



## Cover

Release of Animal Discoveries-2019 by Hon'ble Union Minister (State), Ministry of Environment, Forest and Climate Change, Shri. Babul Supriyo.

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Monthly E-Newsletter from  
Zoological Survey of India



I am delighted to present the October 2020 issue of E-news to the readers. Zoological Survey of India is regaining faunistic surveys amidst the Covid-19 pandemic. Surveys were undertaken in the protected areas in Maharashtra, Andaman and Nicobar Islands, Gujarat, Arunachal Pradesh and West Bengal. The annual publication of ZSI, *Animal Discoveries-2019: New species and new records* was released by the Hon'ble Union Minister (State), Ministry of Environment, Forest and Climate Change, Government of India, Shri. Babul Supriyo on 9th October 2020. The book deals with 368 animal species as new to science while 116 species as first report to India

and these discoveries were enhanced the Indian faunal diversity to 1, 02,161 species. Besides, Hon'ble Minister also released the illustrated field guide on *Skinks of India* which provides the detailed information about 62 species of skinks recorded from different landscapes of India. During the month, ZSI also entered a Memorandum of Understanding with iBOL [International Barcode of Life], Canada with the approval of Union Cabinet, Government of India and it opened up Multi-lateral avenue for barcoding of animal species. In order to disseminate the knowledge acquired by ZSI, five webinars have been organized on different streams of biodiversity for the larger benefit of students and researchers across the country. A total 10323 specimens comprising about 1896 species have been identified which includes the description of 9 new species to science and 12 new distributional records to the country. 28 DNA sequences have been uploaded in NCBI and BOLD. Findings of the ZSI were published as a book under wetland series, 24 papers of which majority of them under SCI, 5 book chapters and 2 popular articles. Administrative ministry sanctioned to construct an additional building for ZSI-Southern Regional Centre at Chennai. I acknowledge all the officers and staff of ZSI for making significant progress in scientific affairs of ZSI.

Jai Hind.

**Dr. KAILASH CHANDRA**  
Director

November 5, 2020  
Kolkata

# ZSI E-NEWS



Asiatic Lion *Panthera leo persica* (Linnaeus 1758)



## HEADQUARTERS, KOLKATA

Altogether 4323 specimens comprising 652 species belonging to Protozoa, Platyhelminthes, Nematoda, Acari, Arachnida, Collembola, Isoptera, Hemiptera, Hymenoptera, Lepidoptera, Odonata, Orthoptera, Diptera, Coleoptera, Annelida, Echinodermata, Crustacea, Mollusca, Pisces, Reptilia, Aves and Mammalia have been identified, While a new species of freshwater fish *Exostoma dujangensis*

Shangingam & Kosygin has been described from North East India, five other species of marine fish reported for the first time from West Bengal. 3 gene sequences to NCBI have been submitted from family Culicidae (Diptera). Identification and advisory services were provided to Department of Ecology & Environmental Science, Assam University on Collembola; College of Agriculture, Shimoga

on Diptera; Himachal University, Shimla on Hymenoptera; Department of Zoology, Scott Christian College, Nagercoil and Sher-e- Kashmir University of Agricultural Sciences and Technology – Kashmir on Hemiptera; Tocklai Tea Research Institute, Assam on Isoptera; IIT, Kanpur on fossils; Kaliachak Police station, Malda, West Bengal on dried skin and bones of Turtle (*Lissemys punctata*); Angriya

Bank Coral Biodiversity: Multivariate analyses support given to National Institute of Oceanography, Goa. Scientists reviewed 4 papers for different journals and adjudicated a Ph.D. thesis for Madurai Kamaraj University. Progress achieved and proposed achievement for India @ 75 have been submitted to the Administrative ministry.

## NORTH EASTERN REGIONAL CENTRE, SHILLONG, MEGHALAYA



*Kallima inachus*  
Boisduval, 1836

One local survey was conducted on 26<sup>th</sup> October, 2020 to BSI Experimental Botanic Garden, Umiam, Ri-Bhoi Dist, Meghalaya. Identified 321 specimens comprising 111 spp. viz., Reptilia 05 spp., Amphibia



*Hemidactylus platyurus*  
(Schneider, 1797)

06 spp., Pisces 19 spp., Crustacea 01 sp., Coleoptera 07 spp., Hemiptera 01 sp., Lepidoptera 71 spp. and Arachnida 01 sp. Mammalian skull bones collected

from different caves of Meghalaya have been identified for Lady Keane College, Shillong.



