

Building evidence for conservation globally

Journal of Threatened Taxa

10.11609/jott.2023.15.2.22559-22770
www.threatenedtaxa.org

26 February 2023 (Online & Print)
15(2): 22559-22770
ISSN 0974-7907 (Online)
ISSN 0974-7893 (Print)



Open Access

2000





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

Publisher
Wildlife Information Liaison Development Society
www.wild.zooreach.org

Host
Zoo Outreach Organization
www.zooreach.org

43/2 Varadarajulu Nagar, 5th Street West, Ganapathy, Coimbatore, Tamil Nadu 641006, India
Registered Office: 3A2 Varadarajulu Nagar, FCI Road, Ganapathy, Coimbatore, Tamil Nadu 641006, India
Ph: +91 9385339863 | www.threatenedtaxa.org
Email: sanjay@threatenedtaxa.org

EDITORS

Founder & Chief Editor

Dr. Sanjay Molur

Wildlife Information Liaison Development (WILD) Society & Zoo Outreach Organization (ZOO),
43/2 Varadarajulu Nagar, 5th Street West, Ganapathy, Coimbatore, Tamil Nadu 641035, India

Deputy Chief Editor

Dr. Neelesh Dahanukar

Noida, Uttar Pradesh, India

Managing Editor

Mr. B. Ravichandran, WILD/ZOO, Coimbatore, India

Associate Editors

Dr. Mandar Paingankar, Government Science College Gadchiroli, Maharashtra 442605, India

Dr. Ulrike Streicher, Wildlife Veterinarian, Eugene, Oregon, USA

Ms. Priyanka Iyer, ZOO/WILD, Coimbatore, Tamil Nadu 641035, India

Dr. B.A. Daniel, ZOO/WILD, Coimbatore, Tamil Nadu 641035, India

Editorial Board

Dr. Russel Mittermeier

Executive Vice Chair, Conservation International, Arlington, Virginia 22202, USA

Prof. Mewa Singh Ph.D., FASC, FNA, FNASC, FNAPsy

Ramanna Fellow and Life-Long Distinguished Professor, Biopsychology Laboratory, and Institute of Excellence, University of Mysore, Mysuru, Karnataka 570006, India; Honorary Professor, Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore; and Adjunct Professor, National Institute of Advanced Studies, Bangalore

Stephen D. Nash

Scientific Illustration, Conservation International, Dept. of Anatomical Sciences, Health Sciences Center, T-8, Room 045, Stony Brook University, Stony Brook, NY 11794-8081, USA

Dr. Fred Pluthero

Toronto, Canada

Dr. Priya Davidar

Sigur Nature Trust, Chadapatti, Mavinhalla PO, Nilgiris, Tamil Nadu 643223, India

Dr. Martin Fisher

Senior Associate Professor, Battcock Centre for Experimental Astrophysics, Cavendish Laboratory, JJ Thomson Avenue, Cambridge CB3 0HE, UK

Dr. John Fellowes

Honorary Assistant Professor, The Kadoorie Institute, 8/F, T.T. Tsui Building, The University of Hong Kong, Pokfulam Road, Hong Kong

Prof. Dr. Mirco Solé

Universidade Estadual de Santa Cruz, Departamento de Ciências Biológicas, Vice-coordenador do Programa de Pós-Graduação em Zoologia, Rodovia Ilhéus/Itabuna, Km 16 (45662-000) Salobrinho, Ilhéus - Bahia - Brasil

Dr. Rajeev Raghavan

Professor of Taxonomy, Kerala University of Fisheries & Ocean Studies, Kochi, Kerala, India

English Editors

Mrs. Mira Bhojwani, Pune, India

Dr. Fred Pluthero, Toronto, Canada

Mr. P. Ilangoan, Chennai, India

Ms. Sindhura Stothra Bhashyam, Hyderabad, India

Web Development

Mrs. Latha G. Ravikumar, ZOO/WILD, Coimbatore, India

Typesetting

Mrs. Radhika, ZOO, Coimbatore, India

Mrs. Geetha, ZOO, Coimbatore India

Fundraising/Communications

Mrs. Payal B. Molur, Coimbatore, India

Subject Editors 2019–2021

Fungi

Dr. B. Shivaraju, Bengaluru, Karnataka, India

Dr. R.K. Verma, Tropical Forest Research Institute, Jabalpur, India

Dr. Vatsavaya S. Raju, Kakatiya University, Warangal, Andhra Pradesh, India

Dr. M. Krishnappa, Jnana Sahyadri, Kuvempu University, Shimoga, Karnataka, India

Dr. K.R. Sridhar, Mangalore University, Mangalagangothri, Mangalore, Karnataka, India

Dr. Gunjan Biswas, Vidyasagar University, Midnapore, West Bengal, India

Plants

Dr. G.P. Sinha, Botanical Survey of India, Allahabad, India

Dr. N.P. Balakrishnan, Ret. Joint Director, BSI, Coimbatore, India

Dr. Shonil Bhagwat, Open University and University of Oxford, UK

Prof. D.J. Bhat, Retd. Professor, Goa University, Goa, India

Dr. Ferdinando Boero, Università del Salento, Lecce, Italy

Dr. Dale R. Calder, Royal Ontario Museum, Toronto, Ontario, Canada

Dr. Cleofas Cervancia, Univ. of Philippines Los Baños College Laguna, Philippines

Dr. F.B. Vincent Florens, University of Mauritius, Mauritius

Dr. Merlin Franco, Curtin University, Malaysia

Dr. V. Irudayaraj, St. Xavier's College, Palayamkottai, Tamil Nadu, India

Dr. B.S. Kholia, Botanical Survey of India, Gangtok, Sikkim, India

Dr. Pankaj Kumar, Department of Plant and Soil Science, Texas Tech University, Lubbock, Texas, USA.

Dr. V. Sampath Kumar, Botanical Survey of India, Howrah, West Bengal, India

Dr. A.J. Solomon Raju, Andhra University, Visakhapatnam, India

Dr. Vijayasankar Raman, University of Mississippi, USA

Dr. B. Ravi Prasad Rao, Sri Krishnadevaraya University, Anantpur, India

Dr. K. Ravikumar, FRLHT, Bengaluru, Karnataka, India

Dr. Aparna Watve, Pune, Maharashtra, India

Dr. Qiang Liu, Xishuangbanna Tropical Botanical Garden, Yunnan, China

Dr. Noor Azhar Mohamed Shazili, Universiti Malaysia Terengganu, Kuala Terengganu, Malaysia

Dr. M.K. Vasudeva Rao, Shiv Ranjani Housing Society, Pune, Maharashtra, India

Prof. A.J. Solomon Raju, Andhra University, Visakhapatnam, India

Dr. Mandar Datar, Agharkar Research Institute, Pune, Maharashtra, India

Dr. M.K. Janarthanam, Goa University, Goa, India

Dr. K. Karthigeyan, Botanical Survey of India, India

Dr. Errol Vela, University of Montpellier, Montpellier, France

Dr. P. Lakshminarasimhan, Botanical Survey of India, Howrah, India

Dr. Larry R. Noblick, Montgomery Botanical Center, Miami, USA

Dr. K. Haridasan, Pallavur, Palakkad District, Kerala, India

Dr. Analinda Manila-Fajard, University of the Philippines Los Baños, Laguna, Philippines

Dr. P.A. Sinu, Central University of Kerala, Kasaragod, Kerala, India

Dr. Afroz Alam, Banasthali Vidyapith (accredited A grade by NAAC), Rajasthan, India

Dr. K.P. Rajesh, Zamorin's Guruvayurappan College, GA College PO, Kozhikode, Kerala, India

Dr. David E. Boufford, Harvard University Herbaria, Cambridge, MA 02138-2020, USA

Dr. Ritesh Kumar Choudhary, Agharkar Research Institute, Pune, Maharashtra, India

Dr. Navendu Page, Wildlife Institute of India, Chandrabani, Dehradun, Uttarakhand, India

Dr. Kannan C.S. Warrior, Institute of Forest Genetics and Tree Breeding, Tamil Nadu, India

Invertebrates

Dr. R.K. Avasthi, Rohtak University, Haryana, India

Dr. D.B. Bastawade, Maharashtra, India

Dr. Partha Pratim Bhattacharjee, Tripura University, Suryamaniganar, India

Dr. Kailash Chandra, Zoological Survey of India, Jabalpur, Madhya Pradesh, India

Dr. Ansie Dippenaar-Schoeman, University of Pretoria, Queenswood, South Africa

Dr. Rory Dow, National Museum of Natural History Naturalis, The Netherlands

Dr. Brian Fisher, California Academy of Sciences, USA

Dr. Richard Gallon, Ilandudno, North Wales, LL30 1UP

Dr. Hemant V. Ghate, Modern College, Pune, India

Dr. M. Monwar Hossain, Jahangirnagar University, Dhaka, Bangladesh

Mr. Jatishwor Singh Irungbam, Biology Centre CAS, Branišovská, Czech Republic.

Dr. Ian J. Kitching, Natural History Museum, Cromwell Road, UK

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

continued on the back inside cover

Cover: Pseudo-flying animals and wind-dependent seed & spore dispersers – made with digital painting in Krita. © Melito Prinson Pinto



An annotated checklist of the economically important family of moths (Lepidoptera: Heterocera: Noctuidae) of the northern Western Ghats, India, with notes on their type species, diversity, distribution, host plants, and an unusual new faunistic record

Aparna Sureshchandra Kalawate¹ , Prachee Surwade²  & S.N. Pawara³ 

^{1,2}Zoological Survey of India, Western Regional Centre, Vidya Nagar, Sector-29, P.C.N.T. (PO), Rawet Road, Akurdi, Pune, Maharashtra 411044, India.

³S.G. Patil Arts, Science & Commerce College, Sakri, Maharashtra 424304, India.

¹aparna_ent@yahoo.co.in (corresponding author), ²pracheesurwade0987@gmail.com, ³shitalnpawara@gmail.com

Abstract: This research is based on the surveys conducted from 2015–2018 resulting in identification of 37 species of 25 genera of noctuid moths. From the surveys, three new records including one unusual species namely, *Conservula indica* (Moore, 1867) are reported in the present study. A total of eight species of this family are reported as endemic. Two species—*C. indica* and *Pyrrhia umbra*—are reported first time from the Western Ghats part of Maharashtra. In this communication, notes on host plant, type species, endemic species with their distribution are provided.

Keywords: Biodiversity hotspot, endemic, genera, *Conservula indica*, faunistic survey, Maharashtra, *Pyrrhia umbra*, species, systematics, taxonomy.

सार: हे संशोधन 2015-2018 मध्ये केलेल्या सर्वेक्षणांवर आधारित आहे, ज्यामुळे नॉक्टिड पतंगांच्या 25 वंशाच्या 37 प्रजातींची ओळख पटली. सर्वेक्षणांमधून, सध्याच्या अभ्यासात *कन्झर्वुला इंडिका* (मूर, 1867) या असामान्य प्रजातीसह तीन नवीन नोंदी नोंदवल्या गेल्या आहेत. या कुटुंबातील एकूण आठ प्रजाती स्थानिक म्हणून नोंदवल्या गेल्या आहेत. दोन प्रजाती - *सी. इंडिका* आणि *पा. ओम्ब्रा*—महाराष्ट्राच्या पश्चिम घाट भागातून प्रथमच नोंदवल्या गेल्या आहेत. या लेखाच्या माध्यमातून, खाद्य वनस्पती, टाईप स्पेसीस, स्थानिक प्रजाती त्यांच्या वितरणासह माहिती प्रदान केली आहे.

Editor: Jatishwor Singh Irungbam, Sphingidae Museum, Pribram, Czech Republic.

Date of publication: 26 February 2023 (online & print)

Citation: Kalawate, A.S., P. Surwade & S.N. Pawara (2023). An annotated checklist of the economically important family of moths (Lepidoptera: Heterocera: Noctuidae) of the northern Western Ghats, India, with notes on their type species, diversity, distribution, host plants, and an unusual new faunistic record. *Journal of Threatened Taxa* 15(2): 22632–22653. <https://doi.org/10.11609/jott.7824.15.2.22632-22653>

Copyright: © Kalawate et al. 2023. 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: The work is based on the annual research programme of Zoological Survey of India, WRC, Pune (Ministry of Environment & Forests, Govt. of India).

Competing interests: The authors declare no competing interests.

Author details: APARNA SURESHCHANDRA KALAWATE (ASK) is a senior scientist working in Zoological Survey of India, Western Regional Centre, Pune. She is an entomologist and her interest groups are moths and scarab beetles. She has more than 68 research papers published in peer reviewed journals. PRACHEE SURWADE (PS) worked as a JRF in an entomology laboratory of ZSI, WRC, Pune from August, 2021 to August, 2022. SHITAL PAWARA (SP) is a PhD student of SG Patil College, Sakri and her PhD thesis is on moths. She did her PhD research work at ZSI, WRC, Pune.

Author contributions: ASK—performed survey, collected and identified the moths and wrote the MS; PS—took the photographs and helped in curation and labeling; SNP—helped in preparing checklist.

Acknowledgements: The authors are grateful to the director, Zoological Survey of India (ZSI), Kolkata and the officer-in-charge, Zoological Survey of India, Western Regional Centre, Pune for providing necessary facilities and encouragement. The authors are thankful to the forest department for their cooperation and support during the survey. The authors acknowledge the survey team of ZSI Pune for collection efforts.



INTRODUCTION

Northern Western Ghats is a biodiversity hotspot with a high level of endemic species, facing biodiversity degradation by human exploitation. It is locally known as Sahyadri and is a chain of flat top mountains of about 750 km in length running parallel to western Coast of peninsular India from the river Tapi, southern Gujarat down south to Goa. The global conservation issue is the loss and fragmentation of tropical rainforest. Invertebrates are sensitive to the environmental changes and are important indicators to help us in understanding the effects of habitat fragmentation (Jansen 1997; Miyashita et al. 1998). Ockinger et al. (2010) reported that moths are sensitive to habitat fragmentation and the species whose larvae are monophagous are more affected by the loss of habitat. In recent past, considerable amount of research and conservation efforts have been carried out in this important ecoregion but is not sufficient. We need to record and conserve the species before its extinction.

Noctuid moths are also referred as owlet moths, are economically important group as the larva of most of them feeds on agricultural, horticultural, and forest plants. Correct identification of any species is necessary for development of suitable management practices. Maharashtra is an agriculturally important state of India, where the major occupation of people is agriculture. Despite various other reasons for low crop productivity, insect pest infestation is the major one. The immature stages of many noctuid genera have immense economic impact annually (Kitching 1984). The huge losses caused by them are counted in terms of millions of rupees every year which farmers spend for their control. As per Deshmukh et al. (2021), an additional cost of US\$ 49.32 per ha, i.e., 10 times on pesticides was incurred by farmers to control a noctuid pest, *Spodoptera frugiperda* (Smith, 1797), in Karnataka. In millets, the voracious feeding of the noctuid pest results in complete defoliation (Gahukar & Reddy 2019). Another most dangerous pest is *Helicoverpa armigera* (Hübner, 1808) and alone is responsible for crop losses over INR 35,000 million annually in India (Kumar & Kapoor 2003). Very recently, the havoc caused by the invasive pest Fall Army Worm *S. frugiperda* is a classic example of how proper identification of the pest is important to control it in time. The distribution knowledge of such an economically important group of insects is vital for the economy of any country.

The most significant and outstanding contribution on the taxonomy of Indian Noctuidae was made by

Hampson (1894, 1895) and published in Fauna of British India including Ceylon and Burma in two volumes. The classification of noctuid moth is highly unstable (Mitchell et al. 2000, 2006; Fibiger & Lafontaine 2005; Lafontaine & Fibiger 2006). Recently, due to the molecular studies conducted by Zahiri (2011, 2012) the classification has some stable status. In present study, the classification given by Holloway (2011) has been followed by incorporating subsequent changes (Zahiri et al 2011, 2012, 2013a, 2013b; Kononenko & Pinratana 2013). The distribution of the species was consulted from published literature (Zote et al. 2006; Sivasankaran et al. 2010, 2012; Kononenko & Pinratana 2013; Shashank & Singh 2014; Kononenko 2016; Das et al 2020; Nagrare et al. 2022).

