

## A CHECKLIST OF THE ANTS OF ARIZONA<sup>1</sup>

JAMES H. HUNT

Department of Biology, Harvard University, Cambridge<sup>2</sup>

ROY R. SNELLING

Natural History Museum of Los Angeles County, Los Angeles

A checklist of the ants (Hymenoptera: Formicidae) of Arizona is presented. The known ant fauna of the state includes 209 species. Seven subfamilies containing a total of 45 genera are represented. Table 1 summarizes the subfamilial assortment of genera and species.

This is the second such comprehensive list to appear for Arizona. An earlier annotated list (Cole, 1937) included 96 species with 57 additional subspecies and varieties for a total of 153 forms. An unpublished list by F. G. Werner in 1972 recorded 186 species.

The present list (Table 2) is based primarily on the checklists of Smith (1951, 1958, 1967) and the monograph by Creighton (1950). These works, with their included references, are the primary sources for any U.S. distributional studies of ants. The list presented here is additionally based on generic monographs and publications of new distributional records that have appeared since the larger works of Smith and Creighton. Several records of species from Arizona given by Smith or Creighton but not included in the present list have been found to be records based on misidentified specimens.

Literature citations are given for each entry in Table 2. Where two literature citations are given the first documents presence of the species in Arizona, and the second documents a nomenclatural change between the species' name as in the first cited source and the name as in the present list. Users of this list should be cautioned, however, that not all species records can be firmly supported. Some of the collection records in the literature are questionable, and a larger problem is with the state of the nomenclature. Several genera need specific revision; these include *Pheidole*, *Aphaenogaster*, *Myrmica*, *Leptothorax*, and *Camponotus*. Also, inclusion of subspecies names on this list does not necessarily mean that we believe all are valid; some may be synonyms and others may be good species. These are problems inherent in any checklist.

This checklist makes available to entomologists, ecologists, and zoogeographers a comprehensive compilation of the state's known ant fauna. The list was originally prepared for zoogeographic comparison (Hunt, 1973) with a similar list for the state of Tucuman, Argentina (Kusnezov, 1953). The utility of the list goes beyond its original purpose, however, as this checklist may serve as a basic resource for researchers in Arizona.

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**Table 1. Subfamilial assortment of genera and species of Arizona Formicidae.**

	Genera	Species
Ponerinae .....	4	7
Cerapachyinae .....	1	1
Dorylinae .....	1	16
Pseudomyrmecinae .....	1	2
Myrmicinae .....	23	109
Dolichoderinae .....	5	8
Formicinae .....	10	66
Total .....	45	209

**Table 2. Formicidae of Arizona**

Subfamily PONERINAE	
1. <i>Amblyopone pallipes</i> (Haldeman)	Creighton 1950; Brown 1960
2. <i>Ponera pennsylvanica</i> Buckley	Smith 1967; Taylor 1968
3. <i>Hypoconera punctatissima</i> (Roger)	Smith 1958; Taylor 1968
4. <i>Hypoconera inexorata</i> Wheeler	Smith 1967; Taylor 1968
5. <i>Hypoconera opaciceps</i> Mayr	Smith 1951; Taylor 1968
6. <i>Hypoconera opacior</i> Forel	Smith 1951; Taylor 1968
7. <i>Odontomachus clurus</i> Roger	Brown, in prep.
Subfamily CERAPACHYINAE	
8. <i>Cerapachys augustae</i> Wheeler	Smith 1951
Subfamily DORYLINAE	
9. <i>Neivamyrmex ugilis</i> Borgmeier	Watkins 1972
10. <i>Neivamyrmex andrei</i> (Emery)	Watkins 1972
11. <i>Neivamyrmex carolinensis</i> (Emery)	Watkins 1972
12. <i>Neivamyrmex fallax</i> Borgmeier	Watkins 1972*

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<sup>2</sup>Present address: Dept. of Biology, Univ. of Missouri, 8001 Natural Bridge Rd., St. Louis, Missouri 63121.

