

Illinois State Normal University
Normal City, Ill., U.S.A.¹

MOHAMMAD ABDULLAH

A revision of the genus *Pilipalpus* (Coleoptera, Anthicidae: Pedilinae)

With 18 textfigures

In his original description of *Pilipalpus dasytoides*, FAIRMAIRE (1876) regarded his new taxon an aberrant member of Pyrochroidae related to *Lemodes*. BLAIR (1914) transferred *Pilipalpus* from Pyrochroidae to Oedemeridae where he thought it was better placed with such genera as *Cycloderus*, *Techmessa*, and *Pseudananca*. But he later changed his mind and placed *Pilipalpus* in Anthicidae (Anthicinae) (BLAIR, 1928). Some other genera, formerly placed in Pyrochroidae, were also transferred to Anthicinae. These are: *Lemodes* BOH., (New Guinea, Victoria, Queensland, New South Wales), *Lemodinus* BLAIR (New South Wales), *Trichananca* BLACKB. (Victoria, New South Wales), and *Lagriomorpha* CHAMPION (New Guinea). I have examined these anthicid genera in the British Museum collection. *Pilipalpus* differs from all of them in lacking a campanulate pronotum, in its more elongated and flattened form, and in its present (neotropical) distribution.

Systematic position

I have followed the classification of beetles proposed by CROWSON (1955). *Pilipalpus* undoubtedly belongs to Heteromera (and not Clavicornia) of the superfamily Cucujoidea. The heteromerous characters are: tarsi 5, 5, 4; front coxae projecting; aedeagus of the inverted heteromeroid type (lateral lobes ventral, median lobe dorsal); wings with three anal veins; and maxillae two-lobed.

The following characters of *Pilipalpus* eliminate the possibility of satisfactorily placing it in any other but two families (Pyrochroidae and Anthicidae) of Heteromera: antennae filiform; penultimate tarsal segments bilobed (fig. 4); wings without a subcubital fleck; apical segment of maxillary palpi strongly securiform (fig. 3) — so not Merycidae, Mycetophagidae, Colydiidae, Pterogeniidae, or Rhipiphoridae. Abdomen with all visible sternites freely articulated; tarsal claws toothed (fig. 4); front coxal cavities open (externally and internally); middle coxal cavities not closed outwardly by sterna (mes-epimera reaching mesocoxal cavities); mes-episterna (nearly) meeting in front of mesosternum — so not Nilionidae, Lagriidae, Tenebrionidae, Alleculidae, Elacatidae, Inopeplidae, Salpingidae, Cononotidae, Mycteridae, Hemipeplidae, and Aderidae (= Euglenidae). Prosternal process narrow; head with frons not produced over antennal insertions — so not Monommidae, Zopheridae, or Boridae. Apical antennal segments not differentiated from others (figs. 2, 13); prothorax without side borders — so not Trictenotomidae, Tetratomidae, or Melandryidae. Antennae long, not clubbed; wings with open radial cell; prosternum not long in front of coxae — so not Pythidae. Tarsal claws without long appendages below them — so not Cephaloidae or Meloidae. Eyes entire, elytra without vein-like ribbings and with

¹ Present address: Department of Zoology, University of Reading, Reading, England.

only one penultimate tarsal segment lobed below (not two); no trace of an internal bar closing the front coxal cavities, and more laterally inserted antennae — so not Oedemeridae.

If *Pilipalpus* is placed in Pyrochroidae, it will run to couplet 9 and to *Neopyrochroa* in BLAIR's key to the genera of Pyrochroidae (BLAIR, 1914). The two genera could be easily separated by the following couplet:

- Apical segment of maxillary palpi filiform; antennae flabellate in males; North American *Neopyrochroa* BLAIR
 Apical segment of maxillary palpi securiform (fig. 3); antennae filiform in males; Chile (South American) *Pilipalpus* FAIRMAIRE

The two families, Anthicidae and Pyrochroidae, are closely related and specially *Pedilus* FISCHER (Pedilinae, Pedilini) comes close to Pyrochroidae in having completely open front coxal cavities. One way to separate Pedilini from Pyrochroidae is by the character of the tarsal claw which is toothed in the former and simple in the latter. Tarsal claws are distinctly toothed in *Pilipalpus* (fig. 4). On this basis I regard it as an anthicid. The eyes are finely faceted and the metacoxae are not widely separated, so it should be placed in Pedilinae rather than Anthicinae. A new tribe, Pilipalpini, is proposed for the genus *Pilipalpus*. The tribal characters are mentioned in the following table.

