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Dudgeonea speideli sp. nov. from South Vietnam

(Lepidoptera, Dudgeoneidae)

Contribution to the moths of Vietnam 3*

Ulf Buchsbaum, Nguyen Minh Chi & Mei-Yu Chen

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The new *Dudgeonea* species is described and illustrated from the Dong Nai province in southern Vietnam. It is only the second species of this genus known from the region. The specimen was caught at light. The species differs significantly in its wing markings and genital structures. The biotope at the type locality is a primary rainforest.

Zusammenfassung: Die neue *Dudgeonea*-Art wird aus Süd Vietnam, aus der Dong Nai Provinz beschrieben und abgebildet. Es ist erst die zweite Art dieser Gattung, die aus der Region bekannt ist. Das Tier wurde am Licht gefangen. Die Art unterscheidet sich deutlich in der Flügelzeichnung und den Genitalstrukturen. Das Biotop am Typusfundort ist ein primärer Regenwald.

Ulf Buchsbaum, SNSB – Zoologische Staatssammlung München, Münchhausenstr. 21, 81247 München, Germany; e-mail: buchsbaum@snsb.de

Nguyen Minh Chi, Forest Protection Research Centre, Vietnamese Academy of Forest Sciences, 46 Duc Thang Street, Bac Tu Liem District, Hanoi, Vietnam; e-mail: nguyenminhchi@vafs.gov.vn

Mei-Yu Chen, SNSB – Zoologische Staatssammlung München, Münchhausenstr. 21, 81247 München, Germany; e-mail: chen@snsb.de

Introduction

The first authors collected in several places around Ho Chi Minh City (Saigon) in different collection sites including habitats like mangrove and semi dry forest and also primary rainforest in south-east Vietnam during a study-, research- and collection-trip in early May 2024 to South Vietnam (de Queiroz et al. 2013, Ministry of Natural Resource and Environment 2020). The southern and southeastern part of Vietnam is a highly interesting region regarding to the biodiversity and concerning the presence of endemic species. This situation is caused by the special biogeographic orientation of that area which is situated south of the Sino-Himalayan and Indochinese region and close to the Sundanian region and which is also populated by Indo-Burmese faunal elements (Schintlmeister 1997a, b, 2001, 2003, Averyanov et al. 2003, Monastyrskii 2007, Monastyrskii & Holloway 2013, Buchsbaum et al. 2022, Buchsbaum et al. 2024).

* Contribution to the moths of Vietnam 2: Buchsbaum, U., Chi, N. M. & Chen, M.-Y. 2024. *Imma phuocbuu* Buchsbaum, Chi & Chen, sp. nov. from South Vietnam (Lepidoptera: Immidae). SHILAP – Revista de Lepidopterología 52 (208): 719–725.

Fig. 1. *Dudgeonea speideli* sp. nov. holotype.

Fig. 2. *D. speideli* sp. nov. holotype, ventral side.

Dudgeoneidae

The Dudgeoneidae were erected by Berger, 1958 and belong to the Cossoidea (Nieukerken et al. 2011). The single genus *Dudgeonea* Hampson, 1900 contains about 8 species (Holloway 1986, Heppner 2009, Holloway 2011). This genus was formerly placed in Cossidae (e.g. Turner 1902, 1933, Brock 1971, Common 1990). The monotypic family Dudgeoneidae was normally included in Cossoidea, but also in Pyraloidea (Minet 1981) because of the presence of an abdominal tympanal organ.

The genus *Dudgeonea* Hampson, 1900 was erected for the species *Dudgeonea leucosticta* Hampson, 1900. Three species occur in Australia: *Dudgeonea actinias* (Turner, 1903), *D. lychnocycla* Turner, 1945 and *D. polyastra* (Turner, 1933). *Dudgeonea leucosticta* Hampson, 1900 is indicated from southern Africa and from the type locality Sikkim (India), and the species *D. locuples* (Mabille, 1879) and *D. malagassa* Viette, 1957 are known from Madagascar, *D. sierraleonensis* Strand, [1917] 1916 is described from Sierra Leone. Two species are recorded from the Oriental region

Fig. 3. *D. speideli* sp. nov. holotype, male genitalia.

