

RECORDS AND DESCRIPTIONS OF CHILEAN  
TIPULIDAE (ORDER DIPTERA) PART IV.

BY

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The preceding part under this general series of papers was published in the «Revista Chilena de Historia Natural», Vol. 42, 1938. At this time I wish to describe an unusually interesting crane-fly that was taken at Cayutue, near Lago de Todos los Santos, in the Department of Llanquihue, by Dr. Kurt Wolffügel, and a small series of species that were taken at and near the Termas Rio Blanco, Curacautín, Department of Cautín, in late March 1938, by Prof. Dillman S. Bullock. My deepest thanks are extended to these scientists for their continued interest in collecting the Tipulidae of southern Chile. The types are preserved in my collection of these flies. In Part. I of this series of papers (Revista, 38: 179; 1934) the type locality of *Aphrophila viridinervis* Alexander was given as being uncertain. I am greatly indebted to Dr. Edwyn P. Reed for the information that the locality in question is undoubtedly Cunco, near Valdivia, in South Chile.



## LIMNOPHILA Macquart

**Araucolimnophila, subgen. n.**

Characters as in typical *Limnophila* but with a strong supernumerary crossvein in cell *C* above the origin of *Rs*. Cell *R* very short-petiolate; cell *M*<sub>1</sub> shorter than its petiole; *m-cu* beyond two-thirds the length of cell 1st *M*<sub>2</sub>; no supernumerary veins or folds behind the Anal veins; anterior arculus preserved. Antennae 16-segmented; basal four flagellar segments tumid, especially the first; succeeding segments cylindrical, with long coarse verticils that exceed the segments in length. Tuberculate pits lacking; pseudosutural foveae large.

*Type of subgenus.*—*Limnophila* (*Araucolimnophila*) *wolffügeli* sp. n. (Neotropical: Chilean Subregion).

The present subgenus is quite distinct from others hitherto defined in *Limnophila*. The strong supernumerary crossvein in cell *Sc* is quite as in *Epiphragma*, which falls in a distinct subtribe, the Epiphragmaria, with the anterior arculus of the wings lacking.

***Limnophila* (*Araucolimnophila*) *wolffügeli*, sp. n.**

General coloration yellowish gray, the praescutum with dark brown stripes; antennae black throughout; legs obscure yellow, the tips of femora and tibiae blackened, the amount subequal in degree; wings brownish yellow, with a restricted, chiefly costal pattern; a strong supernumerary crossvein in cell *C* opposite origin of *Rs*; *R*<sub>2+3+4</sub> short; vein 2nd *A* relatively sinuous.

*Female.*—Length, about 13 mm.; wing, 13.5 mm.

Rostrum yellowish gray; palpi black. Antennae black throughout, the structure as described above. Head brown, the broad anterior vertex and narrow orbits more yellowish gray.

Pronotum brownish gray. Mesonotal praescutum yellowish gray, striped with dark brown, the median stripe broad and conspicuous; lateral stripes broad, incurved at anterior ends, constricting or interrupting the posterior interspaces; centers of lateral stripes paler brown than their margins; pseudosutural foveae black, elongate, transverse; scutum yellowish gray, the centers of the lobes brown; scutellum yellowish gray, with an ill-defined median vitta; mediotergite yellowish



gray, more or less variegated with darker. Pleura pale, gray pruinose. Halteres short, pale yellow. Legs with the coxae and trochanters brownish yellow; femora and tibiae obscure yellow, the tips rather narrowly but conspicuously blackened, the amount subequal throughout; basal tarsal segments brownish yellow, the outer segments blackened; legs with conspicuous setae. Wings brownish yellow, with a restricted but conspicuous brown costal pattern, as follows: Origin of  $R_s$ , extending cephalad over the supernumerary crossvein in cell  $C$ ; fork of  $Sc$ , confluent with a similar area on anterior cord;  $R_2$  and  $R_1+2$ ; a small rounded spot at tip of  $R_3$ ; narrower and more restricted seams at  $h$ , along posterior cord, outer end of cell 1st  $M_2$  and fork of  $M_1+2$ ; veins brown, a little darker in the clouded areas. Venation: Besides the characters discussed under the subgenus, the following specific features should be mentioned:  $Sc_2$  close to tip of  $Sc_1$ ;  $R_2+3+4$  subequal to  $r-m$ ; vein 2nd  $A$  relatively sinuous, the cell wide.

Abdomen dark brownish gray; genital segment reddish; cerci broken in the unique type.

Hab. Chile.

