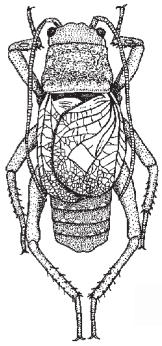

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A NEW SPECIES OF THE GENUS *NOKONA* MATSUMURA, 1931 (LEPIDOPTERA: SESIIDAE) FROM THAILAND

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Summary. *Nokona siamica* **sp. n.** from Mae Hong Son Province in the northern part of Thailand is described and illustrated. This new species belongs to the *N. poecilocephala* (Diakonoff, 1968) species group and is very close to *N. sulawesiensis* O. Gorbunov et Arita, 2015, from which it differs in the colouration of some parts of the body and forewing and some details in the male genitalia. The female and larval bionomics remain unknown.

Key words: Lepidoptera, Paranthreninae, Paranthrenini, clearwing moths, taxonomy, new species, Oriental Region.

О. Г. Горбунов, Е. С. Кошкин. Новый вид рода *Nokona* Matsumura, 1931_(Lepidoptera: Sesiidae) из Таиланда // Дальневосточный энтомолог. 2025. N 534. С. 1-10.

Резюме. Приведено описание *Nokona siamica* **sp. n.** из провинции Мэхонгсон в северной части Таиланда. Этот новый вид относится к видовой группе

N. poecilocephala (Diakonoff, 1968) и очень близок к *N. sulawesiensis* O. Gorbunov et Arita, 2015, от которого отличается окраской некоторых частей тела и переднего крыла и некоторыми деталями в гениталиях самца. Самка и биономия гусениц неизвестны.

INTRODUCTION

The genus *Nokona* was described by Matsumura as a subgenus of *Paranthrene* Hübner, 1819 with *Paranthrene yesonica* Matsumura, 1931 [= *Sciapteron ferale* Leech, 1889] as the type species (Matsumura, 1931a, b; Yata *et al*., 2017). As has been repeatedly pointed out, this genus in its modern interpretation is polyphyletic (Gorbunov & Arita, 2015; 2020b, c). It includes about fifty species distributed in the Oriental, Australian and eastern parts of the Palaearctic realms (Gorbunov & Arita, 1995; 2001; 2020b, c; Arita & Gorbunov, 2001; Pühringer & Kallies, 2004; Kallies *et al*., 2014; Gorbunov, 2016; Kallies, 2020, etc.). Based on the structure of the male and sometimes female genitalia, *Nokona* can be clearly divided into several species groups. (Toševski & Arita, 1992; Gorbunov, 2016; Gorbunov & Arita, 2020a, b). Thus, *N. siamica* **sp. n.** described below belongs to the *N. poecilocephala* (Diakonoff, 1968) species group.

This work continues a series of studies of the fauna of clearwing moths of the family Sesiidae in Southeast Asia conducted by the first author (see e.g. Arita & Gorbunov 2001, 2002, 2003; Arita *et al*. 2003; Gorbunov 2014, 2015, 2016, 2018, 2020, 2021a–d, 2022a–d, 2024; Gorbunov & Arita 2002, 2005, 2019, 2020a–c).

MATERIAL AND METHODS

The morphological examinations were made using a Leica EZ4 stereomicroscope with LED illumination. All images of moths were taken with a Sony α450 DSLR camera equipped with a Minolta 50 mm f/2.8 macro lens. The genitalia were photographed using a Keyence BZ-9000 Biorevo fluorescence microscope. The processing of all illustrations was finalized using Adobe Photoshop CC2020 software.

All labels of the holotype are cited verbatim. The labels with geographical data, data on photos and preparation numbers of the genitalia are printed on white paper, but the type label of the holotype is printed on red paper. Each label is separated by a semicolon (";"), and lines in a label are separated by a slash ("/"). All pictures of specimens are provided with a number consisting of letters and digits: the name of the family, two consecutive digits separated by an n-dash and a year following the m-dash (e.g. SESIIDAE pictures №№ 0053-0054–2025). These letters and digit codes correspond to the numbering system of the figured specimens in the first author's archive. Each preparation of the genitalia is stored in a microtube with glycerol 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–015-2025) is pinned under the specimen and listed in the first author's archive.

The holotype of new species is kept in the collection of the A.N. Severtsov Institute of Ecology and Evolution of the Russian Academy of Sciences, Moscow, Russia (COGM).

