

*B. D. BURKS*

*Species of Spalangia  
Latreille in the  
United States  
National Museum  
Collection  
(Hymenoptera: Pteromalidae)*



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## ABSTRACT

A reappraisal of species of *Spalangia* in the USNM collection. The types of nine species described by Ashmead, Girault, Richardson, and Howard are all redescribed, their present condition given, and lectotypes designated, if necessary. *Spalangia brasiliensis* Ashmead is synonymized under *chontalensis* Cameron; *muscidarum* var. *texensis* Girault is synonymized under *cameroni* Fullaway. *Spalangia attae*, from the nest of an *Atta* ant in El Salvador, and *dozieri*, parasite of the sarcophagid fly *Sarcodexia sternodontis* Townsend in Puerto Rico, are described as new.

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Z. Bouček (1963, 1965) has published a comprehensive study of the difficult genus *Spalangia* Latreille for the world. His papers are based on a study of the types of Foerster, Latreille, Curtis, and Walker, all of which are located in European museums, as well as on material identified as species described by Ashmead, Girault, and Perkins, types of which are located in North American, Australian, and Hawaiian museums. The latter specimens were supplied to Bouček by several entomologists, principally those at the Canadian National Collection and the United States National Museum (USNM). The papers by Bouček have made it possible for the first time to place with confidence most specimens of *Spalangia*, the bulk of which belong to species worldwide in distribution, but which were described first from the Palearctic region.

The USNM collection contains the types of (*Spalangia brasiliensis* Ashmead) = *S. chontalensis* Cameron, *S. drosophilae* Ashmead, *S. haematobiae* Ashmead, (*S. rugosicollis* Ashmead) = *S. nigra* Latreille; (*S. muscarum* Girault) = *S. nigripes* Curtis, (*S. muscidarum* var. *stomoxysiae* Girault) = *S. endius* Walker, (*S. muscidarum* var. *texensis* Girault) = *S. cameroni* Fullaway; the only known remaining types of (*S. muscidarum* Richardson) = *S. nigroaenea* Curtis; and the type of (*S. muscae* Howard) = *S. nigra* Latreille, which may have been described through inadvertence. In addition, in the USNM a large amount of material that accumulated over the years has been identified by various taxonomists as the same as these types or as other species, based on literature. When Bouček's paper was published, a reworking of all this material was necessary. In the course of this restudy of the USNM

material, I found two undescribed species of *Spalangia*, and these are described in this paper. It also developed that it would be desirable to clarify the status of all the types of *Spalangia* now in the collection. In some it was necessary to designate lectotypes, and for all it was advantageous to give the present condition of the specimens. For each I have given a short summary of the diagnostic characteristics, in case the types should be damaged later.

Bouček (1963, p. 498) considered *S. brasiliensis* Ashmead to be a valid species, but I am here synonymizing it under *chontalensis* Cameron. He (p. 458) placed *muscidarum* var. *texensis* Girault as a synonym of *endius* Walker, but it is a synonym of *cameroni* Fullaway instead. Otherwise, I agree with his placement of the species whose types are in the USNM collection.

Of the nine species represented by types in the USNM collection, only two names survive as valid. The other seven specific names have fallen into synonymy, despite the fact that all these species were described more than 45 years ago, and four of them more than 60 years ago. In all but one species, they have fallen into synonymy under Palearctic species that were described a century or more ago; the one exception is a synonym of a worldwide species that was first described from Hawaii in 1910.

### *Spalangia attae*, new species

#### FIGURE 2

This species agrees with *Spalangia drosophilae* Ashmead in being small, less than 2.0 mm long, with the thorax depressed and flat, in lacking the crossline of punctures near the posterior margin of the pronotum, in having the frenal crossline of the scutellum indicated only at the lateral margins, and in having closely set, longitudinal striae on the mesopleuron. The two differ

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in that *attae* has the head and pronotum shagreened and mat rather than smooth and shining with scattered punctures; the petiole is as long as the hind coxa, rather than being shorter than the hind coxa; and the foretarsal segments are markedly shorter in *attae* than they are in *drosophilae* (Figures 2, 3).

