



Cover

Asian Elephant *Elephas maximus* Linnaeus, 1758 to commemorate the World Elephant Day on 12th August 2020 [Photo: ZSI Headquarters]

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Email: director@zsi.gov.in
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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



Indeed, it is my proud privilege to present the August 2020 issue of the E-News of Zoological Survey of India. Coping with new normal ameliorated in the prevailing pandemic caused by deadly virus, the ZSI is discharging its duties along with rest of the government functionaries. The knowledge acquired by ZSI is being disseminated to the different section of people periodically and in the current scenario online deliberation is considered as an effective mode to reach the mass in which the Regional Centres of ZSI organized over 11 Webinars on different aspects of biodiversity. Near about 4500 participants from 945 academic and research institutions and scientific departments were benefited by the lectures delivered by the scientists of ZSI and invited experts in the webinars. ZSI has taken a new initiative to augment the species to strengthen the National Zoological Collections under which 20 species have been newly added in the

repository during the month. Seven species and a genus belonging to Insecta, Crustacea and Reptilia have been described as new to science while 9118 specimens comprising 1534 species covering Protozoa to Mammalia identified during the month. Thirty-five publications including 3 books, 28 papers and 4 book chapters were made by the scientists, of which 14 are published in SCI journals with impact factor. As a result of molecular taxonomical studies, 33 DNA sequences have been generated and uploaded in NCBI and BOLD. To create an opportunity for collaborative studies, MoU has been signed with Loyola College, Chennai to undertake entomological research. Studies on insect pollinators in Himalayan ecosystem, macro invertebrates in Central India and management on the menace of feral dogs in Himachal Pradesh have been executed by Desert Regional Centre, Jodhpur; Central Zone Regional Centre, Jabalpur; and ZSI Headquarters respectively as an extra-mural research through grants-in-aid programme towards the technical advancement in surveys, Mobile App has been introduced to collect foolproof data for faunal habitat analysis and geo-spatial platform for faunal inventory and distributional pattern. Short-term surveys have been undertaken sporadically by regional centers amidst the unrest situation while attempting to resume the long-term faunal surveys in the coming months. I appreciate all the officers and staff of ZSI for their significant contributions during the month in terms of publications, species recordings and dissemination of knowledge through webinars.

Jai Hind.

Dr. KAILASH CHANDRA
Director

September 3, 2020
Kolkata

ZSI

E-NEWS

HEADQUARTERS, KOLKATA

Altogether 4704 specimens comprising 356 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. *Sacada dzonguensis* N. Singh, Kirti & Ranjan, sp. nov. (Family Pyralidae) and *Sacada umtasorensis* N. Singh, Kirti & Ranjan, sp. nov. (Family Pyralidae) and *Pseudosacada* N. Singh, Kirti & Ranjan, gen. nov. (Family Pyralidae) and *Pseudosacada flexuos* (Snellen, 1890), comb. nov. under Lepidoptera; *Cnemaspis chengodumalaensis* Cyriac, Palot, Deuti & Umesh, 2020 and *Cnemaspis zacharyi*

Cyriac, Palot, Deuti & Umesh, 2020 under Reptilia; *Dotilla fraternalis* Mitra et al., 2020 under Crustacea have been described as new to science. Photographs of the type specimens of *Psammoecus* spp. (Coleoptera) to Dr. Michael Karner, Voluntary Scientist, Sektion Entomologie I, Germany and *Perritopus maculatus* Paiva, 1919 (Hemiptera) to Herbert Zettel, Natural History Museum, Vienna have been provided on request. Twenty-seven species of oribatid mites were identified for Department of Ecology and Environmental Science, Assam University. Inputs for the SDG 15.8 – Invasive Species have been provided to the Ministry of Environment, Forest and Climate Change. Scientists reviewed the manuscripts and adjudicated a Ph.D. thesis for Bharathidasan

University. Dr. Kailash Chandra, Director, Zoological Survey of India hoisted the National Flag on the occasion of 74th Independence Day. Dr. Kailash Chandra made keynote address in all the webinars organized by the Regional Centres. Training on Monitoring of Wildlife Species for Stakeholder under the National Mission on Himalayan Studies funded project “Conservation of threatened vertebrates of Indian Himalayan region through long term monitoring and capacity building” has been organized on 10th August 2020 for the benefit of Forest Department, Police Department, JFMCs, Heads of local communities at Darjeeling, West Bengal.



Indian Rhinoceros
Rhinoceros unicornis
Linnaeus, 1758



NORTH EASTERN REGIONAL CENTRE, SHILLONG, MEGHALAYA

Local surveys conducted to Fruit's Garden, Motinagar, Botanical Survey of India (BSI) Garden, East Khasi Hills District, and BSI Experimental Botanic Garden at Umiam, Ri-Bhoi District in Meghalaya on 4th, 5th and 19th August, 2020 respectively. A total of 329 specimens comprising 113 species including 75



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Cerogria gozmanyi
Merkal, 2007

spp. of Lepidoptera, 2 spp. of Crustacea, 8 spp. of Coleoptera, 17 spp. of Pisces, 5 spp. of Amphibia, 4 spp. of Reptilia and 2 spp. of Mammalia were identified.



