

THE TAXONOMIC STATUS OF THE ARMYWORM PARASITE  
KNOWN AS *ARCHYTAS PILIVENTRIS* (VAN DER WULP)  
(DIPTERA: LARVAEVORIDAE)

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For many years, one of the most common and easily identified larvaevorid (tachinid) parasites of armyworms and other phalaenid larvae in southern United States and southward has been a large grayish-black species known as *Archytas piliventris* (Van der Wulp). Occasional records have appeared as *Pseudoarchytopsis piliventris* or, more recently, as *Archytas incerta* (Macquart). In the well-known genus *Archytas* Jaenicke, this species was readily recognized by the rather heavily grayish-pollinose abdomen and the parafacials covered with fine, whitish-yellow hairs. The former feature, in particular, made it possible to identify the species at a glance in a genus in which most species have the abdomen polished or with a fine indistinct "bloom."

Recently I noted some striking differences in the male genitalia between specimens from Argentina and from southern United States. Further study of the numerous specimens in the collection of the U. S. National Museum, from 24 countries ranging from the United States to Argentina and Chile, revealed that two closely related species with distinct geographical ranges have been considered as one species because of their similar habitus. The purpose of this paper is to clarify their identification, distribution, and nomenclature.

The material before me indicates the distinctness of the ranges of the two species, the one extending from southern United States to northern South America and southward down the west coast to northern Chile, and the other ranging in Argentina, Uruguay, Paraguay and southern Brazil. Unfortunately, lack of specimens from most of Brazil and Bolivia makes it impossible even to approximate the boundaries of the two in central South America, and to say whether or not they overlap.

In the early 1940's a few specimens of "*Archytas piliventris*" from Argentina and Uruguay were introduced into south-

ern United States as a parasite of the fall armyworm, *Laphygma frugiperda* (J. E. Smith). This brief effort was abandoned when it was pointed out that the species (as then identified!) already occurred here. It is not known whether *incertus* (= *piliventris*) became established from that one introduction of a limited amount of material.

At the present time I do not regard these and related species as distinct from typical *Archytas*. If or when they are recognized as forming a distinct genus or subgenus, *Pseudoarchytas* Townsend (1915) will take priority over *Pseudoarchytopsis* Townsend (1927). The generic name *Archytas* is masculine, and specific names are accordingly written to agree in gender. In the past, some authors have treated it as masculine, some as feminine, and some have been inconsistent in their usage.

Only the essential references and synonymy are listed below. Most of the published references to distribution and hosts can be assigned with assurance to *incertus* or to *marmoratus* on the basis of the known general distribution of the two. For a broad central area in South America, any published records will have to remain doubtful until verified by reexamination of specimens or more definite information on the ranges of the two in that region.

#### *Archytas marmoratus* (Townsend)

*Pseudoarchytas marmorata* Townsend, 1915, *Insecutor Inscitiae Menstruus* 2: 186 (Peru; holotype in U. S. National Museum).

*Archytas* (or *Pseudoarchytopsis*) *piliventris* (Vander Wulp) of authors, in part, for the area from southern United States to northern South America and along western South America to northern Chile.

DISTRIBUTION: Specimens examined from southern United States (S. C. to Fla. and west to Kans. and Tex.), Cuba, Jamaica, Haiti, Puerto Rico, Virgin Islands, Montserrat, Grenada, Trinidad, Surinam, Venezuela, Colombia, Mexico, Guatemala, El Salvador, Panama and the Canal Zone, Ecuador, Peru, Bolivia (Cavinas in Beni Department), and northern Chile (Camarones, Poconochile). Published records from Costa Rica and British Guiana are within this range and undoubtedly belong here.

#### *Archytas incertus* (Macquart)

*Gonia incerta* Macquart, 1851, *Mém. Soc. Sci. Lille* 1850: 152 (separate work: *Diptères exotiques*, Suppl. 4, pt. 2, p. 179) (Cited as "Du Brésil, Corrientes. M. d'Orbigny, Muséum," actually Corrientes Province, Argentina; holotype in Paris Museum).