A key to the tribes of Pedilinae

- 1 Neck wide; mes-episterna meeting or nearly so in front of mesosternum; never with last three antennal segments elongated. 2
 Neck narrow; mes-episterna widely separated in front of mesosternum; last three antennal segments elongated; eyes entire; pronotum constricted at apex; tibial spurs large and pubescent; front coxal cavities visibly (= externally) open, internally closed behind; anal cell of the wing closed, fourth anal vein present; lateral lobes of the tegmen separate at apex; styli borne on sides of apical segment of the (two-segmented) coxites in the ovipositor Macratrini
- 2 Pronotum not constricted at apex; front coxal cavities externally and internally open behind; eyes usually finely faceted; anal cell of the wing closed; lateral lobes of the tegmen separate at apex 3
 Pronotum constricted at apex; tarsal claws with short teeth; front coxal cavities visibly open behind, internally closed; eyes usually coarsely faceted; anal cell of the wing open or closed, fourth anal vein present; lateral lobes of the tegmen fused; styli (usually) borne on sides of (apparently one-segmented) coxites in the ovipositor Eurygeniini
- 3 Eyes entire; tempora reduced (fig. 1); apical segment of maxillary palpi strongly securiform (fig. 3); fourth anal vein absent in the wing; lateral lobes of the tegmen three-branched at apex (figs. 9, 15); female not known; Neotropical (Chile) Pilipalpini
 Eyes emarginate; tempora usually prominent; apical segment of maxillary palpi never securiform; fourth anal vein present in the wing; lateral lobes of the tegmen separate at apex; styli borne on apex of two-segmented coxites in the ovipositor; Holarctic Pedilini

Genus *Pilipalpus* FAIRMAIRE*Pilipalpus* FAIRMAIRE, 1876, p. 384—385; BLAIR, 1914, p. 310.Elongated, flattered, *Pedilus*-like beetles.

Surface shining, smooth.

Vestiture: pubescence uniform, sparse.

Punctures coarse on head, pronotum and elytra (coarser than in *Pedilus*).

Head wider than long; widest across eyes, width here nearly same or only slightly less than that of pronotum at its widest part; sharply constricted behind eyes (fig. 1). Tempora extremely reduced. Mandibles bifid at apex (fig. 14). Maxillae with well-developed lacinia and strongly securiform apical segments of maxillary palpi (fig. 3). Mentum trapezoidal. Eyes lateral, convex, entire. Antennae filiform; eleven-segmented, first segment largest, second smallest, last segment slightly longer than tenth segment.

Pronotum not constricted at apex; wider than long, widest subapically; margined at base; narrower than elytra at shoulders (fig. 1). Front coxal cavities open externally and internally. Mes-episterna nearly meeting in front of mesosternum. Metasternum not spinous, long. Hind coxae not contiguous (but not widely separated). Legs without accessory spines or ctenidia. Tibial spurs short. Tarsal claws toothed. Wing with the anal cell closed; fourth anal vein missing. Seventh abdominal sternite (= fifth visible sternite) emarginate in males. Pygidium (= eighth tergite) entire, rounded at apex in males. Parameres of male genitalia three-branched at apex and with a pair of lobes at the junction with basal-piece. Basal-piece very long. Median lobe with short median struts.

Type of the genus: *dasytoides* FAIRMAIRE.

