

OPEN ACCESS



The Journal of Threatened Taxa (JoTT) is dedicated to building evidence for conservation globally by publishing peer-reviewed articles online every month at a reasonably rapid rate at www.threatenedtaxa.org. All articles published in JoTT are registered under [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/) unless otherwise mentioned. JoTT allows unrestricted use, reproduction, and distribution of articles in any medium by providing adequate credit to the author(s) and the source of publication.

Journal of Threatened Taxa

Building evidence for conservation globally

www.threatenedtaxa.org

ISSN 0974-7907 (Online) | ISSN 0974-7893 (Print)

SHORT COMMUNICATION

A NEW DISTRIBUTION RECORD OF STOMATOPODS *ODONTODACTYLUS JAPONICUS* (DE HAAN, 1844) AND *LYSIOSQUILLA TREDECIMDENTATA* (HOLTHUIS, 1941) FROM THE PUDUCHERRY COASTAL WATERS, EAST COAST OF INDIA

S. Nithya Mary, V. Ravitchandirane & B. Gunalan

26 June 2021 | Vol. 13 | No. 7 | Pages: 18903–18907

DOI: [10.11609/jott.5810.13.7.18903-18907](https://doi.org/10.11609/jott.5810.13.7.18903-18907)



For Focus, Scope, Aims, and Policies, visit https://threatenedtaxa.org/index.php/JoTT/aims_scope

For Article Submission Guidelines, visit <https://threatenedtaxa.org/index.php/JoTT/about/submissions>

For Policies against Scientific Misconduct, visit https://threatenedtaxa.org/index.php/JoTT/policies_various

For reprints, contact [<ravi@threatenedtaxa.org>](mailto:ravi@threatenedtaxa.org)

The opinions expressed by the authors do not reflect the views of the Journal of Threatened Taxa, Wildlife Information Liaison Development Society, Zoo Outreach Organization, or any of the partners. The journal, the publisher, the host, and the partners are not responsible for the accuracy of the political boundaries shown in the maps by the authors.

Publisher & Host





A new distribution record of stomatopods *Odontodactylus japonicus* (De Haan, 1844) and *Lysiosquilla tredecimdentata* (Holthuis, 1941) from the Puducherry coastal waters, east coast of India

S. Nithya Mary¹ , V. Ravitchandirane² & B. Gunalan³

^{1,2} Department of Zoology, Kanchi Mamunivar Government Institute for Postgraduate Studies and Research, Lawspet, Puducherry 605008, India.

³ Thiru Kolanjiappar Government Arts College, Virudhachalam, Tamil Nadu 606001, India.

¹sofinithy@gmail.com (corresponding author), ²vairavit@yahoo.co.in, ³aquagunal@gmail.com

Abstract: Stomatopods in India are well known with 79 species recorded to date. Here I report the *Odontodactylus japonicus* (De Haan, 1844) and Golden Mantis Shrimp *Lysiosquilla tredecimdentata* Holthuis, 1941 for the first time in Puducherry coastal waters. A single specimen of *Lysiosquilla tredecimdentata* was collected from by-catch in the Nallavadu landing centre, Puducherry coast on 19 November 2019 and two specimens of *L. tredecimdentata* were recorded again in Pillaichavadi landing centre of Puducherry coast on 22 November 2019. One specimen of *Odontodactylus japonicus* was collected at Nallavadu landing centre, Puducherry coast on 20 December 2019. The present study was undertaken to identify the status of distribution, habitat, and ecological aspects along with the information of spread, confinement, endemism as well as rare, threatened and endangered species. The significance of these new observations is to discern the taxonomic position and characteristics for better understanding of the mantis shrimp group. The specimens were identified, described, illustrated, and measured morphometrically.

Keywords: By-catch, Golden Mantis Shrimp, morphometric measurements.

