

A NEW SPECIES OF LEPTOTHORAX FROM ARIZONA
(HYMENOPTERA: FORMICIDAE)¹

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Leptothorax (Leptothorax) angustinodus n. sp.

Holotype, worker (Cole Coll., AR-201).

Length of head, 0.77 mm.; width of head, 0.63 mm.; length of thorax, 1.04 mm.; maximum width of pronotum, 0.49 mm.; minimum width of thorax, 0.35 mm.; width of petiolar node, 0.19 mm.; length of postpetiolar node, 0.19 mm.; width of postpetiolar node, 0.27 mm.; length of gaster, 1.18 mm.; total body length, 3.55 mm.

Head subrectangular, with subparallel sides, nearly straight occipital border, and rounded posterior corners. Antennae 12-segmented, the scapes exceeding the posterior corners of the head by a little less than their greatest distal width. Eyes oval, rather prominent, situated distinctly at more than their greatest diameter from the mandibular articulations. Frontal area rather distinct, smooth, shining. Clypeus with a prominent median carina and two lateral carinulae.

Thorax viewed from above slender, the pronotal humeri distinctly angulate, pronotum in lateral profile very broadly convex; mesonotum and epinotum in lateral profile nearly flat, with only a faint trace of a mesoepinotal impression. Epinotal spines short, subdentiform, not more than one-half as long as the distance between their bases, broad at the base, acute, rather sharp at the tips. Postpetiolar node viewed from above subquadrate, only slightly (less than 1½ times) broader than long, the anterior and posterior borders nearly straight, the sides subparallel, and the anterior corners rounded. Venter of petiolar peduncle with a prominent, ventrally directed tooth which is broad at the base and rather acute apically.

Head, thorax, petiole, and postpetiole subopaque. Clypeus, frontal area, and a narrow, median, longitudinal band extending from frontal area to occipital border somewhat shining. Gaster smooth and strongly shining. Mandibles finely, longitudinally striated, with scattered piligerous punctures. Head granulate and irregularly, longitudinally rugulose, the rugulae being most prominent on the genae, occipital lobes, and especially around the eyes, finer and less numerous mesally. There are some rather weak reticulations between the eyes and the occipital corners. Thorax reticulate-rugose, more coarsely so laterally, less coarsely so on mesonotum than on pronotum and epinotum. Petiolar node coarsely reticulate-rugose; postpetiolar node coarsely and densely granulate and weakly and irregularly rugulose. Intraspinal space of epinotum transversely and rather coarsely striate, bordered in front by two lateral carinulae which originate at the base of the spines and converge anteriorly to form the apex of a triangle. Epinotal declivity transversely striate.

Body covered with numerous, scattered, coarse, blunt, silvery, erect and suberect, medium-long hairs. Hairs on cephalic dorsum perceptibly shorter than those elsewhere. Coxae, trochanters, and femora with scattered, slender, pointed, erect, suberect, and appressed hairs. Tibial hairs mostly appressed. Pubescence absent from gaster.

Body a rather uniform, deep brownish black; mandibles, funicular bases, and legs (especially the tarsi) lighter.

Paratype, female (nest queen). (Cole Coll., AR-201).

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Length of head, 0.89 mm.; width of head, 0.83 mm.; length of thorax, 1.64 mm.; length of petiolar node, 0.41 mm.; width of petiolar node, 0.31 mm.; length of postpetiolar node, 0.27 mm.; width of postpetiolar node, 0.43 mm.; length of gaster, 1.71 mm.; total body length, 4.95 mm.

Head, excluding mandibles, nearly as wide as long, subquadrate, subopaque, rather uniformly covered with irregular, longitudinal rugae, the interrugal spaces smooth and somewhat shining; reticulate-rugose between eyes and mandibular articulations, from the mandibular articulations the rugae sweep in an even curve around and in front of the eyes back to the occipital corners. Frontal area distinctly impressed, smooth, and shining. Mandibles striate and finely granulose. Scapes reaching posterior corners of head. Eyes large, placed at a distance from the mandibular articulations of about two-thirds of their greatest diameter.