Key to the species

- Pronotum entirely black; eleventh antennal segment tapering at apex (fig. 2); median lobe of aedeagus narrow at apex and with a pair of lateral processes, median struts short (figs. 11—12) *dasytoides* FAIRMAIRE
 Pronotum rufous with a black median spot; eleventh antennal segment not tapering at apex (fig. 13); median lobe of aedeagus swollen at apex and weakly hooked, median struts longer (figs. 17—18) *darwini* n. sp.

Pilipalpus dasytoides FAIRMAIRE

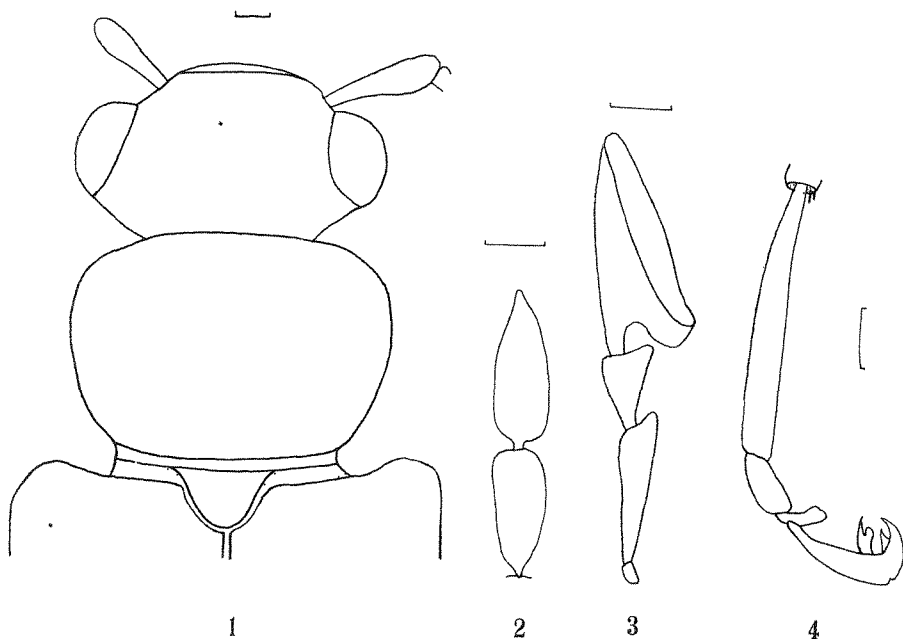
(Figs. 1—12)

Pilipalpus dasytoides FAIRMAIRE, 1876, p. 384—385.

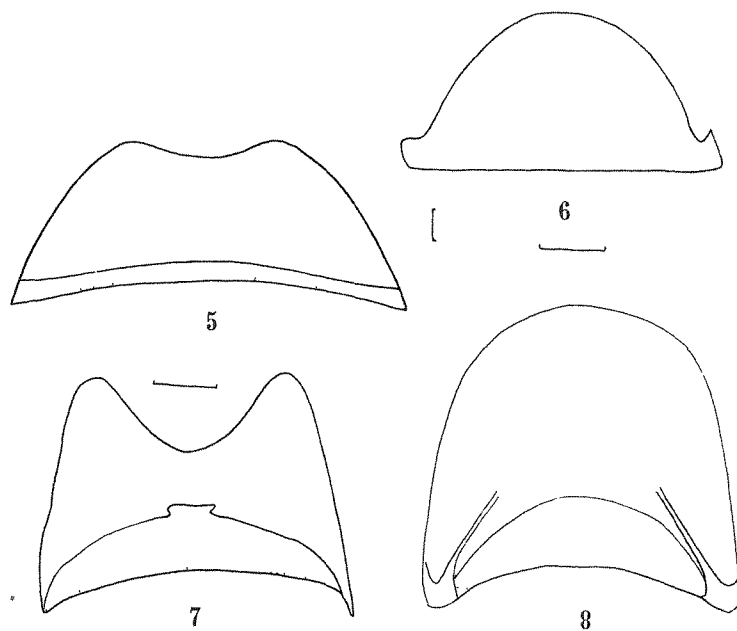
Holotype: male (author's no. 430), Chile, REED, ex. F. BATES collection. in the British Museum collection.

