

New data on the Sesiini of the Oriental and Australian regions (Lepidoptera: Sesiidae) with the establishment of a new genus

Новые данные трибы Sesiini Ориентального и Австралийского регионов (Lepidoptera: Sesiidae) с установлением нового рода

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КЛЮЧЕВЫЕ СЛОВА: бабочки-стекляницы, новый род, новые находки, новые комбинации, Таиланд, Лаос, Индонезия.

ABSTRACT. The new genus *Kallarita* O. Gorbunov, **gen.n.** is established for *Scasiba difficilis* Kallies et Arita, 2004 (type species), *Sphecodoptera hiltoni* Kallies, 2020, and *S. hiltoni hibernia* Kallies, 2020. Four species are reported for the following regions for the first time: *Lenyra ashtaroth* (Westwood, 1848) for Chiang Rai Province, Thailand, and Xiengkhouang Province, Laos, *Trilochana nagaii* Arita et Kallies, 2003 for West Halmahera, Indonesia, *Lamellisphesia haematinea* Kallies et Arita, 2004 for Laos, and *Kallarita difficilis* (Kallies et Arita, 2004), **comb.n.** for Thailand and Laos.

РЕЗЮМЕ. Новый род *Kallarita* O. Gorbunov, **gen.n.** установлен для *Scasiba difficilis* Kallies et Arita, 2004 (типовой вид), *Sphecodoptera hiltoni* Kallies, 2020 и *S. hiltoni hibernia* Kallies, 2020. Впервые приводятся следующие представители Sesiini для соответствующих регионов: *Lenyra ashtaroth* (Westwood, 1848) для провинции Чианграй, Таиланд, *Trilochana nagaii* Arita et Kallies, 2003 для Западной Хальмахеры, Индонезия; 2004; *Lamellisphesia haematinea* Kallies et Arita, 2004 для Лаоса и *Kallarita difficilis* (Kallies et Arita, 2004), **comb.n.** для Таиланда и Лаоса.

Introduction

Currently, the tribe Sesiini includes eight genera in the Indo-Malayan region, viz. *Lenyra* Walker, 1856, *Teinotarsina* C. Felder et R. Felder, 1874, *Trilochana* Moore, 1879, *Sphecodoptera* Hampson, 1892, *Aegerosphesia* Le Cerf, 1916, *Cyanosesia* Gorbunov et Arita, 1995, *Lamellisphesia* Kallies et Arita, 2004, *Clavisphesia* Kallies, 2011, and *Laetosphesia* Kallies et Arita, 2014. Unfortunately, virtually all species of the tribe

from Southeast Asia are known from very few specimens, and often only from a single holotype. Therefore, any additional material is of significant interest not only for our knowledge of the species' distribution but also for their biological features, such as flight timing and the timing of male sexual activity. Invaluable assistance in these studies is provided by synthetic sex attractants, which I actively use to study Sesiidae of the Palaearctic [Gorbunov, 2018a, 2019a, b, 2022a; Gorbunov, Efetov, 2018, 2024b, 2025a–c; Gorbunov *et al.* 2025] as well as other zoogeographic regions [Gorbunov, 2015, 2016, 2017, 2018b, c, 2020a, b, 2021a, b, 2022b, c, 2023, 2026]. It is also appropriate to point out here that synthetic sex attractants were used by me to study the sexual activity of males in some other families of Heterocera [Gorbunov, Efetov, 2024a, 2026; Efetov *et al.*, 2026a, c].

This publication is the result of my long-time research of the family Sesiidae of the Eastern Hemisphere and is dedicated to representatives of the tribe Sesiini. In October–November 2025, I had the opportunity to collect Lepidoptera in southern Thailand, where I successfully used synthetic sex attractants [Efetov *et al.*, 2026a, b; Gorbunov, 2026]. One of the collected Sesiidae species was *Scasiba difficilis* Kallies et Arita, 2004, which was later transferred to the genus *Sphecodoptera* Hampson, 1892 [Kallies, 2011]. A thorough analysis of the morphology of the collected *S. difficilis* specimens showed that this species stands out sharply from all other species of the genus *Sphecodoptera*. A similar opinion was also expressed by the authors of this species [Kallies, Arita, 2004]. Very interestingly, two more Sesiini taxa recently described from the islands of New Guinea and New Ireland, viz. *Sphecodoptera hiltoni* Kallies, 2020 and *S. hiltoni hibernia* Kallies, 2020, have similar fea-

tures of the morphology of the venation of the forewing and the male genitalia, as well as the general appearance [Kallies, 2020]. I believe that these morphological characters are sufficient to distinguish these three taxa into a separate genus *Kallarita* O. Gorbunov, **gen.n.**, the description of which is given below.

Material and methods

Part of the studied specimens were attracted to artificial sex attractants produced by PHEROBANK®, Wijk bij Duurstede, the Netherlands. The morphological examinations were made using a Leica® EZ4 stereomicroscope with LED illumination. Photo of the habitat (Fig. 43) was taken using a Minolta® Dynax 7000i camera equipped with a Minolta® 50 mm f/2.8 Macro lens on a Kodak® Ektachrome R 100VS film and then scanned with a Nikon® LS-2000 slide scanner. Pictures of habitats (Figs 44 and 45) were taken with a Sony® α450 DSLR camera equipped with a Tamron AF 18–200 mm f/3.5–6.3 lens. The images of the moths were taken with a Sony® α450 DSLR camera equipped with a Minolta® 50 mm f/2.8 Macro lens. The figures of heads are taken with a Keyence® VHX-1000 Digital Microscope. The genitalia were photographed using a Keyence® BZ-9000 Bio-evo Fluorescence Microscope. The processing of all illustrations was finalized using Adobe Photoshop® CC2020 software.

All pictures of the specimens are labeled with a number, consisting of letters and digits: name of the family, two consecutive digits separated by n-dash and the year following m-dash (e.g. SESIIDAE pictures Nos 0129–0130–2025). These letter and digit codes correspond to the numbering system of the figured specimens in the author's archive. The genitalia preparation is stored in a microtube with glycerol and pinned under the specimen. The dissected genitalia are equipped with the corresponding number placed in the microtube. This number as a label (e.g. Genitalia preparation No. OG-030–2025) is pinned under the specimen and is listed in the archives of the author.

The material studied or mentioned below is kept in the following collections abbreviated in the text as follows: BMNH — collection of Natural History Museum, London, UK; CAKM — collection of Axel Kallies, Melbourne, Australia; COGM — collection of the A.N. Severtsov Institute of Ecology and Evolution of the Russian Academy of Sciences, Moscow, Russia; ELOS — collection of the Entomological Laboratory, University of Osaka Prefecture, Sakai, Japan; MHNP — Muséum national d'histoire naturelle, Paris, France; NSMT — collection of the National Museum of Nature and Science, Tsukuba, Japan; ZMHB — collection of the Museum für Naturkunde, Zentralinstitut der Humboldt-Universität zu Berlin, Germany.

The names of plants were verified with the WFO [2026].

Taxonomic account

Order Lepidoptera Linnaeus, 1758
Family Sesiidae Boisduval, 1828
Subfamily Sesiinae Boisduval, 1828
Tribe Sesiini Boisduval, 1828

Genus *Lenyra* Walker, 1856

“Genus 11. *Lenyra*.”: Walker, 1856: 71. Type species: *Trochilium ashtaroth* Westwood, 1848, by monotypy.

LITERATURE. Hampson, 1892: 188 (key), 205; Hampson, 1919: 50 (key), 96; Dalla Torre, Strand, 1925: 150; Gaede,

1933: 791; Heppner, Duckworth, 1981: 43; Fletcher, Nye, 1982: 89; Kallies, Arita, 2004: 67, 70.

COMPOSITION. Currently, this genus includes only one species, *Lenyra ashtaroth* (Westwood, 1848).

RANGE. Oriental Region from Northern India in the west to Northern Vietnam in the east.

Lenyra ashtaroth (Westwood, 1848)

Figs 1–6.

“*Trochilium ashtaroth*, Westw.”: Westwood, 1848: 14, pl. 6, fig. 5. Type locality: “Inhabits Assam” [= Bangladesh: Sylhet]. Holotype ♀ (BMNH).

= “*Lenyra ashtaroth* Westw. ssp. *tonkiniana* nova.”: Le Cerf, 1927: 149. Type locality: “Chiné” [= Southern China]. Holotype ♀ (MHNP).

= “*Lenyra naumanni* sp. nov.”: Arita, 1989: 12, figs 3, 6. Type locality: “Thailand, Chiang Mai”. Holotype ♀ (NSMT).

