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A new genus and species of Plumariidae (Hymenoptera, Chrysidoidea) from western xeric Argentina

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Abstract

Mapluroides ogloblini, a new genus and species from the provinces of San Juan and La Rioja in western Argentina, are described. Descriptions, drawings and a discussion of its relationships to other genera of plumariids are provided. The new taxon is closely related to *Plumaroides* Brothers and *Maplurius* Roig-Alsina.

Key words: Plumariidae, taxonomy, morphology, Argentina

Introduction

This contribution is a result of studies that are being carried out on the family Plumariidae in the western xeric areas of Argentina. Plumariid wasps are represented by three genera in South America, *Plumarius* Philippi, *Plumaroides* Brothers, and *Maplurius* Roig-Alsina, and by two genera in South Africa, *Myrmecopterina* Bischoff and *Myrmecopterinella* Day (Brues, 1924; Bradley, 1972; Brothers, 1974; Day, 1977; Roig-Alsina, 1994). The phylogenetic relationships of these chrysidoid wasps have been studied by Brothers (1975), Königsmann (1978), Brothers & Carpenter (1993), and Carpenter (1986, 1999), and the generic relationships within the family by Roig-Alsina (1994), who also presented a key to the genera.

Knowledge of these wasps is based mainly on males, since females have been rarely collected. Only two females have been described, one from Peru (Evans, 1966) and another from Chile (Perez D'Angello, 1974), both attributed to *Plumarius*. The sexual dimorphism is extreme. The morphology of the female, which is apterous, with a flattened body and strong, spiny fossorial legs, indicates a subterranean habit (Evans, 1966). Males are winged and are frequently collected at light but they disappear by day and nothing is known of their living place.

We describe in the present contribution a new genus and species collected in the provinces of San Juan and La Rioja, in western Argentina. The description is based on males. The new taxon is closely related to *Maplurius* and *Plumaroides*. The former genus, with a single described species, ranges from the provinces of Salta to Chubut in Argentina (Roig-Alsina, 1994). *Plumaroides* includes to date a single species described from Andalgalá, in the province of Catamarca (Brothers, 1974), but current studies have discovered new species with a broad geographic range from the province of Salta in the north to Mendoza in the south.

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Methods

The specimens studied were collected at night with a camping lantern provided with an ultraviolet light (fluorescent "U" tube, 360 degrees bright light). The lantern was placed on a white cloth spread out on the ground. This setting proved to be more effective than a vertical hanging cloth illuminated by the ultraviolet light.

Specimens are deposited in: Museo Argentino de Ciencias Naturales "Bernardino Rivadavia", Buenos Aires, Argentina (MACN), Instituto Fundación Miguel Lillo, Tucumán, Argentina (IFML), Museo de La Plata, La Plata, Argentina (MLP), and Florida State Collection of Arthropods, Gainesville, United States (FSCA).

