DYSAULOPHTHALMA NATHANI GEN. *ET* SP. N. A NEW PRAYING MANTIS FROM SOUTHERN INDIA (DICTYOPTERA: MANTODEA: TARACHODIDAE)

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ABSTRACT

Dysaulophthalma nathani gen. n., sp. n. from Anamalai Hills, Southern India, is diagnosed and described. The new genus *Dysaulophthalma* belongs to the subfamily Tarachodinae, family Tarachodidae, and is compared with its most closely related genera *Dysaules* Stål, 1877, and *Oxyophthalma* Saussure, 1861.

The female type-species *Dysaulophthalma nathani* gen. *et* sp. n. is described and its habitus and further important diagnostic features are illustrated.

Key words: Insecta, Dictyoptera, Mantodea, Tarachodidae, new genus, new species, Southern India, taxonomy.

INTRODUCTION

The family Tarachodidae is currently present in India in four genera: *Dysaules* Stål, 1877, *Oxyophthalma* Saussure, 1861, *Didymocorypha* Wood-Mason, 1877, *Iris* Saussure, 1869, with seven recorded species; (Mukherjee *et al.*, 1995; Ehrmann, 2002; Otte & Spearman, 2005): *Dysaules longicollis* Stål, 1877; *Dysaules himalayanus* Wood-Mason, 1889; *Oxyophthalma engaea* (Wood-Mason, 1889); *Oxyophthalma gracilis* (Saussure, 1861); *Didymocorypha lanceolata* (Fabricius, 1798); *Iris nana* Uvarov, 1930; *Iris orientalis* Wood-Mason, 1882.

The species *Iris keralensis*, recently described by Vyjayandi *et al.* (2006) belongs to the genus *Caliris* Giglio-Tos, 1915 and is now to be treated as *Caliris keralensis* (Vyjayandi *et al.*, 2006) *n. comb.*

In recent years, various new Indian Mantodea from different families have been described, such as *Euchomenella indica* Ghate & Mukherjee, 2004; *Metacromantis nigrofemorata* Ghate & Roy, 2006; *Ceratomantis ghatei* Roy & Svenson, 2007; *Deroplatys indica* Roy, 2007. However, *Dysaulophthalma* gen. n. is the first new Indian Mantodea genus that has been erected since Mukherjee *et al.* (1995).

The new mantis *Dysaulophthalma nathani* gen. *et* sp. n., was found in the Manchester Museum University collection in the course of a scientific study. This specimen was one of 255 Mantodea specimens collected by Indian collector P.S. Nathan, between 1950 and 1970.

Currently this new species is only known by an adult female and therefore it is not possible to make a final diagnosis of its correct position in the subfamily Tarachodinae. For this, a comparison of the male copulatory apparatus would be necessary. Judging by the features that are available for comparison, this female's position in the subfamily seems to lie somewhere between the genus *Dysaules* and *Oxyophthalma*.

