

NOTES FOR A REVISION OF THE ANT GENUS *FORMICA*.  
 2. REIDENTIFICATIONS FOR SOME SPECIMENS FROM THE T.W. COOK  
 COLLECTION AND NEW DISTRIBUTION DATA  
 (HYMENOPTERA: FORMICIDAE).<sup>1</sup>

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ABSTRACT: Specimens of the *Formica neogagates* and *Formica fusca* groups from the T.W. Cook collection are reidentified. New morphological variations are presented for *F. longipilosa*, together with a first description of the male. Some of these data extend the geographical distribution of the less well known species particularly in California.

"The Ants of California" was privately published by Thomas Wrentmore Cook in 1953. This was Cook's only published work on ants and it does no credit to a many-faceted man. The book consists, for the most part, of records and descriptive and biological notes gleaned from previously published work of other authors. These applied, for the most part, to California forms, but no effort was made to correct records based on misidentified specimens. The present paper reveals so many surprising misidentifications and misinterpretations in *Formica* species or species groups, that it becomes impossible to use any data from "The Ants of California" without having the specimens at hand.

Furthermore, the drawings illustrating the book are misleading or inaccurate: the head of *Formica subnuda* (p. 368) and the mesosoma of *F. occidua* (p. 385) are erroneously proportioned; the "female" head of *F. subsericea* (p. 368) is that of a male; the maxillary palpi of *F. sibylla* (p. 392) are too short; the figure of *F. subpolita camponoticeps* (p. 392) is a worker of *F. neorufibarbis*.

Numerous other deficiencies are pointed out by Brown and Wilson (1953).

Cook died in 1962. In 1964 his collection was donated to the Oakland Museum by his widow. The ants were transferred to the Natural History Museum of Los Angeles County in 1971. There were 4,397 pinned ant specimens and an undetermined number in 213 vials (Arnaud and Wale 1973). Almost half of the pinned material consisted of specimens from W. M. Wheeler's collection acquired during a brief stay at Harvard. Most of the remainder were specimens from the collections of Stanford University, still bearing the distinctive "L.S. Jr. U." labels. The Stanford University specimens were collected mostly by W.M. Mann. The specimens in vials were, in large part, collected by Cook. Judging by the number of specimens clearly collected by Cook and by the localities visited, he had a very limited first hand acquaintance with the ants of California.

The present note attempts first of all to clarify some of the erroneous citations in "The Ants of California." We also cite new distributional and morphological data, particularly on several

species in the *F. fusca* group described recently by the senior author (Francoeur 1973). A few specimens, cited as various forms of *Formica*, belong to other genera and are noted at the end of this paper.

The following abbreviations are used: LSJU (Leland Stanford Jr. University); TWC (T.W. Cook); WMM (W.M. Mann); WMW (W.M. Wheeler).

FORMICA NEOGAGATES GROUP  
 NEOGAGATES COMPLEX  
*Formica lasioides* Emery

*Formica neogagates lasioides*: Cook, 1953, p. 360

*Formica neogagates lasioides* var. *vetula*: id. p. 361

*Formica fusca fusca*: id. (in part), p. 371

*Formica subpolita* var. *camponoticeps*: id. (in part), p. 397

Labelled *neogagates lasioides* var. *vetula*: 3 ♀ from Pacific Grove (WMM), 3 ♀ from Lake Tahoe, 4 ♀ from Quincy (TWC), CALIF.

Labelled *fusca*: 1 ♀, 3 ♀ from Lake Tahoe, CALIF.

Labelled *subpolita camponoticeps*: 1 ♀, 5 ♀ from Glacier Point, Yosemite, CALIF.

Unidentified: 4 ♀ from Eagle Creek (LSJU), 1 ♀ from Oswego (Duncan), 2 ♀ from Rowena (LSJU), ORE.; 6 ♀ from Big Lagoon, Humboldt Co., 5 ♀ from Lake Tahoe, 9 ♀ from Mirror Lake, elev. 4096 ft., CALIF.

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*Formica neogagates* Emery

Unidentified: 5 ♀ from Ithaca, N. Y.; 13 ♀ from Pullman, WASH. (WMM).

