rior ocellus a little smaller than lateral ocelli; IOD 2.6–3.7 × OD; OOD 1.6–2.0 × OD. Mandible with preapical notch and/or preapical tooth.

Petiole: In profile, distinctly higher than long, sharply cuneate; in frontal view, sides somewhat convergent toward broadly emarginate crest; from above, about twice wider than long.

Vestiture: Erect hairs yellowish, sparse on head and thorax, longest on scutellum, but these distinctly shorter than MOD; propodeum without conspicuous erect hairs; scape and tibiae without erect hairs, or tibiae with scattered fine reclinate hairs; first two terga without erect hairs except on apical margins; remaining terga with numerous long yellowish hairs. Fore wing without fringe hairs; hind wing with fringe on posterior margin and scattered short hairs on apical margin.

Pubescence sparse and inconspicuous on head and thorax, denser on propodeum above and first two terga.

Integument: Moderately shiny, with piligerous micropunctures, a few scattered coarse punctures on scutum and pleura.

Color: Uniformly light brownish, appendages yellowish to yellowish brown. Wings whitish hyaline, stigma and veins pale yellowish.

Terminalia: Figures 325, 336, 337.

Type Material. Nevada Dominion Mine, Pyramid Mining District, 5 mi W Mullen Gap, Washoe Co., NEVADA, 7 April 1951 (I. La Rivers). Holotype and paratypes in USNM; additional paratypes in collections of AMNH, LACM, MCZ and of Ira La Rivers.

Distribution. Southern Oregon and Idaho, south to Nevada. May occur in western Utah and Sagebrush Desert of California (Mono and Inyo Counties) (Fig. 372).

Specimens Studied. UNITED STATES. Oregon: Lake Co.: Alkali Lake, Hwy. 395, 9 June 1967 (R. R. Snelling, No. 67–123; LACM). *Malheur Co.:* 39 mi W Jordan Valley, 4500′, 20 June 1967 (R. R. Snelling, No. 67–176, 177; LACM). *Idaho: Owyhee Co.:* 3.3 mi S Given's Hot Spgs., 2350′, 20 June 1967 (R. R. Snelling, No. 67–171; LACM); 4 mi S Walters Ferry Bridge, 13 May 1967 (N. Yensen; LACM). *Butte Co.:* 5 mi E Arco, 5400′, 15 June 1967 (R. R. Snelling, No. 67–155, 156; LACM). *Nevada: Humboldt Co.:* Soldier Meadows, 4400′, 1 July 1965 (R. C. Bechtel; NDA); same locality, 15 July 1966 (R. C. Bechtel & P. C. Martinelli; NDA). *Washoe Co.:* Mullen Gap, 5 mi W Pyramid Lake, 18 May 1952 (I. La Rivers, No. 1551; USNM); Nevada Dominion Mine, Mullen Gap, 5 mi W Pyramid Lake, 7 April 1951 and 8 May 1951 (I. La Rivers; USNM). *Nye Co.:* Potts, 6700′, 27 Sept. 1966 (R. C. Bechtel & P. C. Martinelli; NDA). *White Pine Co.:* 2 mi N McGill, 6000′, 15 July 1970 (G. C. & J. Wheeler, No. Nev. 1333; GCW); 19 mi SW Ely, 6000′, 14 July 1970 (G. C. & J. Wheeler, No. Nev. 1304; GCW).

Ecology. This Great Basin species has been collected in areas of Great Basin Sagebrush, Sagebrush Steppe and Saltbush-Greasewood Desert. In the Sagebrush Steppe of Idaho the elevational range is from 2350′ to 5400′. In Nevada, where most records are from Great Basin Sagebrush areas, the elevation range is from about 4000′ to 6700′. All records of this species are from Upper Sonoran or Transition Zone localities.

Although foraging is mostly nocturnal, I have found *pyramicus* workers active outside the nest at midday in Oregon and Idaho. In both instances, though, rain was imminent and the sky was completely overcast. As expected, workers gather nectar from flowers and extrafloral nectaries, as well as from aphids and pseudococcids. They are also general scavengers. Repletes have been recovered from nests in Idaho.

The type series was collected by Ira La Rivers, with the notation "swarming nr. sundown." These specimens were collected on 7 April 1951. The reproductives have been taken in the nests in April, June and September (Table 8). Mating flights evidently occur during spring and late summer rainy periods.

