A NEW LASIUS (ACANTHOMYOPS) WITH A KEY TO NORTH AMERICAN FEMALES

(HYMENOPTERA, FORMICIDAE)

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The subgenus *Acanthomyops*[1] of *Lasius* comprises an exclusively North American group of species with three-segmented maxillary palpi and entirely hypogaeic habits. Possibly all are temporary social parasites of *Lasius s. str.* as in several members of the subgenus *Chthonolasius*. Where these ants are numerous they may be deemed of some economic importance due to their habit of pasturing plant lice on the roots of plants.

The workers of all species have a very similar pale yellow color and differ specifically only in minor details of structure, size, pilosity, and pubescence. Some of the species tend to have a reddish head but this is variable and is often lost in preserved specimens. Thus, it is very difficult to construct a usable key to the workers. The males also are very similar and their genitalia, as far as is known, are of no value in species determination. The females, however, are often very strikingly modified and specialized, and may be placed readily in a key. The specializations may be along several different lines—legs greatly flattened, head elongated and otherwise distorted, scapes and funiculi incrassated and/or shortened, hairs bunched into beard-like tufts or becoming barbellate or even distinctly plumose, body surface becoming more or less glabrous, etc. Of the species, only the female of *pubescens* Buren still retains a rather primitive, unspecialized appearance, reminding one, except for the three-jointed jointed maxillary palpi, of a miniature female of *L.* (*Chthonolasius*) *umbratus aphidicolus* (Walsh).

The species with known females (only *parvulus* M. R. Smith does not have a known female) with synonomy in brief, may be listed as follows:

L. (*A.*) *interjectus* Mayr

L. interjectus Mayr, 1866. Verh. Zool.-bot. Ges. Wien. 16:888, pl. 20, fig. 3 (♀).—Mayr, Ibidem, 36:430 (☿ ♀ ♂).

L. (*A.*) *interjectus* Wheeler, 1917. Proc. Amer. Acad. Art. Sci. 52:531.

Formica flava Leidy, 1877, *nec* Fabricius. Proc. Acad. Nat. Sci. Phila., p. 145.

L. (*A.*) *arizonicus* Wheeler

L. (*A.*) *interjectus arizonica* Wheeler, 1917. Proc. Amer. Acad. Art. Sci. 52:532 (☿).

[1]A revised status for *Acanthomyops*, being made by Dr. Wm. S. Creighton, is not available at this writing.

L. (*A.*) *californicus* Wheeler
L. (*A.*) *interjectus coloradensis* Wheeler, 1917. Ibidem, 52:532 (☿ ♀).

L. (*A.*) *coloradensis* Wheeler
L. (*A.*) *interjectus coloradensis* Wheeler, 1917. Ibidem, 52:432 (☿ ♀ ♂).

L. (*A.*) *mexicanus* Wheeler
L. (*A.*) *interjectus mexicana* Wheeler, 1914. Jour. New York Ent. Soc. 22:55 (☿ ♀ ♂).

L. (*A*). *pubescens* Buren
L. (*A.*) *pubescens* Buren, 1942. Iowa State Col. Jour. Sci. 16: 405 (☿ ♀ ♂).

L. (*A.*) *subglaber* Emery
L. claviger var. *subglaber* Emery, 1893. Zool. Jahrb. Syst. 47: 642 (☿ ♀ ♂).

L. (*A.*) *subglaber clavigeroides* Buren
L. (*A.*) *clavigeroides* Buren, 1942 Iowa State Col. Jour. Sci. 16:406 (☿ ♀ ♂).
L. (*A.*) *claviger subglaber* Wheeler, 1917, *nec* Emery. Proc. Amer. Acad. Art. Sci. 52:533.

L. (*A.*) *claviger* (Roger)
Formica clavigera Roger, 1862. Berlin Ent. Zeitsch. 6:241, pl. 1, fig. 13 (♀).
Acanthomyops claviger Mayr, 1862. Verh. Zool.-bot. Ges. Wien 12:700 (♀).
L. claviger Mayr, 1870. Ibidem, 20:950 (☿ ♀ ♂).
L. (*A.*) *claviger* Wheeler and McClendon, 1903. Biol. Bull. 4: 149-155, fig. 1-3A.

