the occasion of Udaipur Bird Festival 2020-21 organized by Rajasthan State Forest Department, Udaipur on 22<sup>nd</sup> January 2021 through virtual mode.
3. Dr. Sanjeev Kumar, Scientist-E delivered an invited lecture in a Gyan Ganga Programme – A State level online training programme under Initiative for teaching – learning excellence

in Zoology jointly organized by Commissionerate College Education, Rajasthan & Department of Zoology, Government Dungar College, Bikaner on 27<sup>th</sup> January 2021 through virtual mode.

4. Dr. P. M. Sureshan, Scientist-E delivered a lecture on the topic 'Animal Taxonomy' at Sir Syed College, Thaliparamba, Kerala on 15<sup>th</sup> January 2021.
5. Dr. Anil Mohapatra, Scientist-E delivered a talk on "Marine faunal conservation: Indian prospective" in the National Webinar organized by S.V.M. Autonomous college, Jagatsinghpur, Odisha on 23.01.2021.
6. Dr. Jasmine, Scientist - E delivered a talk on "Polar ecosystem Study: Arctic" for Postgraduate and under Graduates students of NSS college, Kottayam, on 22<sup>th</sup> January, 2021 through virtual mode.
7. Dr. S. D. Gurumayum, Scientist-E delivered an invited lecture on Aquatic Fauna diversity of Arunachal Pradesh with emphasis on Edible and Ornamental Fishes on 20<sup>th</sup> January 2021 at a Certificate course on People's Biodiversity Register Management organized by GB Pant National Institute of Himalayan Environment.
8. Dr. D. S. Suman, Scientist – D delivered an invited talk on "Mosquito, Agriculture and Associated problems in vector management" at Department of Entomology, Guru Kashi University, University of Agriculture, Punjab on 12<sup>th</sup> January 2021.
9. Dr. Mukesh Thakur delivered a key note and the lecture on Role of Conservation Genetics in Wildlife Conservation in the 2<sup>nd</sup> International Conference on Recent Trends in Biotechnology organized by the Jamal Mohamed College, affiliated to Bharathidasan University, Tamil Nadu on 19<sup>th</sup> Jan. 2021.
10. Dr. K.P. Dinesh, Scientist-D delivered an online talk on "Overview of Amphibians of India" in the National Webinar on Herpetology organized by the Training and Extension Division, Zoological Survey of India, Kolkata on 20<sup>th</sup> January 2021.
11. Dr. J.S. Yogesh Kumar, Scientist-D, delivered lecture to Jayaraj Annackiam College for Women, Periyakulam, Tamil Nadu on 05<sup>th</sup> January 2021 on "Recent trends and innovations from the tropical marine forest".
12. Dr. Ch. Satyanarayana, Scientist-D, delivered a talk "Ecological restoration of corals and coral reefs" at the Refresher Course for the PG Teachers in Environmental Sciences, organised by the UGC-Human Resource Development Centre, Goa University, on 22 January 2021.
13. Dr. G. Sivaleela, Scientist-D, delivered a lecture 'Maintenance of Marine Ornamentals in Captivity' at the training programme on clown fish culture organized by the Coastal and Marine Biodiversity Centre of the Mangrove Foundation, Mumbai, Maharashtra, on 28<sup>th</sup> January, 2021.
14. Dr. Pratyush P. Mohapatra, Scientist-D delivered a talk on "Studies on Snakes in India" during National Webinar on "Herpetology" on 20.01.2021, organized by the Training and Extension Division, ZSI, Kolkata.
15. Dr. S.K. Pati, Assistant Zoologist delivered a lecture on "Animal Taxonomy" as a resource person during the online Pre-PhD course work conducted by the Dr. Babasaheb Ambedkar Marathwada University, Aurangabad on 20<sup>th</sup> January 2021.