*Echinomyia piliventris* Van der Wulp, 1883, Tijdschr. Ent. 26: 22 (Argentina; type presumed to be in Leiden Museum).

*Pseudoarchytopsis brasiliensis* Townsend, 1927 (?1926), Revista Mus. paulista 15 (1): 252, 354 (Brazil; lectotype in U. S. National Museum). New synonymy.

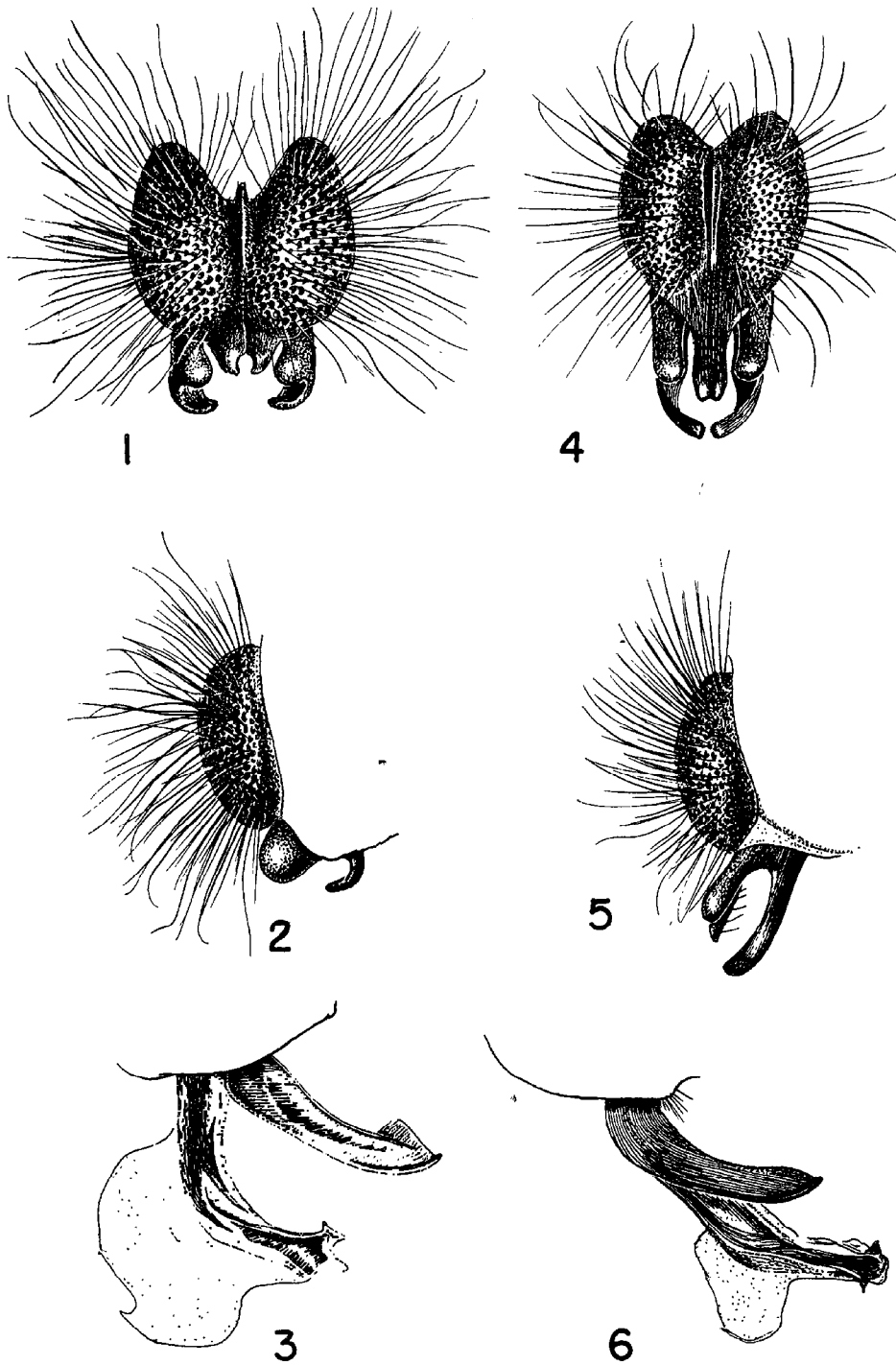
*Archytas* (or *Pseudoarchytas*) *piliventris* (Van der Wulp) of authors, in part, for the area of Argentina, Uruguay, Paraguay and temperate southern Brazil.