LITERATURE. Boisduval, 1875: 468 (*Melittia*); Cotes, Swinhoe, 1887: 43; Swinhoe, 1892: 39; Hampson, 1892: 188 (key), 205, fig. 132; Hampson, 1919: 50 (key), 96; Dalla Torre, Strand, 1925: 150; Gaede, 1933: 792, Taf. 95, Linie g; Heppner, Duckworth, 1981: 43; Robinson *et al.*, 1994: 110, pl. 18, fig. 12; Arita, Ikeda, 2000: 37, fig. 55; Kallies, Arita, 2004: 67, 70; Pühringer, Kallies, 2004: 11; Kallies *et al.*, 2014: 587, fig. 13; Arita *et al.*, 2021b: 11, 40, 69, figs 58a, b; 183, fig. 424a; iNaturalist, 2026a.

MATERIAL. 1 ♂, Thailand, Chiang Mai Province, IV.1998, native collector leg. (Sesiidae pictures Nos 0143–0144–2021) (COGM); 1 ♂, 2 ♀♀, Thailand, Chiang Rai Province, 2.III.2001, native collector leg. (Sesiidae pictures Nos 0085–0090–2014) (COGM); 1 ♂, Laos, Xiengkhouang Province, Kham Distr., Nam Hom vill., Hot Spring, 560 m, 19°33'29"N, 103°41'11"E, 24.VII.2018, A.N. Zamesov leg. (Sesiidae pictures Nos 0001–0002–2019) (COGM).

BIONOMICS. The larval host plant is unknown. Moths are found almost throughout the year.

HABITAT. Various types of tropical forest biotopes.

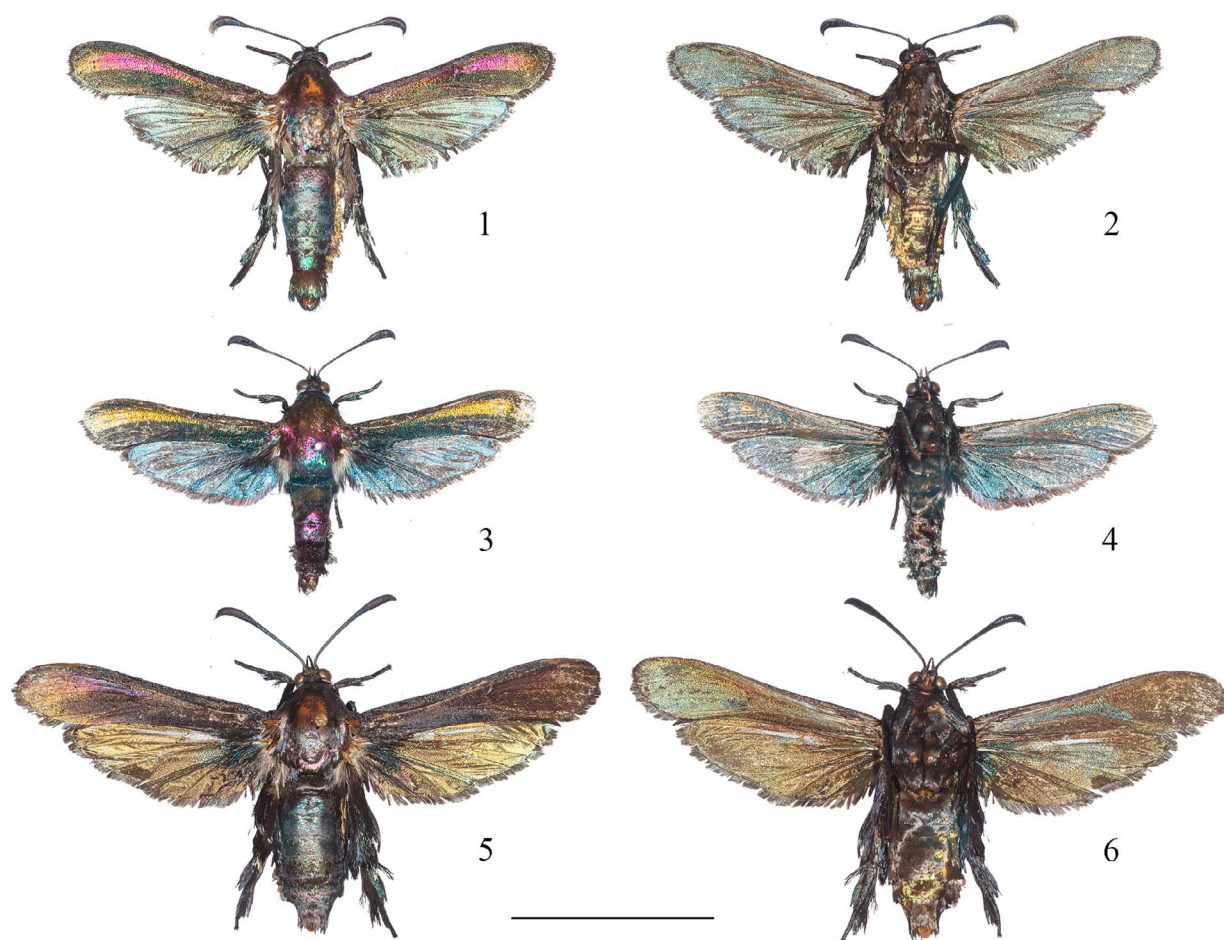
DISTRIBUTION. Currently, this species is known from Northern India (Punjab, Sikkim), Bhutan, Bangladesh, Myanmar, Northern Thailand (Chiang Mai, Chiang Rai Provinces), Southern China (Tibet Autonomous Region, Yunnan Province or Guangxi Zhuang Autonomous Region), Laos (Luang Prabang and Xiengkhouang Provinces) and Northern Vietnam (Ha Giang Province). This species is recorded for the first time for Chiang Rai Province, Thailand, and Xiengkhouang Province, Laos.

REMARKS. It remains a mystery to me why Le Cerf, in his work on new species of the family Sesiidae from the French protectorate of Tonkin (modern Northern Vietnam) [Le Cerf, 1927], describing a new subspecies of *L. ashtaroth*, indicates that he had a female from China [Chiné], but called it “*tonkiniana*”? This may be a result of the very liberal use of European researchers in assigning specific localities of origin to the collected material until the middle, and sometimes even the end, of the last century. But despite this, and in contrast to the study accepted prior to this one [e.g., Gaede, 1933; Kallies, Arita, 2004; Kallies *et al.*, 2014], the type locality of the taxon *L. ashtaroth tonkiniana* Le Cerf, 1927 should be considered to be Yunnan Province or Guangxi Zhuang Autonomous Region in Southern China.

Genus *Trilochana* Moore, 1879

“*Trilochana*, nov. gen.”: Moore, 1879: 9. Type species: *Trilochana scolioides* Moore, 1879, by monotypy.

= “*Scoliomima*, n. g.”: Butler, 1885: 370. Type species: *Scoliomima insignis* Butler, 1885, by monotypy.



Figs 1–6. *Lenyra ashtaroth* (Westwood, 1848): 1–2 — ♂, Thailand, Chiang Mai Province, IV.1998, native collector leg., Sesiidae pictures Nos 0143–0144-2021 (COGM); 3–4 — ♂, Laos, Xiengkhouang Province, Kham Distr., Nam Hom vill., Hot Spring, 560 m, 19°33'29"N, 103°41'11"E, 24.VII.2018, A.N. Zamesov leg., Sesiidae pictures Nos 0001–0002-2019 (COGM); 5–6 — ♀, Thailand, Chiang Rai Province, 2.III. 2001, native collector leg., Sesiidae pictures Nos 0085–0086-2014 (COGM). 1, 3, 5 — dorsal view; 2, 4, 6 — ventral view. Scale bar: 20 mm.

Рис. 1–6. *Lenyra ashtaroth* (Westwood, 1848): 1–2 — ♂, Таиланд, провинция Чианг Май, IV.1998, местный коллекционер leg. Sesiidae снимки №№ 0143–0144-2021 (COGM); 3–4 — ♂, Лаос, провинция Сиангкхуанг, Кхам, Нам Хом, Горячий источник, 560 м, 19°33'29" с.ш., 103°41'11" в.д., 24.VII.2018, А.Н. Замесов leg. Sesiidae снимки №№ 0001–0002-2019 (COGM); 5–6 — ♀, Таиланд, провинция Чианг Рай, 2.III. 2001, местный коллекционер leg. Sesiidae снимки №№ 0085–0086-2014 (COGM). 1, 3, 5 — вид сверху; 2, 4, 6 — вид снизу. Масштаб: 20 мм.

LITERATURE. Hampson, 1892: 187 (key), 190; Le Cerf, 1917: 352; Hampson, 1919: 49 (key), 83; Dalla Torre, Strand, 1925: 136; Gaede, 1933: 787; Heppner, Duckworth, 1981: 44; Gorbunov, Arita, 1995b: 215; Kallies, 2001; Arita, Kallies, 2003: 229; Kallies, Arita, 2004: 67, 71; Xu *et al.*, 2019: 130.

COMPOSITION. Currently, the genus *Trilochana* includes eight species, viz. *T. scolioides* Moore, 1879 (type species), *T. insignis* (Butler, 1885), *T. oberthueri* Le Cerf, 1917, *T. chalciptera* Hampson, 1919, *T. triscoliopsis* Rothschild, 1925, *T. smaragdina* Diakonoff, 1954, *T. illustris* Kallies et Arita, 1998, and *T. nagaii* Arita et Kallies, 2003.