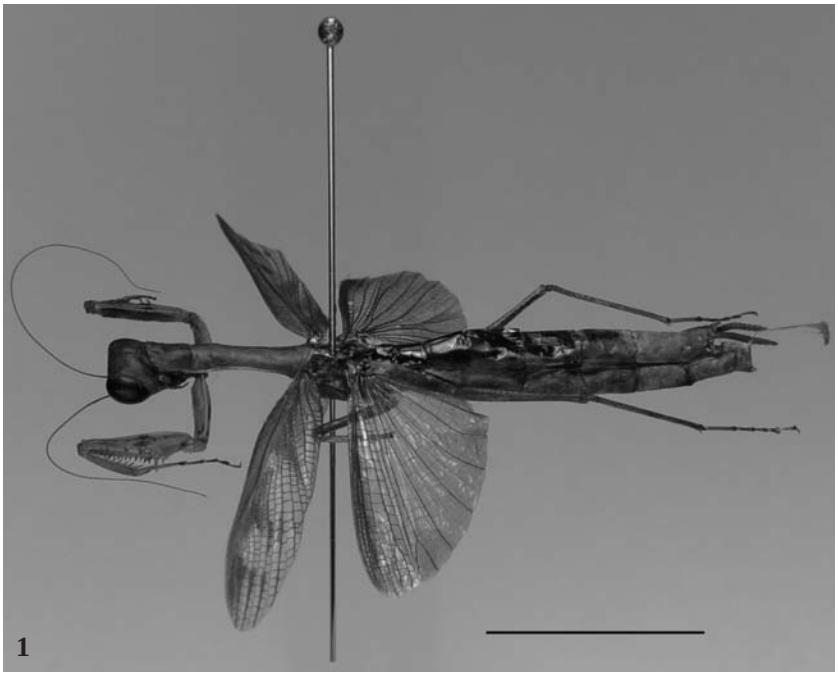


Fig. 1. — *Dysaulophthalma nathani* gen.*et* sp. n.♀ Holotype from Anamalai Hills, Southern India, lateral view. (Scale bar = 10mm)

Dysaulophthalma gen. n.
(Figs 1, 2, 5, 8, 9)

Diagnosis (based on female; male unknown).

Dysaulophthalma can be distinguished from the other Indian genera of Tarachodidae by its unique combination of the following features: Head triangular with wide oval eyes. Vertex same height as eyes, frontal scutellum transverse with almost parallel margins, forefemur with 4 external spines, tegmina with brown/orange colouration, hindwings without colouration, semi-transparent, pronotum with serrated margin, metathorax and the first 4 abdominal tergites with metallic-black colouration.

Dysaulophthalma clearly differs from *Dysaules* (Fig. 3) in the shape and colouration of its wings. The wing colouration of *Dysaules* is a round oval fuscous violet patch with several concentric rings of the same colour on the hindwings (Fig. 3). *Dysaulophthalma* has no colouration on its hindwings (Fig. 2). Furthermore, the length and the form of the metazone of the pronotum of *Dysaules* are conspicuously narrower and longer than that of *Dysaulophthalma*.

Fig. 2. — *Dysaulophthalma nathani* gen.*et* sp. n. ♀ Holotype from Anamalai Hills, Southern India, dorsal view. (Scale bar = 10mm)

The head-shapes of these genera also differ. *Dysaules* has oval eyes and the vertex is more concave between the eyes than is the case with *Dysaulophthalma*. The vertex of the head of *Dysaulophthalma* is the same height as the eyes, which are fairly round. The frontal scutellum of *Dysaules* is more trapezoid and only a bit wider than high (Fig. 7). In the

Fig. 3. — *Dysaules longicollis* Stål, 1877 ♀ OXUM, dorsal view. (Scale bar = 10mm)

case of *Dysaulophthalma*, the frontal scutellum is transverse (Fig. 5). *Dysaules* has 5 external spines on the forefemur while the new genus has only 4 external spines. Finally, the body length of *Dysaules* is approximately twice as long as the female of the new genus *Dysaulophthalma*.

Fig. 4. — *Oxyophthalma gracilis* (Saussure, 1861) ♀ ZSM det. M. Beier, dorsal view. (Scale bar = 10mm)

Dysaulophthalma can be easily distinguished from *Oxyophthalma* (Fig. 4) by comparing the profile of the head. The eyes and the lateral lobes of *Oxyophthalma* are strikingly different from *Dysaulophthalma* in that the lateral lobes are extended as a sharp tip and project above the upper edge of the eyes, which gives the head an elongated shape. Also, the vertex of *Oxyophthalma* is very concave (Fig. 6). In comparison, the head of *Dysaulophthalma* is triangular, the vertex is completely straight and the

