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Description of three new species and a first record of Asilidae (Diptera) from Cambodia

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Abstract

The genera *Orophotus* BECKER, 1925, *Laphystia* LOEW, 1847 and *Clinopogon* BEZZI, 1910 are cited for the first time from the Indochinese peninsula. The genus *Tanatchivia* HRADSKÝ, 1983 is cited for the first time from the Oriental region. Three new species of Asilidae belonging to three genera are described from Cambodia: *Laphystia pursati* sp. n., *Orophotus bokorus* sp. n. and *Tanatchivia hradskyi* sp. n., and the inner structures of the male genitalia are figured. *Clinopogon nicobarensis* (SCHINER, 1868) is reported for the first time for Cambodia and we give a commentary of its present distribution.

Keywords: Oriental region, Asilidae, Cambodia, *Laphystia*, *Orophotus, Tanatchivia,* new species.

Résumé

Les genres *Orophotus* BECKER, 1925, *Laphystia* LOEW, 1847 et *Clinopogon* BEZZI, 1910 sont cités pour la première fois de la péninsule indochinoise, le genre *Tanatchivia* HRADSKÝ, 1983 est cité pour la première fois de la région orientale. Trois espèces nouvelles d'Asilidae appartenant à trois genres sont décrites du Cambodge : *Laphystia pursati* sp. n., *Orophotus bokorus* sp. n. et *Tanatchivia hradskyi* sp. n., et les structures internes de l'édéage mâle sont illustrées. L'espèce *Clinopogon nicobarensis* (SCHINER, 1868) est renseignée pour la première fois du Cambodge et un bref commentaire sur sa distribution actuelle est donné.

Introduction

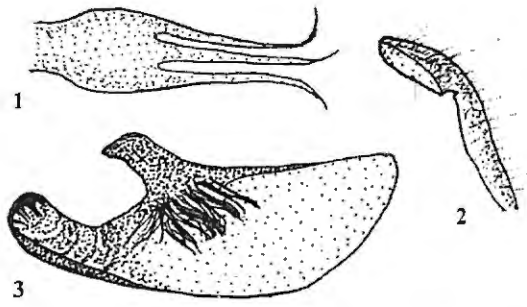
This note is the continuation of the study of Asilidae collected in Cambodia and deposited in the collections of the Royal Belgian Institute of Natural Sciences (RBINS, Brussels) TOMASOVIC (2005, 2006). All specimens cited here have been collected by KOEN SMETS (RBINS) and INARIDDH VAR (Sam Veasna Center for Wildlife Conservation, Siem Reap, Cambodia) and are deposited in the RBINS.

Systematics

Subfamily Asilinae LATREILLE, 1802
Genus *Orophotus* BECKER, 1925
(Figs 1-3)

There are currently 7 species of *Orophotus* in the world; one species is Australian, *O. depulsus* (WALKER, 1864), known from Irian Jaya, one species is Palaearctic, *O. mandarinus* (BROMLEY, 1928), known from China, and 5 species are Oriental. The Oriental species are known from Taiwan: *O. chrysogaster* BECKER, 1925, *O. fulvidus* BECKER, 1925 and O. *univittatus* BECKER, 1925, and from India: *O. indianus* JOSEPH & PARUI, 1995 and *O. montanus* (RICARDO, 1922) (GELLER-GRIMM, 2006).

To identify the genus we can use the works of HULL (1962) and JOSEPH & PARUI (1984); for the species only the original descriptions exist. HAUPT (2002) gives information on the microhabitats of *O. univittatus*, which is found in the *Castanopsis* forests at low altitudes (up to 40 m), often in the neighbourhood of *Barringtonia* swamps or brooklets, waiting for prey on bare, dead twigs, or bare stalks of fern, close to the



Figs 1-3. *Orophotus univittatus*. 1: end of aedeagus, 2: dististylus, 3: epandrium.

ground (0.2-0.5 m) on the Island of Iriomote. This author also notes that *"O. univittatus individuals maintain a territory of about 3-5 m² within which they perch, feed and mate"*.

