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UNITED STATES

(Hymenoptera: Formicidae)

BY

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## ANTS OF THE GENUS *MACROMISCHA* ROGER IN THE UNITED STATES

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This rather large and extremely interesting genus of ants is known from approximately 80 forms. Only three of these occur in the United States, one of which, *Macromischa polita*, is new and is described herein. Roger undoubtedly appreciated the complexity of the genus when he so appropriately named it. Although the ants represent some of the most beautiful and striking species known, the wide range in the diversity of their structure and habits has made them extremely difficult to classify clearly. Three subgenera have been erected for the purpose of clarifying the situation, and on the basis of the worker and queen they have been distinguished as follows: Head quadrate, petiolar peduncle short and stout, *Antillaemyrmex* Mann; head not quadrate or the petiolar peduncle more slender, thorax elongate, epinotum unarmed, *Croesomyrmex* Mann; head not quadrate or the petiolar peduncle more slender, thorax shorter or the epinotum spinose, *Macromischa* s. str.

According to Wheeler (Bull. Mus. Comp. Zool. 72: 4, 1931) these subgenera are distributed as follows: *Antillaemyrmex* to the West Indies and Florida; *Croesomyrmex* to Cuba; and *Macromischa* s. str. to the Bahamas, Greater Antilles, and North America from Texas to Panama. In 1931 Wheeler, in the same publication mentioned above, went so far as to raise *Antillaemyrmex* and *Croesomyrmex* to generic rank, but at the same time he admitted the weakness of this stand on the basis of biological and morphological evidence presented by a small number of species. Later (Bull. Mus. Comp. Zool. 81: 441, 1937) he returned these groups to subgeneric ranking with the statement "the recent discovery by Dr. Aguayo of a subspecies of *C. wheeleri* Mann with vestigial epinotal spines, and the discovery by Dr. M. R. Smith of a subspecies of *M. isabellae* Wheeler without epinotal spines, necessitates a return to Mann's original conception." I would go even further than this, as I believe

there is sufficient evidence at hand now to show that the forms considered as *Macromischa* in the broad sense cannot be clearly segregated into subgenera and therefore the subgeneric names should be dropped. I believe the accumulation of additional material in this group will only strengthen this contention.

Of the species treated below, *Macromischa subditiva* was formerly assigned to *Macromischa* s. str. and *floridana* to the subgenus *Antillaemyrmex*. In this paper known castes of each species are described, and a key is given for the separation of the workers of the various species.

#### KEY TO THE SPECIES OF MACROMISCHA OF THE UNITED STATES

(Workers only)

1. Antennal scape robust, short, not reaching quite half-way between the eye and the posterior border of the head; sculpturing of head, thorax, petiole and postpetiole rugose reticulate; eye with unusually large facets; Florida (Pl. I, C)..... **floridana**
- Antennal scape slender, and extending farther posteriorly; sculpturing not as above; eye with smaller facets..... 2
2. Peduncle of petiole at least twice length of petiolar node; petiolar node short; general color light to deep brown; pilosity of scape closely appressed; Texas. (Pl. I, A)..... **subditiva**
- Peduncle of petiole length of node or less; petiolar node long; general color blackish; pilosity of scape suberect; Arizona. (Pl. I, B)..... **polita**

#### *Macromischa subditiva* Wheeler

*Macromischa subditiva* Wheeler, Psyche 10: 99, fig. 5. 1903 (worker).

*Macromischa (Macromischa) subditiva* Mann, Bull. Amer. Mus. Nat. Hist. 42: 408, 1920.

*Macromischa (Macromischa) subditiva* Wheeler, Bull. Mus. Comp. Zool. 81: 15, 1931 (female).

*Worker* (Pl. I, A).—Length 2–2.5 mm.

Head, exclusive of mandibles, longer than broad, with convex posterior border, rounded occipital angles, and moderately convex sides. Eye convex, at least length of its greatest diameter from base of mandible. Antenna 12-segmented; scape moderately slender, extending farther posteriorly on head than scape of *floridana*; first funicular segment exceeding combined length of two succeeding segments, second to seventh funicular segments about as broad as long, last funicular segment exceeding combined length of two preceding segments. Clypeus convex, anterior border broadly rounded, posterior border extending well back between frontal carinae. Frontal area triangular, not clearly defined. Mandible with 5 or 6 teeth, the three apical teeth fairly large and prominent. Thorax rather short and robust, dorsum in profile convex, evenly arched; pronotum with rounded humeral angles; promesonotal and mesoepinotal sutures faintly indicated or absent. Epinotal spines prominent, placed close to each other basally but diverging backward, outward, and upward. Petiole with a peduncle at least twice length of node; in profile, the node is much shortened, rounded and narrow at the summit, and with almost perpendicular anterior and

posterior faces; viewed from behind, the summit of the node is horizontal, blunt, and almost straight. Anterior ventral surface of peduncle with a small but distinct tooth. Postpetiole transversely elliptical, not much wider than petiole but approximately twice as wide as long. Gaster with distinct basal angles. Femora incrassate, hind pair more noticeably so.

