SYNOPSIS OF THE NORTH AMERICAN SPECIES OF AMMOPHILA.

BY A. L. MELANDER, CHICAGO, ILL.

Recently through the kindness of the authorities of the Academy of natural sciences of Philadelphia I had the opportunity of studying the types of AMMOPHILA contained in their collection. A synopsis of the species was arranged in tabular form with the intention of further work on the group. As this plan cannot now be carried out it seems advisable to publish the notes made while in Philadelphia for the assistance of any who wish to study this interesting genus. In the original table have been interpolated the additional North American species not contained at the Philadelphia academy, their places having been determined from the descriptions alone. Owing to the incomplete diagnoses of some authors a number of these species have been placed out of their natural order, and hence the table is in part more artificial than is to be desired; but in the main a natural relationship is expressed.

It is strange that the study of such large, common, and intelligent insects should have been so long neglected. Possibly this is due to the uncertainty in the determination of the species of the older authors and to the confusion existing between the homonymous but different species of Dahlbom and Lepeletier. But as in the northeastern part of the United States the species are not numerous the student of at least that section should experience but little trouble in naming his captures. For example, some two hundred specimens collected by myself in central and southern Texas, Illinois, and New England yield only three PSAMMOPHILAS, nine AMMOPHILAS and the one COLOPTERA, thirteen species, of which ten are found in the Northeastern States. In order of abundance of individuals these species are: procera, nigricans, urnaria, violaceipennis, extremitata, inepta (Tex.), abbreviata, vulgaris, grossa (Tex.), luctuosa, gracilis,wrightii (Tex.), and an undescribed species from Illinois. It will be noticed that most of these are the species of the older authors. On account of the brevity of their descriptions the determination of these can best be accomplished by eliminating the other species found in the type locality. By this method, and as they seem to be the most abundant forms, the older species can be readily fixed. A careful redescriptions of them is desired from the next monographer.

A number of changes in nomenclature are instituted, whereby several well-known names are dropped as synonyms. The dubious violaceipennis is a common form of the United States, concerning whose identity it is indeed strange that a doubt should ever have existed. The Brazilian urnaria of Lepeletier is not the
same as Dahlbom's species; *procera* Lep. is not *procer*a Dahlb., but is the other sex of his *intercepta* and both are synonyms of *nigricans* Dahlb.; *gracilis* Cam. is not *gracilis* Lep., while the Canadian form of same name seems to be a third species.

With such well-known and long established names as *cementaria*, *gryphus*, *procera*, *robusta*, *macra*, *anomala*, etc., untenable, the future student will hesitate before describing new species. However the Mexican and Central American species of Peter Cameron seem valid and in little danger of confluence. The stumbling block of the earlier describers has often been the association of the sexes, since a distinct dimorphism often prevails. Generally the males are more slender, more hirsute, and more brilliantly marked than the females, and in those species with the abdomen partially red the males frequently have the black encroaching dorsally as a median line. Their clasping sexual organs and the narrow and straight-sided face are distinctive of this sex.

Of the species of the United States some difficulty might be experienced in differentiating between certain forms. For this reason a few supplementary notes on the common species are added:—

*vulgaris* is a small species, about three fourths of an inch in length. The mesonotum of the female generally has a deep median furrow. The striae of the metanotum are close together, oblique and well-cut, and are generally connected by a median line.

*juncea* is founded on a slender male with very fine transverse metanotal striae. The central portion of the disc is sometimes confusedly punctate and slightly hairy. It is a larger form than *vulgaris*.

*strenua* is about one inch in length and has complete transverse striae on the metanotum not quite so well marked as in *vulgaris* but rougher than in *juncea*. The anterior striae tend to become oblique. The female has a short narrow impressed line on the mesonotum.

*urnaria*. The obsolete striate arrangement of the punctures near the tegulae is quite characteristic and fairly constant in this species. The rather coarse striae of the metanotum are more or less oblique and frequently become rugulose on the disc as in *juncea*.

