

Building evidence for conservation globally

10.11609/jott.2024.16.8.25639-25790

[www.threatenedtaxa.org](http://www.threatenedtaxa.org)

# Journal of Threatened TAXA

26 August 2024 (Online & Print)

16(8): 25639-25790

ISSN 0974-7907 (Online)

ISSN 0974-7893 (Print)



Open Access





43/2 Varadarajulu Nagar, 5<sup>th</sup> 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](http://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, 5<sup>th</sup> Street West, Ganapathy, Coimbatore, Tamil Nadu 641006, India**Deputy Chief Editor****Dr. Neelesh Dahanukar**

Noida, Uttar Pradesh, India

**Managing Editor****Mr. B. Ravichandran**, WILD/ZOO, Coimbatore, Tamil Nadu 641006, 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 641006, India**Dr. B.A. Daniel**, ZOO/WILD, Coimbatore, Tamil Nadu 641006, 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 Illustrator, 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, Mavinahalli 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 &amp; Ocean Studies, Kochi, Kerala, India

**English Editors****Mrs. Mira Bhojwani**, Pune, India**Dr. Fred Pluthero**, Toronto, Canada**Mr. P. Ilangovan**, 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 2020–2022****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, Kuvenpu University, Shimoga, Karnataka, India**Dr. K.R. Sridhar**, Mangalore University, Mangalagangotri, Mangalore, Karnataka, India**Dr. Gunjan Biswas**, Vidyasagar University, Midnapore, West Bengal, India**Dr. Kiran Ramchandra Ranadive**, Annasaheb Magar Mahavidyalaya, Maharashtra, 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. Ferdinand 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, Anantapur, 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 Ranjan Housing Society, Pune, Maharashtra, India**Prof. A.J. Solomon Raju**, Andhra University, Visakhapatnam, India**Dr. Mander 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. Lakshminarasiham**, 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. Siru**, 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. A.G. Pandurangan**, Thiruvananthapuram, Kerala, India**Dr. Navendu Page**, Wildlife Institute of India, Chandrabani, Dehradun, Uttarakhand, India**Dr. Kannan C.S. Warrier**, 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, Suryamaninagar, 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. Hemanth V. Ghate**, Modern College, Pune, India**Dr. M. Monwar Hossain**, Jahangirnagar University, Dhaka, BangladeshFor Focus, Scope, Aims, and Policies, visit [https://threatenedtaxa.org/index.php/JoTT/aims\\_scope](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](https://threatenedtaxa.org/index.php/JoTT/policies_various)

continued on the back inside cover

Cover: Watercolour illustrations—Striped Tiger *Danaus genutia*, Common Silverline *Cigaritis vulcanus*, Tamil Lacewing *Cethosia mahratta*. © Mayur Nandikar.



## An updated checklist of the skippers (Lepidoptera: Hesperiidae) of Bhutan

Karma Wangdi<sup>1</sup> , Piet van der Poel<sup>2</sup>  & K.C. Sajan<sup>3</sup> 

<sup>1</sup>Ugyen Wangchuck Institute for Forest Research and Training, Lamaiagoempa, Bumthang, Bhutan.

<sup>2</sup>Without fixed abode, from Noordwijkerhout, the Netherlands.

<sup>3</sup>Eastern New Mexico University, Station 33, 1500 S Ave K, Portales, New Mexico 88130, USA.

<sup>1</sup>kwangdi@uvice.gov.bt, <sup>2</sup>piopoel@yahoo.com (corresponding author), <sup>3</sup>sajankc143@gmail.com

**Abstract:** The authors conducted a comprehensive review of Hesperiidae species in Bhutan, scrutinizing three existing checklists and 25 new records presented by Van der Poel et al. (2023). A thorough examination of all available documents and evidence confirmed 145 Hesperiidae species in Bhutan, with four additional species listed as tentative and one as "cf." (requiring further research). The updated checklist excludes 14 species that were listed in one or more of the three existing checklists and provides justifications for not including these species. Additionally, 11 unverifiable or wrongly identified species presented by non-peer-reviewed sources were not included in the checklist. Sixteen species with no verifiable records in the last 70 years were also identified. This review provides a comprehensive and authoritative checklist of Hesperiidae species in Bhutan.

**Keywords:** Butterflies, Himalaya, insect fauna, Papilionoidea, review, Rhopalocera, species.

**Editor:** Jatishwor Singh Irungbam, Centrum ALGATECH, Třeboň, Česká Republika.

**Date of publication:** 26 August 2024 (online & print)

**Citation:** Wangdi, K., P. van der Poel & K.C. Sajan (2024). An updated checklist of the skippers (Lepidoptera: Hesperiidae) of Bhutan. *Journal of Threatened Taxa* 16(8): 25675-25688. <https://doi.org/10.11609/jott.8761.16.8.25675-25688>

**Copyright:** © Wangdi et al. 2024. 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:** Langur Eco Travels, Thimphu, Bhutan <[www.bhutanbirdingtours.com](http://www.bhutanbirdingtours.com)>.

**Competing interests:** The authors declare no competing interests.

**Author details:** KARMA WANGDI is forest ranger and trainer at the Ugyen Wangchuck Institute for Forest Research and Training in Bumthang Dzongkhag, Bhutan. He conducts butterfly and biodiversity surveys and training for the Institute. PIET VAN DER POEL worked for eight years in Bhutan on nature conservation, participatory rural appraisals, river basin management, farming systems and eco-tourism. He has studied Himalayan butterflies since 2001, when he was working as advisor for the Bumdeling Wildlife Sanctuary in TrashiYangtse, east Bhutan. SAJAN K.C. is a biologist specialising in butterfly ecology and systematics. Holding an MS degree in Biology from Eastern New Mexico University (2023), USA, K.C. studies butterflies from around the world, shedding light on their evolution, behaviour and conservation.

**Author contributions:** Karma initiated the checklist project and provided all information on records from Bhutan for the species concerned. Piet carried out the literature research for these species, did a first check of the identifications, wrote the text and prepared the table. Sajan checked the identifications, commented on the text, edited some parts and wrote the abstract and conclusions.

**Acknowledgements:** The authors would like to thank all people who contributed to establishing this checklist by providing information or participating in discussions on the identification of some difficult-to-identify species: Paul van Gasse, Monsoon Jyoti Gogoi, Hao Huang, Isaac Kehimkar, Motoki Saito, Peter Smetacek, and Tshuthrim Drukpa Wangyel.

## INTRODUCTION

Butterflies of Bhutan did not receive much attention until the beginning of this century. Evans (1932) noted that lists of butterfly species for Nepal, Garhwal, and Bhutan would be interesting. Evans (1949) documented 43 species collected in Bhutan, with specimens held in the British Museum. Yazaki & Kanmuri (1985) reported on butterflies of western Bhutan and presented a list of 265 butterfly species for the whole country; the list included 25 Hesperiidae. Harada (1987a,b) listed 124 species with pictures, including six Hesperiidae, for western Bhutan, based on specimens collected in April–May of 1983. Van der Poel & Wangchuk (2007) published the first guidebook featuring pictures of 136 butterfly species of Bhutan, including eight Hesperiidae. Several other survey reports, guidebooks, and local checklists were published between 2012 and 2014, mostly relying on photographic evidence, although the pictures were often not included in the documents. Wangdi et al. (2012) reported 70 butterfly species, including 16 Hesperiidae, from Trashiyangtse, based on voucher specimens collected in 2011 during a joint Bhutanese-Japanese survey in northeastern Bhutan. Wangdi & Sherub (2014) published a guidebook on the Hesperiidae of Bhutan, listing and illustrating 92 species.

In 2012, Yazaki published a 268-page book on the butterflies of Bhutan in Japanese, which included 26 Hesperiidae but the authors were unable to consult the document as it was only distributed in Japan. Around 2013, Van Gasse posted an online PDF document on the butterflies of the Indian subcontinent. His Bhutan listings were primarily based on original descriptions, Evans (1932, 1949), and subsequent publications. An updated version of his annotated checklist of butterflies of the Indian subcontinent was published online five years later (Van Gasse 2018). It is presumed that Van Gasse (2018) considered species reported in recent documents as valid records if they were likely to occur in Bhutan. The first checklist of butterflies of Bhutan was compiled by Singh & Chib (2015), who listed 670 species based on all available documents on Bhutanese butterflies, generally assuming the correctness of species identifications in these documents but omitting some unlikely or misidentified species. In contrast, Sbordoni et al. (2015) reported 533 species, primarily relying on photographs with verified identifications. The main disparity between these lists was the number of Hesperiidae species: 73 in Sbordoni et al. (2015) versus 139 in Singh & Chib (2015).

Since 2015, local butterfly photographers and surveyors have added species to the known hesperiid

fauna of Bhutan. We considered some of their identifications as doubtful if the pictures did not show the necessary distinguishing characteristics. Van der Poel et al. (2023) reviewed the evidence for these reported species; they checked published documents, grey literature, their own pictures, and pictures sent to them or found posted on the internet. For first records of a species and confirmation of a tentative species, they accepted records whose identifications they were 98–100% certain of. For recent records of species already reliably reported from Bhutan, they accepted records whose identifications they were 90% or more certain of. They officially reported 25 first records of Hesperiidae for Bhutan. This included species reported before in grey literature and on the internet, which are generally considered as not “officially” published. This also included species that were reported before, based on wrong or doubtful identifications, for which they found clear evidence. Furthermore, Van der Poel et al. (2023) provided pictorial evidence of another 25 species that were not reported with verifiable evidence in the last 70 years.

Some records from “Bhutan” in old documents from the time of the British Empire were reported from areas that are not within the present-day boundaries of Bhutan. For example:

1. *Celaenorrhinus flavocincta* was described by De Nicéville (1887) based on three specimens from the collections of Messrs. Knyvett and Möller, all obtained near “Buxa, Bhutan”. However, Buxa is now located in Alipurduar District of West Bengal, India. Evans (1949) reported *Celaenorrhinus flavocincta* from “Bhutan”, without specifying “Buxa”. Subsequently, Singh & Chib (2015) and Van Gasse (2018) included the species in their checklists for Bhutan.

2. *Celaenorrhinus plagifera* was listed by De Nicéville (1889) with habitat: Sikkim, Bhutan. However, from the rest of the text of De Nicéville (1889), it appears that the Bhutan specimens came from the collection of Mr. Knyvett, known to have mainly collected near “Buxa Bhutan”.

The Treaty of Sinchula in 1865 determined more or less the location of the present boundary between Bhutan and India. Many authors in the late 19<sup>th</sup> and early 20<sup>th</sup> century continued to refer to the area around Buxa in Alipurduar District of West Bengal as “Buxa, Bhutan”. Some publications indicated as collection area “British Bhutan”, which referred to the Kalimpong area of West Bengal, India.