On perusal of literature, it was found that, some literature is available on the noctuid fauna of southern Western Ghats (Sivasankaran et al. 2010, 2012) but no work so far has been carried out on noctuid fauna of this region. Hence, the present study was taken up with an aim to document the noctuid moths from northern Western Ghats, Maharashtra. This study yielded in enumeration of 88 species of 44 genera from 13 subfamilies of noctuid moths from this region. Perhaps, this is the first report of documenting noctuid moths from this ecologically important biodiversity hotspot.

MATERIALS AND METHODS

Study Area

Field visits were undertaken in the northern Western Ghats region to collect and record the noctuid moths. Total 17 places in the northern Western Ghats were surveyed. The area surveyed and the geographical coordinated are given in Table 1 and also presented in Figure 1.

Collection and identification of specimens

Collection of specimens was done by light traps in the night. The collected specimens were euthanized by vapours of ethyl acetate and further processed in the laboratory by standard procedures in lepidopterology. The moths were identified with the help of available literature, viz. Hampson (1894, 1895), Bell & Scott (1937), and Holloway (1987; 1988). The classification followed is as per Nieukerken et al. (2011), Zahiri et al. (2010, 2011), and Kononenko & Pinratana (2013). The identified specimens have been deposited in the

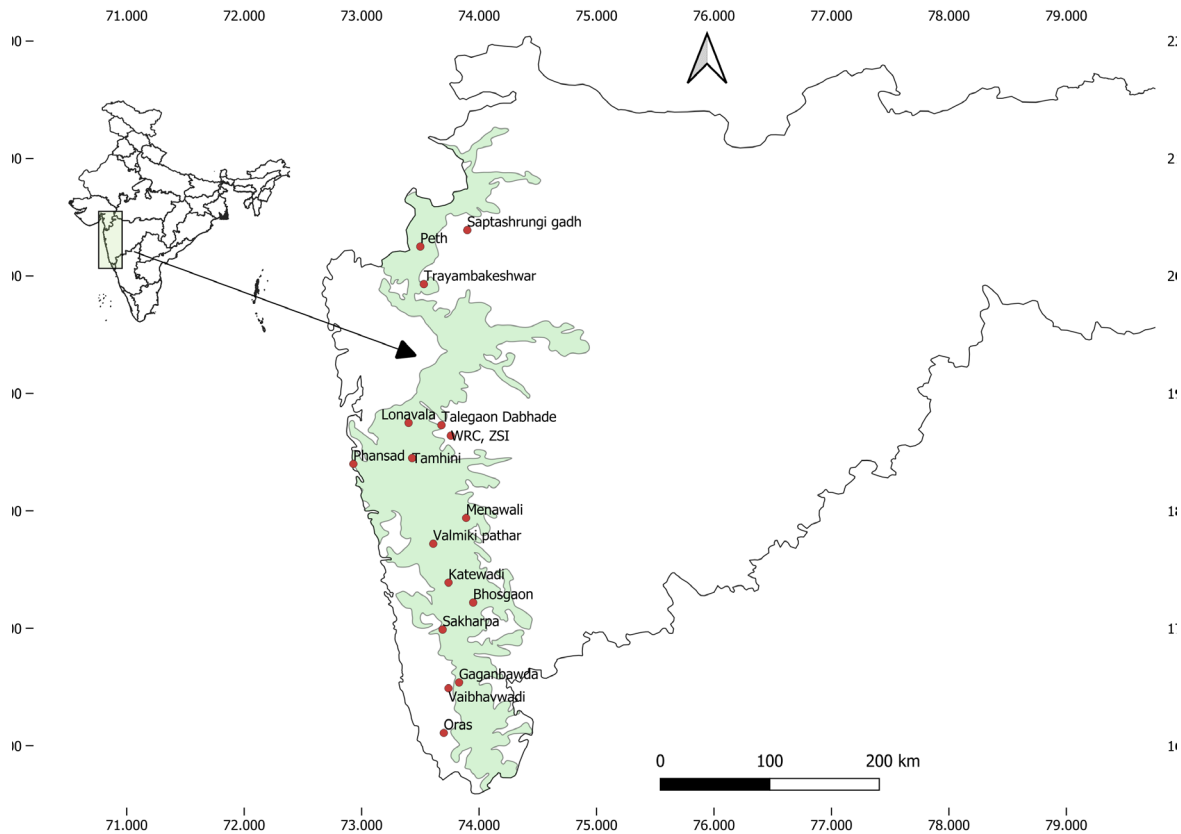


Figure 1. Survey localities in the northern Western Ghats.

National Zoological Collections of Zoological Survey of India, Western Regional Centre, Pune (ZSI-WRC). Some of the moths from the studied area have been shown in Image 1–3. Figure 1 represents the collection and survey localities. The details of the survey localities are given in Table 1.

RESULTS AND DISCUSSION

The aim of the present study was to ascertain the diversity of noctuid moths from the northern Western Ghats of Maharashtra. As the family has economic importance in agricultural, horticultural, and forest pest-disease, noctuid moths were assessed for their diversity. Proper control measures can be deployed to control the pest if it is identified correctly. Taxonomic documents and taxonomists help the agricultural scientist and the farmers in general to identify the pest correctly. This study was taken up to identify and document the noctuid fauna of the region and the surveys were undertaken during 2015–2018.

Totally, five surveys were undertaken (Figure 1) where a total of 37 species of noctuid moths have

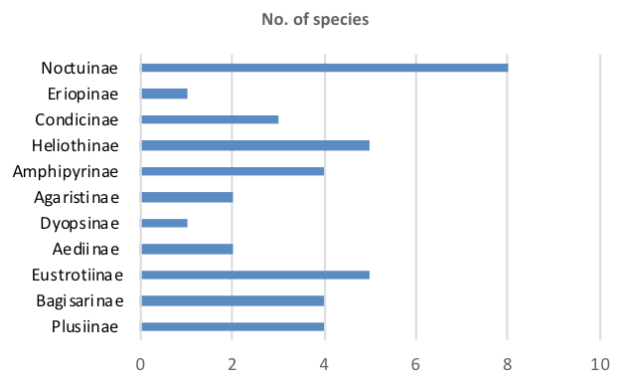


Figure 2. Number of species recorded in the subfamily.

been documented in this study. The highest number of species reported in the present study is from Noctuinae (8) followed by Heliothinae (5), Eustrotiinae (5), Amphipyrynae (4), Bagisariinae (4), Plusiinae (4), Condicinae (3), Agaristinae (2), Aediinae (2), Eriopinae (1), and Dyopsinae (1).

A report of monophagous species namely, *C. indica* (Moore, 1867) in this study formed an unusual new distribution record from the Western Ghats (Earlier recorded from: Arunachal Pradesh, Sikkim, and Himachal

Table 1. Details of the survey localities with geocoordinates.

Locality	Latitude	Longitude
Lonavala	18.75	73.4
Oras	16.11	73.7
Bhosgaon	17.22	73.95
Menawali	17.94	73.89
Gaganbawda	16.54	73.83
Phansad	18.4	72.93
Talegaon dabhadde	18.73	73.68
Sakharpa	16.99	73.69
Saptashrunji gadh	20.39	73.9
Tamhini	18.45	73.43
ZSI, WRC, campus	18.64	73.76
Valmiki pathar	17.72	73.61
Katewadi	17.39	73.74
Trayambakeshwar	19.93	73.53
Patan	17.37	17.37
Vaibhavwadi	16.49	73.74
Peth	20.25	73.5

Pradesh). A semi-epiphytic fern namely, *Pteridium revolutum* (Blume) Nakai (= *Pteridium aquilinum*) of family Dennstaedtiaceae is the host plant of *C. indica*. In the northern Western Ghats, *P. revolutum* is restricted from the medium–high elevation forest of Matheran–Mahabaleshwar (800–1,353 m). As per the reports of Kononenko & Pinratana (2013), *C. indica* occurred in the forest of Thailand up to 1,250 m altitude. Contrary to this, in the present study *C. indica* is recorded from Valmiki Pathar, Satara, India at 610 m altitude. As stated earlier, *C. indica* is reported from the Indian Himalayan region until this study. Though there are some photographs available on the citizen science website but no voucher based scientific document stating its occurrence from the studied area is available so far. Hence, this study forms an unusual new record of *C. indica* from the northern Western Ghats based on voucher specimen. Sivasakaran et al. (2017) listed the species in a checklist from Tamil Nadu, Western Ghats, India without photographs of the species. Rigorous studies are required to confirm the gaps areas of record of *C. indica* between Himalaya and the Western Ghats.

Chandra (2008) reported 11 Noctuidae species from Jabalpur. Sivasakaran et al. (2011) reported 154 species of noctuid moths classified under 85 genera and 23 subfamilies from Tamil Nadu part of Western Ghats (Nilgiri Biosphere and Kodaikanal hills). Fayle et

al. (2007) collected 44 noctuid species near fields and gardens. They collected 13 noctuid species from both agriculture and forest area among which 25.9% and 24.7% noctuids were from agricultural and forest areas, respectively. Shubhalaxmi et al. (2011) reported 35 noctuid moths from the northern Western Ghats. Gurule & Nikam (2013) recorded 28 species of noctuid moths from Nashik, Dhule, Jalgaon, and Nandurbar districts of northern Maharashtra. Two-hundred-and-ninety-seven species of noctuid moths were reported by Mitra et al. (2019) from Maharashtra following the old system of classification. In majority of the published literature the old system of classification has been followed and they included some erbid moths like *Bastilla*, *Grammodes* under noctuid family. The systematic list of the taxa recorded from the study area is as under.

TAXONOMIC ACCOUNT

Order **Lepidoptera** Linnaeus, 1758

Suborder **Glossata** Fabricius, 1775

Superfamily **Noctuoidea** Latreille, 1809

Family **Noctuidae** Latreille, 1809

Subfamily **Plusiinae** Boisduval, [1828]

Tribe **Argyrogrammatini** Eichlin & Cunningham, 1978

Trichoplusia McDunnough, 1944

1944. *Trichoplusia* McDunnough, *Mem. So. Calif. Acad. Sci.* 2(2): 204.

Type Species: *Plusia brassicae* Riley, 1870 = *Trichoplusia ni* (Hübner, [1803])

1) *Trichoplusia ni* (Hubner, 1803)

[1803]. *Noctua ni* Hübner, *Samml. eur. Schmett.* [4]: pl. 58, f. 284.

Type locality: Europe.

Material examined: None.

Distribution: India (throughout including Maharashtra), Antilles, Brazil, Eurasia, Mexico, North America, northern Argentina, Oriental Region, Paraguay, southern Palearctic, southern Canada, USA.

Larval host Plants: polyphagous: *Ageratum conyzoides*, *Carthamus tinctorius*, *Helianthus annuus*, *Lactuca sativa*, *Taraxacum* sect. *Taraxacum*, *Zea mays* (Asteraceae); *Alcea rosea*, *Gossypium herbaceum*, *Gossypium barbadense* (Malvaceae); *Antirrhinum* spp. (Plantaginaceae); *Apium graveolens* (Apiaceae); *Asparagus officinalis* (Asparagaceae); *Beta vulgaris*, *Chenopodium album* (Amaranthaceae); *Brassica nigra*, *Brassica oleracea*, *Brassica rapa*,



Thysanoplusia (T.) orichalcia



Chrysodeixis (C.) eriosoma



Chrysodeixis (C.) acuta



Xanthodes intersepta



Xanthodes transversa



Chasmina candida



Dyrzela plagiata



Acontia crocata

Image 1. Noctuid moths of northern Western Ghats. © Aparna Kalawate.

Citrullus lanatus, *Cucurbita maxima* (Cucurbitaceae); *Zygophyllum arabicum* (Zygophyllaceae); *Geranium* (Geraniaceae); *Glycine max* (Poaceae); *Ipomoea batatas* (Convolvulaceae); *Lathyrus odoratus*, *Melilotus indicus*, *Pisum sativum*, *Vigna unguiculata* (Fabaceae); *Solanum lycopersicum*, *Nicotiana glauca*, *Nicotiana tabacum*, *Solanum tuberosum* (Solanaceae); *Malus domestica* (Rosaceae); *Ocimum tenuiflorum* (Lamiaceae); *Papaver somniferum* (Papaveraceae); *Tropaeolum majus* (Tropaeolaceae); *Urtica dioica* (Urticaceae).

***Thysanoplusia* Ichinose, 1973**

1973. *Thysanoplusia* Ichinose, *Kontyû* 41(2): 137.

Type Species: *Phytometra intermixta* Warren, 1973.

2) *Thysanoplusia (Thysanoplusia) intermixta* (Warren, 1913)

1913. *Phytometra intermixta* Warren, Seitz, *Grossschmett. Erde* 3: 357.

Type locality: China.

Material examined: None.

Distribution: India (Maharashtra & West Bengal), Canary Islands, China, Japan, Korea, Russia, southeastern Asia, Sri Lanka, Taiwan.

Larval host plants: Rosaceae, Fabaceae, Apiaceae, Linaceae, Lamiaceae, and Asteraceae.

3) *Thysanoplusia (Thysanoplusia) orichalcea* (Fabricius, 1775)

1775. *Noctua orichalcea* Fabricius, *Systema Ent.*: 607.

Type locality: India.

Material examined: 01 ex., Phansad, Raigad, 23.xi.2011, P.S. Bhatnagar & Party (L-1521); 01 ex., Phansad, Raigad, 22.xi.2011, P.S. Bhatnagar & Party (L-1520).

Distribution: India (Maharashtra, Tamil Nadu, West Bengal), Africa, southeastern Asia, Australia, New Zealand, southern Europe.

Larval host Plants: polyphagous: *Helianthus*, *Coreopsis* (Asteraceae); *Solanum tuberosum* (Solanaceae); *Glycine* (Fabaceae).

***Vittaplusia* Ronkay, Ronkay & Behounek, 2010**

2010. *Vittaplusia* Ronkay, Ronkay & Behounek, *Witt Catalogue* 4: 74.

Type Species: *Plusia vittata* Wallengren, 1856.

4) *Vittaplusia (Petraplusia) obtusisigna* (Walker, 1858)

2010. *Vittaplusia (Petraplusia) obtusisigna*; Ronkay et al., *Witt Catalogue* 4: 14.

Type locality: Sri Lanka.

Material examined: None.

Distribution: India (Maharashtra, Tamil Nadu), Myanmar, Sri Lanka, and Thailand.

Larval host plants: Not known.

***Ctenoplusia* Dufay, 1970**

1970. *Ctenoplusia* Dufay, *Faune Madagascar* 31: 91.

Type Species: *Plusia limbirena* Guenée, 1852.

5) *Ctenoplusia (Ctenoplusia) albostriata* (Bremer & Grey, 1853)

1853. *Plusia albostriata* Bremer & Grey, *Beitr. Schmett. nort. China*: 18.

Type locality: China (Beijing).

Material examined: 01 ex., Lonavla, Pune, 23.viii.2017, A.S. Kalawate & Party (L-1669); 01 ex., Satara, 10.xii.2017, A.S. Kalawate & Party (L-1658).

Distribution: India (Himachal Pradesh, Maharashtra, northwestern Himalaya, Odisha, Tamil Nadu), Australia, China, Fiji Islands, Indonesia, Japan, Korea, New Zealand, Russia, Rapa Island, Sri Lanka, southeastern Asia, and Taiwan.

Larval host plants: *Symphytum* (Boraginaceae); *Calystegia* (Convolvulaceae); *Aster*, *Dichrocephala*, *Elephantopus*, & *Erigeron* (Compositae); and *Calendula*, *Callistephus*, & *Dahlia* (Asteraceae).

6) *Ctenoplusia (Ctenoplusia) furcifera* (Walker, 1858)

1858. *Plusia furcifera* Walker, *List Spec. Lepid. Insects Colln Br. Mus.* 12: 927.

Type locality: Punjab [India].

Material examined: None.

Distribution: India (Himachal Pradesh, Kerala, Maharashtra, northwestern Himalaya, Tamil Nadu, West Bengal), Australia, South Africa, Taiwan, and Thailand.

Larval host plants: *Peristrophe* (Acanthaceae); *Coffea* (Rubiaceae).

***Chrysodeixis* Hübner, [1821]**

[1821]. *Chrysodeixis* Hübner, *Verz. bek. Schmett.* 16: 252.