13. <i>Neivamyrmex harrisi</i> (Haldeman)	Watkins 1972	54. <i>Aphaenogaster occidentalis</i> (Emery)	Smith 1951
14. <i>Neivamyrmex leonardi</i> Mann	Watkins 1972	55. <i>Aphaenogaster texana</i> Emery	Smith 1951
15. <i>Neivamyrmex melanocephalum</i> (Emery)	Watkins 1972	56. <i>Veromessor andrei</i> (Mayr)	Smith 1951
16. <i>Neivamyrmex microps</i> Borgmeier	Watkins 1972	57. <i>Veromessor pergandei</i> (Mayr)	Smith 1951
17. <i>Neivamyrmex minor</i> (Cresson)	Watkins 1972	58. <i>Veromessor smithi</i> Cole	LACM *
18. <i>Neivamyrmex nigrescens</i> (Cresson)	Watkins 1972	59. <i>Pheidole barbata</i> Wheeler	Creighton 1950
19. <i>Neivamyrmex opacithorax</i> (Emery)	Watkins 1972	60. <i>Pheidole bicarinata</i> Mayr	Creighton 1950
20. <i>Neivamyrmex pilosus mandibularis</i> (M. Smith)	Watkins 1972	61. <i>Pheidole cerebrosior</i> Wheeler	Creighton 1950
21. <i>Neivamyrmex rugulosus</i> Borgmeier	Watkins 1972	62. <i>Pheidole ceres</i> Wheeler	Smith 1951
22. <i>Neivamyrmex swainsoni</i> (Shuckard)	Watkins 1972	63. <i>Pheidole clydei</i> Gregg	Smith 1958
23. <i>Neivamyrmex texanus</i> Watkins	Watkins 1972	64. <i>Pheidole cockerelli</i> Wheeler	Smith 1951
24. <i>Neivamyrmex macropterus</i> Borgmeier	Watkins 1972	65. <i>Pheidole crassicornis tetra</i> Wheeler	Creighton 1950
Subfamily PSEUDOMYRMECINAE			
25. <i>Pseudomyrmex apache</i> Creighton	Smith 1958	66. <i>Pheidole desertorum</i> Wheeler	Smith 1951
26. <i>Pseudomyrmex pallidus</i> F. Smith	Smith 1951; Smith 1958	67. <i>Pheidole gilvescens</i> Wheeler	Smith 1958
Subfamily MYRMICINAE			
27. <i>Myrmica americana</i> Weber	Smith 1951	68. <i>Pheidole hyatti</i> Emery	Smith 1951
28. <i>Myrmica emeryana emeryana</i> Forel	Smith 1951	69. <i>Pheidole macclendoni</i> Wheeler	Creighton 1950
28a. <i>Myrmica emeryana tahoensis</i> Wheeler	Creighton 1950	70. <i>Pheidole micula</i> Wheeler	Smith 1951; Smith 1967
29. <i>Myrmica incompleta sulcinodoides</i> Emery	Smith 1951; Francoeur & Beique 1966	71. <i>Pheidole militica</i> Wheeler	Smith 1951
30. <i>Myrmica lobicornis fracticornis</i> Emery	Smith 1951	72. <i>Pheidole pilifera artemisia</i> Cole	Smith 1958
31. <i>Myrmica scabrinodis mexicana</i> Wheeler	Smith 1951	73. <i>Pheidole psammophila</i> Creighton and Gregg	Smith 1958
32. <i>Myrmica striolagaster</i> Cole	Smith 1958	74. <i>Pheidole rhea</i> Wheeler	Smith 1951
33. <i>Myrmica wheeleri</i> Weber	Creighton 1950	75. <i>Pheidole rugulosa</i> Gregg	Smith 1967