DISTRIBUTION: Argentina (northern: Buenos Aires, Corrientes, Tucumán, etc.), Uruguay, Paraguay (Caacupe), and southern Brazil (states of Sao Paulo and Minas Geraes).

Males of the two species can be distinguished easily by the characters of the genitalia (*marmoratus*, figs. 1-3; *incertus*, figs. 4-6). Frequently the distinct difference in the posterior (ventral) aspect can be seen without relaxation and dissection of the genitalia. I have been unable to find any reliable and useful external differences in either sex of the two species.

In an effort to find other characters, especially for the females, numerous measurements were made, for such commonly used ratios as height of cheek to height of eye, width of front at vertex to width of head, and lengths of second and third antennal segments. The range of variation in those ratios is great, and only slight differences between the species were found. It was also demonstrated that ratios will vary greatly according to the angle at which measures are taken, because of the strong convexity of front, eye, and cheek, the strong inclination of the cheek ventrad toward the midline and the impossibility of a clear focus simultaneously in profile on both ends of such a structure. For example, on the holotype of *marmoratus*, the cheek/eye ratio ranges from .45 to .71 depending on the angle from which heights are measured. The extremes are obviously based on measurements from extreme angles that would be avoided by the observer, but between these there is considerable room for difference in measurements, and hence in ratios derived from them. One can avoid such possible differences by shifting the specimen and measuring first the cheek and then the eye (or vice versa) at their maximum lengths. However, if measures are taken in that way, it should be so stated, lest a wrong impression be conveyed of the relative heights of cheek and eye as seen in profile.

In the material examined, the cheek/eye ratio was usually slightly less in *incertus* than in *marmoratus* when the head was



Figs. 1-3, *A. marmoratus*; figs. 4-6, *A. incertus*.<sup>1</sup>

Figs. 1 and 4, posterior aspect of inner (fused) and outer forceps; figs. 2 and 5, side view, the inner forceps usually more or less hidden; figs. 3 and 6, aedeagus (with thin, translucent, dorsal flange) and clasper (gonapophysis).

<sup>1</sup> Drawings by Arthur Cushman.

viewed in profile, but this difference almost disappeared when the maximum lengths of cheek and eye were used.

It may be noted that Townsend erected two supposed new genera for the species considered here, *Pseudoarchytas* for *marmoratus* Tns. and *Pseudoarchytopsis* for *brasiliensis* Tns. (cf. *incertus*). I do not regard these two nominal genera as distinct from each other, from comparison of their type species. The generic diagnoses given by Townsend are essentially the same, insofar as they can be compared directly for the female sex. In Townsend's key to genera (1936, Manual of Myiology, 3: 171), the two are distinguished as follows:

“Cheeks over  $\frac{2}{3}$  eye length, last section of C1 [= fifth vein] not  $\frac{1}{2}$  preceding, MM [= pair of median marginal bristles] on second segment in female ..... *Pseudoarchytas*

“Cheeks little over  $\frac{1}{2}$  eye length, last section of C1 at least nearly  $\frac{1}{2}$  preceding, no MM on second segment in female ..... *Pseudoarchytopsis*”

From actual measurements, the cheek/eye ratios based on the *maximum* possible lengths are .635 (holotype), .66 and .67 in the type series (all females) of *marmoratus*, and .61 and .63 in the allotype female of *brasiliensis* and a topotypic female determined by Townsend. Males have lightly lower cheek/eye ratios than females, and thus the holotype and paratype male of *brasiliensis* cannot be included in the comparison. As for the length of the sections of the fifth vein, the last section measures .48, .43, and .41 times the preceding section in the holotype and two paratypes of *marmoratus*, compared with ratios in *brasiliensis* of .52 in the holotype male, .48 in both allotype and male paratype, and .44 in the female determined by Townsend. Such similar and variable ratios, especially when studied in conjunction with series of each species, are neither generically nor specifically distinctive.