RANGE. Oriental and Australian regions from India (Maharashtra State) in the west to Leyte Island in the Philippines and Papua New Guinea in the east, and from Nepal and China (Guangdong Province and Hong Kong) in the north to Java Island in Indonesia and Queensland in Australia in the south.

Trilochana scolioides Moore, 1879

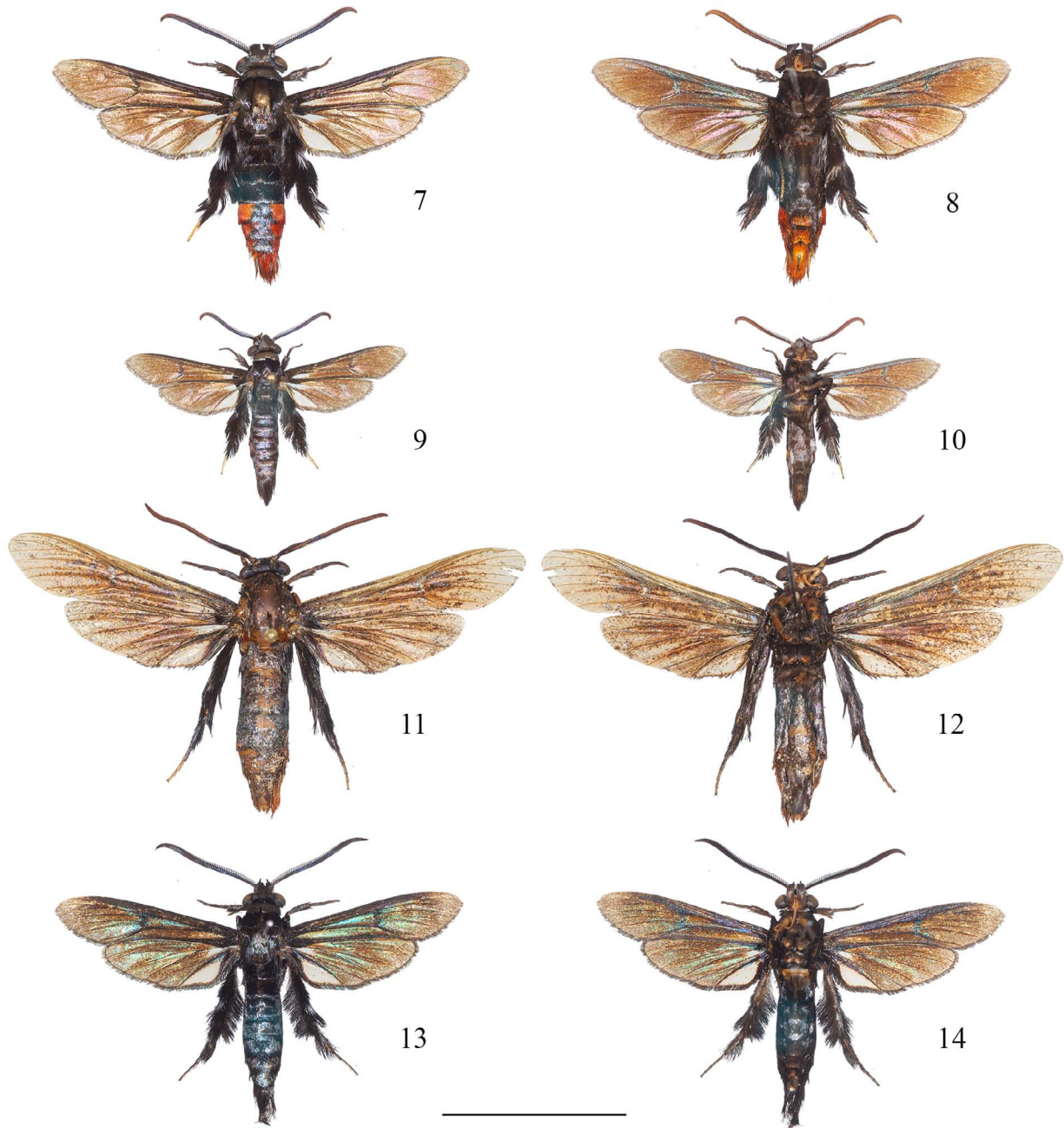
Figs 7–12.

“*Trilochana scolioides*, n. sp.”: Moore, 1879: 10, pl. II, Fig. 2. Type locality: “Darjiling” [= India: West Bengal, Darjeeling]. Holotype ♀ (ZMHB).

= “*Trilochana megascolioides* sp. nov.”: Arita, 1989: 11, figs 2, 4. Type locality: “Thailand, Nakhon Nayok, Khao Yai, (ca. 800 m)”. Holotype ♂ (ELOS).

= “*Trilochana caseariae* Yang et Wang 新种”: Yang, Wang, 1989: 233, figs 4A–D, Type locality: “Liuzhou, Guangxi” [= China: Guangxi Zhuang Autonomous Region, Liuzhou]. Holotype ♂ (probably lost [Arita *et al.*, 2021a: 308]).

LITERATURE. Hampson, 1892: 191; Le Cerf, 1917: 352, pl. 480, fig. 3961; Hampson, 1919: 83; Dalla Torre, Strand, 1925: 136; Gaede, 1933: 787, Taf. 95, Linie b; Heppner, Duckworth, 1981: 44; Arita, 1989: 9, figs 1, 5 (*Trilochna* [sic]); Gorbunov, Arita, 1995b: 216, figs 7–8, 16, 21–22; Gorbunov, Arita, 1999: 107, figs 1–7; Kallies, Arita, 2004: 67 (*Trilochana scolioides* and *T. caseariae*), 71; Pühringer, Kallies, 2004:



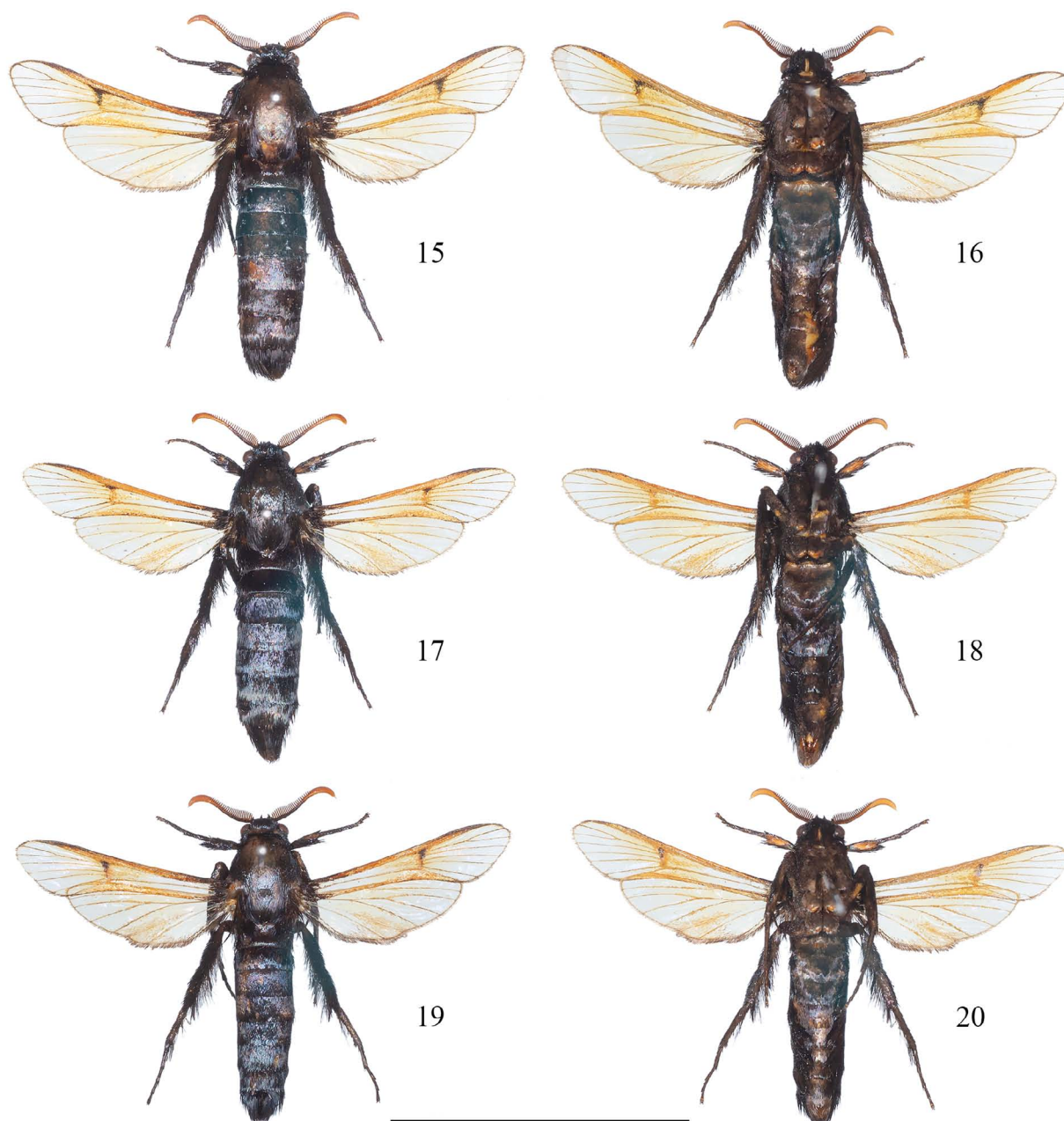
Figs 7–14. *Trilochana* spp.: 7–12 — *Trilochana scolioides* Moore, 1879: 7–8 — ♂, Nepal, Eastern Development Region, Kosi Zone, 1.5 km S of Dhankuta, 19–23.VIII.1995, O.G. Gorbunov, L.M. Petrova leg. Sesiidae pictures Nos 0083–0084-2026 (COGM); 9–10 — ♂, same locality and date, O.G. Gorbunov, L.M. Petrova leg. Sesiidae pictures Nos 0085–0086-2026 (COGM); 11–12 — ♀, Vietnam, Lao Cai Province, Sa-Pa, Hoàng Liên Sơn, 11–19.VI.1990, M. Dvořák leg. Sesiidae pictures Nos 0087–0088-2026 (COGM); 13–14 — ♂, *Trilochana nagaii* Arita et Kallies, 2003. Indonesia, North Maluku, West Halmahera, 9 km NE of Sidangoli, 00°56.09'N, 127°34.13'E, 120 m, 13.II.2017, O.G. Gorbunov leg. Sesiidae pictures Nos 0025–0026-2017 (COGM). 7, 9, 11, 13 — dorsal view; 8, 10, 12, 14 — ventral view. Scale bar: 20 mm.

