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### **An Annotated List of the Ants of Arizona (Hymen.: Formicidae).**

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From the summits of Arizona's many heavily timbered mountains to the floors of her vast deserts and valleys is a wealth of insect life, including numberless ants. The variety of ant life is surpassed only by the number of teeming colonies of each species.

Much of the state is desert. Sandy, dry and unbroken soil lies in the north and a moister region occupies the centre. These areas are especially rich in ant species. In the desert the struggle for existence has been most severe and the survivors of past periods have well established and distributed themselves in a hostile environment. Certain habitat restrictions have limited the spread of many species, so that some of them are found in rather small and isolated areas. These



"pockets" are continually being discovered, and it is chiefly through the results of these "finds" that a sizable state list has been made possible.

I shall not attempt to discuss any ant extensively, or to annotate those species which have been collected by investigators other than myself. The notes appearing herein are original. Notes on ants which are merely listed have been heretofore published, and may be gleaned from the works of Wheeler, Smith, Olsen, Cole and others.

That this list is probably by no means complete has been foreseen and recognized by the writer. It may be considered merely a starting point to which additional data may be appended as time goes on. I have drawn freely from the publications of Drs. Wheeler, Smith and Olsen. To those who have made possible this contribution to the fauna of Arizona, I am gratefully indebted.

#### Subfamily PONERINAE.

1. *STIGMATOMMA PALLIPES* subsp. *ARIZONENSE* Wheeler. Huachuca Mts. (W. M. Mann).
2. *PONERA OPACICEPS* Mayr. Grand Canyon (Wheeler).
3. *ODONTOMACHUS HAEMATODA* subsp. *DESERTORUM* Wheeler. Tucson (Wheeler); Phoenix (Cole). A few workers of this interesting subspecies were running about at night in a grassy lot in Phoenix. The nest was not located.
4. *O. HAEMATODA* subsp. *CONINODIS* Wheeler. Huachuca Mts. (Wheeler, Mann).
5. *O. CLARUS* Roger. Huachuca Mts. (C. Schaeffer).

#### Subfamily DORYLINAE.

6. *ECITON (ACAMATUS) OSLARI* Wheeler. Nogales (Oslar).
7. *E. (A.) ARIZONENSE* Wheeler. Nogales (Oslar).
8. *E. (A.) MEXICANUM* (F. Smith). Nogales (Oslar).
9. *E. (A.) HARRISI* (Haldeman). Nogales (Oslar); Palmerlee (Schaeffer).

#### Subfamily MYRMICINAE.

11. *PSEUDOMYRMA PALLIDA* F. Smith. Huachuca Mts. (Schaeffer).
12. *MYRMECINA GRAMINICOLA* subsp. *AMERICANA* Emery. Grand Canyon (Wheeler).
13. *M. GRAMINICOLA AMERICANA* var. *BREVISPINOSA* Emery. Grand Canyon (Wheeler).



14. *MONOMORIUM MINIMUM* Buckley. Grand Canyon (Wheeler, Cole); Prescott (Wheeler); Jacobs Lake (Cole).

At Bright Angel Point on the south rim of the Grand Canyon, I found this species inhabiting small nests in the dark, rather dry porous soil beneath rocks. Winged castes were in the nests on July 20, 1931. The ground was deeply strewn with needles of *Pinus ponderosa*. Spruce, cedar and some *Artemisia* were present.

15. *SOLENOPSIS AUREA* subsp. *AMBLYCHILA* Wheeler. Huachuca Mts. (Wheeler).

16. *S. HUACHUCANA* Wheeler. Huachuca Mts. (Wheeler).

17. *S. MOLESTA* (Say). Flagstaff, Williams (Cole). The colonies were small and were all beneath flat stones.

18. *S. MOLESTA* var. *VALIDIUSCULA* Emery. Williams (Cole). One large colony was found beneath a rock in a yellow pine forest.

19. *S. GEMINATA* (Fabricius). Phoenix (Wheeler); Tucson (Fenner).

20. *S. GEMINATA* subsp. *RUFA* (Jerdon). Tempe (Wheeler).

21. *S. XYLONI* (McCook). Phoenix, Huachuca Mts., Oracle, Texas Pass (Wheeler); Kingman, Peach Springs, 16 Mi. S. of Prescott (Cole).

At Kingman and Peach Springs were small nests adjacent to fence posts in fine dry soil. Near Prescott the ants inhabited many small crater nests in a sandy arroyo. The colonies were large. Associated vegetation consisted chiefly of *Pinus ponderosa* seedlings, *Opuntia* and several grasses.

22. *S. XYLONI* var. *MANIOSA* (Wheeler). Yuma, Tempe, Yucca, Gila Bend Mts., Benson (Wheeler); Thatcher (R. V. Chamberlin); Tucson (Wheeler, Cole); Douglas (Cole).

A hole in the fine sand near Douglas marked the nest of a medium-sized colony of this ant. Long files of workers extended to and from the nest opening. At Tucson one colony inhabited a nest beneath a flat rock in the dry desert.

23. *S. XYLONI* subsp. *AUREA* (Wheeler). Yuma, Grand Canyon, Phoenix, Casa Grande, Pinaleno Mts., Coyote Mts. (Wheeler).

24. *S. XYLONI* subsp. *AMBLYCHILA* (Wheeler). Huachuca Mts. (Wheeler).

25. *PHEIDOLE CERES* Wheeler. Grand Canyon (Wheeler).

26. *P. KINGI* subsp. *TORPESCENS* Wheeler. Tucson (Wheeler).