Macro invertebrates, especially crustaceans, molluscs, and echinoderms play an important role in ecological interdependence with other species and have a marked influence on benthic community structure

(Venkataraman & Wafar 2005; Bijukumar 2008; Wafar et al. 2011). Stomatopods, also called mantis shrimps, are elongate, flattened, shrimp- or lobster-like crustaceans (Carpenter & Neim 1998) and notable for their aggressive behaviour. Stomatopod crustaceans are common members of benthic ecosystems in tropical and subtropical marine and brackish waters throughout the world (Antony et al 2010). The attributed feature of stomatopods are the large well-built raptorial appendages for capturing the prey by 'spiking' or 'smashing' depending on the dactyl is extended or held folded while going on a foray. Stomatopods are prevalent and appealing inhabitants of coral reefs. They form a cardinal status in the ocean food chain (Caldwell 2006). They are a source of food and medicine (Subasinghe 1999). To date, about 485 species, 115 genera, and 17 families of mantis shrimp are described (WoRMS 25 December 2018). The diversification of stomatopods in India put the foundation for the publication of the first monograph of the Indo-Pacific mantis shrimps (Stomatopoda) (Kemp 1913). Succeedingly, numerous studies drawn out the

Editor: Anonymity requested.

Date of publication: 26 June 2021 (online & print)

Citation: Mary, S.N., V. Ravitchandirane & B. Gunalan (2021). A new distribution record of stomatopods *Odontodactylus japonicus* (De Haan, 1844) and *Lysiosquilla tredecimdentata* (Holthuis, 1941) from the Puducherry coastal waters, east coast of India. *Journal of Threatened Taxa* 13(7): 18903–18907. <https://doi.org/10.11609/jott.5810.13.7.18903-18907>

Copyright: © Mary et al. 2021. Creative Commons Attribution 4.0 International License. JoTT allows unrestricted use, reproduction, and distribution of this article in any medium by providing adequate credit to the author(s) and the source of publication.

Funding: Self-funded.

Competing interests: The authors declare no competing interests.

Acknowledgements: We thank the Director of Kanchi Mamunivar Government Institute for Postgraduate Studies and Research, Puducherry for allowing us to carry out this work. We also thank our PG and Research Department of Zoology for their intellectual support and encouragement. A special thanks to the fishermen of Puducherry coastal villages who helped us to collect the specimens.

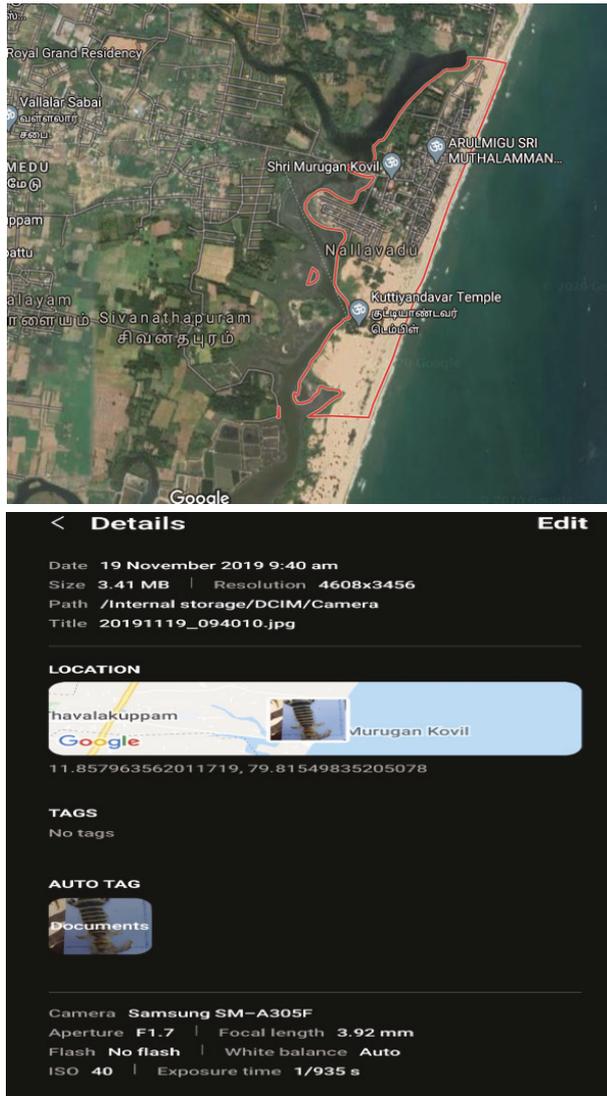


Image 1. Map showing the place of Nallavadu Landing, Puducherry.

information of Indian Stomatopoda (Kemp & Chopra 1921; Shanbogue 1969, 1986; Ghosh 1991, 1995, 1998); the most recent checklist of Indian stomatopods records 79 species (Roy & Gokul 2012). Although stomatopods occur along the entire Indian coast, most published records are from localities on the eastern coast. Recent studies of commercial trawl by-catch primarily along the southern and southwestern coasts (Tamil Nadu and Kerala) resulted in numerous new records and discoveries of decapod crustaceans (Komai et al. 2013; Kumar et al. 2013; Ng et al. 2016, 2017; Yang et al. 2017). The pan tropical stomatopod genus *Lysiosquilla*, which includes the largest known stomatopods, comprises 12 species, five of which are reported in the Indo-West Pacific region. The odontodactylid mantis shrimp is the only genus found in the family Odontodactylidae.