Fig. 4. *D. speideli* sp. nov. holotype, resting on screen.

until now. The first Oriental species is *Dudgeonea leucosticta* with records from India (type locality) and Malaysia, Borneo (Sabah) and northern Vietnam, the indication of that species from South Africa seems doubtful (Holloway 1986, Schulze & Fiedler 1996, Heppner 2009). Holloway (2011) described a second species, *Dudgeonea falcata* Holloway, 2011 from the costal region of Brunei inhabiting a mangrove biotope.

The Dudgeoneidae are known from Africa, Madagascar, India, West Malaysia, Borneo, New Guinea and northern parts of Australia (Holloway 1986, Common 1990, Nielsen et al. 1996, Schulze & Fiedler 1996, Heppner 2009).

Schulze & Fiedler (1996) recorded the species *Dudgeonea leucosticta* for the first time from Borneo, Poring Hot Spring in the Kinabalu National Park and Heppner (2009) collected three specimens of this species in northern Vietnam around Hanoi.

The new species here described is different in wing colouration and markings and in the male genitalia too.

Material and methods

The single specimen was collected at light with a 250 mixed UV mercury lamp in front of a white screen. The light was used from evening dusk about 07:00 pm to the morning dawn, about 06:00 am.

The collection site was a place in front of a primary rainforest, with an open power line way beside.

The collected specimens were transferred to KCN poison glasses and were pinned with insect pins, size 1, after death. They were prepared on normal, standard spreading boards at home in the laboratory.

Genitalia preparation was done with 10 % KOH and mounted in Euparal, as described by Robinson (1976). Photos of live and prepared specimens were taken with Olympus Tough TG-5. Photos of the genitalia were taken with Olympus E – M1 on a Leica Microscope. The pictures were managed with Adobe Photoshop CS2, Version 9. The map was created and prepared with MapCreator 3 (private license).

Dudgeonea speideli sp. nov.

Figs 1-6

Holotype: ♂, South Vietnam: Ma Da ward, 70 m NN, Vinh Cuu district, Dong Nai province, Phuong Duy Hostel, 11°08'21"N 107°03'07"E, 04. May 2024, leg. U. Buchsbaum. Holotype deposited in the Collection Ulf Buchsbaum, Kranichfeld (CUBK). It will later be transferred to Zoologische Staatssammlung München (ZSM).

Description and differential diagnoses

Wingspan: 30 mm, right forewing length: 14 mm.

Head, labial palps, body, ground colour of wings and antenna brown. Abdomen upper side pale brown, in *Dudgeonea leucosticta* dark brown and in *D. falcata* brown with orange brown abdominal end. Ground colour of forewings brown. Apex with two large and six smaller white dots. Male of *D. falcata* with only two white dots at apex, the smaller white dots absent. Pale brown markings along costa. One large, three smaller and many more white spots from base along dorsum. Discal black spot. *D. falcata* with long, thin, dark brownish stripe in discal region. In *D. leucosticta*, such a stripe is not visible. Hindwings brown. In the species known from Australia *D. actinias* Turner, 1902 pale yellow and in *D. polyastra* Turner, 1933 (a putative synonym of this species is *Dudgeonea nummata* Roepke, 1955) pale brownish. In *D. leucosticta*, apical area with larger and more white dots larger, basal area with more and larger white dots also larger. Hindwings darker brown in *D. leucosticta*. In *D. falcata*, paler orange brown from apical to medial area. Veins dark brown. Abdomen dark brown with pale yellowish end segment. *D. leucosticta* dark blackish brown.

Male genitalia (HT): Uncus slim, long, with stumpy tip, strongly sclerotized, shorter hairy. In *D. leucosticta*, rounder and less hairy. In *D. falcata*, shorter, slimmer. Valvae stout, rounded, less sclerotized and hairy. Along costa long hairy. In *D. leucosticta*, valvae smaller, longer, less hairy and in *D. falcata* shorter, stocky and stronger hairy and outer margin stronger sclerotized. Vinculum long and rounded. In *D. leucosticta*, shorter, wider, with obtuse end, in *D. falcata* narrower, longer and more pointed. Valvella strongly sclerotized, with pointed tip. In *D. leucosticta* valvella wider and longer. Aedeagus long, slim, less sclerotized, with about three strongly sclerotized cornuti. Bulbus and ductus ejaculatorius less sclerotized and as long as aedeagus. In *D. leucosticta* aedeagus much longer, stronger sclerotized, with few cornuti, in *D. falcata* without cornuti and shorter. Bulbus and ductus ejaculatorius much stronger sclerotized and shorter, smaller.

