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A NEW SPECIES OF *LAMPREMPIS* WHEELER & MELANDER FROM BRAZIL, WITH A KEY TO THE DESCRIBED SPECIES OF THE GENUS (DIPTERA, EMPIDIDAE)

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ABSTRACT

A new species of Empididae, Lamprempis sazimae, is described from Serra do Cipó, Minas Gerais, Brazil. The new species is discussed in relation to the remaining species of the genus, and a key to all known species is presented.

An interesting species of *Lamprempis* is described below at the request of Mrs. Marlies Sazima of the Departamento de Botânica, Universidade Estadual de Campinas, Brazil.

During her work on aspects of pollination ecology in the highlands of Minas Gerais, Central Brazil, Mrs. Sazima found that this species was an important pollinating agent for certain Umbelliferae and Eriocaulaceae growing in meadows at 1300 m above sea level.

The flies were observed in great numbers during the summer (December to February) of 1971 and 1973. They visited exclusively flowers of *Klotzschia rhizophylla* (Umbelliferae) and *Paepalanthus* sp. (Eriocaulaceae) which grow in rocky fields. These are ornamental plants and *Paepalanthus* species constitute an important source of income for some highlanders. The flies sucked nectar, thus promoting pollination and while so doing were frequently preyed upon by crab-spiders (Thomisidae).

Lamprempis sazimae, sp. n.

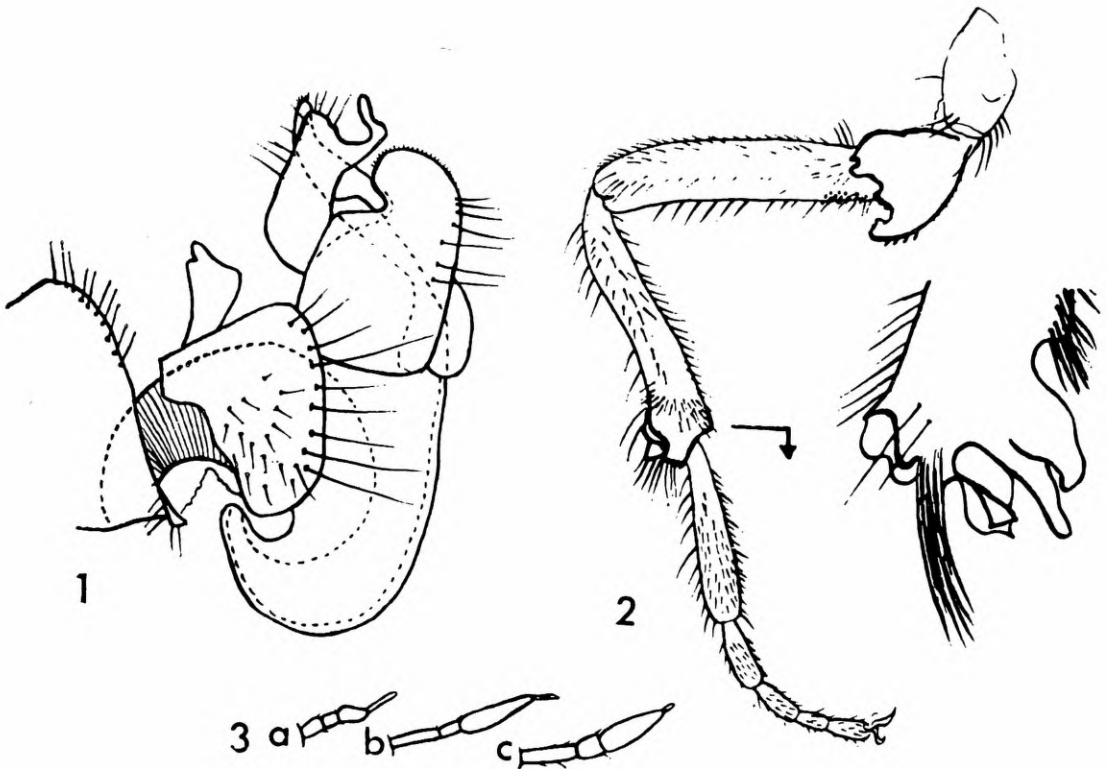
♂ Head: with eyes touching for long distance from front ocellus, thus reducing the frons to a very small triangle above the antennae. Face shining bluish-black, about twice width of third antennal segment. Antennae (fig. 3c) set high upon head, first two segments yellowish and short-haired; third segment brown; first segment twice length of second; third segment 1 1/2 times length of first segment. Eyes with upper facets enlarged. Ocellar triangle prominent with two slender ocellar bristles and two tiny bristles behind. Occiput black, dusted