These are relatively small when compared to banded mantis shrimp and it displays rare occurrence in Indian waters. The present study documented the first record of *Odontodactylus japonicus* and Golden Mantis Shrimp *Lysiosquilla tredecimdentata* from Puducherry coastal waters, eastern coast of India.

MATERIALS AND METHODS

A single specimen of *L. tredecimdentata* was collected from by-catch in the Nallavadu landing centre, Puducherry coast on 19 November 2019 (Image 1) and two specimens of *L. tredecimdentata* were recorded again in Pillaichavadi landing centre of Puducherry coast on 22 November 2019 (Image 3). One specimen of *O. japonicus* was collected at Nallavadu landing centre, Puducherry coast on 20 December 2019 (Image 2). All the specimens were collected as a bycatch by hand picking and its identification was carried out using standard guidelines (Manning, 1978; Ah Yong et al., 2008). Terminology, description and morphometric measurements generally follow Manning (1978) and Ah Yong (2001).

RESULTS

Odontodactylus japonicus, De Haan, 1844

Class: Malacostraca Latreille, 1802
 Order: Stomatopoda Latreille, 1817
 Family: Odontodactylidae Manning, 1980
 Genus: *Odontodactylus* Bigelow, 1893
 Species: *japonicus* De Haan, 1844

Material observed: Paratype, ZSI/MBRC-D1-623, Male, 20.xii.2019, Nallavadu, Puducherry, 11.858N, 79.815E, NW-3543 (Image 2, Table 1), at 18 km, 30 m depth, coll. Nithya Mary
 Systematic position

Diagnostic characters

Carapace, thorax, and abdomen smooth, not trimmed with any longitudinal ridges. Antennular scale with smooth anterior margin, without setae in adults. Rostral plate triangular. Raptorial claw short and strengthened at base of terminal segment, adapted for smashing prey; inner margin of dactyl not toothed with more than 5; proximal margin strongly inflated; telson mid-dorsal surface with distinct median carina and four longitudinal carinae either side of midline. Uropodal exopod proximal distinctly longer than distal segment; outer margin with 10–12 movable spines.

Colour in life

Overall pink in colour. Antennal scale white dorsally

Table 1. Morphometric measurements of *Odontodactylus japonicus*

Measurements (mm)	<i>O. japonicus</i>
Total length	126
Carapace length	32
Carapace width	39
Thorax length	15
Abdomen length	58
Rostral plate length	4
Rostral plate width	7
Antennal scale length	5
Antennal scale width	3
Raptorial propodus length	29
Raptorial propodus depth	10
Telson length	21
Telson width	35
Total wet weight	25g

**Image 2. *Odontodactylus japonicus*.**

with purple and orange ventrally. Uropod yellow with red setae. Exopod with outer movable spines yellow orange with blue posterior margin; distal end of endopod and exopod with red setae. Anterior carapace with brown patches.

Remarks

Specimen of *O. japonicus* examined above show adult diagnostic characters. The longitudinal carina on the inner intermediate denticle and the colour pattern resembles adults. It inhabits in level sandy or shelly substrates from 30–80 m depth. *Odontodactylus* is the only genus found in the family Odontodactylidae. Nothing

much is known about the biology of odontodactylids and there is no organised fisheries known to exist for them. Ah Yong & Kumar (2018), reported the first record of *O. japonicus* from Muttom, Tamil Nadu. Since then, Kumar reported *O. japonicus* in east coast, after which there is no record of *O. japonicus*. We report this species for the first time in Puducherry coastal waters, the east coast of India. The previously known Indian Ocean distribution of *O. japonicus* is highly disjunct and hence the present record has enlarged the distributional gap.

Ecology and Distribution

Homed in simple U-shaped burrows and lined and covered with rubble (Caldwell 2006). Indo-West Pacific, from the western Indian Ocean to Australia and Japan (Manning 1967).