**FEMALE.**—Length 1.5 mm. Black, with basal 4 segments of each tarsus white, apical segment brown; tegulae brown, wing veins tan. Surface of head minutely shagreened and mat, except for ocellar triangle, which is smooth, antennal scape closely and irregularly sculptured, dull; pronotum, except for narrow, smooth crossband at posterior margin, minutely shagreened and mat; scapulae shining; praescutum shining at anterior margin, elsewhere with minute, contiguous and shallow pits in transverse, closely set rows, these becoming irregular near posterior margin of sclerite; axillae, scutellum, and postscutellum smooth and shining; metepisternum minutely shagreened and mat; propodeum shining; petiole with numerous, closely set, longitudinal carinae, interstices with minute cross septa; surface of gaster shining. Anterior coxae subshining, with minute, closely set, parallel striae; middle coxae reticulated at bases, smooth and shining apically; hind coxae smooth and shining. Prepectus heavily and irregularly sculptured. Mesopleuron with lineolate sculpture dorsally and near base of midcoxa, pitted sculpture in anterior oblique impressions and in 2 oval impressions posteriorly, elsewhere smooth.

Eyes and head hairy, but head hairs not arising from obvious punctures (these obscured by the shagreenate sculpture); distinct groove extending from anterior ocellus into apex of scrobe cavity; malar furrow almost hidden by head sculpture; length of malar space equal to eye height. Relative lengths of parts of antenna, scape 55; pedicel, 20; first funicular segment, 8; second, 5; third, 6; fourth, 7; fifth, 7; sixth, 8; seventh, 8; club, 25.

Dorsum of thorax depressed and flat, as in *drosophilae* Ashmead. Pronotum bearing numerous bristles, but punctures from which they arise obscured by shagreened surface sculpture; crossline of punctures wanting near posterior margin. Notaulices and lateral margins of scutellum with crenulate sculpture; margin of scutellar frenum indicated only by 2 punctures at each lateral margin; posterior margin of scutellum crenulate, setting off postscutellum. Foretarsal segments compact, first segment as long as following three combined (Figure 2); middle and hind tarsi slightly more elongate.

Propodeum with crenulate anterior and lateral margins, a double row of coarse, rectangular punctures on meson. Petiole stout, half as wide as long, and as long as hind coxa. Gaster as long as thorax and propodeum, apical sternite (subgenital plate of Snodgrass) produced as a minute point on meson, not indented, as in *drosophilae*; apices of ovipositor sheaths slightly exerted.

**MALE.**—Unknown.

**TYPE-LOCALITY.**—Near San Salvador, El Salvador.

**HOLOTYPE.**—USNM 69871.

Described from a single specimen from debris of a nest of the leaf-cutter ant, *Atta mexicana* (F. Smith), 25 June 1958, by O. L. Cartwright. The host of this *Spalangia* is not known, but it should be some small dipteran. It was taken along with a large assortment of beetles, including staphylinids, scarabaeids, tenebrionids, and others (the collector is a Coleopterist).

I have another specimen of this *Spalangia*, unfortunately badly broken, that was taken from a nest of *Atta texana* (Buckley) at San Antonio, Texas, 16 January 1935, by E. V. Walter. It was collected in the ant nest at a point seven feet below the surface of the ground. I have not designated this specimen a paratype because it is fragmentary.

### *Spalangia chontalensis* Cameron

*Spalangia brasiliensis* Ashmead, 1904, p. 502 [female].—Bouček, 1963, p. 498. [New synonymy.]

*Spalangia brasiliensis* was described from one specimen. It is labeled: "Santarem, H. H. Smith Coll. *Spalangia brasiliensis* ♀ Type Ashm., Type No. 60553 U.S.N.M."