Colour: black; eyes dark brown; labrum, mandibles (below the bifid apex), maxillae and labium rufous; coxae (apices), trochanters and femora (bases) pale.

Vestiture: pubescence yellowish-cinereous, decumbent to suberect, moderate hairs (average length = 0.30 mm), not concealing surface below, absent from central portion of pronotal disc and scutellum, small on legs (average length = 0.15 mm).



Figs. 1–4. *Pilipalpus dasytoides* FAIRMAIRE. — 1. Head, pronotum and base of elytra. — 2. Last two antennal segments. — 3. Maxillary palp. — 4. Hind tarsus. Scale = 0.12 mm



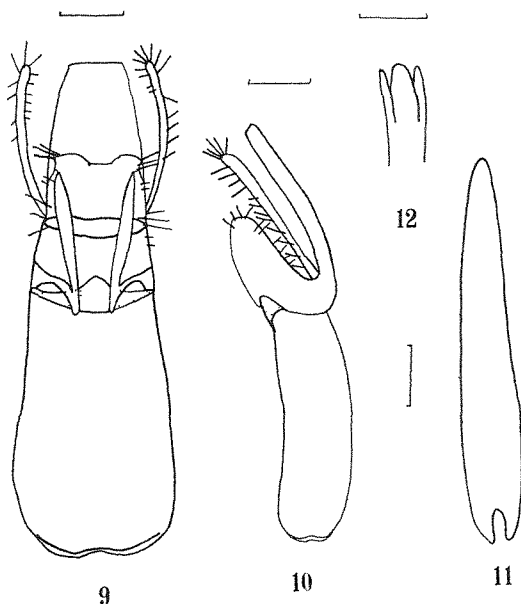
Figs. 5–8. *Pilipalpus dasytoides* FAIRMAIRE. — 5. Seventh sternite. — 6. Seventh tergite. — 7. Eighth sternite. — 8. Eighth tergite. Scale = 0.12 mm

Head sparsely punctate; diameter of puncture = 0.04 mm approximately; shape as in figure 1. Vertex without a median sulcus or line. Fronto-clypeal area without depression in middle. Labrum narrow, entire at apex, separated from fronto-clypeus by a depression (clypeo-labral sulcus). Maxillary palpi long; apical segment largest, slightly laterally excavated (fig. 3). Mentum with sides bulging and convex. Labial palpi small, three-segmented, segments appear to be wider than long (not clearly visible). Eyes hairy, finely faceted (diameter of each facet less than 0.01 mm), widely separated. Antennae nearly half as long as insect body (or actually only slightly more); hairy; last segment tapering at apex (fig. 2).

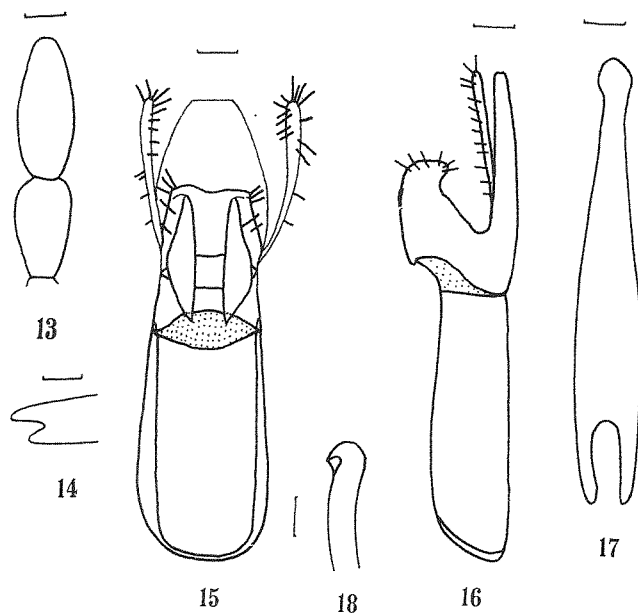
Pronotum coarsely, sparsely punctate in centre, punctures becoming fine and sparse towards periphery; sparsely hairy around margins; shape as in figure 1. Scutellum rounded at apex. Wing with cross-vein between $2dA_1$ and $2dA_2$ incomplete, between $3dA_1$ and $3dA_2$ absent. Elytra entire; sparsely punctate; apex not modified (from rest of elytra). Distance between the two metacoxae = 0.25 mm. Tarsal claws with medium size teeth, i. e., extending to half or slightly more than half the length of each claw (fig. 4).

