

OPEN ACCESS



The Journal of Threatened Taxa 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 of articles in any medium, reproduction, and distribution by providing adequate credit to the authors 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)

NOTE

A RECORD AFTER 52 YEARS, AND ADDITIONAL DESCRIPTION OF THE EMESINE ASSASSIN BUG *EMESOPSIS NUBILA* (HEMIPTERA: REDUVIIDAE: EMESINAE) FROM WESTERN INDIA

Balasaheb V. Sarode, Nikhil U. Joshi, Pratik P. Pansare & Hemant V. Ghatge

26 August 2018 | Vol. 10 | No. 9 | Pages: 12282–12285
10.11609/jott.3956.10.9.12282-12285



For Focus, Scope, Aims, Policies and Guidelines visit <http://threatenedtaxa.org/index.php/JoTT/about/editorialPolicies#custom-0>
For Article Submission Guidelines visit <http://threatenedtaxa.org/index.php/JoTT/about/submissions#onlineSubmissions>
For Policies against Scientific Misconduct visit <http://threatenedtaxa.org/index.php/JoTT/about/editorialPolicies#custom-2>
For reprints contact info@threatenedtaxa.org

Partners



المؤسسة محمد بن زايد
للمحافظة على
الكائنات الحية
The Mohamed bin Zayed
SPECIES CONSERVATION FUND



Member



Publisher & Host





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

OPEN ACCESS



A small, 5mm long, hairy female bug with long legs, till date not recognized by the authors, was collected near a source of light in Katraj area of Pune City, Maharashtra, the western part of India. Subsequently, a similar male specimen was collected in Shirur, near Pune, in a grassy patch. One dead male was also found trapped in a spider's web at Daund, near Pune. All the three specimens were identified using keys in Wygodzinsky (1966) as *Emesopsis nubila* Uhler, 1893, which is an emesine assassin bug species belonging to the tribe Ploiariolini and is widely distributed in tropical and subtropical zones all around the world. These specimens represent the first record of *E. nubila* from Maharashtra State as well as western part of India. An earlier record of this species (as *Calphurnia reticulata*) was from Calcutta (now Kolkata) (Distant 1910); the checklist of Reduviidae by Ambrose (2006) also states Kolkata as a locality based on Distant's work and not on the basis of any fresh collections. Thus, this finding is a rediscovery of this bug after a prolonged period and also extends the range of its distribution considerably westwards as far as India is concerned. Although widespread, this bug has not been recorded from India in many years, except perhaps the record by Wygodzinsky (1966) of a specimen from Coimbatore, southern India.

In this note, we provide many images of the morphological characters of this species as we strongly support the idea of Ang et al. (2013) who state in

A RECORD AFTER 52 YEARS, AND ADDITIONAL DESCRIPTION OF THE EMESINE ASSASSIN BUG *EMESOPSIS NUBILA* (HEMIPTERA: REDUVIIDAE: EMESINAE) FROM WESTERN INDIA

Balasaheb V. Sarode¹ , Nikhil U. Joshi² ,
Pratik P. Pansare³  & Hemant V. Ghate⁴ 

^{1,2,3,4} Post-Graduate Research Centre, Department of Zoology, Modern College of Arts Science and Commerce, Shivajinagar, Pune, Maharashtra 411005, India

¹ balasahebs78@gmail.com, ² niksajoshi20@gmail.com,

³ pansareptk101@gmail.com,

⁴ hemantghate@gmail.com (corresponding author)

the context of taxonomic papers, "We propose that descriptions should become more data-rich by presenting large amounts of images and illustrations to cover as much morphology as possible".

Material and Methods

Material examined: one female from Katraj, Pune (coll. M. Joshi; October 2016); one male from Shirur, Pune (coll. B. Sarode, June 2017); one male from Daund, Pune (coll. P. Pansare, November 2017). Bugs were studied under a Leica stereozoom (MZ6) microscope and also photographed with an attached Canon Powershot S50 camera. Several images were stacked using Combine ZM software and the images were processed with Adobe Photoshop CS5. Measurements were done with Erma stage and ocular micrometer and an accurate scale. The pygophore was dissected after treating the last three

DOI: <https://doi.org/10.11609/jott.3956.10.9.12282-12285> | **ZooBank:** urn:lsid:zoobank.org:pub:0756250B-D31D-422B-9357-DA5958300D29

Editor: Tadashi Ishikawa, Tokyo University of Agriculture, Kanagawa, Japan.

