

ASILIDAE (DIPTERA) FROM GOA, KARNATAKA AND TAMIL NADU

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INTRODUCTION

Since asilid fauna of Goa is poorly known, it was intensively surveyed by us in November 1989. On our way from Madras to Goa by road, localities near our camps in Tamil Nadu and Karnataka were also surveyed. The collections made during this survey and one specimen of *Clephydroneura wilcoxi* Joseph & Parui collected by Sri K. Ilango from Madras are reported in the paper. The arrangement of genera followed in this paper is according to 'A Review of the Asilidae (Diptera) from India' by Joseph & Parui (1990).

The types are deposited in the National Zoological Collection, Zoological Survey of India, Calcutta.

Genus *Lobus* Martin

1972. *Lobus* Martin, *J. Kansas ent. Soc.* 45 : 8.

Type species : *Leptogaster pallipes* Janssens ; original designation.

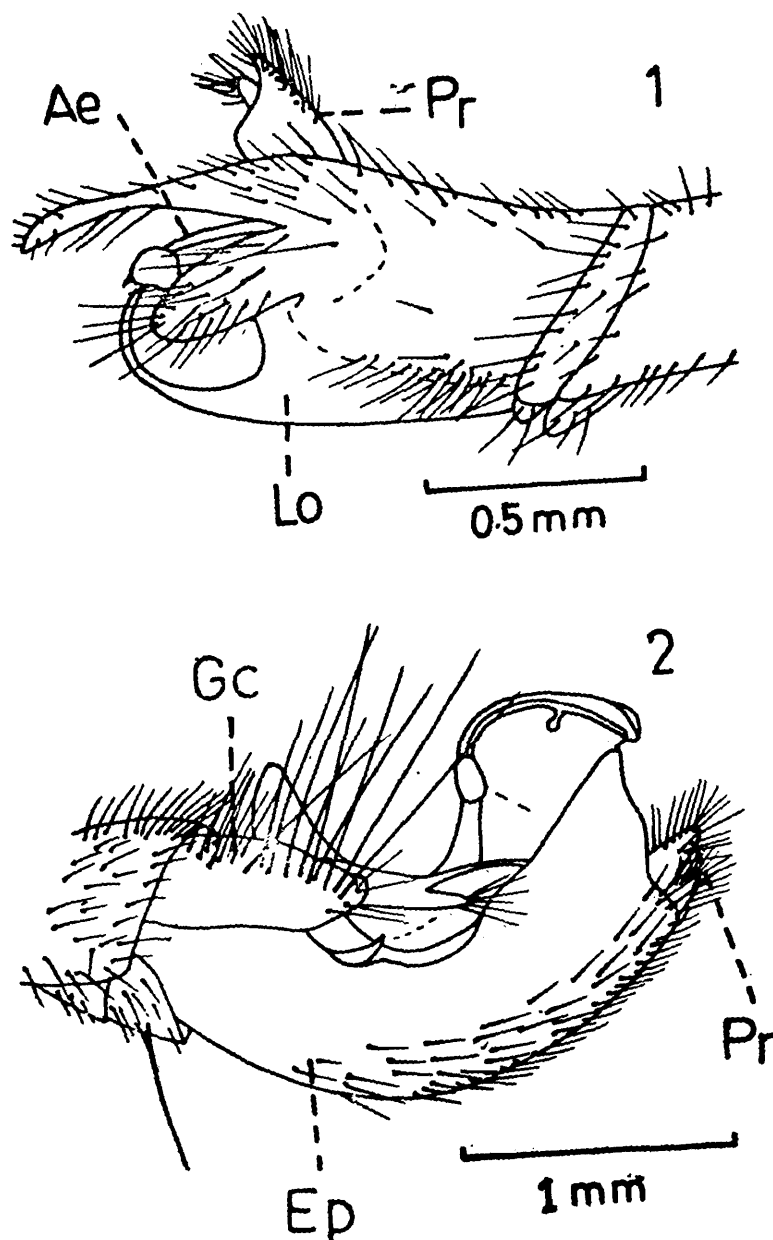
1. *Lobus bandipurensis* n. sp. (Fig. 1)

A slender black fly with black, pale yellow and yellowish-brown legs, and infuscated wings. Male : length 11 mm, wing 7 mm ; female : length 12 mm, wing 8 mm.