*abbreviata* is quite distinct among the local species by the acuminate clypeus of the male, the short pale golden macule of the mesopleurae, and the black abdomen.

*nigricans* also has the abdomen mostly black but the pleurae are entirely black and the wings darkened.

*extremitata* is quite distinct by the yellowish wings. The thorax of the female is matte-black and the abdomen contains a brighter red than in the other common forms.
procera is the only local species with complete and coarse transverse striae on the notum. It is also the largest of our species, some specimens attaining nearly an inch and a half in length.

It is believed that the following table will give a truthful determination of the species of this group as they have been defined, and since the species need no longer be confused it is hoped that an interest in their study may be aroused. Especially to be desired is the observation of the habits of these intelligent wasps,—a pleasant research,—for the ammophiles are intellectually superior to the other fossorial Hymenoptera, as the entertaining records of Fabre, the Peckhams, Williston, and others have shown.

**Table of the North American Species.**

1. Petiole of abdomen consisting of the first abdominal segment only (Psammophila) 4.
   Petiole of abdomen consisting of the entire first segment and at least the basal portion of the second (Ammophila) 18.
2. Second and third submarginals united. Black species with the base of the abdomen red (anomalous species of Ammophila) 74.
   Third submarginal cell wanting; submedian cell distinctly shorter than the median (Coloptera) 75.
3. Body wholly black, piceous-black, or blue-black. Abdomen more or less ferruginous 5.
5. Slender; pubescence in part whitish; face silvery; abdomen more or less purplish (Luctuosa Sm. 3).
   Robust; pubescence black; face broad, black pubescent; abdomen black (Luctuosa Sm. 9).
6. Pubescence of thorax wholly black. Pubescence more or less brownish, gray, or white 8.
8. Clypeus broadly projecting in the middle, the projection sinuated. The margin of the clypeus pluridentate 10. Jason Cam.
11. Petiole of abdomen short, not extending beyond the hind trochanters; large species (Grassa Cress. 9).
Petiole extending beyond the hind trochanters; smaller species variable in pubescence and wing-coloration

13. Third submarginal cell small, barrel-shaped; eyes strongly convergent below

Third submarginal normal, i.e., broader below than above

14. Front and middle legs in part red

Legs entirely black

15. Petiole of abdomen short, not extending beyond hind trochanters; stout species

Petiole much longer; smaller species

16. Base of abdomen entirely ferruginous

Only the sides of the first and second segments reddish

17. Legs densely pruinose

Legs sparsely pruinose

18. Pro- or meso-notum transversely striose

Disc of thorax punctured or smooth, never with complete transverse strioe

19. Thorax or legs in part red

Ground color of thorax and legs entirely black

20. Head red; metanotum transversely striate

Head black; metanotum striae becoming rugose laterally

21. Abdomen wholly black above

Abdomen in part red above

22. Scutellum with strong longitudinal carinæ

Scutellum with longitudinal grooves or simply punctate

23. Pleurae with golden or silvery spots; abdomen almost wholly black; clypeus of male acuminate

Pleurae with elongate silvery markings; third ventral in part red; clypeus of male not produced

24. Tip of metapleurae with a marking of silvery pubescence

Tip of metathorax not marked with glistening pubescence

25. Face with silvery pile and pubescence; metathorax transversely striate

Face with or less silvery but with black pubescence also; metanotum with oblique striae at least in part

26. Prothorax shorter, sculpture of thorax coarser and insect more pubescent

Prothorax longer and comparatively stout; sculpture of thorax less coarse

27. Black pilose species; upper part of metathorax velvet black, and arcuately striose; wings fulvous

Not such species; pile in part lighter

28. Metapleurae rugosely punctate

Metapleurae striose

29. Clypeus coarsely punctured; mesothorax punctured at middle but becoming striose at the sides; disc of metanotum obliquely striated