Lysiosquilla tredecimdentata Holthuis, 1941

Class: Malacostraca Latreille, 1802

Order: Stomatopoda Latreille, 1817

Family: Lysiosquillidae Giesbrecht, 1910

Genus: *Lysiosquilla* Dana, 1852

Species: *tredecimdentata* Holthuis, 1941

Material observed: Paratype, ZSI/MBRC-D1624, Male, 19.xi.2019, Nallavadu, Puducherry, 11.858N, 79.815E, NW-3543 and again 22.xi.2019, Pillaichavadi Puducherry, 12.008N, 79.858E, NW 4892 (Image 1, 3, Table 2), at 18 km, 30 m depth, coll. Nithya Mary.

Diagnostic characters

The texture of Carapace, thorax, and abdomen are smooth without any carina or ridges; raptorial claw large and slender with 9–13 teeth. Rostral plate cordate and broad. Eyes T-Shaped, with large, bilobed cornea; pereopods 1–3 with slender, elongate endopod. Uropodal protopod with small spine anterior to endopod articulation. Telson lacking movable sub median teeth and longitudinal carina.

Colour in life

Lysiosquillids are clearly banded with alternate light and darkly pigmented bands. Carapace with three dark, broad, transverse bands intervened by narrower pale bands. Uropodal exopod with distal ½ of proximal segment and proximal 2/3 of distal segment black; outer movable spines dark red. Uropodal endopod with distal 2/3 black. Antennal scale with dark brown outline. Pereiopods with pink setae on distal segment.

Remarks

Morphological characteristics of the specimen

Table 2. Morphometric measurements of *Lysiosquilla tredecimdentata*

Measurements (mm)	<i>L. tredecimdentata</i>
Total length	295
Carapace length	65
Carapace width	85
Thorax length	69
Abdomen length	146
Rostral plate length	8
Rostral plate width	13
Antennal scale length	26
Antennal scale width	5
Raptorial propodus length	13
Raptorial propodus depth	45
Telson length	45
Telson width	69
Total wet weight	250 g


Image 3. *Lysiosquilla tredecimdentata*.

indicate that it belongs to banded mantis shrimps from the family Lysiosquillidae (Giesbrecht, 1910) and it is perfectly synchronized with the original description given by Holothuis (1941) and Shanbhogue (1970). Lysiosquillids live in monogamous pairs in long, deep burrows in coral reef flats, mud flats and soft sub tidal substrates (Ahyong et al. 2008). Pillai & Thirumilu (2006) have reported *L. tredecimdentata* from Cuddalore fishing harbour, Tamil Nadu coast of India. Silambarasan & Senthilkumaar (2014) reported the first occurrence of *L. tredecimdentata*, from Kasimedu fishing harbour, Chennai coast, Tamil Nadu, India and Chesalin (2013) also reports first record of the same species in the Omani waters of the Arabian Sea.

Ecology and Distribution

The species inhabits deep burrows on intertidal sand and mudflats, and level sub tidal substrates to 30 m (Ahyong 2001). Almost nothing is known about the biology of Lysiosquillids. According to Manning (1998) they make burrows with double entrance, one at each end, in level-bottom habitats in shallow water, from shore to a depth of about 25 m. Although they generally hunt from the mouth of their burrow, they occasionally leave their burrows and may be caught at night by lights or in trawls.

The known distribution of *L. tredecimdentata* is from Yemen (Red Sea) (Holthuis 1941) southward to Madagascar (Manning 1968) and South Africa (Manning 1978); from India eastward to Thailand, Vietnam, Taiwan, Australia and the central Pacific (Ahyong 2001). This is the first record of this species from the Puducherry coastal waters.

