

A NEW SPECIES OF *SMITHISTRUMA* FROM TENNESSEE
(HYMENOPTERA: FORMICIDAE)

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Smithistruma cloydi sp. nov.

Holotype worker—Estimated total length 1.7 mm., head length (including mandibles) 0.62 mm., head length (excluding mandibles) 0.55 mm., maximum head width 0.33 mm., Weber's length (pronotal collar to metasternal angle) 0.43 mm., total alitrunk length 0.50 mm. All measurements, except estimated total length, 0.01 mm. maximum error. Cephalic index 60, mandibular index 12.7.

Mandibles armed with 3 large equal-sized teeth proximal to a series of very small apical denticulae. Mandibles clothed laterally with a few simple reclinate hairs, and with several overlapping setae which lie over the larger teeth. The basal mandibular tooth covered by the clypeus (Fig. 3). Length of the mandibular diastema $1/2$ the length of the area occupied by the apical teeth. Clypeus evenly rounded anteriorly, merging in a smooth, straight line with the lateral margins of the closed mandibles. Clypeus with 8 clavate hairs along the border, the anteriormost pair curving sharply away from the midline. The second pair slightly longer than the first, curving in a similar fashion; the third pair equal in length to the second, appearing much straighter; the fourth pair, which is half the length of the third pair, curving toward the anterior. Forming a half-circle inside the marginal setae is another and smaller row of 8 clavate hairs. Again the anteriormost pair is directed abruptly away from the median line. The remainder of the clypeus bears 16 small clavate hairs. About 6 of these are concentrated antero-medially and form a loose rosette (Fig. 2).

Lateral margin of head anterior to antennal insertion subparallel. Antennal scape slightly bent one-third distad from base. Three slightly clavate setae on the anterior margin of scape at the slight angle. Several (4 or 5) smaller spatulate setae along anterior margin of scape. Funiculus evenly covered with simple prostrate hairs. Terminal segment of funiculus equal in length to the preceding 4 segments. Eyes ventrolateral, hidden from above, small, consisting of only 5-7 ommatidia. Dorsal portion of head posterior to clypeus covered sparsely with slightly clavate hairs which curve and lie parallel to this surface for more than half their length. These setae all bend uniformly toward the median line. Beside the clavate hairs there are 4 long simple hairs. One pair is situated on the posterior portion of the head in a position median between the lateral margin and median line. The remaining pair is in a lateral position nearer the occiput than the antennal insertions. Clypeus granulate; a small elongate portion of the central frontal area smooth, feebly shining; the rest of the head finely reticulate, grading anteriorly to a granulate condition to the posterior margin of the clypeus. Under magnification of $36\times$ and less, the entire head appears granulate (Fig. 1).

Thorax except pleurites, legs and petiole finely reticulate to punctate, completely opaque. Costula extending from mesonotal area to epinotum, where it divides and sends two ridges to the propodeal spines; on several specimens the costula runs well into the pronotal area. Propodeal spines prominent; infraspinal lamellae present. Spongiform process well developed, covering all but the dorsum of the nodes, a ventral area of the petiole and post-petiole and the peduncle of the petiole.

Pronotum, petiole, and gaster clothed sparsely with long simple hairs. An unusually long, slender hair arising from each humeral angle. Legs clothed with simple short prostrate setae. Gaster, pleurites, and dorsal surface of the postpetiole smooth and shining.

Type locality—Knoxville, Tennessee.

A colony consisting of about 50 workers was found on the underside of a decaying oak log just under the bark by Mr. Will John Cloyd and the author on August 15, 1950. The ants were in a cell 25 mm. by 15 mm. in rather hard wood compared to the surrounding pulpy wood. The area may be described