Mapluroides new genus

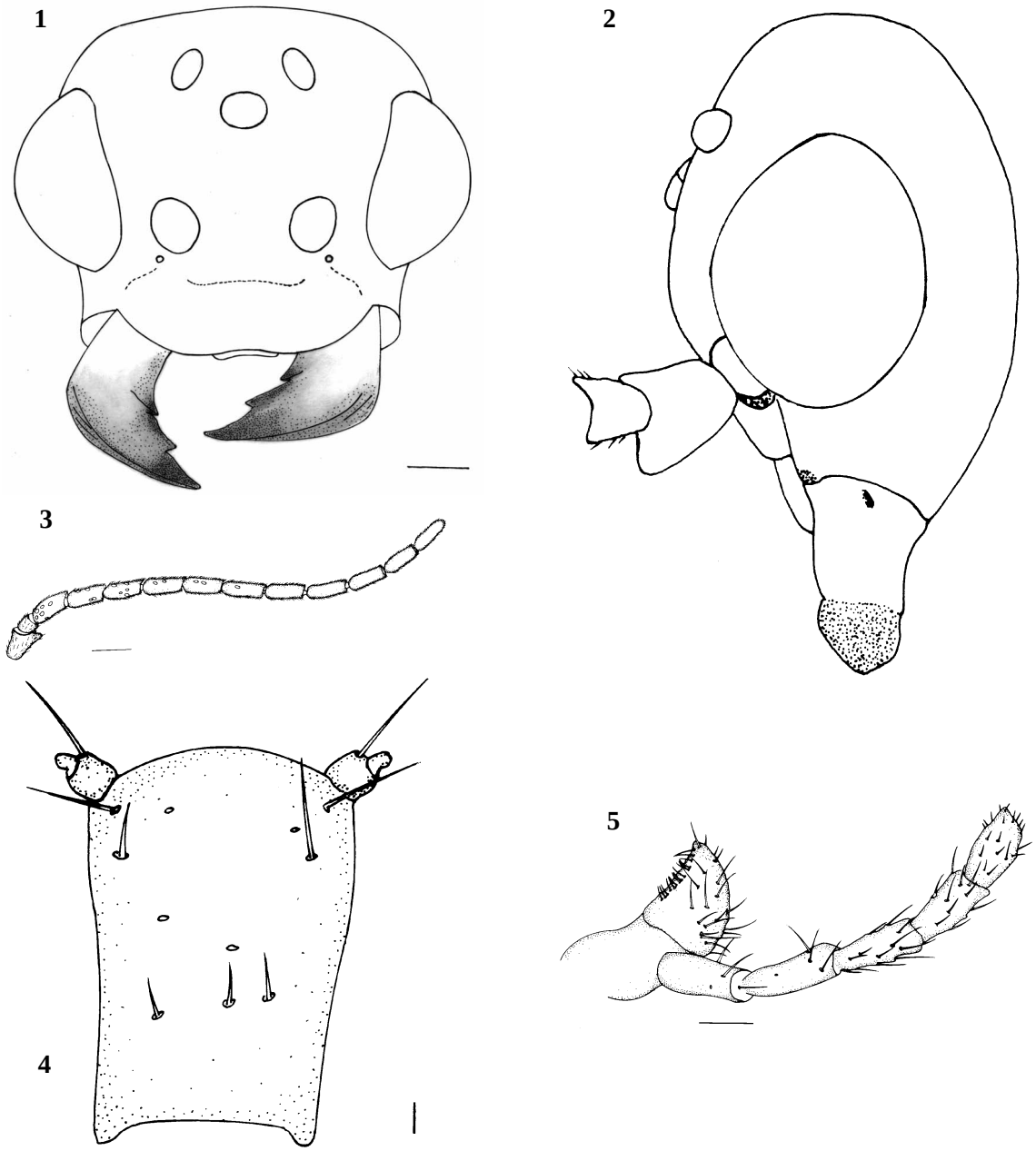
Figs. 1–12

Type species: *Mapluroides ogloblini* **n. sp**.