REFERENCES

- Ahyong, S.T. & A. Bijukumar (2018). First records of seven species of mantis shrimp from India (Crustacea: Stomatopoda). *Zootaxa* 4370(4): 381–394. <https://doi.org/10.11646/zootaxa.4370.4.4>
- Ahyong, S.T. (2001). Revision of the Australian stomatopod Crustacea. *Records of the Australian Museum*, Supplement 26: 1–326.
- Ahyong, S.T., T.Y. Chan & Y.C. Liao (2008). A Catalog of the Mantis Shrimps (Stomatopoda) of Taiwan. National Science Council, Taipei, 191pp.
- Antony, P.J., S. Dhanya, P.S. Lyla, B.M. Kurup & S.A. Khan (2010). Ecological role of stomatopods (mantis shrimps) and potential impacts of trawling in a marine ecosystem of the southeast coast of India. *Ecological Modelling* 221: 2604–2614.
- Bijukumar, A. (2008). Biodiversity of trawl bycatch in Kerala coast, south Indian, pp. 236–243. In: Natarajan, P., K.V. Jayachandran, S. Kannaiyan, B. Ambat & A. Augustine (Eds.). *Glimpses of Aquatic Biodiversity*. Rajiv Ganthi Chair Special Publication. 7, Cochin University of Science and Technology, Kochi.
- Caldwell, R. (2006). “*Odontodactylus scyllarus*” (On-line). *Stomatopods for the Aquarium*. Accessed February 22, 2012 at http://www.ucmp.berkeley.edu/arthropoda/crustacea/malacostraca/eumalacostraca/royslist/species.php?name=o_scyllarus
- Carpenter, K.E. & V.H. Neim (1998). F.A.O. The Living Marine Resources of the Western Central Pacific, 2: 1046–1155
- Chesalin, M., S. Al-Shajibi, G. Al-Shagaa & S. Al-Kathiri (2013). First Record of the Mantis Shrimp *Lysiosquilla tredecimdentata* Holthuis, 1941 (Stomatopoda: Lysiosquillidae) in the Omani Waters of the Arabian Sea. *Indian Journal of Applied Research* 3(55): 609–610.
- De Haan, W. (1833–1850). Crustacea. In: von Siebold, P.F. (Ed.). *Fauna Japonica sive descriptio animalium, quae in itinere per Japoniam, jusse et auspiciis superiorum, qui summum in India Batavia Imperium tenent, suscepto, annis 1823–1830 collegit, notis observationibus et adumbrationibus illustravit*. A. Arnz, Lugdunum Batavorum, pp. 1–243.
- Fabricius, J.C. (1798) *Supplementum Entomologiae Systematicae*, Hafniae, ii+572pp.
- Ghosh, H.C. (1991). Crustacea: Stomatopoda. Fauna of Lakshadweep. State Fauna Series 2: 199–212.
- Ghosh, H.C. (1995) Stomatopoda: Crustacea. Hughli Matla Estuary, West Bengal. *Estuarine Ecosystem Series* 2: 179–189.
- Ghosh, H.C. (1998) Crustacea: Stomatopoda. Fauna of West Bengal. State Fauna Series 3: 417–443.