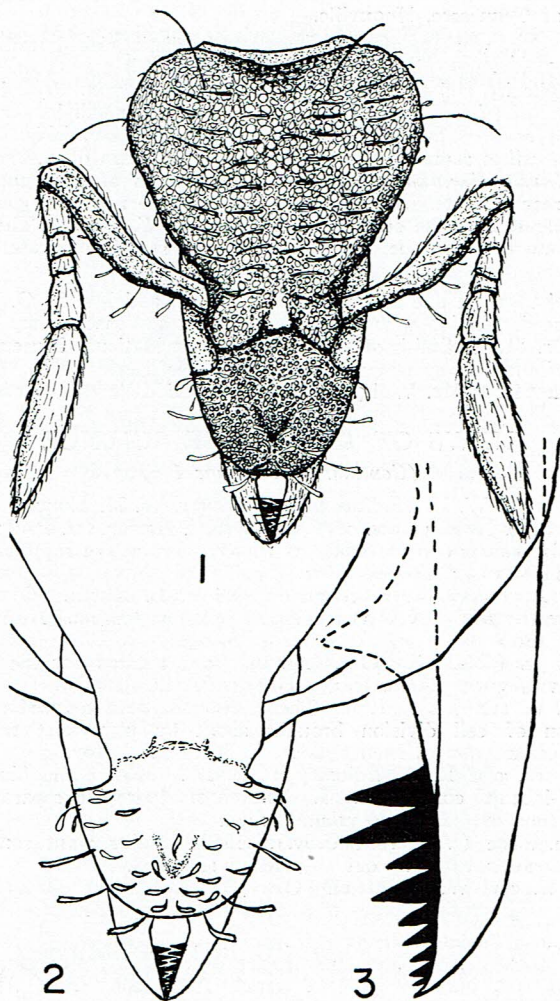


Plate I. Fig. 1. Frontal view of the head of *Smithistruma cloydi* sp. n. Fig. 2. Frontal view of the clypeus of *S. cloydi* sp. n., showing detailed arrangement of hairs. Fig. 3. Greatly enlarged outline of a portion of the anterior border of clypeus and one mandible showing dentation.

as a small oak woodlot with good drainage. It is inside the city limits of Knoxville, in a residential section. Specifically, the locality is at the west corner of Kingston Pike and Forest Glen Drive. The colony was brought in

alive and maintained for about two weeks. Fifteen workers were pinned immediately and used in the description. The remainder were observed by Mr. E. O. Wilson and later placed in alcohol. These are retained in his collection.

Type material—The holotype and two paratypes are deposited in the U. S. National Museum. Paratypes are deposited in the Museum of Comparative Zoology at Cambridge and in the collection of Dr. A. C. Cole, Jr., at The University of Tennessee, Knoxville.

Affinities—The workers of this species can be distinguished from the nearest relatives, *Smithistruma dietrichi* and *S. ornata*, of this species on the basis of the clypeal pilosity and the outline of the clypeal margin. The hairs on the clypeus of *S. dietrichi* are not as clavate as and are much longer than, those of the new species. The outline of the clypeus of *S. dietrichi* is acute, while that of *S. cloydi* is rounded. The outline of the clypeus of *S. ornata* is quite similar to *S. cloydi*, while the hairs on the clypeus of *S. ornata* are much longer and more clavate. *S. cloydi* does not bear the two long, gently curving hairs which arise near the center of the clypeus of *S. ornata*. The absence of many spatulate hairs on the clypeus of the new species separates it from *S. pulchella*.

Especial thanks are due to Dr. A. C. Cole, Jr., and Mr. E. O. Wilson who compared the description with the type specimens and made many helpful suggestions. Dr. M. R. Smith of the United States National Museum compared specimens of the new species with types of other species in the genus. This species is named for Mr. Will John Cloyd, who aided in the collection.

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- Harris, Henry C., W. H. MacIntire, C. L. Comar, W. M. Shaw, S. H. Winterberg, and S. L. Hood (Univ. of Tenn.—A.E.C. Agric. Res. Program). 1951. Radio-active calcium in the study of additive and native supplies in the soil. *Science*, 113(2934) : 328-329. Mar. 23.
- Hollaender, Alexander, G. E. Stapleton, and F. L. Martin (ORNL). 1951. X-ray sensitivity of *E. coli* as modified by oxygen tension. *Nature*, 167 : 103. Jan. 20.
- Kile, J. C., Jr. (ORNL). 1951. An improved method for the artificial insemination of mice. *Anat. Rec.*, 109(1) : 109-117. Jan.
- Kimball, R. F. (ORNL). 1950. The relation between induced mutation and retardation of cell division brought about by ultraviolet irradiation of *Paramecium aurelia*. *Genetics*, 35 : 673. (Abstr.) Nov.
- Noggle, G. R., and R. A. Bolomey (ORNL). 1951. The biosynthesis of carbon-14-labelled compounds. I. The chromatographic separation of glucose and fructose. *Plant Physiol.*, 26 : 174.
- Quarterman, Elsie (Vanderbilt Univ.). 1950. Major plant communities of Tennessee cedar glades. *Ecology*, 31(2) : 234-254.
- Russell, L. B., and W. L. Russell (ORNL). 1950. The effects of radiation on the preimplantation stages of the mouse embryo. *Anat. Rec.*, 108 : 521. (Abstr.)
- Sheppard, C. W., W. R. Matrin, and G. Beyl (ORNL). 1951. Cation exchange between cells and plasma of mammalian blood. II. Na and K exchange in the sheep, dog, cow, and man, and the effect of varying the plasma potassium concentration. *Jour. Gen. Physiol.*, 34(4) : 411-429. Mar. 20.
- Sinclair, Ralph M. 1950. Some noteworthy records of amphibians and reptiles in Tennessee. *Herpetologica*, 6 : 200-202. *Plethodon glutinosus grobmani* Shelby Co., and *Pituophis melanoleucus mugitus* from Henderson Co. are presented as new to Tenn. An intergrade betw. *Pseudotriton r. ruber* and *P. r. vioscai* is reported from Dickson Co., Tenn.
- Smith, R. D. 1950. Golden plovers at Memphis. *Migrant*, 21(2) : 21-23. June.

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