The type series was collected from a ". . . small, open mound nest in a sand clearing of *Artemisia tridentata* . . ." Nests which I have observed were all marked by a low crateriform tumulus of fine to coarse sand grains. Since all these were seen during the summer rainy season, the tumuli were likely worn down. Most of the nests have been located in deep, sandy soil. An exception was that discovered in Owyhee County, Idaho. This nest was in deep alkali pan. This soil was very dense and excavation was not complete, but the nest probably continued down into an underlying layer of sand, as the tumulus consisted wholly of coarse sand particles.

Discussion. This species has been adequately described by Smith (1951) and by Cole (1957). The strongly, angularly projecting propodeum is characteristic of this species and the closely related *ewarti* of California. The lack of erect hairs on the pronotum, disc of the first tergum and the extensor surface of the hind tibia will separate workers of *pyramicus* from those of *ewarti*. For a fuller treatment, see *Discussion* under *ewarti*.

Testaceus Group

Myrmecocystus (Myrmecocystus) testaceus Emery

Figures 308–315, 320, 321, 332, 333

Myrmecocystus melliger semirufa var. *testacea* Emery 1893. Zool. Jahrb. f. Syst. 7:667. ♀.

Myrmecocystus mexicanus subsp. *mojave* Wheeler 1908. Bull. Amer. Mus. Nat. Hist. 24:360–361. ♀; Leonard 1911. Trans. San Diego Soc. Nat. Hist. 1:87–92 *(biology);* Wheeler 1912. Psyche 19:173, 179, Fig. 1. ♀♀♂; Cole 1934. Ann. Entomol. Soc. Amer. 24:403. Mallis 1941. Bull. So. Calif. Acad. Sci. 40:81.

Myrmecocystus mexicanus, undescr. var., Cole 1934. Psyche 41:225.

Myrmecocystus mexicanus subsp. *idahoensis* Cole 1936. Entomol. News 47:118. ♀♀♂.

Myrmecocystus mojave, Creighton 1950. Bull. Mus. Comp. Zool. 104:448–449; Cook 1953. The Ants of Calif.; Palo Alto, p. 350–351; Cole 1966. B. Young Univ. Sci. Bull. 7:22; Wheeler and Wheeler 1968. Ann. Entomol. Soc. Amer. 61:213 *(larva)*.

Myrmecocystus testaceus, Snelling 1969. Contr. Sci., L.A. Co. Mus. 170:6; Snelling 1971. Contr. Sci., L.A. Co. Mus. 214:15; Wheeler and Wheeler 1973. Ants of Deep Canyon, 126–127.

Diagnosis. Worker: Numerous fully erect hairs on dorsal surfaces and appendages; HW not exceeding 1.4 mm; dorsal face of propodeum flat, juncture with oblique posterior face angulate; metanotal suture not depressed. *Female.* Penultimate segment of maxillary palp broadest basad of middle; femur and tibia with erect hairs on extensor surfaces; HW less than 2.0 mm. *Male.* Scape and tibia with erect hairs; hind wing without fringe hairs; some occipital hairs exceeding maximum diameter of lateral ocellus.

WORKER. *Measurements.* HL 0.83–1.40 (1.34); HW 0.63–1.33 (1.19); SL 1.03–1.70 (1.53); WL 1.30–2.17 (2.10); PW 0.47–0.90 (0.83).

Head: Longer than broad to as broad as long, CI 72–100 (92); distinctly shorter than scape, SI 116–143 (122). In frontal view, margins straight, subparallel in smallest workers, slightly convex in largest; occipital margin flat, with broadly rounded lateral angles. Eye large, 1.05–1.40 (1.09) × first flagellomere; OMD 1.00–1.45 (1.42) × EL. Mandible with eight, rarely nine, teeth.

Thorax: Moderately stout, PW 0.35–0.46 (0.46) × WL. Mesonotum, in profile, usually abruptly declivitous behind, rarely forming continuous slope to metanotum; metanotal suture not depressed. Propodeum higher than long, dorsal face flat or slightly convex, separated from posterior face by broadly rounded angle.

Petiole: In profile, narrowly cuneate, crest usually rounded, rarely sharp; in frontal view, crest entire or slightly depressed in middle.

Vestiture: Head, thorax and first three terga with abundant fine, appressed pubescence; fourth tergum with sparser, but still conspicuous pubescence.