*Holotype*, ♀, Cayutue, near Lago de Todos los Santos, Llanquihue, altitude 200 meters, January 28, 1936 (*K. Wolffhügel*).

I take great pleasure in naming this very distinct crane-fly in honor of the collector, Dr. Kurt Wolffhügel, to whom I am indebted for several interesting Tipulidae from the region around Cayutue. The fly superficially resembles species of the genus *Austrolimnophila* Alexander but differs therefrom not only in the generic features but in specific details of coloration and venation.

### ***Limnophila bullockiana*, sp. n.**

General coloration of mesonotum brownish yellow, the praescutum faintly patterned with darker; rostrum and antennae brownish black; head gray, the anterior vertex wide; halteres and legs yellow; wings relatively broad, clear light yellow, variegated only by the pale brown stigma; cell  $M_2$  open by atrophy of basal section of  $M_3$ , the outer medial field thus being pectinately branched; genital shield obscure orange.



*Female*.—Length, about 9 mm.; wing, 8.3 mm.

Rostrum brownish black; palpi black. Antennae dark brown throughout; flagellar segments oval, with conspicuous outspreading verticils that exceed the segments in length. Head gray; anterior vertex broad, its width about three times the diameter of scape.

Pronotum obscure yellow on sides, brownish gray pruinose above. Mesonotum brownish yellow, the praescutum with three faintly indicated brown stripes, the anterior end of median vitta best indicated; scutal lobes weakly darkened. Pleura yellow. Halteres pale yellow. Legs yellow, the tips of the femora, tibiae and basitarsi very weakly darkened; outer tarsal segments darkened. Wings relatively broad, clear light yellow, the oval stigma pale brown; veins yellow. Venation:  $Sc$  moderately long,  $Sc_1$ , ending opposite fork of  $R_s$ ,  $Sc_2$ , at its tip;  $R_s$  moderately long, gently arcuated at origin, in longitudinal alignment with  $R_2+3+4$ ;  $R_2$  at mid-length of stigma, subequal to  $R_2+3$ , shorter than  $R_1+2$ ; veins  $R_3$  and  $R_4$  diverging strongly, cell  $R_3$  at margin wide; cell  $M_1$  present; cell  $M_2$  open by atrophy of basal section of  $M_3$  so the outer medial field is tripectinate;  $m-cu$  more than one third its length beyond the fork of  $M$ .

Abdominal tergites brownish black to black, the basal sternites obscure yellow; genital shield obscure orange, the cerci horn-yellow.

Hab. Chile.

*Holotype*, ♀, Termas Río Blanco, Curacautín, altitude 1050 meters, March 29, 1938 (*Bullock*).

The present species is named in honor of Professor Dillman S. Bullock, to whom I am signally indebted for much assistance in a study of the Tipulidae of Chile. The fly is very distinct from the numerous species of the genus now known from southern South America. It is assumed that the pectinate condition of the outer medial field of the wing is normal for the species, since it is quite alike on the two wings of the unique type. A comparable condition is found in the European *Limnophila* (*Phylidorea*) *aperta* Verrall. Professor Bullock informs me that all of the species taken at Curacautin and discussed herewith were taken in the beech zone, with *Nothofagus Dombeyi* Blume and *N. procera* Oerst., the dominant species. The zone of Araucarians lies still higher on these mountains.



**Shannonomya penumbrosa, sp. n.**

General coloration brownish gray, the praescutum with three black stripes; antennae black; halteres yellow, the knobs weakly darkened; legs black, the femoral bases obscure yellow; wings with a strong blackish tinge, stigma brown; faint dusky seams and clouds at origin of *Rs* and along cord; *Rs* relatively long, arcuated at origin, exceeding vein *R*<sub>3</sub>; *m-cu* more than one-half its length beyond fork of *M*; abdomen black; caudal margin of ninth tergite bearing two narrow, widely separated lobes.

*Male*.—Length, about 8 mm.; wing, 8.3 mm.; antenna, about 1.3 mm.

Rostrum black, sparsely pruinose; palpi black. Antennae short, black throughout, the scape pruinose; flagellar segments oval, more elongate outwardly; verticils elongate. Vertex brown, the broad front and anterior vertex, with the narrow orbist, buffy.