## METHODS

The authors first prepared a preliminary list of the Hesperiidae of Bhutan based on the checklists of Sbordoni et al. (2015), Singh & Chib (2015), and Van Gasse (2018). Singh & Chib (2015) listed the source documents for each species on which its listing was based. Other potential species were added to the preliminary list based on photographic evidence reported for Bhutan in recent documents, pictures posted on the internet, such as the Bhutan Biodiversity Portal (BBP) website, and pictures taken by or sent to the authors.

Species that were reported for Bhutan by Evans (1949) or Kehimkar (2008) were generally accepted as correct records. Evan's records for Bhutan were based on specimens in the British Museum (Natural History Museum, London). Isaac Kehimkar (pers. comm. 2023) reported that his 2008 listings for Bhutan were generally based on Evans (1932, 1949) or old documents in the library of the Bombay Natural History Society (BNHS). Thus, these species, which were based on old reports, were included in our checklist, unless the area from which the specimens were collected is certainly or most likely outside the present-day boundaries of Bhutan, e.g., in Buxa. Recent records for these species were accepted if the authors were at least 90% certain of their identification. This percentage is an estimate by the authors and is based on how well the characteristics of the photographed individual fit the characteristics of the species. It is especially useful for similar species with overlapping characteristics, such as *Potanthus* species. Websites such as observation.org give for automatically identified butterfly photographs the percentage chance that it is a particular species.

For all hesperiid species reported after 1949, the authors sought verifiable evidence in the form of pictures showing distinguishing characteristics of the species. Some of the species listed in the three checklists were based on only one or two source documents. Many source documents presented species without verifiable evidence. We considered some of the presented pictorial evidence insufficient for correct identification, e.g., when only the upperside or underside were shown and both sides were needed for identification. Several source documents listed misidentified species as the accompanying pictures were of different species. Thus, there was no guarantee that even species listed in all three checklists were reliably reported from Bhutan. Therefore, we checked for each species the reported sources to find the first record with correctly identified pictures or specimens for Bhutan. We also checked

for the first correctly identified recent (since 2000) record. The pictorial evidence was verified by checking the identification with butterfly guidebooks, websites for SE Asia, original descriptions, and available recent literature. The consulted guidebooks included Evans (1949), Smith (1994, 2006, 2011, 2015), Kehimkar (2008, 2016), and Smetacek (2017). The websites included yutaka.it-n.jp, iNaturalist.org, and ifoundbutterflies.org. The authors discussed the identification of a number of individuals with several lepidopterists and naturalists. The consulted recent literature is mentioned in this document under the concerned species.

Species for which no verifiable evidence could be found and species for which the listing in the three checklists was entirely based on misidentifications in the source documents were not included in our Hesperiidae checklist for Bhutan. The reasons for not including these species are given later in this article for each of the species. Possible first records of species for which we considered the identification most probably (90–98% chance) correct were listed as tentative. This included species for which no study of the genitalia or DNA analysis was carried out, while this is required for confirmation of the identification. The authors assigned "cf." to records of individuals that differ from a known species and could potentially be a new species for Bhutan or a new form, subspecies, or species new to science. Tentative and "cf." species were listed, but not counted as species present in Bhutan. The updated checklist is arranged according to Zhang et al. (2023) for Hesperiinae and follows the same principles for other subfamilies. For the placement of *Apostictopterus fuliginosus* Leech, [1893] we followed Zhu et al. (2023).

## RESULTS

**1. Checklist of Hesperiidae of Bhutan (Table 1.):** The updated checklist of the Hesperiidae of Bhutan lists 145 species and four tentative species. Tentative species are likely to occur in Bhutan, but the evidence presented until now was considered insufficient (i.e., the identification was considered to be 90–98% certain). One possible species, which requires additional research, is listed as "*Pedesta cf. gupta*", and is also not counted as a species of Bhutan. The updated checklist comprises more hesperiid species than the earlier lists (73 in Sbordoni et al. (2015), 139 in Singh & Chib (2015), and 142 in Van Gasse (2018)). Verification of the species' identification was given much more importance by the authors than in the three checklists cited above.

In addition, the checklist gives the first record from Bhutan, that the authors could find, for each species and the first recent record in this century. It also reports if species were first recorded or confirmed by Yazaki & Kanmuri (1985) or Harada (1987a). This allows any researcher, who may doubt the validity of a particular record, to check the reliability of the evidence presented for the species in the checklist.

To make it clear to other researchers which species were considered but not included in our checklist, we present these species in two lists. We also give reasons why these species were not included:

- Eleven species that were not listed in the three checklists but were reported in grey literature or online based on wrong or doubtful (less than 90% certain) identifications;

- Fourteen species that were listed in at least one of the three checklists but of which the identifications in the source documents were wrong or doubtful.

**2. Species that were reported from Bhutan:** In general publications, non-published reports, or on the internet, but were not included in any of the three mentioned checklists. We consider their identifications to be wrong or doubtful, or could not find any pictorial evidence. These include (with re-identification, using guidebooks and websites indicated in the methodology):

- o *Abaratha alida* (de Nicéville, 1891) Alida Angle (no pictorial evidence);

- o *Celaenorrhinus patula* de Nicéville, 1889 Large Spotted Flat (picture was *C. putra*);

- o *Celaenorrhinus pero* de Nicéville, 1889 Mussoorie Spotted Flat (picture was *C. putra*);

- o *Celaenorrhinus sumitra* (Moore, [1866]) Moore's Spotted Flat (de Nicéville (1889) reported it from "Rikisum, British Bhutan", which is now in Kalimpong, West Bengal);

- o *Pedesta (Thoressa) baileyi* (South, 1914) reported on the Bhutan Biodiversity Portal (BBP) website. The picture was of *P. pandita*. The undersides of these two species can be quite similar. Fig. S1-32 of "*P. baileyi*" upperside in Li et al. (2019) was also of *P. pandita*;

- o *Satarupa gopala* Moore, [1866] Large White Flat (picture was of *S. zulla*);

- o *Potanthus tibetana* Huang, 2002 (picture ID uncertain, possibly *P. nesta* or *P. mara*). It has several characteristics different from the description of *P. tibetana* in Huang (2002);

- o *Idmon distantii* (Shepard, 1937) Spotless Bob (picture was of *Baoris* spp.);

- o *Baoris pagana* (de Nicéville, 1887) Figure of Eight Swift (picture was *Caltoris* sp.);
- o *Caltoris cormasa* (Hewitson, 1876) Full-stop Swift (no pictorial evidence);
- o *Caltoris plebeia* (de Nicéville, 1887) Tufted Swift (no pictorial evidence).

### 3. Species listed in the previous checklists, but not in the new Hesperiidae checklist of Bhutan:

These species were listed in one or more of the three reviewed checklists. For these species, we judged the identifications to be certainly wrong or doubtful. We called an identification doubtful if we considered the chance that the original identification was correct between 0 and 89%.

#### Subfamily Tagiadinae, Tribe Celaenorrhini

*Celaenorrhinus aurivittata* (Moore, [1879]) Dark Yellow-banded Flat was reported for Bhutan by Wangdi & Sherub (2014, p.39) as *C. aurivittatus* [sic] from Punakha Dzongkhag. Based on Wangdi & Sherub (2014), *C. aurivittata* was listed in the checklists of Singh & Chib (2015) and Van Gasse (2018), but Shing & Chib (2014) also listed *C. aurivittatus*. Van der Poel et al. (2023) re-identified the picture of Wangdi & Sherub (2014, p.39) as *C. dhanada affinis* and indicated that *affinis* and *dhanada* are probably separate species, as their distribution areas overlap in Chiang Mai, Thailand (yutaka.it-n.jp website). These two "species" are probably also sympatric in Bhutan, where both have been reported from adjoining valleys in Mongar Dzongkhag.

*Celaenorrhinus flavocincta* (de Nicéville, 1887) Bhutan Flat was listed for Bhutan by Singh & Chib (2015) and Van Gasse (2018), because "Bhutan" was the type locality of the species or because it was mentioned by Evans (1949). De Nicéville (1887) described it from specimens obtained near Buxa, Bhutan, which is now in Alipurduar District of West Bengal. Thus, these specimens were most likely not collected from within Bhutan's present-day boundaries. Consequently, it was not included in our Hesperiidae checklist of Bhutan. It probably should be renamed "Buxa Flat", especially since even at the time of its description by De Nicéville (1887), Buxa was already part of British India.

#### Tribe Tagiadini

*Capila lidderdali* (Elwes, 1888) Lidderdale's Dawnfly. Elwes (1888) described it as "Chaeticneme? lidderdali". He inspected a single specimen in the British Museum of which he stated: "and though it may possibly have

come from Buxa, is more probably a Sikkim insect". Elwes & Edwards (1897) indicated that it came from the collection of Dr. Lidderdale, who collected near Buxa and Darjeeling". Thus, with Buxa now being in West Bengal, it was not described from present-day Bhutan. Although Evans (1932) indicated only Bhutan as the collection area, in Evans (1949) this was changed to Sikkim or Bhutan, more in line with Elwes & Edwards (1897), although Darjeeling is not in Sikkim. Thus, the species was not included.

**Coladenia hoenei** Evans, 1939 was reported for Bhutan by Harada (1987a). It is now considered to be *Coladenia pinsbukana* (Shimonoya & Murayama, 1976). The two species are very similar. Huang (2021) stated that *C. hoenei* is restricted to the Chinese provinces of Shaanxi, Gansu, and Henan, and he reports *C. pinsbukana occidentalis* from Yunnan, Laos, Thailand, and Sikkim (India). Hence, *C. hoenei* was not included in our Hesperiidae checklist of Bhutan. For more detail on this rather confusing name change, see Van der Poel et al. (2023).

**Seseria dohertyi** (Watson, 1893) Himalayan White Flat was reported for Bhutan by Singh & Chib (2015) referring to Singh (2012) and Wangdi & Sherub (2014). *Seseria dohertyi* was also reported by Van Gasse (2018), very probably based on the same two reports. However, the picture in Singh (2012, image 52) is of *Gerosis phisara* and the picture in Wangdi & Sherub (2014, p.43) is of *Seseria sambara*, as it has a narrow spot in space 1b of the upper forewing which is notched outwardly; also, the white part of the upper hindwing and abdomen is sullied and not clear in the wet season form (Evans, 1949). Thus, *S. dohertyi* was not included in our checklist of Hesperiidae species of Bhutan.

#### Subfamily Heteropterinae

**Carterocephalus silvicola** (Meigen, 1829) Chequered Skipper was reported for Bhutan by Wangdi & Sherub (2014) from Thimphu, Paro, and Haa Dzongkhags and listed for western Bhutan by Van Gasse (2018), most probably based on Wangdi & Sherub (2014). The picture in Wangdi & Sherub (2014, p.79) was re-identified as *C. avanti* (de Nicéville, 1886). As there are no other reports of *C. silvicola*, it was not included in our checklist of Hesperiidae of Bhutan.