Head with numerous erect hairs, malar area in frontal view with more than 10 fully erect hairs; occipital hairs rather uniform, longest equal to about 0.5 × MOD; eye with sparse, very short hairs. Erect thoracic hairs longest on pronotum, densest on mesonotum and dorsum of propodeum, sparsest on metanotum; longest pronotal hairs subequal to longest occipital hairs. Petiolar node with ten or more erect hairs on crest. Terga with numerous erect hairs (not exceeding 0.015 mm) on first three segments, longer on remaining segments and on sterna. Erect hairs numerous on appendages, including extensor surfaces of all femora; least numerous on posterior face of scape.

Integument: Front of head moderately shiny, with abundant fine punctures, frontal lobes more densely and coarsely punctate; frontal triangle polished, with a few extremely fine punctures; clypeus polished and impunctate along midline; on each side, less shiny, lightly shagreened and with scattered coarse punctures. Mandible coarsely striate and shiny. Integument otherwise lightly to moderately shagreened, moderately shiny.

Color: Light yellowish to light brownish or reddish yellow, head sometimes darker than thorax; when light brownish, appendages paler.

FEMALE. *Measurements.* HL 1.62–1.87; HW 1.63–1.96; SL 1.57–1.82; EL 0.53–0.96; OMD 0.53–0.72; WL 3.45–4.20; PW 2.05–2.50.

Head: Slightly longer than broad to slightly broader than long, CI 98–107; a little shorter than to a little longer than scape, SI 90–102. Head broadest at level of lower eye margin, sides in frontal view slightly convergent toward mandibular insertion; occiput distinctly convex in frontal view, sometimes slightly angulate in middle, lateral angles well rounded. Eye large, 1.23–1.45 × first flagellomere; OMD 1.00–1.34 × EL; OOD 2.6–4.0 × OD; IOD 2.2–3.7 × OD. Mandible with eight teeth, often with two or three denticles attached to basal and/or penultimate teeth. Penultimate segment of maxillary palp slender, broadest basad of middle.

Thorax: Robust, PW 0.56–0.69 × WL. In profile, scutum flattened behind, continuous with anterior part of scutellum, occasionally depressed below level of anterior margin of scutellum. Propodeum entirely declivitous, without basal, horizontal face.

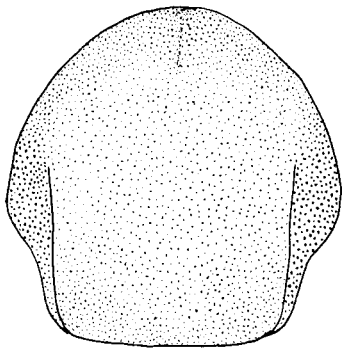
Petiole: In profile, narrowly cuneate, apex sharp; in frontal view, crest deeply, angularly incised.

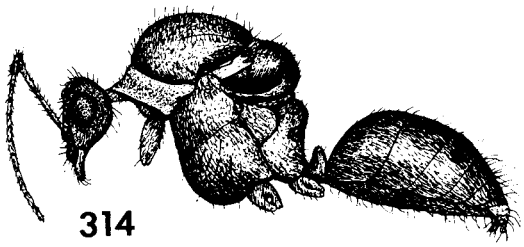
Vestiture: Pubescence about as described for worker, but dense on fourth tergum, longer on head.

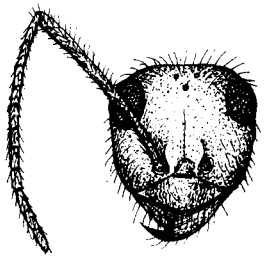
Cephalic hairs about as described for worker, longest occipital hairs distinctly less than 0.5 × MOD. Scutum and scutellum with scattered erect hairs, up to 0.20 mm, arising from coarse punctures; pleura with scattered longer hairs. Propodeum with numerous shorter hairs (less than 0.15 mm) on upper half. Petiolar scale with numerous erect hairs along sides and crest. Discs of terga with sparse subdecumbent to erect hairs, progressively longer on succeeding segments; sterna with hairs sparser, longer. Appendages with numerous erect hairs, including dorsa of all femora; inner face of fore femur with few or no erect hairs, when present they are fine and restricted to apical half or less. Wings without fringe hairs on apical or posterior margins.