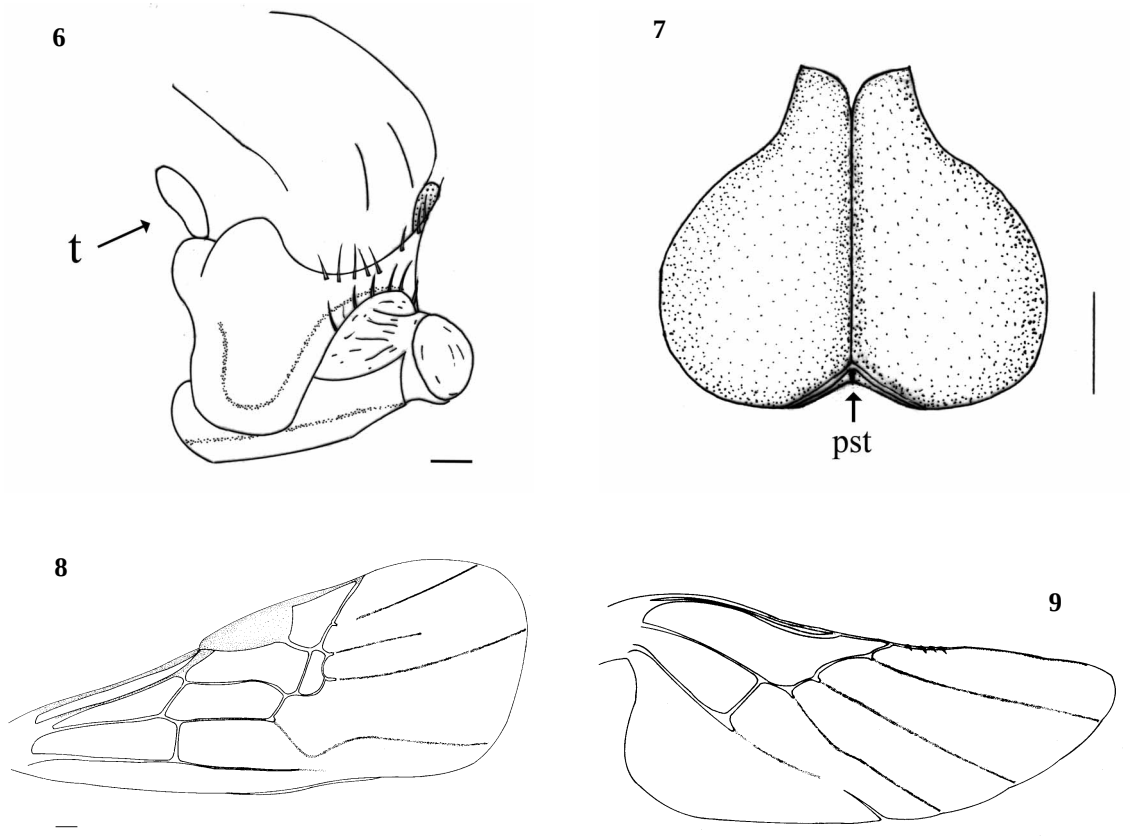
Description. *Head* hypognathous; in frontal view 1.2X wider than height (Fig. 1), seen from above twice wider than long; vertex rounded, without furrows or carinae; preoccipital carina absent. Eye hemispherical, protruding, glabrous, without paraocular carinae; inner margins converging below. Ocellocular distance 3.3X diameter of lateral ocellus; interocellar distance 1.1X ocellocular distance. Antennal socket with lower rim slightly elevated; antennocular distance 0.6X diameter of socket; interantennal distance 3.5X antennocular distance; surface between sockets convex, antennocular surface slanting towards eye margin. Gena without furrows or carinae. Apex of clypeus in frontal view slightly emarginate medially, apical margin recessed; epistomal suture mostly weak, scarcely noticeable around tentorial pit and close to mandibular articulation; apical setae of clypeus variable in size, some slightly longer than basal width of mandible; discal setae of clypeus forming a more or less regular, transverse row on each lateral third. Labrum small, visible in frontal view, slightly emarginate apically. Postgenal bridge slightly longer than diameter of foramen. Mandible with sharp long apical tooth and two sharp preapical teeth; setae of mandible of variable length, some slightly longer than basal width of mandible. Labium subrectangular, slightly wider at rounded apex; labial palpus with two segments, apical segment reduced (Fig. 4). Maxillary palpus five segmented; proportion of segments (length:width): 31:16, 38:15, 38:14, 31:16, 34:17 (Fig. 5). Antenna with 11 flagellomeres, tapering to apex; scape ventrally with large tuberculiform projection ending apically in blunt point (Fig. 2), in dorsal view (opposite to projection) 1.25X longer than apical width. Pedicel narrow at base, apical width 1.1X its length. Proportion of flagellomeres (length:width): 17:9, 17:8, 19:8; 20:7; 19:7; 21:7; 19:7; 19:6; 18:7; 17:6; 20:6; flagellomeres with short, decumbent, abundant setae, longest setae nearly 0,25X as long as width of flagellomere; sensory plates large, ovoid, present on flagellomeres (Fig. 3).

