A New Subgenus of *Ammophila* from the Neotropical Region (Hymenoptera: Sphecidae)

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Abstract *Canad. Ent.* 96: 874-883 (1964)

A new subgenus is proposed for the following species of *Ammophila*: *opulenta* Guérin-Méneville, *melanaria* Dahlbom, *binodis* (Fabricius), *aureonotata* Cameron, *catamarcensis* Schrottky, *willinki* Menke, *eximia* Lepeletier, *auromaculata* Perez, and *asperata* Fox. A key to species is provided, with comparative and distributional notes. *Ammophila willinki* from Argentina and Brazil is described as new. Lectotypes are established for the following species: *A. bimaculigera* Strand, *A. melanaria* Dahlbom, *A. miliaris* Cameron, *A. iridipennis* Cameron, *A. aureonotata* Cameron, and *A. asperata* Fox. The following new synonymy is proposed: *A. bimaculigera* Strand (= *opulenta* Guérin-Méneville); *A. lobicollis* Cameron (= *melanaria* Dahlbom); *Pelopoeus abbreviatus* Fabricius, *A. guiana* Cameron, *A. oxystoma* Cameron (= *binodis* (Fabricius)); *A. eugenia* Smith, *Sphex nigrocinctus* Fernald, *A. friedrichi* Schrottky, *A. trimaculigera* Strand (= *eximia* Lepeletier); *A. giacomellii* Schrottky, (= *auromaculata* Perez); *A. miliaris* Cameron, *A. iridipennis* Cameron, *A. velutina* Schrottky (?= *melanaria* Dahlbom).

Introduction

This paper presents some of the results of preliminary investigations directed toward an eventual revision of the Neotropical species of *Ammophila*. Examination by the author of some types of Dahlbom, Fox, Fernald and Strand has made possible the designation of lectotypes in some cases and has also revealed some new synonymy. An important contribution to the author's work was made by R. M. Bohart of the University of California, Davis. During a trip to European museums in 1960, Bohart took valuable notes on many *Ammophila* types and made homotypes of some type specimens.

The following curators lent type material in their care for which I am very grateful. Reference symbols in the paper are in brackets. Hugo Andersson, Zoological Institute, University of Lund (LUND), Dahlbom type. Eberhard Königsmann, Institut für spezielle Zoologie und Zoologisches Museum, Humboldt-Universität, Berlin (BERLIN), Strand types. George Wallace, Carnegie Museum, Pittsburgh, (CMP), Fox type. Other depositories cited and their abbreviations are: Museum of Comparative Zoology, Harvard University, (MCZ). United States National Museum (USNM). British Museum (Natural History) (BMNH). Institut Agronomique de l'état, Gembloux, Belgium (IAG). Museum National d'Histoire Naturelle, Paris (PARIS). Universitetets Zoologiske Museum, Copenhagen (COPENHAGEN). Instituto e Museo de Zoologia di Torino (TURIN). Instituto Miguel Lillo, Tucuman (IML). California Academy of Sciences, San Francisco (CAS).

Eremnophila new subgenus

eremnos, Gr. = black; philia, Gr. = love

TYPE SPECIES. *Ammophila opulenta* Guérin-Méneville 1838.

CHARACTERISTICS. Episternal suture forming a posteriorly directed "V" opposite pronotal lobe and then extending to ventral region of the pleuron. Clypeus in male acuminate except in one species. Aedeagus divided into an apical head and a basal stalk, the two parts joined by a point of flection. Base of gonoforceps prolonged dorsoventrally with the stalk of the aedeagus attached at the dorsal end.

DISCUSSION. The v-shaped episternal suture is unique in this group but the bizarre genitalia parallel the complex genital organs found in the Old World genus *Hoplammophila*. In two species of *Eremnophila*, *eximia* and *asperata*, the second petiole segment approaches the bell shape characteristic of *Hoplammophila* and this feature coupled with the acuminate male clypeus in both groups may indicate a distant relationship although convergence of form is a possibility. *Hoplammophila* is further distinguished from *Eremnophila* in possessing claw teeth and having a straight episternal suture.