DESCRIPTION OF NEW SPECIES

***Nokona siamica* O. Gorbunov et Koshkin, sp. n.**

https://zoobank.org/NomenclaturalActs/D4B37B3E-ED9C-4B64-A02D-CE433759C9C2

Figs 1–7

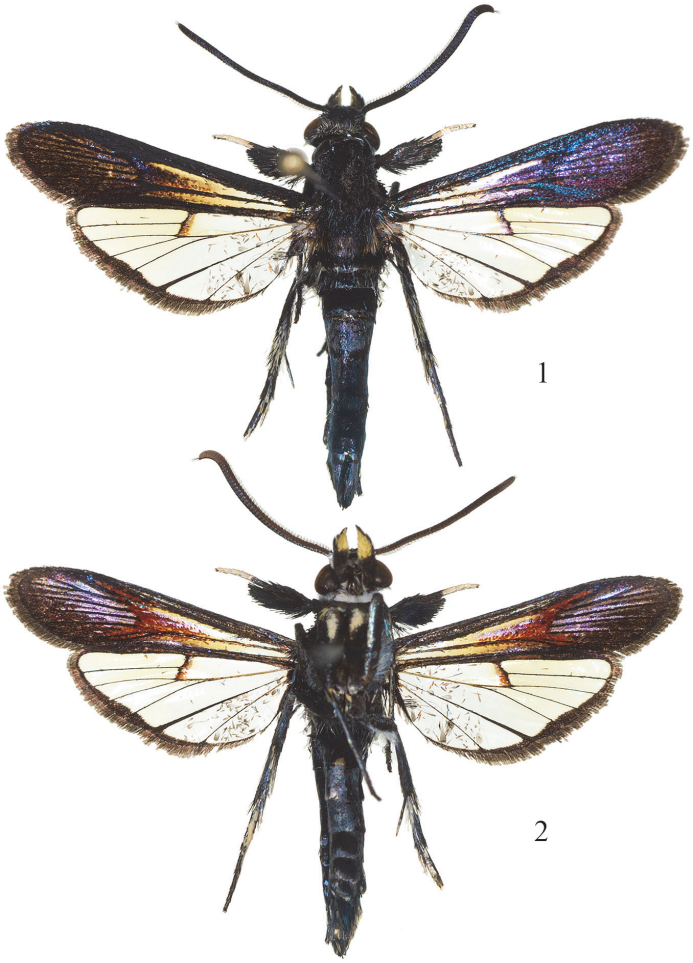
TYPE MATERIAL. Holotype – ♂ with labels: “Thailand / Mae Hong Son Province / Mueang Mae Hong Son distr. / Mok Champae tambon / near Ban Na Pa Paek village / 19°32′02″ N, / 97°55′04″ E, 1005 m / on UV light in evening / 22 May 2023 / leg. E.S. Koshkin”; “SESIIDAE / Pictures №№ / 0053-0054–2025 / Photo by O. Gorbunov”; “Genitalia examined / by O.G. Gorbunov / Preparation No. / OG–015-2025”; “HOLOTYPUS ♂ / *Nokona siamica* / O. Gorbunov et Koshkin, 2025 / O. Gorbunov des., 2025”, (COGM).

DESCRIPTION. Male (holotype). Alar expanse 23.0 mm; body length 13.6 mm; forewing 10.3 mm; antenna 5.8 mm.

Head: flagellum of antenna black with dark blue sheen; scapus dorsally black with greenish sheen, ventrally white; frons gray with light purple tint and narrow white stripe with light purple tint laterally; vertex black with bright bronze-violet sheen; basal palpomere black with dark violet sheen and several white scales ventrally; mid palpomere black wih dark violet sheen in basal third, in apical two third black with greenish-violet sheen exerior-dorsally and lemon-yellow interior-ventrally; apical palpomere black with greenish-violet sheen externally and lemon-yellow internally; occipital fringe white with admixture of black and lemon-yellow scales dorsally; neck plate white with light purple tint.

Thorax: patagium black with bright blue-violet sheen; tegula black with bright blue-violet sheen; mesothorax black with bright blue-violet sheen and small yellow spot laterally at posterior margin; metathorax black with bright blue-violet sheen and lemon-yellow scales at posterior margin; besides this, tegula and meso- and metathorax densely covered with white, short, hair-like scales; thorax laterally dark gray with bright greenish-violet sheen; posteriorly, both metepimeron and metameron dark gray with bright bronze-violet sheen, densely covered with white, long, hair-like scales.