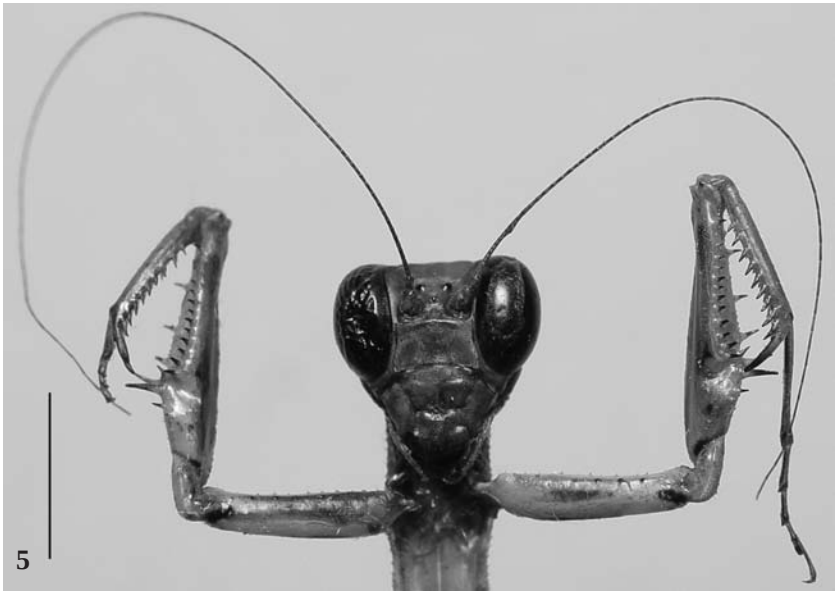
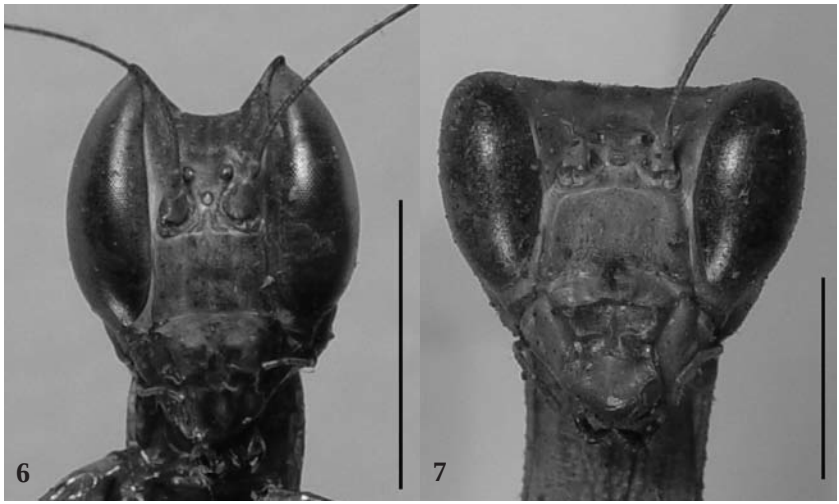


Fig. 5. — *Dysaulophthalma nathani* gen. *et* sp. n. ♀ Holotype, ventral view of head and raptorial forelegs. (Scale bar = 3mm)



Figs 6–7. — Ventral view of heads. 6, *Oxyophthalma gracilis* (Saussure, 1861) ♀ ZSM det. M. Beier; 7, *Dysaules longicollis* Stål, 1877 ♀ OXUM. (Scale bars = 3mm)

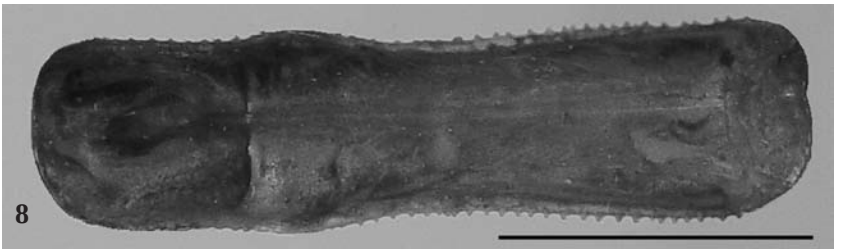


Fig. 8. — *Dysaulophthalma nathani* gen. *et* sp. n. ♀ Holotype, dorsal view of pronotum. (Scale bar = 3mm)