Pronotum brownish gray, variegated by velvety black. Mesonotal praescutum brownish gray, with three black stripes, the median one broad and conspicuous, the laterals narrower; pseudosutural foveae black; posterior sclerites of notum gray, the acutal lobes more blackened. Pleura gray, variegated with blackish on ventral portions of anepisternum, sternopleurite and pleurotergite; dorsopleural membrane dusky. Halteres yellow, the knobs weakly darkened. Legs with the fore and middle coxas dark gray, posterior coxas yellow; trochanters obscure yellow; remainder of legs black, the femoral bases obscure yellow. Wings with a strong blackish tinge, the extreme base light yellow; stigma oval, dark brown; faint dusky clouds at origin of *Rs*, along cord and on certain of the veins, especially *Cu*; veins black. Venation: *Sc*<sub>1</sub> ending opposite *r-m*, *Sc* a short distance from its tip; *Rs* relatively long, arcuated at origin, exceeding vein *R*<sub>3</sub> alone; *m-cu* more than one-half its length beyond the fork of *M*.

Abdomen black, the sternites more pruinose; hypopygium a little brightened. Male hypopygium with the caudal margin of tergite bearing two narrow, widely separated lobes. Outer dististyle blackened and unequally bifid at apex, the outer tooth slender. Inner dististyle small and narrow. Aedeagus of moderate length.

Hab. Chile.

*Holotype*, ♂, Termas Río Blanco, Curacautín, altitude 1,050 meters, March 28, 1938 (*Bullock*).



*Shannonomyia penumbrosa* is well-distinguished from other known species of the genus that have the thorax gray by the strongly darkened and patterned wings, the venational details, and the structure of the male hypopygium. It is perhaps most nearly allied to *S. cacoxena* Alexander, but quite distinct.

### **Molophilus subappressus, sp. n.**

Belongs to the *plagiatus* group; general coloration of praescutum brown, the humeral triangles obscure yellow; pleura dark brown; halteres yellow; legs yellow, the outer tarsal segments darkened; wings grayish yellow; male hypopygium with the basal dististyle a strong straight rod that splits at midlength into two long straight appressed spines, with a few smaller spines and spinulae before and close to fork; phallosome a strongly bilobed cushion with abundant setae.

*Male*.—Length, about 4 mm.; wing, 4.5 mm.

Rostrum brownish black; palpi black. Antennae with scape brownish yellow; pedicel brown; flagellum black; flagellar segments long-oval, with very long verticils. Head gray.

Pronotum brownish yellow, clearer yellow laterally; anterior pretergites light yellow. Mesonotal praescutum brown, the humeral triangles obscure yellow, the lateral borders paling to reddish; scutum brown; scutellum more testaceous; mediotergite dark brown. Pleura dark brown, the dorsopleura region yellow. Halteres yellow. Legs with the coxas and trochanters pale yellow; remainder of legs yellow, the outer tarsal segments darkened; fore tibia (male) with a distinctly swollen and blackened subbasal ring. Wings grayish yellow, the basal and costal portions clearer yellow; veins pale brown. Venation:  $R_2$  lying a short distance beyond level of  $r-m$ ; petiole of cell  $M_3$  a little less than twice  $m-cu$ ; vein  $2nd A$  elongate, ending beyond the level of  $m-cu$ .

Abdominal tergites brownish black; sternites a little brighter; hypopygium obscure yellow. Male hypopygium (**Fig. 22, 1**) with the apical beak of basistyle,  $b$ , slender. Outer dististyle,  $oa$ , with the arms short. Basal dististyle,  $bd$ , a strong straight rod that splits at midlength into two long straight appressed spines, these slightly unequal in length; longer spine provided with a few scattered punctures; on main stem just before fork with a strong spike-like spine and a few smaller spines and points at and close to fork. Phallosome,  $p$ , a strongly bilobed cushion, clothed with abundant setae.



Hab. Chile.

*Holotype*, ♂, Termas Río Blanco, Curacautín, altitude 1,050 meters, March 29, 1938 (*Bullock*).

*Molophilus subappressus* is closest to *M. appressus* Alexander (Patagonia), differing especially in the structure of the male hypopygium, notably the basal dististyle.