Abdomen: Seventh sternite slightly less than half longer than wide (fig. 5). Seventh tergite entire, rounded at apex, base with characteristic side processes, slightly less than half longer than wide (fig. 6). Eighth sternite emarginate, membranous at base and centre, slightly wider than long (fig. 7). Eighth tergite nearly as long as wide (fig. 8). Shape of aedeagus as in figures 9—12. Basal-piece of tegmen widest and emarginate at base, nearly twice as long as wide here. Parameres with a pair of slender, hairy, lateral appendages and a central piece or lobe; a pair of additional, hairy, short lobes present at the junction of parameres and basal-piece. Median lobe with a pair of lateral processes near apex; median struts short; widest near base and narrowest at apex.

Measurements in mm. Total length = 6.0. Antennal length: total = 3.32; segments I—XI: 0.41, 0.22, 0.28, 0.28, 0.29, 0.32, 0.31, 0.30, 0.29, 0.27 and 0.35 respectively. Maxillary palp: total = 0.92; segments I—IV: 0.05, 0.27, 0.20, and 0.40 respectively. Head: width across eyes = 1.17; dorsal interocular distance =



Figs. 9—12. *Pilipalpus dasytoides* FAIRMAIRE. — 9. Tegmen, ventral view. — 10. Tegmen, lateral view. — 11. Median lobe, ventral view. — 12. Apex of median lobe, lateral view. Scale = 0.12 mm



Figs. 13–18. *Pilipalpus darwini* n. sp. — 13. Last two antennal segments. — 14. Apex of mandible. — 15. Tegmen, ventral view. — 16. Tegmen, lateral view. — 17. Median lobe, ventral view. — 18. Apex of median lobe, lateral view. Scale = 0.12 mm

0.60. Pronotum: length = 0.90; width at apex = 0.80; maximum width = 1.17; width at base = 0.65. Elytron: length = 4.0; maximum width = 0.99. Front tarsus: total = 0.81; segments I–V: 0.36, 0.12, 0.09, 0.04, and 0.20 respectively. Middle tarsus: total = 0.81; segments I–V: 0.36, 0.12, 0.09, 0.04, and 0.20 respectively. Hind tarsus: total = 0.92; segments I–IV: 0.54, 0.12, 0.06, and 0.20 respectively. Hind tibial spur = 0.09.

***Pilipalpus darwini* n. sp.**

(Figs. 13–18)

Holotype: male (author's no. 431), Chile (= Chili): Chiloe I. (= Island), CHARLES DARWIN collector, in the British Museum collection.

Differs from *dasytoides* as follows: pronotum rufous with a black spot on disc; eyes light brown; portion of prosternum and sides of prothorax, coxae, trochanters, and most of femora yellow. Segments of labial palpi (appear to be nearly) round, not wider than long. Last antennal segment not tapering at apex and only slightly longer than tenth segment (fig. 13). Apices of elytra less rounded and sub-truncate. Wing with cross-vein between $2dA_1$ and $2dA_2$ complete. Shape of aedeagus as in figures 15–18. Tegmen rather similar; basal-piece almost entire and straight at base; central lobe of parameres more arcuate on sides. Median lobe longer, more slender, apical end swollen, without lateral processes (but when examined in a lateral view appears to be weakly hooked); median struts longer and narrower.