Рис. 7–14. *Trilochana* spp.: 7–12 — *Trilochana scolioides* Moore, 1879: 7–8 — ♂, Непал, Восточный регион, зона Коси, 1,5 км южнее Дханкуты, 19–23.VIII.1995, О.Г. Горбунов, Л.М. Петрова leg. Сесииде снимки №№ 0083–0084-2026 (COGM); 9–10 — ♂, там же и тогда же, О.Г. Горбунов, Л.М. Петрова leg. Сесииде снимки №№ 0085–0086-2026 (COGM); 11–12 — ♀, Вьетнам, провинция Лаокай, Шапа, хребет Хоангльеншон, 11–19.VI.1990, М. Дворжак leg. Сесииде снимки №№ 0087–0088-2026 (COGM); 13–14 — ♂, *Trilochana nagaii* Arita et Kallies, 2003. Индонезия, Северное Малуку, Западная Хальмахера, 9 км СВ Сиданголи, 00°56.09' с.ш., 127°34.13' в.д., 120 м, 13.II.2017, О.Г. Горбунов leg. Сесииде снимки №№ 0025–0026-2017 (COGM). 7, 9, 11, 13 — вид сверху; 8, 10, 12, 14 — вид снизу. Масштаб: 20 мм.

10 (*Trilochana scolioides* and *T. caseariae*); Jin *et al.*, 2008: 512 (*Trilochana caseariae*); Kallies *et al.*, 2014: 587 (*Trilochana caseariae* as a synonym of *T. scolioides*); Xu *et al.*, 2019: 130, fig. 94 (*Trilochana caseariae*); Arita *et al.*, 2021a: 308, figs 76, 93, 107 (*Trilochana caseariae*); Arita *et al.*, 2021b: 35, 109, figs 374a, 374b; iNaturalist, 2026b.

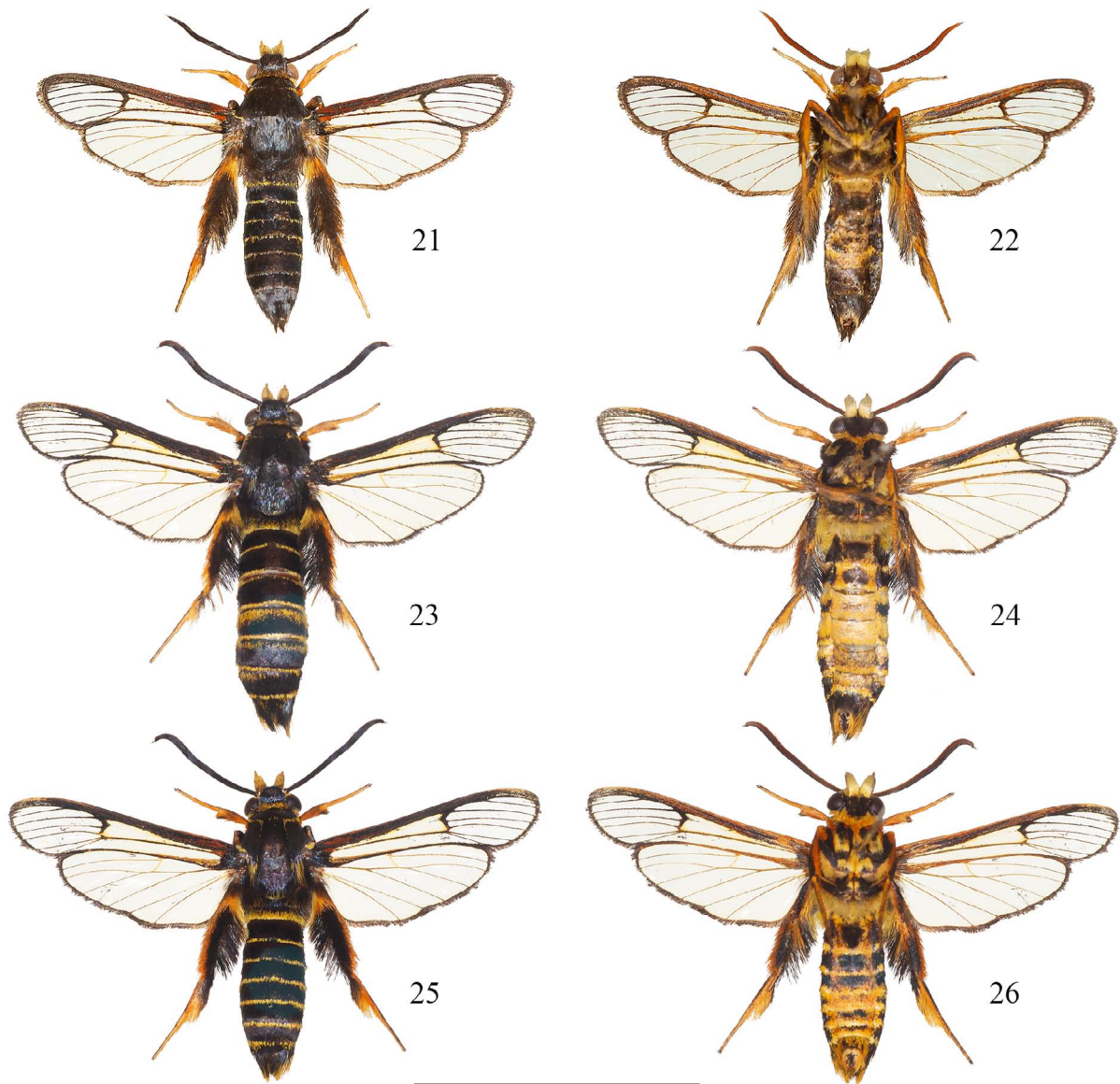
MATERIAL. 1 ♀, Vietnam, Lao Cai Province, Sa-Pa, Hoàng Liên Sơn, 11–19.VI.1990, M. Dvořák leg. (Sesiidae pictures Nos 0087–0088-2026) (COGM).

BIONOMICS. *Casearia membranacea* Hance (Salicaceae) is reported as a larval host plant for the species in southern China [Yang, Wang, 1989]. Known adults were collected or



Figs 15–20. Males of *Lamellisphesia haematinea* Kallies et Arita, 2004: 15–16 — Laos, Khammouane Province, Ban Khoun Kham (Na Hin), 18°13'N, 104°31'E, 200 m, 6.IV.2005, O.G. Gorbunov leg. Sesiidae pictures Nos 0361–0362-2013 (COGM); 17–18 — same locality and date, O.G. Gorbunov leg. Sesiidae pictures Nos 0357–0358-2013 (COGM); 19–20 — same locality and date, O.G. Gorbunov leg. Sesiidae pictures Nos 0081–0082-2026 (COGM). 15, 17, 19 — dorsal view; 16, 18, 20 — ventral view. Scale bar: 20 mm.