The peculiar structure of the male genitalia is illustrated in Fig. 6. The terminology used is that of Michener (1956) except for the terms "head" and "stalk" which I have coined for the two parts of the penis valve. The penis valves of the different species are very distinctive (Figs. 9-18) and to a lesser degree so are the other genitalic structures. The point of flection between the head and stalk (Fig. 6h) is highly developed in *binodis*, *aureonotata*, *catamarcensis* and *willinki*. These four species form a distinct group within *Eremnophila* as can be seen by the similarity of the penis valves (Figs. 11, 13, 15, 16); and other genitalic structures. This species group is also characterized by the presence of a subapical spine or projection on the subgenital plate (Fig. 6c). Males of the *binodis* group, as I am calling this assemblage, have a thumb-like process on the hypostomal carina near the base of the mandible. However, this character is also well developed in *opulenta* males and feebly so in males of *melanaria*, two species not otherwise closely allied to the *binodis* group. The thumb-like process is also found in males of a few species of *Ammophila* (*Ammophila*), such as *nefertiti* Menke and *nasalis* Provancher from California, and *vulcania* du Buysson from Africa. Just as in *Ammophila* (*Eremnophila*) the males of these three species have an acuminate clypeus.

The remainder of the species of *Eremnophila* do not form a single species group. *A. opulenta* and *melanaria* are individually unique in most respects and the penis valves and gonoforceps display little similarity. *Ammophila* (*Eremnophila*) *asperata*, *eximia* and *auromaculata* form a group by virtue of their rounded

rather than pinched pronotal collar, similar gonoforceps and almost bell-shaped second petiole segment. I am calling this the *eximia* group.

All of the species in *Eremnophila* are black except *auromaculata*, known only from Argentina. In addition, *Ammophila* (*Eremnophila*) *eximia* exhibits a bi-colored form in southern South America.

DISTRIBUTION. *Eremnophila* is primarily a Neotropical group, the only exception being *aureonotata*, a Central American species which extends northward through the eastern United States to Canada.

BIOLOGY. Evans (1959) summarized the biology of *aureonotata* and there seems to be no significant difference from typical *Ammophila* species. *A. aureonotata* digs a rather shallow nest and provisions with a single caterpillar, usually of the family Notodontidae. Nothing is known of the biology of the remainder of the species of *Eremnophila*. I have illustrated in Fig. 1 a peculiar tandem posture assumed by males and females of *melanaria*. This photograph was taken by E. S. Ross, of the California Academy of Sciences, while on a collecting trip in Tingo Maria, Peru. This tandem activity was quite common according to Ross. It would seem that this situation must be preliminary to the act of copulation.

Key to the species of *Ammophila* (*Eremnophila*)

1. Males, antenna with eleven flagellomeres 2
   Females, antenna with ten flagellomeres 10
2. Last sternite with subapical spine (Fig. 6c) 3
   Last sternite without a subapical spine 6
3. Scutum completely covered with primarily transverse ridges 4
   Scutum shagreened or shining posteriorly, transverse ridges if present restricted to anterior of scutum 5
4. Mesopleuron behind pronotal lobe with a crescent shaped patch of appressed golden hair; Argentina ..... *catamarcensis* Schrottky
   Mesopleuron behind lobe without appressed golden hair; Brazil to Argentina ..... *willinki* Menke
5. Apex of clypeus drawn out into a long, narrow process (Fig. 2) eastern North America, Central America ..... *aureonotata* Cameron
   Clypeus triangular, apex without a narrow apical process (Fig. 3); Panama, South America ..... *binodis* (Fabricius)
6. Clypeus truncate (Fig. 4); gastral tergites I and III-VI red; a patch of appressed silver hair anterior to propodeal spiracle; Argentina ..... *auromaculata* Perez
   Clypeus acuminate 7
7. Gastral sternite I angulately bulged posteriorly (Fig. 1); free margin of last tergite with a median emargination; Mexico to Argentina ..... *melanaria* Dahlbom
   Gastral sternite I normal; last tergite usually entire 8
8. Mesopleuron with anteroventral tubercle; apex of clypeus drawn out into a long narrow process; Mexico to Argentina ..... *opulenta* Guérin-Méneville
   Mesopleuron without an anteroventral tubercle; apex of clypeus simply acuminate, no apical projection (Figs. 3, 5) 9
9. Clypeus triangulate (Fig. 5); mesopleuron with a patch of appressed gold or silver hair; Venezuela to Argentina ..... *eximia* Lepeletier
   Clypeus uniangulate (Fig. 3); mesopleuron without appressed hair; Brazil ..... *asperata* Fox
10. Pronotal collar trilobate in appearance due to submesal depressions or dimples 11
    Pronotal collar evenly rounded 16