34. <i>Paramyrmica rugiventris</i> (M. Smith)	Smith 1967	76. <i>Pheidole sciophila</i> Wheeler	Creighton 1950
35. <i>Pogonomyrmex apache</i> Wheeler	Cole 1968	77. <i>Pheidole sitarches soritis</i> Wheeler	Smith 1967
36. <i>Pogonomyrmex bicolor</i> Cole	Cole 1968	78. <i>Pheidole spudonia</i> Wheeler	Smith 1951
37. <i>Pogonomyrmex californicus</i> (Buckley)	Cole 1968	79. <i>Pheidole subdentata</i> Pergande	Smith 1967
38. <i>Pogonomyrmex desertorum</i> Wheeler	Cole 1968	80. <i>Pheidole tepicana</i> Pergande	Smith 1958
39. <i>Pogonomyrmex huachucanus</i> Wheeler	Cole 1968	81. <i>Pheidole titanis</i> Wheeler	Creighton 1950
40. <i>Pogonomyrmex imberbiculus</i> Wheeler	Cole 1968	82. <i>Pheidole vallicola</i> Wheeler	Creighton 1950
41. <i>Pogonomyrmex magnacanthus</i> Cole	Cole 1968	83. <i>Pheidole virago</i> Wheeler	Smith 1951
42. <i>Pogonomyrmex maricopa</i> Wheeler	Cole 1968	84. <i>Pheidole xerophila tucsonica</i> Wheeler	Smith 1951
43. <i>Pogonomyrmex occidentalis</i> (Cresson)	Cole 1968	85. <i>Rogeria huachucana</i> Snelling	Snelling 1973a
44. <i>Pogonomyrmex pima</i> Wheeler	Cole 1968	86. <i>Crematogaster arizonensis</i> Wheeler	Creighton 1950
45. <i>Pogonomyrmex rugosus</i> Emery	Cole 1968	87. <i>Crematogaster browni</i> Buren	Buren 1968
46. <i>Stenamma chiricahua</i> Snelling	Snelling 1973c	88. <i>Crematogaster colei</i> Buren	Buren 1968
47. <i>Stenamma huachucanum</i> M. Smith	Snelling 1973c	89. <i>Crematogaster dentinodis</i> Forel	Smith 1958
48. <i>Stenamma occidentale</i> M. Smith	Snelling 1973c	90. <i>Crematogaster depilis</i> Wheeler	Creighton 1950
49. <i>Aphaenogaster albisetosa</i> Mayr	Smith 1951; Brown 1974	91. <i>Crematogaster emeryana</i> Creighton	Creighton 1950; Buren 1968
50. <i>Aphaenogaster boulderensis</i> M. Smith	Smith 1951	92. <i>Crematogaster hespera</i> Buren	Buren 1968
51. <i>Aphaenogaster cockerelli</i> André	Smith 1951 Brown 1974	93. <i>Crematogaster isolata</i> Buren	Buren 1968
52. <i>Aphaenogaster huachucana</i> Creighton	Smith 1951	94. <i>Crematogaster larreae</i> Buren	Buren 1968
		95. <i>Crematogaster minutissima smithi</i> Creighton	Creighton 1950
		96. <i>Crematogaster navajoa</i> Buren	Buren 1968
		97. <i>Crematogaster nocturna</i> Buren	Buren 1968
		98. <i>Crematogaster opaca</i> Mayr	Creighton 1950
		99. <i>Crematogaster opuntiae</i> Buren	Buren 1968
		100. <i>Crematogaster punctulata</i> Emery	Buren 1968
		101. <i>Monomorium minimum</i> Buckley	Smith 1951