### *Molophilus inarmatus*, sp. n.

Belongs to the *gracilis* group, *ruficollis* subgroup; general coloration of thorax reddish, the cephalic portion of praescutum darker; head gray; halteres pale, the knobs light yellow-

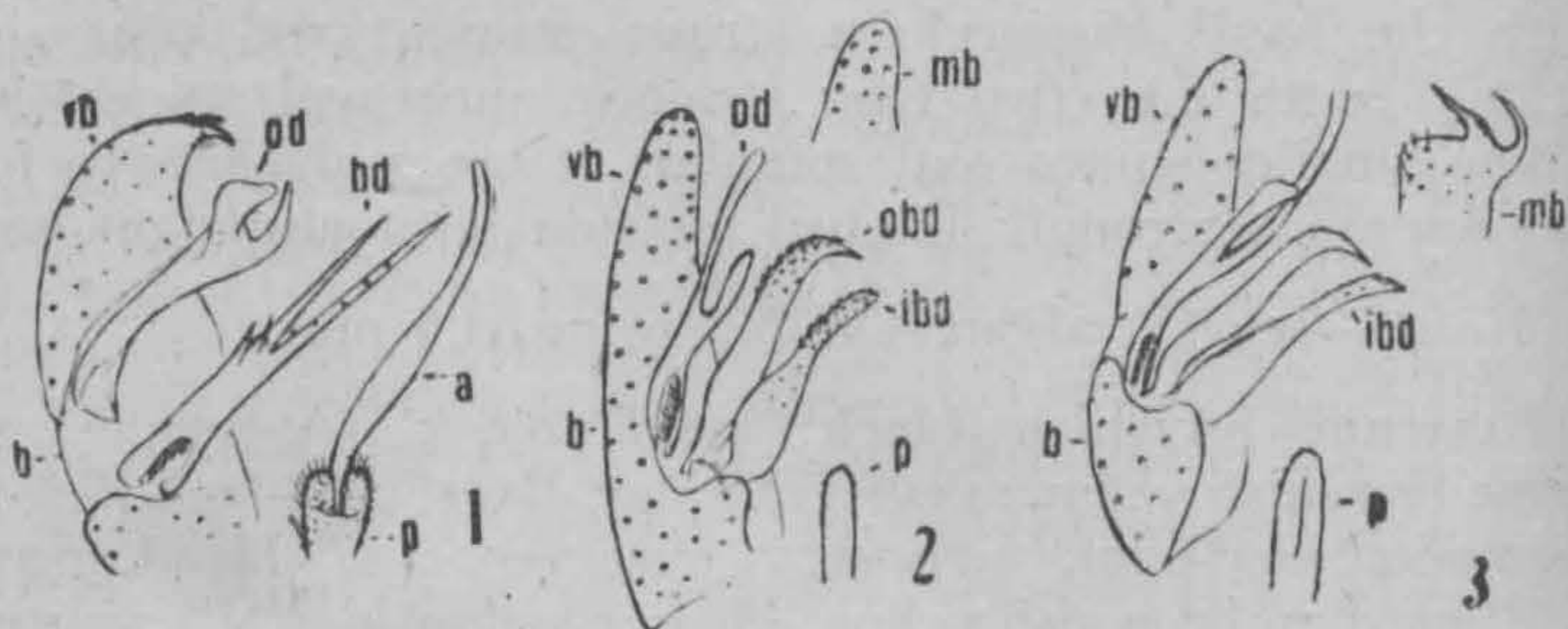


Fig. 22.

- 1.—*Molophilus subappressus*, sp. n. 2.—*Molophilus inarmatus*, sp. n.  
3.—*Molophilus hyperarmatus*, sp. n.

femora yellow basally, a little darker on distal portion; wings broad, pale yellow; male hypopygium with the ventral lobe of basistyle long, the mesal lobe unarmed at apex; three dististyles, the outer one very unequally bilobed, both basal dististyles with numerous spinulae; phallosomic plate long and narrow, its apex obtusely rounded, the apical margin microscopically serrulate.

*Male*.—Length, about 4.5 mm.; wing, 5 mm.

*Female*.—Length, about 5—5.5 mm.; wing, 5—6 mm.

Rostrum obscure yellow; palpi black. Antennae with scape and pedicel yellow; flagellum black. Head gray, the cephalic portion more yellowish.

Thorax with a strong reddish tinge, the cephalic portion of praescutum darker; posterior portion of mediotergite darkened. Pleura with a darkened area on dorsal portion and with a narrow dark vitta along posterior margin of pleurotergite. Halteres pale, the knobs light yellow. Legs with



the coxae yellow, the fore coxae slightly darker; trochanters yellow, femora yellow basally, a little darker on distal portion; tibiae and tarsi yellowish brown, the terminal tarsal segments blanckened. Wings broad, pale yellow, the veins a little darker; trichia pale brown. Venation:  $R_2$  lying a little distad of level of  $r-m$ ; petiole of cell  $M_3$  very short, subequal to or less than the long, feebly sinuous  $m-cu$ ; vein 2nd  $A$  elongate, ending some distance beyond  $m-cu$ .