Legs: fore coxa black with blue-violet sheen and pale yellow to white triangular spot basally; fore femur and tibia with long scales posteriorly, black with blue-violet sheen; basal fore tarsomere black with blue-violet sheen, remaining tarsomeres pale yellow dorsally and white ventrally; mid coxa black with greenish-violet sheen; mid femur black with blue-violet sheen, several pale yellow scales at anterior margin and white, long, hair-like scales at posterior margin; mid tibia black with blue-violet sheen, admixture of individual lemon-yellow scales externally at basal half and few yellow



Figs 1–2. Holotype of *Nokona siamica* O. Gorbunov et Koshkin, sp. n. (Holotype ♂. Sesiidae picture No. 0053-0054–2025). 1 – dorsal view; 2 – ventral view. Alar expanse 23.0 mm.

elongated scales dorso-distally; spurs black with greenish-violet sheen externally and pale yellow internally; mid tarsus black with dark blue sheen and admixture of white scales ventrally on two basal tarsomeres; hind coxa black with greenish-violet sheen; hind femur black with blue-violet sheen, several pale yellow scales at anterior margin and white, long, hair-like scales at posterior margin; hind tibia black with blue-violet sheen, admixture of white scales internally in basal half and lemon-yellow elongated scales dorso-medially and distally; spurs black with greenish-violet sheen externally and pale yellow internally; hind tarsus black with blue-violet sheen and pale yellow scales internally on two basal tarsomeres.

Forewing dorsally in basal part black with greenish-violet sheen and few yellow-orange scales; costal margin black with dark greenish-violet sheen and few thin brick-red scales; remaining opaque surface black with dark blue-violet sheen, but on anterior transparent area, discal spot and between veins R_3–CuA_1 with bright blue-violet sheen; ventrally costal margin dark brown with bronze-violet sheen, remaining opaque surface black with dark violet sheen and dense admixture of brick-red scales on posterior part of anterior and posterior transparent areas, discal spot and anteriorly between veins R_2–R_3 and M_3–CuA_2; cilia dark brown with bronze sheen; transparent areas poorly-developed: anterior transparent area in distal two third densely covered with translucent scales with brownish tint and dark brown scales with bright blue-violet sheen, posterior transparent area in distal two third densely covered with translucent scales with brownish tint and dark brown scales with dark violet sheen, external transparent area undeveloped.

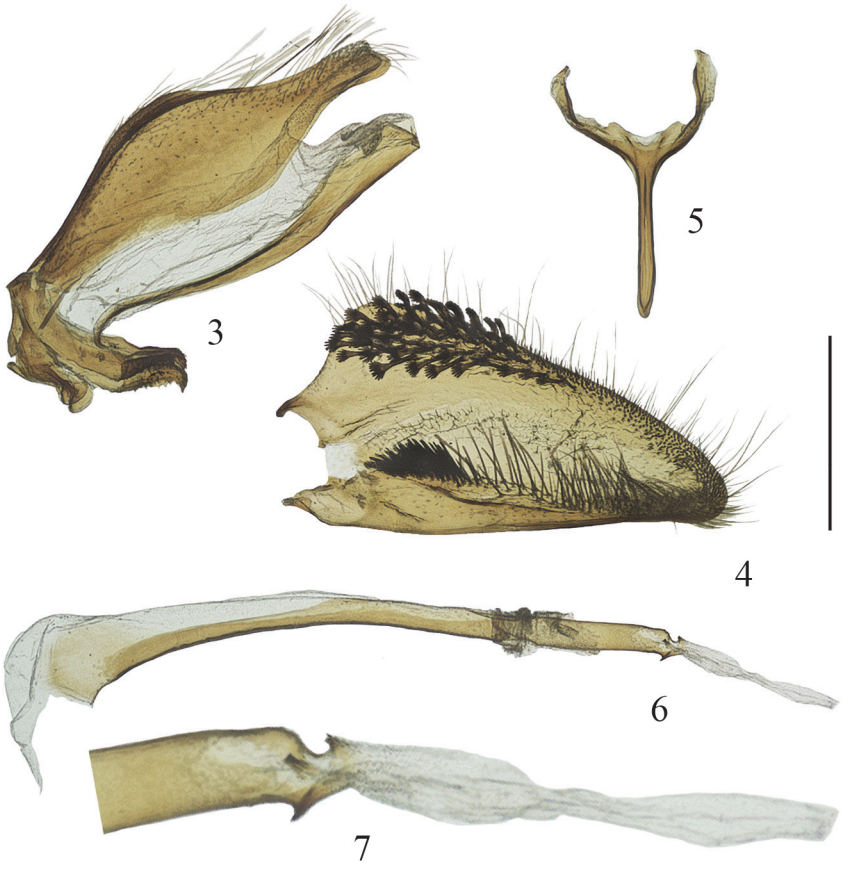
Hindwing transparent; dorsally veins and outer margin black with dark violet sheen; discal spot anteriorly with brown scales with bright blue-violet sheen; ventrally costal margin black with dark violet sheen and few brick-red scales slightly distad of cross-vein; veins and outer margin black with dark violet sheen but common stem *CuA* yellow; discal spot anteriorly brick-red; cilia dark brown with bronze sheen; discal spot narrow with parallel margins, reaching base of common stem of veins M_3–CuA_1; outer margin narrow but somewhat broadened between veins M_2–*CuP*.