Рис. 15–20. Самцы *Lamellisphesia haematinea* Kallies et Arita, 2004: 15–16 — Лаос, провинция Кхаммуан, Бан Хун Хам (На Хин), 18°13' с.ш, 104°31' в.д., 200 м, 6.IV.2005, О.Г. Горбунов leg. Sesiidae снимки №№ 0361–0362-2013 (COGM); 17–18 — там же и тогда же, О.Г. Горбунов leg. Sesiidae снимки №№ 0357–0358-2013 (COGM); 19–20 — там же и тогда же, О.Г. Горбунов leg. Sesiidae снимки №№ 0081–0082-2026 (COGM). 15, 17, 19 — вид сверху; 16, 18, 20 — вид снизу. Масштаб: 20 мм.



Figs 21–26. Males of *Kallarita difficilis* (Kallies et Arita, 2004), **comb.n.:** 21–22 — Laos, Khammouane Province, Ban Khoun Kham (Na Hin), 18°13'N, 104°31'E, 200 m, 3.IV.2005, O.G. Gorbunov leg. Sesiidae pictures Nos 0363–0364-2013; 23–24 — Thailand, Trang Province, Nakhon Si Thammarat Mts., Pubpa, 163 m, 07°34.556'N, 099°47.423'E, 10.XI.2025, O.G. Gorbunov leg. Sesiidae pictures Nos 0123–0124-2025; 25–26 — same locality, 10.XI.2025, O.G. Gorbunov leg. Sesiidae pictures Nos 0129–0130-2025. 21, 23, 25 — dorsal view; 22, 24, 26 — ventral view. Scale bar: 20 mm.
Рис. 21–26. Самцы *Kallarita difficilis* (Kallies et Arita, 2004), **comb.n.** 21–22 — Лаос, провинция Кхаммуан, Бан Хун Хам (На Хин), 18°13' с.ш., 104°31' в.д., 200 м, 3.IV.2005, О.Г. Горбунов leg. Сесииде снимки №№ 0363–0364-2013; 23–24 — Таиланд, провинция Транг, хребет Накхонситхаммарат, Пубпа, 163 м, 07°34.556' с.ш., 099°47.423' в.д., 10.XI.2025, О.Г. Горбунов leg. Сесииде снимки №№ 0123–0124-2025; 25–26 — там же, 10.XI.2025, О.Г. Горбунов leg. Сесииде снимки №№ 0129–0130-2025. 21, 23, 25 — вид сверху; 22, 24, 26 — вид снизу. Масштаб: 20 мм.

photographed from late April to late October and in December. Males are quite actively attracted to artificial sex attractants from approximately 9 AM to 1 PM.

HABITAT. Tree-rich agricultural lands with fodder trees, borders of secondary subtropical forests and edges of tropical riparian and/or rainforests.

DISTRIBUTION. This species is known to occur in Nepal, Eastern India (Maharashtra, Andhra Pradesh, West Bengal, Assam States), Bhutan, Myanmar, Thailand, Southern China (Guangdong Province, Hong Kong, Guangxi Zhuang Autonomous Region) and Vietnam (Phu Tho, Lao Cai and Lam Dong Provinces, and Hue municipality).

Trilochana nagaii Arita et Kallies, 2003

Figs 13–14, 31–34, 44.

“*Trilochana nagaii* sp. nov.”: Arita, Kallies, 2003: 229, figs 1, 2a–d. Type locality: “[Indonesia] Sulawesi Seltan (South Celebes I.) Maros, Bantimurung, alt. ca 50 m”. Holotype ♂ (NSMT).

LITERATURE. Kallies, Arita, 2004 : 67; Pühringer, Kallies, 2004: 11.

MATERIAL. 1 ♂, Indonesia, North Maluku, West Halmahera, 9 km northeast of Sidangoli, 00°56.09'N, 127°34.13'E, 120 m, 13.II.2017, O.G. Gorbunov leg. (Sesiidae pictures Nos 0025–0026-2017) (Genitalia preparation No. OG-052-2018) (COGM).



Figs 27–30. Head of males of Sesiini spp. laterally: 27 — *Kallarita difficilis* (Kallies et Arita, 2004), **comb.n.**, Thailand, Trang Province, Nakhon Si Thammarat Mts., Pubpa, 163 m, 07°34.556'N, 099°47.423'E, 10.XI.2025, A.A. Ermakov leg. (COGM); 28 — *Sphecodoptera scribai* (Bartel, 1912), Japan, Honshu, Aichi-ken, Kasugai-shi, Takagi, 15.IX.1994, ex pupa from bark of *Castanea crenata* Siebold et Zucc. (Fagaceae), moth emerged 15.IX.1994, Yu. Arita, O.G. Gorbunov leg. (COGM); 29 — *Eusphesia pimplaeformis* (Oberthür, 1872), Azerbaijan, Nakhichevan, Buzgov, 1400 m, 20–22.VII.1986, O.G. Gorbunov leg. (COGM); 30 — *Lamellisphesia haematinea* Kallies et Arita, 2004, Laos, Khammouane Province, Ban Khoun Kham (Na Hin), 18°13'N, 104°31'E, 200 m, 3.IV.2005, O.G. Gorbunov leg. (COGM).

Рис. 27–30. Голова самцов Sesiini spp. сбоку: 27 — *Kallarita difficilis* (Kallies et Arita, 2004), **comb.n.**, Таиланд, провинция Транг, хребет Накхонситхаммат, Пубпа, 163 м, 07°34.556' с.ш., 099°47.423' в.д., 10.XI.2025, А.А. Ермаков leg.; 28 — *Sphecodoptera scribai* (Bartel, 1912), Япония, Хонсю, Провинция Айчи, Касугай, Такаги, 15.IX.1994, из куколки из коры *Castanea crenata* Siebold et Zucc. (Fagaceae), бабочка вывелась 15.IX.1994, Ю. Арита, О.Г. Горбунов leg. (COGM); 29 — *Eusphesia pimplaeformis* (Oberthür, 1872), Азербайджан, Нахичевань, Бузгов, 1400 м, 20–22.VII.1986, О.Г. Горбунов leg. (COGM); 30 — *Lamellisphesia haematinea* Kallies et Arita, 2004, Лаос, провинция Кхаммуан, Бан Хун Хам (На Хин), 18°13' с.ш., 104°31' в.д., 200 м, 3.IV.2005, О.Г. Горбунов leg.

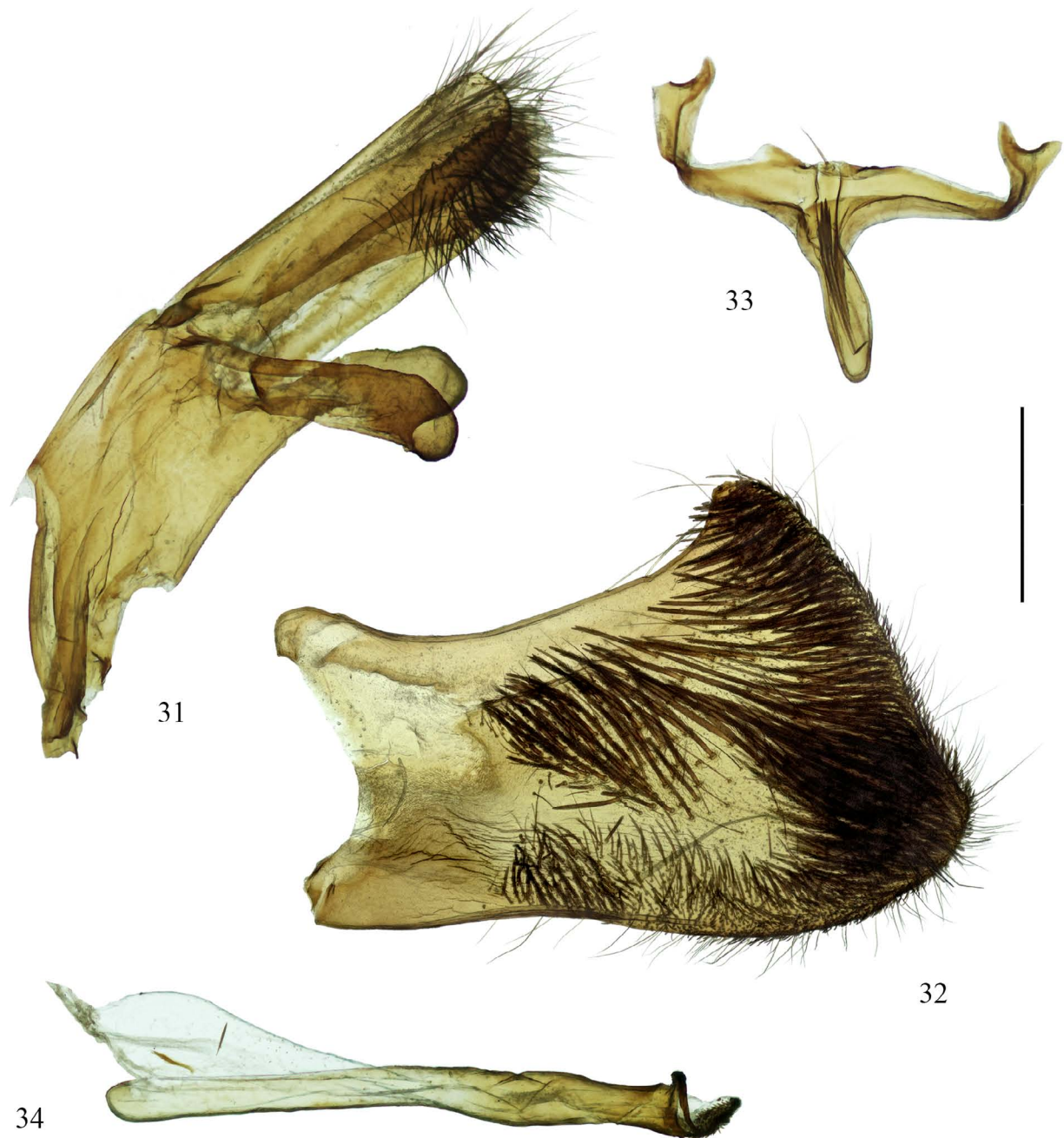
BIONOMICS. The larval host plant is unknown. All known specimens were collected using artificial sex attractants in August, as well as in January and February.