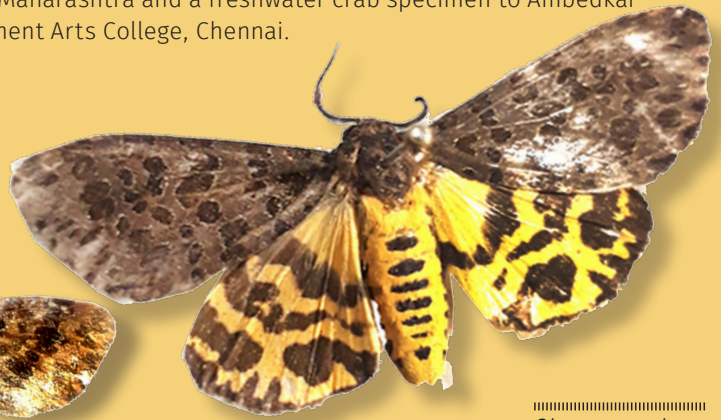
## WESTERN REGIONAL CENTRE, PUNE, MAHARASHTRA

Identified 199 specimens containing 74 spp. of Lepidoptera, Coleoptera, Diptera, Decapoda, Mollusca, Amphibia and Mammalia. Three new species and one new subspecies of moths were described. One species of gall midge was recorded for the first time from India. Eight DNA Barcode sequences of the moth species of the genus *Olepa* were released for the public access on the GenBank. One specimen of Blackbuck, *Antilope cervicapra* identified to the Forest Department, Nashik, Maharashtra and a freshwater crab specimen to Ambedkar Government Arts College, Chennai.

|||||  
*Olepa ghatmatha*  
Kalawate et al. 2020



|||||  
*Olepa suryamal*  
Kalawate et al. 2020



## CENTRAL ZONE REGIONAL CENTRE, JABALPUR, MADHYA PRADESH

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*Cuon alpinus* (Pallas, 1811)



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*Rucervus duvaucelii*  
branderii Pocock, 1943

Scientists of the Centre identified 201 specimens containing 64 species which includes Lepidoptera (Moths) 24 spp., Orthoptera 7 spp., Amphibia 9 spp., Reptilia 8 spp., and Mollusca 15 spp., and *Ectropida shoreae* Prout, 1934 (Lepidoptera: Geometridae: Ennominae) from Kanha TR & NP, Madhya Pradesh added to the moth fauna of Madhya Pradesh for the first time. Reviewed one manuscript for a journal.

## DESERT REGIONAL CENTRE, JODHPUR, RAJASTHAN



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*Hemidactylus leschenaultii*  
Duméril & Bibron, 1836

Two surveys were conducted in 5 districts of Jammu and Kashmir and 2 districts in Himachal Pradesh. Identified 29 species of Lepidoptera, 20 species of Hymenoptera, 3 species of Coleoptera, 3 species of Hemiptera and 12 species of fishes. Identification services rendered to Government College, Pali, Rajasthan and Division of Forest Protection, AFRI, Jodhpur on Arachnida and beetles. Centre observed Vigilance Awareness Week on 27<sup>th</sup> October, 2020 with the theme “Vigilant India, Prosperous India” and taken oath with Scientists and staff on the occasion. Scientists of the Centre served as external examiner for practical examination of Board II - M.Sc. Zoology at department of Zoology, JNV University, Jodhpur.

## NORTHERN REGIONAL CENTRE, DEHRADUN, UTTARAKHAND

Scientists of the centre examined 409 specimens and identified 71 species including 08 spp. of Protozoa; 12 spp. of Nematoda; 08 spp. of Annelida; 19 spp. of Lepidoptera, 05 spp. of Odonata, 10 species of Pisces; 1 sp. of Amphibia and 8 spp. of Aves collected / observed from different ecosystem of Punjab, Uttarakhand, Himachal Pradesh and Uttar Pradesh. Eleven DNA sequences of Spirostreptida & Lepidoptera have been generated. One identification service on aves has been rendered by Scientist of the Centre. The Centre also organized Swachhta Pakhwara programme on 02-16 October, 2020.



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Himalayan bulbul *Pycnonotus leucogenys* (Gray, J.E., 1835)

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Brahminy Starling, *Sturnia pagodarum* (Gmelin, 1789)





## SOUTHERN REGIONAL CENTRE, CHENNAI, TAMIL NADU

Protosticta sholai  
Subramanian & Babu, 2020



Scientists of the Centre discovered three new species of damselflies (Insecta: Odonata: Zygoptera: Platystictidae) belonging to the genus *Protosticta* from Kalakkad Mundathurai Tiger Reserve, Meghamalai Wildlife Sanctuary (Tamil Nadu) and Kathlekan Myristica swamps (Karnataka). The scientists also rediscovered *Protosticta rufostigma* Kimmins, 1958 from Kanyakumar Wildlife

Sanctuary, Tamil Nadu which was known only from the type specimen deposited at Natural History Museum, London. The taxonomic validity of *Protosticta mortoni* Fraser, 1922 which was earlier thought to be a synonym was also confirmed. During the month identified 1123 examples belonging to 62 species from different taxonomic groups and published 31 DNA sequences. Three lectures were delivered in webinars on insects, aquatic macroinvertebrates and dragonflies in different forums.