Male : *Head* black with sparse grey and greyish-yellow tomentum ; mystax white, postcranium with pale yellow setae, postgena with white setae. Antenna dark brown with black bristles on scape and pedicel, scape about two-thirds length of pedicel, first flagellomere elongate, style nearly as long as first flagellomere and gradually thickened distally. Palpus and proboscis black, former with black and latter with white setae.

Thorax black with greyish-yellow and grey tomentum ; scutum with a faint medio-longitudinal black stripe extending from anterior border to near hind border, the stripe anteriorly divided by a still fainter narrow, greyish-yellow stripe ; chaetotaxy :

1 notopleural, 1 postalar (weak), 1 supra-alar ; vestiture pale yellow, bristles black and pale yellow ; scutellar border with about 3 rows of pale yellow setae, disc with a few setae basally ; pleura with dense, greyish-white tomentum, anepisternum and katepisternum anteriorly bearing white setae. Haltere pale yellow, with stalk lighter coloured



Figs. 1 & 2. *Lobus bandipurensis* n. sp., lateral view of male genitalia.
Nusa shevaroyensis n. sp., lateral view of male genitalia.

Legs black, pale yellow and yellowish-brown ; coxa and trochanter black ; fore femur pale yellow with black apex, tibia pale yellow with black anteriorly and apically, basitarsus pale yellow for two-thirds distance from base and remained black, remaining tarsal segments black ; mid femur black with base narrowly pale yellow and subapex narrowly yellowish-brown, mid tibia similar to that of fore tibia but black colour occupies more area, tarsus similar to that of fore tarsus ; hind femur similar to that of mid femur but the median black area less extended, tibia less than one-fourth pale yellow basally and the rest black, tarsus similar to that of mid tarsus but basitarsus

pale yellow only for about one-third distance ; fore tibia and basitarsus ventrally and hind tibia and basitarsus posteroventrally with mat of golden yellow pubescence ; vestiture white and black, bristles black and pale yellow.

Wing infuscated.

Abdomen black, tergum 1 with a basal, transverse row of black and pale yellow bristles, and a few, long pale yellow setae laterally, vestiture white and black. Male genitalia (Fig. 1) yellowish-brown and black with white setae.

Female : Quite similar but with the following differences : postcranium and pleura of thorax predominantly greyish-yellow tomentose ; abdominal terga 4-7 with grey tomentum both on anterior and posterior borders. Female genitalia black with white setae, sternum 8 apically with a median, shallow depression, proctiger narrowed from middle to apex.

Holotype ♂, Reg. No. 7713/H6, Karnataka : Bandipur, 12.xi.1989, Coll. Joseph and Parui. *Paratype* ♀, Reg. No. 7714/H6, rest of details as in holotype.

Lobus bandipurensis n. sp. is similar to *L. martini* Joseph & Parui, in the presence of more than two rows of setae on the border of scutellum, but is recognised by its larger size and differences in the structural details of the male genitalia.

Genus *Nusa* Walker

1851. *Nusa* Walker, *Insecta Saundersiana*, 1 : 105.

Type species : *Nusa aequalis* Walker ; designated by Hermann (1912 : 243).

2. *Nusa shevaroyensis* n. sp. (Fig. 2)

A medium black species with grey and greyish-yellow tomentum, black legs, dark brown wings, and distinctive male genitalia. Male : length 13 mm, wing 7 mm.

Male : *Head* broader than thorax, black with sparse grey tomentum ; mystax white with a few black bristles below on either side, fronto-orbital setae and ocellar bristles black, postgena with dense white setae, postocular bristles consist of 3 long ones and a row of comparatively shorter ones. Antenna black, scape and pedicel bear white and black bristles, pedicel slightly shorter than scape, first flagellomere short. Palpus and proboscis black with white setae.

Thorax black, grey tomentose ; pronotum with a transverse row of black bristles medially and a few pale yellow setae laterally ; scutum with a mediolongitudinal black stripe extending from anterior border to slightly beyond transverse suture, the stripe dividing it absent, sides with two black, contiguous spots ; chaetotaxy : 2 notopleurals, 2 postalars, 3 supra-alars ; scutellum with hind border bearing a row of 8 bristles, disc

with sparse, short, black setae; katatergite with a bunch of long, white, and two or three black, bristly setae. Haltere yellowish-brown.