Mesosoma: 1.3 times longer than wide. Proportion of lengths of mesoscutum, mesoscutellum, metanotum, metapostnotum and propodeum along midline 1:0.95:0.46:0.15:0.58. Pronotum not visible dorsally, except for pronotal lobe laterally; medially forming narrow transverse band which broadens laterally to six times median heigth; posterior margin of pronotum laterally not continuous with margin of prontal lobe but forming a carina superimposed on the lobe, giving to it a bilobate aspect; lateroventral angle rounded (Fig. 6). Propleuron extended anteriorly beyond pronotum, without lateral carina separating ventral and dorsal areas. Prosternum in ventral view much reduced, scarcely visible behind propleura (Fig. 7), most of its exposed surface vertical, but a short horizontal upper sector present. Tegula semicircular. Parapsidal line and notaulus weak. Mesal area of axillae and scutellum forming nearly horizontal, posteriorly directed triangular surface which steeply slants laterally; axillar sutures indicated by conspicuous dark, continuous line. Prepectus forming narrow bar widest dorsally and tapering ventrally, usually hidden by pronotum. Hypoepimeral area of mesopleuron limited inferiorly by dark line running from mesopleural scrobe to meso–metapleural suture; mesepisternal groove present, as short dark line running antero–ventrally from mesopleural scrobe. Metanotum subrectangular,

0.46X as long as mesoscutum. Metapostnotum nearly flat, with anterior margin straight and posterior margin bowed, being broader medially and narrowest at level of propodeal spiracles. Propodeum convex, in dorsal view twice as broad as long; propodeal spiracle narrow, removed from anterior margin of propodeum by approximately its length. Legs slender; tibiae and tarsi with scattered weak setae, except fore and mid tibia apically and along outer margin with strong spiniform setae. Tibial spurs 1-2-2; anterior spur weakly curved, sharply pointed (Fig. 10); fore basitarsus with shallow strigilar concavity approximately one third as long as basitarsus, bearing strigilar comb of fine setae; mid tibial spurs subequal, 1.5X as long as mid-tibial apical width; hind tibial spurs 1.7X as long as hind-tibial apical width. Claws simple, of similar size; arolium present only on foretarsus. *Wings*: forewing 3.8X longer than its maximum width; prestigma swollen apically; anterior margin of marginal cell as long as apical margin, approximately twice as long as slightly curved basal margin, and 3X longer than vein r–rs; first nebulous vein arising 1/3 below middle of apical margin of marginal cell (Fig. 8). Hind wing with vannal lobe 2.1X as long as submedian cell (Fig. 9).



FIGURES 1–5. *Mapluroides ogloblini* **n. sp.**: 1, head, frontal view; 2, head, lateral view; 3, antenna; 4, labium, ventral view; 5, left maxilla, ventral view. Scale = 0.1 mm.



FIGURES 6–9. *Mapluroides ogloblini* **n. sp**.: 6, pronotum and mesoscutum, anterolateral view, t, tegula; 7, propleura and prosternum (pst), ventral view; 8, forewing; 9, hind wing. Scale = 0.1 mm.

Metasoma depressed, in dorsal view 3X longer than maximum width, spindle-shaped caudally; with sparse pubescence longer on sterna. First tergum with distinct anterior vertical, concave surface; in dorsal view longer and narrower than second. Seventh tergum subtriangular, apically rounded; posterior margin forming flat, sclerotized, polished ridge (Fig. 11). First sternum longer than second, basal 2/3 with median longitudinal keel. Hypopygium apically almost truncate, weakly bilobed (Fig. 12). Cercus well developed. Genital capsule as in figure 13.

