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NOTES ON LEPTOTHORAX (MYCHOTHORAX) HIRTICORNIS
EMERY, AND DESCRIPTION OF A RELATED NEW
SPECIES (FORMICIDAE).

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Recently I received for determination two workers and an ergatoid female of an ant very closely related to *Leptothorax* (*Mychothorax*) *hirticornis* Emery. These specimens were collected at Fort Lewis, Wash., by Falconer Smith. Wishing to see the type of *hirticornis*, which was described by Emery from a single worker with the remark "Washington, D. C.; ein arbeiter von Herrn, Pergande" (*Zool. Jahrb. Syst.* 8 : 319, 1895) I contacted Dr. Carlo Menozzi of Chiavari, Italy, and through his kindness the specimen was lent me for study. I also secured the loan of a worker cotype of Wheeler's *Leptothorax* (*Mychothorax*) *hirticornis* subsp. *formidosus*, which he described from five workers and an ergatoid female collected at Flagstaff Mountain, near Boulder, Colo., by T. D. A. Cockerell.

An examination of the type of *hirticornis* and two ergatoid females in the United States National Museum bearing the label "Hill City, South Dakota, number 157," and a handwritten label "*Leptothorax hirticornis* Emery, det. by Emery," convinces me not only that they are the same species but also that they belong to the same series. This is indicated by their structural characters, the same type of mounting, and the same hand-written number attached to all the specimens. As no one apparently has discovered *hirticornis* or any related form in the East since this species was described by Emery, the evidence seems rather conclusive that the type locality of *hirticornis* is not Washington, D. C., as published, but Hill City, S. Dak. Further evidence leads me to believe that the specimens of *hirticornis* were undoubtedly given to Theodore Pergande by Henry Ulke, whose son Titus was collecting in the Black Hills of South Dakota in 1890 (see *Proc. Ent. Soc. Wash.* 2 : 88, 1890).

As Emery's description is too brief to permit positive recognition of the species, I have redescribed the worker fully, and have also described for the first time the two ergatoid females of the series, which are now in the United States National Museum collection.

A careful examination of a worker cotype of Wheeler's *formidosus* shows that this ant is identical with *hirticornis*. In his "Mountain Ants of Western North America" (*Proc. Amer. Acad. Arts and Sci.* 52 : 515, 1917), Wheeler himself stated that the two specimens in the Pergande collection (now incor-

porated in the United States National Museum collection), which are mentioned above, are the same as his *formidolosus*.

The specimens from Fort Lewis, Wash., are so distinct from *hirticornis* that I have described them as a new species. The characters by which the two forms differ are given under the description of the new species.

In addition to all the specimens referred to above, I have received from Dr. Neal A. Weber four specimens which he had determined as *Leptothorax hirticornis* Emery. These specimens were collected by him from three nests of the Western mound thatching ant (*Formica rufa obscuripes* Forel). The three lots of specimens are as follows: An ergatoid female from Arvilla, N. Dak.; two workers from Towner, N. Dak.; and one worker from Towner, N. Dak. In my opinion these ants can not be the typical *hirticornis* because of their smaller size, less robust build, finer sculpturing, different coloration, less raised frontal region of the head, etc. Neither do they belong to my new species, since they differ from it in the shape of the head, the somewhat more robust build, the different type of pilosity, and the shape of the petiole and postpetiole. These ants may prove to be a new subspecies of *hirticornis*, but without a larger series of specimens for study I hesitate to describe them.

A study of *hirticornis* and related forms has brought to light the following points of interest: (1) That the type locality of *hirticornis* is not Washington, D. C., as originally given, but Hill City, S. Dak., and the collector is without doubt Titus Ulke; (2) that *hirticornis* and the forms related to it are apparently western in distribution; (3) that these ants have ergatoid females, as do some of the other species of *Leptothorax*, especially of the subgenus *Mychothorax*, and (4) that *hirticornis* may eventually be found living as an inquiline in the nest of another ant, probably *Formica rufa* subsp. *obscuripes* Forel. The geographical distribution of *hirticornis* and related forms may coincide with that of this host ant.