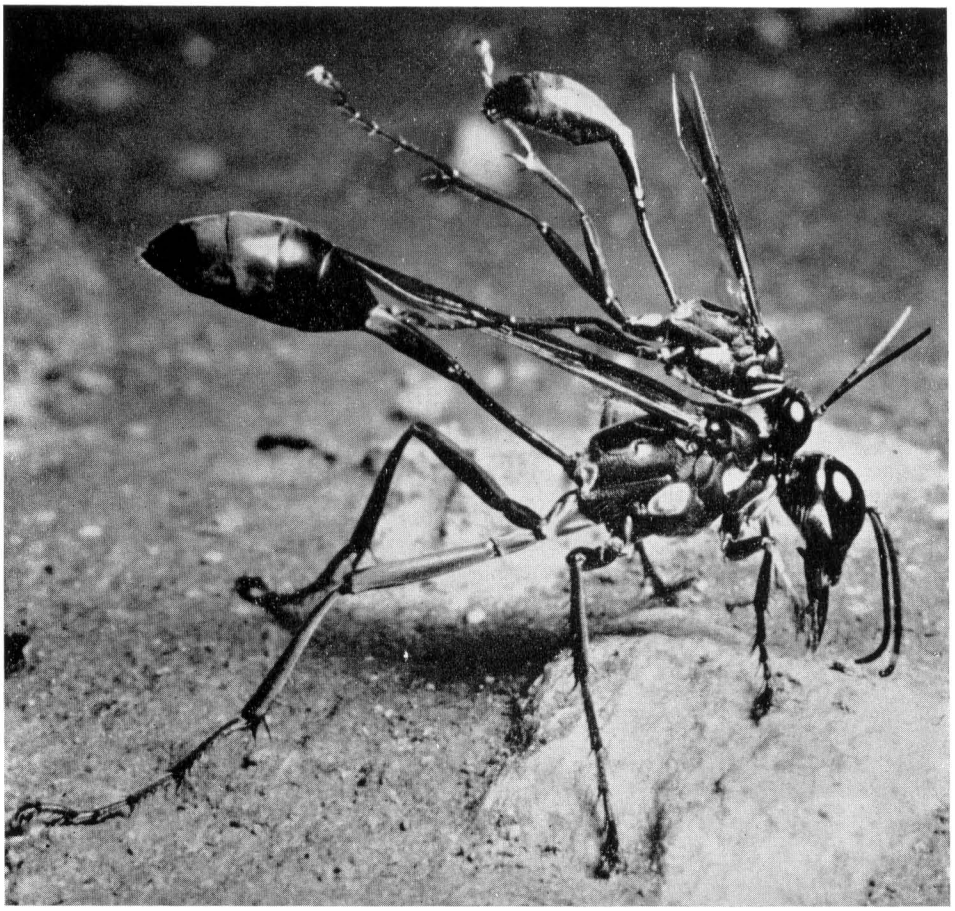


Fig. 1. Male (uppermost) and female of *Ammophila* (*Eremnophila*) *melanaria* Dahlbom from Tingo Maria, Peru, shown in tandem attitude. Note the characteristic angulate bulge in the first gastral sternite of the male. Photo courtesy of E. S. Ross.