\* indicates specimens in collection of Los Angeles County Museum (LACM) or in collection of J. H. Hunt (JHH).

102. *Monomorium pharaonis* (Linné) Smith 1951
103. *Monomorium viridum peninsulatum* Gregg Creighton 1950
104. *Solenopsis aurea* Wheeler Creighton 1950
105. *Solenopsis huachucana* Wheeler Smith 1951
106. *Solenopsis molesta* (Say) Smith 1951
107. *Solenopsis salina* Wheeler Creighton 1950
108. *Solenopsis trunctorum* Forel Smith 1967  
Creighton 1950
109. *Solenopsis xyloni* McCook Creighton 1950
110. *Myrmecina americana* Emery Smith 1951
111. *Macromischa polita* M. Smith Smith 1951
112. *Leptothorax andrei* Emery Smith 1967
113. *Leptothorax curinatus* Cole Smith 1967
114. *Leptothorax crassipilis* Wheeler Creighton 1950
115. *Leptothorax curvispinosus* Mayr Smith 1967
116. *Leptothorax muscorum* (Nylander) Smith 1951;  
Smith 1958
117. *Leptothorax nitens* Emery Smith 1951;  
Smith 1967
118. *Leptothorax rugatulus rugatulus* Emery Smith 1951
119. *Leptothorax silvestrii* (Santschi) Creighton 1950
120. *Leptothorax stenotyle* Cole Smith 1958
121. *Leptothorax texanus texanus* Wheeler Smith 1951
122. *Leptothorax tricarinatus tricarinatus* Emery Smith 1967
- 122a. *Leptothorax tricarinatus neomexicanus* Wheeler Creighton 1950
123. *Xiphomyrmex spinosus* Pergande Smith 1951
124. *Paracryptocerus rohweri* Wheeler Smith 1951
125. *Strumigenys louisianae* Roger Smith 1951
126. *Smithistruma* sp. LACM
127. *Cyphomyrmex rimosus* (Spinola) Smith 1951
128. *Cyphomyrmex wheeleri* Forel Smith 1951
129. *Trachymyrmex arizonensis* (Wheeler) Smith 1951
130. *Trachymyrmex desertorum* (Wheeler) Smith 1951
131. *Trachymyrmex nogalensis* Byars Smith 1958
132. *Trachymyrmex smithi neomexicanus* Cole JHH \*
133. *Atta mexicana* (F. Smith) Smith 1951
134. *Acromyrmex versicolor* (Pergande) Smith 1951
- Subfamily DOLICHODERINAE
135. *Liometopum apiculatum* Mayr Smith 1951
136. *Liometopum occidentale luctuosum* Wheeler Creighton 1950
137. *Iridomyrmex humilis* (Mayr) Smith 1951
138. *Iridomyrmex pruinosum analis* (E. André) Creighton 1950
139. *Forelius foetidus* (Buckley) Smith 1951
140. *Conomyrma insana* (Buckley) Smith 1951;  
Snelling 1973b
141. *Conomyrma bicolor* (Wheeler) Smith 1951;  
Snelling 1973b
142. *Tapinoma sessile* (Say) Smith 1951
- Subfamily FORMICINAE
143. *Acropyga epedana* Snelling Snelling 1973a
144. *Brachymyrmex depilis* Emery Smith 1967
145. *Camponotus acutirostris* Wheeler Creighton 1950
146. *Camponotus festinatus* (Buckley) Smith 1951;  
Snelling 1968
147. *Camponotus laevigatus* (F. Smith) Smith 1951
148. *Camponotus mina* Forel Creighton 1965
149. *Camponotus modoc* Wheeler Smith 1951;  
Snelling ms.
150. *Camponotus nearcticus* Emery LACM
151. *Camponotus n.sp.* Snelling and  
Creighton  
in prep.
152. *Camponotus ocreatus* Emery Smith 1951
153. *Camponotus papago* Creighton Creighton 1952
154. *Camponotus rasilis* Wheeler Creighton 1950
155. *Camponotus s. sansabeanus* (Buckley) Smith 1951
- 155a. *Camponotus sansabeanus bulimosus* Wheeler Smith 1951
- 155b. *Camponotus sansabeanus torrefactus* Wheeler Smith 1951
156. *Camponotus sayi* Emery Smith 1951
157. *Camponotus schaefferi* Wheeler Creighton 1950
158. *Camponotus semitestaceus* Emery Smith 1951;  
Snelling 1970
159. *Camponotus trepidulus* Creighton Creighton 1965
160. *Camponotus ulcerosus* Wheeler Smith 1951;  
Smith 1958
161. *Camponotus vafer* Wheeler Smith 1951
162. *Camponotus vicinus* Mayr Smith 1951
163. *Paratrechina bruesii* (Wheeler) Smith 1958
164. *Paratrechina melanderi melanderi* (Wheeler) Smith 1958
165. *Paratrechina parvula* (Mayr) Smith 1967
166. *Prenolepis imparis arizonica* Wheeler Smith 1951;  
Smith 1958
167. *Lasius alienus* (Foerster) Wilson 1955
168. *Lasius fallax* Wilson Wilson 1955
169. *Lasius flavus* (Fabricius) Wilson 1955
170. *Lasius niger* (Linné) Wilson 1955
171. *Lasius pallitarsus* (Provancher) Wilson 1955
172. *Lasius sitiens* Wilson Wilson 1955
173. *Lasius subumbratus* Viereck Wilson 1955
174. *Lasius umbratus* (Nylander) Wilson 1955
175. *Acanthomyops arizonicus* (Wheeler) Wing 1968
176. *Acanthomyops colei* Wing Wing 1968
177. *Acanthomyops coloradensis* (Wheeler) Wing 1968
178. *Acanthomyops interjectus* (Mayr) Wing 1968
179. *Acanthomyops latipes* (Walsh) Wing 1968
180. *Acanthomyops murphyi* (Forel) Wing 1968
181. *Acanthomyops occidentalis* (Wheeler) Wing 1968
182. *Myrmecocystus romainei* Cole Snelling, in prep.
183. *Myrmecocystus depilis* Forel Snelling, in prep.
184. *Myrmecocystus flaviceps* Wheeler Snelling, in prep.

