

A NEW SPECIES OF *POLYDICTYA* FROM SUMATRA AND NOTES ON *P. CHANTRAINEI* NAGAI ET PORION, 2004 (HEMIPTERA: FULGOROMORPHA: FULGORIDAE)

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Abstract.— A new species of *Polydictya* Guérin-Méneville, 1844, *P. duffelsi* sp. nov., is described from Sumatra and illustrated. The species is compared with the other *Polydictya* species showing hind wings red basally and an identification key to those species is proposed. Hind wing colour variation is reported for *P. chantrainei* Nagai et Porion, 2004 and the species is mentioned for the first time from Myanmar and Laos. A distribution map is given for *P. duffelsi* and *P. chantrainei*.



Key words.— Lantern-fly, Fulgoroidea, Indonesia, Oriental Region.

INTRODUCTION

During a visit at the Zoological Museum of the University of Amsterdam (The Netherlands), a new species of the genus *Polydictya* Guérin-Méneville, 1844 has been found. Seventeen species are presently recognized in the genus (Metcalf 1947, Lallemand 1963, Nagai and Porion 1996, 2004, Constant and Pham 2008) which is widely distributed in South Eastern Asia, from Ceylon and India to Vietnam and Sulawesi.

The present paper aims to describe this new species and compare it to the other species showing hind wings with a red or orange patch at the base but no bluish patch along costal margin, especially with *P. pantherina* Gerstaecker, 1895, *P. chantrainei* Nagai et Porion, 2004, *P. kuntzi* Nagai et Porion, 2004 and *P. tricolor* (Westwood, 1845), which all show tegmina testaceous spotted with black-brown.

The new species matches the generic characters given by Lallemand (1963), i.e., head broad, a bit narrower than the pronotum; frons as long as broad, not carinate, largely rounded dorsally, broadened above clypeus and strongly broader than the latter; vertex at least 4 times broader than long, excavate; tegmina at least 2.5 times longer than broad, densely

reticulate; clavus closed with vein A1+A2 extending up to sutural margin; hind wings almost entirely reticulate; anterior tibiae as long as femora, sometimes slightly foliaceous; hind tibiae with 4–6 lateral spines.

MATERIALS AND METHODS

A distribution map produced by the software CFF 2.0 (Barbier and Rasmont, 2000) and photographs of habitus are provided.

The following acronyms are used for the measurements (taken as in Constant 2004):

BF – breadth of the frons,
BT – breadth of the thorax,
BTg – breadth of the tegmen,
BV – breadth of the vertex,
LF – length of the frons,
LM – length of the mesonotum,
LP – length of the pronotum,
LT – total length,
LTg – length of the tegmen,
LV – length of the vertex.

Acronyms used for the collections (name of the curator in parentheses):

- BMNH – The Natural History Museum, London, United Kingdom (M. Webb);
 MHNL – Muséum d'Histoire Naturelle de Lyon, France (H. Labrique, J. Clary);
 RBINS – Royal Belgian Institute of Natural Sciences, Brussels, Belgium (P. Grootaert);
 ZMAN – Zoölogisch Museum Amsterdam, Amsterdam, The Netherlands (J. P. Duffels).

TAXONOMY

Key to the species of *Polydictya* Guérin-Méneville, 1844 with hind wings red basally

Note. The species showing also a pale blue-white marking at baso-sutural angle of hind wings are excluded from the key, as well as *P. chewi* Nagai et Porion, 2004 which shows base of hind wings black with veins red.