- Giesbrecht, W. (1910)** Stomatopoden, Erster Theil. Fauna and Flora des Golfes von Neapel, 33, i–vii, 1–239, pls. I–XI.
- Holthuis, L.B. (1941)**. The Stomatopoda of the Snellius Expedition. Biological Results of the Snellius Expedition, XII. Temminkia 6: 241–294. <https://doi.org/10.11646/zootaxa.4329.5.5>
- Kemp, S. & B. Chopra (1921)** Notes on Stomatopoda. Records of the Indian Museum 22: 297–311. <https://doi.org/10.5962/bhl.part.1475>
- Kemp, S. (1913)**. An account of the Crustacea Stomatopoda of the Indo-Pacific region, based on the collection in the Indian. Museum. *Memoirs of the Indian Museum* 4: 1–217.
- Komai, T., R. Reshmi & A.N.B. Kumar (2013)**. Rediscovery and range extension of *Ciliopagurus liui* Forest, 1995 and description of a new species of *Pagurus Fabricius*, 1775 (Crustacea: Decapoda: Anomura: Paguroidea) from the Kerala State, south western India. *Zootaxa* 3710: 467–484. <https://doi.org/10.11646/zootaxa.3710.5.5>
- Kumar, A.B., M.S. Kumar & B.S. Galil (2013)**. Calappid and leucosiid crabs (Crustacea: Decapoda: Brachyura) from Kerala, India, with the description of a new species of *Mursia Desmarest*, 1823, from the Arabian Sea and redescription of *M. bicristimana* Alcock & Anderson, 1894. *Zootaxa* 3746(4): 529–551. <https://doi.org/10.11646/zootaxa.3746.4.2>
- Manning, R.B. (1967)**. Review of the genus *Odontodactylus* (Crustacea: Stomatopoda). *Proceedings of the United States National Museum* 123: 1–35.
- Manning, R.B. (1968)**. Stomatopod Crustacea from Madagascar. *Proceedings of the United States National Museum* 124: 1–61.
- Manning, R.B. (1978)**. Synopses of the Indo-West Pacific species of *Lysiosquilla* Dana, 1852 (Crustacea: Stomatopoda: Lysiosquillidae). *Smithsonian Contributions to Zoology* 259: 1–16.
- Manning, R.B. (1998)**. Stomatopods, pp. 827–849. In: Carpenter, K.E. & V.H. Niem (Eds.). *FAO species identification guide for fishery purposes. The living marine resources of the Western Central Pacific. Vol. 2. Cephalopods, crustaceans, holothurians and sharks*. FAO, Rome.
- Ng, P.K.L. & A.B. Kumar (2016)**. *Carcinoplax fasciata*, a new species of deep-water goneplacid crab from southwestern India and the identity of *T. craterifer* Rathbun, 1914 (Crustacea: Brachyura: Pilumnidae). *Zootaxa* 4272(1): 131–141. <https://doi.org/10.11646/zootaxa.4272.1.7>
- Ng, P.K.L., S. Devi & A.B. Kumar (2017)**. *Typhlocarcinus* kerala, a new species of rhizopine crab from southwestern India, and the identity of *T. craterifer* Rathbun, 1914 (Crustacea: Brachyura: Pilumnidae). *Zootaxa* 4272(1): 131–141. <https://doi.org/10.11646/zootaxa.4272.1.7>
- Pillai, S.L. & P. Thirumilu (2006)**. Large-sized stomatopod *Lysiosquilla tredecimdentata* from north Tamil Nadu coast. *Marine Fisheries Information Services*, T&E Ser. No. 189pp.
- Shanbhogue, S.L. (1970)**. Three new records of Stomatopoda (Crustacea) from the seas around India. *Journal of Marine Biological Association of India* 12 (1&2): 197–201.
- Shanbhogue, S.L. (1969)**. Catalogue of stomatopods in reference collections of the Central Marine Fisheries Research Institute. *Bulletin of the Central Marine Fisheries Research Institute* 9: 33–36.
- Shanbhogue, S.L. (Ed.) (1986)**. Studies on stomatopod Crustacea from the seas around India, pp. 515–567. In: James, P.S.B.R. (ed.). *Recent Advances in Marine Biology*. Today & Tomorrow's Printers & Publishers, New Delhi.
- Silambarasan, K. & P. Senthilkumaar (2019)**. First report of the Golden Mantis Shrimp, *Lysiosquilla tredecimdentata* Holthuis, 1941 (Crustacea: Stomatopoda) from Chennai coastal waters, southeast India. *International Journal Aquatic Biology* 7(1): 9–13
- Subasinghe, S. (1999)**. Chitin from shellfish waste-health benefits over-shadowing industrial areas. *Infofish International* 99: 58–65.
- Venkataraman, K. & M. Wafar (2005)**. Coastal and marine biodiversity of India. Marine Biological Station, Zoological Survey of India (NIO). *Indian Journal of Marine Sciences* 34(1): 57–75.
- Wafar, M., K. Venkataraman, B. Ingole, S. Ajmal Khan, & P. LokaBharathi (2011)**. State of Knowledge of Coastal and Marine Biodiversity of Indian Ocean Countries. *PLoS ONE*, 6, 6(1): e14613
- WoRMS (2018)**. *Lysiosquilla tredecimdentata* Holthuis, 1941. World Register of Marine species at <http://www.marinespecies.org>. Accessed on 12.i.2020
- Yang, C.H., A.B. Kumar & T.Y. Chan (2017)**. A new slipper lobster of the genus *Petrarctus* Holthuis, 2002 (Crustacea, Decapoda, Scyllaridae) from southwest coast of India. *Zootaxa* 4329: 477–486.





www.threatenedtaxa.org

OPEN ACCESS



The Journal of Threatened Taxa (JoTT) is dedicated to building evidence for conservation globally by publishing peer-reviewed articles online every month at a reasonably rapid rate at www.threatenedtaxa.org. All articles published in JoTT are registered under [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/) unless otherwise mentioned. JoTT allows unrestricted use, reproduction, and distribution of articles in any medium by providing adequate credit to the author(s) and the source of publication.