Posterior surface of head, dorsum of thorax, petiole, postpetiole, and gaster smooth and shining; remainder of body subopaque. Mandibles longitudinally striate, clypeus longitudinally rugulose, with a distinct median carina, which often extends onto the frontal area; remainder of head finely rugulose reticulate, the rugulae especially conspicuous on front of head and on cheeks. Pleura of mesothorax and metathorax reticulate punctate. Legs finely reticulate.

Head, thorax, and gaster bearing sparse, erect, obtuse, grayish hair; appendages with small, appressed pubescence.

Color varying from light to deep brown; with lighter epinotal spines, coxae, trochanters, bases of femora, tibiae, and tarsi.

*Queen*.—Length 3.5 mm.

Very similar to worker except in size and the usual morphological differences. Also differing as follows: Epinotal spines proportionally shorter and more robust, with less acuminate tips, interbasal space exceeding length of spines. Sculpturing of body more pronounced; upper surface of head with coarse, longitudinal rugulae, and finely punctate interrugal spaces; scutum, paraptera, and scutellum of mesothorax bearing fine, longitudinal striae, with very fine punctations between striae. Body duller and apparently slightly darker in color than that of worker.

*Male*.—Length 2.2 mm.

Head, exclusive of mandibles, approximately as broad as long, with strongly convex posterior border, and moderately convex sides. Eye extremely large, convex, occupying at least half length of side of head, its anterior border almost touching base of mandible. Clypeus convex. Mandible small, toothed. Postocellar line longer than lateral ocellar line. Antenna slender, 13-segmented, the last 3 segments considerable enlarged. Thorax without Mayrian furrows, but with faint parapsidal furrows. Scutellum strongly gibbous. Epinotum without spines or tubercles. Wings pale, translucent, with very faint veins; discoidal, cubital, and radial cells lacking, but stigma well developed. Legs rather long and slender, femora not incrassate. In profile, peduncle of petiole noticeably short, its dorsal surface forming a gradually ascending slope, which meets the somewhat flattened posterior surface of the node to form a bluntly angular, but low node. Postpetiole from above transversely elliptical, wider than long, but not much wider than petiole. Gaster with basal angles.

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LEGEND FOR PLATE I

*A*, Worker of *Macromischa subditiva* Wheeler; *B*, Worker of *Macromischa polita*, new species; *C*, Worker of *Macromischa floridana* (Wheeler). Drawn by H. B. Bradford. No attempt has been made to show the finer details of sculpturing in *A* and *B*.