All *Orophorus* types of BECKER were conserved in the insect collection of the Hungarian Natural History Museum in Budapest, most of which was destroyed in 1956. Hence it is questionable to find any type material.

Luckily we were able to see 2 males from the Zoologische Staatssammlung München, labelled, Kankau (Koshum), Formosa, H. SAUTER, 1912, *Orophotus univittatus* Becker, and we have studied the male genitalia of one specimen (Figs 1-2-3). We have also seen a male of the same species, from the private collection of J. HAUPT, from Japan labelled, Funaura, Iriomote, 17.V.1998. Leg. J. HAUPT. Det. J. HAUPT. The study of the male genitalia of this last specimen has proved it to be identical.

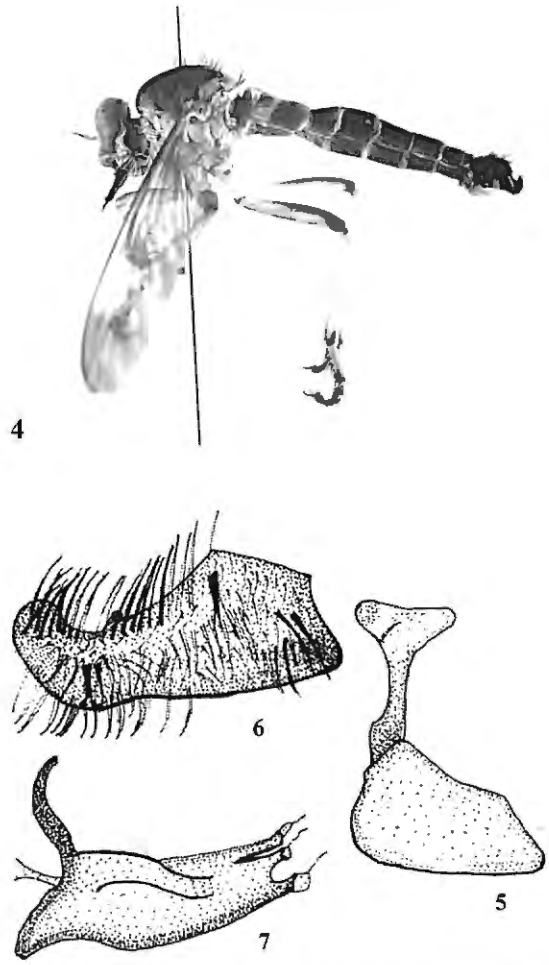
Orophotus bokorus TOMASOVIC & SMETS sp. n. (Figs 4-7)

Holotype: male, Cambodia, Bokor National Park, Bokor Hill Station, 22.IV.2005. Light Trap. Leg. K. SMETS & I. VAR. The specimen was collected in the old French-era Bokor Hill Station, where the National Park's Ranger Training and Research Center is located. It lies at an altitude of 1080m, surrounded by low scrub vegetation. Light trapping here was abandoned early in the night (9.30 pm) because only very few insects came to the light.

Description

Male: yellow greyish species with black spots
Length: 10 mm.

Head: face narrow with white tomentum;



Figs 4-7. *Orophotus bokorus* sp. nov. 4: habitus, 5: gonocoxite and dististylus, 6: epandrium, 7: aedeagus.

mystax with white setae. Antennae, scape and pedicel yellow with black setae, scape slightly longer than pedicel, first flagellomere same length as two first segments, arista long. Palpus black, long and slender with long white hairs. Proboscis black, below with long white hairs.

Thorax: yellow greyish with laterally 4 black spots and in the middle a large black strip. Setae: 2 notopleurale, 1 supraalar, 2 postalars, 6-8 dorsocentral, 2 before the suture, 2 scutellar. Posterior antepronotum, proepisternum, postpronotal lobe and the upper part of the anepisternum with long, thin white hairs. Katatergal and metepisternal bristles yellowish. Wings clear, longer than the abdomen with area of microtrichia at apex. Legs yellow, femora and tibia with yellow setae, tarsal segments mixed with black and yellow setae.

Abdomen: greyish with yellowish strips, tergites and sternites with long yellowish setae and hairs.