***Leptothorax (Mychothorax) hirticornis* Emery.**

Leptothorax hirticornis Emery, Zool. Jahrb. Syst. 8 : 319, 1895 (*worker*).

Leptothorax hirticornis subsp. *formidolosus* Wheeler, Bull. Amer. Mus. Nat. Hist. 34 : 415, 1915 (*worker, ergatoid female*).

Worker.—Length 2.75 mm.

Head, exclusive of mandibles, one-fifth longer than broad, with faintly emarginate posterior border, feebly rounded occipital angles, and subparallel sides; vertex without ocelli; dorsal surface of head somewhat compressed on each side of frontal carinae, thus giving the head in these regions the effect of being considerably elevated. Eye rather small, moderately convex, approximately twice its greatest length from base of mandible. Antenna 11-segmented; scape when fully extended not attaining posterior border of head, first funicular

segment as long as combined lengths of the three succeeding segments, funicular segments 2-6 inclusive broader than long, last funicular segment longer than combined lengths of two preceding segments, and funicular club longer than rest of funiculus. Frontal area triangular, smooth, slightly impressed. Clypeus prominent, anterior border broadly rounded, entire, posterior border extending well backward between frontal carinae; dorsal surface of clypeus faintly impressed medianly, especially toward the anterior border. Mandible with two large apical and four small, almost subequal teeth. Thorax from above distinctly broader anteriorly than posteriorly, with prominent, transverse pronotal ridge, rounded humeral angles, and very distinct mesoepinotal constriction; epinotal spines moderately acute, very short, approximately as long as their interbasal space, and not noticeably compressed. In profile, dorsum of thorax almost on same plane, with feebly convex or almost flattened surface; mesoepinotal constriction strong, distinct laterally and dorsally; base of epinotum somewhat convex, very slightly raised above preceding part of thorax. Petiolar peduncle from above one-fifth longer than broad, sides subparallel; in profile, anterior surface of node slightly concave, posterior surface shorter and descending, the two surfaces meeting to form an obtuse angle. Postpetiole from above not much broader than petiole, small, distinctly broader than long, and broader anteriorly than posteriorly, almost trapezoidal. From above, gaster rather large, subelliptical, much constricted basally, and without angles: the first gastric segment occupying almost entire surface of gaster.

Middle and posterior border of clypeus, frontal area, and gaster smooth and shining; remainder of body punctulate, subopaque. In addition to the punctulate sculpturing, the head and pronotum are somewhat rugulose reticulate, with the rugulae on front of head, at least, having a more longitudinal trend. In some lights the clypeus is shining, in others subopaque.

Hairs very short, erect, strongly clavate (almost capitate), present on head, eyes, scapes, thorax, femora, tibiae, metatarsi, and petiole; antennal funiculi, mandibles, under side of head, prosternum, coxae, trochanters, postpetiole, and gaster with slender, tapering, nonclavate hairs.

Ferruginous; dorsum of head infuscated, gaster with a broad, reddish-brown, transverse band; eyes and mandibular teeth black.

Workerlike ergatoid female.—Length 2.89 mm.

Very similar to worker but differing as follows: Vertex with three small ocelli. Thorax from above with pronotum, scutum, mesoparaptera, and scutellum fused, as also the metaparaptera and metanotum; metanotum separated from epinotum by a distinct foveolated constriction, the constriction also very noticeable laterally. A narrow, smooth, frontal streak extending from clypeus almost to anterior ocellus.

Queenlike ergatoid female.—Length 3.3 mm.

Differing from the worker as follows: Vertex with three small ocelli. Thorax more queenlike than that of the workerlike ergatoid female; from above, with the pronotum, scutum, scutellum, metanotum, and epinotum present, and rather distinctly separated from one another. In profile the scutum and scutellum higher than the metanotum and epinotum. Thorax laterally constricted in the mesoepinotal region. Vertex also with a narrow, smooth streak extending from clypeus toward anterior ocellus.

Type locality.—Hill City, S. Dak. (Titus Ulke?)

Other localities.—Flagstaff Mountain, near Boulder, Colo. (T. D. A. Cockerell).

The description of the worker is based on the single type specimen, from the Emery collection. The two ergatoid females are described for the first time from the specimens in the National Museum collection.