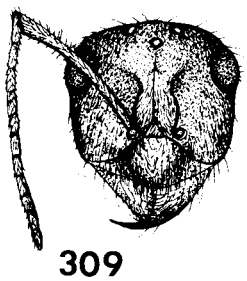
Integument: Front of head shiny between abundant fine punctures; punctures denser on frontal lobes; frontal triangle polished, with numerous micropunctures; clypeus slightly shiny, with impunctate median line, otherwise closely and coarsely punctate with roughened interspaces.

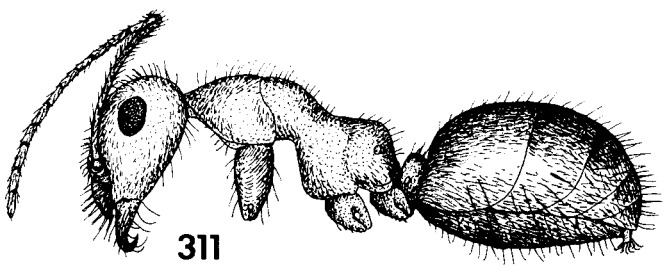
Pronotum closely micropunctate; scutum with abundant fine punctures and scattered coarser punctures,

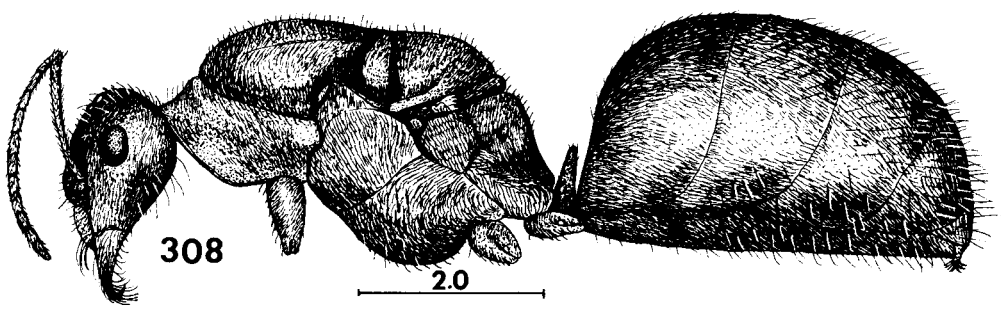












FIGURES 308–315. *M. testaceus*. 308, female, lateral view; 309, head of female, frontal view; 310, mesoscutum of female, distribution of punctures; 311, major worker, lateral view; 312, head of major worker, frontal view; 313, head of minor worker, frontal view; 314, male, lateral view; 315, head of male, frontal view.

parapsis densely punctate, punctures coarser than fine punctures of disc; scutellum with sparse, very fine punctures; pleura closely punctate, punctures about equal to those of parapsis. Propodeum lightly shagreened and with close, fine punctures.

Terga slightly shiny, closely micropunctate.

Color: Medium to dark brown; appendages light brownish yellow. Wings faintly brownish, veins and stigma medium to dark brown.

MALE. *Measurements.* HL 0.80–1.07; HW 0.75–1.07; SL 0.83–1.13; EL 0.32–0.43; OMD 0.15–0.27; WL 1.67–2.43; PW 1.03–1.56.

Head: A little longer than broad to a little broader than long, CI 91–104; slightly to much shorter than scape, SI 104–125; in frontal view, sides straight, slightly convergent toward mandibular insertions; occiput, in frontal view, strongly convex, without distinct lateral angles. Eye large, OMD 0.43–0.69 × EL; OOD 2.2–3.0 × OD; IOD 2.7–4.0 × OD. Mandible with one or more preapical teeth.

Thorax: Stout, PW 0.55–0.68 × WL. Propodeum with distinct horizontal basal face, rarely with sharply sloping basal face which is hardly separable from posterior face.

Petiole: Node, in profile, cuneate, crest angular; in frontal view, crest flat or slightly convex.

Vestiture: Erect hairs sparse on head, those of occiput short (up to 0.10 mm), much less than 0.5 × MOD; hairs of malar area shorter than those of occiput. Longest scutal hairs about equal to those of occiput; scutellar hairs longer, up to 0.16 mm; pleural hairs sparse, about equal to those of scutum. Propodeum with scattered short, erect hairs on basal and lateral faces. Petiolar node with scattered short, erect hairs on sides and crest. Terga with sparse subdecumbent to erect hairs, longer on succeeding segments, those on disc of second segment up to 0.13 mm; sterna with hairs longer. Appendages with abundant erect hairs. Wings without fringe hairs on apical or posterior margins.