Etymology. The generic name is an anagram of *Plumaroides.*

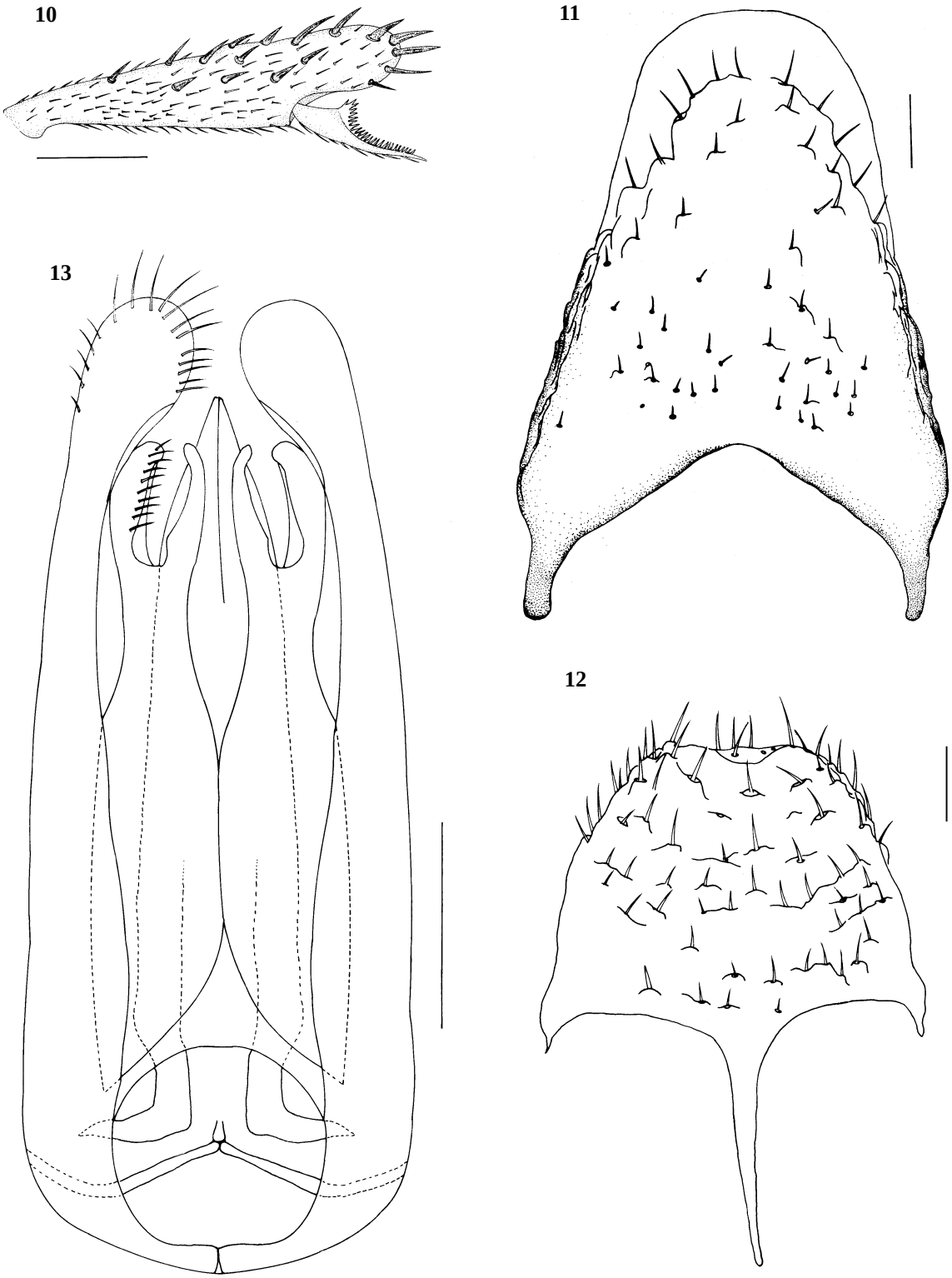
***Mapluroides ogloblini* new species**

Holotype male: Total length 5.9 mm (paratypes, 3.0–9.3 mm). Body with alutaceous sculpture and sparse, short pubescence. *Color*: Dark brown with a pattern of whitish to yellowish brown areas as follows: scape, pedicel, entire posterior surface of head, posterior part of vertex, narrow paraocular band, malar area, clypeus, basal part of mandible, lateral part of pronotum, ventral surface of prosternum, narrow longitudinal band laterally on mesoscutum, tegula, triangular median spot on scutellum occupying triangular horizontal surface and upper part of nearby slanting sides (apex of triangular spot removed from posterior margin of scutellum by ¼ of its length), all legs, wing veins (except dark nebulous veins) and pterostigma. Light brown are: flagellum, upper side of propleuron, lateral spot on mesopleuron in front of mid coxa, and lateral spot on propodeum. Wings membrane hyaline.