Date of publication: 26 August 2018 (online & print)

Manuscript details: Ms # 3956 | Received 15 December 2017 | Final received 04 June 2018 | Finally accepted 12 July 2018

Citation: Sarode, B.V., N.U. Joshi, P.P. Pansare & H.V. Ghate (2018). A record after 52 years, and additional description of the emesine assassin bug *Emesopsis nubila* (Hemiptera: Reduviidae: Emesinae) from western India. *Journal of Threatened Taxa* 10(9): 12282–12285; <https://doi.org/10.11609/jott.3956.10.9.12282-12285>

Copyright: © Sarode et al. 2018. Creative Commons Attribution 4.0 International License. JoTT allows unrestricted use of this article in any medium, reproduction and distribution by providing adequate credit to the authors and the source of publication.

Funding: None.

Competing interests: The authors declare no competing interests.

Acknowledgements: We are grateful to Dr. David Redei (Nankai University, China) for constant help and encouragement. We also thank Dr. Tadashi Ishikawa (Tokyo University of Agriculture) for literature and other help. We are indebted to the reviewer for critical comments that have helped to shorten and improve the contents of this note. We thank Mr. Mihir Joshi for collection of the female bug from the Katraj area of Pune city. Finally, we are grateful to the authorities of Modern College for the facilities and support.

abdominal segments with hot 10% KOH, the phallic complex was dissected and the parameres and phallus were separated and mounted in polyvinyl lactophenol (PVLVP) with lignin pink dye, and photographed. All specimens and slides of genitalia are preserved in Modern College of Arts, Science and Commerce, Shivajinagar, Pune.

Measurements: All measurements (based on one male (MCZH 132, June 2017) and one female (MCZH 131, October 2016) given below are in mm and they are separated as male / female.

Total length 4.5 / 5.125, total length of head 0.625 / 0.625, anteocular length 0.1 / 0.125, postocular length 0.25 / 0.25, head width dorsally at eye 0.5 / 0.5; antenna: length of first segment 1.75 / 1.875, second segment 1 / 1.125, third segment 1 / mutilated, fourth segment 0.375 / mutilated; labium: length of first visible segment 0.3 / 0.275, second visible (globular) segment 0.15 / 0.18, third visible segment 0.2 / 0.18; thorax length 1.125 / 0.8, pronotum length 0.625 / 0.75, width at anterior angles of pronotum 0.45 / 0.375, pronotum width at humeral angles 0.675 / 0.625; fore leg: length of coxa 0.625 / 0.75, femur 1.125 / 1.375, tibia 0.8 / 1.05, tarsus with claw 0.25 / 0.25; mid leg: length of coxa 0.2 / 0.2, femur 1.875 / 1.9, tibia 2.45 / 2.5, tarsus with claw 0.125 / 0.15; hind leg: length of coxa 0.25 / 0.25, femur 2.875 / 3, tibia 3.875 / 3.95, tarsus with claw 0.125 / 0.125; length of fore wing: 3.75 / 3.75, maximum width of fore wing 1.125 / 1.125; male pygophore: length measured laterally up to the tip 1.25; length of paramere excluding curved portion 0.625; length of extended phallus 1.65; length of phallobase in extended phallus 0.5; length of articulatory apparatus in extended phallus 0.4.

Heteroptera, Reduviidae, Emesinae, Ploiariolini *Emesopsis nubila* Uhler, 1893

Ishikawa & Okajima (2006) have recently given generic diagnosis, synonyms, additional description and illustrations of *E. nubila*. Synonyms are therefore omitted here.

Diagnosis: The diagnostic characters for *E. nubila* are, in brief: head and pronotum yellowish-brown with long erect setae, posterior pronotal lobe about twice as long as anterior pronotal lobe, mid and hind legs with long setae, forewing with typical markings, endosoma of male genitalia with a pair of vesica arms only, and vesica arm thickened in basal half and slender in apical half.