Type Species: *Phalaena chalcites* Esper, 1789.

7) *Chrysodeixis (Chrysodeixis) acuta* (Fabricius, 1775)

1858. *Plusia acuta* Walker, *List Spec. Lepid. Insects Colln Br. Mus.*, 12: 922.

Type locality: Congo.

Material examined: 02 ex., Menawali, Wai Satara, 23.vii.2018, A.S. Kalawate & Party (L-1973); 01 ex.,

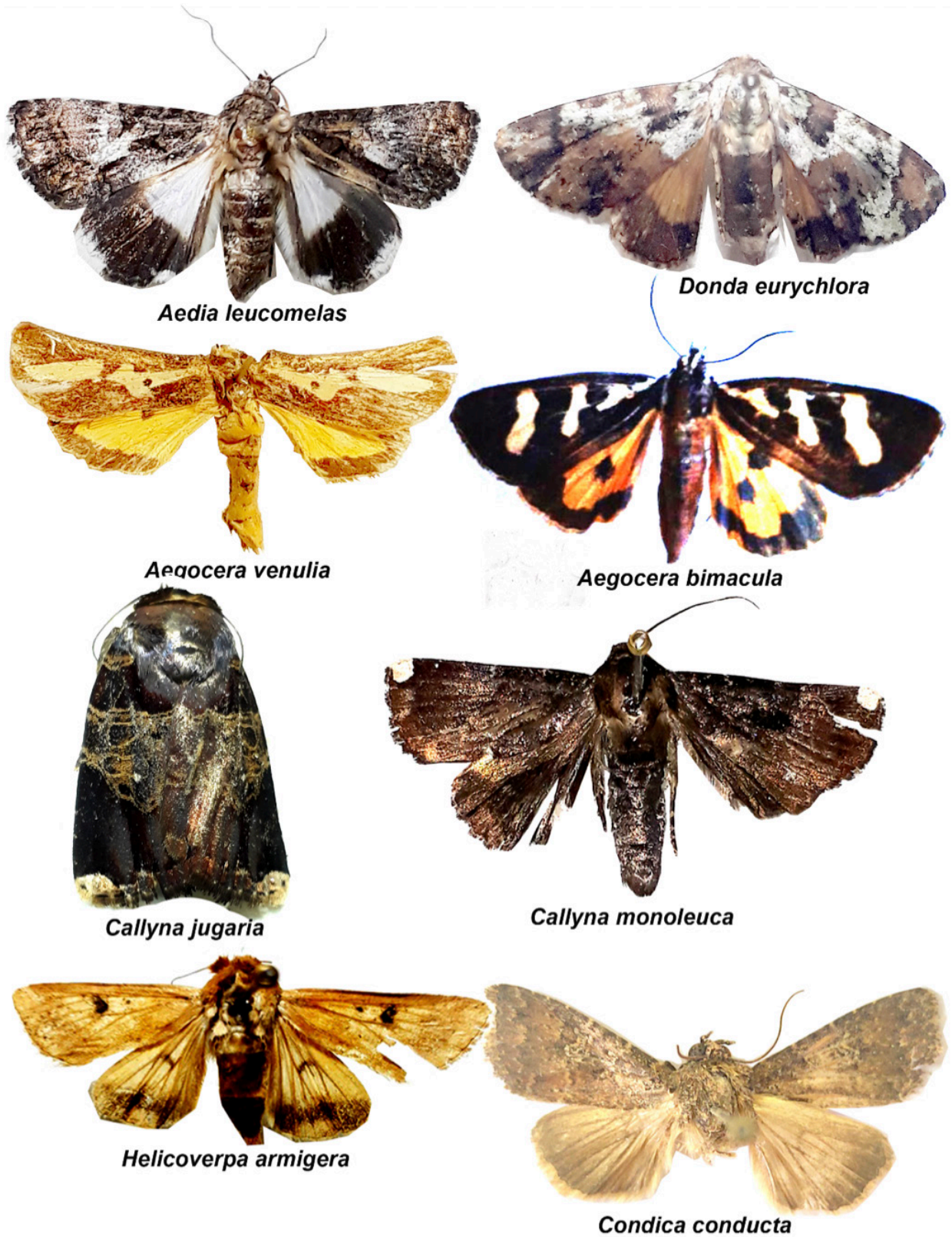


Image 2. Noctuid moths of northern Western Ghats. © Aparna Kalawate.

Oras, Sindhudurg, 27.ix.2016, V.D. Hegde & Party (L-1686); 01 ex., Gaganbawda, Kolhapur, 03.x.2017, V.D. Hegde & Party (L-1687); 02 ex., Gaganbawda, Kolhapur, 06.x.2017, V.D. Hegde & Party (L-1688); 11 ex., Lonavla, Pune, 23.viii.2017, A.S. Kalawate & Party (L-1613).

Distribution: India (Kerala, Maharashtra, Tamil Nadu, West Bengal), Africa, Australia, China, Indonesia, and Japan.

Larval host plants: *Hordeum vulgare* (Poaceae); *Linum usitatissimum* (Linaceae); and *Sorghum bicolor* (Poaceae).

8) *Chrysodeixis (Chrysodeixis) eriosoma* (Doubleday, 1843)

1843. *Plusia eriosoma* Doubleday, in Dieffenbach, *Travels in New Zealand*, 2: 285.

Type locality: New Zealand.

Material examined: 25 ex., Lonavla, Pune, 23.viii.2017, A.S. Kalawate & Party (L-1659); 01 ex., Menawali, Wai, Satara, 23.vii.2018, A.S. Kalawate & Party (L-1972).

Distribution: India (throughout including Maharashtra), Australia, China, Indonesia, Japan, Malaysia, New Zealand, New Guinea & neighbouring islands in the Pacific Ocean, and North & South America.

Larval host plants: polyphagous: Solanaceae; Convulvulaceae; Geraniaceae; Lamiaceae; Mimosaceae; Fabaceae; Passifloraceae; Cucurbitaceae; and Liliaceae.

***Anadevidia* Kostrowicki, 1961**

1961. *Anadevidia Kostrowicki*, *Acta zool. cracov.* 6(10): 384.

Type Species: *Noctua peponis* Fabricius, 1775.

9) *Anadevidia peponis* (Fabricius, 1775)

1775. *Noctua peponis* Fabricius, *Syst. Ent.*: 608.

Type locality: East Indies.

Material examined: None.

Distribution: India (Maharashtra, Odisha), Australia, Japan, Korea, New Guinea, Taiwan, and Ussuri.

Larval host plants: *Citrullus lanatus*, *Cucumis sativus*, *Cucurbita moschata*, *Cucurbita pepo*, *Momordica charantia*, *Trichosanthes anguina*, *T. himalensis*, *T. cucumerina*, *Lagenaria siceraria*, and *Sechium edule* (Cucurbitaceae).

(I) Subfamily Bagisarinæ Crumb, 1956

***Xanthodes* Guenée, 1852**

1852. *Xanthodes* Guenée, *Hist. nat. Ins., Spec. gén. Lépid.* 6(Noct. 2): 209.

Type Species: *Phalaena malvae* Esper, 1805.

10) *Xanthodes intersepta* Guenée, 1852

1852. *Xanthodes intersepta* Guenée, *Species Général des Lépidoptères* 6: 212.

Type locality: Indes Orientales (India).

Material examined: 01 ex. Lonavla, Pune, 23.viii.2017, A.S. Kalawate & Party (L-1629).

Distribution: India (Maharashtra, Madhya Pradesh, Tamil Nadu) Burma, China, Hong Kong, Indonesia, Japan, Nepal, Philippines, Sri Lanka, Taiwan, Thailand, and Vietnam.

Larval host plants: *Hibiscus*, *Kydia*, *Urena*, and *Abelmoschus esculentus* (Malvaceae).

11) *Xanthodes transversa* Guenée, 1852

1852. *Xanthodes transversa* Guenée, *Hist. nat. Ins., Spec. gén. Lépid.* 6(Noct. 2): 211.

Type locality: Indonesia; Bangladesh.

Material examined: 01 ex. Nandurbar, 28.viii.2019, S.N. Pawara (L-2287).

Distribution: India (Maharashtra, Andaman & Nicobar Island), Australia, Bangladesh, Bismarck Archipelago, Borneo, China, Hong Kong, Indonesia, Japan, Laos, Malaysia, Melanesia, Myanmar, Nepal, New Guinea, New Hebrides, Pakistan, Philippines, Singapore, Sri Lanka, southern China, southern Japan, Solomon Island, Thailand, Timor, Vanuatu, and Vietnam.

Larval host plants: *Barringtonia* (Lecythidaceae), *Urena*, *Abelmoschus*, *Alcea*, *Gossypium*, *Hibiscus*, *Kydia*, *Sida* (Malvaceae), *Psidium* (Myrtaceae), *Solanum* (Solanaceae), *Grewia* (Tiliaceae), *Citrus* (Rutaceae), and *Boehmeria* (Urticaceae).

***Chasmina* Walker, 1856**

1856. *Chasmina* Walker, *List Spec. Lepid. Insects Colln Br. Mus.* 9: 69.

Type Species: *Chasmina cygnus* Walker, 1856.

12) *Chasmina candida* (Walker, 1865)

1865. *Arbasera candida* Walker, *List Spec. lipid. Ins. Coll. Brit. Mus.* 32: 638.

Type locality: Cambodia.

Material examined: 01 ex., Lonavla, Pune, 23.viii.2017, A.S. Kalawate & Party (L-1819); 02 ex., Oras, Sindhudurg, 10.ix.2015, A.S. Kalawate & Party (L-1470).

Distribution: India (Maharashtra, Tamil Nadu, & Uttarakhand), Australia, Cambodia, eastern Africa, Fiji, Indonesia, Laos, Madagascar, Melanesia, New Guinea, New Caledonia, New Hebrides, Nepal, Philippines, Solomon Island, Sri Lanka, southern Japan, southern China, Seychelles, Taiwan, Thailand, Vietnam, and Vanuatu.

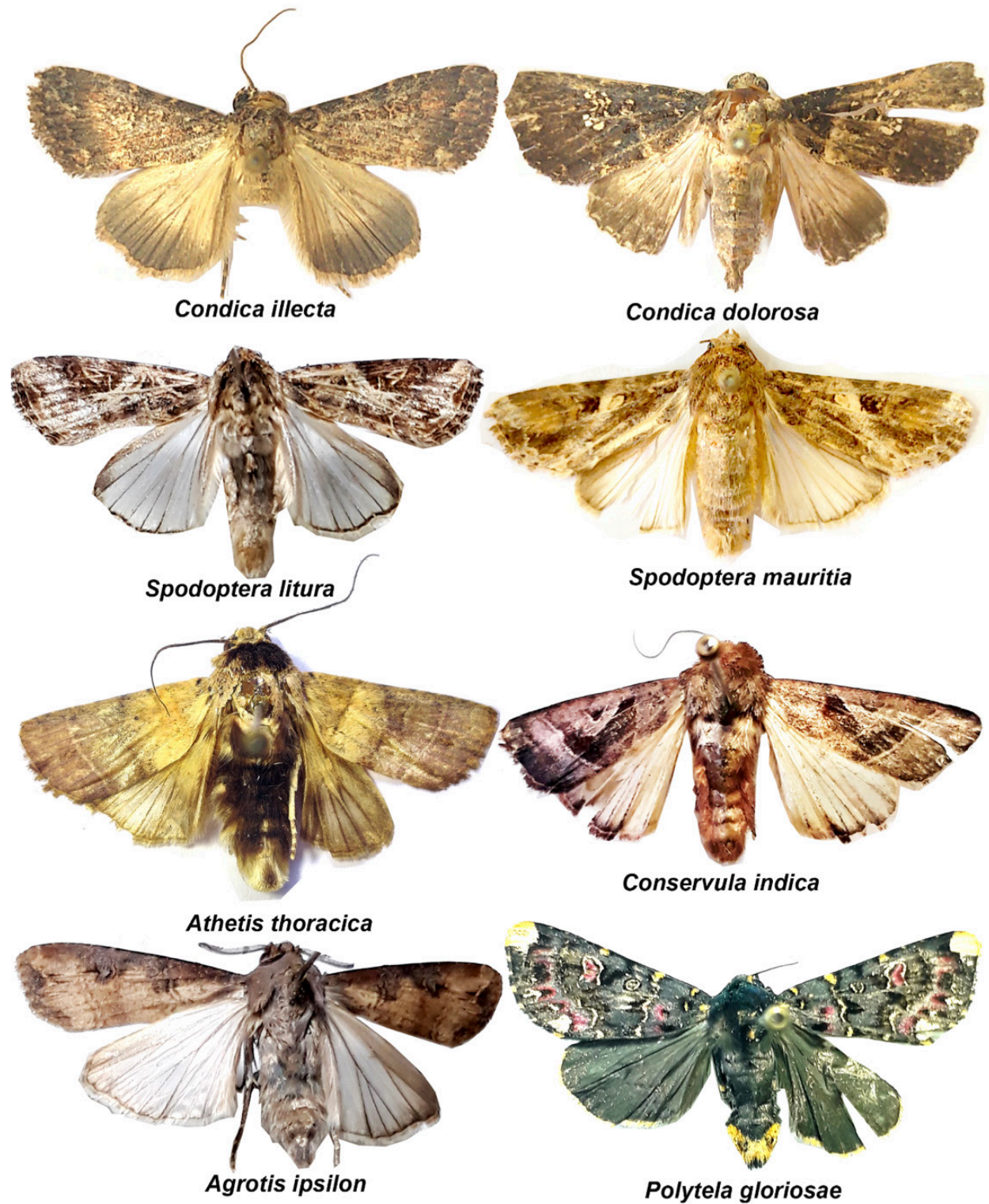


Image 3. Noctuid moths of northern Western Ghats. © Aparna Kalawate.

Larval host plants: *Talipariti tiliaceum* and *Hibiscus tiliaceus* (Malvaceae).

13) *Chasmia fasciculosa* Walker, 1858

1858. *Acontia fasciculosa* Walker, *Cat. Lep. Het. B. M.* xv, p. 1760.

Type locality: Sri Lanka.

Material examined: None.

Distribution: India (Maharashtra), China, Laos, Nepal, Philippines, Sri Lanka, Thailand, and Vietnam.

Larval host plants: *Helicteres* (Malvaceae).

Dyrzela Walker, 1858

1858. *Dyrzela* Walker, *List Spec. Lepid. Insects Colln Br. Mus.* 15: 1758.

Type Species: *Dyrzela plagiata* Walker, 1858.

14) *Dyrzela plagiata* Walker (1857) 1858

(1857) 1858. *Dyrzela plagiata* Walker, *List of the Specimens of lepidopterous Insects in the Collection of the British Museum*, 15: 1758.

Type locality: Hindostan (India).

Material examined: 01 ex., Satara, 16.x.2016, P.S. Bhatnagar & Party (L-1891).

Distribution: India (Karnataka, Maharashtra, & Punjab), Thailand, Sri Lanka, Myanmar, Laos, Vietnam, Malaysia, Borneo, Indonesia, Philippines, and China.

Larval host plants: *Grewia* (Malvaceae).

Sphragifera Staudinger, 1892

1892. *Sphragifera* Staudinger, in *Romanoff, Mém. Lépid.* 6: 554.

Type Species: *Anthoecia sigillata* Ménétris, 1859.

15) *Sphragifera rejecta* (Fabricius, 1775)

1775. *Noctua rejecta* Fabricius, *Syst. Ent.*: 601.

Type locality: India.

Material examined: None.

Distribution: India (Maharashtra, Punjab, & Tamil Nadu), China, Myanmar, Philippines, and Sri Lanka.

Larval host plants: Betulaceae; and Juglandaceae.

Amyna Guenée in Boisduval & Guenée, 1852

1852. *Amyna* Guenée, *Hist. nat. Ins., Spec. gén. Lépid.* 5(Noct. 1): 406.

Type Species: *Amyna selenampha* Guenée, 1852.

16) *Amyna axis* (Guenée, 1852)

1775. *Noctua rejecta* Fabricius, *Syst. Ent.*: 601.

Type Locality: India.

Material examined: None.