Legs black, hind femur with 3 white bristles posteriorly, fore and mid tibiae with dense, elongate, white bristly setae, vestiture white and black, the former predominant in fore and mid legs and the latter in hind leg, bristles black and white, fore tibia and tarsal segments ventrally and hind tibia at apex ventrally and on tarsal segments ventrally with mat of golden yellow setae.

Wing dark brown; R_5 and M_1 united well before the border.

Abdomen black, tergum 1 with three, tergum 2 with two, and terga from 3-5 with one white bristles laterally, vestiture pale yellow. Male genitalia (Fig. 2) black with black setae.

Holotype ♂, Reg. No. 7715/H6, Tamil Nadu: Dharmapuri District: Shevaroy Hills, 6.xi.1989, Coll. Joseph and Parui.

It is distinguished from all the other known Indian species by the distinctive male genitalia. According to our key (1987) to species of *Nusa* from India and adjoining countries it runs to couplet 4. Of the two species under it, *N. aequalis* Walker and *N. elva* (Walker), it is closer to the former from which it differs in the black scape and legs, dark brown wing and in the absence of lateral grey spots on abdomen. The male genitalia of *N. aequalis* Walker is not known to us for comparison.

Genus *Michotamia* Macquart

1838. *Michotamia* Macquart, *Dipt. exot.* 1 (2): 75.

Type species: *Michotamia analis* Macquart, 1838: 72; monotypic.

3. *Michotamia aurata* (Fabricius)

1794. *Asilus aurata* Fabricius, *Ent. Syst.* 4: 387.

1975. *Michotamia aurata*: Oldroyd, *A Catalog of Diptera of Oriental Region*, 2: 130.

Material examined: 3 ♀, Tamil Nadu: Dharmapuri Dist.: Nethalai, 5.xi.1989; 1 ♂, Karnataka: Uttar Kannad Dist.: Amod, 22.xi.1989; 5 ♂, 3 ♀, Goa: Vasco da Gama, 24.xi.1989; 1 ♀, Goa: Panaji, 25.xi.1989, all Coll. Joseph & Parui.

Distribution: This species has been recorded from Andhra Pradesh, Bihar, Delhi, Karnataka, Kerala, Madhya Pradesh, Orissa, Pondicherry, Rajasthan and West Bengal. Here it is recorded for the first time from Goa. The species was described from "East India".

4. *Michotamia fuscifemorata* Joseph & Parui

1984. *Michotamia fuscifemorata* Joseph & Parui, *Rec. zool. Surv. India*, Occ. Paper No. 66: 26.

Material examined: 1 ♂, Karnataka: Bangalore. Bannerghata National Park, 9.xi.1989, Coll. Joseph & Parui.

Distribution : This species has been recorded from Andhra Pradesh, Karnataka and Kerala in India, and from Bangladesh and Nepal. Here it is recorded for the first time from Goa.

Genus *Stichopogon* Loew

1847. *Stichopogon* Loew, *Linn. Ent.* 2 : 499.

Type species : *Dasyopogon elegantulus* Wiedemann, 1820 ; original designation.

5. *Stichopogon inaequalis* (Loew)

1847. *Dasyopogon inaequalis* Loew, *Linn. Ent.* 2 : 505.

1975. *Stichopogon inaequalis* : *A Catalog of Diptera of the Oriental Region*, 2 : 129.

Material examined : 3 ♂, 6 ♀, Goa : Canacona : Palolen, 18.xi.1989 ; 4 ♂, 4 ♀, Goa : Vasco : Consaulin Beach, 24.xi.1989 ; 7 ♀, Goa : Panaji : Mirmar Beach, 25.xi.1989 ; 2 ♂, 6 ♀, Panaji : Donapala, 26.xi.1989 ; 3 ♂, 1 ♀, Panaji : Bambolim, 29.xi.1989, all Coll. Joseph & Parui.

Distribution ; It has been recorded from the following localities in India : Andaman Islands, Andhra Pradesh, Bihar, Maharashtra, Rajasthan and Tamil Nadu. Here it is recorded for the first time from Goa. The species was described from the Palaearctic Region.