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Independence Day
Celebration at ZSI-
NERC, Shillong

WESTERN REGIONAL CENTRE, PUNE, MAHARASHTRA

Nine species of Odonata and 2 spp. of Amphibia were identified from 43 specimens. Four DNA Barcode sequences of amphibian species *Sphaerotherca pashchima* (MT791924, MT791925, MT795793 and MT795794)

have been generated. Two wind-blown pelagic bird specimens for the Kerala Forests & Wildlife Department and 12 species of Acrididae (Insecta: Orthoptera) for ZSI-FBRC, Hyderabad have been identified on request.



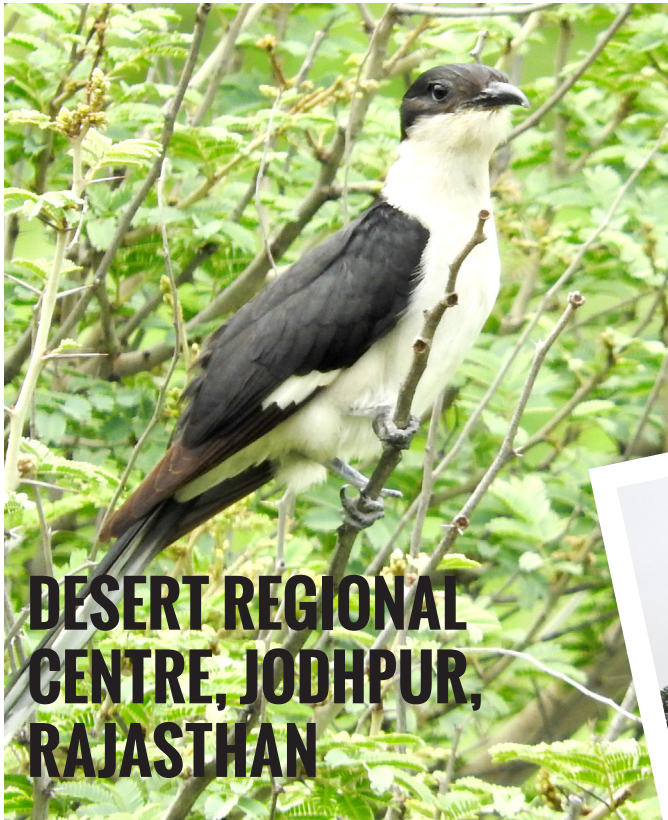
////////////////////////////////////
Independence Day Celebration
at ZSI-WRC, Pune

CENTRAL ZONE REGIONAL CENTRE, JABALPUR, MADHYA PRADESH

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Common castor
Ariade merione
Cramer 1779
feeds on the
fruit of *Annona*
squamosa



Forty one species including 16 spp. of Lepidoptera, 6 spp. of Arachnida, 9 spp. of Mollusca, 3 spp. of Amphibia and 7 spp. of Reptilia were identified, out of 214 specimens. Requisite details about *Catopsila* spp. infestation in Korba town have been provided to Divisional Forest Officer. Provided inputs for People's Biodiversity Register for Madhya Pradesh State Biodiversity Board.



DESERT REGIONAL CENTRE, JODHPUR, RAJASTHAN

Clamator cobinus (Boddaert, 1783)

Celebration of Independence
Day at ZSI-DRC, Jodhpur

Surveys conducted to Luni, Mithari, Sukari and Jawai rivers and catchment area of Hemawas Dam in Jodhpur, Pali District, Rajasthan on 20th and 26th August 2020. Three hundred and sixty one specimens including 25 spp. of Lepidoptera, 5 spp. of Coleoptera, 2 spp. of Hemiptera, 13 spp. of

Hymenoptera and 17 spp. of Pisces were identified. Besides 3 spp. of Reptilia, 4 spp. of Aves and 5 spp. of Mammalia have been observed by direct sightings during the survey. Scientists of the Centre reviewed two manuscripts for the in-house journal.



NORTHERN REGIONAL CENTRE, DEHRADUN, UTTARAKHAND

Scientists of the centre identified and registered 30 spp. of Lepidoptera, 05 spp. of Odonata, 05 spp. of Nematoda, 08 spp. of Protozoa, 05 spp. of Pisces and 03 spp. of Annelida from different ecosystem of Punjab, Uttarakhand, Himachal Pradesh and Uttar Pradesh. Three faunal species have been sequenced and submitted to NCBI.



Long billed Vulture,
Gyps indicus (Scopoli,
1786)

Independence
day celebration at
NRC Dehradun



SOUTHERN REGIONAL CENTRE, CHENNAI, TAMIL NADU



Little Egret
Egretta garzetta ·
(Linnaeus, 1766)

During the month, scientists of the center participated in various webinars organized by ZSI and other institutions. Scientists identified 97 species from 355 examples belonging to different faunal groups. Twenty DNA sequences belonging to different faunal groups were generated while nine sequences were published.