## OBTUSIPILOSA COMPLEX

*Formica perpilosa* Wheeler

Labelled *Formica*: 4 ♀ from Santa Clara Co., CALIF. The label is the same as on other specimens from the Stanford University collection and they are surely from that collection.

## FORMICA FUSCA GROUP

## CINEREA COMPLEX

*Formica canadensis* Santschi

Labelled *fusca* var. *argentea*: 1 ♀ from Colorado Springs, COLO. (E.S. Tucker).

*Formica pilicornis* Emery

*Formica cinerea* var. *lepida*: Cook (in part), 1953, p. 373

*Formica pilicornis*: id. (in part), p. 385

Labelled *pilicornis*: 9 ♀ from South San Francisco and 18 ♀ from San Francisco, CALIF. (TWC).

Labelled *cinerea* var. *lepida*: 16 ♀ from Saugus, CALIF.

Unidentified: 6 ♀ from Tejon Pass, CALIF. (TWC).

## NEOCLARA COMPLEX

*Formica neoclara* Emery

*Formica cinerea* var. *neocinerea*: Cook (in part), 1953, p. 374.

Labelled *fusca* var. between *neoclara* and *argentata*: 3 ♀ from Pullman, WASH. (LSJU).

Labelled *fusca* var. *neoclara*: 4 ♀ from Colorado Springs, COLO. (E.S. Tucker).

Labelled *fusca* var.: 5 ♀ from Sisson, CALIF. (J.C. Bradley).

## SUBPOLITA COMPLEX

*Formica subpolita* Mayr

*Formica subpolita*: Cook, 1953, p. 396.

*Formica subpolita* var. *camponoticeps*: id. (in part), p. 397.

*Formica fusca* var. *marcida*: id. (in part), p. 379.

*Formica fusca* var. *neorufibarbis*: id. (in part), p. 380.

Labelled *subpolita*: 8 ♀ from Pacific Grove (WMM), 8 ♀ from Corte Madera Creek, 27 ♀ from Greenville, CALIF.

Labelled *subpolita* var. *camponoticeps*: 3 ♀ from Yosemite, 6 ♀ from Yosemite Falls Top, 3 ♀ from Yosemite Village, 1 ♀, 3 ♀ from Old Village, Yosemite Valley, 15 ♀ from Glacier Point, Yosemite, 2 ♀ from Mt. Tamalpais, CALIF.

Labelled *fusca* var. *marcida*: 5 ♀ from Point Joe, near Pacific Grove, CALIF.

Labelled *fusca* var. *neorufibarbis*: 1 ♀ from top of Mount Wilson, CALIF. (J.C. Bradley) together with 1 ♀ of *Liometopum* sp.

## LEPIDA COMPLEX

*Formica aerata* Francoeur

*Formica cinerea* var. *neocinerea*: Cook, (in part), 1953, p. 374.

Labelled *cinerea* var. *neocinerea*: 3 ♀ from Three Rivers (J.C. Bradley), 3 ♀ from Sacramento (H.S. Smith), 1 ♀ from Stanford University, CALIF. (LSJU).

Labelled *Formica*: 3 ♀ from Stanford Univ., CALIF.

Unidentified: 1 ♀ from Santa Clara Co., CALIF. (Harkins); 3 ♀

from 3.5 mi. south of Kirby, ORE.

*Formica lepida* Wheeler

Unidentified: 1 ♀ from Smith River Camp, Del Norte Co., CALIF. This is the second record for this species.

*Formica longipilosa* Francoeur

Figures 1-3

Unidentified: 20 ♀ and 2 ♂ from Ukiah, CALIF. (LSJU). These specimens are the second series known to us. They provide new data on the morphology of the workers. The male is described here for the first time.

WORKER: The series fits the original description (Francoeur 1973, p. 126-127). However, the size averages somewhat smaller: head width 0.96-1.14 mm; head length 1.09-1.31; eye diameter 0.41-0.47; scape length 1.07-1.27; trunk length 1.59-1.84. The dorsal margin of petiole less convex, in one case feebly and narrowly excised.