L. (*A.*) *plumopilosus* Buren
L. (*A.*) *clavigeroides* Buren, 1942. Iowa State Col. Jour. Sci. 15:231 (☿ ♀ ♂).

L. (*A.*) *occidentalis* Wheeler
L. (*A.*) *occidentalis* Wheeler, 1909. Jour. New York Ent. Soc. 17:83 (☿ ♀ ♂).

L. (*A.*) *latipes* (Walsh)
Formica latipes Walsh, 1862. Proc. Ent. Soc. Phila. 1:311 (☿ ♀ ♂).
L. latipes Mayr, 1866. Vehr. Zool.-bot. Ges. Wien 16:889, pl. 20, fig. 4.
L. (*A.*) *latipes* Wheeler and McClendon, 1903. Biol. Bull. 4:149-155, fig. 1-3BC (♀α ♀β).

L. (*A.*) *pogonogynus* Buren, new species

L. (*A.*) *murphyi* Forel
L. murphyi Forel, 1901. Ann. Soc. Ent. Belg. 47:367 (☿ ♀ ♂).
L. (*A.*) *murphyi* Wheeler, 1917. Proc. Amer. Acad. Art. Sci. 52:530.

L. (*A.*) *arizonicus, californicus, coloradensis,* and *mexicanus,* originally described as subspecies of *interjectus,* are perfectly distinct and must be raised to species. *Subglaber* Emery also, originally described as a variety of *claviger,* is a distinct species. Wheeler raised *subglaber* to a subspecies, but he based his opinion on specimens from Northern Illinois which were not typical *subglaber* but are synonymous with a form the author later described as *clavigeroides.* The latter must now be placed as a subspecies under *subglaber.*

I have no doubt that a number of subspecies and perhaps a few distinct species are yet to be discovered and described, especially in the mountainous regions and northern states and in Canada.

Lasius (Acanthomyops) pogonogynus, new species

Female: Length about 8 mm. Head rectangular (except for convex clypeal border), with nearly straight posterior border and sides; usually not or scarcely wider in front than behind. Scapes strongly incrassate, not reaching the posterior corners of the head. Funiculi clavate, the penultimate joints distinctly broader than long. In profile the head is strongly convex and humped above in the region of the clypeus and frons. Thorax rather large and elongate, similar in shape to that of *latipes* and *murphyi.* Abdomen elongate, about the same width as thorax. Petiole very blunt above and with roughened integument. Legs strongly flattened and the femora with well developed and laminate genual lobes apically, intermediate, however, in these respects between *latipes* and *murphyi,* the fore femora about three times as long as broad (only two times in *latipes* and about five times in *murphyi.*) Tarsi small and slender.

Erect hairs specialized, arranged as follows: dense and beard-like on clypeus, frons, anterior portions of genae, venter of head, median portion of pronotum, mesopleura, metapleura, epinotum, prosternum, mesosternum, midde and hind coxae, and petiole. A little less dense on occiput, fore coxae, ventral edges of femora, borders of mesonotum, and base of gaster. Erect hairs nearly lacking on rest of gaster, arranged in sparse, incomplete rows at apical edges of the segments. The hair tufts thus have essentially the same arrangement as in *murphyi* but are less dense and matted, are suberect or erect rather than appressed, and do not completely obscure the surface. Individually the hairs lack the milky opaqueness of the hairs in *murphyi* also. Pubescence rather sparse on head and thorax, moderately dense and fine on gaster and legs.

Yellowish brown; petiole, epinotum, and mandibles darker. Wings with variable venation as is usual in this subgenus.

Worker: Length about 3.6-4.0 mm. Head a little longer than broad, with a rather rectangular appearance, the lateral borders nearly straight, only slightly convex, and the posterior border straight or imperceptibly

concave. Head strongly convex above when seen in profile. Eyes small. Clypeus with a definite median carina. Scapes a little surpassing the posterior corners of head. Funiculi weakly clavate, the penultimate joints slightly longer than broad. Thorax and gaster of the usual shape in this subgenus. Mesoepinotal constriction only moderately deep. Petiole small, blunt above in profile and evenly rounded above when seen from behind. Legs slightly flattened.