6. *Stichopogon meridionalis* Oldroyd

1948. *Stichopogon meridionalis* Oldroyd, *Ent. Monthly Mag.* 84 : 261.

1990. *Stichopogon meridionalis* : Joseph & Parui, *Rec. zool. Surv. India*, Occ. Paper No. 113 : 42.

Material examined : 1 ♂, 8 ♀, Goa : Canacona : Palolen, 18.xi.1989 ; 6 ♂, 16 ♀, Goa : Margoa : Colva Beach, 21.xi.1989 ; 4 ♀, Goa : Vasco : Bogmalla Beach, 24.xi.1989 ; 3 ♂, 1 ♀, Goa : Panaji, 25.xi.1989 ; 4 ♂, 3 ♀, Panaji : Calangut Beach, 27.xi.1989 ; 5 ♀, Goa : Bambolim Beach, 29.xi.1989 ; 5 ♂, 2 ♀, Panaji, 29.xi.1989, all Coll. Joseph & Parui.

Distribution : It has been reported from the following localities in India : Andhra Pradesh, Gujarat, Karnataka, Kerala, Rajasthan, Tamil Nadu and West Bengal. It is recorded for the first time from Goa. The species was described from Tamil Nadu and Sri Lanka.

Genus *Clephroneura* Becker

1925. *Clephroneura* Becker, *Ent. Mitt.* 14 : 68.

Type species : *Asilus xanthopus* Wiedemann ; designated by Oldroyd (1938 ; 450).

7. *Clephydroneura nelsoni* Joseph & Parui

1979. *Clephydroneura nelsoni* Joseph & Parui, *Ent. Scand.* 10 (1) : 36.

Material examined : 4 ♂, 2 ♀, Karnataka : Bangalore : Lalbagh, 8.xi.1939, Coll. Joseph & Parui.

Distribution : The species has so far been recorded only from Tamil Nadu. Here it is recorded for the first time from Karnataka.

8. *Clephydroneura pulla* Oldroyd

1939. *Clephydroneura pulla* Oldroyd, *Ann. Mag. nat. Hist.* 11 (1) : 467.

1990. *Clephydroneura pulla* : Joseph & Parui, *Rec. zool. Surv. India*, Occ. Paper No. 113 : 51.

Material examined : 7 ♂, 1 ♀, Tamil Nadu : Dharmapuri Dist. : Hogennkal Forest, 5.xi.1989 ; 1 ♂, 3 ♀, Dharmapuri : Nallampatti, 5.xi.1989, all Coll. Joseph & Parui.

Distribution : The species was described from Andhra Pradesh, subsequently it has been recorded from Karnataka and Tamil Nadu.

9. *Clephydroneura wilcoxi* Joseph & Parui

1979. *Clephydroneura wilcoxi* Joseph & Parui, *Ent. Scand.* 10 : 35.

Material examined : 1 ♂, Tamil Nadu : Madras : Tharaipakkam, 2.vii.1989, Coll. K. Ilango ; 1 ♂, Karnataka : Bangalore : Lal Bagh, 8.xi.1989 ; 1 ♂, Goa : Mandavi, 28.xi.1989, both Coll. Joseph & Parui.

Distribution : The species has been reported from Andhra Pradesh, Karnataka and Tamil Nadu. Here it is recorded for the first time from Goa.

Genus *Machimus* Loew

1849. *Machimus* Loew, *Linn. Ent.* 4 : 1.

Type species : *Asilus chrystis* Meigen ; designated by Coquillett, 1910.

10. *Machimus parvus* Ricardo

1919. *Machimus parvus* Ricardo, *Ann. Mag. nat. Hist.* 9 (3) : 54.

1990. *Machimus parvus* : Joseph & Parui, *Rec. zool. Surv. India*, Occ. Paper No. 113 : 57.

Material examined : 9 ♂, 10 ♀, Karnataka : Bandipur, 12.xi.1989, Coll. Joseph & Parui.

Distribution : The species has so far been recorded from Kerala and Tamil Nadu. Here it is recorded for the first time from Karnataka.

Genus **Philodicus** Loew

1848. *Philodicus* Loew, *Linn. Ent.* 3 : 391.