Bouček (1963, p. 498) treated *brasiliensis* as a valid species, but he found it difficult to place with certainty from only a reading of Ashmead's description. Actually a study of the type of *brasiliensis* shows it to be a synonym of *S. chontalensis* Cameron. Bouček has redescribed and figured the type of *chontalensis*, and the type of *brasiliensis* differs from it in no significant way.

The type of *brasiliensis* shows the following diagnostic characters:

Head with dense umbilicate punctation, with smooth interstices, setae noticeably long; pronotum with a prominent, slightly irregular, anterior carinate margin, dorsal meson of pronotum smooth, lateral areas densely umbilicate-punctate, crossrow of closely set, deep punctures located just anterior to posterior margin of

pronotum. Anterior half mesopraescutum smooth, posterior half densely covered with rugose pits, a narrow, longitudinal carina present on meson; each notaulix indicated by a row of five large, rectangular pits; scutellum with frenal crossrow of punctures complete, deep, closely set, scutellum otherwise smooth except for three pits in each posterolateral corner. Propodeum coarsely punctured laterally and on meson; petiole half as wide as long, with coarse, longitudinal rugae and prominent lateral bristles, interstices of petiole between longitudinal rugae minutely roughened; posterior margin of second gastral tergum broadly emarginate; gaster as long as thorax and petiole combined.

There are specimens of *chontalensis* from St. Vincent, W. I., labeled as *Spalangia nigra* Latr. by Ashmead, in the USNM collection. These were the basis for the St. Vincent record of *nigra* that was published by Riley (1894, p. 59). Other published West Indian records of *nigra* are undoubtedly based on this reference. *Spalangia nigra* is not known to occur in the Neotropical region.

### *Spalangia dozieri*, new species

#### FIGURE 1

This species agrees with *drosophilae* Ashmead in lacking a crossline of punctures near the posterior margin of the pronotum, in having the thorax depressed and flattened, and in being small, less than 2.0 mm long. The two differ in that *dozieri* has the parallel, longitudinal striae of the mesopleuron, characteristic of *drosophilae*, much less well developed, and has a complete frenal crossrow of punctures on the scutellum, which is lacking in *drosophilae*; *dozieri* also has a prominent, median, dorsal, longitudinal groove on the pronotum, and this is lacking in *drosophilae*.

**FEMALE.**—Length 1.65–1.75 mm. Black, with base of each tibia and basal 4 segments of each tarsus pale tan or white; tegula and wing veins dark brown. Head smooth and shining, sparsely punctate; antennal scape minutely shagreened, mat; pronotum smooth, shining, sparsely punctate, scapulae shining; praescutum lightly and minutely sculptured on anterior three-fifths, this sculptured area bounded posteriorly by an irregular, transverse row of punctures, and surface of praescutum posterior to this crossline smooth; axillae, scutellum, and postscutellum shining; metepisternum strongly shagreened; propodeum smooth on each side of me-

dian, longitudinal sculptured area; petiole with strong and irregular, alveolate sculpture; first gastral tergum smooth, shining, following terga shining, but surface faintly sculptured; apices of ovipositor sheaths sculptured and mat. All coxae shining. Prepectus heavily and irregularly sculptured. Mesopleuron dorsally with minute, parallel and closely set, lineolate striae; another similar, oblique area of striae in median region and near posterior margin of mesopleuron; area near anterior and ventral margins of this sclerite smooth.

Eyes and head sparsely hairy; distinct groove extending from anterior ocellus into scrobe cavity; malar furrow distinct, its length two-thirds the eye height. Relative lengths of parts of antenna, scape, 42; pedicel, 12; first funicular segment, 5; second, 6; third to seventh, each 5; club, 20. All funicular segments wider than long, first only slightly wider than long, but segments gradually widening, so that seventh is twice as wide as long.