ISSN 0974-7907 (Online) | ISSN 0974-7893 (Print)

June 2021 | Vol. 13 | No. 7 | Pages: 18679–18958
Date of Publication: 26 June 2021 (Online & Print)
DOI: 10.11609/jott.2021.13.7.18679-18958

Communications

Persistence of *Trachypithecus geei* (Mammalia: Primates: Cercopithecidae) in a rubber plantation in Assam, India

– Joydeep Shil, Jihosuo Biswas, Sudipta Nag & Honnavalli N. Kumara, Pp. 18679–18686

Population assessment of the endangered Western Hoolock Gibbon *Hoolock hoolock* Harlan, 1834 at Sheikh Jamal Inani National Park, Bangladesh, and conservation significance of this site for threatened wildlife species

– M. Tarik Kabir, M. Farid Ahsan, Susan M. Cheyne, Shahrul Anuar Mohd Sah, Susan Lappan, Thad Q. Bartlett & Nadine Ruppert, Pp. 18687–18694

Assessment of changes over a decade in the patterns of livestock depredation by the Himalayan Brown Bear in Ladakh, India

– Aishwarya Maheshwari, A. Arun Kumar & Sambandam Sathyakumar, Pp. 18695–18702

Habitat selection of Himalayan Musk Deer *Moschus leucogaster* (Mammalia: Artiodactyla: Moschidae) with respect to biophysical attributes in Annapurna Conservation Area of Nepal

– Bijaya Neupane, Nar Bahadur Chhetri & Bijaya Dhimi, Pp. 18703–18712

Sero-diagnosis of tuberculosis in elephants in Maharashtra, India

– Utkarsh Rajhans, Gayatri Wankhede, Balaji Ambore, Sandeep Chaudhari, Navnath Nighot, Vitthal Dhaygude & Chhaya Sonekar, Pp. 18713–18718

Avian species richness in traditional rice ecosystems: a case study from upper Myanmar

– Steven G. Platt, Myo Min Win, Naing Lin, Swann Htet Naing Aung, Ashish John & Thomas R. Rainwater, Pp. 18719–18737

Conservation status, feeding guilds, and diversity of birds in Doroji Sloth Bear Sanctuary, Karnataka, India

– M.N. Harisha, K.S. Abdul Samad & B.B. Hosetti, Pp. 18738–18751

Birds of Surat-Dangs: a consolidated checklist of 75 years (1944–2020) with special emphasis on noteworthy bird records and bird hotspots from northern Western Ghats of Gujarat, India

– Nikunj Jambu & Kaushal G. Patel, Pp. 18752–18780

Identification of a unique barb from the dorsal body contour feathers of the Indian Pitta *Pitta brachyura* (Aves: Passeriformes: Pittidae)

– Prateek Dey, Swapna Devi Ray, Sanjeev Kumar Sharma, Padmanabhan Pramod & Ram Pratap Singh, Pp. 18781–18791

Underestimated diversity of *Cnemaspis* Strauch, 1887 (Sauria: Gekkonidae) on karst landscapes in Sarawak, East Malaysia, Borneo

– Izneil Nashriq & Indraneil Das, Pp. 18792–18799

***Aborichthys barapensis*, a new species of river loach (Cypriniformes: Nemacheilidae) from Arunachal Pradesh, the eastern Himalaya, India**

– P. Nanda & L. Tamang, Pp. 18800–18808

A study on the community structure of damselflies (Insecta: Odonata: Zygoptera) in Paschim Medinipur, West Bengal, India

– Pathik Kumar Jana, Priyanka Halder Mallick & Tanmay Bhattacharya, Pp. 18809–18816

New distribution and range extension records of geometrid moths (Lepidoptera: Geometridae) from two western Himalayan protected areas

– Pritha Dey & Axel Hausmann, Pp. 18817–18826

Butterfly diversity of Putalibazar Municipality, Syangja District, Gandaki Province, Nepal

– Kismat Neupane & Mahamad Sayab Miya, Pp. 18827–18845

New records and distribution extension of *Nassarius persicus* (Martens, 1874) and *N. tadjillii* Moolenbeek, 2007 (Mollusca: Gastropoda: Nassariidae) to India

– Sayali Nerurkar & Deepak Apte, Pp. 18846–18852

Flowering plants of Agumbe region, central Western Ghats, Karnataka, India

– G.S. Adithya Rao & Y.L. Krishnamurthy, Pp. 18853–18867

Population assessment and habitat distribution modelling of the threatened medicinal plant *Picrorhiza kurroa* Royle ex Benth. in the Kumaun Himalaya, India