#### Subfamily Hesperiinae, Tribe Taractrocerini

**Potanthus** Scudder, 1872 spp. Many *Potanthus* species are very hard to identify and often analysis of the

genitalia is the main way to identify them with certainty. The authors have accepted the five *Potanthus* species listed by Evans (1949) as correct. The other five species, listed by Singh & Chib (2015) and mostly also by Van Gasse (2018), have been scrutinized. *Potanthus dara* and *P. juno* were not included in our checklist and is explained later. Van der Poel et al. (2023) reported *P. pseudomaesa* as a species for Bhutan, *P. ganga* as a tentative species, and confirmed *P. trachala* as a species present in Bhutan. Thus, we have included seven *Potanthus* species in our checklist and one tentative *Potanthus* species.

**Potanthus juno** (Evans, 1932) Burmese Dart. *Potanthus juno* was listed by Van Gasse (2018) from Tsirang. Yazaki & Kanmuri (1986), A. Singh (2012), J. I. Singh (2014), and Singh & Chib (2014, 2016) reported on butterflies of Tsirang, but *P. juno* was not listed by any of them. Thus, the source of the listing by Van Gasse (2018) is not clear. The authors asked him about the source but did not receive a reply. Since there is no proof of the occurrence of *P. juno* in Bhutan, it was not included in our checklist, although it was reported as occurring in Assam by Varshney & Smetacek (2015).

**Potanthus dara** (Kollar, [1844]) Himalayan Dart was listed without a picture in Sbordoni et al. (2015) and in Singh & Chib (2015), the latter based it on the following three publications;

- Singh (2014), only listed the name, but did not present a picture;
- Nidup (2015), also only listed the name, *P. dara*;
- Wangdi & Sherub (2014, p.58) presented pictures 1 and 2. These do not show the conspicuous spot in space 6 of the hindwing of *P. dara*, while also the forewing spots in spaces 4 and 5 are not separate from the spots in 3 and 6; thus, these are congeners. Most likely, image 1 is *P. mara*, but it could also be *P. nuesta*, and image 2 may be *P. pseudomaesa*.

Another picture reported to be of *P. dara*, possibly the picture on which the listing in Sbordoni et al. (2015) was based, also was not *P. dara*, since it had a conspicuous upper hindwing spot in space 7 rather than in 6. It was a typical example of *P. trachala* (see Van der Poel et al. 2023). Moreover, the authors are not aware of any reliable report confirming the presence of *P. dara* east of Central Nepal. *Potanthus dara* may well have been listed for Bhutan in other publications and on the internet, but the authors think that it is highly unlikely to occur in Bhutan. Hence, *P. dara* is not included in our Hesperiidae checklist.

### Tribe Erionotini

***Erionota thrax*** (Linnaeus, 1767), Palm Redeye, was listed for Bhutan by Singh & Chib (2015), apparently only based on Wangdi & Sherub (2014). However, we determined that the picture in Wangdi & Sherub (2014, p.69) was of *E. torus*, since the upper forewing termen and apex were rounded. It was not listed for Bhutan by Van Gasse (2018), who probably also realised that the picture was of *E. torus*. Consequently, *E. thrax* was not included in our checklist of Hesperiidae of Bhutan.

***Matapa purpurascens*** Elwes & Edwards, 1897, Purple Redeye, was reported for Bhutan by Wangdi & Sherub (2014) from Zhemgang Dzongkhags and listed for Bhutan by Van Gasse (2018), most probably based on Wangdi & Sherub (2014). The picture in Wangdi & Sherub (2014, p.70) was re-identified as *Matapa druna*, and was listed as a first record for Bhutan in Van der Poel et al. (2023). As there appeared to be no other records of the species, *M. purpurascens* was not included in our checklist of Hesperiidae of Bhutan.

***Pudicitia pholus*** (de Nicéville, 1889), Spotted Redeye, was described by De Nicéville (1889) as *Parnara pholus*. At least one and probably both of the two specimens were collected “near Buxa, Bhutan” in August. De Nicéville (1995) placed it in a new genus *Pudicitia*. Evans (1932) gave the distribution area for *P. pholus* as Bhutan to Naga Hills. This was probably the source of Van Gasse’s (2018) listing. “Buxa, Bhutan” is presently in Alipurduar District of West Bengal, India. Evans (1949) did not list *P. pholus* for Bhutan, possibly because Buxa was no longer in Bhutan. Thus, there appears to be no proof of this species having been reported from within the present-day boundaries of Bhutan. Consequently, the species was not included in our Hesperiidae checklist of Bhutan.

***Suastus minutus*** (Moore, 1877), Small Palm Bob, was listed by Singh & Chib (2015) and, probably based on that, by Van Gasse (2018). Yazaki & Kanmuri (1985) was listed as a source by Singh & Chib (2015), however, Yazaki & Kanmuri (1985) did not list *S. minutus* (and also not *S. gremius*). Thus, it is not clear on which document the listing of *S. minutus* was based. Consequently, this species was not included in our Hesperiidae checklist of Bhutan.

### Tribe Baorini

***Caloris brunnea*** (Snellen, 1876), Dark-branded Swift, was reported for Bhutan by Wangdi & Sherub (2014) from Mongar Dzongkhags and listed for Bhutan

by Van Gasse (2018), most probably based on the aforementioned publication. The picture in Wangdi & Sherub (2014, p.73) is almost certainly of *Pelopidas sinensis*. Thus, *C. brunnea* will be removed from the species checklist of butterflies of Bhutan. Image 3, taken by Karma Wangdi, was identified as possibly *C. brunnea* and not *C. tulsi*, *C. kumara* or *C. cahira*. The chance of it being *C. brunnea* was considered too low (<90%) to justify listing it as a tentative species.

***Parnara ganga*** Evans, 1937, Continental Swift, was only reported for Bhutan by Wangdi & Sherub (2014) from Samdrup Jongkhar Dzongkhags and listed for W. Bhutan by Van Gasse (2018), most probably based on Wangdi & Sherub (2014). ***Parnara bada*** (Moore, 1878) was reported from Bhutan in several publications, including Wangdi et al. (2012). The individual in Image 4, copied from Wangdi & Sherub (2014, p.72), does not show the characteristics of *P. ganga* as indicated by Evans (1949): upperside forewing may have a lower cell spot. It also does not have the characteristics indicated by Evans (1949) for *P. bada*: the upper side forewing may have an upper cell spot and the underside hindwing may have a spot in 6. However, the hindwing spots of *P. bada* are generally smaller than those of *P. ganga*. Thus, the individual in image 4 is more likely to be *P. bada*, and its identification as *P. ganga* is doubtful, not warranting reporting it as a first record or tentative record for Bhutan. As there appeared to be no other records, *Parnara ganga* was not included in our checklist of Hesperiidae of Bhutan.

***Pelopidas thrax*** (Hübner, [1821]), Desert Branded Swift, was reported for Bhutan by Sbordoni et al. (2015) and Van Gasse (2018). The picture on which Sbordoni et al. (2015) based their listing has not been found. The source of Van Gasse’s (2018) listing of spp. *masta* may have been Sbordoni et al. (2015). Although it is likely to occur in Bhutan, no evidence for *P. thrax* has been found, and consequently, it was not included in our Hesperiidae checklist of Bhutan.

### 4. Species not recorded in the last 70 years (one species not since 1985):

***Choaspes furcata*** Evans, 1932, Hooked Awking, listed by Evans (1949, possibly based on Evans (1932)), no recent reports; often (FUNET, Varshney & Smetacek 2015, Van Gasse 2018) listed as *Choaspes furcatus*. The original description was *C. plateni furcata* and GBIF lists it as *Choaspes furcata*;

***Hasora taminatus*** (Hübner, 1818), White-banded

Awl, was reported in old BNHM documents (Kehimkar 2008) and reported by Yazaki & Kanmuri (1985), no recent reports;

***Celaenorrhinus badia*** (Hewitson, 1877), Scarce Banded Flat, listed by Evans (1949, source of listing unknown), no recent reports;

***Celaenorrhinus pyrrha*** de Nicéville, 1889, Double-spotted Flat, was described from Bhutan by De Nicéville (1889) and listed by Evans (1949), no recent reports;

***Capila zennara*** (Moore, 1866)], Pale Striped Dawnfly, listed by Evans (1949, source of listing unknown), no recent reports;

***Geriosis bhagava*** (Moore, [1866]), Common Yellow-breast Flat, listed by Kehimkar (2008), based on old BNHM documents, recent listings had no evidence;

***Pyrgus cashmirensis*** Moore, 1874, Kashmir Skipper, listed by Evans (1949, source of listing unknown), no recent reports.

***Baracus vittatus*** (Felder, 1862), Hedge Hopper, listed by Evans (1949, source of listing unknown), no recent reports;

***Creteus cyrina*** (Hewitson, 1876), Nonsuch Palmer, listed by Evans (1949) possibly based on De Nicéville (1895), no recent reports;

***Potanthus confucius*** (C. & R. Felder, 1862), Chinese Dart, listed by Evans (1949, source of listing unknown). Recent listings and postings on BBP were wrongly identified or had no or insufficient evidence. One BBP posting was likely to be *P. confucius*, but some characteristics for a reliable confirmation were not visible;

***Potanthus nesa*** (Evans, 1934), Brandless Dart, listed by Evans (1949, source of listing unknown), recent listings had no or insufficient evidence;

***Potanthus palnia*** (Evans, 1914), Palni Dart, listed by Evans (1949, source of listing unknown), recent listings had no or insufficient evidence;

***Potanthus rectifasciata*** (Elwes & Edwards, 1897), Branded Dart, listed by Evans (1949, source of listing unknown). It was described by Elwes & Edwards (1897) from Sikkim. No recent reports;

***Koruthaialos butleri*** (de Nicéville, [1884]), Dark Velvet Bob, described from Bhutan, recent listings had no evidence or were not identifiable (too dark);

***Caltoris tulsi*** (de Nicéville, [1884]), Purple Swift, listed by Evans (1949, source of listing unknown), recent listings had no evidence or were wrongly identified;

***Pelopidas subochracea*** (Moore, 1878), Moore's Swift, listed by Kehimkar (2008), based on old BNHM documents, recent listings were wrongly identified or were listed without verifiable evidence.

## DISCUSSION

The main difference between the present and the three previous checklists is that the previous ones seldom checked the reliability of the identifications in their source documents. It appeared that Singh & Chib (2015) often accepted the reported identifications in their source documents as correct if the species was reported by several sources regardless of the accuracy. They appeared more critical if a species was only reported by one source. Van Gasse (2018) generally accepted reported records of species that were likely to occur in Bhutan, apparently without critically checking the presented evidence. Sbordoni et al. (2015) looked more critically at the presented pictorial evidence but still accepted certain identifications that Van der Poel et al. (2023) considered to be misidentifications.