11. Mesopleuron with an angulate bulge or prominent tubercle antero-ventrally 12
    Mesopleuron normal, without bulge or tubercle 13
12. Mesopleuron with a prominent tubercle ..... *opulenta* Guérin-Méneville
    Mesopleuron with an angulate bulge ..... *melanaria* Dahlbom
13. Scutum completely covered by primarily transverse ridges (ridges may be finer and longitudinal posteriorly) 14
    Scutum smooth and shining posteromedially 15
14. Mesopleuron behind pronotal lobe with a crescent shaped patch of appressed golden hair; female clypeal outline as in Fig. 7; Argentina ..... *catamarcensis* Schrottky
    Mesopleuron without appressed hair behind pronotal lobe; female clypeal outline as in Fig. 8; Brazil, Argentina ..... *willinki* Menke
15. Scutum with a triangular patch of silver or gold appressed hair antero-medially; North and Central America ..... *aureonotata* Cameron
    Scutum usually covered with velvety black appressed hair, gold or silver hair usually lacking; South America, Panama ..... *binodis* (Fabricius)

16. Mesopleuron without appressed gold or silver hair; body all black; Brazil ..... *asperata* Fox

Mesopleuron with a large patch of appressed gold or silver hair; gaster and legs largely red in Argentine specimens, body all black in specimens from the remainder of South America 17

17. Scutum with a dense triangular patch of appressed silver or gold hair anteromedially; clypeus, most of leg, and gaster except tergite II, orange; Argentina ..... *auromaculata* Perez

Appressed hair, if present, uniformly covering disk of scutum and thining laterally; body completely black in non-argentine examples, gaster and legs colored as in *auromaculata* in Argentine specimens ..... *eximia* Lepeletier

Ammophila (*Eremnophila*) *opulenta* Guérin-Méneville

(Fig. 9)

Ammophila opulenta Guérin-Méneville, 1838, *Voy. Autour Monde La Coquille* 2(2): 261. Holotype ♀, Pará, Brazil (GENOA).

Ammophila bimaculigera Strand, 1910, *Zool. Jb.* 29: 129. Lectotype ♀, Villa Morra, Paraguay (BERLIN). Present designation. NEW SYNONYMY.

In both sexes of *opulenta* there is a prominent tubercle on the anteroventral portion of the mesopleuron. The penis valve is as shown in Fig. 9. Bohart examined the type of *opulenta* and I have seen the syntypes of *bimaculigera*. This distinctive species ranges from **Mexico** to **Argentina.**

Ammophila (*Eremnophila*) *melanaria* Dahlbom

(Figs. 1, 17, 18)

Ammophila melanaria Dahlbom, 1843, Hymen. Europaea, vol. 1, fasc. 1, p. 15. Lectotype ♂, Brasilia (LUND). Present designation.

?Ammophila miliaris Cameron, 1888, *Biol. Cent.-Amer.* 2: 3. Lectotype ♀, Bugaba, Panama (BMNH Type No. 21.789). Present designation.