Dorsum of thorax depressed and flat, as in *drosophilae* Ashmead. Pronotum bearing scattered bristles and a median longitudinal groove; notaulices and lateral margins of scutellum with crenulate sculpture; margin of scutellar frenal set off by a complete crossrow of closely set punctures; posterior margin of scutellum incised, crenulate only laterally. First foretarsal segment as long as following three combined, middle and hind tarsi more elongate.

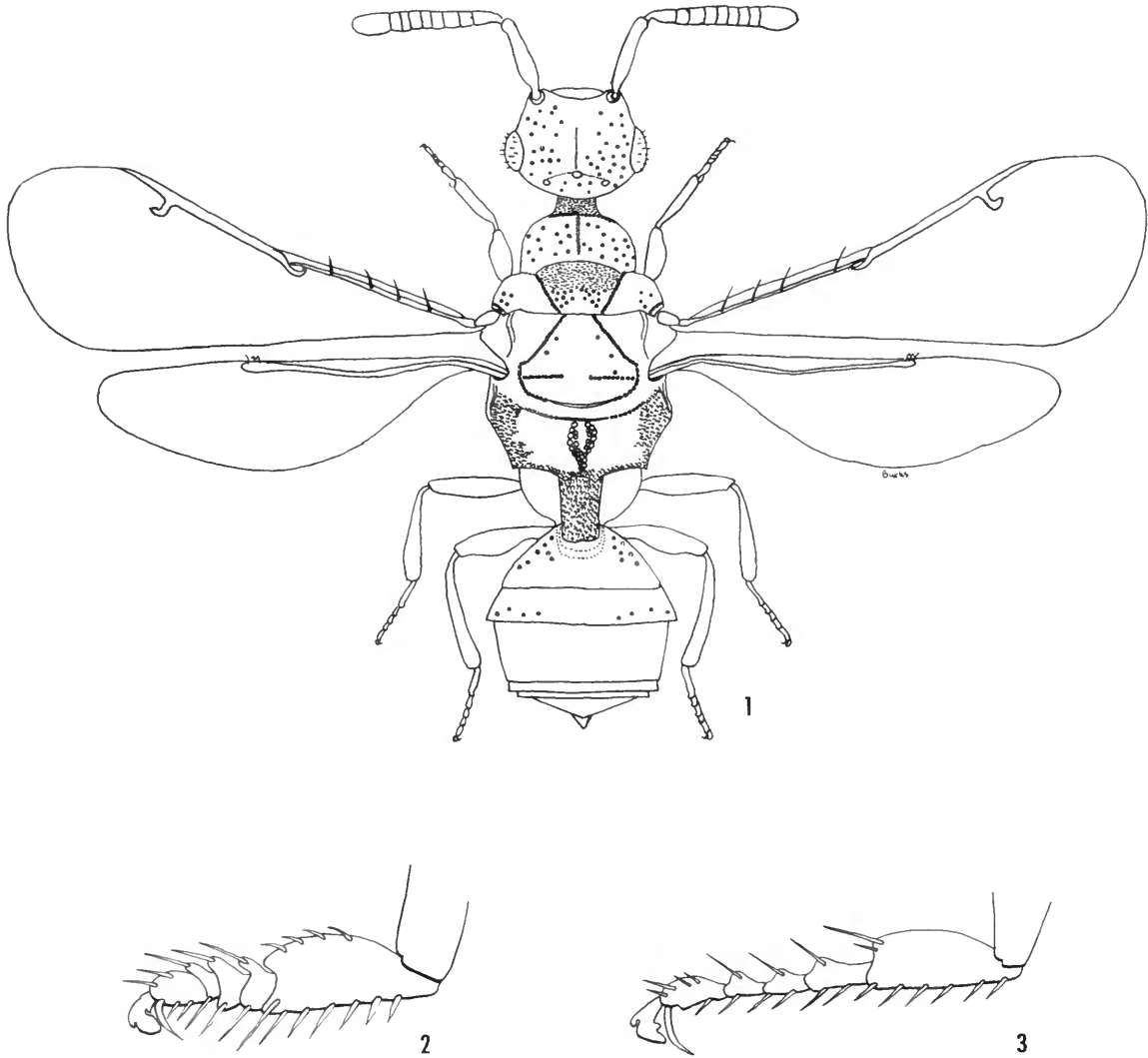
Propodeum with lateral and posterior margins irregular (Figure 1); a double arcuate row of coarse, rectangular punctures at base, these fusing before reaching apex. Petiole only slightly longer than wide, shorter than hind coxa. Gaster depressed dorsally, broader than thorax and shorter than thorax and propodeum combined; apices of ovipositor sheaths slightly exerted.