Protosticta cyanofemoralis  
Joshi et al., 2020

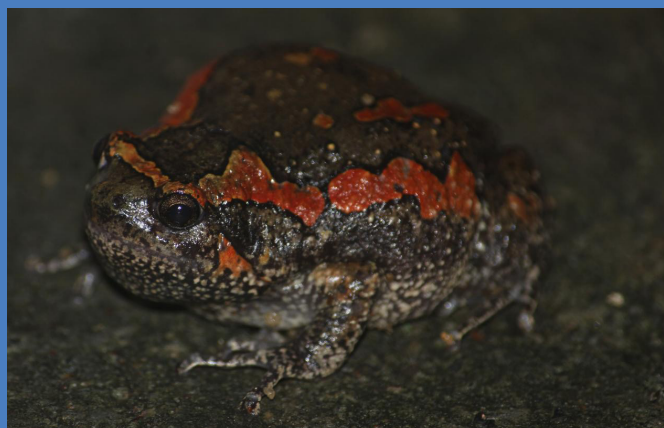
## GANGETIC PLAINS REGIONAL CENTRE, PATNA, BIHAR

Identified 427 specimens representing 61 spp. of Lepidoptera and 26 spp. of Mollusca from backlog collections. In addition, identified 24 bird species from the photographs sent by Sri Navin Kumar, Former M.D., BSTDC, Bihar Patna. Dr. Rahul Joshi, Scientist C, acted as Micro-Observer in the Bihar Assembly Election 2020 on 27<sup>th</sup> & 28<sup>th</sup> October 2020.

Indian Painted Frog  
*Uperodon taprobanicus*  
Parker 1934



Black Headed Ibis *Threskiornis melanocephalus* Latham 1790





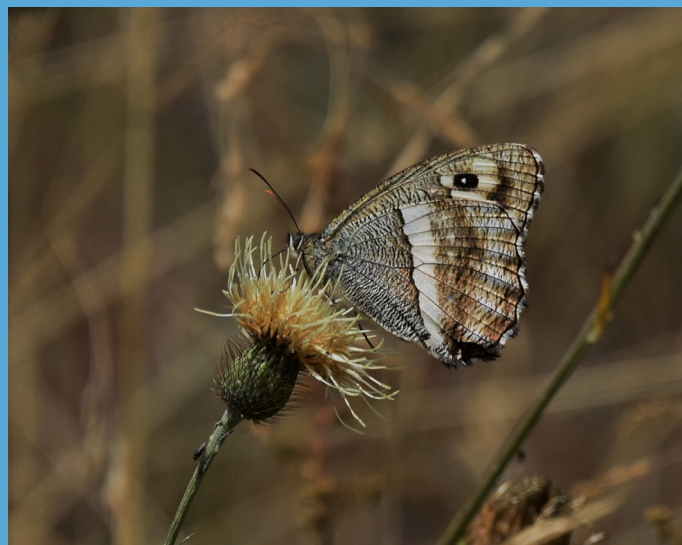
## HIGH ALTITUDE REGIONAL CENTRE, SOLAN, HIMACHAL PRADESH

Blue Whistling Thrush  
*Myophonus caeruleus*  
(Scopoli, 1786)



Faunistic identification from the Centre includes 231 specimens comprising Lepidoptera 28 species, Hymenoptera 4 species, Ephemeroptera, Trichoptera and Plecoptera 14 species, Orthoptera 13 species from Himachal Pradesh, Ladakh, Solan, Punjab and Jammu and Kashmir. Two papers on Lepidoptera and one paper on Orthoptera have been reviewed for National Journals.

*Aulocera saraswati* Kollar, 1844



## MARINE BIOLOGY REGIONAL CENTRE, CHENNAI, TAMIL NADU

Undersea surveys conducted on 6<sup>th</sup>, 7<sup>th</sup>, 23<sup>rd</sup> and 24<sup>th</sup> October 2020, to assess the scleractinian diversity and abundance at the site of the proposed IOCL's new pipeline, in Narara, Vadinar, Gujarat. The study was planned to prepare a comprehensive proposal for the translocation and transplantation of corals that would be affected by the pipe-laying process. Scientists of the centre identified 51 species from 172 exs., including 11 species of Marine Sponges, 06 species of Mollusca, 3 species of Decapoda, 22 species of Pisces and 09 species of Orthoptera. In addition, 18 species of scleractinian corals belonging to 15 genera and 8 families were identified from 307 photographs from the survey undertaken at Narara. A total of 75 examples of scheduled animals (including 14 photographs of the seized specimens) were identified as per requests from law enforcement agencies.



Undersea  
survey at  
Narara,  
Vadinar,  
Gujarat.



*Mycedium  
elephantotus*  
(Pallas, 1766)



# ANDAMAN AND NICOBAR REGIONAL CENTRE, PORT BLAIR



Losaria rhodifer Butler 1876

coleoptera were identified from terrestrial environment. Confiscated sample of molluscs *Cassis cornuta* (Linnaeus, 1758) has been identified to the Department of Environment and Forests, Port Blair.