Species not conforming with all these characters

30. Face with whitish pubescence; abdomen largely red
Face with black pubescence 32.
31. Legs completely black 32. polita Cress.
Legs densely pruinose 46. striolata Cress.
32. Prothorax transversely striate 45. championi Cam.
Prothorax smooth 25. placida Sm.
33. Abdomen almost wholly red 32. saeva Sm.
Pedele and apical part of abdomen black 16. procera Dahlb.
34. Legs at least in large part red 35.
Ground color of legs wholly black or piceous 40.
35. Head and clypeus black; metanotum at least centrally with transverse striae 36.
Metanotum sharply, densely, and obliquely striated; face and clypeus silvery
19. aberti Hald.
36. Sides of thorax with markings of silvery pubescence; central part of metanotum pubescent 37.
Pleurae and metanotum not pubescent, pleurae with three large silvery pruinose spots 60. femur-rubrum Fox
37. First joint of petiole black, i.e., with more black than second joint 38.
First joint of petiole with more red than second joint; species of 16-25 mm. 29. pruinosa Cress.
38. Pleurae with dense matted pubescence; species of 35 to 40 mm. 24. yarrowi Cress. 9.
Pleurae with sparser more erect hairs; species under 30 mm. 39.
39. Base of femora black; thorax not densely pubescent above 21. breviceps Sm.
Four anterior legs red; thorax densely pubescent above 58. comanche Cam.
40. Wings yellowish or fulvous 41.
Wings dark-violaceous to subhyaline 42.
41. Head and thorax matte-black, sparsely black pilose 31. extranitata Cress. 9.
Head and thorax bluish, densely fusco-pilose 44. zanthoptera Cam.
42. Mesopleurae with spots or oblique stripings of silvery golden color 43.
Pleurae uniform in color, not with pubescent markings 61.
43. Thoracic notum with appressed sericeous pubescence and erect hairs 44.
Thorax devoid of dense appressed pubescence but often with sparse to dense hairs and sometimes more or less pruinose 48.
44. Central space of metathorax closely pubescent 24. yarrowi Cress.
Metathorax not pubescent centrally 45.
45. Abdomen largely red, the segments with a black dorsal spot 61. nasalis Prov.
Abdomen nearly or wholly black 46.
46. The dilated part of the second segment except its hind margin red 18. arvensis Lep.
Abdomen completely blue-black; third submarginal narrow; the sericeous pubescence confined to the front part of the thorax 47.
47. Metapleurae coarsely striated; hind coxae covered with silvery pubescence 37. miliaris Cam.
Metapleurae finely rugulose; hind coxae silvery above only 13. abbreviata Fabr.
48. Central part of metathoracic disc rugulose, scutellum with longitudinal striae 20. fragilis Sm.
Central part but little roughened, generally more or less striated 49.
49. Small species clothed with silvery cinereous pubescence; metanotum with well-marked oblique striae generally connected by a median line 33. vulgaris Cress.
Species of other character, the metanotum only rarely with a median line  

50. Face covered with golden pubescence; abdomen largely reddish; clypeus not produced  

Pubescence of face of other color, if golden the abdomen is black and the clypeus of the male is produced  

51. Punctures of thorax fine and sparse; scutellum strongly furrowed  

Punctures of thorax close; scutellum rugose  

57. *chiriqiensis* Cam.  

52. Head and thorax with sparse black but no silvery pubescence  

53. *dejecta* Cam.  