Type species : *Asilus javanus* Wiedemann, 1819 : 4 ; original designation.

11. **Philodicus femoralis** Ricardo

1921. *Philodicus femoralis* Ricardo, *Ann. Mag. nat. Hist.* 8 (9) : 190.

1990. *Philodicus femoralis* : Joseph & Parui, *Rec. zool. Surv. India*, Occ. Paper No. 113 : 61.

Material examined : 3 ♂, 1 ♀, Tamil Nadu : Dharmapuri Dist. : Shevaroy Hills, 6.xi.1989 ; 1 ♂, Goa : Margao, 21.xi.1989 ; 8 ♂, 1 ♀, Goa : Vasco da Gama, 24.xi.1989, all Coll. Joseph & Parui.

Distribution : In India this species has been recorded from Assam, Arunachal Pradesh, Bihar, Goa, Gujarat, Himachal Pradesh, Karnataka, Kerala, Meghalaya, Orissa, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal. It was described from Burma.

12. **Philodicus javanus** (Wiedemann)

1819. *Asilus javanus* Wiedemann, *Zool. Mag.* (Wiedemann) 1 (3) : 4. (for detailed synonyms refer to Joseph & Parui, 1983 : 362).

1975. *Philodicus javanus* Oldroyd, *A Catalog of Diptera of the Oriental Region*, 2 : 149.

Material examined : 1 ♂, Tamil Nadu : Dharmapuri Dist. : Nathalai, 5.xi.1989, Coll. Joseph & Parui.

Distribution : It has been reported from Assam, Arunachal Pradesh, Bihar, Himachal Pradesh, Karnataka, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal. The species was described from Goa.

13. **Philodicus pruthii** Bromley

1935. *Philodicus pruthii* Bromley, *Rec. Indian Mus.* 37 : 224.

1990. *Philodicus pruthii* : Joseph & Parui, *Rec. zool Surv. India*, Occ. Paper No. 113 : 62.

Material examined : 4 ♂, 4 ♀, Tamil Nadu : Dharmapuri Dist. : Hogenakkal Forest, 5.xi.1989 ; 1 ♀, Dharmapuri Dist. : Shevaroy Hills, 6.xi.1989, all Coll. Joseph & Parui.

Distribution : It is known from Andhra Pradesh, Karnataka, Kerala, Rajasthan and Tamil Nadu. The species was described from Tamil Nadu.

Genus **Promachus** Loew

1848. *Promachus* Loew, *Linn. Ent.* 3 : 390.

14. **Promachus duvaucelii** (Macquart)

1838. *Trupanea duvaucelii* Macquart, *Dipt. exot.* 1 (2) : 97.

1975. *Promachus duvaucelii* : Oldroyd, *A Catalog of Diptera of the Oriental Region*, 2 : 152.

Material examined : 1 ♂, Tamil Nadu : Dharmapuri Dist. : Hogenakkal Forest, 5.xi.1989 ; 1 ♂, 3 ♀, Dharmapuri Dist. : Shevaroy Hills, 6.xi.1989 ; 1 ♂, 3 ♀, Karnataka : Bandipur, 12.xi.1989 ; 3 ♂, 1 ♀, Karnataka : Chitradurga Dist. : 15.xi.1989 : 1 ♂, Goa : Panaji, 29.xi.1989, all Coll. Joseph & Parui.

Distribution : It is known from Andhra Pradesh, Delhi, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal. It is recorded here for the first time from Goa.

SUMMARY

The paper deals with 14 species of 8 genera from Goa, Karnataka and Tamil Nadu. Of these 2 species, *Lobus bandipurensis* and *Nusa shevaroyensis*, are new ; 6 species, *Michotamia aurata* (Fabricius), *M. fuscifemorata* Joseph & Parui, *Stichopogon inaequalis* (Loew), *S. meridionalis* Oldroyd, *Clephydroneura wilcoxi* Joseph & Parui and *Promachus duvaucelii* (Macquart), are recorded for the first time from Goa ; and yet *Clephydroneura nelsoni* Joseph and Parui and *Machimus parvus* Ricardo, are new reports from Karnataka.

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Abbreviations : Ae, aedeagus ; Ep, epandrium ; Go, gonocoxite ; Lo, lobus ; Pr, proctiger.

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