Additional description: Small, delicate, thread-legged bug, with very hairy body. Overall color brown to reddish-brown, ventrally partly dark brown; antennae partly dark brown; membrane of fore wing with a few

pale brown spots, veins slightly darker; legs with brown annulations (Image 1A,B). Male darker ventrally than female (at least in the examples before us).

Head small, anteocular part much shorter than sub-globose postocular part; eyes comparatively large; pronotum with short and narrow anterior lobe and long and broad posterior lobe (nearly twice as long as anterior lobe), covered with long colorless wooly setae, these setae densest on posterior lobe of pronotum; female slightly more hairy than male (Image 1C,D). Second visible segment of labium swollen, as seen in lateral view (Image 1E). Pronotum completely covering mesonotum; metanotum with vertical spine (Image 1F).

Fore wing showing typical venation, especially reticulate pattern at base, with brownish spots on membrane (Image 1G).

Fore legs with long coxae; femur with anteroventral and posteroventral series of very small spiniform setae; tibia slightly shorter than femur; tarsus two-segmented; brownish annulation visible on coxa, femur and tibia (Image 1H); mid and hind legs long, slender, with brown annulations; long setae covering on all legs.

Pro-, meso- and metasterna reddish-brown; pleural regions slightly darker (Image 1I,J). Prosternum furrowed in median region; mesosternum with smooth and glabrous patch laterally. Abdomen slender and darker in male (Image 2A), and broad, pale yellow brown but darker at base and apex ventrally in female (Image 2B).

Pygophore elongate, laterally slightly compressed, ventrally convex, setose, moderately sclerotized, with arrow like spiny posterosuperior process projecting above parameres (Image 2C-E). Parameres slightly curved, setose (Image 2F,G). Phallosome moderately sclerotized; articulatory apparatus short but stout, basal plates fused in apical half; conjunctiva membranous; vesica with paired processes that are broad at base and narrowed distally (Image 2H-J). Female terminalia (stained with eosin) densely covered with setae (Image 2K).

Discussion

The above-mentioned characters match with those described by earlier workers. To confirm the species further, we compared the images of pygophore and phallus with the figures given by Wygodzinsky (1966), Villiers (1979) and photos given by Ishikawa & Yasunaga (2004), as well as Ishikawa & Okajima (2006).

The checklist of the Indian species of Reduviidae (Ambrose 2006) includes *E. nubila* and another species, namely *Emesopsis bimedia* Ravichandran & Livingstone, 1989 from 'Coimbatore, Tamil Nadu'. This latter species has been never recorded again. Wygodzinsky (1966)