**MALE.**—Unknown.

**TYPE-LOCALITY.**—Mayaguez, Puerto Rico.

**HOLOTYPE.**—USNM 69872.

Described from 19 female specimens as follows: Type and 16 paratypes, Mayaguez, Puerto Rico, reared 26 August 1936 from the pupa of *Sarcodexia sternodontis* Townsend (Diptera, Sarcophagidae) by H. L. Dozier; 1 paratype, Punta Arenas, P.R., 12 March 1963, taken in bait trap, E. F. Legner; 1 paratype, Central Portugalata, Cuba, collected February 1928 by C. F. Stahl. All specimens in the USNM collection.



FIGURES 1-3.—1, *Spalangia dozieri*, new species. 2, *Spalangia attae*, new species, foretarsus.  
3, *Spalangia drosophilae* Ashmead, foretarsus.

***Spalangia drosophilae* Ashmead**

**FIGURE 3**

*Spalangia drosophilae* Ashmead, 1887, p. 199 [female].

This species was described from a single female specimen. The unique type is labeled: "Jacksonville, Fla., Type, *Spalangia drosophilae* Ashm., Type No. 26039 U.S.N.M." It is preserved in fair condition. It seems to have been remounted at some time, but it

clearly shows the diagnostic characters of this valid species. Body small and flattened, antennal scape short, all funicular segments short, with second segment the shortest; pronotum lacking punctate crossrow near posterior margin; frenal line of scutellum indicated only by a few punctures at each lateral margin; mesopleuron with numerous, closely set, parallel, longitudinal striae; gaster broader than thorax.



*Spalangia haematobiae* Ashmead

*Spalangia haematobiae* Ashmead, 1894, p. 37 [female].

This species was described from one female specimen. The type is labeled: "4285/24, Sept. 13. '9. *Spalangia haematobiae* Ashm., Type No. 2169 U.S.N.M." The petiole and gaster are now missing from the type specimen.

The following description is drawn from the type:

Black; legs and wingveins dark brown. Front and vertex smooth, shining, with few scattered hair punctures; height of compound eye greater than length of malar space, 33:25. Surface of antennal scape irregularly and minutely shagreened; relative lengths of parts of antenna, scape, 50; pedicel, 18; first funicular segment, 10; second to seventh, each 8; club, 22. Distinct groove extending from anterior ocellus into top of scrobe depression. Thorax not markedly flattened, as in *drosophilae* Ashmead, but moderately rounded. Pronotum ecarinate anteriorly; lacking punctate crossline near posterior margin; surface smooth, shining, with relatively sparse hair punctures laterally, these wanting on dorsal meson; scapulae shining; praescutum smooth and shining anteriorly, faintly sculptured on posterior half, with a thin, median, longitudinal carina, this bordered on each side by large, shallow and slightly irregular punctures; notaulices with large, crenulate punctures; axillae smooth, shining; scutellum smooth, shining, without frenal crossline of punctures. (Specimen mounted in such a way that pleura cannot be seen.) Propodeum smooth, with crenulate basal, apical, and lateral margins and a double row of large, shallow pits on meson, a median carina present between the rows in basal half.