Likewise, there is no real difference in the presence or absence in the female sex of median marginal bristles (MM) on the second abdominal segment. In *brasiliensis*, neither the allotype female nor the Townsend-determined topotypic female has the bristles, whereas the holotype of *marmoratus* has a strong pair present. Each of the female paratypes of *marmoratus* has only a single bristle of the pair present. However, from the large series examined, it appears that in both species,

it is normal for females to lack these bristles. In 94 available females of *marmoratus*, 83 lacked the bristles, four had only one bristle of the pair present, either right or left one, and seven had a pair of bristles. In 45 females of *incertus* (= *brasiliensis*) from Argentina, 45 lacked the pair and two had one bristle only of the pair. In males of both species, the MM pair of bristles is regularly present on the second segment.

#### NOTES ON TYPE MATERIAL

*Gonia incerta*: The type female is said to be in poor condition. Dr. J. M. Aldrich examined it in 1929 and recorded in his notes that it is the same as *Archytas piliventris*. I am indebted to Monsieur E. Séguy of the Paris Museum for information that the "registre d'entrée" records the following for that specimen: "Séjour à Corrientes en 1827-1828 et retour à Buenos Ayres. Cette mouche paraît en décembre à Iribuena [sic!] sur les fleurs des Chardons et des Ombellifères. Le vol est direct et rapide." Monsieur Séguy informs me that the locality in the above record is clearly written "Iribuena," but this must certainly be a copyist's error, because the Hemiptera, Lepidoptera, and Hymenoptera from the same lot are recorded as from "Iribucua," and the latter (but no Iribuena!) is mentioned in d'Orbigny's volumes. With that information, and from study of the maps and detailed accounts of the travels in d'Orbigny's "Voyage dans l'Amerique Méridionale" (e.g., vol 3, part 2, Geographie), it is possible to locate the actual type locality as Iribucua in Argentina, province of Corrientes, nearly 100 kilometers east of the city of Corrientes (Iribú-cuá, on the American Geographic Society's Map of Hispanic America, SG 21).

*Pseudoarchytosis brasiliensis*: Described from five males, one female, from two localities, without designated holotype. Townsend (1931, Revista de Ent. (Rio) 1:158, and later and more specifically, 1939, Manual of Myiology 8:58) stated that the holotype male and allotype female were from Itaquaquecetuba, Sao Paulo, Brazil, in the collection at Washington. That collection now contains two males and one female from Itaquaquecetuba, each with a red "Type" label used by Townsend, but without holotype or allotype labels, though the published statements can probably be accepted as a restriction as far as they go. Accordingly, the sole female is automatically the allo-

type, and the best male has been labeled lectotype and is so designated here.

***Archytas pilifrons* (Schiner)**

*Echinomyia pilifrons* Schiner, 1868, Reise der Novara, p. 331 (Chile, holotype in Vienna Museum).

*Jurinia nudigaena* Brauer (ex Bigot), 1898, Sitzber. Kais. Akad. Wiss. Wien (Math.-nat. Classe) 107 (Abt. 1), Heft 6: 500. New synonymy.

This species is mentioned here in order to dispose of the nominal species *Jurinia nudigaena* Brauer. Apparently a manuscript name of Bigot's, it was validated by Brauer with a brief descriptive note, and cited as "Chili, Montevideo." Aldrich in 1929 saw the three specimens labeled types in the Bigot Collection (in collection of J. E. Collin, Newmarket, England), and stated in his notebook and card catalogue that "2 are *Archytas piliventris* V.d.W., the other is ♀ of *Archytas pilifrons* Sch." To fix the name definitely, I hereby restrict *nudigaena* to the specimen representing the species *Archytas pilifrons* (Schiner), as identified in the Bigot Collection by Dr. Aldrich.

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