HABITAT. This species occurs in tropical lowland forests (Fig. 44).

DISTRIBUTION. Currently, this species is known from Indonesia from several points in South and Central

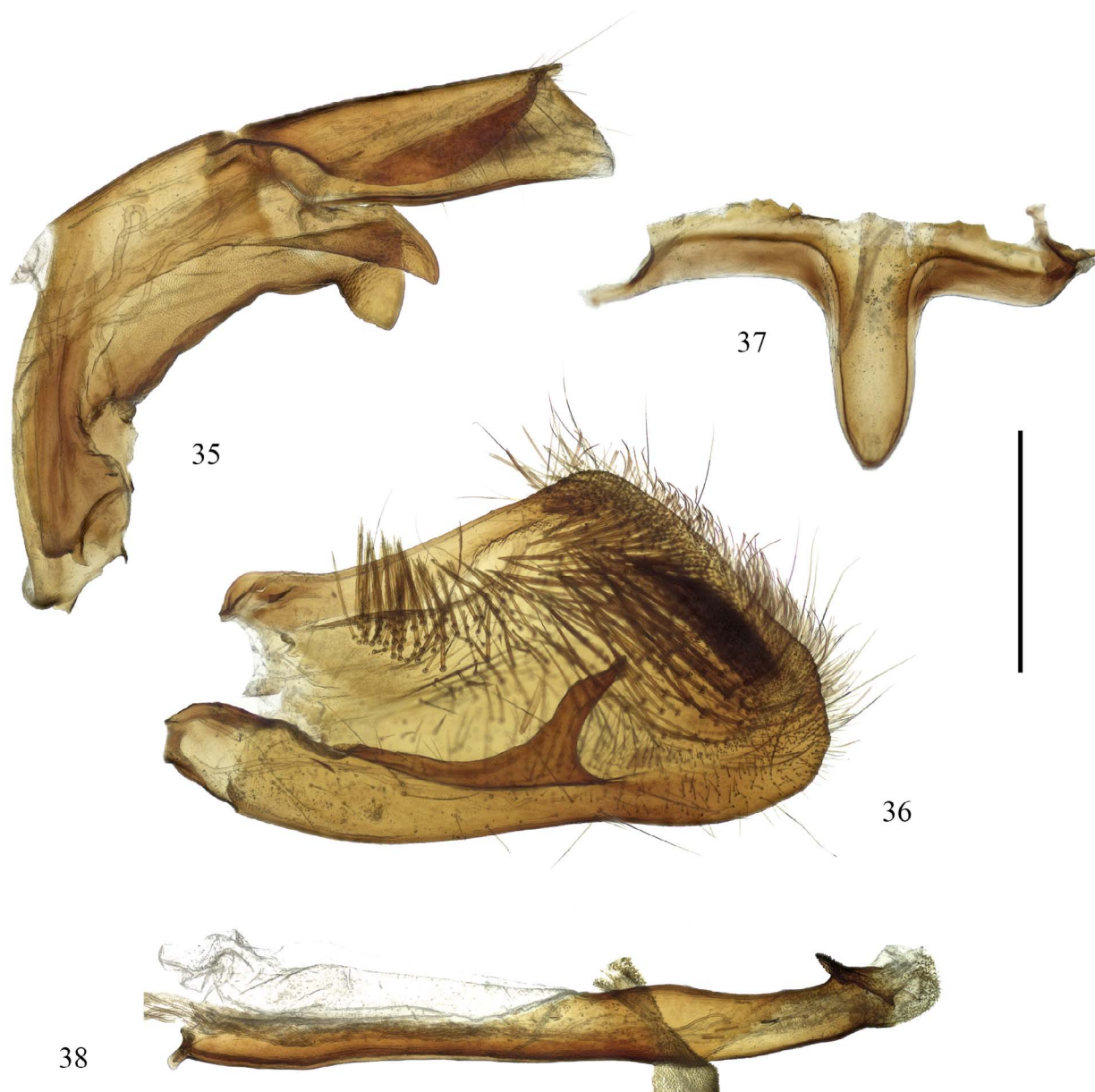
Sulawesi (Sulawesi Selatan and Sulawesi Tengah provinces) and in West Halmahera; it is recorded for Halmahera for the first time.

REMARKS. The Halmahera specimen has a dark green metallic sheen to its wings, rather than the violet of the type series specimens.



Figs 31–34. Male genitalia of *Trilochana nagaii* Arita et Kallies, 2003, Indonesia, North Maluku, West Halmahera, 9 km NE of Sidangoli, 00°56.09'N, 127°34.13'E, 120 m, 13.II.2017, O.G. Gorbunov leg. Genitalia preparation No. OG-052-2018 (COGM): 31 — tegument-uncus complex; 32 — valva; 33 — saccus; 34 — aedeagus. Scale bar: 1.0 mm.

Рис. 31–34. Гениталии самца *Trilochana nagaii* Arita et Kallies, 2003, Индонезия, Северное Малуку, Западная Хальмахера, 9 км СВ Сиданголи, 00°56.09' с.ш., 127°34.13' в.д., 120 м, 13.II.2017, О.Г. Горбунов leg. Препарат гениталий № OG-052-2018 (COGM): 31 — тегумен-ункусный комплекс; 32 — вальва; 33 — саккус; 34 — эдеагус. Масштаб: 1.0 мм.



Figs 35–38. Male genitalia of *Lamellisphesia haematinea* Kallies et Arita, 2004, Laos, Khammouane Province, Ban Khoun Kham (Na Hin), 18°13'N, 104°31'E, 200 m, 3.IV.2005, O.G. Gorbunov leg. Genitalia preparation No. OG-003-2018 (COGM): 35 — tegument-uncus complex; 36 — valva; 37 — saccus; 38 — aedeagus. Scale bar: 1.0 mm.

Рис. 35–38. Гениталии самца *Lamellisphesia haematinea* Kallies et Arita, 2004, Лаос, провинция Кхаммуан, Бан Хун Хам (На Хин), 18°13' с.ш., 104°31' в.д., 200 м, 3.IV.2005, О.Г. Горбунов leg. Препарат гениталий № OG-052-2018 (COGM): 35 — тегумен-ункусный комплекс; 36 — вальва; 37 — саккус; 38 — эдеагус. Масштаб: 1.0 мм.

Genus *Lamellisphesia* Kallies et Arita, 2004

“*Lamellisphesia* gen. n.”: Kallies, Arita, 2004: 76. Type species: *Lamellisphesia haematinea* Kallies et Arita, 2004, by original designation.

LITERATURE. Pühringer, Kallies, 2004: 11; Kallies, 2011: 153; Arita *et al.*, 2019: 477; Kallies, 2020: 25.

COMPOSITION. Currently I include the following seven species in this genus: *L. haematinea* Kallies et Arita, 2004 (type species), *L. champaensis* Kallies et Arita, 2004, *L. wi-*

angensis Kallies et Arita 2004, *L. sumatrana* Fischer, 2005, *L. xerampelina* Kallies, 2011, *L. minwangi* Arita et Kallies, 2019, and *L. sanguinea* Kallies, 2020.

RANGE. Oriental and Australian Regions from India (Himachal Pradesh State) in the northwest to Papua New Guinea in the southeast, and from South China (Guangdong Province) in the north.