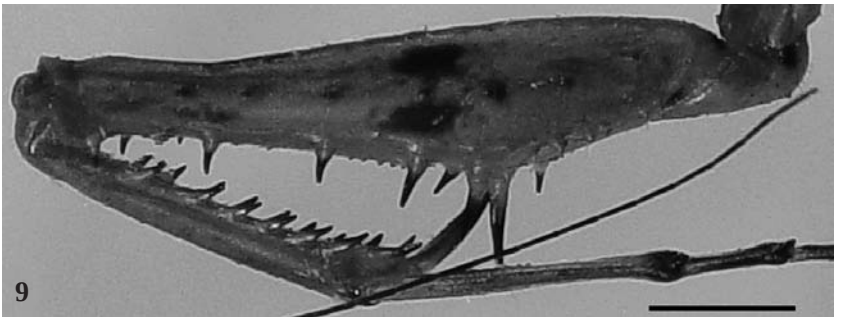


Fig. 9. — *Dysaulophthalma nathani* gen. *et* sp. n. ♀ Holotype, dorsal view of left raptorial foreleg. (Scale bar = 1mm)

eyes are wide and oval (Fig. 5). Finally, *Oxyophthalma* has 5 external spines on the forefemur while *Dysaulophthalma* only has 4 external spines.

All the given diagnostic features of the new genus *Dysaulophthalma* also distinguish it from all non-Indian members of the subfamily Tarachodinae.

DESCRIPTION

Female. Head. Triangular, wide oval eyes, vertex same height as eyes, lateral lobes of vertex inconspicuous, frontal scutellum transverse, wider than high, smooth, vertex slightly arched, ocelli developed, button-like, antennae much longer than the pronotum.

Thorax. Pronotum long with recognizable supracoxal dilatation; strong serrated lateral margin. Metazone much longer than prozone, very slightly narrowed behind supracoxal dilatation. Prozone short. Prosternum conspicuously keeled.

Forecoxa long, a little shorter than metazone, lateral margin with some hairs and 11 short spines, 5 dark tubercles on the interior side and a blackish patch near apical lobe. Forefemur slightly widened at base, superior border slightly concave near apex, claw furrow near the middle of forefemur, dorsally with 2 medial black patches, 4 completely developed discoidal spines; 1st discoidal spine very small, 2nd and 4th spine are longer than

first, while 3rd is noticeably longer than 2nd and 4th; 4 external spines; the 1st longer than the others, forefemur with a well developed genicular lobe-spine. 12 internal spines; the 11th the smallest and the 12th longer than the others. Foretibiae with 7 external and 9 internal spines.

Middle- and hindlegs irregularly spotted with blackish dots and short hairs. Genicular lobe of femur with apical spine, hindfemur dorsally slightly thickened, apex of tibiae with two ventral spines and a dorsal pointed lobe, hind basitarsus shorter than following segments combined.

Wings shorter than abdomen. Tegmina with brown/orange colouration, costal area well developed, the veins are slightly reticulated, external margin of costal area even, subcostal vein very close to radial vein. Hindwings semi-transparent, reticulated, external margin of costal area even, brownish longitudinal veins.

The metathorax has a conspicuous metallic-black colouration.

Abdomen. Elongated, with the first 4 abdominal tergites of striking metallic-black colouration, ventrites inconspicuous; supra anal plate pointed at apex, triangular. Cerci long, well developed, completely rounded and densely haired.

Etymology. The name *Dysaulophthalma* is derived from the generic name *Dysaules* and *Oxyophthalma.* The name is to be treated as feminine.

Type species. *Dysaulophthalma nathani* sp. n.

KEY TO THE INDIAN GENERA OF TARACHODINAE

1 Adult female wingless, lateral lobes of vertex are prolonged into long triangular processes. Forefemur with 4 external spines (see Mukherjee *et al.* (1995) Fig. 45) . . . . . *Didymocorypha*

– Adult female with well developed wings, lateral lobes of vertex without striking features or prolongation with a sharp tip and extending a little above the upper edge of the eyes, forefemur with 4 or 5 external spines 2

2 Forefemur with 5 external spines, lateral lobes of vertex are extended as a sharp tip and project a little above the upper edge of the eyes, hindwings without colouration . . . . . *Oxyophthalma*

– Forefemur with 5 or 4 external spines, lateral lobes of vertex are normally developed 3

3 Forefemur with 4 external spines, lateral lobes of vertex are normally developed, hindwings without colouration, length of body around 29mm . . . . . ***Dysaulophthalma*** gen. n.