Distribution: India (Tamil Nadu and Maharashtra), Australia, America, Africa, Arabia, Borneo, China, Fiji, Indonesia, Korea, Madagascar, Melanesia, Malaysia, New Guinea, New Hebrides, Near East, Nepal, Norfolk Island, New Caledonia, Pakistan, Polynesia, Samoa, south of Russian Far East, Sri Lanka, Solomon Isl., southern Japan, Thailand, Taiwan, Tonga, Vietnam, and Vanuatu.

Larval host plants: *Cannabis sativa* (Cannabaceae); *Chenopodium album* (Chenopodiaceae); and *Glycine max* (Fabaceae).

17) *Amyna stellata* Butler, 1878

1878. *Amyna stellata* Butler, *Ann. Mag. Nat. Hist.* (5)1(2): 162.

Type Locality: Japan.

Material examined: None.

Distribution: India (throughout including Maharashtra), Japan, China, Taiwan, Indian Subregion, and Sundaland.

Larval host plants: *Achyranthes* (Amaranthaceae).

(II) Subfamily Eustrotiinae Grote, 1882

Ozarba Walker, 1865

1865. *Ozarba* Walker, *List Spec. Lepid. Insects Colln Br. Mus.* 32: 684.

Type Species: *Ozarba punctigera* Walker, 1865.

18) *Ozarba badia* (Swinhoe, 1886)

1886. *Acontia badia* Swinhoe, *Proc. Zool. Soc. London* 1886:421–465.

Type Locality: Mhow (Madhya Pradesh).

Material examined: None.

Distribution: India (Madhya Pradesh).

Larval host plants: Not known.

Remark: Endemic to India.

19) *Ozarba itwarra* Swinhoe, 1885

1885. *Ozarba itwarra* Swinhoe, *Proc. Zool. Soc. London*: 452, pl. 27, f. 14.

Type Locality: Poona, Maharashtra.

Material examined: None.

Distribution: India (Maharashtra).

Larval host plants: Not known.

Remark: Endemic to India.

20) *Ozarba punctigera* Walker, 1865

1865. *Ozarba punctigera* Walker, *List Spec. lipid. Ins. Coll. Brit. Mus.* 32: 685.

Type Locality: China; Australia.

Material examined: 05 ex., Lonavala, Pune,

23.viii.2017, A.S. Kalawate & Party (L-1804); 05 ex., Tamhini, Pune, 19.ix.2018, A.S. Kalawate & Party (L-1874).

Distribution: India (Himachal Pradesh, Maharashtra, southern India, & Uttarakhand), Australia, Indonesia, Korea, Japan, Nepal, Pakistan, southern China, South Africa, Thailand, and Taiwan.

Larval host plants: Gramineae.

21) *Ozarba rectifascia* (Hampson, 1894)

1894. *Metachrostis rectifascia* Hampson, *Fauna of British India*, Moths- II: 328–329.

Type Locality: Bombay (probably Bombay presidency during British India).

Material examined: None.

Distribution: India.

Larval host plants: Not known.

Remark: Endemic to India.

22) *Ozarba uberosa* (Swinhoe, 1885)

1885. *Metachrostis uberosa*, Swinhoe *Proc. Zool. Soc. London*: 457.

Type Locality: Poona (Maharashtra).

Material examined: None.

Distribution: India (Maharashtra, Tamil Nadu, & Western Ghats).

Larval host plants: Not known.

Remark: Endemic to India.

Deltote Reichenbach, 1817

1817. *Deltote* Reichenbach, *Jena. allg. Litt.-Ztg.* 1: 288.

Type Species: *Phalaena argentula* Hübner, 1787.

23) *Deltote marginata* (Walker, 1866)

1866. *Earias marginata* Walker, *List Spec. Lepid. Insects Colln Br. Mus.* 35: 1775.

Type Locality: Java.

Material examined: 02 ex., Patan, Satara, 21.vii.2018, A.S. Kalawate & Party (L-1931); 01 ex., Koynanagar, Satara, 21.vii.2018, A.S. Kalawate & Party (L-1931); 01 ex., Nigadi, Nandurbar, 28.vi.2021, S.N. Pawara (L-3065); 01 ex., Patnadevi, Jalgaon, 14.viii.2021, A.S. Kalawate & Party (L-3227).

Distribution: India (Delhi, Maharashtra, & Manipur), China, Indonesia, and Myanmar.

Larval host plants: Not known.

Maliattha Walker, 1863

1863. *Maliattha* Walker, *List Spec. Lepid. Insects Colln Br. Mus.* 27: 86.

Type Species: *Maliattha separata* Walker, 1863.

24) *Maliattha fuliginosa* Warren, 1913

1913. *Maliattha fuliginosa* Warren, Eulenartige Nachtfalter *Gross-Schmett. Erde* 11: 280.

Type Locality: Bombay (probably Bombay presidency during British India).

Material examined: None.

Distribution: India.

Larval host plants: Not known.

Remark: Endemic to India.

25) *Maliattha quadripartita* Walker, 1865

1865. *Acontia quadripartita* Walker, *List Spec. Lepid. Insects Colln Br. Mus.* 33: 786.

Type Locality: North Hindostan (Northern India).

Material examined: None.

Distribution: India (Maharashtra & northern India), Indonesia, Myanmar, Nepal, New Guinea, southern China, Thailand, Taiwan, and Vietnam.

Larval host plants: Not known.

26) *Maliattha signifera* (Walker, 1858)

1858. *Acontia signifera* Walker, *List Spec. Lepid. Insects Colln Br. Mus.* 12: 796.

Type Locality: Northern India.

Material examined: None.

Distribution: India (Maharashtra & northern India), Australia, China, Japan, Korea, Taiwan, and Thailand.

Larval host plants: Not known.

(III) Subfamily Acontiinae Guenée, 1841

Tribe **Acontiini** Guenée, 1841

Acontia Ochseneime 1816

1816. *Acontia* Ochseneime, *Schmett. Eur.* 4: 91.

Type Species: *Noctua solaris* Schiffermüller, 1775.

27) *Acontia (Emmelia) crocata* (Guenée, 1852)

1852. *Acontia crocata* Guenée, *Hist. nat. Ins., Spec. gén. Lépid.* 6 (Noct. 2): 218.

Type Locality: Almorah, northern India.

Material examined: 01 ex., Nandurbar, 15.vii.2021, S.N. Pawara (L-3189).

Distribution: India (Himachal Pradesh, Maharashtra, & Tamil Nadu), Australia, Bangladesh, China, Indonesia, Myanmar, Malay Peninsula, Nepal, Pakistan, Sri Lanka, Thailand, and Taiwan.

Larval host plants: *Ligustrum vulgare* (Oleaceae).

28) *Acontia discoidea* Hopffer, 1862
1862. *Acontia discoidea* Hopffer, *Peter's Reis. Moz.*: 433.

Type Locality: Mozambique

Material examined: None.

Distribution: India (Maharashtra) and Africa.

Larval host plants: *Abutilon*, *Hibiscus praeteritus*, and *Sida* (Malvaceae).

29) *Acontia flavonigra* (Swinhoe, 1884)

1884. *Rivula flavonigra* Swinhoe, *Proc. Zool. Soc. London*, 1884: 522.

Type Locality: Not known.

Material examined: None.

Distribution: India (Maharashtra & Telangana) and Pakistan.

Larval host plants: Not known.

30) *Acontia malvae* (Esper, 1796)

1796. *Xanthodes malvae* Esper, *Schmett.*: IV(2): 63.

Type Locality: Hungary.

Material examined: None.

Distribution: India (throughout including Maharashtra), Europe, and Taiwan.

Larval host plants: *Gossypium hirsutum* (Malvaceae).

31) *Acontia (Acontia) nitidula* (Fabricius, 1787)

1787. *Bombyx nitidula* Fabricius, *Mantissa Insectorum* 2: 126.

Type Locality: Coromandel [India].

Material examined: 01 ex., Langda Amba, Jalgaon, 29.vi.2019, A.S. Kalawate & Party (L-2559).

Distribution: India (Maharashtra), Thailand, China, Nepal, Myanmar, Ethiopia, and South Africa.

Larval host plants: *Abelmoschus esculentus* and *Gossypium* (Malvaceae).

32) *Acontia opalinoides* Guenee, 1852

1852. *Acontia opalinoides* Guenée, *Hist. nat. Ins., Spec. gén. Lépid.* 6(Noct. 2): 219.

Type Locality: "Cote de Coromandel" [India].

Material examined: None.

Distribution: India (Maharashtra), Africa, and Myanmar.

Larval host plants: *Abutilon* and *Gossypium* (Malvaceae).

33) *Acontia upsilon* (Walker, 1865)

1865. *Calophasia upsilon* Walker, *List Spec. Lepid. Insects Colln Br. Mus.* 33: 763.

Type Locality: Deccan (India).

Material examined: None.

Distribution: India (Maharashtra), and Africa.

Larval host plants: Not known.

34) *Acontia (Emmelia) binominata* (Butler, 1892)

1892. *Tarache binominata* Butler, *Entomologist* 25: 64

Type Locality: South Hindostan (India).

Material examined: None.

Distribution: India (Maharashtra) and Africa.

Larval host plants: Not known.

Emmelia Hübner, [1821]

[1821]. *Emmelia* Hübner, *Verz. bek. Schmett.* 16: 254.

Type Species: *Phalaena sulphuralis* Linnaeus, 1767.

35) *Emmelia basifera* (Walker, [1858])

[1858]. *Acontia basifera* Walker, *List Spec. Lepid. Insects Colln Br. Mus.* 12: 793.

Type Locality: Northern India.

Material examined: None.

Distribution: India (Maharashtra) and Africa.

Larval host plants: *Gossypium* (Malvaceae).

(IV) Subfamily Aediinae Beck, 1960

Aedia Hübner, [1823]

[1823]. *Aedia* Hübner, *Verz. bek. Schmett.* 17: 260.

Type Species: *Noctua funesta* Esper, 1786.

36) *Aedia leucomelas* (Linnaeus, 1758)

1758. *Noctua leucomelas* Linnaeus, *Syst. Nat.* (Edn 10) 1: 518.

Type Locality: Europe.

Material examined: 01 ex., Peth, Nashik, 23.x.2013, P.S. Bhatnagar & Party (L-1682); 01 ex., Bhosgaon, Patan, Satara, 12.vii.2017, A.S. Kalawate & Party (L-1770).

Distribution: India (Himachal Pradesh, Karnataka, & Maharashtra), Australia, Africa, Europe, Fiji, Indonesia, Japan, Korea, New Caledonia, New Hebrides, New Guinea, Near East, Nepal, Malaysia, Melanesia, Philippines, Samoa, Thailand, Taiwan, and Vanuatu.

Larval host plants: *Ipomoea batatas*, *Convolvulus* sp., and *Calystegia* (Convolvulaceae).

37) *Aedia acronyctoides* (Guenee, 1852)

1852. *Anophia arronyctoides* Guenee, *Noct.* 3: 47.

1894. *Catephia acronyctoides*: Hampson, *Fauna Brit. India, Moths*, 2: 482–483.

Type Locality: Van Diemen's land [Tasmania].

Material examined: 02 ex., Gaganbawda, Kolhapur,

03.x.2017, V.D. Hegde & Party (L-1683); 02 ex., Lonavala, 23.vii.2017, A.S. Kalawate & Party (L-1615).

Distribution: India (Andaman Islands, Haryana, Jharkhand, Madhya Pradesh, Maharashtra, & Tamil Nadu), Australia, Cambodia, Fiji, Indonesia, Laos, Myanmar, Malay Peninsula, Malaysia, New Guinea, Nepal, Philippines, Polynesia, Samoa, Taiwan, Thailand, Timor, and Vietnam.

Larval host plants: *Convolvulus*, *Ipomea*, *Merremia* (Convolvulaceae); *Limonia* (Rutaceae); and *Chondrilla* (Asteraceae).

38) *Aedia olivescens* (Guenée, 1852)

1852. *Anophia olivescens* Guenée, *Hist. nat. Ins., Spec. gén. Lépid.* 7(Noct. 3): 48.

Type Locality: Java.

Material examined: None.

Distribution: India (Andaman Islands, Assam, Himachal Pradesh, Jharkhand, Maharashtra, Punjab, & Uttar Pradesh), Pakistan, and Sri Lanka.

Larval host plants: *Convolvulus*, *Ipomoea*, *Merremia*, (Convolvulaceae); *Limonia* (Rutaceae); and *Lycopersicon*, *Solanum* (Solanaceae).

(V) Subfamily Pantheinae Smith, 1898

Trisula Moore, 1858

1858. *Trisula* Moore, in Horsfield & Moore, *Cat. Lep. Ins. Mus. Nat. East India House* 2: 420.

Type Species: *Trisula variegata* Moore, 1858.

39) *Trisula variegata* Moore, 1858

1858. *Trisula variegata* Moore, *Cat. Lep. Ins. Mus. Nat. East India House* 2: 420.

Material examined: None.

Type Locality: northern India, Madras (India).

Distribution: India (throughout including Maharashtra) and Sri Lanka.

Larval host plants: *Ficus religiosa* (Moraceae).

(VI) Subfamily Dyopsinae Guenée, 1852

Donda Moore, 1882

1882. *Donda* Moore, *Descr. Indian lep. Atkinson* 2: 161.

Type Species: *Dandaca eurychlora* Walker, 1882.

40) *Donda eurychlora* (Walker, 1858)

1858. *Dandaca eurychlora* Walker, *Walk. Cat.*, 15: 1670.

Type Locality: Hindostan, Canara [India].

Material examined: 02 ex., Lonavala, 23.viii.2017, A.S. Kalawate & party (L-1975).

Distribution: India (Karnataka, Kerala, Maharashtra, northern India, Sikkim, & Tamil Nadu), Nepal, and Malaysia.

Larval host plants: *Trema orientalis* (Cannabaceae) and *Bombax* (Bombacaceae).

41) *Donda ornata* Moore, 1883

1883. *Donda ornata* Moore, *Proc. zool. Soc. Lond.* 1883: 23, pl. 6, f. 3.

Type Locality: West Bengal (India).

Material examined: None.

Distribution: India (Maharashtra) and Bangladesh.

Larval host plants: *Bombax malabaricum* and *Oroma lagapos* (Bombacaceae).

Belciana Walker, 1862

1862. *Belciana* Walker, *J. Proc. Linn. Soc. (Zool.)* 6: 182.

Type Species: *Dandaca biformis* Walker, 1858.

42) *Belciana hemodi* (Felder & Rogenhofer, 1874)

1874. *Pandesma hemodi* Felder & Rogenhofer, *Reise Fregatte Novara, Bd 2* (Abth. 2) (4): pl. 111, f. 25.

Type Locality: Himalaya.

Material examined: None.

Distribution: India (Maharashtra & Tamil Nadu), Sri Lanka, Indonesia, and Malaysia.

Larval host plants: *Shorea maximi* (Dipterocarpaceae) and *Heritiera* (Malvaceae).

43) *Belciana biformis* Walker, 1858

1858. *Dandaca biformis* Walker, *List Spec. Lepid. Insects Colln Br. Mus.* 15: 1671.

Type Locality: Borneo, Sarawak

Material examined: None.

Distribution: India (Maharashtra), Indonesia, Malaysia, and Sri Lanka.

Larval host plants: *Shorea maximi* (Dipterocarpaceae) and *Heritiera* (Malvaceae).

(VII) Subfamily Agaristinae Boisduval, 1833

Aegocera Latreille, 1809

1809. *Aegocera* Latreille, *Genera Crust. Insect.* 4: 211.

Type Species: *Phalaena venulia* Cramer, 1777.

44) *Aegocera bimacula* Walker, 1854

1854. *Aegocera bimacula* Walker, *List Spec. Lep. Ins.*

Coll. Brit. Mus., 1: 57.

Type Locality: Northern India.

Material examined: 02 ex., Jalgaon, 22.vi.2019. A.S. Kalawate & Party L-2566.

Distribution: India (Himachal Pradesh, Maharashtra, & Sikkim), Myanmar, and Sri Lanka.

Larval host plants: *Dillenia pentagyna* (Dilleniaceae) and *Leea guineensis* (Vitaceae).

45) *Aegocera venulia* (Cramer, [1777])

[1777]. *Phalaena venulia* Cramer, *Uitl. Kapellen* 2(9–16): 165.

Type Locality: Not known.