# STORYLINE

## MASS MORTALITY OF MIGRATORY BIRDS



Pong Dam Wetland, also known as Maharana Pratap Sagar, a man made reservoir across the river Beas at an altitude of 335-436 meters in Shiwalik ranges in Kangra district of Himachal Pradesh is an internationally important site. The reservoir, constructed in 1975-76 with an area of 207.59 sq. kms have been declared as Wildlife sanctuary vide Notification No. FFE-B-F(6)-8/99 dated 23.10.1999 and as a Ramsar site in 2002 under the Ramsar Convention, International treaty of 1971. The Pong wetland harbors more than 418 species of the birds belonging to 56 bird families out of 77 families of the birds recorded in India. Over 220 bird species belonging to 54 families and a total of 27 fish species under 6 families have been identified at Pong in the Water fowl census 2018.

Migratory birds crossing Himalayan ranges, coming from the Trans-Himalayan zone in the winter season, when the wetlands in the Europe and North and central Asia become frozen due to onset of winters and there is a great scarcity of food for these birds, found the Pong Dam Wetland as first transitory ground of safest and pollution free landing site. For the last 30 years the population of the migratory birds has increased many folds, possibly due to development of marshes and plenty of food availability at Pong Dam Wetland. Every year thousands of winter migratory birds reach the Pong Dam from the Central Asia, Tibet, Russia, Siberia, Mongolia etc. The majority of these birds are reported as Bar headed Goose, Ruddy shell duck, Pintails, Coots, Pochards,

Gulls, Red Necked Grebes, Cormorants, Mallards etc. Bar headed Goose (*Anser indicus*) was observed in the largest congregations in this wetland, occupying more than 45% of the total birds in Pong lake alone.

On December 28, 2020 Forest field staff reported the sudden death of four bar-headed geese and one common teal in Fatehpur area of Pong. Next day when the staff again surveyed the wetland area, more than 400 birds were found dead (Hindustan Times). In initial studies the experts assumed some poison baits on the bank of wetland might be the reason for bird mortality; but daily at different regions of reservoir mortality was continued and birds started moving to other wetlands like Sakha Lake Chandigarh,

|||||  
Flock of Bar Headed  
Geese



|||||  
Bar headed Goose

Sulatnpur National Park, Haryana and Keoladeo National Park Bhartpur Rajasthan. In the meantime, the other species such as the Shoveler, River Tern and Black-Headed Gull started dying. The National Institute of High Security Animal disease, Bhopal Madhya Pradesh and BSL III Jalandhar (Punjab) have confirmed the reason for this mass mortality due to infection of Highly Pathogenic Avian influenza H5N1, from the analysis of the samples sent by the Forest Department and Animal Husbandry Department, Himachal Pradesh. In order to study the situation, Zoological Survey of India has sent a team of scientists from its high Altitude Regional Centre, Himachal Pradesh on 4<sup>th</sup> January 2021. The team visited different localities of the affected area viz. Dehra, Dada

Siba and Dhameta. No mortality was found in first two localities i.e. Dehra and Dada Siba, but the Dhameta observed to be highly sensitive point towards mortality of migratory birds. Bar Headed goose found in abundance along with the Pochard, Pin tail, Black Stilt, Sand Plovers, Mallard, Spot billed Duck, Coot, Gul, Common Teal and Lapwing in this area. Bar Headed Geese were found highly susceptible to the virus. They were found approaching the land from water, and instantly falling down and squirm for two to three minutes to perish. One remarkable point was that bellies of all dead birds found swollen. The other locality where the mortality was noticed is Guliara, Siyari and Jwali. The Forest Department, Wildlife Department and Animal Husbandry Department are

taking adequate measures to check the spread of virus. Any human, livestock activities are strictly prohibited within 1 km. area of the reservoir, under Section 34 of the Disaster Management Act, 2005. All departments are keeping vigil in the next 9 km peripheral area of the Alert Zone, which has been declared as a Surveillance Zone. The District Magistrate has also ordered to suspend all tourist activities in the reservoir and adequate police force deployment, to enforce the restrictions. The natural predators like stray dogs, Black Kite, Shikra and Tawny eagle attack the carcass immediately after the death of the birds and they may carry the virus to distant wild and domesticated animals. So it remains a challenge for the department to bury the carcass, before attacked by these predators from land as well as air. Those bar headed geese which are unable to reach on the bank, and die inside the water pose another threat to humans through consumption of affected fishes.

**Kailash Chandra**  
**Kamal Saini**  
**A. K. Sidhu**  
**T. Kubendran**