Male genitalia (Figs 5-6-7): Hypopygium

darkish brown with long yellowish and blackish setae and hairs. Hypandrium with a long brush of thin hairs. Proctiger with two tufts of thin whitish hairs. Epandrium with a concavity distal to it. Gonocoxites triangular, dististylus slender with a very wide and rounded apical part. Aedeagus with 3 short cylindrical endophalli with a slightly differentiated end which produces one small filament. The structures of the aedeagus remind these of some aedaegi of *Promachus* THEODOR (1976).

Remarks: *Orophotus bokorus* can be distinguished from other species of the genus by the fine, long curl piles on the posterior antepronotum, postpronotal lobe, anepisternum, proepisternum and proepimeron. But above all it differs by the genitalia.

Derivatio nominis: this species is named after the National Park where the holotype was caught.

Subfamily Laphystiinae ENDEL, 1936
Genus *Laphystia* LOEW, 1847

HULL (1962), MARTIN & PAPAVERO (1970) and THEODOR (1980) integrate the genus *Laphystia* in the Subfamily of Dasypogoninae. LEHR (1988) and GELLER-GRIMM (2004) place the genus *Laphystia* in the Subfamily of Laphystiinae, although JOSEPH & PARUI (1998) put it in the Subfamily of Laphriinae.

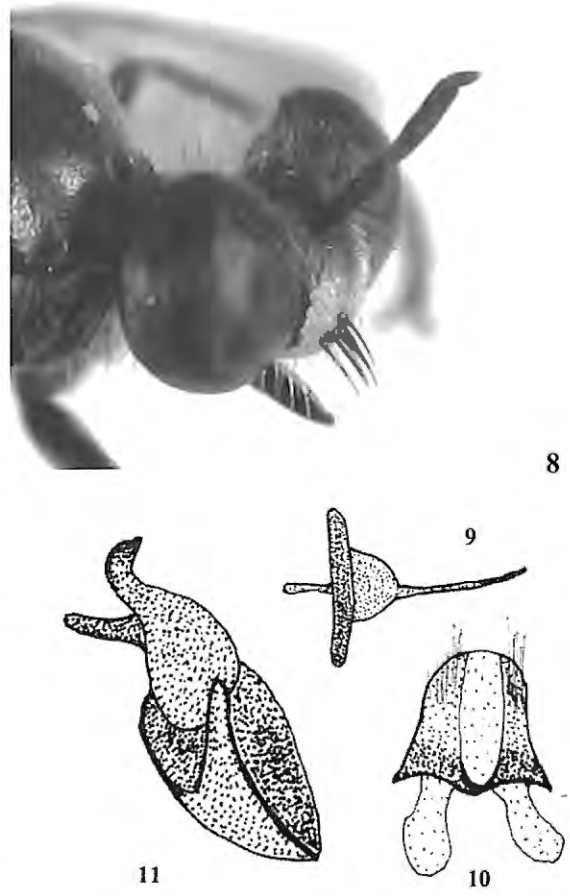
The species of the genus *Laphystia* are small to medium sized flies with a robust first flagellomere bearing two apical microsegments of which the terminal one is spoon-shaped.

The genus *Laphystia* LOEW, 1847 has as type-species *Laphystia sabulicola* LOEW, 1847, a species known from the Mediterranean basin. Of the 52 known species we have 31 Nearctic species, 15 Palaearctic species, 3 Neotropical species and 3 Oriental species. These last are *L. indica* JOSEPH & PARUI, 1997 (known from India), *L. pilamensis* HRADSKÝ, 1983 (known from Taiwan) and *L. stigmaticalis* BIGOT, 1878 (known from Sri Lanka). JOSEPH & PARUI (1998) give the description of *L. indica* and L. *stigmaticalis*, and a key to separate them.

Laphystia pursati TOMASOVIC & SMETS sp. n. (Figs 8-11)

Holotype: 1 male, Cambodia (Pursat Province), Phnom Samkos Wildlife Sanctuary. Pramaoy forest edge, malaise trap. 14-19.IV.2005. Leg. K. SMETS & I. VAR.