Color variation. Large specimens present a more contrasting pattern of pale areas, while small specimens

tend to be darker. The mesoscutum may lack the pale band, the triangular spot of the scutellum may be reduced or absent, the paraocular band may be lacking, the pterostigma may be brownish, and in some specimens the scape, pedicel, clypeus and base of mandible may be pale brown.

Etymology. The species is named after Alejandro A. Ogloblin, distinguished Russian hymenopterist who worked for many years in Argentina, and who collected the first specimen of this new taxon.



FIGURES 10–13. *Mapluroides ogloblini* **n. sp**.: 10, foretibia; 11, seventh metasomal tergum, dorsal view; 12, hypopygium, dorsal view; 13, genital capsule, ventral view, setae depicted on left side only. Scale = 0.1 mm.

Material studied. Holotype male: Argentina, province of San Juan, Ruta 141, Km 197 near Caucete, 580 m a.s.l., at light, 28-I-2006, col. P. Fidalgo (MACN). Paratypes: 32 males, same data as holotype (IFML); 32 males, same data as holotype (MACN); 4 males, same data as holotype (MLP); 2 males, same data as holotype (FSCA); 1 male, Argentina, province of La Rioja, Mascasín, 23-XI-1941, at light, col. A. Ogloblin (MLP).

Discussion

The new genus *Mapluroides* is closely related to *Plumaroides* Brothers and *Maplurius* Roig Alsina. In the phylogenetic analysis of the genera of Plumariidae presented by Roig Alsina (1994) it falls close to these two genera, with which it shares the following synapomorphies: the hind wing with an exceedingly large vannal lobe and a short submarginal cell, the first metasomal sternum with a longitudinal median keel, and the lack of arolia on the mid and hind tarsi. It does not share any of the apomorphies indicated in this analysis for *Myrmecopterinella* Day, *Plumarius* Philippi, or *Myrmecopterina* Bischoff.

A further characteristic of *Mapluroides*, indicative of the above-mentioned relationships, is the shape of the antennal scape, which has ventrally a large tuberculiform projection ending apically in a blunt point. This projection is intermediate between the weak swelling present in species of *Plumaroides* and the strong digitiform projection present in *Maplurius*. This ventroapical projection of the scape further unites the three genera. Species of *Plumarius* present a basal enlargement of the scape, which is not considered homologous.

Mapluroides shares with *Plumaroides* the transverse clypeus with a recessed apical margin, the bilobate shape of the pronotal lobe, the antennal flagellomeres with short, decumbent setae, and the 5:2 palpal formula. The first two features are synapomorphies for the two genera, while the latter two represent similarities for which the apomorphous condition is present in *Maplurius*: antennal flagellomeres with rows of long setae, and a reduced palpal formula 5:1. The shape of the hypopygium, almost truncate and weakly bilobed, is similar in *Mapluroides* and *Maplurius*, and may represent an apomorphy uniting these two genera; a subtriangular, pointed hypopygium is characteristic of other plumariids. This array of shared characteristics suggests that the relationships among the three genera are (*Maplurius* (*Plumaroides* + *Mapluroides*)).

Mapluroides and *Plumaroides* can be seen as two distinct genera. Species of *Plumaroides* are characterized by having the seventh metasomal tergum pointed and bearing a longitudinal median carina (which is not present in any other genus), while the seventh tergum of *Mapluroides* is apically round, bearing a flat, sclerotized, polished ridge, much as in other plumariids. The forewing in *Plumaroides* has an extremely narrow marginal cell and the first nebulous vein arises near its posterior margin, while *Mapluroides* has a more plesiomorphous venation, the marginal cell being broad and the first nebulous vein arising near its middle, much as in *Maplurius*.

Mapluroides is apomorphic regarding *Plumaroides*, as well as regarding all other plumariids, in the structure of the prosternum and the presence of spiniform setae on the fore and mid tibiae. The prosternum has the ventral surface much reduced, scarcely visible behind the propleura. In *Maplurius* and *Plumaroides* the prosternum has a distinct subtriangular ventral surface and in other plumariids the ventral surface of the prosternum is even more developed. In *Mapluroides* the fore and mid tibiae have strong spiniform setae apically and along the outer margin, while other plumariids have these setae weak or absent.

Acknowledgements

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