Integument: Head moderately shiny, lightly shagreened, with obscure close micropunctures. Scutum slightly shiny, densely shagreened, with scattered fine punctures; scutellum shinier, punctures more obscure. Pleura shinier, with scattered obscure, coarse punctures. Terga moderately shiny, with abundant micropunctures.

Color: Medium to dark brownish (appearing blackish to unaided eye), appendages light brownish. Wings slightly yellowish tinged, veins and stigma light brownish yellow.

Terminalia: Figures 321, 332, 333.

Type Material. M. melliger testacea Emery: Described from an unknown number of cotypes from San Jacinto, Calif. Lectotype, by present designation: cotype worker agreeing with the above general description and parenthetical particulars: San Jacinto, Calif., Nov. 14, collection T. Pergande, in USNM (No. 54070). Lectoparatypes in AMNH and MCSN.

M. mexicanus subsp. *mojave* Wheeler: Described from "two dozen" cotypes from Ontario, Calif. Lectotype, by present designation: cotype worker (HL 1.17; HW 1.03; SL 1.50; WL 1.70; PW 0.77; CI 89; SI 129) agreeing with above general description: Ontario, Calif.: coll. J. C. Bradley, in AMNH. Lectoparatypes in AMNH, LACM, MCZ.

M. mexicanus subsp. *idahoensis:* Described from an undesignated number of specimens from Hollister, Idaho. Holotype worker in LACM; paratypes (all castes) in LACM, USNM.

Distribution. Southern Washington to northern Baja California, Mexico, east to Idaho and Utah (Fig. 373).

Localities. UNITED STATES. Washington: Benton Co.: Rattlesnake Mtn., 2700′, Hanford (AEC) Res., 10 mi NW Richland, 4 May 1972 (USNM). *Oregon: Deschutes Co.:* Redmond, 6 Sept. 1963 (J. R. Willard; LACM). *Lake Co.:* 5 mi S Plush, 4800′, 9 June 1967 (R. R. Snelling, No. 67–122; LACM); Warner Valley, Hart Mtn. Antelope Refuge, 16 Apr. 1954 (O. C. Nelson; OSC, USNM). *Harney Co.:* Indian Cr., 4300′, 5 mi S Alvord Ranch, 11 June 1967 (R. R. Snelling, No. 67–142; LACM). *Idaho: Butte Co.:* 5 mi E Arco, 5400′, 15 June 1967 (R. R. Snelling, No. 67–154; LACM). *Clark Co.:* 1 mi W DuBois, 5050′, 16 June 1967 (R. R. Snelling, No. 67–162; LACM). *Boise Co.:* Boise, 2695′, *Gooding Co.:* Hagerman (A. C. Cole; LACM); Wendell, 2 May 1934 (Fox; LACM). *Twin Falls Co.:* Hollister, 17 July 1932 (A. C. Cole; LACM, USNM; Holotype and paratypes, *M. mexicanus idahoensis*); Twin Falls, 12 June 1931 (A. C. Cole, No. 399; LACM); same locality, 6 Oct. 1932 (A. C. Cole, No. 1016; LACM); same locality, 30 mi S, 3 July 1931 (A. C. Cole, No. 399; LACM, USNM); Rogerson (A. C. Cole; LACM). *Utah: Duchesne Co.:* Hwy. 40, 3 mi E Duchesne, 18 June 1965 (G. & J. Wheeler, No. Utah–5; GCW). *Millard Co.:* Swasey Spring, 16 May 1938 (A. W. Grundmann; LACM). *Nevada: Humboldt Co.:* Winnemucca, 4334′, 27 May 1960 (T. R. Haig; CDA). *Elko Co.:* Hwy. 40, 24 mi E Wells, 18 June 1965 (G. & J. Wheeler; GCW). *Washoe Co.:* Lemmon Valley, 4900–5400′, 16 May to 25 Oct., various years (G. C. & J. Wheeler; GCW); 7 mi N Reno, 22 Oct. 1967 (G. C. & J. Wheeler, Nos. Nev. 245, 251; GCW); Peavine Peak, 6900′, 13 June 1968 (G. & J. Wheeler, No. Nev. 357). *Lyon Co.:* Frog Quarry, 8 mi NE Virginia City, 30 May 1951 (I. La Rivers, No. 1277; USNM); Dayton, 4300′, 20 Oct. 1965 (R. C. Bechtel; NDA). *Douglas Co.:* 25 mi S Carson City, 13 Aug. 1956 (A. C. Cole, No. Nev. 687; LACM); 16 mi SE Minden, 5700′, 7 Sept. 1967 (G. C. & J. Wheeler, No. Nev. 203, 207; GCW); 8 mi SE Minden, 5200′, 15 July and 22 Aug. 1967 (G. C. & J. Wheeler, Nos. Nev. 113, 186; GCW); 12 mi ESE Minden, 6400′, 23 Aug. 1968 (G. C. & J. Wheeler, No. Nev. 468; GCW). *Mineral Co.:* Aurora, 1400′, 15 June 1967 (R. C. Bechtel & P. C. Martinelli; NDA). *Nye Co.:* [Nevada Test Site, Mercury, Cole, 1966]; 2 mi SW Moore's Sta., 7000′, 18 June 1970 (G. C. & J. Wheeler, No. Nev. 1128; GCW). *Esmeralda Co.:* Pigeon Spg., 6500′, 28 May 1970 (G. C. & J. Wheeler, No. Nev. 1020; GCW). *Clark Co.:* Lee Cyn., near Las Vegas, 18 July 1954 (A. C. Cole, No. Nev. 401; LACM); Kyle Cyn., near Las Vegas, 19–23 July 1954 (A. C. Cole, Nos. Nev. 546, 619; LACM, MCZ). *California: Siskiyou Co.:* 15.2 mi NNE Montague, 2500′, 10 June 1969 (R. R. Snelling, No. 69–162; LACM); Weed, 3467′, 9 June 1969 (R. R. Snelling, No. 69–149; LACM); Mt. Shasta (city), 3561′, 10 Aug. 1957 (A. C. Cole, No. Cal. 323; LACM). *Lassen Co.:* 4.6 mi S Doyle, 4300′, 15 June 1969 (R. R. Snelling, No. 69–204; LACM). *Contra Costa Co.:* Antioch, 8 July 1965 (W. Turner;