Pied Kingfisher *Ceryle
rudis* (Linnaeus, 1766)



White throated
Kingfisher *Halcyon
smyrnensis* (Linnaeus,
1758)

GANGETIC PLAINS REGIONAL CENTRE, PATNA, BIHAR

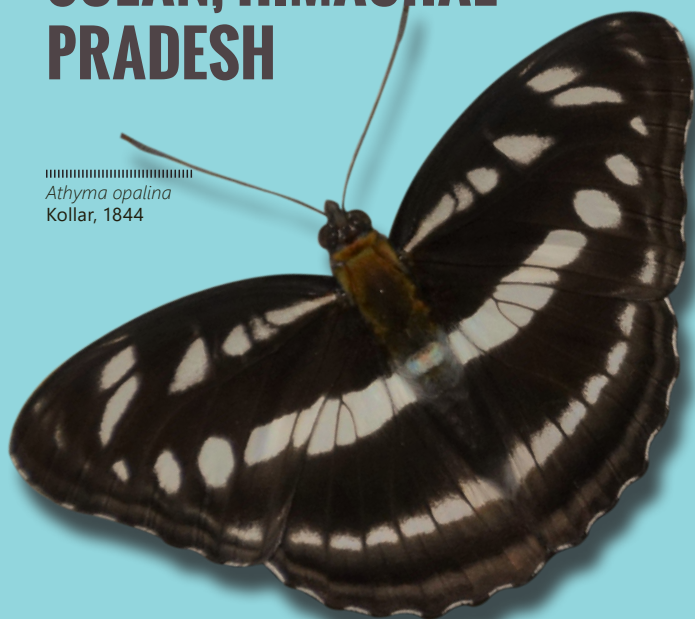
One hundred and seven specimens comprising 9 spp. of Mollusca and 20 spp. of Lepidoptera have been identified. Scientist of the Centre reviewed 2 manuscripts for the journal.



*Platanista gangetica
gangetica* Roxburgh, 1801

HIGH ALTITUDE REGIONAL CENTRE, SOLAN, HIMACHAL PRADESH

.....
Athyma opalina
Kollar, 1844



.....
Common
Hoopoe *Upupa
epops* Linnaeus,
1758

Faunistic identification of the Centre includes 23 spp. of Lepidoptera and 07 species of Ephemeroptera, 01 sp. of Orthoptera and 06 spp. of Herpetofauna from 232 specimens. Four papers on Lepidoptera and two papers on vertebrates have been reviewed for National Journals.

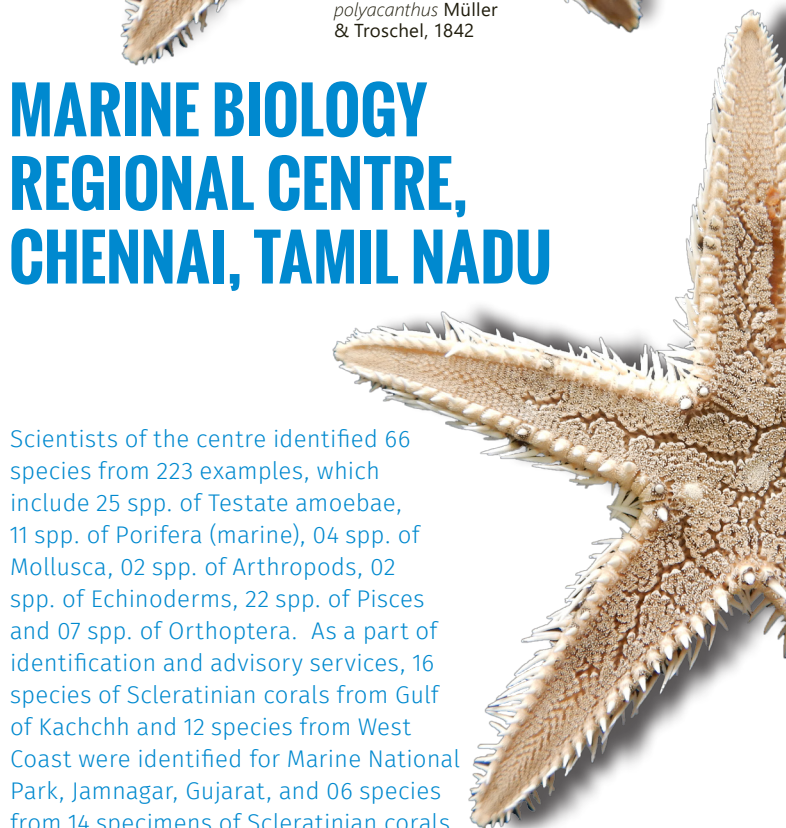


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*Astropecten
polyacanthus* Müller
& Troschel, 1842

MARINE BIOLOGY REGIONAL CENTRE, CHENNAI, TAMIL NADU

Scientists of the centre identified 66 species from 223 examples, which include 25 spp. of Testate amoebae, 11 spp. of Porifera (marine), 04 spp. of Mollusca, 02 spp. of Arthropods, 02 spp. of Echinoderms, 22 spp. of Pisces and 07 spp. of Orthoptera. As a part of identification and advisory services, 16 species of Scleratinian corals from Gulf of Kachchh and 12 species from West Coast were identified for Marine National Park, Jamnagar, Gujarat, and 06 species from 14 specimens of Scleratinian corals from Visakhapatnam coast for Marine Aquarium Research Centre, Digha.