Material examined: 14 ex., Jalgaon, 30.vi.2019, A.S. Kalawate & Party (L-2538).

Distribution: India (Bihar, Maharashtra, Madhya Pradesh, Pondicherry, Rajasthan, subHimalayan tracts of Kashmir & Sikkim, plains of India, & Tamil Nadu) and Sri Lanka.

Larval host plants: *Boerhavia* sp. (Nyctaginaceae) and *Trianthema* (Aizoaceae).

Episteme Hübner, [1820]

[1820]. *Episteme* Hübner, *Verz. bek. Schmett.* 12: 179.

Type Species: *Phalaena lectrix* Linnaeus, 1764.

46) *Episteme adulatrix* (Kollar, [1844])

1844. *Eusemia adulatrix* Kollar, *Hugel's Kaschmir*, 4(2): 464.

Type Locality: Himalaya.

Material examined: None.

Distribution: India (throughout including Maharashtra), Nepal, China, and Myanmar.

Larval host plants: *Dioscorea pentaphylla*, *D. belophylla* (Dioscoreaceae); and *Solanum tuberosum* (Solanaceae).

(VIII) Subfamily Amphipyrinae Guenée, 1837

Callyna Guenée, 1852

1852. *Callyna* Guenée, *Hist. nat. Ins., Spec. gén. Lépid.* 5(Noct. 1): 112.

Type Species: *Callyna siderea* Guenée, 1852.

47) *Callyna costiplaga* Moore, [1885]

[1885]. *Callyna costiplaga* Moore, *Lepid. Ceylon* 3(2): 100.

Type Locality: Ceylon (Sri Lanka).

Material examined: 03 ex., Tamhini, Pune, 19.ix.2018, A.S. Kalawate & Party (L-1818).

Distribution: India (Kerala, Maharashtra, & Tamil Nadu), China, Indonesia, Philippines, Sri Lanka, and Thailand.

Larval host plants: Not known.

48) *Callyna jugaria* Walker, 1858

1858. *Callyna jugaria* Walker, *List Spec. lipid. Ins. Coll. Brit. Mus* 15: 1809.

Type Locality: Northern Hindustan (India).

Material examined: 02 ex., Ambegaon, Pune, 23.vii.2017, A.S. Kalawate & Party (L-1779); 01 ex., Tamhini, Pune, 19.ix.2018, A.S. Kalawate & Party (L-1820); 01 ex., Vaibhavwadi, Sindhudurg, 06.ix.2015, A.S. Kalawate & Party (L-1546).

Distribution: India (throughout including Maharashtra), Bangladesh, Myanmar, Nepal, Philippines, southern China, Sri Lanka, Thailand, Taiwan, and Vietnam

Larval host plants: *Cordia myxa* and *C. macleodii* (Boraginaceae).

49) *Callyna monoleuca* Walker, 1858

1858. *Callyna monoleuca* Walker, *List Spec. lipid. Ins. Coll. Brit. Mus* 15: 1667.

Type Locality: Canara (India).

Material examined: 01 ex., Patan, Satara, 20.vii.2017, A.S. Kalawate & Party (L-1708); 01 ex., Valmiki Pathar, Satara, 18.vii.2017, A.S. Kalawate & Party (L-1748).

Distribution: India (Assam, Karnataka, Maharashtra, Sikkim, & Tamil Nadu), Australia, Indonesia, Laos, Myanmar, Malay Peninsula, Philippines, Nepal, Sri Lanka, Taiwan, Thailand, Vietnam, and western China.

Larval host plants: *Cordia myxa* and *C. macleodii* (Boraginaceae).

50) *Callyna siderea* Guenée, 1852

1852. *Callyna siderea* Guenée, *Hist. nat. Ins., Spec. gén. Lépid.* 5 (Noct. 1): 113.

Type Locality: Silhet (Bangladesh).

Material examined: None.

Distribution: India (Northern India including Himachal Pradesh, & Maharashtra) and Bangladesh.

Larval host plants: Not known.

(IX) Subfamily Heliothinae Boisduval, [1828] 1829

Helicoverpa Hardwick, 1965

1965. *Helicoverpa* Hardwick, *Ent. Soc. Canada*, no. 40: 1-247.

Type Species: *Noctua armigera* Hübner, 1808.

51) *Helicoverpa armigera* (Hübner, [1808])

[1808]. *Noctua armigera* Hübner, *Samml. Erop. Schmett.* 4: pl. 79.

Type Locality: Not known.

Material examined: 05 ex., Gaganbawda, Kolhapur, 03.x.2016, V.D. Hegde & Party (L-1543); 01 ex., Saptashrunji gadh, Nashik, 06.xi.2016, V.D. Hegde & Party (L-1542); 01 ex., Gaganbawda, Kolhapur, 02.x.2017, V.D. Hegde & Party (L-1679); 02 ex., Gaganbawda, Kolhapur, 06.x.2017, V.D. Hegde & Party (L-1680); 01 ex., Bhosgaon, Satara, 20.vii.2017, A.S. Kalawate & Party (L-1698); 01 ex., Tamhini, Pune, 19.ix.2018, A.S. Kalawate & Party (L-1814).

Distribution: India (throughout including Maharashtra), Australia, Afghanistan, China, central Asia, Europe, Indochina, Indonesia, Japan, Korea, Nepal, Near East, New Zealand, northern Africa, Old World. Pakistan, Philippines, Thailand, and Taiwan.

Larval host plants: Polyphagous: Acanthaceae; Aizoaceae; Alliaceae; Anacardiaceae; Apocynaceae; Cannabidaceae; Caryophyllaceae; Cleomaceae; Compositae; Cruciferae; Cucurbitaceae; Gramineae; Labiaceae; Leguminosae; Linaceae; Malvaceae; Musaceae; Papaveraceae; Resedaceae; Rosaceae; Rubiaceae; Rutaceae; Scrophulariaceae; Solanaceae; Vitaceae; and Zygophyllaceae.

52) *Helicoverpa assulta* (Guenée, 1852)

1852. *Heliopsis assulta* Guenée, *Hist. nat. Ins., Spec. gén. Lépid.* 6 (Noct. 2): 178.

Type Locality: Tahiti.

Material examined: None.

Distribution: India (throughout including Maharashtra), Australia, China, Fiji, Guam, Indochina, Indonesia, Japan, Korea, Micronesia, Nepal, Near East, New Zealand, Pakistan, Philippines, Sri Lanka, Taiwan, Thailand, and Tahiti.

Larval host plants: *Lycopersicon*, *Nicotiana*, *Physalis*, and *Solanum* (Solanaceae).

Heliopsis Ochseneheimer, 1816

1816. *Heliopsis* Ochseneheimer, *Schmett. Eur.* 4: 91.

Type Species: *Phalaena dipsacea* Linnaeus, 1767.

53) *Heliopsis peltigera* ([Denis & Schiffermüller], 1775)

1775. *Noctua peltigera* Denis & Schiffermüller, *Wiell. Ven.* 89: 2.

Type Locality: Cote de Coromandel? [India].

Material examined: 01 ex., Gaganbawda, Kolhapur, 06.x.2016, V.D. Hegde & Party (L-1556); 01 ex., Tamhini,

Pune, 19.ix.2018, A.S. Kalawate & Party (L-1815).

Distribution: India (Madhya Pradesh, Maharashtra, & Punjab), Afghanistan, Africa, Bangladesh, Laos, Europe, Kazakstan, northern & central Asia, Pakistan, and western China.

Larval host plants: polyphagous: *Carthamus*, *Calendula* (Asteraceae), and *Medicago* (Fabaceae).

Adisura Moore, 1881

1881. *Adisura* Moore, *Proceedings of the Zoological Society of London*, 1881:367.

Type Species: *Adisura atkinsoni* Moore, 1881.

54) *Adisura atkinsoni* Moore, 1881

1881. *Adisura atkinsoni* Moore, *Proc. Zool. Soc. Lond.*, 1881: 368.

Type Locality: Darjiling, West Bengal (India).

Material examined: 02 ex., Lonavala, Pune, 23.viii.2017, A.S. Kalawate & Party (L-1809).

Distribution: India (Gujarat, Madhya Pradesh, Maharashtra (in this study) Tamil Nadu, & West Bengal), Africa, Cambodia, China, Indonesia, Japan, Korea, Madagascar, Sri Lanka, Thailand, and Vietnam.

Larval host plants: *Lablab pupureus* and *Cajanus cajan* (Fabaceae).

Remark: New record to Maharashtra.

55) *Adisura marginalis* (Walker, 1858)

1858. *Anthophila marginalis* Walker, *List Spec. lep. Ins. Coll. Brit. Mus.* 12: 830.

Type Locality: Northern India.

Material examined: 01 ex., Gaganbawda, Kolhapur, 6.x.2017, V.D. Hegde & Party (L-1735); 01 ex., Gaganbawda, Kolhapur, 2.x.2017, V.D. Hegde and Party (L-1736); 01 ex., Gaganbawda, Kolhapur, 3.x.2017, V.D. Hegde & Party (L-1737).

Distribution: India (Maharashtra, northern India, & West Bengal), Ambon, Indonesia, Moluccas, and Thailand.

Larval host plants: *Cajanus cajan* (Fabaceae).

Pyrrhia Hübner, [1821]

[1821]. *Pyrrhia* Hübner, *Verz. bek. Schmett.* 15: 233.

Type Species: *Noctua rutilago* Denis & Schiffermüller, 1775.

56) *Pyrrhia umbra* (Hufnagel, 1766)

1766. *Phalaena umbra* Hufnagel, *Berl. Mag.* 3: 294.

Type Locality: Berlin region.

Material examined: 01 ex., Satara, 15.vii.2017, A.S. Kalawate & Party (L-1765).

Distribution: India (Jammu & Kashmir and northern

India), Australia, Caucasus, central Asia, China, Europe, Iran, Kazakhstan, Nepal, southern Siberia, and Transcaucasia.

Larval host plants: *Ononis hircine*, *O. repens*, *O. spinosa*, *Genista tinctoria*, *Vicia cracca* (Fabaceae); *Linaria vulgaris*, *L. bipartita*, *Antirrhinum majus* (Plantaginaceae); *Salix phylicifolia* (Salicaceae); *Polygonum lapathifolium* (Polygonaceae); *Rubus sp.* (Rosaceae); *Pentstemon barbatus* (Plantaginaceae); *Melampyrum nemorosum* (Orobanchaceae); and *Calendula officinalis* (Asteraceae).

Remark: Reported as a new record to Western Ghats (Kalawate 2022).

(X) Subfamily Condicinae Poole, 1995

Tribe **Condicini** Poole, 1995

Condica Walker, 1856

1856. *Condica* Walker, *List Spec. Lepid. Insects Colln Br. Mus.* 9: 240.

Type Species: *Condica palpalis* Walker, 1865.

57) Condica conducta (Walker, [1857] 1856)

[1857] 1856. *Caradrina conducta* Walker, *Cat.*, 10: 296.

Type Locality: Congo.

Material examined: 01 ex., WRC, ZSI campus, Pune, 14.iii.2017, A.S. Kalawate & Party (L-1771); 01 ex., Lonavala, 23.viii.2017, A.S. Kalawate & Party (L-1823).

Distribution: India (throughout including Maharashtra), Africa, Sri Lanka, and Fiji.

Larval host plants: *Senecio* (Asteraceae); *Carthamus tinctorius*, *Dendranthema morifolium*, *Guizotia abyssinica*, *Coreopsis*, *Cosmos*, *Senecio*, *Chrysanthemum* (Compositae); *Corchorus* (Tiliaceae); and *Lepisanthes imbricata* (Sapindaceae).

58) Condica dolorosa (Walker, 1865)

1865. *Mamestra dolorosa* Walker, *List Spec. lipid. Ins. Coll. Brit. Mus.* 32: 667.

Type Locality: Sri Lanka.

Material examined: 01 ex., WRC, ZSI, Pune campus, 14.iii.2017, A.S. Kalawate (L-1821).

Distribution: India (throughout including Maharashtra), Australia, China, Fiji, Indonesia, Malaysia, New Guinea, New Caledonia, Nepal, Polynesia, Philippines, Sri Lanka, Solomones, Taiwan, Thailand, and Vietnam.

Larval host plants: *Conyza*, *Elephantopus*, and *Blumea balsamifera* (Composita).

59) Condica illecta (Walker, 1865)

1865. *Perigea illecta* Walker, *List Spec. lipid. Ins. Coll. Brit. Mus.* 32: 684.

Type Locality: North Hindustan [India].

Material examined: 01 ex., Lonavala, Pune, 23.viii.2017, A.S. Kalawate & Party (L-1822).

Distribution: India (Maharashtra), Australia, Borneo, China, Fiji, Indonesia, Japan, Korea, Laos, Malaysia, Melanesia, Nepal, New Caledonia, New Guinea, Oman, Philippines, Samoa, Saudi Arabia, Sri Lanka, Solomon Island, Taiwan, Thailand, Timor, Tonga, Vanuatu, Vietnam, and Yemen.

Larval host plants: *Ageratum*, *Dichrocephala*, *Elephantopus scaber*, *Emilia*, *Bidens*, *Carthamus*, *Cereopsis*, *Dahlia* (Compositae); *Helianthus*, *Gnaphalium*, *Sonchus* (Asteraceae); and *Coffea* (Rubiaceae).

Prospalta Walker, [1858] 1857

[1858]. *Prospalta* Walker, *List Spec. Lepid. Insects Colln Br. us.* 13: 1079.

Type Species: *Prospalta leucospila* Walker, [1858].

60) Prospalta leucospila Walker, [1858]

[1858]. *Prospalta leucospila* Walker, *List Spec. Lepid. Insects Colln Br. Mus.* 13: 1114.

Type Locality: Hindostan [India].

Material examined: None.

Distribution: India (Arunachal Pradesh, Maharashtra, & Sikkim) and Nepal.

Larval host plants: Not known.

Iambia Walker, 1863

1863. *Iambia* Walker, *List Spec. Lepid. Insects Colln Br. Mus.*, 27: 109.

Type Species: *Iambia inferalis* Walker, 1863.

61) Iambia pulla (Swinhoe, 1885)

1885. *Acontia pulla* Swinhoe, *Proc. Zool. Soc. Lond.* 1885: 456, pl. 27, f. 15.

Type Locality: Poona (India).

Material examined: None.

Distribution: India (Himachal Pradesh, Punjab, Maharashtra, & West Bengal) and Sri Lanka.

Larval host plants: *Ziziphus* (Rhamnaceae).

(XI) Subfamily Eriopinae Herrich-Schäffer, [1851] 1845

Callopietria Hübner, [1821]

[1821]. *Callopietria* Hübner, *Verz. bek. Schmett.* 14: 216.

Type Species: *Phalaena juvenina* Stoll, 1782.

62) *Callopietria maillardi* (Guenée, 1862)

1862. *Eriopus maillardi* Guenée, *Notes fur l'Île de la Réunion (Bourbon)* 2: 639.

2013. *Callopietria maillardi*: Kononenko and Pinratana, *Broth. St. Gabr. Thai. Bangk.*: 625pp.

Type Locality: Réunion.

Material examined: 01 ex., Tamhini, Pune, 19.ix.2018, A.S. Kalawate & Party (L-1872); 01 ex., Talegaon, Pune, 5.ix.2018, N. Upadhyay (L-1873).

Distribution: India (throughout including Maharashtra), Indonesia, Myanmar, and Sri Lanka.

Larval host plants: *Nephrolepis biserrata* (Lomariopsidaceae); *Asplenium nidus* (Aspleniaceae); *Pellaea viridis* (Pteridaceae); *Adiantum sp.* (Pteridaceae); and *Lygodium sp.* (Lygodiaceae).

63) *Callopietria callopietrioidea* (Moore, 1881)

1881. *Thalophila callopietrioidea* Moore, *Proc. zool Soc. Lond.*, 1881:344.

Type Locality: Northern India.

Material examined: None.

Distribution: India (Maharashtra & northeastern Himalaya), Myanmar, Indonesia, Malaysia (Borneo), and Philippines.

Larval host plants: Not known.

64) *Callopietria apicalis* (Walker, 1855)

1855. *Mosara apicalis* Walker, *List specimens lepid. Insects Colln Br. Mus.* 5:1032.

Type Locality: Not known.

Material examined: None.