Hairs rather short, erect, evenly set, and numerous on all body surfaces except for wide areas surrounding the eyes. They are perhaps a little more numerous on the sclerites which support the beard tufts in the female but the effect is scarcely noticeable. Erect hairs absent on scapes and confined to the coxae and ventral surfaces of the femora on the legs. Pubescence moderate on head and gaster, not concealing the shining surface, even sparser on the thorax.

Thorax and gaster light yellow, head a little darker and perhaps reddish in life.

Type specimens: Holotype female, two paratype females, and five paratype workers from "colony N., nest under stone," Red Feather Lakes, Colorado, June 14, 1933, V. S. L. Pate and A. B. Klots, collectors. Dr. Pate has informed me that the ants were collected during an unseasonable snowstorm which limited activities to searches for ants under rocks and that the altitude was about 10,000 ft. Three paratype females also, from Sioux City, Iowa, July 24, 1926, C. N. Ainslie, collector, each specimen bearing No. 2611. The altitude at Sioux City can be little above 1000 ft.

The specimens from Red Feather Lakes and one specimen from Sioux Citly were loaned to me for study from the National Museum through the kindness of Dr. M. R. Smith. They have been returned to the Museum with the exception of a paratype female and paratype worker from Red Feather Lakes which remain in my collection along with two paratype females from Sioux City.

This new species in many of its characters is intermediate between *latipes* (Walsh) and *murphyi* Forel, yet in the female, at least, it is perfectly distinct from either. The *murphyi* female has very dense beard-tufts composed of short, twisted, opaque, appressed hairs; its attenae are rather slender, the legs little flattened, the head wider in front than behind, etc. The *latipes* female has numerous, evenly scattered, erect hairs; the antennae are very short, and both scapes and funiculi very strongly clavate, the legs extremely flattened, etc.

The workers are much more difficult to separate. Of the three species, *pogonogynus* appears to have the most numerous hairs. *Murphyi* has very short erect hairs and these are

numerous on the sclerites occupied by the beard tufts in the female but more or less lacking on other regions, except that the gaster has them present on the entire dorsal surface. The workers of *latipes* have the erect hairs rather long and flexuous. The petiole of *latipes* usually has a notch in the superior border which does not occur in the other two species. The head of *latipes* appears to be widest at or slightly behind the eyes, whereas *murphyi* has the widest portion somewhat in front. *Pogonogynus* is intermediate in having a rather straight-sided head. The new species is also intermediate in body size and in antennal length and shape.

KEY TO FEMALES OF LASIUS (ACANTHOMYOPS)

1. Erect hairs strongly plumose distally; a very small and slender species (4.5 mm.); Iowa ..... *plumopilosus* Buren
   Erect hairs simple or feebly barbellate at most; species larger in size or if approaching the above in size usually with hairs simple 2

2 (1). Hairs dense and beard-like (that is, in tufts of matted, twisted, appressed or suberect hairs) on clypeus, genae, frons, venter of head, pronotum, coxae, pleura, epinotum, and petiole, absent or sparser on other regions 3
   Not as above, hairs sparse, or if numerous, rather evenly distributed and not in tufts 4

3 (2). Beard tufts very dense, matted and appressed, concealing the surface beneath; antennal funiculi slender, the penultimate joints longer than broad; gaster almost or entirely devoid of erect hairs except for a small tuft at base; eastern North American to the Rocky Mountains ..... *murphyi Forel*
   Beard tufts not as dense and matted or appressed, not concealing the surface beneath; funiculi moderately incrassated, the penultimate joints broader than long; legs strongly flattened, the fore femora only three times as long as broad, and all femora with convex, laminate, genual plates apically; gaster with sparse rows of erect hairs; Colorado and Iowa ..... *pogonogynus*, new species

4 (2). Legs extremely flattened, fore femora only about twice as long as broad; femora with large, very convex, laminate, genual plates; scapes and funiculi very short and very strongly incrassate, the eighth and ninth funicular joints the broadest and about twice as broad as long; North America east of the Rocky Mountains and scattered localities west ..... *latipes* (Walsh)
   Legs less flattened, fore femora four or more times as long as broad; funiculi usually not as incrassate, the antepenultimates usually not broader than penultimates and less than twice as broad as long 5