.....
Montipora grisea
Bernard, 1987



ANDAMAN AND NICOBAR REGIONAL CENTRE, PORT BLAIR

.....
Nephila pilipe
Fabricius 1793

.....
Theretra clotho
Drury 1773

A total of 319 species including 85 spp. of scleractinian corals, 63 spp. of molluscs, 13 spp. of Echinoderms, 2 spp. of bryozoan and 4 spp. of fishes, were identified from the marine environment and 114 spp. of Lepidoptera, 3 spp. of Odonata, 25 spp. of Arachnida, 2 spp. of Hemiptera, 1 sp. of Hymenoptera, 1 sp. of Coleoptera, 5 spp. of Reptilia and 1 sp. of Aves were identified from terrestrial environment. These identifications were made out of 246 specimens and photographs. Meta data for 500 registered specimens has been prepared.

SUNDERBAN REGIONAL CENTRE, CANNING, WEST BENGAL

.....
Independence
Day celebration
at ZSI-SBRC,
Canning

.....
*Rhacophorus
malabaricus*
Jerdon 1870

Survey was conducted in and around the Kanthalberia Dock Ghat, South 24 Parganas, West Bengal on 13th August 2020. During the month 23 specimens belonging to 5 species of amphibians were identified from the backlog collection.





Terpsiphone paradise
(Linnaeus, 1758)

Grey Slender Loris
Loris lydekkerianus
Cabrera, 1908



WESTERN GHATS REGIONAL CENTRE, KOZHIKODE, KERALA

FRESHWATER BIOLOGY REGIONAL CENTRE, HYDERABAD, TELANGANA

The scientists, staff and research scholars of the centre examined 934 specimens from East Godavari district, Andhra Pradesh; Nagarkurnool, Rangareddy districts, Amrabad and Kawal Tiger Reserve Wyra Lake, Telangana; Satara and Sindhudurg districts, Maharashtra. Seven species of decapods, 11 spp. of aquatic insects, 21 spp. of butterflies, 13 spp. of ostracod & cladocera, 13 spp. of molluscs and 43 spp. of fishes have been identified. Seven DNA sequences of fishes have been submitted to NCBI and BOLD.

Scientists of the centre identified 5 spp. of preying mantids (Insecta: Mantodea), 10 spp. of spiders (Arachnida: Araneae), 6 spp. of wasps (Hymenoptera: Vespidae), 12 species of Blattodea, 1 sp. of Amphibia (Gymnophiona) and 9 spp. of reptiles (Squamata) collected from Agasthyamalai Biosphere Reserve, other parts of Western Ghats and Andaman & Nicobar Islands. Two new species of the hymenoptera family Ampulicidae namely *Dolichurus chareshi* Anagha & Girish Kumar, 2020, *Dolichurus sahyadriensis* Anagha & Girish Kumar, 2020 and one new species of the family Mutillidae namely *Odontomutilla*

sairandhriensis Terine, Girish Kumar & Lelej, 2020 are discovered and published. *Dolichurus aridulus* Krombein, 1979 (Hymenoptera: Ampulicidae) reported for the first time from India. Scientist of the centre reviewed 1 research manuscript on Hymenoptera for the journal of Threatened Taxa. Identified photographic images of five preying mantids, one spider, one wasp and one reptile specimens received from different institutes/NGOs.



Nycticorax nycticorax
(Linnaeus, 1758)



Malabar Grey Hornbill
Ocyrceros griseus
(Latham, 1719)

ESTUARINE BIOLOGY REGIONAL CENTRE, GOPALPUR, ODISHA

Eighty species including fishes, molluscs, lobsters, stomatopods, lice, crabs, prawns etc. from 271 specimens have been identified. *Diaphenchelys dalmatian* Hibino, Satapoomin & Kimura 2017 is reported for the first time from the Indian waters on the basis of one specimen collected from the Paradip coast.



Diaphenchelys dalmatian
Hibino, Satapoomin &
Kimura 2017

ARUNACHAL PRADESH REGIONAL CENTRE, ITANAGAR

Conducted surveys to Julie, Papum Pare district on 7th August, 2020; Chimpu & Lower Chimpu area of Itanagar Wildlife Sanctuary on 18th August 2020; Kulia basti, Jotte village, Papumpare on 22nd August 2020; Jote Village, Lobby (Itanagar WLS) and Poting (Lower Subansiri) on 31st July 2020, 11th and 15th August 2020. Altogether 180 specimens comprising 58 species which includes 2 spp. of Diplopoda, 9 spp. of Rotifera, 1 sp. of Amphibia, 1 sp. of Reptilia and 30 spp. of Lepidoptera etc. have been identified. A manuscript has been reviewed by the scientist of the Centre.



Brachionus bennini
Leissling, 1924

Garra birostris Nebeshwar
Vishwanath 2013



MARINE AQUARIUM AND REGIONAL CENTRE, DIGHA, WEST BENGAL

Conducted 2 days local survey to assess the landing of by-catch fauna in the Digha Shankarpur fish landing centre on 12th and 19th August 2020. A total of 435 specimens and 89 species were identified and deposited in National Zoological Collections. It includes 71 spp. of Mollusca, 5 spp. of Cnidaria, 5 spp. of Arthropoda, 1 sp. of Brachiopoda and 7 spp. of Pisces. Scientists of the Centre reviewed 2 manuscripts for the international journals and adjudicated two Ph.D. thesis for University of Madras and Manonmaniam Sundaranar University.