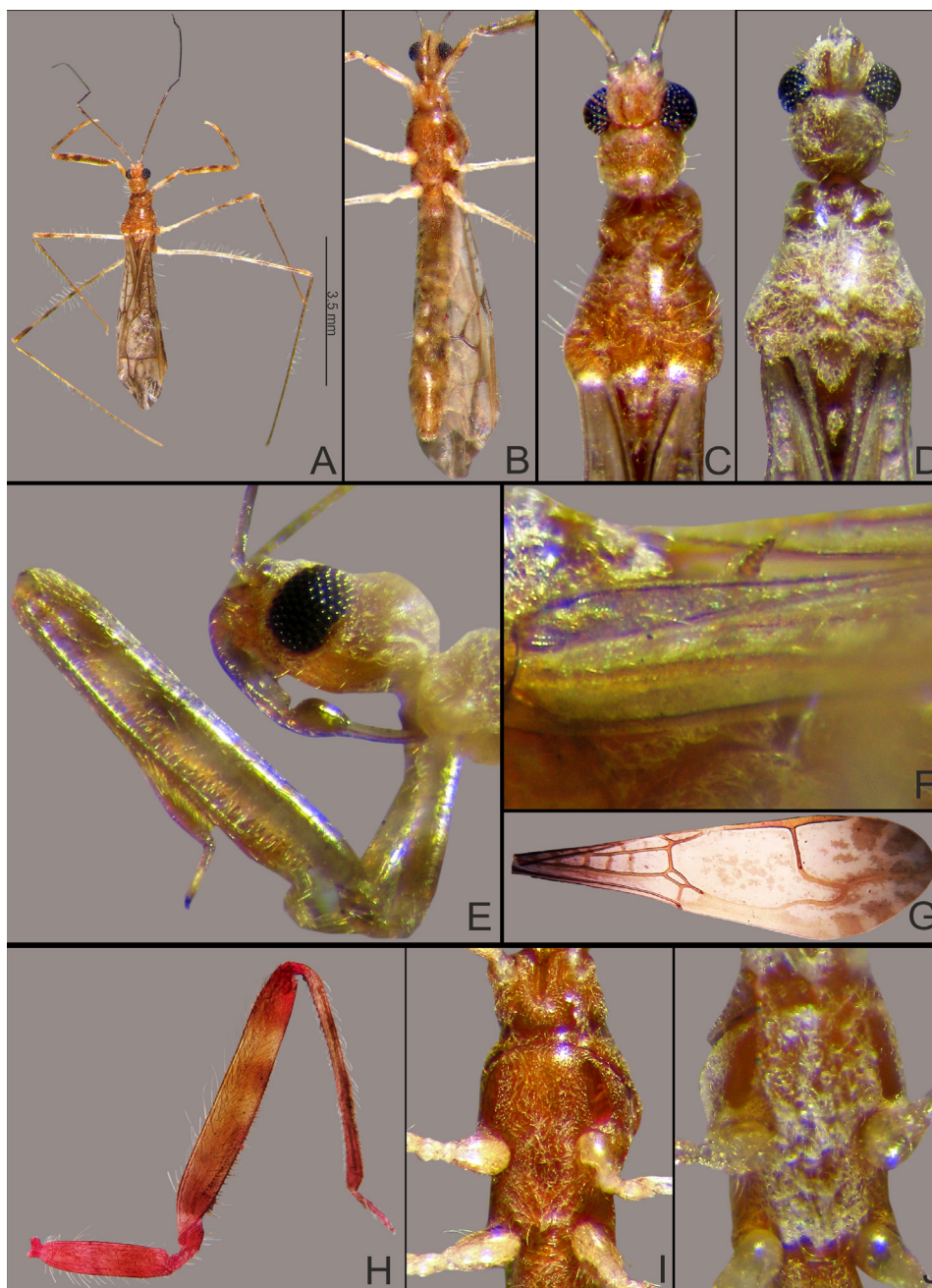


Image 1. A–J. *Emesopsis nubila*. A - Dorsal habitus of male (scale bar = 3.5mm); B - Ventral habitus of male; C - Head and pronotum details of male; D - Head and pronotum details of female; E - Lateral view of head showing second swollen segment of labium; F - Spine on metanotum; G - fore wing; H - Fore leg, stained for contrast; I & J - Sternum of male and female respectively.

studied a specimen of *E. nubila* from Coimbatore and what has been described as *E. bimedia* may also be *E. nubila*. From the description given by the authors (and one line drawing of dorsal habitus in unpublished thesis, Ravichandran 1988), it is difficult to compare *E. bimedia* and *E. nubila*; the authors state the difference to be the absence of setae on mid and hind legs and absence of piceous spot near antennae in *E. bimedia*

(Ravichandran & Livingstone 1989). Efforts to collect material in Coimbatore and comparison with actual type (if available) are essential to settle this problem.

We believe this to be the first photographically illustrated documentation and brief description of *Emesopsis nubila* found in India. After Distant's original description of *Calphurnia reticulata* Distant, 1909, currently a junior synonym of *E. nubila*, there is no