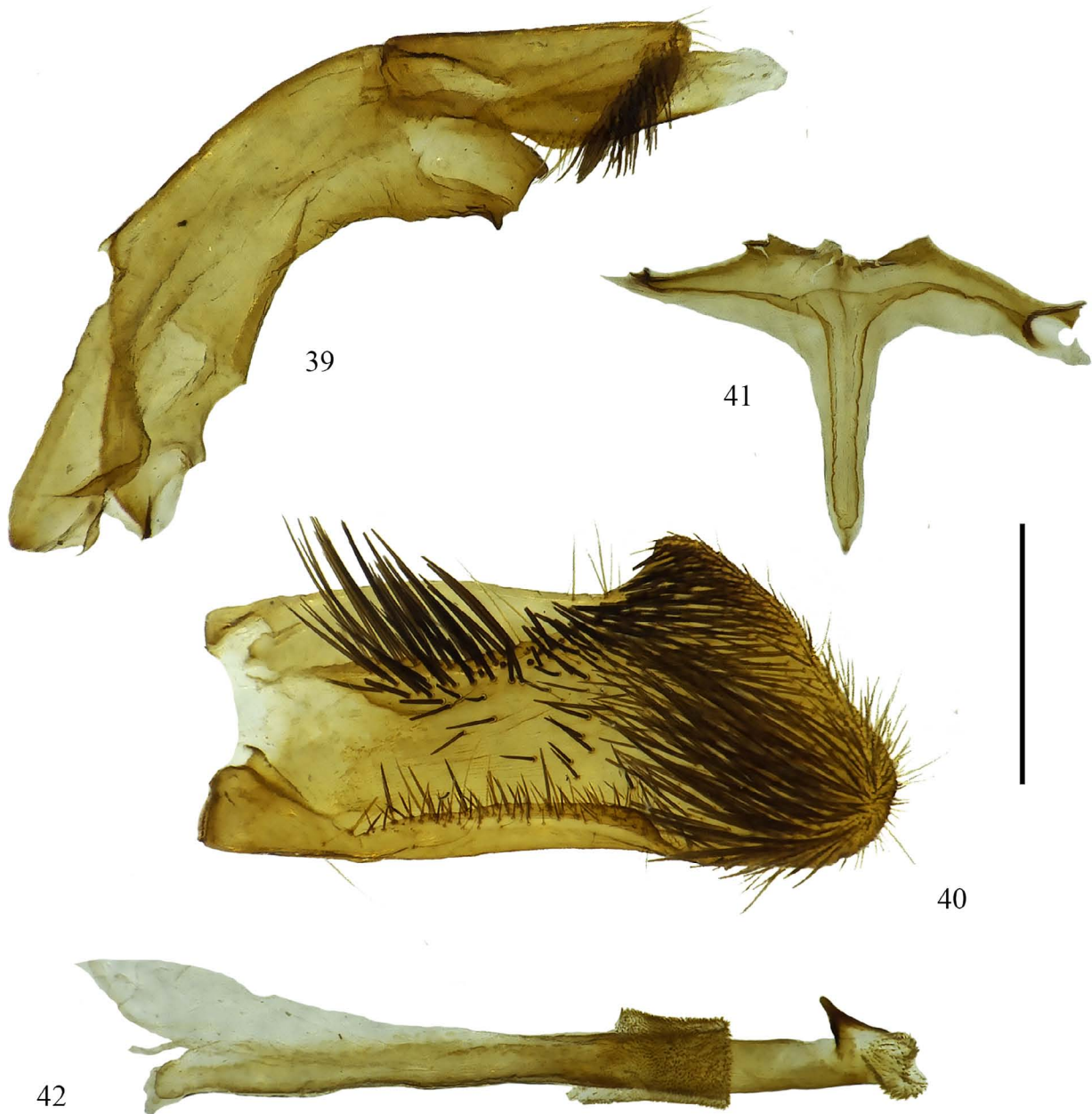
REMARKS. *L. xerampelina*, described from northwestern India, differs markedly from all other representatives of the genus both externally and in the structure of the male genitalia

(compare figs 4 and 11 in Kallies [2011] with Figs 15–20 in this publication or with figs 7–9 and 24, 25 in Kallies & Arita [2004] or with figs 1–6 and 10, 11 in Arita *et al.*, 2019). Unfortunately, this species is known from only one specimen, which does not allow us to make a final conclusion about its generic affiliation, and I leave it in the genus *Lamellisphesia*.

***Lamellisphesia haematinea* Kallies et Arita, 2004**

Figs 15–20, 30, 35–38, 43.

“*Lamellisphesia haematinea* sp. n.”: Kallies, Arita, 2004: 67, 77, figs 8, 25. Type locality: “Thailand, Wiang Rai, Wiang Papao” [= Northern Thailand, Chiang Rai Province, Wiang Pa Pao].



Figs 39–42. Male genitalia of *Kallarita difficilis* (Kallies et Arita, 2004), **comb.n.**, Thailand, Trang Province, Nakhon Si Thammarat Mts., Puppa, 163 m, 07°34.556'N, 099°47.423'E, 10.XI.2025, O.G. Gorbunov leg. Genitalia preparation No. OG-030-2025 (COGM): 39 — tegument-uncus complex; 40 — valva; 41 — saccus; 42 — aedeagus. Scale bar: 1.0 mm.

Рис. 39–42. Гениталии самца *Kallarita difficilis* (Kallies et Arita, 2004), **comb.n.**, Таиланд, провинция Транг, хребет Накхонситхаммариат, Пупа, 163 м, 07°34.556' с.ш., 099°47.423' в.д., 10.XI.2025, О.Г. Горбунов лг. Препарат гениталий № OG-030-2025 (COGM): 39 — тегумен-ункусный комплекс; 40 — вальва; 41 — саккус; 42 — эдегус. Масштаб: 1.0 мм.



Fig. 43. Habitat of *Lamellisphesia haematinea* Kallies et Arita, 2004 and *Kallarita difficilis* (Kallies et Arita, 2004), **comb.n.**: Laos, Khammouane Province, Ban Khoun Kham (Na Hin), 18°13'N, 104°31'E, 3.IV.2005.

Рис. 43. Биотоп *Lamellisphesia haematinea* Kallies et Arita, 2004 и *Kallarita difficilis* (Kallies et Arita, 2004), **comb.n.**: Лаос, провинция Кхаммуан, Бан Хун Хам (На Хин), 18°13' с.ш, 104°31' в.д., 3.IV.2005.

LITERATURE. Pühringer, Kallies, 2004: 11; Arita *et al.*, 2019: 477, 482, fig. 6.

MATERIAL. 1 ♂, Laos, Khammouane Province, Ban Khoun Kham (Na Hin), 18°13'N, 104°31'E, 200 m, 3.IV.2005, O.G. Gorbunov leg. (genitalia preparation No. OG003-2018); 1 ♂, same locality, 5.IV.2005, O.G. Gorbunov leg.; 4 ♂♂, same locality, 6.IV.2005, O.G. Gorbunov leg. (Sesiidae pictures Nos 0357–0358-2013, 0361–0362-2013, 0081–0082-2026).

BIONOMICS. The larval host plant is unknown. All known specimens were collected in April–May. Males came to lures with non-specific synthetic sex attractants in the first half of the day from about 9–11 am.

HABITAT. In Myanmar, the species was collected from a monsoon rainforest, in Thailand from a subtropical rainforest, and in Laos (Fig. 43) from a primary monsoon semi-deciduous rainforest along a creek bed, where the dominant trees were *Dipterocarpus alatus* A.DC, *Hopea odorata* Roxb., *H. ferrea* Pierre ex Laness. (Dipterocarpaceae), *Lagerstroemia cochinchinensis* Pierre ex Laness. (Lythraceae), *Azelia xylocarpa* (Kurz) Craib (Fabaceae) and *Alstonia scholaris* (L.) R.Br. (Apocynaceae).

DISTRIBUTION. This species is currently known from Upper Myanmar (Chin State), Northern Thailand (Chiang Mai and Chiang Rai Provinces), and Khammouane Province in Laos. This is the first report of this species for Laos.

Genus *Kallarita* O. Gorbunov, gen.n.

Type species: *Scasiba difficilis* Kallies et Arita, 2004.

DESCRIPTION. Large *Sesia*-like clearwing moths with a wingspan of 33–41 mm.

Head with antenna relatively short, not reaching cross-vein of forewing, slightly serrated and ciliated; frons and vertex smooth-scaled; labial palpus long, mid and apical palpomeres smooth-scaled ventrally (Fig. 27), basal palpomere with slightly elongated scales ventrally (Fig. 27); proboscis undeveloped. Thorax smooth-scaled, posteriorly both metepimeron and metameron with dense hair-like but short scales posteriorly. Legs smooth-scaled, but hind tibia and hind basal tarsomere covered with elongated scales interior ventrally. Forewing transparent; veins R_1 – R_3 parallel; vein R_3 and common stem of veins R_4 and R_5 long stalked (Figs 21–26). Hindwing (Figs 21–26) transparent, veins M_3 and CuA_1 long stalked. Abdomen smooth-scaled, anal tuft extremely small (Figs 1–4).