Conchoecetes
artificiosus
(Fabricius, 1798)

Doclea rissoni
Leach, 1815

BOOKS

1. Raghunathan, C., 2020. Coral and associated fauna in Neil Island, South Andaman. *Occasional Paper* No.404: 1-148 [Published by the Director, Zoological Survey of India].
2. Ilona Jacinta Kharkongor, Bhaskar Saikia, Dimos Khyntiam, Jennifer Lyngdoh and Rita Deb, 2020. Fauna of Majuli Island, Assam. *Occasional Paper* No.402: 1-62 [Published by the Director, Zoological Survey of India].
3. Kosygin, L., Gurumayum, S.D., & Mishra, S.S. 2020. Pictorial guide to Brackish Water Ornamental Fishes of Odisha. Published by Director, Zoological Survey of India, Kolkata, 80 pp.

PAPERS

1. Anagha, S., Girish Kumar, P. and Sureshan, P.M. 2020. Additions to the knowledge of the genus *Dolichurus* Latreille (Hymenoptera: Ampulicidae) from India with the description of two new species. *Zootaxa*, 4821(1): 121-134.
2. Aneesh, P. T., Bruce, N. L., Nashad, M., Bineesh, K., Hatha, A. A. M., 2020. A new species of *Renocila* Miers, 1880 (Crustacea: Isopoda: Cymothoidae), a fish parasitic isopod from Andaman Island, India. *Marine Biology Research*. 1-15.
3. Bharti, D., Brusa, F., Kumar, S. and Chandra, K. 2020. First record of *Stenostomum sphagnetorum* (Platyhelminthes, Catenulida) from India. *Zootaxa*, 4816(3): 392-396.
4. Bineesh, K.K., R. Kiruba Sankar, M. Nashad, O.R. Arun Ratheesh, R.R. Kumar and V.S. Basheer, 2020. Report on Sicklefins Weasel Shark *Hemigaleus microstoma* (Bleeker, 1852) Carcharhiniformes : Hemigaleidae) from the Andaman Islands, Indian EEZ with DNA barcodes. *Rec. Zool. Surv. India*, 120(2): 153-159.
5. Cyriac, V.P., Palot, M.J., Deuti, K & Umesh, P.K., 2020. A preliminary 16S rRNA phylogeny of the Indian *Cnemaspis* Strauch, 1887 (Squamata: Gekkonidae) with the description of two new species from the *C. wynadensis* clade. *Vertebrate Zoology*, 70(2): 171-193.
6. Das, P., Chandra, K. and Gupta, D. 2020. Redescription of *Afissa gibbera* (Crotch, 1874) and *Uniparodentata circummaculata* (Pang & Mao, 1977) (Coccinellidae: Epilachnini) from India. *Zootaxa*, 4822(2): 248-256.
7. De los Ríos-Escalante, C. Raghunathan, L. Kanagu and C. Stella, 2020. Anatomy of soft body of *Pugilina cochlidium* (Linnaeus, 1758) and *P. erecta* (Vermeij & Raben, 2009) (Neogastropoda: Melongenidae) from Thondi Coast-Palk Bay in Tamil Nadu, India. *Brazilian Journal of Biology*, <https://doi.org/10.1590/1519-6984.226051> ISSN 1519-6984 (Print) ISSN 1678-4375 (online).
8. Gupta, S.K., Chandra, K. and Yin, H.X. 2020. A new species of the genus *Tagasta* Bolivar, 1905 (Orthoptera: Pyrgomorphidae) from India. *Zootaxa*, 4822(3):446-450.
9. Joshi, B.D., Singh, V., Rana, H.S., Singh, A., Singh, S.K., Chandra, K., Sharma, L.K. and Thakur, M. 2020. New insights of zoogeographical distribution of Himalayan goral (*Naemorhedus goral*) from Indian Himalayan Region. *bioRxiv*, doi: <https://doi.org/10.1101/2020.08.05.239087>.