Paratypes: 1 male and 2 females from the same origin as the holotype.



Figs 8-11. *Laphystia pursati* sp. nov. 8: head of *Laphystia pursati*, 9: aedeagus, 10: proctiger, 11: gonocoxite and dististylus.

The specimens were collected in a malaise trap in the village Pramaoy, behind the Wildlife Sanctuary office. Most of the forest around the village is clear dipterocarp forest, which seems to burn regularly, with denser forest along the rivers. The malaise trap was located at the forest edge of one of these dense forest patches near the river.

Description

Male (holotype).

Shining black species with majority whitish chetotaxy and lightly punctuate above. Body length: 7-8 mm.

Head: (fig. 8) nearly twice as wide as high. Face as wide as an eye, strongly convex, with greyish tomentum; face beard with 5 or 6 strong black setae in the middle, above the mouth margin these are surrounded by thin whitish hairs which are extensive below the antennae;

antennae black, scape thick, pear-shaped, with a large anterior tubercle bearing 3 strong, long, yellow-brown setae, pedicel shorter with some thin and small whitish-yellow hairs; postpedicel thick, almost twice as long as the scape and the pedicel; style two-segmented, the second with a dorsal concavity containing a sensillium; occipital setae thin, long, with the same colour as the thin hairs; palpi small, shining black with thin, long hairs.

Thorax: pronotum, scutum and scutellum with scattered short, thin, whitish hairs; presutural area of scutum with 2 upper spots of whitish tomentum; scutum with a ring of weak whitish tomentum; setae: 2 notopleurals and 2 supra-alar; scutellum without setae; posterior anepisternum with a stripe of thin hairs; postnotal fan made of thin hairs. Legs black without particularity, setae and hairs whitish; wings lightly brownish with the veins dark brown; marginal cells closed at the wing margin, fifth radial cells closed and stalked.

Abdomen: tergites 1-5 with a lateral spot of whitish tomentum; all tergites with thin lateral whitish hairs.

Male genitalia (Figs 9-10-11): small with white yellowish hairs; proctiger wide, dorsal part rounded with long, thin light hairs; gonocoxite with apical process narrow and round at the top; dististylus broad at the base, S-curved, pointed; aedeagus, typical to the genus (THEODOR 1976), with a thin tapering tube, sheath gets wider at the base in half spherical shape.

Derivatio nominis: this species is named after the province where the holotype was caught.

The Oriental *Laphystia* species

1 Femora wholly black, mystax with stout black setae at the middle . . . . . *L. pursati* sp. n. (Cambodia)
- Femora not wholly black 2
2 Femora black with the knee reddish, mystax with stout yellowish setae . . . . . *L. pilamensis* HRADSKÝ (Taiwan)
- Femora different 3
3 Femora pale yellow without band, tibia yellow, mystax black . . . . . *indica* JOSEPH & PARUI, (India)
- Femora reddish with a brown band at apex, tibia dull yellowish-brown, mystax yellowish-grey, male genitalia reddish . . . . . *stigmaticalis* BIGOT (Sri Lanka)

Subfamily Stichopogoninae HARDY, 1930
Genus *Clinopogon* BEZZI, 1910
Clinopogon nicobarensis (SCHINER, 1868), first record from Cambodia
(Figs 12-14)

The species *C. nicobarensis* was originally described from the Nicobar Islands. LONDT (1979) noticed than *C. nicobarensis "appears to be confined to the eastern beaches of the African mainland, Madagascar and the Indian Ocean Islands"*. GELLER-GRIMM (2002) reports *C. nicobarensis* from the Socotra Archipelago (Yemen), illustrated the genitalia and put the species *Clinopogon sauteri* BEZZI, 1910, described from Taiwan in synonymy. This last species has been sufficiently characterised by

Fig. 12. *Clinopogon nicobarensis*, head.