Thorax, except for the shining scutellum, subopaque. Sides of thorax, except for mesothoracic epimera, episterna, sternites, and the metathoracic epimera longitudinally rugose; mesothoracic epimera, episterna, and sternites, and the metathoracic epimera, faintly striolate; scutum and parapera longitudinally rugulose; scutellum smooth and shining. All interrugal spaces smooth and somewhat shining. Epinotal spines short, no more than one-third as long as the space between their bases, stubby, broad at the base, flattened laterally, rather blunt at the apex. Intraspiral space and epinotal declivity transversely striate. Petiolar node in profile with the anterior declivity longer than the posterior one; the apex of the node sloping perceptibly posteriorly, the surface coarsely granulose and with two prominent, vertical rugulae. Viewed from above the anterior declivity of the petiolar node is finely and faintly vertically striate. Petiole, viewed from above, broadest across the region of the base of its node, the anterior portion being longer than the posterior portion; apex of the node irregularly, transversely rugulose, the posterior declivity finely granulose and rather smooth. Postpetiole in profile with steep, broadly convex, anterior declivity and a very short, abrupt, posterior declivity, the apex between being broadly convex. Viewed from above the postpetiole is about one and one-half times as broad as long, the anterior width greater than the posterior, the humeral angles convex and well developed, the overall shape being somewhat that of a truncated cone. Postpetiolar node transversely rugose, the remainder of the postpetiole granulose.

Gaster large, elliptical, smooth, strongly shining.

Body covered with scattered, coarse, blunt, erect and suberect, rather short, silvery hairs; shortest on scutum, longest on petiolar and postpetiolar nodes, absent from the basal and declivious surfaces of the epinotum. Hairs on legs similar to those on legs of holotype.

Body dark brown; mandibles, appendages, pronotal collar, petiole and postpetiole (except nodes) lighter.

Type locality. The holotype worker, paratype queen, and a series of 55 paratype workers were collected by the writer near Rustler's Park, Chiricahua Mountains, Arizona, on August 2, 1954. The nest (AR-201) was beneath a stone on a moist slope covered with pine and spruce. Another nest (AR-273) was under a nearby stone and from it were collected 53 workers and two alate females, all of which have been incorporated into the paratype series. Inasmuch as both nests were aspirated carefully, I believe that nearly all specimens were collected. There was no evidence of foraging workers. In the moist soil under stones on the same slope were nests of *L. rugatulus* Emery, a new species of *Stenammas* being described by Dr. M. R. Smith, and *Myrmica lobicornis fracticornis* Emery.

Disposition of type material. The holotype and series of paratype workers and females are in the writer's collection. Paratype workers will be deposited in the U. S. National Museum, the Museum of Comparative Zoology (Harvard), the American Museum of Natural History, and in the collections of W. S. Creighton and R. E. Gregg.

Variation in paratype series. The workers of series AR-201 vary in length from 3.50 mm. to 3.74 mm. and those of series AR-272 from 3.30 mm. to 3.75 mm. The workers of the AR-272 series have a deep reddish brown head, thorax, petiole, and postpetiole and a dark chocolate-brown gaster. The females of this series compares well with the paratype queen of AR-201. In both series there is some slight variation in sculptural pattern particularly of the postpetiole which varies from purely granulose to rugose-granulose. The epinotal spines vary from prominent angles to short spines.

Affinities. There can be no doubt that the new form is a member of the *texanus-tricarinatus* complex. From *tricarinatus* Emery it differs especially in its greater size, more slender thorax, and narrower and different shaped postpetiolar node. In scape length and in the less rounded pronotal humeri the new species approaches *tricarinatus neomexicanus* Wheeler, from which it differs in its greater length, more rugose and opaque head which lacks distinct punctures, and the smaller and different shaped postpetiole. From *obliquicanthus* Cole the new form differs markedly in the size, shape, and position of the eyes, in body length, and in the size and shape of the postpetiole. The new species is the largest form yet to have been described in the complex. The new form bears no close affinity to *texanus* and its subspecies.