I consider this to be a valid species of *Spalangia*, as does Bouček (1963, p. 475). There are specimens in the USNM collection from New Hampshire, Maryland, Texas, California, Mexico, Costa Rica, and St. Croix in the Virgin Islands. The only known host is *Haematobia irritans* (L.).

*Spalangia nigra* Latreille

*Spalangia muscae* Girault.—Howard, 1911, p. 90.

*Spalangia muscae* has been thought to be a nomen nudum, a manuscript name, and a described species. Bouček (1963) considered it a nomen nudum; Richardson (1913) and Girault (1920) treated it as a manuscript name; while Bishopp (1913) and Rühl

(1916) listed it as a valid, described species. Crawford (in Richardson 1913) took a decided position that *muscae* was a valid species and Peck (1951, 1963) listed it twice as a valid species.

Howard (1911), in discussing a parasite that had emerged from a puparium of *Musca domestica* when it was opened by a laboratory worker, made the following statement:

a fully formed and active adult black *Spalangia* crawled immediately from the opening made by his dissecting needle. This will be described by Girault as *Spalangia muscae*. A certain proportion of the housefly puparia are affected by this parasite in precisely the same way as are the puparia in Europe by *Spalangia nigra* as described by Bouché.

Girault never published a description of *muscae*, and it is extremely doubtful that the passage quoted from Howard can stand by itself as the description of a species. Howard himself evidently did not consider that he had described the species, because he did not designate a type specimen. In 1923, however, S. A. Rohwer located the specimen of *Spalangia* that Howard had discussed in his book and designated it as Howard's type. Rohwer assigned to it USNM Type No. 26329 and labeled it: "*Spalangia muscae* How. Type, labeled by Rohwer."

As was pointed out by Bouček (1963, p. 447), *muscae*, whatever its standing, is the same as the holarctic species *nigra* Latreille, 1805.

*Spalangia nigripes* Curtis

*Spalangia muscarum* Girault, 1920, p. 213 [female].

This species was described from one female specimen. The type is labeled: "Urbana, Ill., 39589, *Spalangia muscarum* Girault. ♀ Type. Type No. 20877 U.S.N.M." The specimen is intact.

This specimen agrees in all diagnostic characters with reliably determined European specimens in the USNM of *Spalangia nigripes* Curtis, the species with which *muscarum* has been synonymized by Bouček (1963, p. 468). Five apical funicular segments of antenna broader than long; head and pronotum with relatively sparse, umbilicate punctation and smooth interstices; pronotum lacks an isolated crossline of punctures just anterior to posterior margin; scutellum with a complete frenal crossrow of punctures, anterior scutellar area sparsely punctate laterally, smooth on meson; and second gastral tergum with posterior margin broadly emarginate.

***Spalangia nigroaenea* Curtis**

*Spalangia muscidarum* Richardson, 1913, p. 38 [male, female].

This species was described from one male type and an undesignated number of paratypes of both sexes. The type has been lost, but there are 3 male and 1 female paratypes in the USNM collection. They are labeled: "Forest Hills, Mass., IX. 1912, Paratype No. 40219 U.S.N.M., *Spalangia muscidarum* Richardson Paratype."

These specimens are identical with European specimens in the USNM of *Spalangia nigroaenea* Curtis, the species with which *muscidarum* has been synonymized by Bouček (1963, p. 449).

Pronotum with distinct anterior margin and crossline of punctures just anterior to posterior margin; median area of pronotum smooth, lateral areas sparsely punctate; scutellum with complete frenal crossline, otherwise impunctate or with one or two weak punctures in posterolateral angles.

***Spalangia nigra* Latreille**

*Spalangia rugosicollis* Ashmead, 1894, p. 36 [female].

This species was described from one female specimen. The type is labeled: "Mo., *Spalangia rugosicollis* Ashm., Type No. 2168 U.S.N.M." The pedicel and flagellum of each antenna and the right forewing are missing; otherwise the type specimen is intact.

