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Western United States**

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Descriptions of New Ants from the Western United States

A. C. Cole, Jr.

***Formica oregonensis* sp. nov.**

Holotype, worker. (Cole collection No. 440).

Total length, 5.9 mm.

Body slender. Head, excluding mandibles, broader than long, narrower in front than behind, with rather straight sides and feebly convex posterior border; corners well rounded. Mandibles large, convex, with eight blunt teeth; apical tooth longest, other teeth alternately long and short. Clypeus convex, carinate, its anterior border distinctly and broadly excised. Frontal area distinct, triangular, its base and height subequal. Frontal groove faint and extending only about two-thirds the distance from the frontal area to the median ocellus. Frontal carinae not divergent behind. Antennae rather slender; scapes curved, gradually thickened toward their tips. Eyes rather large.

Thorax long and slender; pro- and mesonotum moderately convex; promesonotal impression very faint in profile; mesoepinotal suture rather shallow and very broad; epinotum broadly angular in profile, with subequal base and declivity. Petiolar scale broad, its base thick, the summit thin, convex, entire, with rather flat anterior and slightly convex posterior surface. Legs long and slender. Gaster stout.

Body shining and very finely shagreened. Mandibles finely rugose; clypeus delicately striatopunctate; space between frontal carinae with very fine striae diverging posteriorly at the posterior extremity of the frontal groove. Frontal area smooth and shining. Epinotum very finely reticulate-rugose, giving it a less shining appearance than the other parts. Gaster very smooth and shining.

Hairs yellow, long, slender; blunt on thorax and gaster, pointed on head; rather sparse; most numerous on head and dorsum of pro- and mesonotum; longest on head; sparse, short and closely appressed on antennal funiculi, more abundant on terminal segments; absent from scapes and lateral surfaces of head and thorax; long, curved and rather numerous on mandibles; very long and sparse on clypeus; very sparse on gula and dorsum of epinotum. Anterior femora with a row of sparse, long, slender hairs bordering the flexor surfaces. Hairs long and erect on ventral surface of coxae. Posterior surface of petiolar scale with a single row of hairs just below the superior border. Hairs short and sparse on dorsum of gaster, long and numerous on venter and around anus. Pubescence very short and sparse.

Color carob brown. Legs (except coxae), mandibles (except border and

teeth), antennae, clypeus and genae lighter. Tips of antennal funiculi infuscated. Gaster deep black throughout. Dorsum of pronotum with an infuscated area.

The holotype was selected from a series of sixteen workers collected by the author near Pendleton, Oregon, July 11, 1931. The ants were attending aphids on an herb in an alpine meadow above the timberline. The nest was not found. The holotype and a series of paratypes are in the author's collection. Paratypes are to be deposited in the U. S. National Museum.

Variation in paratype material.—The color is rather constant throughout the series. In a few specimens the legs, especially the tibiae and tarsi, are somewhat paler. The length varies from 4.5 to 6.5 mm. In the smaller workers the head is as long as broad, the clypeal carina is somewhat more pronounced and the clypeal border is more faintly excised. Some of the larger workers have deeper and hence more prominent impressions in the anterior clypeal border than do the others. The epinotum of a few of the specimens is without hairs, while most specimens bear only a single dorsal pair. Each of two specimens has a group of about ten hairs on the dorsum of the epinotum. One specimen is somewhat more uniformly hairy than are the others and the hairs on the thorax are less blunt. In two specimens the petiolar scale is as light colored as the legs and antennae. All specimens show at least a light infuscation of the pronotal dorsum. In two specimens the sides of the pronotum and the entire mesonotum are of a much lighter shade than the epinotum and coxae.

Affinities.—The notched clypeus of *F. oregonensis* places this species definitely in the Sanguinea Group of the subgenus *Formica*. The specimens key down to *F. manni* Wheeler, to which they are undoubtedly rather closely related, but they differ from *manni* in the following respects: (1) Head of larger workers, exclusive of mandibles, broader than long; (2) antennal scapes incrassated toward their tips; (3) superior border of petiolar scale consistently entire; (4) hairs yellow, sparse on the gula; (5) very dark reddish brown in color; and (6) average larger in size.

F. oregonensis is similar to *F. perpilosa* Wheeler in breadth of the head, the incrassated tips of the antennal scapes and the single row of hairs on the flexor surfaces of the femora. It differs from *perpilosa*, however, especially in the subparallel frontal carinae of the head, the less convex mesonotum, the broader and shallower mesepinotal constriction, the flattened anterior surface of the petiolar scale, the sparse pilosity, the very sparse pubescence and the much deeper color.

***Formica pallide-fulva* subsp. *delicata* nov.**

Holotype, worker. (Cole collection No. 588).