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greyish. Postocular bristles longest about middle of occiput with some long bristles behind on lower half of head. Proboscis slender, $1 \frac{1}{4}$ times as long as head is deep. Palpi brown. Thorax: Shining black with metallic blue-green reflections, dusted posteriorly on prescutellar patch; weakly bristled. Acrostichal bristles absent; dorsocentrals uniserial, minute anteriorly with two longer prescutellar pairs of bristles posteriorly. One or two slender posthumeral hairs. A supra-alar with some short hairs in front and a postalar. Humeri with short hairs. Pleurae black, mostly dusted greyish but a shining patch on mesopleura and sternopleura. Prothoracic collar with a fringe of short hairs. Prothoracic sternum with a few hairs on upper outer corner. Metapleura with bristly hairs. Scutellum shining blue-black with 4 marginal bristles, the outer pair a little shorter. Abdomen: shining black with bluish reflections, minutely haired dorsally but a little longer on posterior margin of 2 pregenital tergites and all tergites longer haired laterally. Sternites shining and insignificantly haired. Genitalia (fig. 1) shining black. Legs: coxae blackish, dusted greyish; front and middle trochanters brownish, hind trochanter blackish; femora and tibiae yellowish except for hind tibia which is darkened at tip; front tarsi with basitarsus brownish, next two segments mostly brown with extreme base yellow and last two segments brownish; middle and hind legs with first two segments yellow and only darkened at tips, remaining segments brownish. Hind trochanter enormously and grotesquely enlarged and modified (fig. 2). Front femora with longer bristly hairs above in basal half, weak antero- and postero-ventrals, largely bare on anterior face; middle femora with weak anteroventrals and weaker posteroventral hairs, more evenly and longer haired on anterior face, especially anterodorsally, sparsely and minutely haired on posterior face; hind femora mostly short haired with longer hairs anterodorsally and posteroventrally and a series of slender anteroventrals and at the base a small dense cluster of short black points posteroventrally. Front tibia with short, spaced, dorsal bristles and short posteroventral hairs ending in a bristle-like pre-apical; middle tibia with distinct anteroventral and posterodorsal bristles, otherwise indistinctly bristled except for a few stronger bristly posteroventral hairs distally; hind tibia broadening distally and grotesquely modified with processes, tooth-like projections and bristle fringes at tip (fig. 2). Front basitarsus swollen with one or two bristles above; middle basitarsus slender and distinctly bristly beneath; hind basitarsus thickened, distinctly short bristled below and with longer slender antero- and posterodorsals. Wings: clear, with yellowish veins, both upper branches (m_1 and m_2) from discal cell reaching the wing-margin though somewhat faint and bent at tip. Stigma long and yellowish. Halteres yellowish, somewhat darkened, especially on knob.

Length: 3 mm.

♀ Similar to ♂. Eyes broadly separated, frons as wide as face. Occipital bristles and hairs shorter. Legs similar to male with front basitarsus swollen but hind trochanter normal and hind tibia laterally compressed but not modified apically. The front femora have a short series of pennate posteroventral hairs apically, the middle femur is pennate posteroventrally, the hind femur is laterally compressed and pennate posteroventrally. The middle tibia is compressed with long slender bristles anteroventrally and is pennate dorsally; the hind tibia is laterally compressed with long slender bristles anteroventrally and posterodorsally and is pennate posteroventrally and dorsally.