185. <i>Myrmecocystus kennedyi</i> Cole	Snelling, in prep.	198. <i>Formica gnava</i> Buckley	Francoeur 1974
186. <i>Myrmecocystus mendax</i> Wheeler	Snelling, in prep.	199. <i>Formica neoclara</i> Emery	Francoeur 1974
187. <i>Myrmecocystus mexicanus</i> Wesmael	Snelling, in prep.	200. <i>Formica neogagates</i> Emery	Creighton 1950
188. <i>Myrmecocystus mimicus</i> Wheeler	Snelling, in prep.	201. <i>Formica neorufiburbis</i> Emery	Francoeur 1974
189. <i>Myrmecocystus navajo</i> Wheeler	Snelling, in prep.	202. <i>Formica occidua</i> Wheeler	Francoeur 1974
190. <i>Myrmecocystus placodops</i> Forel	Snelling, in prep.	203. <i>Formica occulta</i> Francoeur	Francoeur 1974
191. <i>Myrmecocystus yuma</i> Wheeler	Snelling, in prep.	204. <i>Formica perpilosa</i> Wheeler	Creighton 1950
192. <i>Formica altipetens</i> Wheeler	Francoeur 1974	205. <i>Formica podzolica</i> Francoeur	Francoeur 1974
193. <i>Formica argentea</i> Wheeler	Francoeur 1974	206. <i>Formica subnuda</i> Emery	Creighton 1950
194. <i>Formica canadensis</i> Santschi	Francoeur 1974	207. <i>Formica wheeleri</i> Creighton	Creighton 1950
195. <i>Formica densiventris</i> Viereck	Creighton 1950	208. <i>Formica xerophila</i> M. Smith	Francoeur 1974
196. <i>Formica foreliana</i> Wheeler	Francoeur 1974	209. <i>Polyergus breviceps</i> Emery	Smith 1951
197. <i>Formica fusca</i> Linné	Francoeur 1974		