Two long-term survey have been carried out to Narcondam Island Wildlife Sanctuary from 1<sup>st</sup> to 31<sup>st</sup> October 2020 to assess the population dynamics of Narcondam Hornbill and its associated fauna; Middle and North Andaman from 13<sup>th</sup> - 27<sup>th</sup> October 2020 to

assess the terrestrial and marine faunal diversity and eight local surveys during 19<sup>th</sup> to 26<sup>th</sup> October 2020 to Kalatang, Mount Harriet, Chidiyatappu, Shoal Bay, BSI Botanical Garden, South Andaman to assess the terrestrial faunal diversity. A total of 313 species comprising 62 spp. molluscs, 37 spp. fishes, 03 spp. octocoral, 03 spp. crustacean, 20 spp. hydrozoa were identified from the marine environment and 93 spp. lepidoptera, 43 spp. arachnida, 04 spp. odonata, 04 spp. hemiptera, 38 spp. aves, 02 spp. reptiles, 02 spp. mammals, 02 spp.



Barn Swallow  
*Hirundo rustica*  
Linnaeus 1758

# SUNDERBAN REGIONAL CENTRE, CANNING, WEST BENGAL

*Bathygobius  
cocosensis*  
(Bleeker, 1854)



*Bathygobius cotticeps*  
(Steindachner, 1879)

A local survey was conducted in Canning region. Twenty-three species of fishes out of 54 specimens were identified from the backlog collections. Two fishes from Lakshadweep such as *Bathygobius cocosensis* (Bleeker, 1854) and *Bathygobius cotticeps* (Steindachner, 1879) were identified as new distributional record to India.



# FRESHWATER BIOLOGY REGIONAL CENTRE, HYDERABAD, TELANGANA



Spotted deer *Axis axis* (Erxleben, 1777)



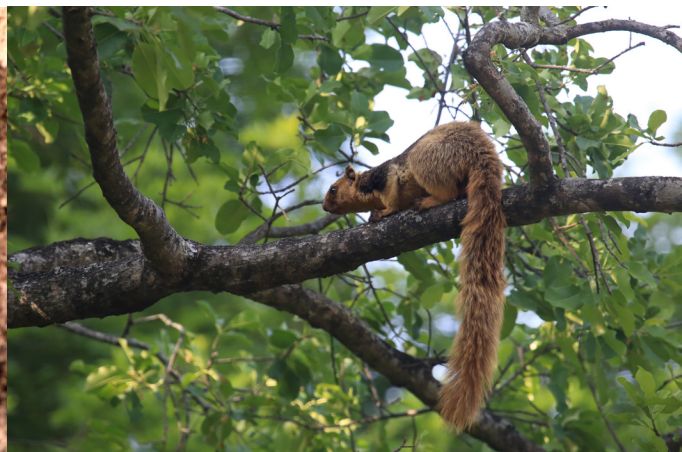
Striped Tiger *Danaus genatia* (Cramer, 1779)

The scientists, staff and research scholars of the centre examined 1310 specimens from Jharsuguda district, Odisha; Salem district, Tamil Nadu; Nellore, Chittoor, Vizag, East Godavari districts, Andhra Pradesh; Nagarkurnool, Mancheril, Khammam, Nirmal, Rangareddy districts, Telangana; Amrabad and Kawal Tiger Reserve, Telangana; and identified 11 species of aquatic coleoptera from 506 exs., 10 species of aquatic Hemiptera from 224 exs., 7 species of Ostracoda & Branchiopoda from 171 exs., 18 species of Mollusca from 101 exs., 44 species of fishes from 308 exs. 6 DNA sequences of fishes have been generated.

# WESTERN GHATS REGIONAL CENTRE, KOZHIKODE, KERALA



Flying Lizard *Draco dussumieri* Dumeril & Bibron



Grizzled giant Squirrel *Ratufa macroura* (Pennant, 1769)

Scientists of the centre identified 13 species of spiders (Arachnida: Araneae), 01 species of scorpions (Arachnida: Scorpiones) and 18 species of wasps (Hymenoptera: Crabronidae, Pteromalidae, Sphecidae, Tiphidae and Vespidae from Agasthyamalai Biosphere

Reserve and other parts of Western Ghats. One new species of the Hymenoptera family Pompilidae namely *Irenangelus acuminatus* Binoy & Girish Kumar, 2020 and two new species of the family Crabronidae namely *Alysson bengalensis* Girish Kumar, 2020 and *Alysson*

*himachalensis* Girish Kumar, 2020 are discovered and published. *Alysson triangularis* Krombein, 1985 (Hymenoptera: Crabronidae) reported for the first time from India. Scientists of the centre reviewed three research manuscripts on Hymenoptera for different

journals and served as a subject editor for Journal of Threatened Taxa, and also evaluated an answer script on Taxonomy for Semester-I M. Phil (Zoology) examination.