Etymology. The new species is dedicated to our colleague and friend Dr. Wolfgang Speidel (Munich/Olching) for his always kind help and useful discussions. Thank you, Wolfgang.

The characters for *D. leucosticta* are taken from the original description from Hampson (1900), from Heppner (2009) and Holloway (2011); those for *D. falcata* are from Holloway (2011). In the latter case, we restrict the comparison to the male sex. So far, we do not know whether a sexual dimorphism of the moths is expressed as assumed by Holloway (2011).

Fig. 5. Biotop at type locality.

Fig. 6. Map from type locality.

Discussion

Dudgeonea specimens are basically rare, and the individual species are only known from few specimens in the collections of Zoological Institutes and Museums. So, it was surprising to find a species of that genus at our light.

The collection site is surrounded by primary rainforest but endangered because of habitat loss and consequently extinction of biodiversity must be feared (Myers et al. 2000, Brooks et al. 2002, Sechrest et al. 2002, Fa & Funk 2007, Brooks 2010, Mittermeier et al. 2011, Marchese 2015, Smith et al. 2020).

The insect fauna of the southern part of Vietnam is rather poorly known in comparison with the northern part, especially around the Fansipan region where already a lot of collecting happened (e. g. Spitzer et al. 1993, Schintlmeister 1997a, b, 2001, 2003, Hill & Monastyrskii 1999, Pham et al 2022). Different endemism centres in the northern and central Vietnam area are already defined (Monastyrskii & Holloway 2013, Pham et al. 2022) so that with further intensive research in the southern parts of Vietnam some more areas with a high level of endemism are likely to be found.

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Table 1. Differences of the Oriental *Dudgenoa* species (males).

	*Dudgenoa speidel*i sp. nov.	*D. leucosticta*	*D. falcata*
Head, thorax, body	Brown	Dark brown, blackish	Brown with orange brown abdominal end
Labial palps	Brownish, pale yellow tip	Pictures not available	Pictures not available
Forewings	Ground colour brown, apex with two large and six smaller white dots. Along costa pale brown marks. From base along dorsum one large, three smaller and many more white spots in that area. Hindwings brown. In the from Australia known species, with discal black spot	Ground colour dark brown, apex with larger and more white dots, base same with larger area with more and larger white dots. Without black discal spot	Paler brown, with long thin black stripe. Apex with fewer white spots, along costa few paler brown marks. At base less white spots and smaller area
Forewing length	14 mm	~ 16 mm	12 mm
Hindwings	Brown	Paler brown	Paler brown, from apex along costa orange brown
Male genitalia	Uncus slim, long, with stumpy tip, strongly sclerotized, shorter hairy. Valvae stout, rounded, less sclerotized and hairy. Along costa long hairy. Vinculum long and rounded. Valvella strongly sclerotized, with pointed tip. Aedeagus long, slim, less sclerotized, with about three strongly sclerotized cornuti. Bulbus and ductus ejaculatorius less sclerotized and as long as aedeagus	Uncus rounder and less hairy. Valvae smaller, longer, less hairy. Vinculum shorter, wider, with oblique end. Valvella wider and longer. Aedeagus much longer, stronger sclerotized, with few cornuti. Bulbus and ductus ejaculatorius much stronger sclerotized and shorter, smaller	Uncus shorter, slimmer. Valvae shorter, stocky and stronger hairy, outer margin stronger sclerotized, Vinculum narrower, longer, more pointed. Aedeagus without cornuti, shorter
Distribution	South Vietnam	India (Sikkim), Sri Lanka, Malaysia, Borneo (Sabah), North Vietnam	Borneo, Brunei

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