53. Mesonotum strigose or very thickly punctate towards the sides. Eastern species.  

Mesonotum simply punctate. Mexican species  

54. Ground color black over all  

55. Abdomen with the second segment red  

56. Scutellum sparsely punctate  

57. Scutellum deeply channelled longitudinally  

58. Silvery mark of mesopleurae elongate; base of abdomen red  

59. Pleural spots short; abdomen nearly black; third submarginal cell narrow; clypeus of male produced  

60. Dorsal furrow of mesonotum deep  

61. Dorsal furrow of mesonotum indistinct  

62. Metapleurae finely rugulose; third antennal joint nearly twice the length of the second  

63. Metapleurae coarsely striated; third antennal joint one fourth longer than the fourth  

64. Thorax nearly impunctate, but covered with dense silvery pubescence; slender species  

65. Thorax strongly punctured, its pubescence with long darker hairs intermixed. Mexican species  

66. Third submarginal cell twice as wide at the bottom as at the top  

67. Third submarginal only one fourth longer at the bottom than at the top—*gracilis* Cam.  

68. Wings blackish; thorax black-sericeous; pubescence dense $\delta$, or sparser $\varphi$  

69. Wings sub- or fusco-hyaline  

70. Abdomen without red markings  

71. Abdomen in part red  

72. Blue-black species; pleurae more or less shining; face with sparse silvery pubescence  

73. Black species; pleurae opaque  

74. Pubescence sparse; hind tibiae with fulvous hairs  

75. Pubescence dense, fuscos; legs with almost no hairs  

76. Thorax opaque matte velvet-black on the sides; species of the United States  

77. Pleurae not matte-black  

78. A spot of golden pubescence above the base of the middle and hind coxae  

79. No such spots present  

80. Pro- and meso-thorax silvery pruinose. Cuba.  

81. *extremilata* var. *pictifrons* Walsh.  

82. *gauvinii* D. T.
Thorax not pruinose; more or less polished. Mexico

68. Metathorax transversely striate

69. Antennae reddish; scutellum channelled

70. Face golden-pubescent

71. Scutellum rugose or coarsely punctured

72. Throracic punctures close; metathorax trans-striate; hairs of face sparse

Sculpture of thorax indistinct, the metanotal striae oblique; hairs of face dense and silvery in the male

73. Thorax shining, punctured

74. Pubescence of body white

75. Small slender reddish species with long petiole and transversely striate thorax

The following list includes the species of this group which have been described as from North America. The species are given in chronological order and show no phylectic sequence.

Psammophila Dahlbom.


Ammophila Kirby.

15. nigricans Dahlb., ibid., p. 14. \( \delta \). Amer. bor.
   procera Lep., ibid., p. 376. \( \varphi \). (1845).
18. artensis Lep., ibid., p. 384. \( \delta \varphi \). Amer. bor.
   inepta Cresson, Trans. Amer. ent. soc., vol. 4, p. 209. \( \delta \varphi \). (1872).
26. saeva Smith, ibid., p. 222. \( \varphi \). Cal.
27. conditor Smith, ibid., p. 223. Fla.
29. priniosa Cress., ibid., p. 455. Col.
   picipennis Walsh, Amer. ent., vol. 1, p. 164. (1869).
33. vulgaris Cress., ibid., p. 458. \( \delta \varphi \). Col., Tex., N. Mex., Ill.
34. mediata Cress., ibid., p. 459. \( \delta \varphi \). Col.
35. strenua Cress., ibid., p. 459. \( \varphi \). Col., N. Mex.
36. juncea Cress., ibid., p. 460. \( \delta \). Col.
38. gaumeri Cam., ibid., p. 4. \( \delta \). Guat., Mex.
39. micans Cam., ibid., p. 5. \( \varphi \). Guat.
40. iridipennis Cam., ibid., p. 5. \( \delta \varphi \). Guat.
41. centralis Cam., ibid., p. 6. \( \delta \). Guat.
42. aneourotata Cam., ibid., p. 7. \( \delta \varphi \). Mex.
43. ceras Cam., ibid., p. 8. \( \delta \). Guat.
44. zanthoptera Cam., ibid., p. 8. \( \varphi \). Guat.
45. championi Cam., ibid., p. 9. \( \varphi \). Guat.
THE NORTH AMERICAN ANTS OF THE GENUS STENAMMA
SENSU STRICTO.¹

BY WILLIAM MORTON WHEELER, AMERICAN MUSEUM OF NATURAL HISTORY, NEW YORK, N. Y.

There is a good deal of confusion in regard to the two described North American species of Stenamma sensu stricto, owing to imperfect knowledge of the sexual forms of one of the species. Stenamma nearticum was described by Mayr from two male and two female specimens taken towards the end of October in California. To the same species he referred two workers, one from New Hamp-

¹ Contributions from the Zoological Laboratory of the University of Texas. No. 51.