Sixteen of the species in the updated checklist have not been reported with verifiable evidence in the last 70 years. Many other species reported from nearby areas such as Sikkim and western Arunachal Pradesh are likely to be present in Bhutan. To increase the chance of finding these species regular, systematic butterfly surveys in a wide range of habitats across Bhutan are recommended.

Misidentification is not just a problem for beginning butterfly photographers. Earlier, the authors indicated that most probably all identifications of *P. dara* in Bhutan were wrong. This is what Evans (1949) wrote on misidentifications of *P. dara*:

"[*dara* is given in] Fig Lep Ind, pl. 816/3 ♂ as *nala*. Of the figures marked *dara*: Leech, pl. 40/14 is *pava*; Elwes & Edwards, pl. 25/69 genitalia are *flava*; Kershaw 1905, pl. 14/22 is *pseudomaesa clio*; Lep Ind, pl. 814/2 ♂ is *palnia* and ♀ *trachala tytleri*; Rhop Java, pl. 9/65 is *trachala*."

The authors urge all butterfly researchers and surveyors to double-check their identifications and have them verified by experts before publishing them, and to publish their findings only in peer-reviewed journals.

A persistent problem, especially on the Indian subcontinent, is the use of different scientific and common names of species by different organisations. In theory, there is only one correct scientific name for a species. However, scientists do not always agree on newly proposed names or on raising subspecies to species level. Moreover, with increased DNA sequencing, the placement and names of many species will change. Zhang et al. (2022) presented significant recent taxonomic changes based on genomic analysis. Hou et al. (2023) added additional taxonomic changes. Beginning butterfly surveyors often use the names as

**Table 1. Checklist of Hesperiidae of Bhutan.**

\*—Source documents (see References for details): a+b=publication (a) that reported this species and publication (b) that presented the related evidence.

CTS18: Cheku et al. (2018); CBF23: Chiba et al. (2023); dNc\*\*: De Nicéville (18\*\*) \*\* = 83[84], 85, 86, 89, 90, 95; Drj14: Dorji (2014); Ev49: Evans (1949); Hr87: Harada (1887a); JSW14: JSWNP (2014); K08-old lit: Kehimkar (2008) based on old documents in BNHS library; Nd15: Nidup (2015); P&W07: Van der Poel & Wangchuk (2007); PWK23: Van der Poel et al. (2023); S&C16: Singh & Chib (2016); Sb15: Sbordoni et al. (2015); Si12: Singh (2012); Si14: Singh (2014); vG15: Van Gasse (2015); W&S14: Wangdi & Sherub (2014); Wea12: Wangdi et al. (2012); Wm&dN87: Wood-Mason & de Nicéville (1887); Y&K85: Yazaki & Kanmuri (1985).

|       | Species name                    | Authority, year          | Subspecies (Authority, year)  | Common name                  | Bht 1st record*            | Bht recent record            |
|-------|---------------------------------|--------------------------|---|------------------------------|----------------------------|------------------------------|
|       | Subfamily COELIADINAE           |                          |   |                              |                            | (no recent observt.)         |
| 1     | <i>Badamia exclamationis</i>    | (Fabricius, 1775)        |   | Brown Awl                    | K08-old lit                | W&S14                        |
| 2     | <i>Bibasis sena</i>             | (Moore, [1866])          | <i>sena</i> (Moore, [1866])   | Orange-tailed Awlet          | K08-old lit                | W&S14                        |
| 3     | <i>Burara amara</i>             | (Moore, [1866])          |   | Small Green Awlet            | Si12                       | ← see 1 <sup>st</sup> record |
| 4     | <i>Burara anadi</i>             | (de Nicéville, [1884])   | <i>anadi</i> (de Nicéville, [1884])                                       | Plain Orange Awlet           | PWK23                      | ←                            |
| 5     | <i>Burara gomata</i>            | (Moore, [1866])          | <i>gomata</i> (Moore, [1866])   | Pale Green Awlet             | Sb15+ PWK23                | ←                            |
| 6     | <i>Burara harisa</i>            | (Moore, [1866])          | <i>harisa</i> (Moore, [1866])   | Orange-striped Awlet         | W&S14                      | ←                            |
| 7     | <i>Burara jaina</i>             | (Moore, [1866])          | <i>jaina</i> (Moore, [1866])  | Orange Awlet                 | K08-old lit                | Si12                         |
| 8     | <i>Burara oedipodea</i>         | (Swainson, 1820)         | <i>belesis</i> (Mabille, 1876)  | Branded Orange Awlet         | Ev49                       | W&S14                        |
| 9     | <i>Burara vasutana</i>          | (Moore, [1866])          |   | Green Awlet                  | W&S14                      | ←                            |
| 10    | <i>Choaspes benjamini</i>       | (Guérin-Méneville, 1843) | <i>japonica</i> (Murray, 1875)  | Indian Awlking               | Wea12                      | ←                            |
| 11    | <i>Choaspes furcata</i>         | Evans, 1932              |   | Hooked Awlking               | Ev49                       |                              |
| 12    | <i>Choaspes xanthopogon</i>     | (Kollar, [1844])         |   | Similar Awlking              | PWK23                      | ←                            |
| 13    | <i>Hasora anura</i>             | de Nicéville, 1889       | <i>anura</i> de Nicéville, 1889   | Slate Awl                    | K08-old lit                | PWK23                        |
| 14    | <i>Hasora badra</i>             | (Moore, [1858])          | <i>badra</i> (Moore, [1858])  | Common Awl                   | W&S14                      | ←                            |
| 15    | <i>Hasora chromus</i>           | (Cramer, [1780])         | <i>chromus</i> (Cramer, [1780])   | Common Banded Awl            | K08-old lit                | W&S14                        |
| 16    | <i>Hasora taminatus</i>         | (Hübner, 1818)           | <i>bhavara</i> Fruhstorfer, 1911  | White-banded Awl             | K08-old lit                | Y&K85/                       |
| 17    | <i>Hasora vitta</i>             | (Butler, 1870)           | <i>indica</i> Evans, 1932   | Plain Banded Awl             | W&S14                      | ←                            |
|       | Subfamily EUDAMINAE             |                          |   |                              |                            |                              |
| 18    | <i>Lobocla liliana</i>          | (Atkinson, 1871)         | <i>liliana</i> (Atkinson, 1871)   | Marbled Flat                 | K08-old lit                | PWK23                        |
|       | Subfamily TAGIADINAE            |                          |   |                              |                            |                              |
|       | Tribe Celaenorrhini             |                          |   |                              |                            |                              |
| 19    | <i>Celaenorrhinus badia</i>     | (Hewitson, 1877)         |   | Scarce Banded Flat           | Ev49                       |                              |
| 20    | <i>Celaenorrhinus dhanada</i>   | (Moore, [1866])          | <i>dhanada</i> (Moore, 1865)<br><i>affinis</i> (Elwes & Edwards, 1897)    | Himalayan Yellow-banded Flat | Ev49<br>PWK23              | W&S14 + PWK23<br>←           |
| 21    | <i>Celaenorrhinus leucocera</i> | (Kollar, [1844])         |   | Common Spotted Flat          | dNc89                      | Wea12                        |
| 22    | <i>Celaenorrhinus munda</i>     | (Moore, 1884)            | <i>munda</i> (Moore, 1884)<br><i>maculicornis</i> (Elwes & Edwards, 1897) | Himalayan Spotted Flat       | Y&K85<br>W&S14             | W&S14<br>←                   |
| 23    | <i>Celaenorrhinus nigricans</i> | (de Nicéville, 1885)     | <i>nigricans</i> (de Nicéville, 1885)                                     | Small-banded Flat            | Ev49 (mb outside Bht)      | Sb15+ PWK23                  |
| Tentv | <i>Celaenorrhinus plagifera</i> | de Nicéville, 1889       |   | De Nicéville's Spotted Flat  | dNc89 (Knyvett collection) |                              |
| 24    | <i>Celaenorrhinus pulomaya</i>  | (Moore, [1866])          | <i>pulomaya</i> (Moore, [1866])   | Multi-spotted Flat           | dNc89                      | PWK23                        |
| 25    | <i>Celaenorrhinus putra</i>     | (Moore, [1866])          | <i>putra</i> (Moore, [1866])  | Bengal Spotted Flat          | Ev49                       | W&S14                        |
| 26    | <i>Celaenorrhinus pyrrha</i>    | de Nicéville, 1889       |   | Double-spotted Flat          | dNc89                      |                              |
| 27    | <i>Celaenorrhinus ratna</i>     | Fruhstorfer, 1909        | <i>tytleri</i> Evans, 1926  | Tytler's Multi-spotted Flat  | Wea12                      | ←                            |
| 28    | <i>Pseudocoladenia fabia</i>    | (Evans, 1949)            |   | Dented Pied Flat             | Ev49                       | PWK23                        |