Fig. 13. *Clinopogon nicobarensis*. The beach where *Clinopogon nicobarensis* was collected, with the island of Koh Kong in the background

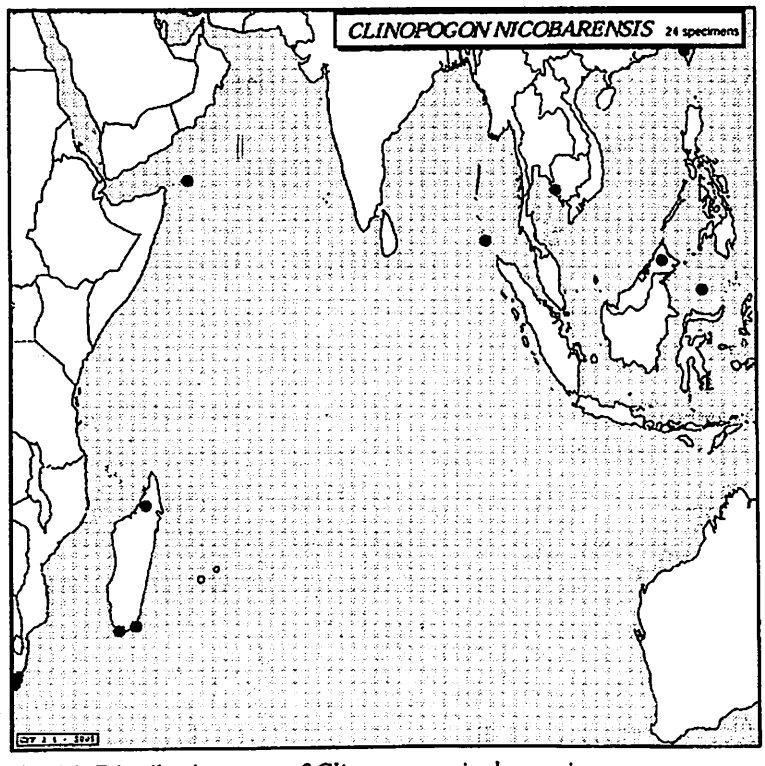


Fig. 14. Distribution map of *Clinopogon nicobarensis*.

EFFLATOUN (1937), who noticed that the species "*occurred on a short stretch of dry sand, close to the sea-shore where bushes of* Nitraria retusa *"Gardag" grew*". SCARBROUGH (2006) reported the species for the first time from Sabah, Malaysia, on the island of Borneo.

Material examined: 1 male, Cambodia (Koh Kong province), Koh Kapik, 07.IV.2005. Leg K. SMETS & I. VAR . The species was collected on a stretch of beach between the villages of Koh Kapik and Phum Lamdam. This beach, bordered by a narrow band of beach vegetation with *Casuarina* and other trees (Fig. 13), forms the southwestern edge of the largest area of mangrove forest in Cambodia. This area of 12.000 ha, one of Cambodia's three Ramsar sites (wetlands of international importance), is part of the Peam Krasaop Wildlife Sanctuary (23.750 ha).

According to the literature and the map (Fig. 14), made with Carto Fauna-Flora 2.0 (BARBIER & RASMONT, 2000), *C. nicobarensis* seems to be a species living on sandy beaches.

This is the first record for this species from Cambodia and the Indochinese peninsula.

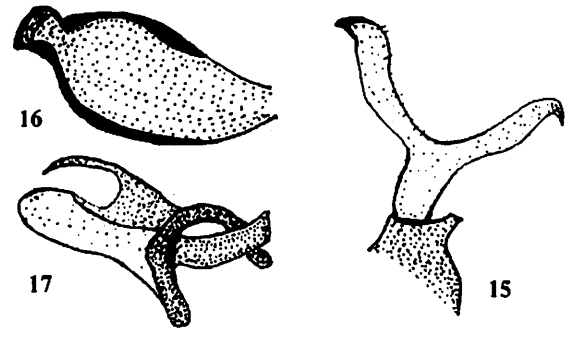
Subfamily Trigonomiminae ENDERLEIN, 1914
Genus *Tanatchivia* HRADSKÝ, 1983

The subfamily of Trigonomiminae is composed of 11 genera of which actually 3 are assigned to the Oriental region: *Damalina* DOLESCHALL, 1858, *Damalis* FABRICIUS, 1805 and *Trigonomima* ENDERLEIN, 1914 (GELLER-GRIMM 2004).