UCB). *San Joaquin Co.:* Lathrop, 11 Apr. 1968 (J. Hegden; CDA). *Merced Co.:* 3.5 mi S Delhi, 50′, 29 Apr. 1960 (R. R. Snelling; LACM). *Fresno Co.:* Fresno, 295′, 6 Apr. 1960 (R. P. Allen; LACM); Parkfield Grade, 3500′, 30 Oct. 1969 (R. R. Snelling, No. 69–321; LACM). *Mono Co.:* Huntoon Forest Camp, 6800′, Toiyabe Natl. For., 18 June 1952 (W. S. Creighton; LACM). *Inyo Co.:* 16 mi E Big Pine, 1 Nov. 1968 (G. C. & J. Wheeler, No. Calif. 216; GCW). *Los Angeles Co.:* 2 mi S Pearblossom, 3500′, 17 Dec. 1963 (C. Henne & N. McFarland; LACM); 4 mi SE Pearblossom, 4300′, 20 Mar. 1966 (R. R. Snelling; LACM); Charlton Flat, 18 June 1944 (USNM); Tanbark Flat, 2700′, 13 July 1962 (T. C. Lawrence; UCB); same locality, 6, 7 July 1963 (R. R. Snelling; LACM); Millard Cyn., 3 Feb. 1963 (R. R. Snelling; LACM); Eaton Cyn., 6, 7 Feb., 18 May 1963 (R. H. Crandall, R. R. Snelling; LACM); nr. Sunland, 7 May 1938 (J. Schwartz; USNM); Altadena, 1 July 1945, 8 Aug. 1946 (C. A. Hamsher; USNM); same locality, 2 Feb. 1963 (R. R. Snelling; LACM); Irwindale, 17 Feb. 1963 (R. H. Crandall & R. R. Snelling; LACM); same locality, 19 Feb. 1967 (R. R. Snelling; LACM); Claremont, no date (C. Metz; AMNH); same locality, no date (Chamberlin; AMNH); same locality, 8 Dec. 1910 (W. M. Wheeler; GCW, MCZ). *San Bernardino Co.:* Ontario, no date (J. C. Bradley; MCZ, AMNH, cotypes of *M. mexicanus mojave*); same locality, no date (L. S. Jones & L. D. Christensen; USNM); Cajon Cyn., 4000′, 7 mi NW Cajon, 21 Apr. 1969 (R. R. Snelling, Nos. 67–116, 117; LACM); Piñon Wells, Joshua Tree Natl. Mon., 28 Mar. 1965 (S. L. Jenkins; LBSC). *Riverside Co.:* San Jacinto, 14 Nov. (Colln. T. Pergande; USNM, AMNH, MCSN; cotypes of *M. melliger testacea*); Perris, Aug. 1915 (CU); Railroad Cyn., 4 mi E Elsinore, 14 Apr. 1965 (J. Powell; UCB); Herkey Creek, 4400′, 11 May 1952 (W. S. Creighton; LACM). *San Diego Co.:* Point Loma, no date (P. Leonard; AMNH, MCZ); Boulder Oaks, 3100′, 11 June 1952 (W. S. Creighton; LACM); Descanso, no date (Colln. T. Pergande; USNM); 5 mi N Descanso, 3000′, 18 Feb. 1962 (J. H. Hunt, No. 512; LACM); Campo, 2500′, 10, 19 June 1952 (W. S. Creighton; LACM). *MEXICO. Baja California:* 11 mi E Tecate, 3 May 1964 (R. R. Snelling; LACM); Descanso Bay, 1 Apr. 1931 (A. H. Sturtevant; USNM).