|                          | Species name                       | Authority, year              | Subspecies (Authority, year)                | Common name               | Bht 1st record* | Bht recent record |
|--------------------------|------------------------------------|------------------------------|---|---------------------------|-----------------|-------------------|
| 29                       | <i>Pseudocoladenia fatua</i>       | (Evans, 1949)                |   | Sikkim Pied Flat          | Ev49            | PWK23             |
| 30                       | <i>Pseudocoladenia festa</i>       | (Evans, 1949)                |   | Naga Pied Flat            | Ev49            | Wea12             |
| 31                       | <i>Sarangesa dasahara</i>          | (Moore, [1866])              | <i>dasahara</i> (Moore, [1866])             | Common Small Flat         | Ev49            | Y&K85/<br>W&S14   |
| Tribe Tagiadini          |                                    |                              |   |                           |                 |                   |
| 32                       | <i>Abaratha agama</i>              | (Moore, [1858])              | <i>agama</i> (Moore, [1858])                | Spotted Angle             | Ev49            | W&S14             |
| 33                       | <i>Abaratha angulata</i>           | (C. Felder, 1862)            | <i>angulata</i> (C. Felder, 1862)           | Chestnut Angle            | Ev49            | W&S14             |
| 34                       | <i>Capila jayadeva</i>             | Moore, [1866]                |   | Striped Dawnfly           | K08-old lit     | JSW14+<br>PWK23   |
| 35                       | <i>Capila pennicillatum</i>        | (de Nicéville, [1893])       | <i>pennicillatum</i> (de Nicéville, [1893]) | Fringed Dawnfly           | PWK23           | ←                 |
| 36                       | <i>Capila zennara</i>              | (Moore, [1866])              |   | Pale Striped Dawnfly      | Ev49            |                   |
| 37                       | <i>Coladenia agni</i>              | (de Nicéville, [1884])       | <i>agni</i> (de Nicéville, [1884])          | Brown Pied Flat           | PWK23           | ←                 |
| 38                       | <i>Coladenia indrani</i>           | (Moore, [1866])              | <i>indrani</i> (Moore, [1866])              | Tricolour Pied Flat       | Ev49            | Drj14             |
| 39                       | <i>Coladenia pinsbukana</i>        | (Shimonoya & Murayama, 1976) | <i>occidentalis</i> Huang, 2021             | Large-spot Pied Flat      | Hr87            | PWK23             |
| 40                       | <i>Darpa hanria</i>                | Moore, [1866]                |   | Hairy Angle               | W&S14           | ←                 |
| 41                       | <i>Gerosis bhagava</i>             | (Moore, [1866])              | <i>lebadea</i> (Hewitson, 1886)             | Common Yellow-breast Flat | K08-old lit     |                   |
| 42                       | <i>Gerosis phisara</i>             | (Moore, 1884)                | <i>phisara</i> (Moore, 1884)                | Dusky Yellow-breast Flat  | K08-old lit     | P&W07             |
| 43                       | <i>Gerosis sinica</i>              | (C. & R. Felder, 1862)       | <i>narada</i> (Moore, 1884)                 | White Yellow-breast Flat  | Wea12           | ←                 |
| 44                       | <i>Pintara tabrica</i>             | (Hewitson, 1873)             | <i>tabrica</i> (Hewitson, 1873)             | Crenulate Orange Flat     | CTS18           | ←                 |
| 45                       | <i>Satarupa zulla</i>              | Tytler, 1915                 | <i>zulla</i> Tytler, 1915                   | Tytler's White Flat       | W&S14           | ←                 |
| 46                       | <i>Seseria sambara</i>             | (Moore, [1866])              | <i>sambara</i> (Moore, [1866])              | Sikkim White Flat         | Ev49            | PWK23             |
| 47                       | <i>Tagiades gana</i>               | (Moore, [1866])              | <i>athos</i> Plötz, 1884                    | Suffused Snow Flat        | K08-old lit     | W&S14             |
| 48                       | <i>Tagiades ravi</i>               | (Moore, [1866])              | <i>ravi</i> (Moore, [1866])                 | Common Snow Flat          | K08-old lit     | W&S14             |
| 49                       | <i>Tagiades litigiosa</i>          | Möschler, 1878               | <i>litigiosa</i> Möschler, 1878             | Water Snow Flat           | K08-old lit     | W&S14             |
| 50                       | <i>Tagiades menaka</i>             | (Moore, [1866])              | <i>menaka</i> (Moore, [1866])               | Spotted Snow Flat         | Ev49            | W&S14             |
| 51                       | <i>Tagiades parra</i>              | Fruhstorfer, 1910            | <i>gala</i> Evans, 1949                     | Large Snow Flat           | Si12            | ←                 |
| 52                       | <i>Mooreana trichoneura</i>        | (C. & R. Felder, 1860)       | <i>pralaya</i> (Moore, [1866])              | Yellow Flat               | W&S14           | ←                 |
| 53                       | <i>Tapena vasava</i>               | (Moore, [1866])              | <i>vasava</i> (Moore, [1866])               | Tawny Angle               | W&S14           | ←                 |
| Subfamily PYRGINAE       |                                    |                              |   |                           |                 |                   |
| Tribe Carcharodini       |                                    |                              |   |                           |                 |                   |
| 54                       | <i>Spialia galba</i>               | (Fabricius, 1793)            | <i>galba</i> (Fabricius, 1793)              | Indian Skipper            | W&S14           | ←                 |
| Tribe Pyrgini            |                                    |                              |   |                           |                 |                   |
| 55                       | <i>Pyrgus cashmirensis</i>         | Moore, 1874                  | <i>cashmirensis</i> Moore, 1874             | Kashmir Skipper           | Ev49            |                   |
| Subfamily CHAMUNDINAE    |                                    |                              |   |                           |                 |                   |
| 56                       | <i>Chamunda chamunda</i>           | (Moore, [1866])              |   | Olive Flat                | S&C16           | ←                 |
| Subfamily HETEROPTERINAE |                                    |                              |   |                           |                 |                   |
| 57                       | <i>Carterocephalus avanti</i>      | (de Nicéville, 1886)         |   | Orange and Silver Hopper  | Ev49            | PWK23             |
| 58                       | <i>Carterocephalus houangty</i>    | Oberthür, 1886               | <i>bootia</i> Evans, 1949                   | Bhutan Mountain Hopper    | Ev49            | Hr87/<br>PWK23    |
| Subfamily TRAPEZITINAE   |                                    |                              |   |                           |                 |                   |
| Tribe Barcini            |                                    |                              |   |                           |                 |                   |
| 59                       | <i>Apostictopterus fuliginosus</i> | Leech, [1893]                | <i>curiosa</i> (Swinhoe, 1917)              | Giant Hopper              | Wea12           | ←                 |

|                       | Species name                     | Authority, year                   | Subspecies (Authority, year)                             | Common name                | Bht 1st record*               | Bht recent record |
|-----------------------|----------------------------------|-----------------------------------|--|----------------------------|-------------------------------|-------------------|
| Subfamily HESPERIINAE |                                  |                                   |  |                            |                               |                   |
| Tribe Aeromachini     |                                  |                                   |  |                            |                               |                   |
| 60                    | <i>Aeromachus kali</i>           | (de Nicéville, 1885)              |  | Blue-spotted Scrub Hopper  | Y&K85                         | W&S14             |
| 61                    | <i>Aeromachus pygmaeus</i>       | (Fabricius, 1775)                 |  | Pigmy Scrub Hopper         | PWK23                         | ←                 |
| 62                    | <i>Aeromachus stigmata</i>       | (Moore, 1878)                     | <i>stigmata</i> (Moore, 1878)                            | Veined Scrub Hopper        | dNc90                         | Wea12             |
| 63                    | <i>Ampittia dioscorides</i>      | (Fabricius, 1793)                 | <i>dioscorides</i> (Fabricius, 1793)                     | Bush Hopper                | S&C16+PWK23                   | ←                 |
| 64                    | <i>Ampittia subvittatus</i>      | (Moore, 1878)                     | <i>subradiatus</i> (Moore, 1878)                         | Tiger Hopper               | Wdm& dNc87                    | PWK23             |
| 65                    | <i>Arnetta atkinsoni</i>         | (Moore, 1878)                     |  | Atkinson's Bob             | Si12                          | ←                 |
| 66                    | <i>Baracus vittatus</i>          | (C. Felder, 1862)                 | <i>septentrionum</i> Wood-Mason & de Nicéville, [1887]   | Hedge Hopper               | Ev49                          |                   |
| 67                    | <i>Creteus cyrina</i>            | (Hewitson, 1876)                  | <i>cyrina</i> (Hewitson, 1876)                           | Nonsuch Palmer             | dNc95                         |                   |
| 68                    | <i>Halpe arcuata</i>             | Evans, 1937                       |  | Overlapped Ace             | W&S14                         | ←                 |
| 69                    | <i>Halpe aucma</i>               | Swinhoe, 1893                     |  | Gold-spotted Ace           | PWK23                         | ←                 |
| 70                    | <i>Halpe filda</i>               | Evans, 1949                       |  | Elwes' Ace                 | Si14                          | ←                 |
| 71                    | <i>Halpe kumara</i>              | de Nicéville, 1885                |  | Plain Ace                  | deNc85                        | Wea12             |
| 72                    | <i>Halpe molta</i>               | Evans, 1949                       |  | Molta Ace                  | vG18 (listed as ssp.) + PWK23 | ←                 |
| 73                    | <i>Halpe porus</i>               | (Mabille, [1877])                 |  | Moore's Ace                | K08-old lit                   | PWK23             |
| 74                    | <i>Halpe sikkima</i>             | Moore, 1882                       |  | Sikkim Ace                 | W&S14                         | ←                 |
| 75                    | <i>Halpe zema</i>                | (Hewitson, 1877)                  | <i>zema</i> (Hewitson, 1877)                             | Banded Ace                 | W&S14                         | ←                 |
| 76                    | <i>Pedesta aina</i>              | (de Nicéville, 1889)              |  | Garhwal Ace                | W&S14                         | ←                 |
| Tentv                 | <i>Pedesta fusca</i>             | (Elwes, [1893])                   | <i>fusca</i> (Elwes, [1893])                             | Fuscous Ace                | PWK23                         | ←                 |
| 77                    | <i>Pedesta gupta</i>             | (de Nicéville, 1886)              | <i>gupta</i> (de Nicéville, 1886)                        | Olive Ace                  | PWK23                         | ←                 |
| cf.                   | <i>Pedesta cf. gupta</i>         |                                   |  | (Yellow-spotted Olive Ace) | (PWK23)                       | ←                 |
| 78                    | <i>Pedesta hyrie</i>             | (de Nicéville, 1891)              | <i>hyrie</i> (de Nicéville, 1891)                        | Large-spot Plain Ace       | Ev49                          | W&S14             |
| 79                    | <i>Pedesta masuriensis</i>       | (Moore, 1878)                     | <i>masuriensis</i> (Moore, 1878)                         | Mussoorie Bush Bob         | Y&K85                         | W&S14             |
| 80                    | <i>Pedesta pandita</i>           | (de Nicéville, 1885)              |  | Brown Bush Bob             | Y&K85                         | Wea12             |
| 81                    | <i>Pedesta serena</i>            | (Evans, 1937)                     |  | Serena Ace                 | P&KC23                        | ←                 |
| 82                    | <i>Pithauria murdava</i>         | (Moore, [1866])                   |  | Dark Straw Ace             | Wm&dNc87                      | PWK23             |
| 83                    | <i>Pithauria stramineipennis</i> | Wood-Mason & de Nicéville, [1887] | <i>stramineipennis</i> Wood-Mason & de Nicéville, [1887] | Light Straw Ace            | Wm&dNc87                      | Si12              |
| 84                    | <i>Sebastonyma dolopia</i>       | (Hewitson, 1868)                  |  | Tufted Ace                 | K08-old lit                   | PWK23             |
| 85                    | <i>Sovia grahami</i>             | (Evans, 1926)                     | <i>grahami</i> (Evans, 1926)                             | Graham's Ace               | PWK23                         | ←                 |
| 86                    | <i>Sovia lucasii</i>             | (Mabille, 1876)                   | <i>magna</i> (Evans, 1932)                               | Lucas' Ace                 | W&S14                         | ←                 |
| 87                    | <i>Sovia separata</i>            | (Moore, 1882)                     | <i>separata</i> (Moore, 1882)                            | Chequered Ace              | Ev49                          | Wea12             |
| 88                    | <i>Thoressa cerata</i>           | (Hewitson, 1876)                  |  | Northern Spotted Ace       | W&S14                         | ←                 |
| Tribe Astictopterini  |                                  |                                   |  |                            |                               |                   |
| 89                    | <i>Astictopterus jama</i>        | C. & R. Felder, 1860              | <i>olivascens</i> Moore, 1878                            | Forest Hopper              | PWK23                         | ←                 |
| 90                    | <i>Cupitha purreea</i>           | (Moore, 1877)                     |  | Wax Dart                   | Ev49 (dNc84 is probably Buxa) | PWK23             |
| Tentv                 | <i>Zographetus ogygia</i>        | (Hewitson, [1866])                | <i>ogygia</i> (Hewitson, [1866])                         | Purple-spotted Flitter     | PWK23                         | Tentative         |
| 91                    | <i>Zographetus satwa</i>         | (de Nicéville, [1884])            |  | Purple and Gold Flitter    | W&S14                         | ←                 |
| Tribe Taractrocerini  |                                  |                                   |  |                            |                               |                   |
| 92                    | <i>Cephrenes acalle</i>          | (Hopffer, 1874)                   | <i>oceania</i> (Mabille, 1904)                           | Plain Palm Dart            | PWK23                         | ←                 |
| 93                    | <i>Oriens gola</i>               | (Moore, 1877)                     | <i>pseudolus</i> (Mabille, 1883)                         | Common Dartlet             | PWK23                         | ←                 |