This type agrees in all diagnostic characters with European specimens in the USNM of *Spalangia nigra* Latreille, the species with which *rugosicollis* has been synonymized by Bouček (1963, p. 446). Antennal scape with longitudinal aciculations on inner face; head and pronotum with umbilicate punctation and smooth interstices; pronotum without anterior carina but with isolated crossline of punctures just anterior to posterior margin; pronotum with a smooth, median triangle at posterior margin; scutellum with complete frenal crossrow of punctures; petiole twice as long as broad, with strong longitudinal rugae; gaster no wider than thorax.

***Spalangia endius* Walker**

*Spalangia muscidarum* var. *stomoxysiae* Girault, 1916, p. 57 [female].

*Spalangia stomoxysiae* Girault, Peck in Muesebeck et al., 1951, p. 535.

This was described from two female cotypes. Lecto-

type labeled: "Hunter No. 2970, B. 18, Dallas, Tx., XI.24.12, Par. of *Stomoxys calcitrans*, *Spalangia muscidarum stomoxysiae* (!) Girault, Lectotype No. 19674 U.S.N.M.," present designation of lectotype. (The other cotype is a specimen of *S. cameroni* Perkins.)

The lectotype of this species agrees in diagnostic characters with European specimens in the USNM of *S. endius* Walker, the species with which *stomoxysiae* has been synonymized by Bouček (1963, p. 458). Pronotum lacking anterior carina, but with an isolated crossrow of punctures just anterior to posterior margin, this crossrow subangularly produced anteriorly on the meson; median area of pronotum bare, lateral areas sparsely punctate; scutellum with complete frenal crossline of punctures, area anterior to this bare except for two or three minute punctures.

***Spalangia cameroni* Fullaway**

*Spalangia muscidarum* var. *texensis* Girault, 1920, p. 213 [male; new synonymy].

This form was described from two male specimens, only one of which can now be found. Lectotype labeled: "Hunter No. 2970, B.18. Dallas, Tex., XI.24.12, Par. of *Stomoxys calcitrans*, *Spalangia muscidarum texensis* Girault ♂ type, Lectotype No. 20876 U.S.N.M."

The lectotype is a specimen of *S. cameroni* Fullaway, not *S. endius* Walker, the species with which it has been synonymized by Bouček (1963, p. 458). Earlier, Peck (1951) placed it as a synonym of *stomoxysiae* Girault. Pronotum lacking anterior carinate margin, but with an isolated crossline of punctures just anterior to posterior margin; pronotum with lateral punctures crowded and rugose, a median, longitudinal dorsal groove extending from anterior border almost to punctate crossline; notaulices terminating in a pair of large pits; scutellum with a complete frenal crossline of punctures, scutellum smooth anterior to this.

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In *synonymy*, use the short form (taxon, author, date, page) with a full reference at the end of the paper under "Literature Cited." Begin each taxon at the left margin with subsequent lines indented about three spaces. Within a taxon, use a period-dash (.—) to separate each reference. Enclose with square brackets any annotation in or at the end of the taxon. For *references within the text*, use the author-date system: "(Jones, 1910)" or "Jones (1910)." If the reference is expanded, abbreviate the data: "Jones (1910, p. 122, pl. 20: fig. 1)."

Simple *tabulations* in the text (e.g., columns of data) may carry headings or not, but they should not contain rules. Formal *tables* must be submitted as pages separate from the text, and each table, no matter how large, should be pasted up as a single sheet of copy.

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In the *bibliography* (usually called "Literature Cited"), spell out book, journal, and article titles, using initial caps with all words except minor terms such as "and, of, the." (For capitalization of titles in foreign languages, follow the national practice of each language.) Underscore (for italics) book and journal titles. Use the colon-parentheses system for volume, number, and page citations: "10(2):5-9." Spell out such words as "figures" and "plates" (or "pages" when used alone).

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