

Type locality.—Argus Mountains, Inyo County, Calif.

Host.—Unknown.

Type material.—Holotype and allotype, Cat. No. 52796, U. S. National Museum.

Described from two specimens, a male and a female, collected by A. Koebele in Inyo County, Calif., and bearing the labels, "Argus Mts., May, '91; A. Koebele collector." The Argus Mountains are near the western border of Death Valley, 20 to 30 miles southeast of Owen's Lake.

NOTES ON THE LEGIONARY ANTS (*ECITON*, SUBGENUS
ACAMATUS) WITH A RECORD OF NEW
SPECIFIC SYNONYMY.

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Fifteen species and one subspecies of legionary ants (*Eciton*, subgenus *Acamatus*) are recorded from America, north of Mexico. Unfortunately many of these are known only from a single caste. The remarkable differences that exist between the castes of the same species make determination extremely difficult. The queen is of gigantic size compared with the workers, and like them she is either blind or practically so, and apterous during her entire life. Unlike the workers, she possesses a single-segmented petiole instead of a two-segmented one. The males are large, elongate, wasplike insects with very large eyes, and characteristic mandibles and hypopygia. As the males are seldom taken in nests with the other castes, but are usually collected at lights, the problem of clearing up the association of males with workers has progressed very slowly. Since approximately 1900, males have been found associated with workers in only four species: *opacithorax* Emery, *carolinensis* Emery, *nigrescens* (Cresson), and *pilosum* F. Smith.

In general, the ants of this subgenus abound in the southwestern section of the United States, but at least three species (*opacithorax*, *carolinensis*, and *nigrescens*) range as far east as the Atlantic Seaboard and thence north to Virginia, and one species (*nigrescens*) extends at least as far north as Iowa.

These ants are known as being predacious on termites, the brood of other ants, the larvae of flies, etc. Since many of the insects attacked are injurious to mankind, the legionary ants are on the whole beneficial.

TABLE SHOWING THE VARIOUS SPECIES OF ECITON (ACAMATUS) RECORDED FOR THE UNITED STATES, THEIR GENERAL DISTRIBUTION, AND THE ASSOCIATED CASTES OF EACH.

SPECIES	DISTRIBUTION	WORKER	QUEEN	MALE
<i>E. (A.) opacithorax</i> Emery	Tex. to Kans. and east to Fla. and Va.	X	X	X
<i>E. (A.) carolinensis</i> Emery	Miss to Fla. and north to Va.	X	X	X
<i>E. (A.) pilosum</i> F. Smith	Mex. to Ariz. and east to Miss.	X	X	X
<i>E. (A.) nigrescens</i> (Cress.)	Tex. to Iowa, and east to Fla. and Va.	X	X	X
<i>E. (A.) wheeleri</i> Forel	Tex.	X	-	-
<i>E. (A.) wheeleri</i> subsp. <i>dubia</i> Creight.	Tex.	X	X	-
<i>E. (A.) pauxillum</i> Whlr.	Tex.	X	-	-
<i>E. (A.) commutatum</i> Emery	Tex., Kans., Okla.	X	-	-
<i>E. (A.) californicum</i> Mayr	Calif., N. Mex.	X	-	-
<i>E. (A.) leonardi</i> Whlr.	Calif.	X	-	-
<i>E. (A.) oslari</i> Whlr.	Ariz.	-	-	X
<i>E. (A.) minus</i> (Cresson)	Tex., Kans.	-	-	X
<i>E. (A.) melsheimeri</i> (Hald.)	Tex., Utah	-	-	X
<i>E. (A.) harrisi</i> (Hald.)	Tex., Utah, N. Mex, Ariz.	-	-	X
<i>E. (A.) spoliator</i> Forel	Tex.	-	-	X
<i>E. (A.) arizonensis</i> Whlr.	Tex., Ariz., N. Mex.	-	-	X

An examination of the table shows that there are five species and one subspecies of which the male is unknown or unrecognized: *wheeleri*, *wheeleri dubia*, *pauxillum*, *commutatum*, *californicum*, and *leonardi*; and six species known only from the male caste: *oslari*, *minus*, *melsheimeri*, *harrisi*, *spoliator*, and *arizonensis*. It is only natural to infer that some of the species now known only from males will later be associated with certain species at present known only from workers, and thus a number of specific names synonymized. It is not even improbable that the 12 specific names now representing both male and workers' castes may eventually be reduced to six specific names, in which event the total known forms belonging to this subgenus in the United States would drop from 16 to 10.