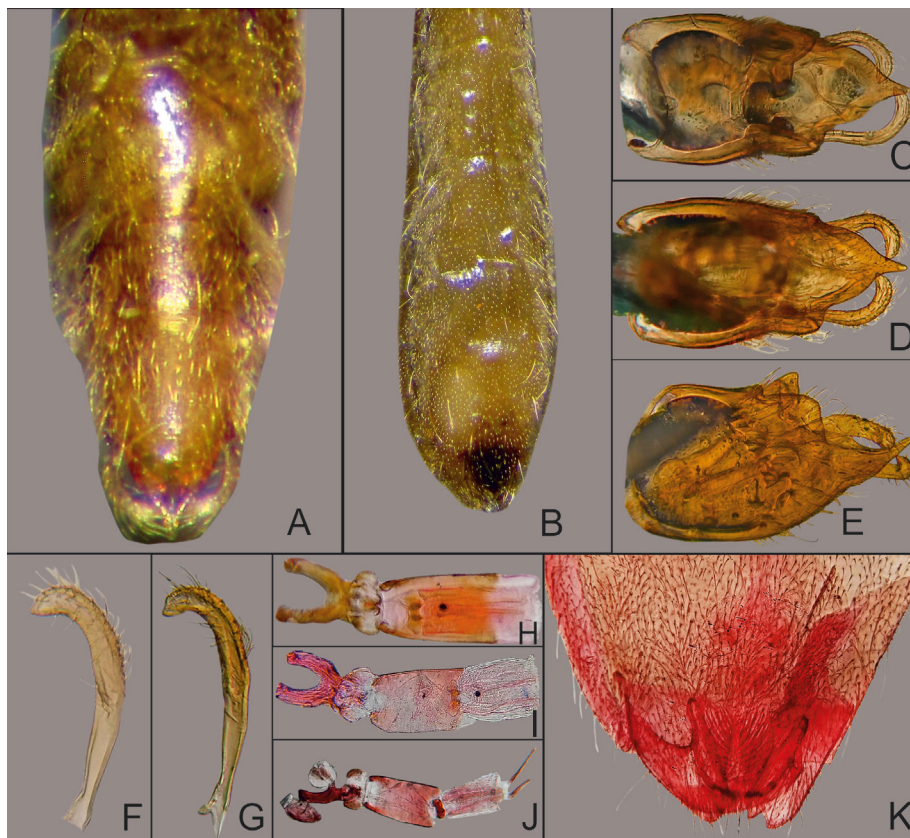


Image 2. A–K. *Emesopsis nubila*. A - Male abdomen in ventral view, B. Female abdomen in ventral view; C–E - Pygophore in dorsal, ventral and lateral view respectively; F & G - Parameres in two views; H - Phallus; I & J - Partially everted phallus; K - Female terminalia.

subsequent record from India. Lack of extensive surveys and lack of expertise in taxonomy of this subfamily in India are probably the main reasons for the poor state of our knowledge about Emesinae of India.

In a brief two-year survey of Emesinae near Pune, Maharashtra State, we have come across several such bugs which will be the subject of separate papers; Kulkarni & Ghate (2016a) have already reported the presence of *Myiophanes greeni* Distant (type locality Sri Lanka) from India for the first time. Subsequently, a new emesine species, namely *Bagauda ernstmyeri* Kulkarni & Ghate, 2016 was also added to the Indian fauna (Kulkarni & Ghate 2016b). This indicates that these small and delicate emesine bugs need more attention as we hardly know about their distribution in India.

References

- Ambrose, D.P. (2006). A checklist of Indian assassin bugs (Insecta: Hemiptera: Reduviidae) with taxonomic status, distribution and diagnostic morphological characteristics. *Zoos' Print Journal* 21(9): 2388–2406; <http://doi.org/10.11609/JoTT.ZPJ.871.2388-406>
- Ang, Y., L.J. Wong & R. Meier (2013). Using seemingly unnecessary illustrations to improve the diagnostic usefulness of descriptions in taxonomy - a case study on *Perochaeta orientalis* (Diptera, Sepsidae). *ZooKeys* (355): 9.
- Distant, W.L. (1910). *The Fauna of British India, including Ceylon and Burma. Rhynchota, 5 (Heteroptera: Appendix)*. Taylor & Francis, London, 174pp.
- Ishikawa, T. & T. Yasunaga (2004). The emesine assassin bug genus *Emesopsis* (Heteroptera: Reduviidae) from Japan. *Tijdschrift voor Entomologie* 147(2): 221–228.
- Ishikawa, T. & S. Okajima (2006). The assassin bug genus *Emesopsis* (Heteroptera, Reduviidae, Emesinae) in Thailand. *Denisia* 19, zugleich Kataloge der OÖ. Landesmuseen, Neue Serie 50: 457–474.
- Kulkarni, S. & H.V. Ghate (2016a). First record of the thread-legged assassin bug *Myiophanes greeni* Distant, 1903 (Heteroptera: Reduviidae: Emesinae) from India. *Biodiversity Data Journal* 10(4): e7949; <http://doi.org/10.3897/BDJ.4.e7949>
- Kulkarni, S. & H.V. Ghate (2016b). A new cavernicolous assassin bug of the genus *Bagauda* Bergroth (Heteroptera: Reduviidae: Emesinae) from the Western Ghats, India. *Zootaxa* 4127(2): 365–375.
- Ravichandran, G. (1988). Biosystematics and ecophysiology of the non tibiarolate assassin bugs Heteroptera Reduviidae of southern India. Unpublished PhD Thesis, Bharathiar University, Coimbatore, 422pp.
- Ravichandran, G. & D. Livingstone (1989). Two new species of Emesinae from Western Ghats. *Journal of Entomological Research* 13 (2): 125–127.
- Villiers, A. (1979). *Faune de Madagascar 49 Insectes Hémiptères Reduviidae (2e partie)*. C.N.R.S., Paris, 202pp.
- Wygodzinsky, P.W. (1966). A Monograph of the Emesinae (Reduviidae, Hemiptera). *Bulletin of the American Museum of Natural History* 133: 1–614.