# ESTUARINE BIOLOGY REGIONAL CENTRE, GOPALPUR, ODISHA

During this month 413 specimens were identified which includes fish, molluscs, crabs, prawns, snakes and frogs. Five species of flying fishes i.e. *Cheilopogon intermedius* Parin, 1961, *Cheilopogon suttoni* (Whitely and



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*Cheilopogon intermedius* Parin 1961

Colefax, 1938), *Cheilopogon cyanopterus* (Valenciennes, 1846), *Cypselurus naressi* (Gunther, 1889), *Parexocoetus mento* (Valenciennes, 1847) are reported for the first time from West Bengal coast. Three deliberations were completed during this month under the Webinar Series Meet the Expert: let us discuss biodiversity.



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*Cheilopogon cyanopterus* (Valenciennes, 1846)

# ARUNACHAL PRADESH REGIONAL CENTRE, ITANAGAR

Scientists of the Centre conducted local surveys to Pagatara area of Itanagar Wildlife Sanctuary, Sangloputung Holongi River, and, Poma River, Papumpare District and collected insects, millipedes, planktons and crustaceans. Identified 3 spp. of Diplopoda, 7 spp. of Rotifera and 2 spp. of Cladocera from 53 specimens.

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Survey at Holongi River in Itanagar



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*Lepadella acuminata* (Ehrenberg, 1834)



# MARINE AQUARIUM AND REGIONAL CENTRE, DIGHA, WEST BENGAL

Local surveys conducted to Talsari, Odisha and Shankarpur fish landing centre on 11<sup>th</sup> and 12<sup>th</sup> October 2020 and collected 155 specimens belonging to Mollusca, Crustacea, Fishes, Nudibranch, Sponge, Seapen, Cirripedes, Sea Cucumber, Cnidaria and Echinodermata. Totally 337 specimens and 114 species were identified. Scientists reviewed two Ph. D. theses and five research manuscripts. Centre observed Swachh Bharat day on 1<sup>st</sup> October 2020.



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*Nerocila serra* Schioedte  
& Meinert, 1881



.....  
*Biarctus sordidus*  
(Stimpson, 1860)



# PUBLICATIONS

## PAPERS

1. Binoy, C., Wahis, R. and Girish Kumar, P. 2020. Review of the aberrant spider wasp genus *Irenangelus* Schulz (Pompilidae: Ceropalinae) from the Indian subcontinent with the description of a new species. *Zootaxa*, 4860(2): 257-266.
2. Chandrasekharan, V.K. and Palot, M.J. 2020. A first complete documentation of the early stages of Hampson's Hedge Blue *Acytolepis lilacea lilacea* Hampson, 1889 (Lepidoptera: Lycaenidae) from Western Ghats, Kerala, India. *Journal of Threatened Taxa*, 12(13): 16861-16867.
3. Chatterjee, P., Tripathy, B., Chandra, K., Saha, G.K. and Mondal, K. 2020. Climate Change Alarms the Survival of Near Threatened Species Malayan Giant Squirrel (*Ratufa bicolor* Sparrman, 1778) in India. *Mammal Study*, 45(4):1-14.
4. Das, R. R., Sreeraj, C. R., Mohan, G., Abhilash, K.R., Samuel, V.K.D., Ramachandran, P. & Ramachandran, R. 2020. Incursion of the killer sponge *Terpios hoshinota* Rützler & Muzik, 1993 on the coral reefs of the Lakshadweep archipelago, Arabian Sea. *Journal of Threatened Taxa* 12(14): 17009-17013.
5. Girish Kumar, P., Sheela, S. and Gaurav Sharma. 2020. Additions to the knowledge of the Tribe Alyssontini (Hymenoptera: Crabronidae: Bembicinae) in India with the description of two new

species of the genus *Alysson* Panzer. *Zootaxa*, 4861(2): 270-280.

6. Ghosh, D., Girish Kumar, P., Tripathy, B. and Chandra, K. 2020. An updated checklist of Vespidae (Insecta: Hymenoptera) from Arunachal Pradesh, India with new distributional records from the State. *Halteres*, 11: 36-43.
7. Gladston, Y., Ajina, S.M., Praveenraj, J., Kiruba-Sankar, R., Bineesh, K.K. & Roy, S. D. 2020. First record of African Sailfin Flying Fish *Parexocoetus mento* (Valenciennes, 1847) (Beloniformes: Exocoetidae), from the waters off Andaman Islands, India. *Journal of Threatened Taxa* 12(14), 17032-17035.
8. Joshi, S., Subramanian, K.A., Babu, R., Kunte, K., Swant, D. 2020. Three new species of *Protosticta* Selys, 1885 (Odonata: Zygoptera: Platystictidae) from the Western Ghats, India, with taxonomic notes on *P. murtoni* Fraser, 1922 and rediscovery of *P. rufostigma* Kimmins, 1958. *Zootaxa* 4858 (2): 151-185.
9. Kalawate, A.S., Dinesh, K.P. and Shabnam, A. 2020. DNA barcoding unravels three new species and a subspecies of *Olepa* Watson, 1980 (Lepidoptera, Erebididae, Arctiinae) from India, with morphotypes. *Journal of Insect Biodiversity*, 19(2): 44-60.

