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THREE NEW SPECIES OF ODONATOUS INSECTS IN THAILAND
I. *VESTALIS ANNE* SPEC. NOV, (ZYGOPTERA: CALOPTERYGIDAE)

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V. anne sp. n. (holotype ♂, allotype ♀ : Sai Yok Yai waterfalls, Kanchanaburiprov., Thailand) is described and illustrated, and compared with *V. amoena* Sel. Males of these species are distinguished by the shape of anal appendages and colouration of head.

INTRODUCTION

In his thorough revision of the species group of *Vestalis amoena* Selys, 1853, Lieftinck (1965, pp. 338-339) commented on a specimen from Mergui Islands, Lower Burma, which he considered to represent a distinct new species. However, he did not name and formally describe the species, since the terminal appendages were disordered and unfit for figuring. I have studied this speci-

men deposited in the British Museum, and found that it belongs to the same *V. amoena*-related species of which are collected a series in Kanchanaburi province in western Thailand near the Burmese border in October 1982. The new species which differs from *V. amoena* by the shape of male anal appendages, is described here. Most of the description of the male could be copied directly from Lieftinck (1965).

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DESCRIPTION

VESTALIS ANNE SP. N

Material—**Holotype** : ♂ Sai Yok Yai waterfalls, Kanchanaburi province, Thailand, 18-X-1982, collected by M. Hämäläinen and P. Kamnerdratana —**Allotype** : ♀ from the same site and date as holotype. Holotype and Allotype are deposited in the Zoological Museum, University of Helsinki. —**Paratypes** : 3 ♂ and 5 ♀, all from the same site and date as holotype (2 ♂ and 2 ♀ are immature and preserved in alcohol) ; 1 ♂ from Burma : Tenasserim, Mergui Archipelago, King Island, 23-VI-1927, J. Elton Bott leg. (ex coll. F.C. Fraser, now in BM). ♂ paratype from Burma and 1 ♀ paratype from Thailand are deposited in the British Museum, others in the author's collection.

Male : Head—Labium light chrome yellow, except the tips of the lateral lobes (palps) and in most specimens also the apices of the middle lobe being black. The base of the middle lobe can be obscured in mature specimens, but

not black. Visible parts of maxilla and base of mandible including the trochantins chrome yellow. Labrum largely yellow with a black mid-basal spot, and with the anterior border black, widest in the middle. The whole anterior surface of 2nd antennal segment yellow. Anteclypeus largely yellowish in immature specimens, but in mature specimens only an obscure pale middle spot present. Genae and a narrow stripe tapering upwards along margins of compound eye black. Rest of head brilliant emerald green.

Thorax.—Metallic emerald green. Lower margin of propleuron narrowly yellow. Most of the infraepisternum, lower parts of mesepimeron and metepisternum below level of spiracle, and the entire ventral surface of synthorax, coxae and trochanters yellow. Most of the metepimeron covered with elongate green patch abbreviated ventrad. Median carina, humeral and first lateral sutures

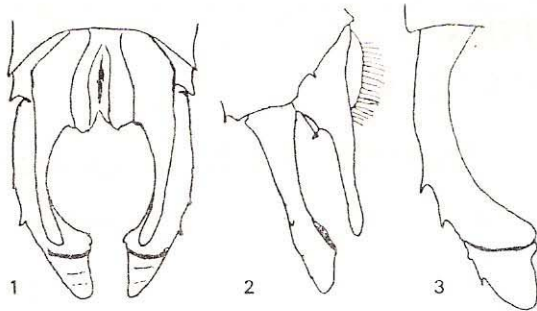


Fig. 1 Anal appendages of the holotype male of *Vestalis anne* sp. n.: (1) ventral view;—(2) right lateral view;—(3) left superior appendage, dorsal view

finely black. A twofold yellow stripe along the second lateral suture. Femora and tibiae black, except the ventral surface of femora yellow in the basal portion.

Wings.—Hyaline with iridescence. One cell row between Cul and Cu2. Number of antenodals, postnodals, cubito-anal crossveins and nervures in quadrangle as follows:

	Male		Female	
	Fore	Hind	Fore	Hind
Antenodals	24-28	21-23	22-27	19-22
Postnodals	49-58	42-45	40-47	36-41
Cubito-anal cw	8-11	9-10	8-10	7-9
Nervutes in q	2-4	2-3	2-3	2-3

Abdomen.—Metallic green; the apical of abdomen is darker green. Lighter markings in 1-3. segments as in *V. amoena*. Anal appendages as in Fig. 1-3.

Measurements.—Abdomen (incl. appendages) 47.5-48.5 mm, hind wing 35-36 mm.

Female: Similarly coloured as the male. The colouration of labium, labrum and 2nd antennal segment exactly as in male. Number of antenodals and postnodals a little smaller than in male (see above).

Measurements.—Abdomen 39.3-43.0 mm, hind wind 34-37 mm.

DISCUSSION

The new species can be readily separated from the related *V. amoena* by the shape of the male anal appendages. In *V. amoena* the inferior appendages are shorter and do not reach back quite as far as the subapical projection of the superior appendages (see figures in LIEFTINCK 1965, p. 341). In *V. anne* the inferior appendages are longer and slightly slenderer and they reach back as far as the subapical projection of the superior appendages (Fig. 1, 2). In *V. anne* the superior appendages are somewhat less incurved and more drawn out as in *V. amoena*.

The colouration of the face also presents some differentiating characters. In males of *V. amoena* at least the apical third of labium is black, but in *V. anne* only the tips of the lateral lobes and of the middle lobe. Further in males of *V. anne* the yellow area in the labrum is larger than in *V. amoena*. The whole anterior surface of the 2nd antennal segment is yellow in *V. Anne*,

but in males of *V. amoena* it is only partly yellow.

As Lieftinck (1965) pointed out, the safe identification of females of the *V. amoena* species group is difficult if not taken with males. No structural differences are apparent and colour distinctions are complicated by differences due to maturity. We have not seen any good series of females of *V. amoena*, and thus do not attempt to provide any separating characters.

The distribution range of *V. amoena* and *V. anne* in Thailand is inadequately known. It seems apparent that *V. anne* is confined to more northern areas than *V. amoena*, which is known to be distributed in southern Thailand, Malaya, Sumatra and Borneo.

REFERENCE

- LIEFTINCK, M.A., 1965. The species -group of *Vestalis amoena* Selys, 1853, in Sundaland (Odonata, Calopterygidae). *Tijdschr Ent.* 108 : 323-364.