1. Tibiae I and II with black and white rings 2
- Tibiae I and II uniformly red or brown 4
2. Tegmina uniformly coloured with membrane brown, broad (LTg/BTg = 2.3), large sized: LT: 40 mm in females *vietnamica* Constant et Pham, 2008
- Tegmina with spots or uniformly coloured without the membrane darker, elongate (LTg/BTg = 3.0) smaller: LT less than 35 mm 3
3. Basal half of tegmina pale yellow with large black-brown spots, apical half black-brown; basal red area of hind wings covering more than half of wing (Fig. 6) *tricolor* (Westwood, 1845)
- Tegmina uniformly mottled pale yellow and black-brown; basal red area of hind wings covering less than one third of wing *affinis* Atkinson, 1889
4. Orange or red basal area of hind wings reaching costal margin 5
- Orange basal area of hind wings not extending to costal margin (Fig. 8) *kuntzi* Nagai et Porion, 2004
5. Red or orange area of hind wings reaching maximum half of wing length and separated from sutural margin; species from continental SE Asia and Indonesia 6
- Red basal area of hind wings surpassing half of wing length and nearly reaching sutural margin (Fig. 7); known from Sri Lanka *pantherina* Gerstaecker, 1895
6. Tegmina broad (LTg/BTg = 2.5), with dark spots well marked (Fig. 2); known from Sumatra *duffelsi* sp. nov.
- Tegmina elongate (LTg/BTg = 3.0), with dark spots irregular (Fig. 9); known from continental SE Asia *chantrainei* Nagai et Porion, 2004

Polydictya duffelsi sp. nov.

(Figs 1–5)

Etymology. The species is dedicated to Dr. Hans Duffels (ZMAN) for his permanent and enthusiastic support.

Material examined. Holotype ♀: [Coll. F. J. Prott, North Korintji Valley, Sumatra, Alt. 5000 fs, sept./oct. 1921], [genus *Aphana* Burm.?], [Holotype ♀ *Polydictya duffelsi* n. sp. Jérôme Constant det. 2009] – (ZMAN).

Note. Korintji is presently spelled Kerinci. Coordinates: 1°42'S, 101°16'E.

Diagnostic characters. Tegmina yellow-brown with large brown spots; hind wings with base red, red zone largely bordered with brown along sutural margin, and without bluish patch along external margin basally; tibiae I and II black with 3 yellow-brown rings.

Description. LT (extrapolated): 27.9 mm (wing-span: 55.5 mm).

Head: eyes included, slightly more than $\frac{3}{4}$ as broad as thorax; testaceous; vertex deeply concave, with all margins carinate and 2 umbilicated points, anterior margin strongly emarginate in middle; frons visible from above, separated from vertex by deep groove (Fig. 4); frons smooth, convex, with longitudinal groove on each side, broader at base and with upper margin slightly rounded in normal view (Fig 5); clypeus narrower than frons, longer than broad with sides emarginate (Fig. 5); labium dark brown, elongate and



Figure 1. Distribution of *Polydictya duffelsi* and *P. chantrainei*.