## BOOK

Deepa, J, Kailash Chandra, Sandeep Kushwaha & Devanshu Gupta 2020."Faunal Diversity of Bhoj Wetland, Bhopal, Madhya Pradesh, India" Wetland Ecosystem series:22:1-284.DZSI, Kolkata

10. Kar, D., Khynriam, D., Das, B. and Das, S. 2020. A recent taxonomic study of the fish from the Jinam River in Dima Hasao biodiversity hotspot region of Assam (India). *Transylvanian Review of Systematical and Ecological Research*, 22.2, *The Wetlands Diversity*, 87-102.
11. Kundu, S., Kumar, H., Tyagi, K., Chandra, K. and Kumar, V. 2020. DNA barcoding of selected short-horned grasshoppers (Orthoptera: Acrididae) from Indian Himalayan region. *Mitochondrial DNA Part B*. DOI: 10.1080/23802359.2020.1830725.
12. Nashad, M., Mohapatra, A., Varghese, S. P., Ramalingam, L., Bineesh, K.K. & Mohanty, S. R. 2020. A new white-spotted moray eel, *Gymnothorax aurocephalus* sp. nov. (Muraenidae: Muraeninae) from Andaman Sea, India, *Zootaxa* DOI: <https://doi.org/10.11646/zootaxa.4652.2.8>.
13. Rameshkumar, A., Kazmi, S. I. and Majumder B., 2020. Parasitic wasps of the family Encyrtidae Walker (Hymenoptera: Chalcidoidea) from Dadra and Nagar Haveli, India. *Journal of Biological Control*, 34(2): 124-131, 2020, DOI: 10.18311/jbc/2020/24917.
14. Ray D., Mohapatra A. & Mishra S.S. 2020. First report of five flying fishes (Teleostei: Beloniformes: Exocoetidae) from West Bengal coast. *Indian Journal of Geo Marine Sciences*, 49(9): 1560-1564.

15. Shanginam BD & Kosygin, L. 2020. A New Sisoriid Catfish of the Genus *Exostoma* Blyth from the Chindwin-Irrawaddy Drainage in Northeastern India (Teleostei: Siluriformes). *Copeia*, 108(3): 545-550.
16. Sharma, L.K., Thakur, M., Chandra, K. and Joshi, B.D. 2020. Dimensions of changing perception towards wildlife conservation in East Siang district of Arunachal Pradesh, Eastern Himalayas. *Global Ecology and Conservation*, DOI: 10.1016/j.gecco.2020.e01265.
17. Singh, A., Thakur, M., Sharma, L.K. and Chandra, K. 2020. Designing a multi-epitope peptide based vaccine against SARS-CoV-2. *Sci Rep* 10, 16219. <https://doi.org/10.1038/s41598-020-73371-y>.
18. Sinha B. 2020. Taxonomy and diversity of zooplankton in Lower Arunachal Pradesh in the Eastern Himalayas of India. *Occasional Paper* No. 406: 1-60. (Published by the Director, ZSI, Kolkata).
19. Suganthi, A. Venkatraman, C., Bharath, B, Perinbam, K. 2020. Seasonal Variation of Physico-Chemical Parameters and Their Influence on Phytoplankton Community of Muthupet Estuary, Southeast Coast, Tamil Nadu, India. *Advances in Zoology and Botany* 8(3): 122-131, 2020. DOI: 10.13189/azb.2020.080307.
20. Thakur, M., Singh, A., Joshi, B.D., Ghosh, A., Singh, S.K., Singh, N., Sharma, L.K. and Chandra, K. 2020. Time-lapse sentinel surveillance of SARS-CoV-2 spread in India. *PLoS ONE* 15(10): e0241172. <https://doi.org/10.1371/journal.pone.0241172>.
21. Terine, J. B., Das. D. and Girish Kumar, P. 2020. A Checklist of Family Mutillidae Latreille, 1802 (Insecta: Hymenoptera) from India. Version 1.0. Updated till August 2020. Available at <http://zsi.gov.in>
22. Tudu, P.C. & Anil Mohapatra. 2020. Further evidence of occurrence of *Bufo nariaper elegans* Beu, 1987 (Gastropoda: Bursidae) from Indian waters. *Indian Journal of Geo Marine Sciences*, 49(09): 1599-1601.
23. Vasanthakumar, D., Senthilkumar, P. and Sharma, R.M. 2020. First report of mango leaf gall midge *Procontarinia robusta* Li, Bu & Zhang (Diptera: Cecidomyiidae) from India. *Journal of Threatened Taxa*, 12(13): 16924–16926.
24. Williams, P. H., Altanchimeg, D. Byvaltssev, A., De jonghe, R., Jaffar, S., Japoshvili, G., Sih Kahono, Liang, H., Mei, M., Monfared, A., Nidup, T., Raina, R., Ren, Z., Thanosing, C., Yanhui Zhao, Y., and Orr, M. C., (2020) .Widespread polytypic species or complexes of local species? Revising *Melanobombus* bumblebees world-wide (Hymenoptera: Apidae) , *European Journal of Taxonomy* 719: 1–120.
5. Shakoar Ahmed and Sandeep Kushwaha. 2020. Annelida (Oligochaetes, Hirudinea) in Faunal Diversity of Bhoj Wetland, Bhopal, Madhya Pradesh, India (A Ramsar Site), *Wetland Ecosystem Series*, 22: 1-354 (Published by the Director, Zool. Surv. India, Kolkata).