10. Kanimozhi C., Ramesh. V., Pathania, P.C. and Rameshkumar, A., 2020. Diversity of Butterflies from Different Agroecosystem with their Host Plants in Namakkal District, Tamil Nadu, India. *Applied Ecology and Environmental Sciences*, 8 (5): 315-318.
11. Kanimozhi, C., Ramesh, V., Pathania, P.C. and Rameshkumar, A., 2020. Butterflies Diversity (Lepidoptera: Papilionoidea) in Agro-Ecosystems of Tiruchirappalli District of Tamil Nadu, India. *Uttar Pradesh Journal of Zoology*, 41(10): 15-35.
12. Kirti, J., Kaur, M., Sidhu, A. K. and Singh, N., 2020. Taxonomic revision of the Genus *Pieris* Schrank (Lepidoptera: Pieridae) from India. *Journal of Applied and Natural Science* 12(3): 328 - 343.
13. Kundu, D., Lalremsanga, H.T., Baikzuala, L., Chandra, K. and Kumar, V. 2020. DNA barcoding reveals distinct population of *Dopasia gracilis* (Squamata: Anguillidae) in Mizoram, Northeast India. *Mitochondrial DNA Part B*, 5(3): 3247-3251 <https://doi.org/10.1080/23802359.2020.1810147>.
14. Lelej, A.S., Terine, J.B., Girish Kumar, P., Das, D. and Sureshan, P. M. 2020. Review of the genus *Odontomutilla* Ashmead, 1899 (Hymenoptera: Mutillidae) of the Indian subcontinent, with description of two new species. *Zootaxa*, 4822(2): 191-208.
15. Mahapatra, D, R C Panigrahy, S Panda & B Tripathy. 2020. New record of a marine bivalve (Family: Pinnidae) from Chilika Lagoon, Bay of Bengal. *Indian Journal of Geo Marine Sciences* Vol. 49 (06), pp. 1039-1044. <http://nopr.niscair.res.in/handle/123456789/54932>
16. Mandal, C.K., Tariyal, H., Naiwal, P. and Ghosh, S., 2020. *Haemadipsa champhaiensis* sp. nov. (Hirudinea: Haemadipsidae): A new leech from Mizoram, India. *J. Appl. Zool. Res.* 31(1): 86-90.
17. Mandal, C.K., Tariyal, H., Naiwal, P. Thakur, D., Tomar, V. and Ghosh, S., 2020. *Haemadipsa lolegaoensis* sp. nov. (Hirudinea: Haemadipsidae): A new leech from West Bengal, India. *J. Appl. Zool. Res.* 31(1): 81-85.
18. Mitra, S., Trivedi, J and Mendoza, J.C. E. 2020. On the two forms of *Dotilla intermedia* De Man, 1888 (Crustacea: Brachyura: Dotillidae) from the Bay of Bengal, India, with description of a new species. *Zootaxa* 4809(3): 521-534.
19. Mohanty, S.R. and A. Mohapatra, 2020. First report and range extension of *Diaphenenchelys dalmatian* (Muraenidae: Muraeninae) to the Bay of Bengal, Indian Coast. *Journal Applied Ichthyology*. <https://doi.org/10.1111/jai.14078>
20. Páll-Gergely Barna, András Hunyadi, Jozef Grego, Sheikh Sajjan, Basudev Tripathy & Zhe-Yu Chen. 2020. A review of the Diapheridae (Gastropoda: Eupulmonata: Streptaxoidea), with special emphasis on India and Myanmar. *Raffles Bulletin of Zoology* 68: 682-718. DOI: 10.26107/RBZ-2020-0083.
21. Purushothaman, J., Siddique, A., Bhowal, A., Mohan, S., Chandra, K., Benny, N and Vivek, M., A. 2020. Swarms of ctenophore *Pleurobrachia pileus*. (O.F.Muller,1776) in the waters of Sunderban: A menace to the fisheries? *Indian Journal of Geomarine sciences* 49(6):1089-1092.
22. Ranjith, A. P. Belokobylskij, S. A. Sureshan, P. M. & Nasser, M. 2020. The genus *Aivalykus* Nixon, 1938 (Hymenoptera: Braconidae: Doryctinae) with description of a new species from India and Arabian Peninsula. *Zootaxa*, 4822 (2): 269-276.
23. Sengupta. J., Naskar. A., Homechaudhuri. S., and Banerjee. D., 2020. A Taxonomic Account of Hover Flies (Insecta: Diptera: Syrphidae) with 2 New Records from Mid Hill Zone of Himachal Pradesh, India. *Int. J Adv Life Sci Res.* 3(3):30-49, doi: <https://doi.org/10.31632/ijalsr.2020v03i03.004>.
24. Sharma, G. 2020. Studies on the Species Diversity of Damselflies and Dragonflies (Odonata: Insecta) around the Tributary of Tons River, Dehradun, Uttarakhand, India. *International Journal on Theoretical and Applied Sciences*. 12(2): 09-10.
25. Singh, N., Singh, J.S., Ranjan, R., Chandra, K. and Speidel, W. 2020. On the taxonomy of the genus *Sacada* Walker, 1862 from india, with descriptions of a new genus and two new species (Pyrallinae, Pyralidae, Lepidoptera). *Zookeys*, 962: 139- 163.
26. Sudipta, M., Deepa, J.,Narahari, A. & Shankar, C.S (2020). Freshwater decapods (Crustacea: Decapoda) of Palair Reservoir, Telangana, India. *Journal of Threatened Taxa*, 12(11): 16531-16547
27. Swafvan, K. and Joshi, R., 2020. A preliminary study on moths (Lepidoptera) as pest of coffee plants from Northern Kerala. *Journal of Entomological Research*, 44 (2): 277-284
28. Tyagi, K., Tyagi, I., Prasad, P., Chandra, K. and Kumar, V. 2020. Inter subfamily comparison of gut microbial diversity in twelve wild spider species of family Araneidae. Preprint <https://www.authorea.com/users/350412/articles/475263-inter-subfamily-comparison-of-gut-microbial-diversity-in-twelve-wild-spider-species-of-family-araneidae> commit=47c007f6e5b04d8782e0f160d76fe01d5a46c170.