Distribution: India (Maharashtra), and Philippines.

Larval host plants: Not known.

(XII) Subfamily Noctuidae Latreille, 1809

Tribe **Prodeniini** Forbes, 1954

***Spodoptera* Guenée, 1852**

1852. *Spodoptera* Guenée, *Hist. nat. Ins., Spec. gén. Lépid.* 5 (Noct. 1): 153.

Type Species: *Hadena mauritia* Boisduval, 1833.

65) *Spodoptera litura* (Fabricius, 1775)

1775. *Noctua litura* Fabricius *Entom. Syst. Emen. et Aucta. Sec. Classes, Ordines, Genera, Species, Adjectis Synonymis, Locis, Desc. Observatio.*: 601.

Type Locality: Darjeeling (India).

Material examined: 02 ex., Gaganbawda, Kolhapur, 02.x.2016, V.D. Hegde & Party (L-1681); 01 ex., Sakarpa, Ratnagiri, 29.x.2015, A.S. Kalawate & Party (L-1372); 01 ex., Gaganbawda, Kolhapur, 03.x.2016, V.D. Hegde &

Party (L-1548); 01 ex., WRC, ZSI, Pune campus, 01.x.2015, A.S. Kalawate & Party (L-1549).

Distribution: India (Himachal Pradesh, Jharkhand, Karnataka, Kerala, Maharashtra, Madhya Pradesh, Odisha, Punjab, Sikkim, Tripura, Tamil Nadu, Uttar Pradesh, & West Bengal), Australo-Papuan, Borneo Java, Nepal, southern Myanmar, Sri Lanka, Singapore, Ethiopian, Taiwan of oriental & also Palaearctic, and Hawaiian regions.

Larval host plants: polyphagous: *Allium* (Alliaceae); *Mangifera* (Anacardiaceae); *Carissa* (Apocynaceae); *Alocasia*, *Colocasia* (Araceae); *Basella* (Basellaceae); *Begonia* (Begoniaceae); *Canna* (Cannaceae); *Carica* (Caricaceae); *Casuarina* (Casuarinaceae); *Terminalia* (Combretaceae); *Blumea*, *Dahlia*, *Helianthus*, *Lactuca*, *Synedrella*, *Zinnia* (Compositae); *Ipomoea* (Convolvulaceae); *Brassica* (Cruciferae); *Cucurbita* (Cucurbitaceae); *Dioscorea* (Dioscoreaceae); *Diospyros* (Ebenaceae); *Euphorbia*, *Ricinus* (Euphorbiaceae); *Andropogon*, *Lepturus*, *Saccharum*, *Thuarea Zea* (Gramineae); *Cassytha* (Lauraceae); *Acacia*, *Canavalia*, *Dolichos*, *Glycine*, *Indigofera*, *Inocarpus*, *Medicago*, *Mimosa*, *Mucuna*, *Phaseolus*, *Sesbania* (Leguminosae); *Asparagus*, *Eucharis* (Liliaceae); *Geniostoma* (Loganiaceae); *Gossypium*, *Sida* (Malvaceae); *Ficus* (Moraceae); *Musa* (Musaceae); *Psidium* (Myrtaceae); *Boerhavia* (Nyctaginaceae); *Passiflora* (Passifloraceae); *Piper* (Piperaceae); *Polygonum* (Polygonaceae); *Eichhornia* (Pontederiaceae); *Rosa* (Rosaceae); *Morinda* (Rubiaceae); *Citrus* (Rutaceae); *Antirrhinum* (Scrophulariaceae); *Lycopersicon*, *Nicotiana*, *Solanum* (Solanaceae); *Theobroma* (Sterculiaceae); *Camellia* (Theaceae); *Triumfetta* (Tiliaceae); *Daucus* (Umbelliferae); *Laportea* (Urticaceae); and *Lantana*, *Tectona* (Verbenaceae).

66) *Spodoptera mauritia* (Boisduval, 1833)

1833. *Hadena mauritia* Boisduval, *Nouv. Ann. Mus. Hist. Nat. Paris*, 2(2): 240.

Type Locality: Mauritius, Bourbon.

Material examined: 01 ex., Gaganbawda, Kolhapur, 03.x.2016, V.D. Hegde & Party (L-1681).

Distribution: India (Andaman & Nicobar Island, Jharkhand, Himachal Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Orissa, Punjab, Tamil Nadu, Uttar Pradesh, & West Bengal), Australo-Papuan, Ethiopian-Malagassic, Hawaiian regions, Indonesia, Pakistan, Philippines of oriental, southern Myanmar, Sri Lanka, and western Malaysia.

Larval host plants: Gramineae; Compositae; Coniferae; Cruciferae; Cyperaceae; Malvaceae; Palmae;

Solanaceae.

67) *Spodoptera littoralis* (Boisduval, 1833)

1833. *Prodenia littoralis* Boisduval, *Fauna Ent. Madag. Lep.*: 91.

Type Locality: Kichwamba, Ankole, Uganda.

Material examined: None.

Distribution: India (throughout including Maharashtra), Africa, Europe, Greece, Israel, Italy, Portugal, Spain, Syria, and Turkey.

Larval host plants: polyphagous: *Gossypium hirsutum*, *Abelmoschus esculentus* (Malvaceae); Graminae; Euphorbiaceae; Cruciferae; Umbelliferae; Araceae; Solanaceae; Chenopodiaceae; Leguminosae; Capparidaceae; Labitaceae; Compositae; Rosaceae; Oleaceae; Anacardiaceae; Rutaceae; Apocynaceae; Fabaceae; Moraceae; Tiliaceae; and Myrtaceae.

Tribe Caradrini Boisduval, 1840

Subtribe **Athetina** Fibiger & Lafontaine, 2005

Athetis Hübner, [1821]

[1821]. *Athetis* Hübner, *Verz. bek. Schmett.* 14: 209.

Type Species: *Noctua dasychira* Hübner, 1817.

68) *Athetis bremusa* (Swinhoe, 1885)

1885. *Caradrina bremusa* Swinhoe, *Proceedings of the Zoological Society of London*: 451.

Type Locality: Poona (India).

Material examined: 01 ex., WRC, ZSI campus, Pune, 21.xi.2016, A.S. Kalawate & Party (L-1684).

Distribution: India (Maharashtra), Myanmar, Sri Lanka, Taiwan, Thailand, and Vietnam.

Larval host plants: Not known.

69) *Athetis thoracica* (Moore, [1884])

[1884]. *Radinacra thoracica* Moore, *The Lepidoptera of Ceylon* 3: 31.

Type Locality: Sri Lanka.

Material examined: 04 ex., Lonavla, Pune, 23.viii.2017, A.S. Kalawate & Party (L-1729).

Distribution: India (Maharashtra & Tamil Nadu), Australia, Borneo, China, Fiji, Hawaii, Laos, Indonesia, Philippines, Malaysia, Myanmar, Melanesia, New Hebrides, Nepal, New Caledonia, New Guinea, Polynesia, Sri Lanka, Samoa, southern Japan, Solomon Isl., Taiwan, Thailand, Timor, Tonga, Vanuatu, and Vietnam.

Larval host plants: *Commelina* (Commelinaceae); *Ipomoea* (Convolvulaceae); *Syzygium* (Myrtaceae); *Portulaca* (Portulacaceae); *Nicotiana* (Solanaceae); *Camellia* (Theaceae); Gramineae; and Leguminosae.

70) *Athetis delecta* (Moore, 1881)

1881. *Caradrina delecta* Moore, *Proc. zool. Soc. Lond.* 1881: 349, pl. 38, f. 15.

Type Locality: Darjiling (India).

Material examined: None.

Distribution: India (Maharashtra), Myanmar, Nepal, Thailand, Vietnam, and western China.

Larval host plants: Not known.

71) *Athetis fasciata* (Moore, 1867)

1867. *Graphiphora fasciata* Moore, *Proc. zool. Soc. Lond.* 1867: 54.

Type Locality: Darjeeling (India).

Material examined: None.

Distribution: India (Maharashtra & Sikkim), Nepal, Thailand, and western China.

Larval host plants: Not known.

Tribe **Dypterygiini** Forbes, 1954

Aucha Walker, [1858]

[1858]. *Aucha* Walker, *List Spec. Lepid. Insects Colln Br. Mus.* 13: 1137.

Type Species: *Aucha velans* Walker, 1858.

72) *Aucha nectens* (Walker, 1858)

1858. *Triphaena nectens* Walker, *List Spec. Lepid. Insects Colln Br. Mus.* 15: 1704.

Type Locality: Hindostan (India).

Material examined: None.

Distribution: India (Maharashtra) and Malaysia.

Larval host plants: Not known.

Trachea Ochseneimer, 1816

1816. *Trachea* Ochseneimer, *Schmett. Eur.* 4: 75.

Type Species: *Phalaena atriplicis* Linnaeus, 1758.

73) *Trachea auriplena* (Walker, 1857)

1857. *Eurois auriplena* Walker, *List Spec. Lepid. Insects Colln Br. Mus.* 11: 557.

Type Locality: Sri Lanka.

Material examined: None.

Distribution: India (Maharashtra), Thailand, Pakistan, northern India, Sri Lanka, Nepal, Bhutan, and northern Vietnam.

Larval host plants: Not known.

Tribe **Phlogophorini** Hampson, 1918

Conservula Grote, 1874

1874. *Conservula* Grote, *Bull. Buffalo Soc. nat. Sci.* 2: 17.

Type species: *Phlogophora anodonta* Guenée, 1852.

74) *Conservula indica* (Moore, 1867)
1867. *Phlogophora indica* Moore, *Proceedings of the Zoological Society of London*: 57.

Type Locality: Bengal [India].

Material examined: 02 ex., Valmiki Pathar, Patan, Satara, 18.vii.2017, A.S. Kalawate & Party (L-1752).
Distribution: India (Arunachal Pradesh, Sikkim, & Himachal Pradesh), Bangladesh, Laos, Pakistan, southwestern China, Taiwan, Thailand, and Vietnam.

Larval host plants: *Pteridium aquilinum* (Dennstaedtiaceae).

Remark: New record for Western Ghats, Maharashtra.

Euplexia Stephens, 1829

1829. *Euplexia* Stephens, *Nom. Br. Insects*, **1829**: 41.

Type Species: *Phalaena lucipara* Linnaeus, 1758.

75) *Euplexia semifascia* (Walker, 1856)

1865. *Hadena semifascia* Walker, *List Spec. Lepid. Insects Colln Br. Mus.* **33**: 737.

Type Locality: South Hindostan (India).

Material examined: None.

Distribution: India (Northwestern Himalaya, Maharashtra, & Tamil Nadu) and Nepal.

Larval host plants: Not known.

Karana Moore, 1882

1882. *Karana* Moore, *Descr. Indian lep. Atkinson* **2**: 106.

Type Species: *Karana decorata* Moore, 1882.

76) *Karana gemmifera* (Walker, 1857)

[1858]. *Plusia gemmifera* Walker, *List Spec. Lepid. Insects Colln Br. Mus.* **12**: 934.

Type Locality: Not known.

Material examined: None.

Distribution: India (Himachal Pradesh, Maharashtra, Sikkim, & Tamil Nadu), Malay Peninsula, Malaysia, Myanmar, Nepal, southwestern China, Taiwan, and Thailand.

Larval host plants: Not known.

Pareuplexia Warren in Setiz, 1911

1911. *Pareuplexia* Warren, *Novit. zool.* **18**: 140–148.

Type Species: *Naenia chalybeata* Moore, 1867.

77) *Pareuplexia metallica* (Walker, 1865)

1865. *Mamestra metallica* Walker, *List Spec. Lepid. Insects Colln Br. Mus.* **32**: 666.

Type Locality: Darjeeling (India).

Material examined: None.

Distribution: India (Bombay during British

India=probably Maharashtra, Sikkim, & West Bengal).

Larval host plants: Not known.

Remark: Endemic to India.

Sasunaga Moore, 1881

1881. *Sasunaga* Moore, *Proc. zool. Soc. Lond.* **1881**: 342.

Type Species: *Hadena tenebrosa* Moore, 1867.

78) *Sasunaga tenebrosa* Moore, 1867

1867. *Hadena tenebrosa* Moore, *Proc. Zool. Soc. Lond.* **1867**: 59.

Type Locality: Bengal (India).

Material examined: None.

Distribution: India (Himachal Pradesh, Karnataka, Maharashtra, Sikkim, & Uttarakhand), Bangladesh, Borneo, Indonesia, Laos, Malaysia, Nepal, New Guinea, Pakistan, southwestern China, Singapore, Sri Lanka, Timor, Taiwan, Thailand, and Vietnam.

Larval host plants: *Ventilago* (Rhamnaceae).

79) *Sasunaga longiplaga* Warren, 1912

1912. *Sasunaga longiplaga* Warren, *Novit. zool.* **19**: 15.

Type Locality: Penang (Malaysia).

Material examined: None.

Distribution: India (Maharashtra), Borneo, Indonesia, Japan, Korea, Malaysia, Malay Peninsula, Myanmar, Nepal, New Guinea, Philippines, southwestern China, Thailand, Taiwan, Timor, and Vietnam.

Larval host plants: Not known.

Tribe **Hadenini** Guenée, 1837

Subtribe **Leucaniina** Guenée, 1837

Leucania Ochseneheimer, 1816

1816. *Leucania* Ochseneheimer, *Schmett. Eur.* **4**: 81.

80) *Leucania (Acantholeucania) loreyi* (Duponchel, 1827)

1827. *Noctua loreyi* Duponchel, *Lep. France*, **7**: 81.

Type Locality: Dijon.

Material examined: 01 ex., Bhosgaon, Satara, 13.vii.2017, A.S. Kalawate & Party (L-1731); 01 ex., Forest RH, Bhosgaon, Satara, 17.vii.2017, A.S. Kalawate & Party (L-1699).

Distribution: India (throughout including Maharashtra), Europe, Malaysia, and Sri Lanka.

Larval host plants: *Oryza sativa*, *Zea mays*, and *Saccharum* (Poaceae).

81) *Leucania polemusa* Swinhoe, 1885
1885. *Leucania polemusa* Swinhoe, *Proc. Zool. Soc. Lond.* 447, pl. 27, f. 1.

Type Locality: Poona; Bombay (India).

Material examined: None.

Distribution: India (Maharashtra).

Larval host plants: Not known.

Remark: Endemic to India.

82) *Leucania vana* (Swinhoe, 1885)
1885. *Agrotis vana* Swinhoe, *Proc. Zool. Soc. Lond.* pl. 27, f. 9.

Type Locality: Poona; Sattara (Maharashtra, India).

Material examined: None.

Distribution: India (Maharashtra).

Larval host plants: Not known.

Remark: Endemic to India.

Tribe **Noctuini** Latreille, 1809

Subtribe **Agrotina** Rambur, 1848

Agrotis Ochseneimer, 1816

1816. *Agrotis* Ochseneimer, *Schmett. Eur.* 4: 66.

Type Species: *Noctua segetum* Denis & Schiffermüller, 1775.

83) *Agrotis biconica* Kollar, [1844]
[1844]. *Agrotis biconica* Kollar, in Hügel, *Kaschmir und das Reich der Siek* 4: 480.

Type Locality: Kashmir (India).

Material examined: None.

Distribution: India (Maharashtra, northwestern Himalayas, Punjab, Sikkim, & Tamil Nadu), Afghanistan, Iran, Madagascar, Myanmar, Pakistan, Sri Lanka, and Turkey.

Larval host plants: Not known.

84) *Agrotis ipsilon* (Hufnagel, 1766)
1766. *Phalaena ipsilon* Hufnagel, *Berlinisches Magazin*, 3: 416.

Type Locality: Germany.

Material examined: 01 ex., Talegaon, Pune, 08.viii.2017, N. Upadhyay (L-1946).

Distribution: India (throughout including Maharashtra), Universally distributed except South America.

Larval host plants: Polyphagous: *Crataegus* sp. (Rosaceae); Cruciferae; Chenopodiaceae; Compositae; Gramineae; and *Solanum tuberosum* (Solanaceae).

85) *Agrotis segetum* ([Denis & Schiffermüller], 1775)
1775. *Noctua segetum* Denis & Schiffermüller, *Ank.*

syst. Schmett. Wienergegend: 81.

Type Locality: Vienna region.