Measurements in mm: Total length = 5.5. Antennal length: total = 2.76; segments I–XI: 0.40, 0.18, 0.21, 0.26, 0.27, 0.28, 0.26, 0.24, 0.22, 0.19, and 0.25 respectively. Maxillary palp: total = ?; segments I–IV: 0.05, 0.24, 0.14, and ?

respectively. Head: width across eyes = 1.20; dorsal interocular distance = 0.60. Pronotum: length = 1.0; width at apex = 0.85; maximum width = 1.20; width at base = 0.75. Elytron: length = 3.8; maximum width = 0.90. Front tarsus: first two segments: 0.27, 0.12 respectively. Middle tarsus: total = ?; segments I—IV: 0.36, 0.12, 0.08, 0.06, and ? respectively. Hind tarsus: total = 0.93; segments I—IV: 0.48, 0.15, 0.09, and 0.21 respectively. Hind tibial spur = 0.09.

Acknowledgments

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Summary

The Chilean genus *Pilipalpus* FAIRMAIRE, 1876, formerly placed in Pyrochroidae, Oedemeridae, and Anthicidae (Anthicinae) by different authorities has now been placed in Anthicidae (Pedilinae) in a new tribe Pilipalpini related to the Holarctic tribe Pedilini but differing in characters of eyes, tempora, maxillary palpi, and aedeagus. A key to the tribes of Pedilinae (Pedilini, Pilipalpini, Eurygeniini, and Macratriini) is given. Besides the redescription of the type of the genus (*dasytoides* FAIRMAIRE), a new species (*darwini* n. sp.) named in honour of the collector, the great naturalist CHARLES DARWIN, has been described from Chiloe Island, Chile.

Zusammenfassung

Die früher von verschiedenen Autoren zu den Familien Pyrochroidae, Oedemeridae und Anthicidae (Anthicinae) gestellte chilenische Gattung *Pilipalpus* FAIRMAIRE, 1876, wird den Anthicidae (Pedilinae) innerhalb eines neuen Tribus Pilipalpini zugeordnet, der dem holarktischen Tribus Pedilini nahe steht, sich aber durch die Form der Augen, Schlafen, maxillaren Palpen und den Aedeagus unterscheidet. Ein Bestimmungsschlüssel für die Tribus der Pedilinae (Pedilini, Pilipalpini, Eurygeniini und Macratriini) wird gegeben. Neben der Wiederbeschreibung des Typus der Gattung (*dasytoides* FAIRMAIRE) wird eine neue Art von der Insel Chiloe (Chile) beschrieben und zu Ehren des Sammlers, des großen Naturforschers CHARLES DARWIN, *Pilipalpus darwini* n. sp. benannt.

Резюме

Чилийский род *Pilipalpus* FAIRMAIRE, 1876, отнесенный прежде разными авторами к семействам Pyrochroidae, Oedemeridae и Anthicidae (Anthicinae) включается в Anthicidae (Pedilinae) внутри новой трибы Pilipalpini, близкой к голарктической трибе Pedilini, но отличающейся от последней формой глаз, висков, нижнечелюстных щупальцев и Аedeagus. Предлагается определитель для триб Pedilinae (Pedilini, Pilipalpini, Eurygeniini и Macratriini). Помимо повторного описания типа рода (*dasytoides* FAIRMAIRE) описывается происходящий с острова Chiloe (Чили) новый вид. В честь коллекционера, великого естествоиспытателя Чарльза Дарвина, виду присваивают название *Pilipalpus darwini* n. sp.

References

- BLAIR, K. G., A revision of the family Pyrochroidae (Coleoptera). Ann. Mag. nat. Hist., 13 (75), 310—326, 1914.
—, Pyrochroidae. In: JUNK, W. & SCHENKLING, S., Coleopterorum Catalogus, 99, 1—14, 1928.
CROWSON, R. A., The natural classification of the families of Coleoptera. London, 1955.
FAIRMAIRE, L., Hétéromères Chiliens. Ann. Soc. ent. France, 1876, 384—385, 1876.