There is no available information on the biology of this species.

Leptothorax (Mychothorax) diversipilosus, new species.

Worker.—Length 2.6–2.8 mm.

Head, exclusive of mandibles, almost one-fourth longer than broad, posterior border straight or very faintly emarginate, occipital angles feebly rounded, sides almost subparallel, very feebly divergent anteriorly; vertex without ocelli; dorsal surface of head not noticeably compressed on each side of frontal carinae as with *hirticornis*. Eye rather small, moderately convex, approximately twice its greatest diameter from base of mandible. Antenna 11-segmented; scape when fully extended not attaining posterior border of head, first funicular segment at least as long as combined lengths of the three succeeding segments, last funicular segment longer than combined lengths of the two preceding segments, and antennal club slightly longer than remainder of funiculus. Frontal area not clearly discernible. Clypeus prominent, anterior border broadly rounded, entire, posterior border extending well back between frontal carinae; dorsal surface faintly impressed medianly toward anterior border. Mandible with two large apical teeth and four small, nearly subequal teeth. Thorax from above distinctly broader anteriorly than posteriorly, with prominent transverse pronotal ridge, rounded humeral angles, and distinct but not so strong mesoepinotal constriction as with *hirticornis*; epinotal spines moderately acute, very short, not noticeably compressed. In profile, dorsum of thorax almost on same plane, with feebly convex, almost flattened surface; mesoepinotal constriction, although visible dorsally and laterally, much less pronounced than with *hirticornis*, base of epinotum less strongly convex. Petiolar peduncle from above almost square, only one-sixth longer than broad, sides parallel. In profile, anterior surface of node straight, meeting the gently convex posterior surface in a slightly rounded angle; posterior surface gently concave before meeting the post petiole. Postpetiole broader than long, broader anteriorly than posteriorly, sides converging posteriorly, trapezoidal. Gaster similar to that of *hirticornis*.

Posterior border of clypeus, frontal area, an indefinite area on front, and gaster smooth and shining; scapes, head, thorax, legs excepting tarsi, petiole, and postpetiole finely and densely punctulate, subopaque. In addition, front of head and cheeks with very faint longitudinal rugulae.

Hairs short, erect, clavate (almost capitate), present on dorsal surface of head, tips of femora, tibiae, and metatarsi; slender, tapering hairs on clypeus, mandibles, antennae, under side of head, thorax, coxae, trochanters, femora excepting tips, tarsi excepting metatarsi, petiole, postpetiole, and gaster.

Dark ferruginous: base of gaster dark brown; eyes and mandibular teeth black. In some lights the body appears lighter than in others.

Ergatoid female.—Length 3.1 mm.

Differing from the worker as follows: Vertex with three small ocelli. Thorax from above with pronotum, scutum, scutellum, metanotum, epinotum, and all sutures except that separating the metanotum and epinotum faint; the two latter areas separated by a foveolated constriction that extends across dorsum and down on to each side of thorax. Entire clypeus and a large spot on front shining. Body much darker than that of worker, the petiole and postpetiole deeply infuscated. Gaster almost entirely black.

Cotype locality.—Fort Lewis, Wash., October 15, 1938 (Falconer Smith.)

Cotypes.—No. 53284, United States National Museum.

Described from two workers and a single ergatoid female collected from the nest of the Western mound-thatching ant (*Formica rufa* subsp. *obscuripes* var. *melanotica* Emery). According to Falconer Smith, the nest of the host ant was found in the humid Transition Zone at approximately sea level. The vegetation in the vicinity was dominated by Douglas fir trees and low grass of the genus *Poa* and the area immediately surrounding the nest was covered by a layer of moss, *Eurynchium oregonum*. Nothing is known of the biology of the species, but the fact that it was found in another ant's nest indicates that it may be an inquiline.

The worker of this new species can be distinguished from the worker of *hirticornis* by the following characters: (1) The variable type of pilosity, which suggested the specific name; (2) the less compressed frontal region of the head; (3) the proportionally broader petiolar peduncle; (4) the differently shaped postpetiole; (5) the narrower head; and (6) the darker coloration.