MALE: First description based on two androtypes (in LACM and senior author's collection). General morphology similar to *F. transmontanis* Francoeur, but averaging smaller. Measurements in mm: head width 1.61-1.35; eye diameter 0.70-0.71; trunk length 3.05-3.20; pronotum width 1.56-1.65. Head distinctly broader than long, occipital margin slightly convex, ocelli small (0.12-0.14 mm); clypeus bulging, faintly carinated, anterior margin convex; mandible rather narrow with only an apical tooth. Petiole low and thick in profile, dorsal margin with large, weak concavity and rounded corners. Genitalia: posterior half of parameres more acute and larger, with long hairs; subgenital plate shining, when ventral surface is seen from above, posterior end not produced as in *transmontanis*, rather straight, with two concavities separated medially by rounded process. Body concolorous brown, antennae paler, legs yellowish brown; most parts with dense and long pubescence, particularly on anterior dorsal half of head, pronotum, petiole and gaster; pilosity distributed as in *transmontanis* but longer and finer especially on head and thorax.

*Formica pacifica* Francoeur

Unidentified: 5 ♀ from Cannon Beach (LSJU), 3 ♀ from Goble (LSJU), 1 alated ♀ from Umpqua River, Canyonville, ORE.

## SUBSERICEA COMPLEX

*Formica argentea* Wheeler

*Formica sibylla*: Cook (in part), 1953, p. 393.

Labelled *fusca* var. *argentata* or var. *argentea*: 8 ♀ from Pullman, WASH. (WMM).

Labelled *fusca* var.: 2 ♀ 2 ♂, & 1 ♀ from San Juan Island, WASH. (WMM).

Labelled *sibylla*: 3 ♀ from Lake Tahoe, CALIF.

Unidentified: 1 ♀ from Boyd, 2 ♀ from Linsley, 1 ♀ from Rowena (LSJU), 7 ♀ from Tygh Valley (LSJU), ORE.; 1 ♀ from Hewlett Point, 1 ♀ from Prescott (L.R. Dice), WASH.