## Popular articles

1. Dr. Uttam Saikia, Sci-C, wrote a popular article titled, “*The Other World: The caves of Meghalaya with unique faunal diversity needs scientific assessment*” in the English daily, The Meghalaya Times on 25th October, 2020.
2. Sh. Bhaskar Saikia, Sr. Zool. Asstt., wrote a popular article on the Abor Expedition of 1911-12, titled “*Into Distant Horizon*” in the English daily, The Assam Tribune on 11<sup>th</sup> October, 2020.

## Webinars Organized

1. ANRC, Port Blair organized Webinar on the Biodiversity of Andaman & Nicobar Islands on 5<sup>th</sup> October 2020 for the Higher Secondary students of Navy Children School, Port Blair.
2. MARC, Digha organized webinar entitled “The Mistaken Mermaid of the Sea – Dugong, the Sea Cow” on 15<sup>th</sup> October 2020.
3. Coleoptera section, ZSI Headquarters, Kolkata organized National Webinar on Beetle (Insecta: Coleoptera) Diversity of India on 1<sup>st</sup> October, 2020.
4. EBRC, Gopalpur-on-Sea organized 4 webinars under the Webinar Series Meet the Expert: let us discuss biodiversity on 01.10.2020 on “Scorpions: Incredible Arachnids”; on 9. 10.2020 on “Wildlife Conservation: Contributions from Odisha to National Projects” and on 16.10.2020 on “Taxidermy as a science towards preservation of our Animal Wealth”.



5. EBRC, Gopalpur on Sea organized a virtual training programme on “Identification of marine ornamental fishes” for undergraduate students of Pran Nath Autonomous College, Khordha on 14.10.2020.

## Meetings Attended

1. Dr. Kailash Chandra, Director, ZSI presented the keynote address in the “National Webinar on Beetle (Insecta: Coleoptera) Diversity of India” on 1<sup>st</sup> October, 2020.
2. Dr. Kailash Chandra, Director, ZSI attended the Inaugural Programme on AiDRR, jointly organized by NIDM & Wildlife SOS on 5<sup>th</sup> October, 2020 via video conferencing.
3. Dr. Kailash Chandra, Director, ZSI Attended the book release event organised on 9<sup>th</sup> October, 2020 at Acharya Jagadish Chandra Bose Botanical Garden, Howrah. Shri Babul Supriyo, MoS, MoEFCC released following books “Plant Discoveries, 2019”, “Flowering Plants of India”, “Algae of India” of Botanical Survey of India; “Animal Discoveries 2019: New Species and New Records”, “Skinks of India” & “Annual Report 2018-2019” of Zoological Survey of India.
4. Dr. Kailash Chandra, Director, ZSI chaired the meeting for IUCN Red list Assessment of Indian Fauna through video conferencing on 14<sup>th</sup> October, 2020, organised by ZSI, Kolkata.
5. Dr. Kailash Chandra, Director, ZSI attended the meeting with Director, Botanical Survey of India on Review of Modified Flexible Complementing Scheme (MFCS) on 27<sup>th</sup> October, 2020 at ZSI, Kolkata at Baini Prasad Hall.
6. Dr. Kailash Chandra, Director, ZSI organized Hindi Pakhwada Prize Distribution at Annandale Hall, ZSI, HQs., on 28.10.2020.
7. Dr. Kailash Chandra, Director, ZSI chaired the Monthly Scientific Consultative Meeting of Regional Centres and Head Quarters of ZSI via video conferencing on 29<sup>th</sup> September, 2020 at Baini Prasad Hall, ZSI, HQs.
8. Dr. Gopinathan Maheswaran, Scientist-E participated in the 8<sup>th</sup> Governing Body Meeting on Vulture Conservation Breeding Centre on 5 October, 2020 jointly organized by the West Bengal Forest Department and BNHS at Aranya Bhawan, Kolkata.
9. Dr. Deepa Jaiswal, Scientist-E attended “2nd Meeting of Reconstituted State Board for Wildlife” by Telangana State Forest Department on 5<sup>th</sup> October, 2020.
10. Dr. U. Saikia, Scientist-C attended the Governing Council Meeting of Meghalaya Zoo Project Implementation Society on the 19<sup>th</sup> October, 2020; attended a virtual meeting on “IUCN Red List Assessment of Indian Fauna” held under the Chairmanship of DZSI on 14<sup>th</sup> October, 2020.
11. Dr. C. Sivaperuman, Scientist-E served as Chief Guest to deliver inaugural address for the online training Organized by CPREEC, Port Blair unit to the teachers of A & N islands on 5<sup>th</sup> October 2020; attended meeting as a member, State Level Environment Impact Assessment Committee to review the EIA proposal submitted by various agencies on 8<sup>th</sup> October 2020 at Department of Science and Technology, A & N Administration; attended Annual General Body Meeting of Andaman and Nicobar Islands Forests Development Corporation as nominated by MoEF&CC at Department of Environment and Forests, Port Blair.
12. Dr. S. Sambath, Scientist-E, as an external member attended 29<sup>th</sup> Research Advisory Group of Tropical Forest Research Institute, Jabalpur