Total length, 5.2 mm.

Body rather slender. Head, excluding the mandibles, longer than broad, narrower in front than behind, with slightly convex posterior and lateral borders and very rounded posterior corners. Eyes large; ocelli distinct. Man-

dibles large, broad, curved, 8-toothed; apical tooth long, all teeth rather sharp and pronounced. Clypeus strongly carinate its entire length except near its junction with the frontal area; with entire, rounded, projecting anterior border. Frontal area distinct, well depressed. Frontal carinae subparallel, not diverging posteriorly. Frontal groove wanting. Antennae long and slender; the scapes extending about two-thirds their length beyond posterior margin of the compound eyes, thickened from base to apex; basal joints of funiculi more slender than penultimate joints, subcylindrical. Maxillary palpi very long.

Thorax narrow. Pronotum evenly convex in profile; promesonotal suture well marked. Anterior margin of mesonotum higher than the pronotum; posterior mesonotal declivity feebly convex, long, meeting the epinotum at the deep and rather broad mesoepinotal suture. Epinotum very convex, its dorsal surface and declivity subequal and their junction broadly curved, the declivity flattened and rather strongly oblique in profile. Scale of petiole rather narrow, thick, cuneate in profile, with very convex and somewhat flattened posterior surface; its border rather sharp, broadly rounded when seen from behind, with a distinct and rather broad notch; lateral borders slightly rounded. Legs long and rather slender. Gaster large.

Entire body subopaque and very finely shagreened; gaster more shining. Mandibles rather finely and longitudinally striatopunctate. Clypeus, mesothoracic sternites and epinotum very faintly striate.

Hairs yellowish and sparse; long, slender, sharp and erect on frons, vertex, clypeus and mandibles; absent from eyes, gula, genae, antennal scapes and pronotum; short and erect on mesonotum; almost absent from epinotum and petiole; more abundant on gaster, where they are short and suberect and arranged in three or four rows on each segment, and on ventral surface of coxae where they are long, erect and slender. Pubescence whitish, short and sparse; abundant only on middle and hind coxae and on anterior surface of petiolar scale; extremely sparse on head, thorax and gaster.

Color Argus brown; clypeus and mandibles a little darker; anterior border of mandibles and mandibular teeth dark brownish-black; gaster and tips of antennal funiculi lightly infuscated.

Paratype, nest queen. (Cole collection No. 588).

Total length, 9.1 mm.

Head longer than broad but more rectangular than that of the worker; lateral margins almost straight. Frontal groove distinct the entire distance from frontal area to median ocellus. Antennal scapes extending a little more than half their length beyond the posterior margins of the compound eyes; funicular joints thicker than those of the worker. In other respects the head is like that of the holotype.

Thorax about twice as wide as the head, subovoid when seen from above, its widest point at the attachment of the remnants of the fore wings. Promesonotal suture well marked. Scutum as broad as long; in profile broadly convex anteriorly, almost flat apically. Scutellum feebly convex in profile, a

little higher than the scutum; lateral projections narrow, long and blunt at the apex. Metanotum rather narrow, much lower than the scutellum, convex medianly but depressed at the wing insertions; angle between scutellum and metanotum sharp. Epinotum a little lower than metanotum, higher than long; in profile its dorsal surface short and sloping, its juncture with the declivity rounded, the declivity much longer and more oblique than the dorsal surface. Petiolar scale with the superior border sharper than that of the worker and more compressed at the corners; posterior surface much more flattened. Gaster oval, rather broad. Legs shorter than those of the worker and the tibiae stouter.

More shining than the holotype. Scutum, scutellum and gaster very smooth and shining, the head less so; epinotum and petiolar scale opaque. Hairs golden, longer and more slender than those of the worker; absent from superior border of petiolar scale, almost absent from epinotum, sparse elsewhere; gula with two long hairs. Pubescence long, white and abundant on anterior declivity of pronotum, on epinotum, coxae and anterior face of petiolar scale; extremely sparse elsewhere. Mandibles striate and with a few rugae.

Pronotum, scutum, legs and antennae Argus brown; head, scutellum and thoracic sutures darker; scale of petiole lighter; epinotum grayish because of the dense pubescence. Gaster chestnut brown, anal region and borders of segments lighter.

The holotype and the paratype queen were selected from a series of fourteen workers and one nest queen collected by the author at Ten Sleep, Wyoming, September 21, 1931, from a mound of twigs. The mound was beside a clump of sagebrush in a rocky area.