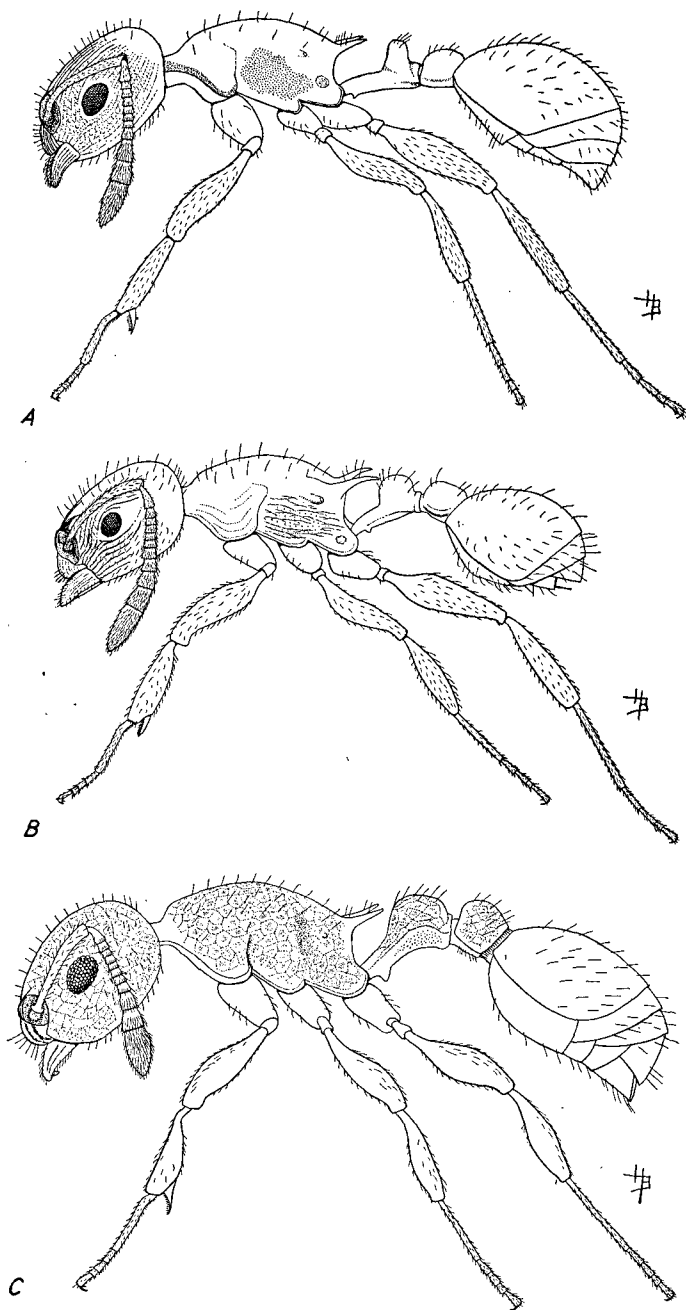


PLATE I

Hairs grayish, short, erect, sparse; more abundant on gaster, especially toward apex. Pilosity sparse, appressed; most easily discernible on appendages.

Brown; appendages lighter; apices of coxae, trochanters, bases of femora, and tarsi even lighter.

*Cotype localities*.—Walnut Creek, near Austin, and New Braunfels, Tex. (W. M. Wheeler.)

*Other localities*.—Del Valle, Tex. (W. M. Wheeler); Victoria, Tex. (J. D. Mitchell); Harlingen, Tex. (R. A. Vickery).

The above descriptions are based on 2 dealated queens, 1 male, and numerous workers collected by J. D. Mitchell in Victoria, Tex. All these are in the United States National Museum with the exception of 1 queen and 14 workers (same locality and collector) lent me by the Museum of Comparative Zoology (Harvard University). The male is described in this article for the first time.

The worker of *Macromischa subditiva* can be readily distinguished by the peculiarly shaped petiole, the peduncle of which is at least twice the length of the petiolar node; the rather uniform brownish color of most of the body; the obsolescent or missing thoracic sutures; the slender antennal scapes; and the sculpturing of the body.

Wheeler records this species as nesting in the bark of willow trees. The colonies are thought to be small and the habits of the ants in general similar to those of certain species of *Leptothorax* Mayr.

#### **Macromischa polita**, new species

*Worker* (Pl. I, B). Length 2-2.4 mm.

Head, exclusive of mandibles, subrectangular, slightly longer than broad; posterior border faintly convex; occipital angles strongly rounded, and sides moderately convex. Eye convex, removed by at least the length of its greatest diameter from base of mandible. Antenna 12-segmented; scape slender, extending farther posteriorly on head than scape of *floridana*; first funicular segment approximately length of the three succeeding segments combined, club 3-segmented, as long as remainder of funiculus. Clypeus convex, more strongly projecting than that of *subditiva*, posterior border rounded and extending well back between frontal carinae. Frontal area small, triangular, poorly defined. Mandible 5-toothed, the two apical teeth clearly visible. Thorax short, robust, in profile with strongly convex and rather evenly arched dorsum; from above somewhat broader anteriorly than posteriorly, with rounded humeral angles and no promesonotal or mesoepinotal sutures; epinotal spines large, at least twice length of their interbasal space. Femora and tibiae incrassate, especially those of the posterior pair of legs. In profile, petiolar peduncle short, approximately length of bulbous node,

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which has subvertical anterior and posterior surfaces, and an evenly convex dorsal surface; peduncle with a small ventral tooth; from above, petiolar node somewhat campanulate; postpetiole transversely elliptical, approximately one and one-half times as broad as petiolar node. Base of gaster with strong angles.

Head, thorax, petiole, postpetiole, gaster, femora, and tibiae smooth and shining; mandibles longitudinally striate, clypeus with a prominent median carina and several lateral rugulae, cheeks and anterior portion of each frontal carina with longitudinal rugulae, meso- and metapleura of thorax longitudinally rugulose punctate.

Hairs grayish, slender, erect, moderately abundant on all parts of body; shorter and more suberect on appendages.

Black; with lighter mandibles, epinotal spines, coxae, trochanters, bases of femora, tibiae, and tarsi.

*Cotype localities*.—Arizona: Catalina Mountains (2 workers); along Santa Cruz River, 4 miles from Tucson (4 workers); Phoenix (5 workers); Florence (2 workers); 30 miles east of Sells (1 worker); Sabino Canyon (7 workers); 8 miles northeast of Tucson (3 workers); 5 miles north of Tucson (1 worker); by the Riollito, a little north of Tucson (1 worker).