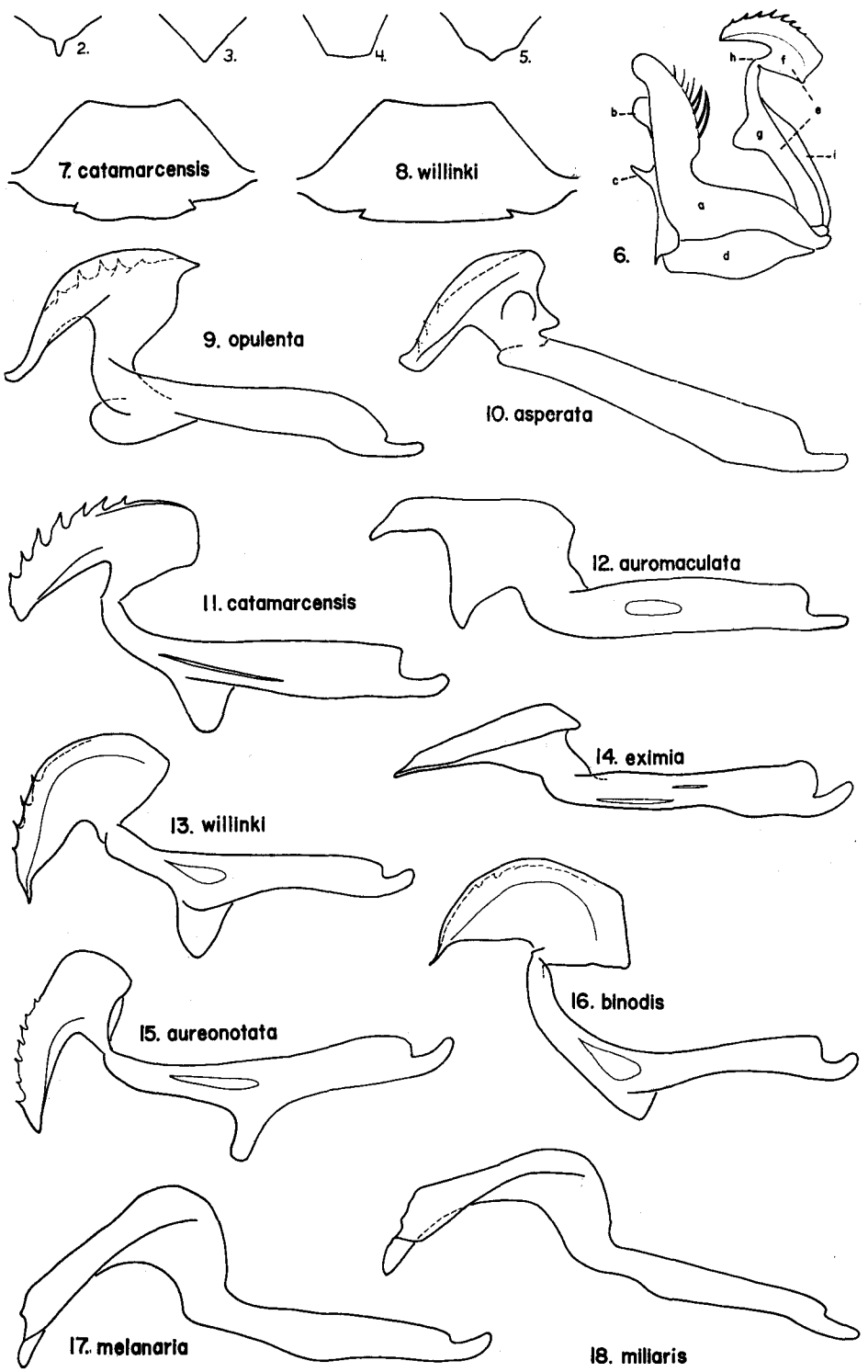
?Ammophila iridipennis Cameron, 1888, *Biol. Cent.-Amer.* 2: 5. Lectotype ♀, Zapote, Guatemala (BMNH Type No. 21.793). Present designation.

?Ammophila velutina Schrottky, 1910, *Soc. Ent.* 25: 31. Holotype ♀, San Ignacio, Misiones Prov., Argentina. (Location of type unknown).

Ammophila lobicollis Cameron, 1912, Timerhi, *Demerara J. R. agric. Soc.* 2: 428. Holotype ♀, British Guyana, Demerara (BMNH). NEW SYNONYMY.

The angulate mesopleuron in the female and the angulate first gastral sternite in the male are diagnostic for *melanaria*. The angulate mesopleuron is usually not well developed in the male. South American males of *melanaria* have the head of the penis valve shaped as in Fig. 17, which was drawn from the type of *melanaria*. Males from Central America have a slightly different penis valve head (Fig. 18). Because of the lack of other constant differences between the specimens from these two geographic areas, I hesitate to recognize the two types as separate species. However, Cameron's name *miliaris* would apply to the Central American form if it proves to be distinct.

Figs. 2-18. Characters of *Ammophila*. 2-5. Male clypeal outline. 2, *A. aureonotata* Cameron; 3, *A. binodis* (Fabricius); 4, *A. auromaculata* Perez; 5, *A. eximia* Lepeletier. 6. Lateral view of the right side of male genitalia and associated structures of *Ammophila* (*Eremnophila*) *catamarcensis* Schrottky with various parts labelled as follows (aedeagus is shown slightly retracted from gonoforceps and volsella for clarity): a. gonoforceps; b. digitus of volsella; c. subapical spine of last sternite; d. gonobase; e. right penis valve (right and left together forming the aedeagus); f. head of penis valve; g. stalk of penis valve; h. point of flection between head and stalk; i. spatha; the right side of the figure is the true dorsum. Figs. 7-8. Female clypeal outline. Figs. 9-18. Lateral view of outer side of right penis valve of dissected aedeagus.