Material examined: None.

Distribution: India (throughout including Maharashtra), Africa, Asia, China, Europe, Indochina, Indonesia, Japan, Korea, Madagascar, Nepal, New Guinea, Pakistan, Philippines, Thailand, and Taiwan.

Larval host plants: Polyphagous: Fabaceae; Amaryllidaceae; Asparagaceae; Brassicaceae; Theaceae; Casuarinaceae; Pinaceae; Asteraceae; Rubiaceae; Cucurbitaceae; Myrtaceae; Rosaceae; Malvaceae; Solanaceae; and Amaranthaceae.

Subtribe **Noctuina** Latreille, 1809

Xestia Hübner, 1818

1818. *Xestia* Hübner, *Zuträge Samml. exot. Schmett.* 1: 16.

Type Species: *Noctua ochreago* Hübner, 1790.

86) *Xestia c-nigrum* (Linnaeus, 1758)
1758. *Phalaena (Noctua) c-nigrum* Linnaeus, *Syst. Nat.* (Edn 10) 1: 516.

Type Locality: Europe.

Material examined: None.

Distribution: India (Meghalaya, Maharashtra, northwestern Himalaya, & Tamil Nadu), northern America, Europe, Japan, and Sri Lanka.

Larval host plants: *Chamaenerion angustifolium* (Onagraceae) and *Stellaria media* (Caryophyllaceae).

87) *Xestia semiherbida* (Walker, 1857)
1857. *Triphaena semiherbida* Walker, *Cat. Lep. Het.*, 11: 743.

Type Locality: Northern India.

Material examined: None.

Distribution: India (Himachal Pradesh, Maharashtra, northern India, & Sikkim), Japan, and Taiwan.

Larval host plants: Not known.

Tribe **Glottulini** Guenee, 1852

Polytela Guenée, 1852

1852. *Polytela* Guenée, *Hist. nat. Insectes* (Spec. gén. Lépid.) 5: 113.

Type Species: *Bombyx gloriosae* Fabricius, 1775.

88) *Polytela gloriosae* Fabricius, 1781(Plate 1 E)
1781. *Polytela gloriosae* Fabricius, *Spec. Ins.* 2: 205.
Type Locality: "Habitat in Indiae orientalis Gloriosa" (India).

Material examined: 01 ex., Menawali, Wai, Satara, 23.vii.2018, A.S. Kalawate & Party (L-1971); 01 ex.,

Valmiki Pathar, Satara, 18.vii.2017, A.S. Kalawate & Party (L-1751); 01ex., WRC, ZSI, Pune campus, 7.viii.2017, A.S. Kalawate (L-1798).

Distribution: India (throughout including Maharashtra) and Sri Lanka.

Larval host plants: *Gloriosa superba* (Colchicaceae); *Crinum asiaticum*, *Amaryllis* (Amaryllidaceae); *Scadoxus multiflorus* (Amaryllidaceae); and *Lilium* (Liliaceae).

CONCLUSION

The present study provides an enumeration of total of 88 species of 44 genera from 13 subfamilies of noctuid family. Total eight species of noctuid moths reported endemic to India: *Leucania polemosa*; *Leucania vana*; *Ozarba badia*; *Ozarba itwarra*; *Ozarba rectifascia*; *Ozarba uberosa*; *Maliattha fuliginosa*, and *Pareuplexia metallica*. Two species namely, *C. indica* and *P. umbra* are reported first time from the Western Ghats' part of Maharashtra. *Adisura atkinsoni* is a new record to Maharashtra. This is the first report of documenting noctuid moths from the northern Western Ghats region. In future more extensive survey efforts will be undertaken to collect and record the diversity of the noctuid moth from northern Western Ghats.

REFERENCES

- Bell, T.R.D & F.B. Scott (1937). The fauna of British India including Ceylon and Burma, Moths - Volume 5, Sphingidae. Taylor and Francis, London, 533pp.
- Chandra, K. (2008). *Faunal Diversity of Jabalpur District, Madhya Pradesh*. Zoological Survey of India, Kolkata, 417 pp.
- Das, A., A. Mazumder, P.C. Pathania & N. Singh (2020). Insecta, Lepidoptera (Moths). In: Chandra, K., Raghunathan, C., Sureshan, P.M., Subramanian, K.A. & Rizvi, A.N. (Eds.), *Faunal Diversity of Biogeographic Zones of India: Western Ghats*. Director, Zoological Survey of India, Kolkata, pp. 1–36.
- Deshmukh, S.S., B.M. Prasanna, C.M. Kalleshwaraswamy, J. Jaba, & B. Choudhary (2021). Fall Armyworm (*Spodoptera frugiperda*), In: *Polyphagous Pests of Crops*. Springer Nature, Singapore, pp. 349–372. https://doi.org/10.1007/978-981-15-8075-8_8
- Fayle, T.M., R.E. Sharp, M.E.N. Majerus (2007). The effect of moth trap type on catch size and composition in British Lepidoptera. *British Entomological and Natural History Society* 20: 221–232.
- Fibiger, M. & J. D. Lafontaine (2005). A review of the higher classification of the Noctuoidea (Lepidoptera) with special reference to the Holarctic fauna. *Esperiana* 11: 7–92.
- Gahukar, R.T & G.V.P. Reddy (2019). Management of Economically Important Insect Pests of Millet. *Journal of Integrated Pest Management* 10(1): 28. <https://doi.org/10.1093/jipm/pmz026>
- Gurule, S. & S. Nikam (2013). The moths (Lepidoptera: Heterocera) of northern Maharashtra: a preliminary checklist. *Journal of Threatened Taxa* 5(12): 4693–4713. <https://doi.org/10.11609/JoTT.o2555.4693-713>
- Hampson, G.F. (1894). *The Fauna of British India including Ceylon and Burma, Moths - Volume 2*. Taylor and Francis, London, 609 pp.
- Hampson, G.F. (1895). *The fauna of British India including Ceylon and Burma, Moths - Volume 3*. Taylor and Francis, London, 546 pp.
- Holloway, J.D. (1987). *The Moths of Borneo: Superfamily Bombycoidea: families Lasiocampidae, Eupterotidae, Bombycidae, Brahmaeidae, Saturniidae, Sphingidae*. 199pp. Kuala Lumpur: Southdene.
- Holloway, J.D. (1988). *The Moths of Borneo Family Arctiidae, Subfamilies Syntominiinae, Euchromiinae, Arctiinae; Noctuidae misplaced in Arctiidae (Camptoloma, Aganainae)*. 101 pp. Kuala Lumpur, Southdene.
- Holloway, J.D. (2011). *The Moths of Borneo. Part 2. The moths of Borneo: families Phaudidae, Himantopteridae and Zygaenidae; revised and annotated checklist. Malayan Nature Journal* 63(1–2): 1–548.
- Jansen, A. (1997). Terrestrial invertebrate community structure as an indicator of the success of a tropical rainforest restoration project. *Restoration Ecology* 5: 115–125.
- Kalawate, A.S. (2022). Insecta: Lepidoptera: Heterocera (Moths). *Fauna of the Northern Western Ghats: Ecosystem Series. Zoological Survey of India* (Accepted).
- Kitching, I.J. (1984). A historical review of the higher classification of the Noctuidae. *Bulletin of the British Museum Nature History (Entomology)* 49: 153–234.
- Kononenko, V.S. & A. Pinratana (2013). Moth of Thailand Vol. 3, Part 2. Noctuoidea. An illustrated Catalogue of Erebiidae, Nolidae, Euteliidae and Noctuidae (Insecta, Lepidoptera) in Thailand. Brothers of St. Gabriel in Thailand. Bangkok, 625 pp.
- Kononenko, V.S. (2016). Family Noctuidae: Cuculliinae – Noctuinae, part (Lepidoptera). – Noctuoidea Sibiricae. Part 3. Proceedings of the Museum Witt Munich 5: 1–500, Munich – Vilnius.
- Kumar, H. & A. Kapur (2003). Transgenic Bt crops as a component of Integrated Pest Management. In: *Biotechnological Strategies in Agro-Processing*. 85–104pp.
- Lafontaine, J.D. & M. Fibiger (2006). Revised higher classification of the Noctuoidea (Lepidoptera). *Canadian Entomologist* 138: 610–635.
- Mitchell, A., C. Mitter & J.C. Regier (2000). More taxa or more characters revisited: Combining data from nuclear protein-encoding genes for phylogenetic analyses of Noctuoidea (Insecta : Lepidoptera). *Systematic Biology* 49: 202–224.
- Mitchell, A., C. Mitter & J.C. Regier (2006). Systematics and evolution of the cutworm moths (Lepidoptera: Noctuidae): evidence from two protein-coding nuclear genes. *Systematic Entomology* 31: 21–46, <https://doi.org/10.1111/j.1365-3113.2005.00306.x>
- Mitra, B., K. Chandra, S.K.R. Shah, & J. Kumar (2019). Insecta: Lepidoptera. *Fauna of Maharashtra, State Fauna Series*, 20(Part-3): 89–209.
- Miyashita, T., A. Shinkai & T. Chida (1998). The effects of forest fragmentation on web spider tropical rainforest restoration project. *Restoration Ecology* 2: 115–124.
- Nagrare, V.S., B.F. Babasaheb, R. Kumar, V.C. Babu, K. Bhure, B. Naikwadi, N. Narkhedkar & V.N. Waghmare (2022). Arthropod pests and their natural enemies associated with cotton in India: A Review. *Indian Journal of Entomology* e21162. <https://doi.org/10.5958/IJE.2022.167>
- Ockinger, E., O. Schweiger, T.O. Crist, D.M. Debinskim, J. Kraussm, M. Kuussaari, J.D. Petersen, J. Pöyry, J. Settele, K.S. Summerville, R. Bommarco (2010). Life-history traits predict species responses to habitat area and isolation: a cross-continental synthesis. *Ecological Letters* 13(8): 969–79. <https://doi.org/10.1111/j.1461-0248.2010.01487.x>
- Sivasankaran, K., J.I. Madani, S. Ignacimuthu, M.G. Paulraj (2010). A survey of Euteliinae (Lepidoptera: Noctuidae) of Nilgiris, Tamil Nadu, India. *Entomon* 35(3): 175–182.
- Sivasankaran, K., S. Gnanasekaran, D. Parandhaman, S. Ignacimuthu (2011). Diversity of Noctuid moths (Lepidoptera: noctuidae) in TamilNadu part of Western Ghats (Nilgiris biosphere and Kodaikanal hills), India. *Elixir Bio Diversity* 38: 4131–4134.
- Sivasankaran, K., D. Parandhaman, S. Ignacimuthu (2012). Insecta,

- Lepidoptera, Noctuidae, Catocalinae: New records from the state of Tamil Nadu and whole of India. *Check List* 8(4): 759–762.
- Shashank, P.R. & L.R.K. Singh (2014)**. Checklist of the subfamily Plusiinae (Lepidoptera: Noctuidae) from India. *Indian Journal of Entomology* 76(3): 229–240.
- Shubhalaxmi, V., R.C Kendrick, A. Vaidya, N. Kalagi, & A. Bhagwat (2011)**. Inventory of moth fauna (Lepidoptera: Heterocera) of the Northern Western Ghats, Maharashtra, India. *Journal of the Bombay Natural History Society* 108(3): 183–205.
- Swinhoe, (1885)**. On the Lepidoptera of Bombay and the Deccan. Part I-IV *Proceedings of the Zoological Society of London* 1885: 124–148.
- Zahiri, R., J.D. Holloway, I.J. Kitching, D. Lafontaine, M. Mutanen & N. Wahlberg (2011)**. Molecular phylogenetics of Erebidae (Lepidoptera, Noctuoidea). *Systematic Entomology* 1–23. <https://dx.doi.org/10.1111/j.1365-3113.2011.00607.x>
- Zahiri, R., J.D. Holloway, I.J. Kitching, D. Lafontaine, M. Mutanen & N. Wahlberg (2012)**. Molecular phylogenetics of Erebidae (Lepidoptera, Noctuoidea). *Systematic Entomology* 37: 102–124.
- Zahiri, R., J.D. Lafontaine, C. Schmidt, J.D. Holloway, I.J. Kitching, M. Mutanen, & N. Wahlberg (2013a)**. Relationships among the basal lineages of Noctuidae (Lepidoptera, Noctuoidea) based on eight gene regions. *Zoologica Scripta* 42: 488–507.
- Zahiri, R., J.D. Lafontaine, J.D. Holloway, I.J. Kitching, B.Ch. Schmidtd, L. Kaila & N. Wahlberg (2013b)**. Major lineages of Nolidae (Lepidoptera, Noctuoidea) elucidated by molecular phylogenetics. *Cladistics* 29: 337–359.
- Zote, V.K., G.G. Bilapate, R.M. Jadhav (2006)**. Life-fecundity tables of *Trichoplusia ni* (Hubner) on different host plants. *Journal of Maharashtra Agricultural Universities* 31(3): 314–317.



Dr. George Mathew, Kerala Forest Research Institute, Peechi, India
Dr. John Noyes, Natural History Museum, London, UK
Dr. Albert G. Orr, Griffith University, Nathan, Australia
Dr. Sameer Padhye, Katholieke Universiteit Leuven, Belgium
Dr. Nancy van der Poorten, Toronto, Canada
Dr. Kareen Schnabel, NIWA, Wellington, New Zealand
Dr. R.M. Sharma, (Retd.) Scientist, Zoological Survey of India, Pune, India
Dr. Manju Siliwal, WILD, Coimbatore, Tamil Nadu, India
Dr. G.P. Sinha, Botanical Survey of India, Allahabad, India
Dr. K.A. Subramanian, Zoological Survey of India, New Alipore, Kolkata, India
Dr. P.M. Sureshan, Zoological Survey of India, Kozhikode, Kerala, India
Dr. R. Varatharajan, Manipur University, Imphal, Manipur, India
Dr. Eduard Vives, Museu de Ciències Naturals de Barcelona, Terrassa, Spain
Dr. James Young, Hong Kong Lepidopterists' Society, Hong Kong
Dr. R. Sundararaj, Institute of Wood Science & Technology, Bengaluru, India
Dr. M. Nithyanandan, Environmental Department, La Ala Al Kuwait Real Estate. Co. K.S.C., Kuwait
Dr. Himender Bharti, Punjabi University, Punjab, India
Mr. Purnendu Roy, London, UK
Dr. Saito Motoki, The Butterfly Society of Japan, Tokyo, Japan
Dr. Sanjay Sondhi, TITLI TRUST, Kalpavriksh, Dehradun, India
Dr. Nguyen Thi Phuong Lien, Vietnam Academy of Science and Technology, Hanoi, Vietnam
Dr. Nitin Kulkarni, Tropical Research Institute, Jabalpur, India
Dr. Robin Wen Jiang Ngiam, National Parks Board, Singapore
Dr. Lionel Monod, Natural History Museum of Geneva, Genève, Switzerland.
Dr. Asheesh Shivam, Nehru Gram Bharti University, Allahabad, India
Dr. Rosana Moreira da Rocha, Universidade Federal do Paraná, Curitiba, Brasil
Dr. Kurt R. Arnold, North Dakota State University, Saxony, Germany
Dr. James M. Carpenter, American Museum of Natural History, New York, USA
Dr. David M. Claborn, Missouri State University, Springfield, USA
Dr. Kareen Schnabel, Marine Biologist, Wellington, New Zealand
Dr. Amazonas Chagas Júnior, Universidade Federal de Mato Grosso, Cuiabá, Brasil
Mr. Monsoon Yjoti Gogoi, Assam University, Silchar, Assam, India
Dr. Heo Chong Chin, Universiti Teknologi MARA (UiTM), Selangor, Malaysia
Dr. R.J. Shiel, University of Adelaide, SA 5005, Australia
Dr. Siddharth Kulkarni, The George Washington University, Washington, USA
Dr. Priyadarsanan Dharma Rajan, ATREE, Bengaluru, India
Dr. Phil Alderslade, CSIRO Marine And Atmospheric Research, Hobart, Australia
Dr. John E.N. Veron, Coral Reef Research, Townsville, Australia
Dr. Daniel Whitmore, State Museum of Natural History Stuttgart, Rosenstein, Germany.
Dr. Yu-Feng Hsu, National Taiwan Normal University, Taipei City, Taiwan
Dr. Keith V. Wolfe, Antioch, California, USA
Dr. Siddharth Kulkarni, The Hormiga Lab, The George Washington University, Washington, D.C., USA
Dr. Tomas Ditrich, Faculty of Education, University of South Bohemia in Ceske Budejovice, Czech Republic
Dr. Mihaly Foldvari, Natural History Museum, University of Oslo, Norway
Dr. V.P. Niyal, Wildlife Institute of India, Dehradun, Uttarakhand 248001, India
Dr. John T.D. Caleb, Zoological Survey of India, Kolkata, West Bengal, India
Dr. Priyadarsanan Dharma Rajan, Ashoka Trust for Research in Ecology and the Environment (ATREE), Royal Enclave, Bangalore, Karnataka, India