*Cotypes*.—No. 53249, United States National Museum.

Described from 26 specimens, collected by Robert G. Wesson. All these are in the United States National Museum collection except the following: 2 workers from Phoenix, Robert G. Wesson; 2 workers from along Santa Cruz River, American Museum of Natural History; 2 workers from along Santa Cruz River, Museum of Comparative Zoology (Harvard University).

The worker of this species is characterized by its strongly convex, evenly arched thorax; absence of dorsal thoracic sutures; peculiarly shaped petiole, the peduncle of which is approximately the length of the petiolar node; the smooth and shining surface of the body; and the general black color.

According to Mr. Wesson, the workers of this ant seem to be most commonly found on the ground in the vicinity of irrigation canals, washes, and rivers. Specimens have been taken at altitudes up to 4,500 feet. They are rather shy and sensitive to heat. Little else is known of their biology except that one nest was found in the bark of a cottonwood tree, about 2 inches above the surface of the soil.

#### **Macromischa floridana** (Wheeler)

*Antillaemyrmex floridanus* Wheeler, Bull. Mus. Comp. Zool. 72: 27-28, 1931 (worker).

*Macromischa (Antillaemyrmex) floridana* Wheeler, Bull. Mus. Comp. Zool. 81: 465 (1937).

*Worker* (Pl. I, C).—Length 2.3–2.6 mm.

Head, exclusive of mandibles, subrectangular, scarcely longer than broad, posterior border nearly straight, posterior angles rounded, and sides feebly convex. Eye rather large, strongly convex, with large facets; the length of its greatest diameter from base of mandible. Antenna 12-segmented; scape curved, stout, short, reaching to less than half distance between eye and posterior border of head; first funicular segment as long as funicular segments 2–5, funicular club prominent, 3-segmented, slightly exceeding length of remainder of funiculus. Clypeus convex, its anterior border rounded, its posterior border broadly rounded and extending backward between frontal carinae. Frontal area not well defined. Mandible small, 5-toothed, all teeth clearly visible. Thorax in profile short, stout, convex, with rather evenly arched dorsum; from above, broader anteriorly than posteriorly, and with distinct humeral angles, without promesonotal and mesoepinotal sutures; epinotal spines scarcely longer than their interbasal space, and diverging, extending backward, outward, and upward. Legs rather short, femora and tibiae incrassate. Petiolar peduncle stout, approximately one-half length of node, antero-ventral surface with a prominent tooth; in profile, petiolar node large, somewhat subcuboidal, its anterior slope forming an obtuse angle with the pedicel, its dorsal surface subconvex, and its posterior slope abrupt, nearly perpendicular; viewed from above, node slightly wider than long, and rounded anteriorly and laterally; postpetiole transversely elliptical, one and a half times as broad as long. Gaster large, and with slight basal angles.

Legs and gaster somewhat shining; remainder of body subopaque. Mandibles striato-punctate; clypeus longitudinally rugose laterally, and with a prominent median carina; head, thorax, petiole, and postpetiole rugose reticulate.

Hairs pale, erect, blunt, but not coarse, fairly abundant and well distributed over body; antennal scapes and tibiae with more delicate, suberect hairs.

Pale ferruginous to light yellowish brown; appendages paler, with apices of femora and of tibiae, and the tarsi, brownish; mandibular teeth and eyes black.

*Cotype locality*.—Paradise (Dade County), Fla. (W. M. Wheeler).

The description of the worker is based on 3 cotype specimens in the collection of the United States National Museum. These specimens were collected by Wheeler from cavities in the branch of a small tree. He states that "the behavior of this ant was so much like that of certain species of *Leptothorax* that I at first assigned it to that genus."

The worker of *floridana* is characterized by its very short and robust antennal scape; rather large, convex, and coarsely faceted eye; rugose reticulate sculpturing; and pale-colored body. The sculpturing of the body and the shape of the petiole



and postpetiole are somewhat suggestive of that of the worker of *Tetramorium guineense* (F.).

The three specimens of *floridana* agree so closely with cotypes of *Macromischa allardycei* Mann. of the Bahama Islands, that I at first considered synonymizing *floridana* with that species. After studying specimens of both species, however, it appears to me that the worker of *floridana* is much more robust; has a proportionally broader head, with less convex posterior border; more robust epinotal spines; and the petiolar node arising more abruptly from the pedicel. The workers of *allardycei* appear to show a greater tendency to polymorphism than do the workers of *floridana*. The cotypes of *allardycei* were collected from the hollow stem of *Cladium jamaicensis* on the border of a swamp near Grants Town and the Blue Hills (Bull. Amer. Mus. Nat. Hist. 42: 414-415, 1920).