Ecology. Leonard (1911) observed this species (reported as *mexicanus mojave*) at Pt. Loma, California. According to his report the species is nocturnal, tends aphids and obtains nectar directly from several plants. Aestivation for a period of several days during exceptionally hot weather was reported. Leonard also obtained repletes from nests at Pt. Loma. Wheeler (1912) noted that nests were found near Claremont, Calif., in hard, dry soil, along roads and paths, that entrances ¼″×¾″ in diameter were surmounted by craters from 4″–8″ in diameter.

In Washington, Oregon, Idaho and Nevada this species is found in Sagebrush Steppe; in Nevada it also enters Piñon-Juniper Woodland. Habitats in California range from Coastal Sagebrush to Sagebrush Steppe, with the preponderance of the records from chaparral areas. In elevation *testaceus* ranges from 1400′ to 6900′; in southern California the range is from sea level to 4300′. The bulk of the southern California records are from stations below 4000′.

Rather than nocturnal, as reported by Leonard, this ant is probably better characterized as crepuscular. Workers begin to assemble at the nest entrance about 15–20 minutes prior to sunset and may completely block the entrance with their heads. Foraging begins within a few minutes of sundown and immediately before the onset of active foraging the interior of the crateriform tumulus may become completely blanketed with ants. At the proper moment, the mass of ants departs from the crater, as nearly simultaneously as possible, each ant proceeding individually. Within a few minutes after the exodus begins, the area around the nest, for up to a meter, is virtually covered with ants. Dispersal into surrounding areas and vegetation, however, is rapid and at a distance of four meters the ants are widely scattered.

For about an hour after this initial exodus of foragers, individual ants continue to leave the nest at irregular intervals. The total number of ants departing during this hour is much less than that of the initial group. Within about 15 min. of the onset of foraging activities, workers begin to return and thus continue for about two, rarely as many as four, hours. Apparently all individuals who will be foraging depart within the first hour following onset of activities, and all return within four hours.

During the period of foraging activity, non-foraging workers may be engaged in excavation. Soil particles are carried to the surface. Since this species often nests in areas of clayey soil nearly devoid of small pebbles, it follows that the crateriform tumuli do not always consist of such material. In the chaparral of southern California the tumuli are built up of soil particles which are aggregated into small pellets. Such pellets are carried to the top of the crater and dropped over the side. These pellets disintegrate fairly rapidly through weathering and must constantly be replaced. In areas in which the soil includes coarse sand and small pebbles, the tumuli are constructed of these materials and are less subject to wind and rain damage.

The sexual forms are present in the nests in southern California in early spring and mid autumn, and fly following rains during these seasons. The flights take place in late afternoon. Shortly before the flight, workers emerge from the nest in large numbers and run out over an area up to one meter from the nest. Up to fifteen minutes before the flight, males emerge sporadically; some run about on the surface near the nest, a few take flight and alight on vegetation up to ten meters from the nest. The exit of the females is preceded by another outpouring of workers and more males. Females emerge and take flight, usually from the rim of the crater. Mating takes place in the air or on vegetation near the nest.