Abdominal tergites brownish yellow, the sternites clear yellow; hypopygium yellow. Male hypopygium (Fig. 22, 2) with the ventro-mesal lobe,  $vb$ , of basistyle long and slender, pale; mesal lobe,  $mb$ , unarmed at apex, clothed with long delicate setulae, additional to the normal setae. Outer dististyle with the arms very unequal, the outer one fully twice as long as the inner, at apex expended into a weak spatula; outer basal dististyle,  $obd$ , strongly curved on outer third and here provided with several subaopperessed spinulae. Inner basal dististyle,  $ibd$ , dilated on more than the basal the half, outer portion slender, blackened, with microscopic appressed spinules. Phallosomic plate,  $p$ , long and narrow, the apex obtusely rounded, the apical margin microscopically roughened by spinous points.

*Holotype*, ♂, Termas Río Blanco, Curacautín, altitude 1050 meters, March 26, 1938 (Bullock). *Allotopotype*, ♀, with type.

*Paratopotypes*, 2 ♂♂, 3 ♀♀, March 25—26, 1938 (Bullock).

*Molophilus inarmatus* is quite distinct from all other.

Neotropical members of the group so far described, though allied to *M. hyperarmatus*, sp. n., described hereafter. It is readily told by the unarmed mesal lobe of the basistyle of the male hypopygium.

### ***Molophilus hyperarmatus*, sp. n.**

Belongs to the *gracilis* group, *ruficollis* subgroup; allied to *inarmatus*; general coloration dark brownish gray; wings broad; grayish, the basal portions more yellowish;  $m-cu$  very oblique, subequal to or longer than petiole of cell  $M_3$ ; male hypopygium with the mesal lobe of basistyle armed at apex with two long acute spines.

*Male*.—Length, about 4.5 - 5 mm.; wing, 5 - 6 mm.; antenna, about 1.6 - 1.8 mm.

*Female*.—Length, about 5 - 5.5 mm.; wing, 6 - 6.5 mm.



Rostrum and palpi black. Antennae brownish black, the basal segments a trifle brightened. Head gray.

Anterior lateral pretergites obscure yellow. Mesonotum almost uniformly dark brownish gray, the humeral region of praescutum slightly more reddish; scutellum more reddish brown. Pleura varying from reddish brown to gray. Halteres yellow. Legs brown. Wings broad, grayish, the basal portions more yellowish; veins dark yellow to brownish yellow; macrotrichia brown. Venation:  $R_2$  lying just distad of level of  $r-m$ ;  $m-cu$  very oblique, subequal to or longer than petiole of cell  $M_3$ ; vein 2nd  $A$  elongate, extending about to base of cell  $M_3$  or nearle so.

Abdomen dark brown, pruinose; hypopygium more or less brightened. Male hypopygium (Fig. 22, 3) with the ventral lobe of basistyle,  $vb$ , relatively long and slender; mesal lobe,  $mb$ , at apex produced into two slender spines, as shown. Outer dististyle,  $od$ , bifid, the outer arm less than two times the length of the inner. Outer basal dististyle a little stouter and more strongly curved at apex than the inner,  $ibd$ . Phallosomic plate,  $p$ , long and narrow, the margin of apical third microscopically serrulate.

*Holotype*, ♂, Termas Río Blanco, Curacautín, altitude 1050 meters, March 26, 1938 (Bullock). *Allotopotype*, ♀, with type. *Paratopotypes*, 9 ♂ ♀, March 25 - 30, 1938 (Bullock).

The nearest ally is *Molophilus inarmatus*, sp. n., which is most readily distinguished by the unarmed mesal lobe of the basistyle of the male hypopygium. One paratype is unusually small (*Male*. - Length, about 3.5 mm.; wing, 4 mm.), and has the wings somewhat narrower. The male hypopygium is much as in the larger individuals of the type series but the mesal lobe of the basistyle has the inner spine short and spicate, while the phallosomic plate is more pointed at apex. It is possible that this represents a further distinct species or subspecies.

#### EXPLANATION OF SYMBOLS:

Male hypopygia of species of *Molophilus*:

$a$ , aedeagus;  $b$ , basistyle;  $bd$ , basal dististyle;  $ibd$ , inner basal dististyle;  $mpb$ , mesal lobe of basistyle;  $obd$ , outer basal dististyle;  $od$ , outer dististyle;  $p$ , phallosome;  $vb$ , ventral lobe of basistyle.

In order to prevent confusion, the mesal lobes of basistyles,  $mb$ , are drawn as separate subfigures, detached from the main drawing.