Lamprempis sazimae, sp. n., ♂: 1, genitalia in lateral view; 2, hind leg in posterior view and (inset) enlarged detail of modified apex of tibia twisted to the right and viewed obliquely from above. Fig. 3, Antennae of *Lamprempis*: a, *L. meridionalis* Engel, ♂; b, *L. lindneri* Engel, ♂; c, *L. sazimae*, sp. n., ♂.

Holotype ♂, BRAZIL, Minas Gerais, Serra do Cipó, 172 km, road from Vespasiano to Conceição do Mato Dentro, Jaboticatubas, 14.XII. 1971 (*M. Sazima*).

Paratypes, 3♂, 5♀ same data as Holotype. Holotype ♂, paratypes 2♂, 4♀ (♂, 3♀ in spirit) deposited in the Museu de Zoologia, University of São Paulo, Brazil. Paratypes 2♂, ♀ (dried from spirit, 1♂ dissected on slide) in the British Museum (Natural History), London.

Lamprempis was erected by Wheeler & Melander (1901) as a subgenus of *Empis* to receive five Central American species of metallic green-blue or black colouration with an evanescent sixth wing vein and peculiarly ornamented legs. Other distinguishing features are found in the antennae which are set high upon the head and have the third segment nearly or quite as long as the long first segment.

Coquillett (1903) gave *Lamprempis* generic status, designated *Empis chichimeca* Wheeler & Melander as type species and described a new species, *L. setigera* Coquillett.

Bezzi (1905) described three further species and later (1909) gave a key to the known species. Melander (1928) included 14 species in the genus and Engel (1928) described *L. lindneri* and *L. chichimeca* var. *meridionalis* from Bolivia. Since that date 5 further species have been described from Brazil (Smith, 1962).

L. sazimae closely resembles *L. meridionalis* in the modification of the hind legs but is distinguished at once by the longer antennae and proboscis. Engel described *meridionalis* as a variety of *chichimeca* Wheeler & Melander, but that species is obviously quite distinct on the characters given in the key and thus *meridionalis*, stat. nov., is here treated as a species. *L. sazimae* is separated in the key on its yellow femora but is also included in the dark-legged section of the key to contrast its structural characters with the closely related *meridionalis* and *lindneri* Engel.

The following key to the 22 described species must be regarded as tentative since some species are known from only one sex and some species are known to be sexually dimorphic, especially in the presence or absence of pennate hair fringes and other leg modifications. The genus is entirely Neotropical.

Key to the described species of *Lamprempis* Wheeler & Melander

- | | | |
|-----|---|-----------------------------------|
| 1. | Wing with some dark markings | 2 |
| | Wings completely hyaline or yellowish | 6 |
| 2. | Wings uniformly black or brown | 3 |
| | Wings hyaline, marked with black | 4 |
| 3. | Legs black with front femur yellow and hind femur with a broad yellow pre-apical ring (Cuba) | <i>superba</i> (Loew), ♂ |
| | Legs brownish (Brazil) | <i>truncatus</i> Smith, ♂ ♀ |
| 4. | The base, costal margin and margins of the discal cell broadly bordered with black (Mexico) | <i>violacea</i> (Loew), ♂ |
| | Only the cross-veins dark-seamed | 5 |
| 5. | Third antennal segment narrow with very short style; legs yellow and mostly pennate; hind femur with a process at middle; body metallic coloured (Peru) | <i>tuberifera</i> Bezzi, ♂ ♀ |
| | Third antennal segment short and broad; pronotum with four dark stripes; hind femur simple; body predominantly blackish coloured (Colombia) | <i>columbi</i> (Schiner), ♀ |
| 6. | Legs with at least the femur yellow | 7 |
| | Femur or tibia partly blackish | 14 |
| 7. | Coxa yellow | 8 |
| | Coxa dark | 9 |
| 8. | Scutellum with about 10 marginal bristles (Cuba) | <i>setigera</i> Coquillett, ♂ ♀ |
| | Scutellum with 2 marginal bristles (Jamaica) | <i>viridis</i> (Coquillett), ♂ |
| 9. | Legs simple, not pennate | 10 |
| | Legs partly pennate | 12 |
| 10. | Hind trochanter grotesquely enlarged and modified and hind tibia modified and swollen at tip (Brazil) (see also couplet 16 <i>et seq.</i>) | <i>sazimae</i> , sp. n., ♂ |
| | Hind trochanter and tibia not so modified | 11 |
| 11. | Third antennal segment narrow with a very short style (Bolivia) .. | <i>gemmae</i> Bezzi, ♂ |
| | Third antennal segment broader with style of almost equal length (Brazil) | <i>bezzii</i> Smith, ♀ |
| 12. | Antennae entirely yellow ("South America") | <i>dolichopodina</i> (Schiner), ♀ |
| | Antennae partly black | 13 |