|                    | Species name                     | Authority, year                   | Subspecies (Authority, year)              | Common name           | Bht 1st record*                          | Bht recent record |
|--------------------|----------------------------------|-----------------------------------|---|-----------------------|--|-------------------|
| 94                 | <i>Oriens goloides</i>           | (Moore, [1881])                   |   | Ceylon Dartlet        | Ev49                                     | H87/W&S14         |
| 95                 | <i>Potanthus confucius</i>       | (C. & R. Felder, 1862)            | <i>dushta</i> (Fruhstorfer, 1911)         | Chinese Dart          | Ev49                                     |                   |
| Tentv              | <i>Potanthus ganda</i>           | (Fruhstorfer, 1911)               | <i>ganda</i> (Fruhstorfer, 1911)          | Sumatran Dart         | Wea12                                    | ←                 |
| 96                 | <i>Potanthus nesta</i>           | (Evans, 1934)                     | <i>nesta</i> (Evans, 1934)                | Brandless Dart        | Ev49                                     |                   |
| 97                 | <i>Potanthus pallida</i>         | (Evans, 1932)                     |   | Pale Dart             | Ev49                                     | W&S14             |
| 98                 | <i>Potanthus palnia</i>          | (Evans, 1914)                     | <i>palnia</i> (Evans, 1914)               | Palni Dart            | Ev49                                     |                   |
| 99                 | <i>Potanthus pseudomaesa</i>     | (Moore, [1881])                   | <i>clio</i> (Evans, 1932)                 | Indian Dart           | PWK23                                    | ←                 |
| 100                | <i>Potanthus rectifasciata</i>   | (Elwes & Edwards, 1897)           |   | Branded Dart          | Ev49                                     |                   |
| 101                | <i>Potanthus trachala</i>        | (Mabille, 1878)                   | <i>tytleri</i> (Evans, 1914)              | Broad Bi-dent Dart    | W&S14: Tentv                             | PWK23             |
| 102                | <i>Taractrocera danna</i>        | (Moore, 1865)                     |   | Himalayan Grass Dart  | Ev49                                     | Y&K85/<br>P&W07   |
| 103                | <i>Taractrocera maevius</i>      | (Fabricius, 1793)                 | <i>sagara</i> (Moore, [1866])             | Common Grass Dart     | K08-old lit                              | W&S14             |
| 104                | <i>Telicota bambusae</i>         | (Moore, 1878)                     | <i>bambusae</i> (Moore, 1878)             | Dark Palm Dart        | W&S14                                    | ←                 |
| 105                | <i>Telicota colon</i>            | (Fabricius, 1775)                 | <i>colon</i> (Fabricius, 1775)            | Common Palm Dart      | K08-old lit                              | PWK23             |
| Tribe Erionotini   |                                  |                                   |   |                       |  |                   |
| 106                | <i>Erionota torus</i>            | Evans, 1941                       |   | Banana Skipper        | vG18 (? re-ID of spp. in W&S'14) + PWK23 | ←                 |
| 107                | <i>Gangara lebadea</i>           | (Hewitson, 1868)                  | <i>lebadea</i> (Hewitson, 1886)           | Banded Redeye         | PWK23                                    | ←                 |
| 108                | <i>Gangara thrysis</i>           | (Fabricius, 1775)                 | <i>thrysis</i> (Fabricius, 1775)          | Giant Redeye          | PWK23                                    | ←                 |
| 109                | <i>Hyarotis adrastus</i>         | (Stoll, [1780])                   | <i>praba</i> (Moore, [1866])              | Tree Flitter          | K08-old lit                              | W&S14             |
| 110                | <i>Matapa aria</i>               | (Moore, [1866])                   |   | Common Redeye         | K08-old lit                              | PWK23             |
| 111                | <i>Matapa cresta</i>             | Evans, 1949                       |   | Fringed Redeye        | PWK23                                    | ←                 |
| 112                | <i>Matapa druna</i>              | (Moore, [1866])                   |   | Grey-brand Redeye     | PWK23                                    | ←                 |
| 113                | <i>Matapa sasivarna</i>          | (Moore, [1866])                   |   | Black-veined Redeye   | Si12                                     | ←                 |
| 114                | <i>Pirdana hyela</i>             | (Hewitson, 1867)                  | <i>major</i> Evans, 1932                  | Green-striped Palmer  | PWK23                                    | ←                 |
| 115                | <i>Salanoemia noemi</i>          | (de Nicéville, 1885)              |   | Spotted Yellow Lancer | PWK23                                    | ←                 |
| 116                | <i>Scobura isota</i>             | (Swinhoe, 1893)                   |   | Swinhoe's Forest Bob  | PWK23                                    | ←                 |
| 117                | <i>Suastus gremius</i>           | (Fabricius, 1798)                 | <i>gremius</i> (Fabricius, 1798)          | Indian Palm Bob       | K08-old lit                              | PWK23             |
| 118                | <i>Unkana ambasa</i>             | (Moore, [1858])                   | <i>attina</i> (Hewitson, [1866])          | Hoary Palmer          | PWK23                                    | ←                 |
| Tribe Notocryptini |                                  |                                   |   |                       |  |                   |
| 119                | <i>Ancistroides nigrita</i>      | (Latreille, [1824])               | <i>diocles</i> (Moore, [1866])            | Chocolate Demon       | Ev49                                     | W&S14             |
| 120                | <i>Ancistroides curvifascia</i>  | (C. & R. Felder, 1862)            | <i>curvifascia</i> (C. & R. Felder, 1862) | Restricted Demon      | dNc89                                    | Y&K85/<br>P&W07   |
| 121                | <i>Ancistroides feisthamelii</i> | (Boisduval, 1832)                 | <i>alysos</i> (Moore, [1866])             | Spotted Demon         | K08-old lit                              | (Y&K85)/<br>Wea12 |
| 122                | <i>Ancistroides paralyos</i>     | (Wood-Mason & de Nicéville, 1881) | <i>asawa</i> Fruhstorfer, 1911            | Common Banded Demon   | K08-old lit                              | W&S14             |
| 123                | <i>Ancistroides folus</i>        | (Cramer, [1775])                  |   | Grass Demon           | Ev49                                     | Y&K85/<br>W&S14   |
| Tribe Ismini       |                                  |                                   |   |                       |  |                   |
| 124                | <i>Iambrix salsala</i>           | (Moore, [1866])                   | <i>salsala</i> (Moore, [1866])            | Chestnut Bob          | W&S14                                    | ←                 |
| Tribe Psolosini    |                                  |                                   |   |                       |  |                   |
| 125                | <i>Koruthaialos butleri</i>      | (de Nicéville, [1884])            |   | Dark Velvet Bob       | dNc86                                    |                   |
| 126                | <i>Psolos fuligo</i>             | (Mabille, 1876)                   | <i>subfasciatus</i> (Moore, 1878)         | Coon                  | Nd15                                     | ←                 |
| Tribe Baorini      |                                  |                                   |   |                       |  |                   |
| 127                | <i>Baoris farri</i>              | (Moore, 1878)                     | <i>farri</i> (Moore, 1878)                | Paintbrush Swift      | K08-old lit                              | W&S14 (1st pic)   |
| 128                | <i>Borbo cinnara</i>             | (Wallace, 1866)                   |   | Rice Swift            | K08-old lit                              | W&S14             |
| 129                | <i>Caltoris aurociliata</i>      | (Elwes & Edwards, 1897)           |   | Yellow-fringed Swift  | PWK23                                    | ←                 |

|                  | Species name                 | Authority, year          | Subspecies (Authority, year)              | Common name           | Bht 1st record*      | Bht recent record         |
|------------------|------------------------------|--------------------------|---|-----------------------|----------------------|---------------------------|
| 130              | <i>Calitoris cahira</i>      | (Moore, 1877)            | <i>austeni</i> (Moore, [1884])            | Colon Swift           | (vG18-source?) PWK23 | ←                         |
| 131              | <i>Calitoris kumara</i>      | (Moore, 1878)            | <i>moorei</i> (Evans, 1926)               | Blank Swift           | PWK23                | ←                         |
| 132              | <i>Calitoris tulsi</i>       | (de Nicéville, [1884])   | <i>tulsi</i> (de Nicéville, [1884])       | Purple Swift          | Ev49                 |                           |
| 133              | <i>Iton semamora</i>         | (Moore, [1866])          | <i>semamora</i> (Moore, [1866])           | Common Wight          | PWK23                | ←                         |
| 134              | <i>Parnara bada</i>          | (Moore, 1878)            | <i>bada</i> (Moore, 1878)                 | Ceylon Swift          | Wea12                | ←                         |
| 135              | <i>Parnara guttata</i>       | (Bremer & Grey, [1852])  | <i>guttata</i> (Bremer & Grey, [1852])    | Straight Swift        | K08-old lit          | Y&K85/<br>W&S14<br>(pic1) |
| 136              | <i>Pelopidas agna</i>        | (Moore, [1866])          | <i>agna</i> (Moore, [1866])               | Obscure-branded Swift | W&S14                | ←                         |
| 137              | <i>Pelopidas assamensis</i>  | (de Nicéville, 1882)     |   | Great Swift           | K08-old lit          | W&S14                     |
| 138              | <i>Pelopidas conjuncta</i>   | (Herrich-Schäffer, 1869) | <i>conjuncta</i> (Herrich-Schäffer, 1869) | Conjoined Swift       | K08-old lit          | W&S14                     |
| 139              | <i>Pelopidas mathias</i>     | (Fabricius, 1798)        | <i>mathias</i> (Fabricius, 1798)          | Small-branded Swift   | K08-old lit          | W&S14                     |
| 140              | <i>Pelopidas sinensis</i>    | (Mabille, 1877)          |   | Large-branded Swift   | Wea12                | ←                         |
| 141              | <i>Pelopidas subochracea</i> | (Moore, 1878)            | <i>subochracea</i> (Moore, 1878)          | Moore's Swift         | K08-old lit          |                           |
| 142              | <i>Polytremis lubricans</i>  | (Herrich-Schäffer, 1869) | <i>lubricans</i> (Herrich-Schäffer, 1869) | Contiguous Swift      | K08-old lit          | W&S14                     |
| 143              | <i>Pseudoborbo bevani</i>    | (Moore, 1878)            |   | Bevan's Swift         | K08-old lit          | P&W07                     |
| 144              | <i>Zenonoida eltola</i>      | (Hewitson, 1869)         | <i>eltola</i> (Hewitson, 1869)            | Yellow-spot Swift     | K08-old lit          | Y&K85/<br>Wea12           |
| Tribe Hesperiini |                              |                          |   |                       |                      |                           |
| 145              | <i>Ochlodes brahma</i>       | (Moore, 1878)            |   | Himalayan Darter      | Y&K85                | P&W07                     |