Abdomen black with bright blue-violet sheen with few yellow scales medially on basal sternite and at distal margin on sternite 3; anal tuft black with bright blue-violet sheen and extremely narrow lemon-yellow lateral margin.

MALE GENITALIA (holotype, genital preparation № OG–015-2025) (Figs 3–7). Uncus noticeably broadened medially and in distal half dorsally covered with sparse thin hair-like scales; tegumen short; gnathos narrow, with double beak-shaped teeth; tuba analis with subscaphium widely sclerotized (Fig. 3); valva (Fig. 4) triangular, covered with multifurcate hand-shaped setae in dorso-anterior half, short simple setae at dorsal margin, and row of long hair-like setae at ventral margin; crista sacculi low, densely covered with strong pointed setae; saccus (Fig. 5) slightly longer than vinculum, straight, narrow, rounded at base; aedeagus (Fig. 6) narrow, slightly curved ventrally, about 1.5 times as long as valva, with well-sclerotized three tooth carina penis (Fig. 7); vesica with numerous rows of minute acute cornuti.

FEMALE. Unknown.

DIAGNOSIS. By the conformation of the male genitalia *Nokona siamica* sp. n. forms a well-defined species group together with *N. poecilocephala* (Diakonoff, 1968) (type locality: the Philippines, Luzon, Los Baños), *N. christineae* Fischer, 2003 (type locality: Malaysia, Cameron Highlands, Ringlet), *N. sulawesiensis* O. Gorbunov et Arita, 2015 (type locality: Indonesia, South Sulawesi, Bantimurung), *N. mahawu* O. Gorbunov, 2016 (type locality: Indonesia, North Sulawesi, Kakasken Dua), *N. bipora* Kallies, 2020 (type locality: Indonesia, West Papua, Sumo) and *N. cucphuongae* O. Gorbunov et Arita, 2020 (type locality: Vietnam, Ninh Binh, Gia Vien, Cuc Phuong National Park).



Figs 3–7. Male genitalia of *Nokona siamica* O. Gorbunov et Koshkin, sp. n. (Holotype. Genital preparation No. OG–014-2025). 3 – tegument-uncus complex; 4 – valva; 5 – saccus; 6 – aedeagus; 7 – carina penis. Scale bar: 0.75 mm for 3–6 and 0.25 for 7.

Superficially, this new species is similar to *N. sulawesiensis*, but can be clearly distinguished from it by the colouration of the frons (pale yellow with golden sheen, with large gray spot with bronze sheen in *N. sulawesiensis*, *vs* gray with light purple tint and narrow white stripe with light purple tint laterally in *N. siamica* sp. n.), neck plate (yellow to pale yellow in the species compared, *vs* white with light purple tint in the new species), patagium (dark brown to black with green-violet sheen, with few yellow scales both posteriorly and laterally in *N. sulawesiensis*, *vs* black with bright blue-violet sheen in *N. siamica* sp. n.) and forewing dorsally (black with green sheen, with a few yellow-orange scales at base; costal margin black with dark green sheen; *CuA*-stem and anal margin black with green-violet sheen, with an admixture

of brick-orange scales; surface distally of cross-vein dark brown with blue-violet sheen densely mixed with brick-orange scales proximally; anterior and posterior transparent areas covered with translucent scales with strong electric blue-green luster in *N. sulawesiensis*, *vs* black with greenish-violet sheen and few yellow-orange scales at base; costal margin black with dark greenish-violet sheen and few thin brick-red scales; remaining opaque surface black with dark blue-violet sheen, but on anterior transparent area, discal spot and between veins R_3–CuA_1 with bright blue-violet luster in the new species; compare Fig. 1 in this article with fig. 1 in Gorbunov & Arita (2015). Besides this, these two species have some differences in the structure of the male genitalia, especially in the shape of the valva and saccus and in the relative size of the aedeagus (compare Figs 3–6 in this paper with figs 3–6 in Gorbunov & Arita, 2015).