(M.P.) for the evaluation of research proposals on 13.10.2020 through virtual mode.

13. Dr. Pratyush P Mohapatra, Scientist-D, as one of the lead authors attended meeting on Developing Guidelines for Mitigating Human-Snake Conflict for Ministry under the programme on Indo-German Technical Cooperation Project on ‘Human-Wildlife Conflict Mitigation in India’.
14. Dr. Kamal Saini attended the one-week National e-training on “Wildlife Conservation and Management” organized by the College of Forestry, Dr. Panjabrao deshmukh Krishi Vidyapeeth, Akola Maharashtra from October 2-6, 2020.

## Lectures Delivered

1. Dr. Sanjeev Kumar, Scientist-E delivered invited lecture on the occasion of closing ceremony of Wildlife Week 2020 organized by Office of Head of Forest & PCCF, Forest Department, Govt. of Rajasthan on 7<sup>th</sup> October, 2020 through Google meet platform.
2. Dr. Gopal Sharma Scientist E delivered a lecture on Dolphin Day 2020 organized by Department of Environment, Forest and Climate Change, Patna Division at Gandhi Ghat, Patna.
3. Dr. K.P. Dinesh, Scientist-D, presented a talk on ‘DNA Barcoding in assessing biodiversity’ to the students of the Providence Women’s College, Kozhikode on 26<sup>th</sup> October 2020.
4. Dr. Kamal Saini delivered an online invited talk on “Environment & Biodiversity” to BSc and MSc students of Career Point University, Hamirpur (HP) on 13-10-2020.

5. Dr. Souvik Sen, Scientist-D delivered a talk on “Diversity of spiders of Western Ghats: An overview” on 17.10.2020 in a Webinar organized by FFA group in collaboration with Seva Bharati Mahavidyalaya, Kappari, Jhargram and Drishticon Organization.
6. Dr. Chitra J, Scientist C delivered lecture entitled” Role of Taxonomy in Faunal diversity and conservation on 10-10-2020 organized by P.G. & Research Department of Zoology, Government Arts college, (Autonomous), Kumbakonam, Tamil Nadu.
7. Dr. Sathy delivered a talk in National webinar on “Taxidermy as a Science towards preservation of our Animal Wealth”, organized by Estuarine Biology Regional Centre, Gopalpur-on-Sea, Odisha. On 16-10-2020.
8. Dr. Ch. Satyanarayana delivered a talk on “Restoration of Corals with special reference to the remarkable restoration efforts of Zoological Survey of India” as a guest of honour in the Inaugural of the Association of the Zoology department titled “ZOION” of Justice Basheer Ahmed Sayeed College for Women (Autonomous) Chennai on 27.10.2020.
9. Dr. Muhamed Jafer Palot, Scientist-B, delivered a talk on ‘Faunal diversity of the Western Ghats’ in a webinar jointly organized by the Zoology Association of Providence Women’s College, Kozhikode and the Extension Division of the Kerala Forest Department in connection with the Wildlife Week celebration on 3<sup>rd</sup> October 2020; a talk on ‘Importance of Mangrove ecosystem’ in a webinar organized by the Social Forestry Division of Kannur district in connection with the Wildlife Week celebration on 4<sup>th</sup> October 2020; on ‘Pelagic bird monitoring in Kerala’ in a webinar jointly organized by the Social Forestry Division of Kozhikode and the Malabar Natural History Society in connection with the Wildlife Week celebration on 6<sup>th</sup> October 2020 and on ‘Mangrove biodiversity of Kerala’ in a workshop organized by the World-Wide Fund for Nature, Kerala State Office, Thiruvananthapuram on 10<sup>th</sup> October 2020.