In more northern areas the males and females are present during late spring and early summer, less commonly during the fall months (Table 9). According to Cole (1934b) alates are present throughout June and July near Twin Falls, Idaho.

TABLE 9

Activity of Reproductives of:

Locality	Date	Activity
M. testaceus Emery		
IDA., Hammett	10 Apr. 1932	♂♂, ♀♀ in nest
IDA., Wendell	2 May 1934	♀♀ in nest
IDA., Twin Falls	4 Oct. 1932	♂♂, ♀♀ in nest
ORE., Hart Mt. Antelope Ref.	16 Apr. 1954	♀♀ in nest
ORE., Indian Creek	11 June 1967	♀♀ larvae in nest
ORE., Redmond	6 Sept. 1963	♂♂, ♀♀ in nest
NEV., Lemmon Valley	15 May 1968	♂♂ in nest
NEV., Hot Creek Valley	18 June 1970	♂♂ in nest.
NEV., 25 mi S Carson City	13 Aug. 1956	♀♀ in nest
NEV., Dayton	20 Oct. 1965	♂♂, ♀♀ in nest
NEV., Lemmon Valley	25 Oct. 1967	♂♂, ♀♀ in nest
CALIF., Millard Cyn.	3 Feb. 1963	♂♂ in nest
CALIF., Eaton Cyn.	7 Feb. 1963	♂♂, ♀♀ in nest
CALIF., Irwindale	17 Feb. 1963	♂♂ in nest
CALIF., 5 mi N Descanso	18 Feb. 1972	♀ on ground
CALIF., Cajon Cyn.	21 Apr. 1969	♀♀ in nest
CALIF., Parkfield Grade	30 Oct. 1969	♂♂, ♀♀ in nest

Discussion. This species has had an unfortunate taxonomic history. Emery described *testaceus* as a variety of *melliger,* rather than of *mexicanus,* to which it is closely related and which it greatly resembles. A few lines before this description he had enumerated the characteristic differences in mandibular dentition, eye size and color which separate the two species, so it may not be argued that he was ignorant of these differences. Emery's original error is, however, no excuse for what followed.

When he treated *Myrmecocystus* in 1908, Wheeler had a cotype of *testaceus,* now in the AMNH; the specimen is well preserved and clearly exhibits the essential characteristics of *testaceus.* He assigned to this name a few specimens from Claremont. The Claremont specimens are uniformly reddish, not at all yellowish as in the type, the eyes are small and the mandibles possess seven teeth. His reasons for assuming these Claremont specimens to be conspecific with the cotype of *testaceus* were never stated. Even more remarkably, he regarded *testaceus* as a variety of *semirufus,* also described by Emery from San Jacinto, on the basis of supposed intermediate specimens taken at Phoenix, Arizona and Needles, California. That specimens taken several hundred miles from the only known, at that time, area of sympatry could be intermediates is difficult to accept.

The difficulties were compounded, for in the same paper Wheeler described *mojave* as a subspecies of *mexicanus.* The type locality of *mojave* is Ontario, California. While correctly recognizing that this ant was related to *mexicanus,* Wheeler did not recognize that it was, in fact, conspecific with the *testaceus* cotype.

Material identified by Wheeler during subsequent years in various collections indicate that he apparently never realized the error. Cole (1936) described *idahoensis* as a variety of *mexicanus* from Idaho. This name was recognized by Creighton (1950) to be the same as *mojave* and was correctly synonymized. Creighton seems not to have studied the *testaceus* cotype; on the basis of the supposed intermediates between *semirufus* and *testaceus,* he placed *testaceus* in synonymy.

I have seen the cotype of *testaceus;* it is certainly conspecific with Wheeler's *mojave,* and not at all related to *semirufus.* At the same time, the uniformly reddish ant established by Wheeler as *testaceus* was found not to be conspecific with true *testaceus.* This species I described (1971) as *wheeleri.*

This ant most closely resembles *mexicanus* but is smaller (HW>1.5 mm in largest specimens) and more robust. In *testaceus* the pronotal width is 0.35–0.46 times Weber's Length, which barely overlaps the range of *mexicanus* (PW 0.30–0.37 × WL). The metanotum is distinctly impressed in *mexicanus* (Fig. 277), not at all in *testaceus* (Fig. 311). The juncture of the basal and posterior faces of the propodeum is sharply rounded or subangulate in *testaceus* and the propodeum is higher than long.