Fishes

Dr. Neelesh Dahanukar, IISER, Pune, Maharashtra, India
Dr. Topiltzin Contreras MacBeath, Universidad Autónoma del estado de Morelos, México
Dr. Heok Hee Ng, National University of Singapore, Science Drive, Singapore
Dr. Rajeev Raghavan, St. Albert's College, Kochi, Kerala, India
Dr. Robert D. Sluka, Chiltern Gateway Project, A Rocha UK, Southall, Middlesex, UK
Dr. E. Vivekanandan, Central Marine Fisheries Research Institute, Chennai, India
Dr. Davor Zanella, University of Zagreb, Zagreb, Croatia
Dr. A. Biju Kumar, University of Kerala, Thiruvananthapuram, Kerala, India
Dr. Akhilesh K.V., ICAR-Central Marine Fisheries Research Institute, Mumbai Research Centre, Mumbai, Maharashtra, India
Dr. J.A. Johnson, Wildlife Institute of India, Dehradun, Uttarakhand, India
Dr. R. Ravinesh, Gujarat Institute of Desert Ecology, Gujarat, India

Amphibians

Dr. Sushil K. Dutta, Indian Institute of Science, Bengaluru, Karnataka, India
Dr. Annemarie Ohler, Muséum national d'Histoire naturelle, Paris, France

Reptiles

Dr. Gernot Vogel, Heidelberg, Germany
Dr. Raju Vyas, Vadodara, Gujarat, India
Dr. Pritpal S. Soorae, Environment Agency, Abu Dhabi, UAE.
Prof. Dr. Wayne J. Fuller, Near East University, Mersin, Turkey
Prof. Chandrashekher U. Rivonker, Goa University, Taleigao Plateau, Goa, India
Dr. S.R. Ganesh, Chennai Snake Park, Chennai, Tamil Nadu, India
Dr. Himansu Sekhar Das, Terrestrial & Marine Biodiversity, Abu Dhabi, UAE

Birds

Dr. Hem Sagar Baral, Charles Sturt University, NSW Australia
Mr. H. Byju, Coimbatore, Tamil Nadu, India
Dr. Chris Bowden, Royal Society for the Protection of Birds, Sandy, UK
Dr. Priya Davidar, Pondicherry University, Kalapet, Puducherry, India
Dr. J.W. Duckworth, IUCN SSC, Bath, UK
Dr. Rajah Jayapal, SACON, Coimbatore, Tamil Nadu, India
Dr. Rajiv S. Kalsi, M.L.N. College, Yamuna Nagar, Haryana, India
Dr. V. Santharam, Rishi Valley Education Centre, Chittoor Dt., Andhra Pradesh, India
Dr. S. Balachandran, Bombay Natural History Society, Mumbai, India
Mr. J. Praveen, Bengaluru, India
Dr. C. Srinivasulu, Osmania University, Hyderabad, India
Dr. K.S. Gopi Sundar, International Crane Foundation, Baraboo, USA
Dr. Gombobaatar Sunde, Professor of Ornithology, Ulaanbaatar, Mongolia
Prof. Reuven Yosef, International Birding & Research Centre, Eilat, Israel
Dr. Taej Mundkur, Wetlands International, Wageningen, The Netherlands
Dr. Carol Inskipp, Bishop Auckland Co., Durham, UK
Dr. Tim Inskipp, Bishop Auckland Co., Durham, UK
Dr. V. Gokula, National College, Tiruchirappalli, Tamil Nadu, India
Dr. Arkady Lelej, Russian Academy of Sciences, Vladivostok, Russia
Dr. Simon Dowell, Science Director, Chester Zoo, UK
Dr. Mário Gabriel Santiago dos Santos, Universidade de Trás-os-Montes e Alto Douro, Quinta de Prados, Vila Real, Portugal
Dr. Grant Connette, Smithsonian Institution, Royal, VA, USA
Dr. M. Zafar-ul Islam, Prince Saud Al Faisal Wildlife Research Center, Taif, Saudi Arabia

Mammals

Dr. Giovanni Amori, CNR - Institute of Ecosystem Studies, Rome, Italy
Dr. Anwaruddin Chowdhury, Guwahati, India
Dr. David Mallon, Zoological Society of London, UK
Dr. Shomita Mukherjee, SACON, Coimbatore, Tamil Nadu, India
Dr. Angie Appel, Wild Cat Network, Germany
Dr. P.O. Nameer, Kerala Agricultural University, Thrissur, Kerala, India
Dr. Ian Redmond, UNEP Convention on Migratory Species, Lansdown, UK
Dr. Heidi S. Riddle, Riddle's Elephant and Wildlife Sanctuary, Arkansas, USA
Dr. Karin Schwartz, George Mason University, Fairfax, Virginia.
Dr. Lala A.K. Singh, Bhubaneswar, Orissa, India
Dr. Mewa Singh, Mysore University, Mysore, India
Dr. Paul Racey, University of Exeter, Devon, UK
Dr. Honnavalli N. Kumara, SACON, Anaikatty P.O., Coimbatore, Tamil Nadu, India
Dr. Nishith Dharaiya, HNG University, Patan, Gujarat, India
Dr. Spartaco Gippoliti, Socio Onorario Società Italiana per la Storia della Fauna "Giuseppe Altobello", Rome, Italy
Dr. Justus Joshua, Green Future Foundation, Tiruchirappalli, Tamil Nadu, India
Dr. H. Raghuram, The American College, Madurai, Tamil Nadu, India
Dr. Paul Bates, Harison Institute, Kent, UK
Dr. Jim Sanderson, Small Wild Cat Conservation Foundation, Hartford, USA
Dr. Dan Challenger, University of Kent, Canterbury, UK
Dr. David Mallon, Manchester Metropolitan University, Derbyshire, UK
Dr. Brian L. Cypher, California State University-Stanislaus, Bakersfield, CA
Dr. S.S. Talmale, Zoological Survey of India, Pune, Maharashtra, India
Prof. Karan Bahadur Shah, Budhanilakantha Municipality, Kathmandu, Nepal
Dr. Susan Cheyne, Borneo Nature Foundation International, Palangkaraja, Indonesia
Dr. Hemanta Kafley, Wildlife Sciences, Tarleton State University, Texas, USA

Other Disciplines

Dr. Aniruddha Belsare, Columbia MO 65203, USA (Veterinary)
Dr. Mandar S. Paingankar, University of Pune, Pune, Maharashtra, India (Molecular)
Dr. Jack Tordoff, Critical Ecosystem Partnership Fund, Arlington, USA (Communities)
Dr. Ulrike Streicher, University of Oregon, Eugene, USA (Veterinary)
Dr. Hari Balasubramanian, EcoAdvisors, Nova Scotia, Canada (Communities)
Dr. Rayanna Hellem Santos Bezerra, Universidade Federal de Sergipe, São Cristóvão, Brazil
Dr. Jamie R. Wood, Landcare Research, Canterbury, New Zealand
Dr. Wendy Collinson-Jonker, Endangered Wildlife Trust, Gauteng, South Africa
Dr. Rajeshkumar G. Jani, Anand Agricultural University, Anand, Gujarat, India
Dr. O.N. Tiwari, Senior Scientist, ICAR-Indian Agricultural Research Institute (IARI), New Delhi, India
Dr. L.D. Singla, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana, India
Dr. Rupika S. Rajakaruna, University of Peradeniya, Peradeniya, Sri Lanka
Dr. Bahar Baviskar, Wild-CER, Nagpur, Maharashtra 440013, India

Reviewers 2019–2021

Due to paucity of space, the list of reviewers for 2018–2020 is available online.

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.

Journal of Threatened Taxa is indexed/abstracted in Bibliography of Systematic Mycology, Biological Abstracts, BIOSIS Previews, CAB Abstracts, EBSCO, Google Scholar, Index Copernicus, Index Fungorum, JournalSeek, National Academy of Agricultural Sciences, NewJour, OCLC WorldCat, SCOPUS, Stanford University Libraries, Virtual Library of Biology, Zoological Records.

NAAS rating (India) 5.64

Print copies of the Journal are available at cost. Write to:
The Managing Editor, JoTT,
c/o Wildlife Information Liaison Development Society,
43/2 Varadarajulu Nagar, 5th Street West, Ganapathy, Coimbatore,
Tamil Nadu 641006, India
ravi@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)

February 2023 | Vol. 15 | No. 2 | Pages: 22559–22770

Date of Publication: 26 February 2023 (Online & Print)

DOI: 10.11609/jott.2023.15.2.22559-22770

www.threatenedtaxa.org

Communications

Sunda Clouded Leopard *Neofelis diardi* (Cuvier, 1823) (Mammalia: Carnivora: Felidae) occupancy in Borneo: results of a pilot vehicle spotlight transect survey
– Jephthe Sompud, Sze Lue Kee, Kurtis Jai-Chyi Pei, Paul Liao, Collin Goh & Anthony J. Giordano, Pp. 22559–22566

On the occurrence of Eurasian Otter *Lutra lutra* (Carnivora: Mustelidae) in Neeru stream of Chenab catchment, Jammu & Kashmir, India
– Dinesh Singh, Anil Thakar & Neeraj Sharma, Pp. 22567–22573

Distribution of avifauna on twenty-one islands of the Gulf of Mannar Biosphere Reserve, India
– H. Byju, N. Raveendran & S. Ravichandran, Pp. 22574–22585

Habitats of House Sparrow *Passer domesticus* (Linnaeus, 1758) in Rameswaram Island, Tamil Nadu, India
– M. Pandian, Pp. 22586–22596

Seasonal diversity and dietary guild structure of birds in two Vindhyan gorge forests of Rajasthan, India
– Ashvini Kumar Joshi, Pp. 22597–22605

Differential kleptoparasitic interactions of Himalayan Vulture *Gyps himalayensis* with conspecifics and heterospecifics during various stages of breeding
– Hameem Mushtaq Wani, Pp. 22606–22610

Range extension of *Isthmoheros tuyenensis*, a threatened species of fish (Cichlidae) in Panama: including new ecological and morphological data
– Arturo Dominici-Arosemena, Arturo Angulo, Haydee Osorio-Ugarte, Quiriatjaryn Ortega-Samaniego, Andrés Fraiz, Arminda Guerrel, Edgar Araúz, Jennyfer Montiel, Beatriz Medina, Yehudi Rodríguez-Arriatti, Yessenia González, Javier Pardo, Karly Urriola & Adrián Ramos-Merchante, Pp. 22611–22622

Tadpole morphology of Jerdon's Narrow-mouthed Frog *Uperodon montanus* (Jerdon, 1853) with a range and elevation extension report from Western Ghats, India
– Amit Hegde, Girish Kadadevaru & K.P. Dinesh, Pp. 22623–22631

An annotated checklist of the economically important family of moths (Lepidoptera: Heterocera: Noctuidae) of the northern Western Ghats, India, with notes on their type species, diversity, distribution, host plants, and an unusual new faunistic record
– Aparna Sureshchandra Kalawate, Prachee Surwade & S.N. Pawara, Pp. 22632–22653

Report of a tussock moth genus *Maeoproctis* (Lepidoptera: Erebiidae: Lymantriinae: Nygmiini) from India
– Gagan Preet Kour Bali & Amritpal Singh Kaleka, Pp. 22654–22660

Butterflies of Silent Valley National Park and its environs, Western Ghats of Kerala, India
– Kalesh Sadasivan, P.C. Sujitha, Toms Augustine, Edayillam Kunhikrishnan, Vinayan P. Nair, M. Divin Murukesh & Baiju Kochunarayanan, Pp. 22661–22676

Notes on morphology and bionomics of *Urolabida histrionica* (Westwood) (Heteroptera: Urostylididae) from Assam, India
– Sachin Ranade & Hemant V. Ghate, Pp. 22677–22685

Andromonoecy functional through heterostyly and large carpenter bees as principal pollinators in *Solanum carolinense* L. (Solanaceae)
– Suvarna Raju Palathoti & Aluri Jacob Solomon Raju, Pp. 22686–22694

An inventory of endemic and near endemic angiosperm flora of Biligiri Rangaswamy Temple Tiger Reserve, peninsular India
– J. Jayanthi, Pp. 22695–22717

Multidimensional time-lapse of a relict species *Canarium strictum* Roxb. from a sacred landscape in Pune District, India
– Mukul Mahabaleshwarkar, Nivedita Ghayal, Supriya Mahabaleshwarkar & Vinaya Ghate, Pp. 22718–22725

Rediscovery of *Sewardiella tuberifera* Kash., a long-lost monotypic endemic Indian liverwort

– Sapana Pant, S.D. Tewari, Prachi Joshi, Manisha Bhandari & Richa Arya, Pp. 22726–22730

***Physcomitrium eury stomum* Sendtn. (Funariaceae: Bryophyta) and *Splachnobryum obtusum* (Brid.) Müll. Hal. (Splachnobryaceae: Bryophyta), two rare moss species from the Western Ghats of Kerala**
– C. Nair Manju, P.M. Vineesha, B. Mufeed & K.P. Rajesh, Pp. 22731–22736

Short Communications

First record of the Great Seahorse *Hippocampus kelloggi* Jordan & Snyder, 1901 (Actinopterygii: Syngnathiformes: Syngnathidae) from the northwestern coast of Bay of Bengal
– Anil Kumar Behera, Biswajit Mahari & Amrit Kumar Mishra, Pp. 22737–22740

***Schoenoplectiella erecta* (Poir.) Lye ssp. *raynalii* (Schuyler) Beentje (Cyperaceae) – a new record to India from Ossudu Bird Sanctuary, Villupuram District, Tamil Nadu**
– Chandrasegrane Pradeep, Paneerselvam Umamaheswari, Natesan Balachandran & Raphael Mathevet, Pp. 22741–22745

Notes

Status of the Sumatran Striped Rabbit *Nesolagus netscheri* in Isau-Isau Wildlife Reserve, South Sumatra Province, Indonesia
– Arum Setiawan, Muhammad Iqbal, Octavia Susilowati, Doni Setiawan, Martialis Puspito Khristy Maharsi & Indra Yustian, Pp. 22746–22748

Photographic record of the butterfly ray *Gymnura cf. poecilura* (Myliobatiformes: Gymnuridae) from the Bhagirathi-Hooghly River in West Bengal, eastern India
– Priyanka Chakraborty, Pp. 22749–22751

First report of the fairyfly *Schizophragma mitai* Triapitsyn (Hymenoptera: Mymaridae) from India with notes on *S. indica* Rehm & Anis
– Anandhan Rameshkumar, Nazarius Anand, Sayan Sardar & Sarfrazul Islam Kazmi, Pp. 22752–22756

Occurrence of *Ranunculus sceleratus* L. (Ranunculaceae) from the Nilgiri District, Tamil Nadu, India
– J. Shashikanth, S. Mugendhiran & Digvijay Verma, Pp. 22757–22760

First report of *Meliola panici* on *Ottochloa nodosa* (Kunth) Dandy (Poaceae)
– Gopinathan Nair Gokul & Jacob Thomas, Pp. 22761–22763

New record of an usneoied lichen *Usnea hirta* (L.) Weber ex F.H.Wigg. from India
– K.S. Vinayaka, Archana R. Mesta & N. Rajeshwari, Pp. 22764–22766

On the occurrence of two species of rare cyanobacterial genus *Petalonema* M.J.Berkeley ex Wolle, 1887 (Cyanophyceae: Nostocales: Scytonemataceae) from eastern Himalaya, India
– Jai Prakash Keshri, Narendra Nath Koley & Jay Mal, Pp. 22767–22770

Publisher & Host