5 (4). Head with nearly straight sides and excised posterior border, a little wider in front than behind; scapes short, reaching only half-way between eye and hind corner of head, but funiculi only slightly clavate, the penultimate joints about as broad as long; New Mexico and Colorado ..... *occidentalis* Wheeler

Without all these characters, the head different in shape and the funiculi strongly clavate if the scapes are as short 6

6 (5). Scapes not reaching the hind corners of head (rarely just barely reaching them); penultimate joints of funiculi usually over 1.3 times as broad as long in broadest aspect; both scapes and funiculi strongly incrassate and short 7

Without these characters, the penultimate joints of funiculi often longer than broad, and the scapes often surpassing the hind corners. Even if the scapes do not perceptibly pass the hind corners, the funiculi are still only moderately clavate, the penultimate joints only about as broad as long in broadest aspect 9

7 (6). Erect hairs long, somewhat flexuous, minutely barbellate, rather numerous; total length averaging over 7 mm; petiole with a distinct notch above; North America east of Rocky Mountains ..... *claviger* (Roger)

Erect hairs short, simple, sparse; smaller species; petiole not or only faintly notched 8

8 (7). Reddish brown; pubescence sparse; District of Columbia and probably central eastern states ..... *subglaber* Emery

Deep castaneous; pubescence dense, somewhat obscuring the surface beneath; Minnesota, Wisconsin, Illinois *subglaber clavigeroides* Buren

9 (6). A highly glabrous species nearly lacking in both hairs and pubescence; pale or light yellow in color; Arizona *arizonicus* Wheeler

With either pilosity or pubescence or both more numerous; usually somewhat darker in color 10

10 (9). Pubescence very dense and fine especially on the gaster, nearly concealing the surface in some lights; erect hairs sparse and short; dark castaneous in color; scapes long, surpassing hind corners by about one-seventh of their length; a very small species up to 5.2 mm. long; Minnesota ..... *pubescens* Buren

Pubescence sparse or if moderately dense then the color and scapes different; size usually close to 6 mm. or greater 11

11 (10). Pubescence long and moderately dense on disc of mesonotum and apical borders of gastric tergites; erect hairs very sparse and short; color light yellowish brown; scapes meeting or slightly surpassing hind corners; 6 mm. or less in length; state of Hidalgo, Mexico
mexicanus Wheeler

Pubescence sparse or nearly absent on disc of mesonotum and rather sparse on all portions of gaster; erect hairs numerous 12

12 (11). Antennae long and slender, scapes distinctly surpassing posterior corners and penultimate joints longer than broad; color yellowish or reddish brown; a small but distinct tooth usually present on superior border of mandible; petiole when seen from behind narrowed above and with a small but distinct notch on superior border; North America east of Rocky Mountains and scattered localities west ..... *interjectus* Mayr

Antennae shorter, scapes scarcely surpassing hind corners, penultimate joints as broad or a little broader than long; colors much darker; petiole more parallel-sided seen from behind 13

13 (12). A small species, usually less than 6 mm. in length; petiole rather blunt in profile, when seen from behind broadest near the top, a small, narrow notch present on superior border; erect hairs very numerous; Colorado and New Mexico ..... *coloradensis* Wheeler

Larger in sige, about 7:5 mm.; petiole sharper in profile, seen from behind broadest across the stigmata, a broad, deep notch on superior border; California
californicus Wheeler

THE FOSSIL TERMITES OF THE UNITED STATES AND THEIR LIVING RELATIVES

(ISOPTERA)

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Of the 1,939 described termites of the world 106 species are fossils. These fossil termites are classified in 6 families (1 known from fossils only) and 29 genera (11 consisting of fossils only); 32 species are of uncertain or doubtful position. Other fossils described as termites have been proved to be different insects. Prehistoric termites have been found embedded in amber and gum copal, and their imprints in rock. Winged adults (and wings only), soldiers, and workers are the forms represented. Some fossil termites have been discovered in localities where there are no living species, or where