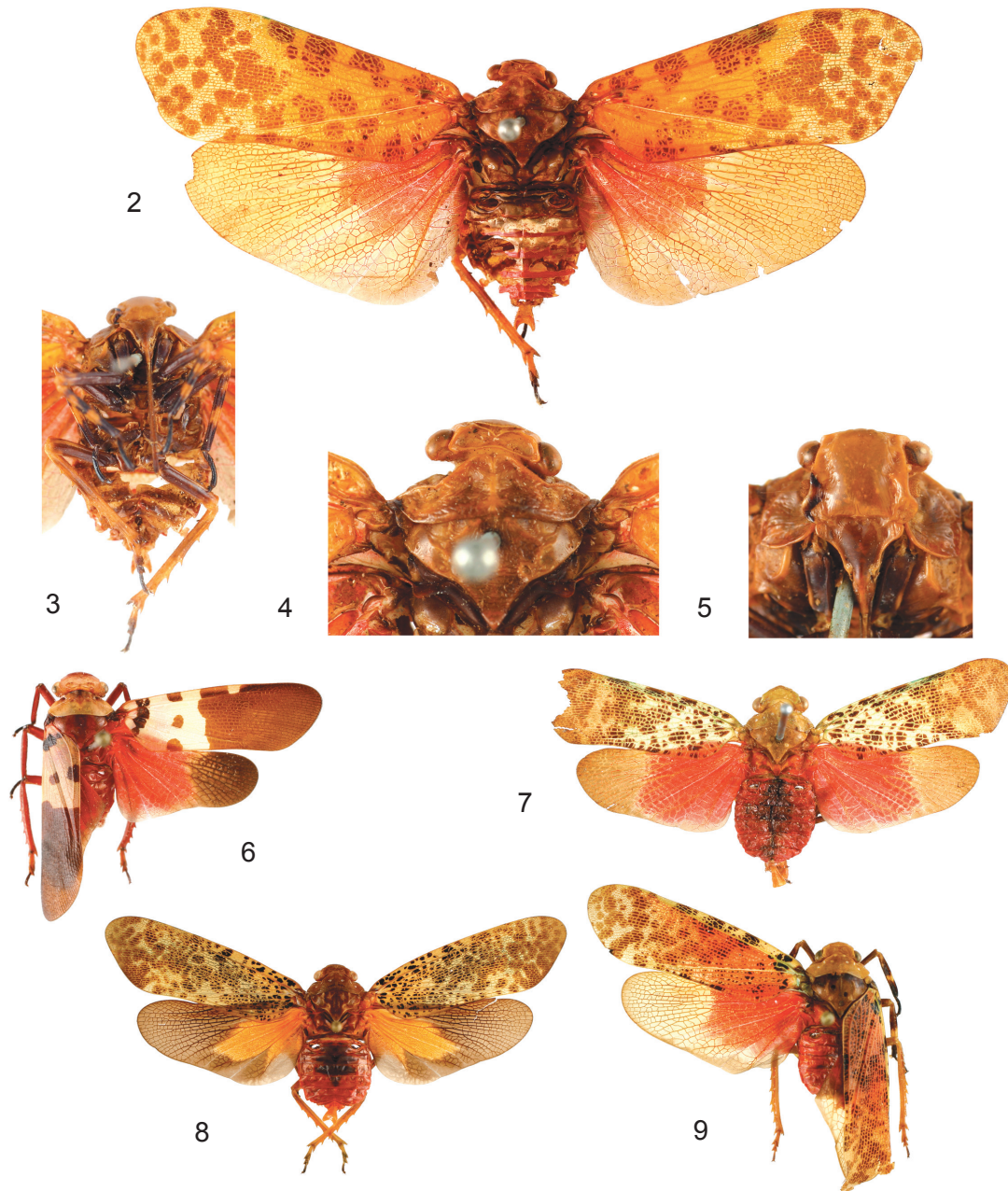
narrow, surpassing hind coxae, with last segment much shorter than penultimate (Fig. 3); ocelli present; pedicel of antennae bulbous; ratio BV/LV = 5; BF/LF = 1.32.

Thorax: testaceous; pronotum with 2 impressed points and obsolete median carina; pro- and mesonotum wrinkled; 2 umbilicate points on disc of mesonotum along posterior margin; metanotum brown (Fig. 4); ratio BT/LP+LM = 1.14; LP/LM = 0.52.

Tegmina: testaceous, slightly suffused with red

basally and at baso-sutural angle of clavus; large brown markings on corium; brown markings smaller, more numerous and often fused on membrane; veins testaceous even on brown markings; costal margin straight, slightly rounded near apex; apex obliquely cut; maximal breadth near apex (Fig. 2); ratio LTg/BTg = 2.5.

Hind wings: baso-costal $\frac{1}{4}$ red; apical half and hind margin largely brown; veins red; maximal breadth near base; slightly broader than tegmina (Fig. 2).



Figures 2–9. (2–5) *Polydictya duffelsi*, holotype: (2) habitus, dorsal view, (3) body, ventral view, (4) head and thorax, dorsal view, (5) frons, frontal view; (6) *Polydictya tricolor*, habitus, dorsal view; (7) *Polydictya pantherina*, habitus, dorsal view; (8) *Polydictya kuntzi*, habitus, dorsal view; (9) *Polydictya chantrainei*, habitus, dorsal view.