Tanatchivia chimaera HRADSKÝ, 1983 (Figs 15-17)

HRADSKÝ (1983) described the genus *Tanatchivia* and the new species *Tanatchivia chimaera* with 3 males and 1 female from material collected in Afghanistan (Palaearctic region), at an altitude of 1960 m, alongside an irrigation canal.

We have examined and illustrated the genitalia (Figs 15-16-17) of one paratypus, 1 male, Afganistan, Tanatchiv, 7.VI.1960. Leg. Dr. K. LINDBERG. Det. M. HRADSKÝ.



Figs 15-17. *Tanatchivia chimaera*. 15: dististylus, 16: epandrium, 17: aedeagus.

Tanatchivia hradskyi TOMASOVIC & SMETS sp.n. (Figs 18-21)

Holotype: 1 male, Cambodia (Pursat Province), Phnom Samkos Wildlife Sanctuary. Pramaoy, clear dipterocarp forest. 14-19.IV.2005. Leg. K. SMETS & I. VAR

Paratypes: 2 males from the same origin as the holotype.

The specimens have been caught in the forest between the village Pramaoy and Tumpok mountain. Most of the forest in this area is clear dipterocarp forest, which seems to burn regularly, with denser forest along the rivers.

Description

Small blackish species with infuscated wings. Length: 4-5 mm.

Head (Fig 18): about twice as wide as high. Face more wide than the half of an eye, slightly convex. Face and front with greyish tomentum, a shining black spot in the middle of the face and a shining black triangular spot below the ocellar tubercle. Beard sparse with thin, whitish setae.

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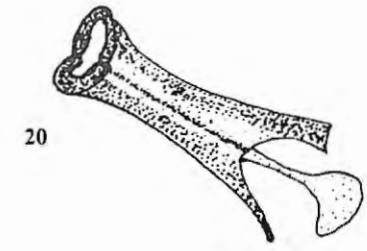
Figs 18-19. *Tanatchivia hradskyi* sp. nov. 18 head, 19: posterior leg.



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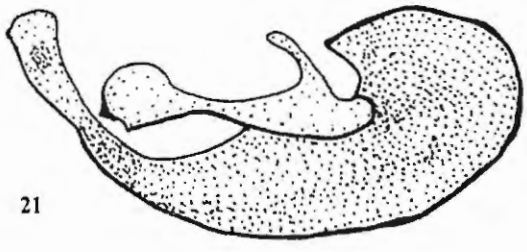

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Figs 20-21. *Tanatchivia hradskyi* sp. nov.20: aedeagus, 21: gonocoxite and dististylus.

Occiput with greyish tomentum, occipital setae thin, whitish in one row. Antennae black, scape and pedicel very short, pedicel rounded, postpedicel slender, narrower than pedicel, more than twice as long as the scape and the pedicel, 1st segment of style with a sensory element. Ocellar tubercle large with few fine white hairs. Palps article 2 long and thick, proboscis short and stout, both black with white hairs.

Thorax: Pronotum, mesonotum and scutellum pubescent with greyish yellow tomentum and without setae. Pleurae with grey tomentum, fan with 2-3 rows of long, thin, whitish setae. Wing longer than the abdomen, infuscated with the upper cells darker. Halters whitish. Legs (Fig 19), black with short white-yellowish hairs, anterior and median with white yellowish setae. Posterior femora longer than tibiae, the latter with a highlighted hump at the top. First tarsomere with a short reddish-brown brush through the whole length; on the proximal side this brush looks like feathers.

Abdomen: black covered with very short and bright hairs. The abdominal tergites 2 and 4 with hollow cover of very short dark hairs.

Male genitalia (Figs 20-21): aedeagus tubular, widened at the tip and 2 round pads at the top. Apodeme small and narrow.

Derivatio nominis. The present species is dedicated to Mr MILAN HRADSKÝ for his stimulation of the research on Asilidae.

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