– Forefemur with 5 external spines, lateral lobes of vertex are normally developed, hindwings with conspicuous colouration 4

4 Forefemur with 5 external spines, eyes oblong, oval, lateral lobes of vertex are normally developed, hindwings with conspicuous colouration in the shape of a round oval fuscous violet patch and several concentric rings of same colour, body length more than 55mm . . . . . *Dysaules*

– Forefemur with 5 external spines, eyes round, lateral lobes of vertex are normally developed, vertex dorso-laterally extending slightly above eyes, frontal scutellum bituberculate, hindwings with conspicuous colouration (see Mukherjee *et al.* (1995), Beier (1935) and Ehrmann (2002)), body length around 40mm . . . . . *Iris*

Dysaulophthalma nathani sp. n.
(Figs 1, 2, 5, 8, 9)

Female: Head. The head is 1.93× as wide as pronotal supracoxal dilation, triangular, vertex on same height as eyes, lateral lobes of vertex inconspicuously developed, frontal scutellum transversal with slightly arched upper margin, smooth, eyes wide and oval, ocelli small, button-like and black. Antennae much longer than the pronotum.

Thorax. Pronotum long with strong serrated lateral margin, length 3.88× pronotum breadth, recognizable supracoxal dilation, prozone short, inconspicuous and even. Metazone long, length 2.44× prozone length, very slightly narrowed behind supracoxal dilatation, without modifications (Fig. 8). Prosternum conspicuously keeled, uncoloured.

Forecoxa long, length 0.69× forefemoral length, lateral margin has some hairs and 11 short spines; the interior side exhibits 5 dark tubercles and a blackish patch near apical lobe. Forefemur slightly widened at base, superior border slightly concave near apex, claw furrow near the middle of forefemur, dorsally with 8 small tubercles and 2 medial black patches (Fig. 9), 4 completely developed discoidal spines; 1st discoidal spine very small, 2nd and 4th spines are longer than 1st, while 3rd is noticeably longer than 2nd and 4th; 4 external spines; the 1st longer than the others, in front of the 1st are 7 small spurs on the ventral margin, forefemur with a well developed genicular lobe-spine, forefemoral-disk with some tubercles. 12 internal spines; the 11th the smallest and the 12th longer than the others. Foretibiae with 7 external and 9 internal spines. All spines of the raptorial forelegs almost black.

Middle- and hindlegs short and of different size, hindfemur length 1.5× of midfemur length, hindtibiae length 1.65× of mid-tibia length, irregularly spotted with blackish dots, with short hairs, genicular lobe of femur with apical spine, hindfemur dorsally slightly thickened, apex of tibiae with two ventral spines and a dorsally pointed lobe, hind basitarsus shorter than following segments combined.

Wings shorter than abdomen, almost reaching 6th abdominal tergite. Tegminae with brown orange colouration, medially and distally delimited by two hyaline fields, 5.0× longer than wide, costal area well developed with slightly reticulated veins, external margin of costal area even, subcostal vein very close to radial vein.

Hindwings semi-transparent, reticulated, external margin of costal area even, brownish longitudinal veins.

Metathorax with conspicuous metallic-black colouration.

Abdomen. Elongated, the first 4 abdominal tergites are of a metallic-black colouration, ventrites inconspicuous; supra anal plate pointed at apex, triangular, subgenital plate with long hairs. Cerci well developed, long, completely rounded and densely haired.

Measurements. Holotype (in mm). Length of body: 28.7; width of head: 3.84; length of prozone: 2.10; length of metazone: 5.5; width of supracoxal dilation: 2.1; length of forecoxae: 3.70; length of forefemora: 5.3; length of tegmina: 15.0; length of hind basitarsus: 1.50; length of cerci: 3.5

Etymology. Named after the collector P. S. Nathan from India.

Type locality. Anamalai Hills, Southern India

Remarks. The tarsus of right foreleg is malformed. On the apex of the abdomen some remains of ootheca-secretion are visible.

Holotype ♀, SOUTHERN INDIA, Anamalai Hills, Cinchona 3500ft, coll. P. S. Nathan, IX.1959 (deposited in Manchester Museum MMUE, United Kingdom, catalogue number F3291.52).

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