From *N. poecilocephala*, this new species can be distinguished in the colouration of the vertex (bright orange mixed with black scales in *N. poecilocephala*, *vs* black with bright bronze-violet sheen in the new species), occipital fringe (orange dorsally and white laterally in the species compared, *vs* white with admixture of black and lemon-yellow scales dorsally in *N. siamica* sp. n.), tegula (black with purplish sheen and pinkish-orange inner margin in *N. poecilocephala*, *vs* black with bright blue-violet sheen in *N. siamica* sp. n.), fore tarsus (yellow-orange in the species compared, *vs* basal fore tarsomere black with blue-violet sheen, remaining tarsomeres pale yellow dorsally and white ventrally in *N. siamica* sp. n.), sheen of the forewing dorsally (indigo-green in *N. poecilocephala*, *vs* bright blue-violet in the new species) and abdomen (tergites with narrow yellow stripe distally in the species compared, *vs* all tergites black with bright blue-violet sheen in *N. siamica* sp. n.). In addition, the anterior transparent area of the forewing in *N. poecilocephala* is undeveloped; compare Fig. 1 in this paper with figs 718 and 720 in Diakonoff (1968), or fig. 408a in Arita *et al*. (2021).

From *N. christineae*, *N. siamica* sp. n. easily differs in the colouration of the abdomen (black, tergite 4 with narrow yellow-red stripe distally and all sternites with narrow yellow stripe distally in *N. christineae*, *vs* all tergites black with bright blue-violet sheen, ventrally with few yellow scales medially on basal sternite and at distal margin on sternite 3 in *N. siamica* sp. n.; cp. Figs 1–2 in this article with Abb. 1 in Fischer (2003).

From *N. cucphuongae*, this new species can be separated in the colouration of the patagium (dark brown to black with violet sheen and a small yellow spot laterally in *N. cucphuongae*, *vs* completely black with bright blue-violet sheen in the new species), tegula (dark brown to black with bronze-violet sheen and two small yellow spots anteriorly and at base of forewing in the species compared, *vs* black with bright blue-violet sheen in *N. siamica* sp. n.), abdomen (dorsally dark brown to black with greenish-violet sheen; tergites 2, 4 and 5 each with a few yellow scales distally; ventrally dark brown to black with dark violet sheen; sternites 1+2–5 each with a narrow pale yellow to white stripe distally in *N. cucphuongae*, *vs* black with bright blue-violet sheen with few yellow scales medially on basal sternite and at distal margin on sternite 3 in the new species; compare

Figs 1–2 in this article with figs 7–8 in Gorbunov & Arita (2020c). In addition, *N. cucphuongae* lacks brick-red scales on the ventral side of the forewing. These two species have some differences in the structure of the male genitalia, especially in the shape of the valva and saccus and in the relative size of the aedeagus (compare Figs 3–6 in this paper with figs 9–12 in Gorbunov & Arita, 2020c).

From *N. mahawu*, *N. siamica* sp. n. is separable by the colouration of the abdomen (dorsally black with green-violet sheen; tergite 2 with a narrow yellow stripe distally; tergites 1 and 4 both with a few yellow scales distally; ventrally dark brown to black with bronze sheen, medially covered with individual yellow scales; sternites 1+2, 3–6 with a narrow yellow stripe distally, sternite 7 with a few yellow scales distally in *N. mahawu*, *vs* black with bright blue-violet sheen with few yellow scales medially on basal sternite and at distal margin on sternite 3 in the new species) and in the presence of the anterior transparent area of the forewing (compare Figs 1–2 in this paper with figs 4–5 in Gorbunov, 2016).

From *N. bipora*, this new species clearly differs in the presence of anterior and posterior transparent areas on the forewing and transparent hindwing, as well as in the structure of the male genitalia (compare Figs 1–7 in this article with figs 87 and 91 in Kallies, 2020).

BIONOMICS. The larval host plant is unknown. The holotype was collected at the end of May under UV lamp light.

HABITAT. The holotype was collected on the border of a deciduous forest and a cabbage field at the foot of a hill near a small river at an altitude of 1005 m.

DISTRIBUTION. This new species is known from the type locality in Mae Hong Son Province in northwestern Thailand near the border with Myanmar.

NOTE. In addition, several photographs of an unspecified male of *Nokona* found in Phetchaburi Province in southern Thailand were posted on iNaturalist (2025). It is highly likely that, this specimen belongs to *N. siamica* sp. n.

ETHYMOLOGY. The name of this new species is derived from Siam, the official name of the Kingdom of Thailand until 1939.

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