indicated in the books they use to identify the species, but usually, these books have several outdated scientific names, which is inevitable. The situation has become more confusing on the Indian subcontinent since the website of the Indian Foundation of Butterflies (IFB) not only changed common names when considering the standard names "colonial leftovers", but also gave common names to subspecies. For the Hesperiidae checklist of Bhutan, the authors based their scientific and common names on scientific and historical evidence. Researchers and butterfly photographers in Bhutan are encouraged to use these names. Standardization of the common butterfly names across the Indian subcontinent is recommended. Moreover, to reduce confusion, common names should only be used for species and not for subspecies. Due to progress in DNA sequencing of the butterflies, there will be many taxonomic changes in the future. These changes are more likely to affect subspecies than species and thus this is an extra reason to not give common names to subspecies.

## CONCLUSIONS

The authors present a comprehensive checklist of Hesperiidae in Bhutan, resulting from a thorough review of all available records. The updated checklist (Table 1) comprises 145 confirmed species, four tentative species, and one unidentified species, subspecies, or form (listed as "cf."). This revised checklist supersedes previous versions, offering enhanced accuracy and reliability. To ensure transparency, the authors also provide supplementary lists of excluded species, detailing the rationale for their omission. This rigorous approach ensures a trustworthy reference for future research and conservation efforts.

## REFERENCES

Cheku, L., T.Q. Le & P. Smetacek (2018). Confirmation of the type locality of *Pintara tabrica* (Hewitson, 1873) (Hesperiidae) on the Indian subcontinent and its distribution in Vietnam. *Nachrichten des Entomologischen Vereins Apollo* 39(2): 107–108.

Chiba, H., G.C. Bozano & X. Fan (2023). *Guide to the Butterflies of the Palearctic Region - Hesperiidae Part I*. Omnes Artes, Italy, 71 pp.

De Nicéville, L. (1883). On new and little known Rhopalocera from the Indian region. *Journal of the Asiatic Society of Bengal* 52 Pt. II (2/4): 65–91, pl. 1, 9–10.

Image 1. *Potanthus mara* or maybe *P. nestae*.Image 2. *Potanthus* sp. (maybe *P. pseudomaesa*).Image 3. Possibly *Cal托is brunnea*.Image 4. Probably *Parnara bada*.

**De Nicéville, L. (1885).** Descriptions of some new Indian Rhopalocera. *Journal of the Asiatic Society of Bengal* 54 Pt. II (2): 117–124, pl. 2.

**De Nicéville, L. (1886).** On some new Indian butterflies. *Journal of the Asiatic Society of Bengal* 55 Pt. II (3): 249–256, pl. 11.

**De Nicéville, L. (1887).** Descriptions of some new or little-known butterflies from India, with some notes on the seasonal dimorphism obtaining in the genus *Melanitis*. *Proceedings of the Zoological Society of London* 1887(3): 448–467, pl. 39–40.

**De Nicéville, L. (1889).** On new and little-known butterflies from the Indian region, with revision of the genus *Plesioneura* of Felder and of authors. *Journal of the Bombay Natural History Society* 4(3): 163–194, pl. A–B.

**De Nicéville, L. (1890).** On new and little-known butterflies from the Indian region, with descriptions of three new genera of Hesperiidae. *Journal of the Bombay Natural History Society* 5(3): 199–225, pl. D–E.

**De Nicéville, L. (1895).** On new and little-known butterflies from the Indo-Malayan region. *Journal of the Bombay Natural History Society* 9(3): 259–321, pl. N–Q; 9(4): 366–410.

**Dorji, S. (2014).** *Butterflies in and around Phobjikha Valley*. Royal Society for Protection of Nature. Thimphu, Bhutan, 163 pp.

**Elwes H.J. & J. Edwards (1897).** A Revision of the Oriental Hesperiidae. *Transactions of the Zoological Society of London* 14(4): 101–324, pl. 18–27.

**Elwes, H.J. (1888).** A catalogue of the Lepidoptera of Sikkim, with additions, corrections, and notes on seasonal and local distribution by Otto Möller. *Transactions Entomological Society of London* 36(3):

269–465, pl. 8–11.

**Evans, W.H. (1932).** *The Identification of Indian Butterflies*. (Second Edition Revised). Bombay Natural History Society, Bombay. x + 454 pp., 32 pls.

**Evans, W.H. (1949).** *A Catalogue of the Hesperiidae from Europe, Asia and Australia in the British Museum (Natural History)*. Trustees of British Museum, London. xx + 502 pp., 53 pls.

**Harada, M. (1987a).** Butterflies of Bhutan (I). The Lepidopterological Society of Japan, *Yadoriga* 131: 4–22.

**Harada, M. (1987b).** Butterflies of Bhutan (II). The Lepidopterological Society of Japan, *Yadoriga* 131: 23–26.

**Hou, Y., C. Cao, H. Chiba, Z. Chang, S. Huang, L. Zhu, K. Kunte, Z. Huang, M. Wang & X. Fan (2023).** Molecular phylogeny, historical biogeography, and classification of *Pseudocoladenia* butterflies (Lepidoptera: Hesperiidae). *Molecular Phylogenetics and Evolution* 186: 107865. <https://doi.org/10.1016/j.ympev.2023.107865>

**Huang, H. (2002).** Some new butterflies from China – 2 (Lepidoptera, Hesperiidae). *Atalanta* 33(1/2): 109–122, pl. II, IIIa.

**Huang, H. (2021).** Taxonomy and morphology of Chinese butterflies – 1 Hesperiidae: Pyrginae: Genera *Coladenia* Moore, [1881] and *Pseudocoladenia* Shirōzu & Saigusa, 1962. *Atalanta* 52(4): 569–620.

**JSWNP (Jigme Singye Wangchuk National Park) (2014).** *Biodiversity Checklist for Jigme Singye Wangchuk National Park*. JSWNP, Department of Forest and Park Services, Tshangka, Trongsa, Bhutan. (<http://biodiversity.bt/document/show/32>)

**Kehimkar, I. (2008).** *The Book of Indian Butterflies*. Bombay Natural History Society. Oxford University Press, Mumbai, 497 pp.

**Kehimkar, I. (2016).** *Butterflies of India* - BNHS Field Guides. Bombay Natural History Society, Mumbai, India, 510 pp.

**Li, Y., J. Zhu, C. Ge, Y. Wang, Z. Zhao, S. Ma, A. Hoffmann, N. Endersby, Q. Liu, W. Yu & W. Jiang (2019).** Molecular phylogeny and historical biogeography of the butterfly tribe Aeromachini Tutt (Lepidoptera: Hesperiidae) from China. *Cells* 8(4): 294. <https://doi.org/10.3390/cells8040294>. With supplementary materials (plates): <https://www.mdpi.com/2073-4409/8/4/294/s1>.

**Moore, F. (1857).** In: Horsfield, T. & F. Moore. *A Catalogue of the Lepidopterous Insects in the Museum of the Hon. East-India Company Vol. I*. WH Allen and Company: 1–278.

**Moore, F. (1878).** Descriptions of new Asiatic Hesperiidae. *Proceedings of the Zoological Society of London* 1878(3): 686–695, pl. 45.

**Nidup, T. (2015).** An annotated checklist of butterflies from Royal Manas National Park, Gelephu, Bhutan. *Spring* 5: 1–9.

**Sbordoni, V., G.C. Bozano, K. Wangdi, Sherub, S. Marta, S. de Felici & D. Cesaroni (2015).** Towards a georeferenced checklist of the butterflies of Bhutan: a preliminary account (Insecta: Lepidoptera), 523–546. In: Hartmann, M. & J. Weipert (eds.). *Biodiversity and Natural Heritage of the Himalaya*. Naturkundemuseum Erfurt, Germany, 580 pp.

**Singh, A.P. (2012).** Lowland forest butterflies of the Sunkosh River catchment, Bhutan. *Journal of Threatened Taxa* 4(12): 3085–3102. <https://doi.org/10.11609/JoTT.o2625.3085-102>

**Singh, I.J. (2014).** Butterfly diversity of Dzamling Norzoed Community Forest, Tsirang, Bhutan. A Preliminary study. *SAARC Forestry* III: 38–46.

**Singh, I.J. & M. Chib (2014).** A preliminary checklist of butterflies (Lepidoptera: Rhopalocera) of Mendrelgang, Tsirang District, Bhutan. *Journal of Threatened Taxa* 6(5): 5755–5768. <https://doi.org/10.11609/JoTT.o3675.5755-68>

**Singh, I.J. & M. Chib (2015).** Checklist of butterflies of Bhutan. *Proceedings of Bhutan Ecological Society* 2: 22–58.

**Singh, I.J. & M. Chib (2016).** *Study of Butterfly Diversity and its Conservation in Tsirang District, Bhutan*. Final report, The Rufford Small Grant Foundation, UK, 33 pp.

**Smetacek, P. (2017).** *A Naturalist's Guide to the Butterflies of India*. John Beaufoy Publishing, Oxford, 176 pp.

**Smith, C.P. (1994).** *Butterflies of Nepal – A Colour Field Guide*. Revised edition of 1989. Tecpress Service L. P. Bangkok, Thailand, 368 pp.

**Smith, C.P. (2006).** *Illustrated Checklist of Nepal's Butterflies, revised 2<sup>nd</sup> edition*. Walden Bookhouse, Kathmandu, ii + 129 pp.

**Smith, C.P. (2011).** *Illustrated Checklist of Nepal's Butterflies, 3<sup>rd</sup> edition*. Lashkar, Kathmandu. ii + 129 pp.

**Smith, C.P. (2015).** *A Photographic Pocket Guide to Butterflies of Nepal*. Himalayan MapHouse, Kathmandu, Nepal, 144 pp.