The sexes of other members of the complex have not yet been described and thus comparative studies of the females cannot be made. The female of the new form is so different from that of *texanus* that there should be no possibility of confusion. It is definitely larger than the *texanus* female and of a much darker color. The scutum is much less densely rugose, the postpetiolar node is far narrower, the epinotal spines are considerably longer, and the intraspinal space is rugulose instead of granulose. The female of the new species lacks the narrow crest of the petiolar node, the node of the *texanus* female being considerably broader when viewed in lateral profile. The most definitive features of the worker of the new species are the consistently much larger overall size and the comparatively small and subquadrate postpetiolar node which in its size and shape is totally unlike that of any other known member of the complex.

The following key, adapted from that of Smith (1952, p. 97) will serve to separate the known forms of the complex.

1. Eyes extraordinarily large, subreniform, placed obliquely on the sides of the head ----- *obliquicanthus* Cole
 Eyes not as described above, normal in size, shape and position ----- 2
2. Postpetiolar node considerably less than 1½ times as broad as the petiolar node, subquadrate, the sides nearly straight ----- *angustinodus* n. sp.
 Postpetiolar node more than 1½ times as broad as the petiolar node, subrectangular, the sides usually broadly convex ----- 3

- 3. Epinotum bearing a pair of distinct spines which are rarely short enough to be considered dentiform or tuberculiform; petiolar node in profile stout, thick, subrectangular ----- 4
 Epinotum bearing a pair of dentiform or tuberculiform spines; petiolar node not as above ----- 5
- 4. Dorsal surface of postpetiolar node reticulate-rugose, often coarsely so ----- *texasus* Wheeler
 Dorsal surface of postpetiolar node densely and finely granulose or punctate, not rugose -----
 ----- *texasus davisi* Wheeler
- 5. Dorsum of head opaque or subopaque, frontal punctures faint or absent; thoracic dorsum longitudinally rugulose ----- *tricarinatus* Emery
 Dorsum of head largely smooth and shining; frontal punctures large and distinct; thoracic dorsum rather uniformly finely granulose or punctate, sometimes rather smooth and shining -----
 ----- *tricarinatus neomexicanus* Wheeler

LITERATURE CITED

Cole, A. C., 1953. Notes on the genus *Leptothorax* in New Mexico and a description of a new species. *Proc. Ent. Soc. Wash.*, 55:27-30.
 Gregg, R. E., 1953. Notes on the ant, *Leptothorax obliquicanthus* Cole (Hymenoptera: Formicidae). *Breviora, Mus. Comp. Zool.*, No. 22: 1-3.
 Smith, M. R., 1952. North American *Leptothorax* of the *tricarinatus-texasus* complex (Hymenoptera: Formicidae). *Jour. N. Y. Ent. Soc.*, LX: 96-106.

NEWS OF TENNESSEE SCIENCE

(continued from page 25)

Nine young Tennesseans are studying engineering, chemistry, and physics at the University of Tennessee this year with the help of Tennessee Eastman Scholarships and a Kodak fellowship presented by Tennessee Eastman. In addition to the fellowship, the U-T student also is receiving an Eastman expense-paid trip to a major scientific meeting of his choice.

Dr. H. A. Smith has announced the discovery by Robert M. McGill in the University of Tennessee Chemistry Department that a "round headed" molecule with a "slick tail" is responsible for the better lubrication and corrosion-detering properties of high detergent (HD) additives in motor oil.

A completely unsolicited \$5,000 from the Smith, Kline and French Laboratories' has come to the University of Tennessee to help a U-T zoologist, Dr. Samuel R. Tipton, continue his basic research in the field of enzyme chemistry. The foundation's letter to U-T President C. E. Brehm said, "The quality of work being done in the field of enzyme chemistry under the direction of Dr. Tipton has made a very favorable impression upon members of our Research and Development Division, and they have suggested to the foundation that a grant be made to support this basic research."