– Naveen Chandra, Gajendra Singh, Shashank Lingwal, M.P.S. Bisht & Lalit Mohan Tewari, Pp. 18868–18877

Occurrence of gilled fungi in Puducherry, India

– Vadivelu Kumaresan, Chakravarthy Sariha, Thokur Sreepathy Murali & Gunasekaran Senthilarasu, Pp. 18878–18887

Short Communications

First photographic evidence and distribution of the Indian Pangolin *Manis crassicaudata* (Mammalia: Pholidota: Manidae) in Sariska Tiger Reserve, Rajasthan, India

– Hemant Singh, Gobind Sagar Bhardwaj, N. Gokulakannan, Saket Agasti & K. Aditya, Pp. 18888–18893

Population and conservation threats to the Greater Flamingos *Phoenicopterus roseus* (Aves: Phoenicopteriformes: Phoenicopteridae) at Basai Wetland and Najafgarh Jheel Bird Sanctuary, Haryana, India

– Amit Kumar & Sarita Rana, Pp. 18894–18898

First report on the occurrence of Sargassum Weed Fish *Histrio histrio* (Lophiliformes: Antennariidae) in Nigeria deep water, Gulf of Guinea

– Abdul-Rahman Dirisu, Hanson S. Uyi & Meshack Uyi, Pp. 18899–18902

A new distribution record of stomatopods *Odontodactylus japonicus* (De Haan, 1844) and *Lysiosquilla tredecimdentata* (Holthuis, 1941) from the Puducherry coastal waters, east coast of India

– S. Nithya Mary, V. Ravitchandirane & B. Gunalan, Pp. 18903–18907

New records of *Agriocnemis keralensis* Peters, 1981 and *Gynacantha khasiaca* MacLachlan, 1896 (Insecta: Odonata) from Maharashtra, India

– Yogesh Koli, Akshay Dalvi & Dattaprasad Sawant, Pp. 18908–18919

A new distribution record of the Horn Coral *Caryophyllia grandis* Gardiner & Waugh, 1938 (Anthozoa: Scleractinia) from the Karnataka Coast, India

– J.S. Yogesh Kumar & C. Raghunathan, Pp. 18920–18924

Re-collection, extended distribution, and amplified description of *Vaccinium paucicrenatum* Sleumer (Ericaceae) from the Arunachal Himalaya in India

– Subhasis Panda, Pp. 18925–18932

Notes

Photographic record of the Rusty-spotted Cat *Prionailurus rubiginosus* (I. Geoffroy Saint-Hilaire, 1831) (Mammalia: Carnivora: Felidae) in southern Western Ghats, India

– Devika Sanghamithra & P.O. Nameer, Pp. 18933–18935

Natural history notes on the highly threatened Pinto's Chachalaca *Ortalis remota* (Aves: Cracidae)

– Carlos Otávio Araujo Gussoni & Marco Aurélio Galvão da Silva, Pp. 18936–18938

Black-bellied Coral Snake *Sinomicrurus nigriventer* (Wall, 1908) (Elapidae): an extended distribution in the western Himalaya, India

– Sipu Kumar, Jignasu Dolia, Vartika Chaudhary, Amit Kumar & Abhijit Das, Pp. 18939–18942

First record of the Afghan Poplar Hawkmoth *Loathoe witti* Eitschberger et al., 1998 (Sphingidae: Smerinthinae) from India: a notable range extension for the genus

– Muzafar Riyaz, Pratheesh Mathew, Taslima Shiekh, S. Ignacimuthu & K. Sivasankaran, Pp. 18943–18946

The tribe Cnodalonini (Coleoptera: Tenebrionidae: Stenochiinae) from Maharashtra with two new records

– V.D. Hegde & D. Vasanthakumar, Pp. 18947–18948

Do predatory adult odonates estimate their adult prey odonates' body size and dispersal ability to proceed with a successful attack?

– Tharaka Suresh Priyadarshana, Pp. 18949–18952

Rediscovery of *Ophiorrhiza incarnata* C.E.C. Fisch. (Rubiaceae) from the Western Ghats of India after a lapse of 83 years

– Perumal Murugan, Vellingiri Ravichandran & Chidambaram Murugan, Pp. 18953–18955

Response

Comments on the "A checklist of mammals with historical records from Darjeeling-Sikkim Himalaya landscape, India"

– P.O. Nameer, Pp. 18956–18958

Publisher & Host