**Van der Poel, P. & T. Wangchuk (2007).** *Butterflies of Bhutan – Mountains, Hills and Valleys between 800 and 3000 m*. Royal Society for Protection of Nature. Thimphu, Bhutan, 71 pp.

**Van der Poel, P. & P. Smetacek (eds.) (2022).** *An Annotated Catalogue of the Butterflies of Nepal*. *Bionotes*: Occasional Paper 1, vii+241 pp.

**Van der Poel, P., K. Wangdi & K.C. Sajan (2023).** First records of 25 skippers (Lepidoptera: Hesperiidae) for Bhutan and confirmation or recent evidence of 25 seldom reported skippers. *Bionotes* 25(1&2): 83–124.

**Van Gasse, P. (2018).** *Butterflies of the Indian Subcontinent – Annotated Checklist*. PDF version from the internet, 207 pp. [http://www.biodiversityofindia.org/index.php?title=Butterflies\\_of\\_the\\_Indian\\_sub-continent](http://www.biodiversityofindia.org/index.php?title=Butterflies_of_the_Indian_sub-continent). Downloaded on April 2019.

**Varshney, R.K. & P. Smetacek (eds.) (2015).** *A Synoptic Catalogue of Butterflies of India*. Butterfly Research Centre, Bhimtal, & Indinov Publishing, New Delhi, ii + 261 pp., 8 pls.

**Wangdi, K. & Sherub (2014).** *Field Guide to Hesperiidae (Skippers) of Bhutan*. UWICE Nature Guide Series. Ugyen Wangchuk Institute of Conservation and Environment, Bumthang, Bhutan, 91 pp.

**Wangdi, S., K. Wangdi, Sherub, R. Wangdi, S. Drukpa, M. Harada, T. Aoki, S. Yamaguchi, M. Saito, Y. Igarashi, Y. Watanabe & M. Yago (2012).** Butterflies of Trashiyangtse Valley, eastern Bhutan (Part 1). The Butterfly Society of Japan. *Teinopalpus* 62: 16–29.

**Wood-Mason, J. & L. de Nicéville (1886).** List of the lepidopterous insects collected in Cachar by Mr. J. Wood-Mason, part ii. *Journal of the Asiatic Society of Bengal* 55 Pt. II(4): 343–393.

**Yazaki, Y. & S. Kanmuri (1985).** Butterflies of western Bhutan (218 species). *The Rhopalocerists' Magazine, Japan* 8(7): 260–267.

**Yazaki, Y. (2012).** *Butterflies of Bhutan*. Kitami, Hokkaido, 268 pp.

**Zhang, J., Q. Cong, J. Shen & N.V. Grishin (2022).** Taxonomic changes suggested by the genomic analysis of Hesperiidae (Lepidoptera). *Insecta Mundi* 2022(921): 1409.

**Zhang, J., Q. Cong, J. Shen, L. Song & N.V. Grishin (2023).** A taxonomic list of the Old World genera in the subfamily Hesperiinae (Hesperiidae) arranged into tribes. *The Taxonomic Report of the international lepidoptera Survey* 11(2): 1–7.

**Zhu, L., Y. Han, Y. Hou, Z. Huang, M. Wang, H. Chiba, L. Chen & X. Fan (2023).** Taxonomic problems of several hesperiid taxa (Lepidoptera: Hesperiidae). *Scientific Reports* 13: 7901. <https://doi.org/10.1038/s41598-023-34608-8>

#### Internet sources:

BBP (Bhutan Biodiversity Portal): <https://biodiversity.bt/>

FUNET: <https://www.funet.fi/pub/sci/bio/life/insecta/lepidoptera/ditrysia/hesperiidae/hesperiidae/>

GBIF (Global Biodiversity Information Foundation): <https://www.gbif.org/>

IFB (Indian Foundation of Butterflies): <https://www.ifoundbutterflies.org/hesperiidae>

iNaturalist.org: [https://www.inaturalist.org/guide\\_taxa/236579](https://www.inaturalist.org/guide_taxa/236579)

Observation.org: <https://observation.org/taxa/16229/>

Yutaka (Inayoshi, Y.): A Check List of Butterflies in Indo-China - Chiefly from Thailand, Laos & Vietnam (including pictures of specimens): <https://yutaka.it-n.jp/hespi.html>.

Mr. Jatishwor Singh Irungbam, Biology Centre CAS, Branišovská, Czech Republic.  
Dr. Ian J. Kitching, Natural History Museum, Cromwell Road, UK  
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. Karen 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 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. Lional 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. Karen Schnabel, Marine Biologist, Wellington, New Zealand  
Dr. Amazonas Chagas Júnior, Universidade Federal de Mato Grosso, Cuiabá, Brasil  
Mr. Monsoon Jyoti 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. Priyadarshan 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. Uniyal, Wildlife Institute of India, Dehradun, Uttarakhand 248001, India  
Dr. John T.D. Caleb, Zoological Survey of India, Kolkata, West Bengal, India  
Dr. Priyadarshan 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. Rironker, 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

**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

#### Birds

Dr. Hem Sagar Baral, Charles Sturt University, NSW Australia  
Mr. H. Biju, 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 Jayopal, 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 Sundev, Professor of Ornithology, Ulaanbaatar, Mongolia  
Prof. Reuven Yosef, International Birding & Research Centre, Eilat, Israel  
Dr. Taej Mundkur, Wetlands International, Wageningen, The Netherlands  
Dr. Carol Inskip, Bishop Auckland Co., Durham, UK  
Dr. Tim Inskip, 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. P.A. Azeez, Coimbatore, Tamil Nadu, India

#### 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 Challender, 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, Budhanilkantha Municipality, Kathmandu, Nepal  
Dr. Susan Cheyne, Borneo Nature Foundation International, Palangkaraya, 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 Helleni 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. Bharat Baviskar, Wild-CER, Nagpur, Maharashtra 440013, India

#### Reviewers 2021–2023

Due to paucity of space, the list of reviewers for 2021–2023 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.

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, 5<sup>th</sup> Street West, Ganapathy, Coimbatore,  
Tamil Nadu 641006, India  
ravi@threatenedtaxa.org

## Articles

### The past and current distribution of the lesser-known Indian endemic Madras Hedgehog *Paraechinus nudiventris* (Mammalia: Eulipotyphla: Erinaceidae)

– R. Brawn Kumar & Willam T. Bean, Pp. 25639–25650

### Declining trends of over-summering shorebird populations along the southeastern coasts of Tamil Nadu, India

– H. Byju, H. Maitreyi, N. Raveendran & S. Ravichandran, Pp. 25651–25662

### Seasonal changes in waterbird assemblages in Chambal River at Mukundra Hills National Park, Rajasthan, India

– Arun George, Megha Sharma, Kavin Duraisamy, P.C. Sreelekha Suresh, Bijo Joy, Govindan Veeraswami Gopi, S.A. Hussain & J.A. Johnson, Pp. 25663–25674

### An updated checklist of the skippers (Lepidoptera: Hesperiidae) of Bhutan

– Karma Wangdi, Piet van der Poel & K.C. Sajan, Pp. 25675–25688

### Conservation imperatives for swallowtail butterflies (Lepidoptera: Papilionidae): a case study in the north bank landscape of river Brahmaputra, Bodoland Territorial Region, India

– Kushal Choudhury, Pp. 25689–25699

### The present state of leech fauna (Annelida: Hirudinea) in Dal Lake, Jammu & Kashmir, India

– Niyaz Ali Khan, Zahoor Ahmad Mir & Yahya Bakhtiyar, Pp. 25700–25711

### First report of five monogonont rotifers from Jammu, J&K UT, India, with remarks on their distribution

– Nidhi Sharma, Sarjeet Kour & Aayushi Dogra, Pp. 25712–25719

### Diversity of vascular epiphytes on preferred shade trees in tea gardens of sub-Himalayan tracts in West Bengal, India

– Roshni Chowdhury & M. Chowdhury, Pp. 25720–25729

## Communications

### Identification and chemical composition analysis of salt licks used by Sumatran Elephants *Elephas maximus sumatranus* in Tangkahan, Indonesia

– Kaniwa Berliani, Pindi Patana, Wahdi Azmi, Novita Sari Mastiur Manullang & Cynthia Gozali, Pp. 25730–25736

### Occurrence of a female melanistic leopard *Panthera pardus delacouri* (Linnaeus, 1758) (Mammalia: Carnivora: Felidae) in Ulu Sat Permanent Forest Reserve, Machang, Kelantan, Peninsular Malaysia from camera traps reconnaissance survey 2023

– Wan Hafizin Idzni Wan Mohammad Hizam, Muhammad Hamirul Shah Ab Razak, Hazizi Husain, Aainaa Amir & Kamarul Hambali, Pp. 25737–25741

### Diversity and distribution of large centipedes (Chilopoda: Scolopendromorpha) in Nui Chua National Park, Vietnam

– Son X. Le, Thinh T. Do, Thuc H. Nguyen & Binh T.T. Tran, Pp. 25742–25747

### Diversity of butterfly habitats in and around Udanti-Sitanadi Tiger Reserve, Chhattisgarh, India

– H.N. Tandan, Gulshan Kumar Sahu, Kavita Das, Gulab Chand, Ravi Naidu & Ramanand Agrawal, Pp. 25748–25757

### A short-term impact of enriched CO<sub>2</sub> [eCO<sub>2</sub>] on select growth performance of *Spodoptera littoralis* (Boisd.) (Lepidoptera: Noctuidae) and its host plant *Gossypium barbadense* L. (Malvaceae)

– A.A. Abu ElEla Shahenda & Wael M. ElSayed, Pp. 25758–25764

### Diversity and distribution of springtails (Collembola) from Jharkhand, India

– Koushik Kumar Roy, Guru Pada Mandal & Kusumendra Kumar Suman, Pp. 25765–25773

## Short Communications

### *Lindernia tamilnadensis* (Linderniaceae) from Indo-Gangetic plains: no more endemic to the Deccan

– Umama Khan, Revan Yogesh Chaudhari, Bhupendra Singh Adhikari, Syed Ainul Hussain & Ruchi Badola, Pp. 25774–25778

### Discovery of a new *Myristica* swamp in the northern Western Ghats of India

– Pravin Desai, Vishal Sadekar & Shital Desai, Pp. 25779–25786

## Note

### *Ophioglossum jaykrishnae* S.M.Patil et al. (Pteridophyta: Polypodiophyta: Ophioglossaceae): a new distribution record from Kanha National Park, Madhya Pradesh, India

– Tarun Nayi, Mayur Bhagwat, Sanjay Saini, Soham Haldikar, Ishtayaque Patel, Shivaji Chavan, Nudrat Zawar Sayed & Sunil Kumar Singh, Pp. 25787–25790

## Publisher & Host



Threatened Taxa