2.
3.
4.
5.
7. catamarcensis
8. willinki
6.
9. opulenta
10. asperata
11. catamarcensis
12. auromaculata
13. willinki
14. eximia
15. aureonotata
16. binodis
17. melanaria
18. miliaris

Fernald (1934) synonymized *miliaris* with *melanaria* and tentatively placed *iridipennis* in the synonymy. Bohart's notes on *lobicollis* verify that it is a synonym of *melanaria* and that *iridipennis* is the same as *miliaris*. I have placed Schrottky's *velutina* as a tentative synonym of *melanaria*. Depending on the interpretation of his statement concerning the mesopleura, his species could be *opulenta* or *melanaria*. In his description he says, "Mesopleuren sparsam punktiert, mit dem Sternem eine deutliche Kante bildend." Schrottky's type may be in La Plata or Buenos Aires.

Fernald (1913) pointed out that there were two male syntypes of *melanaria*. One is in Berlin and the other in Dahlbom's collection at Lund. I have studied the Lund specimen and designate it as lectotype.

Ammophila melanaria ranges from **Mexico** to **Argentina.**

AMMOPHILA BINODIS GROUP

Ammophila (*Eremnophila*) *binodis* (Fabricius)

(Figs. 3, 16)

Sphex binodis Fabricius, 1798, Ent. Syst. Supplementum, p. 243. Holotype ♀, Cayenne, French Guiana (PARIS).

Pelopoeus abbreviatus Fabricius, 1804, Syst. Piezatorum, p. 204. Lectotype ♂, America meridionale (COPENHAGEN). Designated by van der Vecht, 1961.

Ammophila guiana Cameron, 1912, Timehri, *Demerara J. R. agric. Soc.* 2: 428. Holotype ♀, British Guyana (BMNH). NEW SYNONYMY.

Ammophila oxystoma Cameron, 1912, Timehri, *Demerara J. R. agric. Soc.* 2: 429. Holotype ♂, British Guiana (BMNH). NEW SYNONYMY.

Fernald (1931) stated that he had examined the type of *binodis* in the Paris Museum and further indicated that it was probably the same as *abbreviata* Fabricius. He also noted that F. F. Kohl had placed a label on the type of *binodis*: "abbreviata det. Kohl". Van der Vecht (1961) stated that he could not find the type of *binodis* in the museum in Paris. While Fernald's judgement was not always good, Kohl's work is more trustworthy and it seems safe to assume that the above synonymy is correct. To my knowledge, none of the species which might be confused with *binodis* occur near the type locality, Cayenne. Coquebert (1799) figured the type of *binodis* (pl. 5, fig. 8) but unfortunately it is not clear enough for positive identification of Fabricius's species. The illustration does not contradict the use of *binodis* for the species discussed here however. Fernald (1931) selected as type of *abbreviata* a specimen in the Kiel Fabrician Collection. Van der Vecht (1961) pointed out that the specimens on which Fabricius based his description were more probably those in the Sehestedt Collection in Copenhagen and accordingly designated a lectotype from these specimens. Bohart's notes on the types of *guiana* and *oxystoma* indicate that these species are synonymous with *binodis*.

Ammophila binodis has weakly developed appressed thoracic hair in comparison with the other three species in the *binodis* group. The scutum usually is covered with a mat of appressed velvety black or brown hair and only rarely is there a triangular silver or gold patch anteriorly. The pleuron in *binodis* has only a small patch of appressed hair which does not reach the episternal suture. In thoracic sculpture *binodis* resembles *aureonotata* but the geographic ranges of these two species do not appear to overlap. The male clypeus is distinct in the two, as well as the penis valves (compare Figs. 2 and 3, and 15 and 16). The smooth rather than ridged scutum posteriorly will separate *binodis* from *willinki* and *catamarcensis*. The latter two species have a strongly formed triangular patch on the scutum and large patches of hair on the pleuron in contrast to *binodis*. Some Brazilian examples of *willinki*, however, have the pubescence reduced, approaching the condition found in *binodis*.

Ammophila binodis is probably the commonest species of *Eremnophila* in South America. It ranges from **Argentina** to **Panama.** The broadly arched stalk of the penis valve is distinctive as is the large penis valve head (Fig. 16).