Legs: femora dark brown with apex testaceous; tibiae I and II black-brown with base and 2 rings testaceous; tarsi I and II black; femora III testaceous with darker zone on basal half; tarsi III black except base of basal tarsomere largely testaceous (Fig. 3); hind tibiae with 5 lateral and 6 apical spines (Figs 2–3).

Abdomen: red with 2 basal segments brown dorsally (Fig. 2); brown ventrally with posterior margin of sternites suffused with red (Fig. 3).

Note. The abdomen of the holotype is in very poor condition with the genitalia heavily damaged.

Biology. Nothing is known except that the type specimen has been found in a valley of Mount Kerinci in Sumatra.

Polydictya chantrainei Nagai et Porion, 2004
(Figs 1, 9)

The description of the species mentions hind wings orange basally. Two specimens (paratype and a female from Myanmar) showing hind wings bright red basally (Fig. 9) have been examined during the present study.

LT: ♂ (n = 1): 22.3 mm; ♀ (n = 2): 26.4–27.0 mm.

Material examined. **Malaysia:** 1 ♂ (paratype): Cameron Highlands, xi.1993, coll. P. Bleuzen (MHNL); **Myanmar:** 1 ♀: Maymyo, x.1925 (RBINS); **Laos:** 1 ♀: Luang Prabang, ix.1917, R. V. de Salvaza (BMNH).

Distribution. Thailand, Malaysia, Myanmar* and Laos* (*new country record) (Fig. 1).

DISCUSSION

Polydictya duffelsi sp. nov. is one the seven species of *Polydictya* which have hind wings red basally without bluish patch along costal margin near base. The other species which show those characters are *P. pantherina* Gerstaecker, 1895 (Ceylon), *P. affinis* Atkinson, 1889 (Northern India), *P. tricolor* (Westwood, 1845) (Assam to Vietnam), *P. chantrainei* Nagai et Porion, 2004 (Myanmar, Laos, Thailand, Malaysia), *P. kuntzi* Nagai et Porion, 2004 (Borneo) and *P. vietnamica* Constant et Pham, 2008 (Vietnam) (Metcalf 1947, Lallemand 1963, Nagai et Porion 1996, 2004, Constant et Pham 2008).

P. duffelsi is easy to separate from *P. affinis* which has legs not marked with dark rings and tegmina without spots; from *P. vietnamica* which has unspotted tegmina and is much larger (wingspan more than 70 mm) (see also Constant et Pham 2008); from *P. tricolor* (Fig. 6) which has mesonotum black-brown, basal half of tegmina pale yellow with regular large black spots and apical half entirely black with pale yellow spot on costal cell, red zone on hind wings larger,

surpassing half of wing length and nearly reaching sutural margin; from *P. pantherina* (Fig. 7) which has red patch of hind wings larger, nearly reaching sutural margin, spots of tegmina more irregular, tegmina more elongate (ratio LTg/BTg = 2.7) and is distributed in Sri Lanka and India; from *P. chantrainei* (Fig. 8) which has tegmina more elongate (ratio LTg/BTg = 2.9), with costal margin slightly emarginate at apical third, and with dark markings more irregular and confluent, and which shows red patch of hind wing broader, reaching second third of breadth; from *P. kuntzi* (Fig. 9) which has tegmina more elongate (ratio LTg/BTg = 2.8) and with dark markings more irregular and confluent, and with orange patch of hind wings more narrow and oblique, not reaching costal margin on most of its length.

Note. *P. chantrainei* shows two colour morphs: in one, the basal patch of the hind wings is orange while it is red in the other. Only specimens with orange basal patch are presently known for *P. kuntzi* but it is possible that red variety exists also in this species.

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