The primary purpose of this article, however, is to synonymize Emery's *schmitti* with Cresson's *nigrescens*. Cresson described *nigrescens*, in 1872, from a single male specimen collected by Belfrage in Bosque County, Tex. In 1908 Wheeler redescribed *nigrescens* from a male specimen in the United States National Museum collection bearing the label "Kansas." Wheeler stated that he considered this specimen to agree fully with Cresson's description "except that the wings are paler and possibly faded with age." In 1895 appeared the first complete

description of *E. (A.) schmitti* based on workers sent to Emery by Theo. Pergande from Doniphan, Mo. The first mention of the species by Emery, however, was in a key to the workers of *Eciton*, subgenus *Acamatus*, which appeared in 1894. In November, 1899, Wheeler was fortunate enough to find on Mt. Bonnell, near Austin, Tex., a colony of *schmitti* containing numerous males. Specimens of these males were submitted to Emery, who on examining them wrote Wheeler he was inclined to regard them as *nigrescens*. Wheeler then sent specimens to Fox, who compared them with the type of *nigrescens* in the Academy of Natural Sciences of Philadelphia, and wrote Wheeler that they were "too hairy for *nigrescens*, which is entirely brownish. The first segment of *nigrescens* is shorter and the wings light." Fox's comments led Wheeler and Long, in 1901, to consider *schmitti* distinct from *nigrescens*, and they therefore gave a very thorough description of the Mt. Bonnell males, calling them *schmitti*. From that date the two have continued to stand as distinct species, all castes of *schmitti* having been subsequently found and described, while *nigrescens* has been recognized only from the male.

Recently, while examining and rearranging the species of *Eciton*, subgenus *Acamatus*, in the collection of the United States National Museum, the writer found two instances of the association of workers of *schmitti* and males of *nigrescens*: One male and several workers collected in a basement in Quincy, Ill., by T. E. Musselman; and one male concerning which the collector, L. G. Wesson, writes, "The male was taken with workers about the middle of November in a locality about 15 miles from Nashville, Tenn. I noted no difference in form or behavior from the common *schmitti*." Also among specimens borrowed from the Department of Entomology of the Kansas State College were found several workers and a male bearing the label "Riley County, Kansas; Sept. 27; J. B. Norton; Acc. No. 1381." The workers in each group were typical *schmitti*. The three males were compared by the writer with the type of *nigrescens* and show only the following variations from the type:

The male from Quincy, Ill., differs only in that the head and thorax are darker, the pubescence longer and more yellowish, the ridge above each antennal fossa more pronounced, and the mandibles more elongate, with acute tips.

The male from near Nashville, Tenn., is much darker than the type, this being especially true of the gaster; the ridge over the antennal fossa is more strongly developed than in either the type or the Illinois specimen, but the mandibles are more of the same shape as in the latter; the apical margins of the gastric segments are constricted, but not so reddish as in the type of *nigrescens*.

The Kansas male also is darker than the type, but more similar to it in color than is either the Illinois or the Tennessee

male; the ridge over the antennal fossa is also more strongly developed than in the type.

After examining males which agree with Wheeler's description of *schmitti*, the males mentioned above, and the type of *nigrescens*, it is clearly evident that all of these should be referred to *nigrescens*, although there is considerable variation among the males in color, pilosity, shape of the mandibles, and shape of the vertex of the head. The hypopygium has three teeth, although the intermediate tooth is very small, and not easily seen unless the specimen is held at the proper angle. Mesonotal ridges are also present on all the males but they are more evident on the specimens having the least pubescence on the thorax. The male described by Wheeler and Long as *schmitti* represents a form possessing a lighter gaster, a more glabrous body, and longer and more yellowish pubescence. Cresson's type, and the males from Illinois, Tennessee, and Kansas, represent other variants which have darker bodies, shorter and lighter pubescence, more pronounced ridges over the antennal fossae, and less elongate, acutely tipped mandibles.

The synonymy of the two species is given below:

***Eciton (Acamatus) nigrescens* (Cresson).**

- Labidus nigrescens* Cresson, Trans. Amer. Ent. Soc., Vol. 4, p. 194 (1872). *Male*.
Eciton sumichrasti Mayr (part) (not Norton), Verh. Zool. Bot. Ges. Wien., Vol. 36, p. 440 (1886). *Worker*.
Eciton (Labidus) nigrescens (Cresson), Emery, Zool. Jahrb. Syst., Vol. 8, p. 261 (1894). *Male*.
Eciton (Acamatus) schmitti Emery, Bull. Soc. Ent. Ital., Vol. 26, p. 183 (1894). *Worker*. New synonymy.
Eciton (Acamatus) schmitti Emery, Zool. Jahrb. Syst., Vol. 8, p. 258 (1895). *Worker*.
Eciton sumichrasti Wheeler (not Norton), Amer. Nat., Vol. 34, pp. 563-574 (1900). *Queen A, Queen B*.
Eciton (Acamatus) schmitti Emery, Wheeler and Long, Amer. Nat., Vol. 35, p. 161 (1901). *Male*.
Eciton (Acamatus) nigrescens (Cresson) Wheeler, Bull. Amer. Mus. Nat. Hist., Vol. 24, p. 417 (1908). *Male*.
Eciton (Acamatus) schmitti Emery, Smith, Ann. Ent. Soc. Amer., Vol. 20, pp. 401-404 (1927). *Worker*.

While examining material from Kansas the writer encountered some evidence that throws suggestive light on the possible synonymy of two other species, the male *minus* (Cresson) and the worker *commutatatum* Emery. *E. (A.) commutatatum* has been identified from Kansas specimens on several occasions. It is the smallest *Eciton* known from that State. The male *minus* is also the smallest Kansas *Eciton* known in that caste. It seems not at all unlikely that eventually it may be necessary to synonymize *commutatatum* with *minus*.