Ammophila (*Eremnophila*) *aureonotata* Cameron

(Figs. 2, 15)

Ammophila aureonotata Cameron, 1888, *Biol. Cent.-Amer.* 2: 7. Lectotype ♂, Vallodolid, Yucatan, Mexico (BMNH Type No. 21.786).

This species ranges from **El Salvador** to **Canada.** In the United States it occurs from the great plains to the east coast. The clypeal outline and penis valve are shown in Figs. 2 and 15 respectively.

Ammophila (*Eremnophila*) *willinki* Menke n.sp.

(Figs. 8, 13)

HOLOTYPE. Male, length 21 mm.

COLOR. Black.

PUBESCENCE. Head with appressed gold hair on face, erect clypeal hair golden, becoming darker towards vertex and behind eyes. Scutum with an anteromedian triangular patch of appressed gold hair; pronotal lobe with appressed gold hair; mesopleuron from episternal suture to mesocoxa with a large triangular patch of appressed gold hair; a spot of appressed gold hair anterior to propodeal spiracle and also at base of petiole socket; erect hair of thorax gold or brownish.

STRUCTURE. Clypeus triangular in outline, similar to Fig. 3. Pronotal collar trilobate, shining but with scattered punctures anteriorly; scutum finely, closely, transversely ridged anteriorly, with scattered punctures among the ridges, ridges becoming somewhat coarser between tegulae and longitudinal; scutellum longitudinally ridged; propodeal enclosure coarsely and irregularly ridged anteriorly, the ridges becoming finer and more regular posterolaterally. Penis valve as in Fig. 13.

FEMALE. 23 mm. long. Medium truncate lobe of clypeus barely projecting beyond lateral portion of free clypeal margin. Color, pubescence and structure as in male.

TYPES. Holotype ♂, Nova Teutonia, Santa Catarina, **Brazil,** 8 January 1945 (F. Plaumann, CAS). Paratypes are as follows: Pelotas, Rio Grande do Sul, Brazil, 7 males, 4 females (C. M. Biezanko, IAG). Rio Grande do Sul, Brazil, 1 female (USNM). Nova Teutonia, Santa Catarina, Brazil, 1 female (CAS). Nova Teutonia, Santa Catarina, Brazil, 4 males, 7 females (Fritz Plaumann, IAG). El Cadillal, Tucuman, **Argentina,** one male (IML). The following metatypes have been seen: Chapada dos Guimaraes, Mato Grosso, Brazil, 2 males (H. H. Smith, CMP). Santarem, Pará, Brazil, 1 male (CMP).

REMARKS. There is some variation in the ridges on the scutum. Posteriorly the ridges usually are diagonal or longitudinal, although occasionally they are transverse. The mesopleural appressed pubescence in the metatypes is reduced to a circular spot in one of the Chapada males and is nearly nonexistent in the other two males.

Structurally *A. willinki* is similar to *catamarcensis* Schrottky. The appressed pubescence of *willinki* is not as extensive as in *catamarcensis* however, and the lack of pubescence behind the pronotal lobe in *willinki* will enable the two to be distinguished. The penis valve offers good differences also (Figs. 11, 13). In *willinki* the penis valve head has only a few teeth which are partially concealed by the crest of the head. In *catamarcensis* the teeth are fully exposed and are more numerous. The median truncate lobe of the clypeus in female *willinki* is not as prominent as in females of *catamarcensis* (compare Figs. 7 and 8).

This species is named in honor of Abraham Willink in recognition of his studies on the Sphecinae.

The known range of *willinki* is from northern **Argentina** to the **Amazon River.**

Ammophila (*Eremnophila*) *catamarcensis* Schrottky

(Figs. 6, 7, 11)

Ammophila catamarcensis Schrottky, 1910, *Soc. Ent.* 25: 31. Holotype ♂, Andalgalá, Catamarca Prov., Argentina (location of type unknown).

This species is known only from Argentina. It is the only *Eremnophila* that has a dense crescent shaped patch of golden pubescence on the mesopleuron adjacent to the pronotal lobe. The male genitalia (Figs. 6, 11) and the female clypeal outline (Fig. 7) are illustrated. For differences between *willinki* and *catamarcensis* see discussion under *willinki*.