BOOK CHAPTERS

1. Muhamed Jafer Palot. 2019. Reptilia. In: Fauna of Kerala (Part-1) Vertebrata, State Fauna Series, 25: 125-174. (Published by the Director Zool. Surv. India, Kolkata)
2. Muhamed Jafer Palot. 2019. Mammalia. In: Fauna of Kerala (Part-1) Vertebrata, State Fauna Series, 25: 19-50. (Published by the Director Zool. Surv. India, Kolkata)
3. Muhamed Jafer Palot. 2019. Aves. In: Fauna of Kerala (Part-1) Vertebrata, State Fauna Series, 25: 51-124 (Published by the Director Zool. Surv. India, Kolkata)
4. Sureshan, P.M & Muhamed Jafer Palot. 2019. Fauna of Kerala: An overview. In: Fauna of Kerala (Part-1) Vertebrata, State Fauna Series, 25: 1-18. (Published by the Director Zool. Surv. India, Kolkata).

POPULAR ARTICLES

1. Muhamed Jafer Palot. 2020. Karimpula – Kālam Kāttuvacca Jaiva Bhūmika (Karimpuzha Wildlife Sanctuary- A new Protected Area for Kerala State) (In Malayalam). Āranyam- A magazine of Kerala Forests & Wildlife Department. Vol. 40 (11): 23-25.
2. Muhamed Jafer Palot. 2020. Kāttaranakal (Reptiles: Dussumier's Forest Skink). Kūtu Nature Magazine. Vol. 5 (1): 83.
3. Siddique, A., Purushothaman, J., Bhowal, A. 2020. Swarms of gelatinous zooplankton witnessed in the estuarine waters of Sundarban, Bay of Bengal and their environmental implications. The Indian Ocean Bubble 13 : 5-6.

WEBINARS ORGANIZED

1. A national webinar "Bats: Biases, Prejudices and Conservation Research" was organized on 25th August, 2020 by ZSI-North-Eastern Regional Centre, Shillong, Meghalaya
2. A national webinar on "Faunal Diversity of India" has been conducted by ZSI-Western Regional Centre, Pune, Maharashtra on 19 August, 2020.
3. National Webinar on "Faunal Diversity of Central India" was organized on 27.08.2020 by ZSI-Central Zone Regional Centre, Jabalpur, Madhya Pradesh.
4. National Webinar on *Faunal Resources of the Great Indian Desert* on 6th August, 2020 organized by ZSI- Desert Regional Centre, Jodhpur, Rajasthan.
5. National Webinar on *Faunal diversity of India* was organized by ZSI-Northern Regional Centre, Dehra Dun on 25 August, 2020
6. Three days National Webinar on *Island Biodiversity, Conservation and Management* during 18th, 21st and 25th August 2020 organized by ZSI-Andaman and Nicobar Regional Centre, Port Blair.
7. National Webinar on "Freshwater Fish Diversity in India" organized by ZSI-Freshwater Biology Regional Centre, Hyderabad, Telangana on 13th August 2020
8. The webinar series "Meet the experts: Let us discuss biodiversity" in which four lectures were organised by ZSI-Estuarine Biology Regional Centre, Gopalpur-on-Sea, Odisha on 7th, 10th, 18th and 27th August 2020.
9. A webinar on "Aquatic Faunal diversity of Arunachal Pradesh" organized by ZSI-Arunachal Pradesh Regional Centre, Itanagar on 20th August 2020
10. A webinar on Unique Marine Fauna Webinar series. "Marine Ornamental Aquaculture: Measure towards Conservation of Biodiversity" organized by ZSI- Marine Aquarium and Regional Centre, Digha on 24th August 2020.
11. A webinar on "Taxonomy and Biodiversity"- 'Principles and Practices of Animal Taxonomy: Classical and Molecular approach' organized by ZSI-Western Ghats Regional Centre, Calicut, Kerala on 24th August 2020.
12. A webinar on Project Dolphin: Conservation of Cetacean Fauna with special reference to Gangetic Dolphin organized by ZSI-Gangetic Plains Regional Centre, Patna, Bihar on 26.08.2020.

MEETINGS ATTENDED

1. Dr. C. Raghunathan attended the Eco-Sensitive Zone (ESZ) Expert Committee Meeting on 18th August 2020 organized by MoEFCC, New Delhi and attended Eighth Meeting of the Inter-Ministerial Group on Environmental Economics Accounting-India organized by Ministry of Statistics and Programme Implementation on 26th August 2020.
2. Dr V. D. Hegde, Scientist-E, attended the 18th meeting of the governing body of the Meghalaya Zoo Project Implementation Society held at Sylvan House, Lower Lachumiere, Shillong on 11th August, 2020.
3. Dr. Pratyush P. Mohapatra, Scientist-D attended Virtual workshop on IUCN Red List Assessment for Amphibians of Central India and Eastern Ghats (26/08/2020 to 28/08/2020).
4. Dr. Sanjeev Kumar, Scientist-E attended Town Official Language Implementation Committee (TOLIC) meeting through Google meet platform organized by CAZRI, Jodhpur on 18th August, 2020.
5. Dr. C. Sivperuman, Scientist-E attended Doctoral Committee Meeting to review the progress of the Ph.D. Research scholar of RMRC, Port Blair on 24th August 2020
6. Dr. S. Balakrishnan, Scientist – D attended District level advisory committee meeting towards promoting marine fisheries related advisories from INCOIS through Fisher Friend Mobile Application in Bangla version organized by Rural Eco-Development Centre (REDC), M.S Swaminathan Research Foundation (MSSRF), Digha on 14.08.2020.
7. Dr. Gopal Sharma, Scientist-E attended Bihar State Wildlife Board meeting on 13.08.2020 through virtual mode.
8. Dr. Ch. Satyanarayana, Scientist-D attended a virtual consultative meeting with Indian Oil Corporation Limited (IOCL) authorities and their consultants (INDOMER Coastal hydraulics P. Ltd.) along with the scientists from ZSI Headquarters under the chairmanship of Director, Zoological Survey of India, in connection with the translocation of Scleractinian corals at Narara, Gulf of Kachchh.