OPEN ACCESS



The Journal of Threatened Taxa 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 of articles in any medium, reproduction, and distribution by providing adequate credit to the authors and the source of publication.

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

August 2018 | Vol. 10 | No. 9 | Pages: 12147–12298

Date of Publication: 26 August 2018 (Online & Print)

DOI: 10.11609/jott.2018.10.9.12147-12298

www.threatenedtaxa.org

Article

Appearances are deceptive: molecular phylogeny recovers the Scaly Gecko *Hemidactylus scabriceps* (Reptilia: Squamata: Gekkonidae) as a member of a scansorial and rupicolous clade

-- Achyuthan N. Srikanthan, Gandla Chethan Kumar, Aishwarya J. Urs & Sumaithangi Rajagopalan Ganesh, Pp. 12147–12162

Communications

Foraging and roosting ecology of the Lesser Dog-faced Fruit Bat *Cynopterus brachyotis* (Mammalia: Chiroptera: Pteropodidae) in southern India

-- T. Karuppudurai & K. Sripathi, Pp. 12163–12172

Diversity and status of avifauna in man-made sacred ponds of Kurukshetra, India

-- Parmesh Kumar & Archana Sharma, Pp. 12173–12193

Diversity and distribution of freshwater turtles (Reptilia: Testudines) in Goa, India

-- Trupti D. Jadhav, Nitin S. Sawant & Soorambail K. Shyama, Pp. 12194–12202

Breeding behaviour of the Coromandel Damselfly *Ceriatagris coromandelianus* (Fabricius) (Zygoptera: Coenagrionidae) in central India: copulation

-- Nilesh R. Thakkar, Payal R. Verma & Raymond J. Andrew, Pp. 12203–12209

The status assessment of *Corynandra viscosa* subsp. *nagarjunakondensis* (Magnoliopsida: Cleomaceae), endemic to Nagarjunakonda, Andhra Pradesh, India

-- Veeravarapu Hanumantha Rao, Vaidyula Vasudeva Rao, Anuti Baleeshwar Reddy & Vatsavaya Satyanarayana Raju, Pp. 12210–12217

Short Communications

New records of termites (Blattodea: Termitidae: Syntermitinae) from Colombia

-- Olga Patricia Pinzón & Daniel Castro, Pp. 12218–12225

New reports of thrips (Thysanoptera: Terebrantia: Thripidae) from India

-- R.R. Rachana & R. Varatharajan, Pp. 12226–12229

New records of earthworm fauna (Oligochaeta: Glossoscolecidae and Megascolecidae) collected from Satkosia-Baisipalli Wildlife Sanctuary of Odisha, India

-- Rinku Goswami, Pp. 12230–12234

Diversity and endemism of butterflies of montane forests of Eravikulam National Park in the Western Ghats, India

-- E.R. Sreekumar, S. Nikhil, K.G. Ajay & P.O. Nameer, Pp. 12235–12246

Partners



Member



Publisher & Host