27. *P. TEPICANA* subsp. *CAVIGENIS* Wheeler. Huachuca Mts. (Wheeler).  
 28. *P. FIMBRIATA* Roger. Nogales (Oslar).  
 29. *P. VIRAGO* Wheeler. Tucson (Wheeler).  
 30. *P. SPADONIA* Wheeler. Tucson (Wheeler).  
 31. *P. MILITICIDA* Wheeler. Hereford (Wheeler, Mann); Benson (Wheeler).  
 32. *P. VINELANDICA* Forel. Grand Canyon (Wheeler); Tuba City, Douglas (Cole).

A few minute crater nests of this species were observed along a small stream at Navajo Springs, near Tuba City. The area was very rocky and protected by high cliffs on the east. Vegetation was abundant, and consisted chiefly of *Opuntia*, *Yucca*, grasses and *Ephedra*. The soil was moist near the stream but very dry elsewhere.

33. *P. VINELANDICA* subsp. *BUCCALIS* Wheeler. Ash Fork, Prescott (Wheeler).

34. *P. VINELANDICA* subsp. *CEREBROSIOR* Wheeler. Tucson (Wheeler).

35. *P. VINELANDICA* *LONGULA* var. *CASTANEA* Wheeler. Huachuca Mts. (Wheeler); Tuba City (Cole). Workers and soldiers of this variety were collected from a small nest beneath a rock at Navajo Springs, near Tuba City.

36. *P. CALIFORNICA* subsp. *MICULA* Wheeler. Huachuca Mts. (Wheeler).

37. *P. CRASSICORNIS* subsp. *VALLICOLA* Wheeler. Huachuca Mts. (Wheeler).

38. *P. COCKERELLI* Wheeler. Prescott (Cockerell, Wheeler); Tempe (F. H. Simmons).

39. *P. DESERTORUM* Wheeler. Ash Fork, Prescott, Grand Canyon (Wheeler); Phoenix, Tucson (Wheeler, Cole); Seligman, 40 Mi. S. Prescott (Cole).

A few workers were foraging in the desert near Seligman. South of Prescott I collected workers from a small crater mound of sand. At Phoenix and Tucson populous colonies were beneath stones on the sandy desert plains.

40. *P. DESERTORUM* var. *MARICOPA* Wheeler. Grand Canyon (Wheeler).

41. *P. BARBATA* Wheeler. 20 Mi. E. Needles, California (Cole). Three workers of *P. barbata* were found near a road east of Needles. The nest was not located.

42. *P. XEROPHILA* subsp. *TUCSONICA* Wheeler. Phoenix, Tucson, Douglas, 30 Mi. E. Kingman (Cole); Tucson (Wheeler).



43. *P. XEROPHILA TUCSONICA* var. *GILVESCENS* Wheeler. Phoenix, Tucson (Wheeler); Tucson (Cole).
44. *P. PROSERPINA* Wheeler. Tempe (Wheeler).
45. *CREMATOGASTER LINEOLATA* Say. Grand Canyon (Wheeler, Cole); Flagstaff (Cole).
46. *C. LINEOLATA* var. *CERASI* Fitch. Seligman (Cole).
47. *C. LINEOLATA LAEVIUSCULA* var. *CLARA* Mayr. Arizona (Emery); Kingman, Douglas (Cole).
48. *C. LINEOLATA* subsp. *COARCTATA* Mayr. Tucson (Wheeler).
49. *C. ARIZONENSIS* Wheeler. Tucson, Phoenix (Wheeler).
50. *STENAMMA* (*APHAENOGASTER*) *fulvum* var. *TEXANUM* Emery. Grand Canyon (Wheeler).
51. *APHAENOGASTER TEXANA* Emery. Grand Canyon (Wheeler).
52. *A. TEXANA* var. *FURVESCENS* Wheeler. Huachuca Mts. (Wheeler, W. M. Mann).
53. *A. SUBTERRANEA* subsp. *OCCIDENTALIS* Emery. Jacobs Lake (Cole).
54. *NOVOMESSOR COCKERELLI* (Ern. André). Benson, Santa Catalina Mts., Gila Bend Mts., Hereford, Oracle, Tempe, Yucca (Wheeler); Florence (C. D. Lebert); Huachuca Mts. (Biedermann); Tucson (Wheeler, Cole); Kingman, Prescott, Phoenix, Douglas (Cole).
55. *N. ALBISETOSUS* (Mayr). Pinaleno Mts., Texas Pass (Wheeler); Huachuca Mts. (Wheeler, Creighton); Bisbee (L. C. Murphree); Bonita (J. C. Bradley); Globe (H. C. Markman); Nogales (Oslar, Murphree); 55 Mi. S. Prescott, Phoenix (Cole); Baboquivari Mts., Coyote Mts.

The nests found by the writer were beneath flat rocks with small pebbles distributed around the entrances.

56. *VEROMESSOR ANDREI* (Mayr). Phoenix, 10 Mi. E. Needles, Calif. (Cole). The nests at both localities were of the usual crater mound type, each with a single large entrance surrounded by chaff.

57. *V. PERGANDEI* (Mayr). Nortons, Tempe, Casa Grande, Gila Bend Mts., Santa Catalina Mts., Yucca, Yuma (Wheeler); Ft. Mojada (J. Henderson); Tucson (Wheeler, G. von Krockow, E. A. Carpenter, N. C. Skinner, Cole); Phoenix (Cole).

The mound observed at Tucson was large and symmetrical, about 6 inches high and 18 inches in diameter, and in a very dry section of the desert. There was a large central opening at the bottom of each deep crater.

(To be continued.)