LECTURES DELIVERED

1. Dr. L. Kosygin Singh, Scientist-E delivered a talk as resource person on “Freshwater Fish Diversity in India: An overview” in the National Webinar on “Freshwater Fish Diversity in India” organized by Freshwater Biology Regional Centre, ZSI, Hyderabad, on 13th August 2020
2. Dr. Rajmohana K, Sci. E delivered a Keynote address on the ‘Impact of Covid-19 on Biodiversity’, on 25th August 2020 in a webinar organised by SPC Govt. College, Ajmer. And also Participated in a panel discussion named “Anthropogenic Effect on Biodiversity” on 26th August 2020.
3. Dr. S. Sheela, Scientist-E delivered lecture in the National Webinar on “Taxonomic Tools in Life Science” organized by Department of Zoology, All Saints College, Trivandrum, Kerala on 13th August, 2020.
4. Dr. K.P. Dinesh, Scientist-D delivered a lecture on *Molecular Taxonomy* at the National Webinar on ‘Principles and Practices of Animal Taxonomy: Classical & Molecular Approach’ organized by the Zoological Survey of India, Western Ghats Regional Centre, Kozhikode on 24 August, 2020.
5. Dr. Muhamed Jafer Palot, Scientist-B delivered a lecture on *Butterfly diversity of Western Ghats* at the National Webinar on ‘Faunal Diversity of India’ on 19 August, 2020 organized by the Zoological Survey of India, Western Regional Centre, Pune.
6. Dr. Sameer Kumar Pati, Assistant Zoologist delivered a lecture on *Freshwater Crab diversity* of Western Ghats at the National Webinar on ‘Faunal Diversity of India’ on 19 August, 2020 organized by the Zoological Survey of India, Western Regional Centre, Pune.
7. Dr. Pratyush P. Mohapatra, Scientist-D delivered two talks on “Scorpions: the incredible arachnids” at Assam Don Bosco University on 08.08.2020 and 09.08.2020; “Secret life of Scorpions” at SAALIGA, Arachnology Webinar Series (Talk-15), Tamil Nadu on 23.08.2020.
8. Dr. Sanjeev Kumar, Scientist-E delivered a talk entitled Is pandemic lockdown a green moment for biodiversity in a National Webinar organized by Deptt. of Zoology & Botany, Sophia Girls College (Autonomous), Ajmer, Rajasthan on 24th August, 2020 through Google meet platform.
9. Dr. Indu Sharma, Scientist-E delivered a talk entitled *Fish Diversity of North West Himalaya with Reference to Environmental*

Stresses in a National Webinar on FRESHWATER FISHES OF INDIA organized by FBRC, ZSI, Hyderabad on 13th August, 2020 through Google meet platform.

10. Dr. K. A. Subramanian, Scientist-E delivered online lectures on odonates and aquatic insects during webinars organized by EBRC, ZSI, Gopalpur; Sikkim University, Gangtok; Yenepoya University, Mangalore; WWF, New Delhi and WWF, Trivandrum.
11. Dr. S.S. Jhadav and Dr. Boni Amin Laskar, Scientists – D delivered the lectures in National Webinar on “*Freshwater Fish Diversity in India*” organized by ZSI-

Freshwater Biology Regional Centre, Hyderabad, Telangana on 13th August 2020

12. Dr. G. Maheswaran, Scientist-E, ZSI, Kolkata delivered a talk on “Conservation of Coastal and Marine Birds” on 7th August 2020 in the Webinar conducted by ZSI-EBRC, Gopalpur-on-Sea, Odisha.
13. Dr. K.A. Subramaniam, Scientist-E delivered a talk on “Aquatic Insect diversity of India” on 10th August 2020 in the Webinar conducted by ZSI-EBRC, Gopalpur-on-Sea, Odisha.
14. Dr. P.M. Sureshan, Scientist-E, WGRC, ZSI, Kozhikode delivered a talk on “Understanding Insect

Diversity- Praying Mantids” on 18th August 2020 in the Webinar conducted by ZSI-EBRC, Gopalpur-on-Sea, Odisha.

15. Dr. Yogesh Kumar, Scientist - D delivered a lecture entitled “*Ornamental fish Resources from Indian water*” on 4th August 2020 in Kongunadu Arts and Science College, Coimbatore, Tamil Nadu
16. Dr. Lalit K. Sharma, Scientist-C, ZSI, Kolkata delivered a talk on “Use of GIS and Remote Sensing on faunal studies” on 27th August 2020 in the Webinar conducted by ZSI-EBRC, Gopalpur-on-Sea, Odisha..

SUPERANNUATION

Mr. Joy Dev Das, Junior Administrative Officer, Establishment Section, ZSI Headquarters superannuated on 31st August 2020 after rendering 37 years of active service.