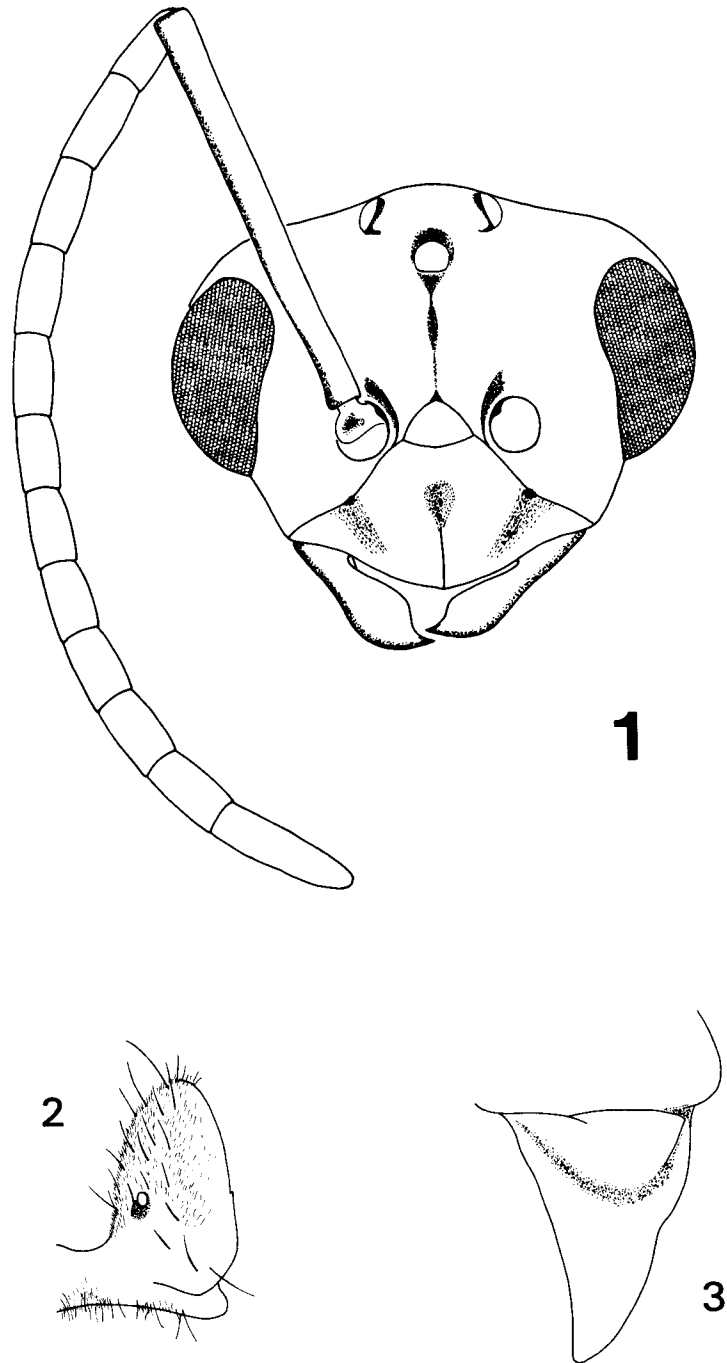
*Formica podzolica* Francoeur

*Formica sibylla*: Cook (in part), 1953, p. 393.

Labelled *sibylla*: 18 ♀ from Marysville, CALIF.

*Formica subsericea* Say

Unidentified: 6 ♀ from Ithaca, N. Y.



FIGURES 1-3. *Formica longipilosa* male (50X). 1, head, frontal view, without pilosity; 2, petiole, lateral view; 3, paramere, lateral view.

## FUSCA COMPLEX

*Formica accreta* Francoeur

*Formica fusca* var. *subsericea*: Cook (in part), 1953, p. 384.

*Formica sibylla*: id., p. 393.

Labelled *fusca* var.: 26 ♀ & 1 ♀ from Quincy, CALIF.

Labelled *fusca* var. *subsericea*: 3 ♀ from Stinson Beach, CALIF. (TWC).

Labelled *sibylla*: 5 ♀ from Mirror Lake, Yosemite Valley, 2 ♀ from Glacier Point, Yosemite, 17 ♀ from Carmel (together with 1 ♂ of *Camponotus* sp.), CALIF.

Unidentified: 4 ♀ from Patrick Creek, CALIF.; 1 ♀ from Oswego (Duncan), 2 ♀ from Eagle Creek (LSJU), 1 ♀ from Columbia (LSJU), ORE.

*Formica fusca* Linné

*Formica neogagates lasioides* var. *vetula*: Cook (in part), 1953, p. 360.

*Formica fusca fusca*: id. (in part), p. 369.

*Formica cinerea* var. *neocinerea*: id. (in part) p. 373.

*Formica fusca* var. *argentea*: id. (in part), p. 375.

*Formica sibylla*: id. (in part), p. 392.

*Formica fusca*: Francoeur, 1973, p. 189–201.

Specimens classified in the *marcida* form:

Labelled *cinerea* var. *neocinerea*: 3 ♀ from Mt. Tamalpais, CALIF.

Labelled *sibylla*: 6 ♀ & 2 ♀ from Alta Meadow (WMW), 2 ♀, 1 ♀ & 1 ♂ from Lake Tahoe (WMW), CALIF.

Labelled *neogagates lasioides* var. *vetula*: 4 ♀ & 1 ♀ from Alta Meadow, CALIF. (WMW).

Labelled *fusca* var. *neoclara*: 3 ♀ from Lake Tahoe, CALIF. (WMW).

Unidentified: 2 ♀ from Yosemite, CALIF.; 1 ♀ from Mt. Hood, ORE. (LSJU).

Specimens classified in the *subaenescens* form:

Labelled *fusca*: 4 ♀ from Lake Tahoe, CALIF. (WMW).

Labelled *fusca* var. *argentea*: 3 ♀ from Colorado Springs, COLO. (E.S. Tucker).

*Formica microphthalma* Francoeur

*Formica sibylla*: Cook (in part), 1953, p. 393.

Labelled *sibylla*: 5 ♀ from Lake Tahoe, CALIF. (WMW).

## NEORUFIBARBIS COMPLEX

*Formica neorufibarbis* Emery

*Formica subpolita*: Cook (in part) 1953, p. 395.

Labelled *rufibarbis* var. *gnava*: 8 ♀, 3 alated ♀ & 1 ♂ from Lake Tahoe, CALIF. (WMW).