Affinities.—The specimens, both workers and queen, show a definite relationship to the subgenus *Neoformica*. The workers are structurally close to those of *F. pallide-fulva* subsp. *nitidiventris* Emery, but differ in the longer narrower head and in the possession of very sparse hairs on the superior border of the petiolar scale. The female differs from that of *nitidiventris* in that her head is more narrow and decidedly longer than broad, exclusive of the mandibles. She is larger than the female *nitidiventris*, and more closely approximates the length of *schaufussi*. There are also two long hairs on the gula which are absent from the female of *nitidiventris*.

Variation in paratype material.—In the paratype series of workers the total length of the body varies from 4.8 to 6.2 mm. There is little variation in other respects. The gaster of two specimens is a little darker in color than are the gasters of other members of the series; and in two specimens the hairs are absent from the petiolar scale.

Myrmecocystus melliger subsp. *semirufus* Emery

Replete. (Cole collection No. 783).

Total length, 5.8-6.1 mm.

Color paler than that of the regular worker and more reddish throughout;

head and thorax chestnut. Gaster distended in diameter two to three times that of the worker. In all other respects like the ordinary worker.

These repletes of *M. semirufus* were collected by the author from chambers beneath a small crater mound of sand, about six inches in diameter, in a very sandy area with scant vegetation, 10 miles south of Cameron, Arizona, May 15, 1932. The author has collected many specimens of *semirufus* from nests at various localities in California, Arizona, and New Mexico, in none of which except the locality designated were repletes found. The specimens were taken from chambers fully three feet beneath the nest entrance.

In so far as I have been able to ascertain, this is the first record of a replete in nests of *semirufus* or its varieties, and shows that we are likely to discover the replete condition among some Myrmecocysti now supposed to be without this form.

Pheidole pilifera subsp. *artemisia* Cole.

Specimens were collected by the author from a nest of this subspecies at the type locality (Provo, Utah), May 13, 1932. Among them was a single nest queen which I describe as follows:

Topotype, nest queen. (Cole collection No. 751a).

Total length, 5.0 mm.

Head, excluding mandibles, distinctly broader than long, a little broader behind than in front, with very faintly and broadly excised posterior margin; vertical groove pronounced and extending to clypeus; clypeus convex, especially at apex, without a median carina, anterior margin faintly but definitely excised. Mandibles convex, with two apical teeth, one small basal tooth and a few minute and irregular intermediate teeth. Frontal area subtriangular, moderately impressed, with a median carinula. Ocelli large. Tips of antennal scapes reaching more than half the distance between the eye and the posterior corner of the head. Thorax robust, between wing insertions as broad as the head. Mesonotum and scutellum flattened. Epinotum like that of the soldier; spines robust, rather sharp, more than twice as far apart at base as long, directed upward, outward and backward. Petiole with acute tooth-like anterior corners and slightly concave sides; its apex rather blunt and broadly excised, its posterior superior surface concave. Postpetiole less than twice as broad as the petiolar node, its lateral prolongations blunt and concave posteriorly. Gaster elliptical, longer and broader than the thorax.

Mandibles and clypeus shining, very finely punctate and with a few striae near their bases. Frontal area subopaque, more coarsely punctate and with a single faint striation on each side of the median carinula. Head coarsely and longitudinally rugose, with finely punctate interrugal spaces. Mesonotum and scutellum finely and densely punctate, the former with rather coarse longitudinal striae on its posterior half. Epinotum subopaque, punctate-rugulose on the sides; infraspinal facet with fine, transverse rugae and punctures. Petiole

and postpetiole subopaque, finely and densely punctate. Gaster moderately shining, very finely shagreened.

Hairs yellow, abundant, suberect, more appressed on gaster, legs and antennae; pointed and delicate; sparse on anterior surface of petiole and mesothoracic sternites and episternites. Pubescence absent.

Light seal brown; mandibles, clypeus, ocelli, anterior third of head, legs and antennae lighter.

All descriptions in this paper are based upon dried alcoholic specimens. Colors of all major body regions are those listed and illustrated by Robert Ridgway in, "Color Standards and Color Nomenclature." Comparisons of the ants with the color plates were made without magnification in the light of a 100-watt Mazda bulb provided with a metal reflector. Colors were matched with the bulb one foot directly above the specimens which were placed on the color plates. When the correct shade had been obtained there was a decided blending of the color of the specimen with that of the plate. Comparisons were made by two other persons, and in each case their determinations were the same as those of the author. Colors of the smaller structures, such as ocelli, mandibles, palpi and antennae, are those of the writer's conception and were determined under a magnification of 30 diameters. Measurements of size are to the closest tenth of a millimeter.

The writer is indebted to Dr. W. S. Creighton, College of the City of New York, for his kindness in comparing specimens of *F. oregonensis* sp. nov. and *F. pallide-fulva* subsp. *delicata* nov. with related forms in the American Museum of Natural History.

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