13. Antennae entirely black, only hind legs pennate (Mexico)
 *diaphorina* (Osten Sacken), ♀
 Only third antennal segment black, all legs with some pennate
 hairs (Brazil) *sazimae*, sp. n., ♀
14. Legs simple 15
 Legs partly pennate 22
15. Hind basitarsus with a distinct ventral tooth or crenation; anten-
 nae yellowish 20
 Hind basitarsus simple; antennae partly black 16
16. Hind trochanter and tibia modified at tip 18
 Hind legs not so modified 17
17. Larger (3.5 mm) coppery-black species with blackish tibia (Brazil)
 *furcaticauda* Smith, ♂
 Smaller (2.5 mm) blue-green species with paler tibia (Mexico) ...
 *suavis* (Loew), ♀
18. Antenna short (fig. 3a), apical style longer than third segment
 (Bolivia) *meridionalis* Engel, ♂
 Antenna long (figs. 3, b, c), apical style shorter than third seg-
 ment 19
19. Hind trochanter with a single apical ventral projection; hind tibia
 with a projecting posteroventral apical spur; a series of long
 bristles above hind tibia and basitarsus (Bolivia)
 *lindneri* Engel, ♂
 Hind trochanter with whole posterior margin incised and toothed;
 hind tibia with a complex of projections and a tuft of bristles
 at tip; bristles above hind tibia and basitarsus shorter (fig. 2)
 (Brazil) *sazimae*, sp. n., ♂
20. Hind femora posteroventrally with two slender finger-like proces-
 ses, with an emargination between them; hind tibia posteriorly
 with a stout scoop-shaped process truncated and flattened at
 the extremity; hind basitarsus incrassate with an anterior
 projection tipped with two small black spines (Mexico)
 *chichimeca* Wheeler & Melander, ♂
 Hind legs simple (Mexico) *benigna* (Osten Sacken), ♂
21. Third antennal segment broader with a style of equal length .. 22
 Third antennal segment narrow and longer with a much shorter
 style 23
22. Larger (5 mm) robust species with pennate hairs above at tip of
 front tibia and above on all basitarsi and above and below the
 middle and hind femora and tibiae (Mexico)
 *cyanea* (Bellardi), ♀
 Smaller (2.5 mm) species with no pennate hairs on the front legs
 or on any tarsi or below middle or hind tibiae (Brazil)
 *cucama* Smith, ♀
23. Tarsi whitish, but the four anterior basitarsi and all terminal seg-
 ments black (Peru) *calopoda* Bezzi, ♂ ♀
 Tarsi yellowish or brownish 24
24. Front basitarsus scarcely thickened; legs blackish (Mexico)
 *benigna* (Osten Sacken), ♀
 Front basitarsus distinctly thickened 25
25. Middle femur and tibia pennate below, hind femora pennate above
 and below and hind tibia below (Mexico)
 *chichimeca* Wheeler & Melander, ♀
 Only hind legs pennate, the femur and tibia below and the tibia
 also above on distal third (Brazil) *boracea* Smith, ♀

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