Labelled *subpolita*: 18 ♀ & 3 ♀ Blue Lake, CALIF. (J.C. Bradley).

Labelled *subpolita* var. *camponoticeps*: 11 ♀ from Glacier Point, CALIF. (WMW).

The workers of the above series are among the largest for the species.

Labelled *fusca* var.: 2 ♀ from San Juan Isl., WASH.

Unidentified: 1 ♀ from Paradise Valley, 2 ♀ from Mt. Hood, 6 ♀ from Cannon Beach, ORE; 1 ♀ from San Juan Isl., WASH.

## RUFIBARBIS COMPLEX

*Formica foreliana* Wheeler

Labelled *fusca* var. *gnava*: 3 ♀ from Ramsey Canyon, Huachuca Mts. ARIZ. (WMM). These are topotypes.

*Formica occidua* Wheeler

*Formica rufibarbis* var. *occidua*: Cook (in part) 1953, p. 391.

*Formica rufa obscuripes*: id. (in part), p. 406.

*Formica rufa propinqua*: id. (in part), p. 409.

*Formica microgyna californica*: id. (in part), p. 413.

Labelled *rufibarbis* var. *occidua*: 1 ♀ from Stanford University, 21 ♀ from Napa (TWC), 6 ♀ from San Rafael, CALIF. (TWC).

Labelled *rufibarbis* var. *gnava*: 3 ♀ from Santa Cruz Isl., CALIF. (R.V. Chamberlain).

Labelled *rufa obscuripes*: 1 ♀ from Marin Co. (TWC), 15 ♀ from Del Monte (TWC), 9 ♀ from Santa Cruz Isl., CALIF. (R.V. Chamberlain).

Labelled *truncicola integroides* var. *propinqua*: 4 from Pismo (Beach), and 3 ♀ from Santa Cruz Isl., CALIF. (R.V. Chamberlain).

Labelled *microgyna californica*: 3 ♀ from Del Monte (TWC), 6 ♀ from Santa Cruz Isl., CALIF.

Unidentified: 3 ♀ from Cazadero (J.C. Bradley), 5 ♀ from Garberville, 3 ♀ from Santa Cruz Isl. (R.V. Chamberlain), 2 ♀ from Santa Clara Co. (Harkins), 1 ♀ from Berkeley, 20 ♀ from Davis, CALIF.

## SIBYLLA COMPLEX

*Formica sibylla* Wheeler

*Formica sibylla*: Cook (in part), p. 393.

Labelled *sibylla*: 3 ♀ from Happy Isles, Yosemite Valley, 3 ♀ from Alta Meadow, 3 ♀ from Lake Tahoe, CALIF.

Labelled *fusca*: 3 ♀ from Lake Tahoe, CALIF.

Without name: 4 ♀ from Glacier Point, CALIF.

## SPECIES ERRONEOUSLY CITED

## AS FORMICA

## Subf. DOLICHODERINAE

*Tapinoma sessile* (Say)

*Formica fusca* var. *marcida*: Cook (in part), p. 379.

Labelled *fusca* var. *marcida*: 3 ♀ from Mt. Tallac, Lake Tahoe, CALIF.

## Subf. FORMICINAE

*Lasius niger* (Linné)

*Formica neogagates* var. *lasioides*: Cook (in part), p. 360.

Labelled *neogagates* var. *lasioides*: 3 ♀ from Lake Tahoe, CALIF.

*Lasius pallitarsis* (Provancher)

*Formica fusca* var. *blanda*: Cook (in part), p. 377.

Labelled *fusca* var. *blanda*: 6 ♀ from Alta Meadow, CALIF.

*Myrmecocystus mendax* Wheeler

*Formica subpolita camponoticeps*: (in part), p. 397.

Labelled *subpolita* var. *camponoticeps*: 6 ♀ from Hidden Springs Canyon, CALIF. (Snelling, 1976).

*Myrmecocystus mimicus* Wheeler

*Formica sibylla*: Cook (in part), p. 393.

Labelled *sibylla*: 2 ♀ from Pasadena, CALIF.

In each of the above the specimens cited are the only examples from the cited localities with the identification listed. They are, therefore, the presumed basis for the record in Cook's book.

## ACKNOWLEDGMENT

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