Male genitalia. Tegumen-uncus complex narrow, uncus with group of strong setae at distal margin; tegumen asymmetrical basally; gnathos short and broad (Fig. 39); valva (Fig. 40) trapezoid, densely covered with strong pointed setae in distal third, with group of strong pointed setae on low but long fold subdorsally; crista sacculi low but long, sometimes with short and low triangular projection (see figs 51 and 52 in Kallies [2020]), covered short pointed setae; saccus (Fig. 41) approximately as long as vinculum, straight, narrow, gradually narrowed basally; aedeagus (Fig. 42) somewhat longer than valva, straight and narrow, slightly bilobed basally, with strong beak-shaped carina penis; vesica with numerous spin-like cornuti.

Female. Unknown.

Differential diagnosis. Superficially, this new genus can be confused with some species of the genus *Sphecodoptera* Hampson, 1892 (type species: *Sphecia repanda* Walker, 1856), but it clearly differs from them in the labial palpus (mid palpomere with elongated scales ventrally in *Sphecodoptera*, vs.



Fig. 44–45. Habitats of Sesiini spp.: 44 — Habitat of *Trilochana nagaii* Arita et Kallies, 2003: Indonesia, North Maluku, West Halmahera, 9 km NE of Sidangoli, 00°56.09'N, 127°34.13'E, 13.II.2017; 45 — Habitat of *Kallarita difficilis* (Kallies et Arita, 2004), **comb.n.**: Thailand, Trang Province, Nakhon Si Thammarat Mts., Pubpa, 07°34.556'N, 099°47.423'E, 10.XI.2025.
Рис. 44–45. Биотопы Sesiini spp.: 44 — Биотоп *Trilochana nagaii* Arita et Kallies, 2003: Индонезия, Северное Малуку, Западная Хальмахера, 9 км СВ Сиданголи, 00°56.09' с.ш., 127°34.13' в.д., 13.II.2017; 45 — Биотоп *Kallarita difficilis* (Kallies et Arita, 2004), **comb.n.**: Биотоп Таиланд, провинция Транг, хребет Накхонситхаммарат, Пубпа, 07°34.556' с.ш., 099°47.423' в.д., 10.XI.2025.

smooth-scaled ventrally in *Kallarita* **gen.n.**; compare Fig. 27 with Fig. 28), undeveloped proboscis (long, light-coloured and clearly visible in *Sphecoptera*), type of hair-like scales on metepimeron and metameron (long and rather rare hair-like scales in *Sphecoptera*, vs. short and dense hair-like scales in *Kallarita* **gen.n.**) and in the forewing venation (bases of vein R_3 and common stem of veins R_4 and R_5 separated in the genus compared, vs. vein R_3 and common stem of veins R_4 and R_5 stalked in *Kallarita* **gen.n.**). In addition, the two genera can be easily distinguished from each other by the structure of the male genitalia, especially the valva (compare Figs 39–42 in this publication with fig. 20 in Arita [1991] or with figs 43–45 in Špatenka *et al.* [1999]). By the conformation of the antenna, this new genus is somewhat similar to *Cyanosesia* O. Gorbunov et Arita, 1995 (type species: *Cyanosesia tonkinensis* O. Gorbunov et Arita, 1995), but it can be easily distinguished from *Cyanosesia* by the undeveloped proboscis (long, light-coloured and clearly visible in *Cyanosesia*), venation of the forewing (bases of vein R_3 and common stem of veins R_4 and R_5 separated in *Cyanosesia*, vs. vein R_3 and common stem of veins R_4 and R_5 stalked in *Kallarita* **gen.n.**), and by the structure of the male genitalia, especially in the conformation of the gnathos, valva and aedeagus armament (compare Figs 39–42 in this publication with figs 13a–e in Gorbunov & Arita [1995a] or figs 19a–d and 20a–d in Kallies, Arita [1998]).

From *Lamellisphexia* Kallies et Arita, 2004 (type species: *Lamellisphexia haematinea* Kallies et Arita, 2004), this new genus can be separated by the structure of the male antenna (bipectinate with one row of rami very short and another long in *Lamellisphexia*, vs. slightly serrated and ciliated in *Kallarita* **gen.n.**), labial palpus (short, two basal palpomeres with very long scales, apical palpomere very small in the genus compared, vs. long, mid and apical palpomeres smooth-scaled ventrally; basal palpomere with slightly elongated scales ventrally; compare Fig. 27 with Fig. 30 in this publication), venation of the forewing (bases of vein R_3 and common stem of veins R_4 and R_5 separated in *Lamellisphexia*, vs. vein R_3 and common stem of veins R_4 and R_5 stalked in *Kallarita* **gen.n.**), and by the structure of the male genitalia (cp. Figs 35–38 and 39–42 in this article or with figs 9–11 in Arita *et al.*, 2019).

This new genus is somewhat closely related to western Palearctic *Eusphexia* Le Cerf, 1937 (type species: *Sesia pimplaeformis* Oberthür, 1872) in the structure of the male genitalia (cp. Figs 39–42 in this article with fig. 42 in Špatenka *et al.* [1999]), but they can be easily distinguished from each other by the structure of the labial palpus (cp. Fig. 27 and 29 in this publication), forewing venation (bases of vein R_3 and common stem of veins R_4 and R_5 separated in *Eusphexia*), and the male genitalia, especially the structure of the gnathos, valva and aedeagus. The genus *Kallarita* **gen.n.** differs from all other Oriental and Australian genera of the tribe Sesiini in the combination of the structure of the antenna, labial palpus, undeveloped proboscis, completely transparent forewing, the relative position of the radial veins of the forewing and the structure of the male genitalia.

BIONOMICS. The larval host plant is unknown. Males are actively attracted to lures containing non-specific synthetic sex attractant.

COMPOSITION. At present I include the following three taxa in the genus: *Kallarita difficilis* (Kallies et Arita, 2004), **comb.n.** (type species), *K. hiltoni* (Kallies, 2020), **comb.n.**, and *K. hiltoni hibernia* (Kallies, 2020), **comb.n.**

RANGE. Currently known from Southern Thailand, Laos and Vietnam in the Oriental Region and from the islands of New Guinea and New Ireland in Australian Region.

ETYMOLOGY. The name of this new genus comes from the surnames of my colleagues and friends, Axel Kallies and Yutaka

Arita, experts on the family Sesiidae of the world fauna, who were the first to notice the morphological features that clearly distinguish *S. difficilis* from other congeners. The gender is feminine.

Kallarita difficilis (Kallies et Arita, 2004), **comb.n.**

Figs 21–27, 39–43, 45.

“*Scasiba difficilis* sp. n.”: Kallies, Arita, 2004: 89, figs 15, 29. Type locality: “N. Vietnam, Ninh Binh Prov., Gia Vien, Cuc Phuong, 370 m”. Holotype ♂ (CAKM).

LITERATURE. Pühringer, Kallies, 2004: 12 (*Scasiba*); Kallies, 2011: 156 (*Sphecoptera*).

MATERIAL (8 ♂♂). 1 ♂, Laos, Khammouane Province, Ban Khoun Kham (Na Hin), 18°13'N, 104°31'E, 200 m, 3.IV.2005, O.G. Gorbunov leg. (Sesiidae pictures Nos 0363–0364-2013) (genitalia preparation No. OG-004-2018) (COGM); 2 ♂♂, Thailand, Trang Province, Nakhon Si Thammarat Mts., Pubpa, 163 m, 07°34.556'N, 099°47.423'E, 10.XI.2025, A.A. Ermakov leg. (Sesiidae pictures Nos 0133–0134-2025) (COGM); 1 ♂, same locality, 30.X.2025, O.G. Gorbunov leg. (Sesiidae pictures Nos 0131–0132–2025) (COGM); 1 ♂, same locality, 10.XI.2025, A.A. Ermakov leg. (Sesiidae pictures Nos 0127–0128-2025) (COGM); 3 ♂♂, same locality, 10.XI.2025, O.G. Gorbunov leg. (Sesiidae pictures Nos 0123–0126-2025, 0129–0130-2025) (1 ♂ with genitalia preparation No. OG030-2025) (COGM).

BIONOMICS. The larval host plant is unknown. All known specimens were collected in April–June, August and October–November. Males came to lures with non-specific synthetic sex attractants in the first half of the day from about 9–11 AM.

HABITAT. The type series specimens were collected in Vietnam from primary broadleaf tropical forests at altitudes ranging from 370 to 850 m. In Thailand, it occurs in lowland tropical rain forest (Fig. 45), and in Laos (Fig. 43) it was collected from primary monsoon semi-deciduous rain forest along a stream bed dominated by trees such as *Dipterocarpus alatus* A.DC, *Hopea odorata* Roxb., *H. ferrea* Pierre ex Laness. (Dipterocarpaceae), *Lagerstroemia cochinchinensis* Pierre ex Laness. (Lythraceae), *Azelia xylocarpa* (Kurz) Craib (Fabaceae), and *Alstonia scholaris* (L.) R.Br. (Apocynaceae).

DISTRIBUTION. This species is currently known from southern Thailand (Trang Province), Laos (Khammouane Province), and Vietnam (Ninh Binh and Lam Dong Provinces). This is the first report of this species for Thailand and Laos.

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