AMMOPHILA EXIMIA GROUP

Ammophila (*Eremnophila*) *eximia* Lepeletier

(Figs. 5, 14)

Ammophila eximia Lepeletier, 1845, Hist. Nat. Insectes Hymen. 3: 373. Holotype ♂, Bresil (TURIN).

Ammophila eugenia Smith, 1856, Cat. Hymen. Insects Coll. Brit. Mus. 4: 220. Holotype ♂, Rio Grande (? Hope Museum, Oxford). NEW SYNONYMY.

Sphex nigrocinctus Fernald, 1907, *Bull. Mus. comp. Zool.* 50: 269. Holotype ♀, Cordova, Argentina (MCZ). NEW SYNONYMY.

Ammophila friedrichi Schrottky, 1909, *Anal. Soc. Cien. Argentina* 68: 244. Holotype ♀, San Ignacio, Misiones, Argentina (location of type unknown). NEW SYNONYMY.

Ammophila trimaculigera Strand, 1910, *Zool. Jb.* 29: 130. Holotype ♂, Villa Morra, Paraguay (BERLIN). NEW SYNONYMY.

Bohart examined the type of *eximia* and I have studied the types of *nigrocinctus* and *trimaculigera*. On the basis of the original descriptions I have been able to place *eugenia* and *friedrichi* in the synonymy. Smith stated that the type of *eugenia* was a female but this was certainly an error since he described the characteristic acuminate clypeus found only in the male.

This species exhibits two color forms. Specimens from Paraguay to Venezuela are completely black; while in those from Argentina the legs and abdomen are largely red. In these latter specimens the first petiole segment and the second gastral tergite are black. Intermediate color forms are occasionally found in which the red areas are somewhat suffused with black. *A. eximia* and *trimaculigera* are based on the black form while the other three names pertain to the bicolored form.

The bicolored form of *A. eximia* is similar to Argentine species *A. auromaculata* Perez. Males of *eximia* have an acuminate clypeus (Fig. 5) while in *auromaculata* the clypeus is truncate (Fig. 4). The most obvious difference in the females is the pubescence pattern. The mesonotum of bicolored female *eximia* is rather uniformly covered with appressed silver hair while in *auromaculata* there is only a median triangular patch. Black *eximia* females display less appressed scutal hair and often it is absent. Completely black forms are not known in *auromaculata*. The aedeagi of the two species display good differences (Figs. 12, 14).

A. eximia ranges from **Argentina** to **Venezuela.**

Ammophila (*Eremnophila*) *auromaculata* Perez

(Figs. 4, 12)

Ammophila auromaculata Perez, 1891, *Mém. Soc. zool. Fr.* 4: 499. Holotype ♀, Gran Chaco (? PARIS).

Ammophila giacomellii Schrottky, 1910, *Soc. Ent.* 25: 31. Syntypes 7♂, 2♀, La Rioja; Andalgalá, Catamarca, Argentina (location of type unknown). NEW SYNONYMY.

Schrottky's description clearly establishes the above synonymy. So far as is known *auromaculata* does not display a totally black color form. In both sexes only tergite II of the gaster is black, the remainder being red. The truncate clypeus in the male is unique in the subgenus (Fig. 4). The distinctive penis

valve of *auromaculata* is shown in Fig. 12. For differences between *auromaculata* and the bicolored form of *eximia* see discussion under *eximia.*

A. auromaculata is known only from **Argentina.**

Ammophila (*Eremnophila*) *asperata* Fox

(Fig. 10)

Ammophila asperata Fox, 1897, *Proc. Acad. nat. Sci. Philad.* 1897: 374. Lectotype ♂, Chapada dos Guimaraes, Mato Grosso, Brazil (CMP). Present designation.

This species is known only from the syntypes, two males and one female, collected at Chapada, Brazil by H. H. Smith. Fox neglected to place any kind of labels on the types, but on comparison with the original description, there can be little doubt that the specimens studied are his types of *asperata.*

A. asperata differs from *eximia* and *auromaculata* by the complete lack of any appressed silver or gold mesopleural hair. The only appressed hair in *asperata* is on the face, pronotal lobe, and at either side of the petiole socket.

The clypeus of male *asperata* is similar to Fig. 3.

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