## LITERATURE CITED

- BROWN, W. L., JR., 1960. Contributions toward a reclassification of the Formicidae. III. Tribe Amblyoponini (Hymenoptera). Bull. Mus. Comp. Zool., Harvard, 122: 145-230.
- , 1974. *Novomessor manni* a synonym of *Aphaenogaster ensifera*. Ent. News, in press.
- , in preparation. Contributions to a reclassification of the Formicidae. VI. Tribe Ponerini (Hymenoptera). Search, Agriculture, Entomology (Ithaca).
- BUREN, W. F., 1968. A review of the species of *Crematogaster, sensu stricto*, in North America (Hymenoptera, Formicidae) Part II. Descriptions of new species. J. Georgia Ent. Soc. 3:91-121.
- COLE, A. C., JR., 1937. An annotated list of the ants of Arizona. (Hymen.: Formicidae). Ent. News 48:97-101, 134-140.
- , 1968. *Pogonomyrmex* Harvester Ants: A Study of the Genus in North America. Univ. of Tennessee Press, Knoxville.
- CREIGHTON, W. S., 1950. The ants of North America. Bull. Mus. Comp. Zool., Harvard, 104:1-585.
- , 1952. Studies on Arizona ants (4). *Camponotus (Colobopsis) papago*, a new species from southern Arizona. Psyche 59:148-162.
- , 1965. Studies on southwestern ants belonging to *Camponotus*, subgenus *Myrmobruchys* (Hymenoptera, Formicidae). Amer. Mus. Novitates 2239:1-9.
- FRANCOEUR, A., 1973. Revision taxonomique des espèces néarctiques du groupe *Fusca*, genre *Formica* (Formicidae, Hymenoptera). Société Entomologique du Québec, Mémoires, 3:1-316.
- , and R. BEIQUÉ, 1966. Les Formicides (Hyménoptères) de Provancher. Canadian Entomologist 98: 140-145.
- HUNT, J. H., 1973. Comparative ecology of ant communities in Mediterranean regions of California and Chile. Ph.D. Dissertation, Univ. of California at Berkeley.
- KUSNEZOV, N., 1953. Lista de las hormigas de Tucumán con descripción de dos nuevos generos (Hymenoptera, Formicidae). Acta Zoologica Lilloana, Tucumán, 13:327-339.
- SMITH, M. R., 1951. Family Formicidae, in: C.F.W. Muesebeck and K. V. Krombein, eds., Hymenoptera of America North of Mexico Synoptic Catalog. U.S. Dept. Agr., Agriculture Monograph No. 2.
- , 1958. Family Formicidae, in: K. V. Krombein, ed., Hymenoptera of America North of Mexico Synoptic Catalog (Agriculture Monograph No. 2) First Supplement.
- , 1967. Family Formicidae, in: K. V. Krombein and B. D. Burks, eds., Hymenoptera of America North of Mexico Synoptic Catalog (Agriculture Monograph No. 2) Second Supplement.
- SNELLING, R. R., 1968. Studies on California ants. 4. Two species of *Camponotus* (Hymenoptera: Formicidae). Proc. Ent. Soc. Washington 70:350-358.
- , 1970. Studies on California ants, 5. Revisionary notes on some species of *Camponotus*, subgenus *Tanaemyrmex*. Proc. Ent. Soc. Washington 72:390-397.
- , 1973a. Two ant genera new to the United States. Nat. Hist. Mus. Los Angeles Co., Contr. in Sci. no. 236:1-8.
- , 1973b. The ant genus *Conomyrma* in the United States (Hymenoptera: Formicidae). Nat. Hist. Mus. Los Angeles Co., Contr. in Sci. no. 238:1-6.
- , 1973c. Studies on California ants. 7. The genus *Stenammas* (Hymenoptera: Formicidae). Nat. Hist. Mus. Los Angeles Co., Contr. in Sci. no. 245:1-38.
- , in preparation. Monograph of the ant genus *Myrmecocystus* (Hymenoptera: Formicidae).
- , and W. S. CREIGHTON, in preparation. The New World species of *Camponotus*, subgenus *Colobopsis* (Hymenoptera: Formicidae).
- TAYLOR, R. W., 1968. Nomenclature and synonymy of the North American ants of the genera *Ponera* and *Hypoponera* (Hymenoptera: Formicidae). Ent. News 79:63-66.
- WATKINS, J. F., II, 1972. The taxonomy of *Neivamyrmex texanus*, n.sp., *N. nigrescens* and *N. californicus* (Formicidae: Dorylinae), with distribution maps and keys to the species of *Neivamyrmex* in the United States. J. Kansas Ent. Soc. 45:347-372.
- WILSON, E. O., 1955. A monographic revision of the ant genus *Lasius*. Bull. Mus. Comp. Zool., Harvard, 113:1-201.
- WING, M. W., 1968. Taxonomic revision of the nearctic genus *Acanthomyops* (Hymenoptera: Formicidae). Cornell Univ., Agri. Expt. Sta. Memoir 405.