scutellum with much sparser, but longer, hairs; pleural hairs sparse, some longer than EL; propodeum with sparse hairs on sides and basal half, shorter than those of pleura. Petiole with short erect hairs on sides and crest. Gaster with sparse long, slender hairs. Front of scape with decumbent to erect hairs; remaining surfaces with decumbent to erect pubescence and scattered hairs. Femora with suberect to erect hairs on all surfaces; tibiae with numerous suberect to erect hairs externally, with scattered suberect to erect hairs and abundant decumbent to suberect pubescence on remaining surfaces. Wings without fringe hairs.

Integument: Head moderately shiny, lightly shagreened, with very sparse micropunctures and scattered coarse punctures. Malar area duller, more coarsely and closely shagreened and with a few very coarse, elongate, setigerous punctures. Occiput duller, with numerous, but still sparse, micropunctures. Mesoscutum moderately shiny, sharply shagreened and with scattered coarse punctures. Scutellum shinier, less sharply shagreened, with scattered coarse punctures. Mesopleura slightly shiny, densely and sharply shagreened, with sparse coarse punctures. Propodeum slightly shiny, uniformly shagreened, sparsely, coarsely punctate. Summit of first tergum moderately shiny, sparsely micropunctate; second and third terga duller, more distinctly shagreened and closely micropunctate.

Color: Blackish, antennae and legs medium brown. Wings clear, veins and stigma light brownish, subcostal vein darker.

Terminalia: Figures 172, 185, 193.

Type Material. Holotype worker, allotype male; one female, 94 worker and five male paratypes: Big Rock Wash, 2770′, near Palmdale Blvd., Los Angeles Co., CALIF., 31 Mar. 1972 (J. P. & K. E. Donahue) in LACM. Three worker paratypes in each of the following: AMNH, MCZ, USNM and private collections of GCW, REG.

Etymology. The specific name is compounded from the first four letters of the names of the collectors of the type series, Katherine and Julian Donahue, to whom this species is dedicated.

Distribution. Known at present only from the western Mojave Desert of California (Fig. 365).

Localities. UNITED STATES. California: Kern Co.: Red Rock Cyn., 1 May 1971 (R. J. Hampton; LACM, RJH); Short Cyn., 3500′, 3 Nov. 1967 (R. R. Snelling, No. 67–272; LACM); *Los Angeles Co.:* Lancaster, 2355′, 17 Aug. 1954 (R. R. Snelling; LACM).

Ecology. The few records of this ant are all from Creosote bush desert where Joshua trees *(Yucca brevifolia)* are present. Known elevational amplitude is a little over 1000 feet, extending from 2355–3500′. Nests are constructed in desert washes in deep sand and are surmounted by a low broad crateriform tumulus up to 17 cm in diameter. Foraging is diurnal, and the workers have been collected at floral nectaries. The sexual forms were present in the type series nest on 31 Mar. 1972 and a dealate female was taken on the ground at Red Rock Canyon on 1 May 1971.

Discussion. This species is most similar to such species as *nequazcatl, wheeleri* and *kennedyi.* The characteristics of the female are very similar to those of *wheeleri,* the only other species with a ferruginous gaster in this caste. The female of *wheeleri* is more extensively ferruginous on the thorax than that of *kathjuli,* but this is probably subject to too much variation to be useful. At present only the much longer cephalic and thoracic pilosity of *kathjuli* will separate the females of these species.

The shorter pronotal hairs will distinguish the worker of *kathjuli* from those of *nequazcatl* and *wheeleri;* the bicolored gaster will separate it from these and *kennedyi.* From *kennedyi,* which also has short pronotal hairs, further distinction lies in the consistently broader head of *kennedyi,* CI in excess of 90 in 88% of the specimens studied. No other species in this complex has eight-toothed mandibles.

Pale workers of *flaviceps* resemble this species but are recognized by the more abundant cephalic and thoracic pubescence, hence duller appearance, and broader head, in which CI exceeds 90 in more than 80% of the specimens studied. Also, the range of *flaviceps* in the Mojave Desert lies to the east of that of *kathjuli.*

Myrmecocystus (Endiodioctes) kennedyi Cole

Figures 100–108, 161, 173, 184, 192

Myrmecocystus melliger subsp. *semirufus,* Wheeler 1908. Bull. Amer. Mus. Nat. Hist. 24:355 *(part);* Wheeler 1912. Psyche 19:174 *(part);* Cole 1932. Ohio Jour. Sci. 31:536; Cole 1934. Ann. Entomol. Soc. Amer. 27:392, 402; Cole 1934. Entomol. News 45:100; Cole 1937. *Ibid.,* 48:138; Cole 1938. Amer. Midl. Nat. 20:371; Mallis 1941. So. Calif. Acad. Sci. 40: 20; Cole 1942. Amer. Midl. Nat. 28:386. *(all misidentifications)*

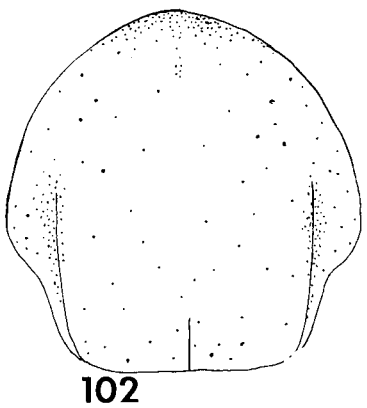
Myrmecocystus melliger subsp. *semirufus* var. *kennedyi* Cole 1936. Entomol. News 47:119. ♀♀♂.

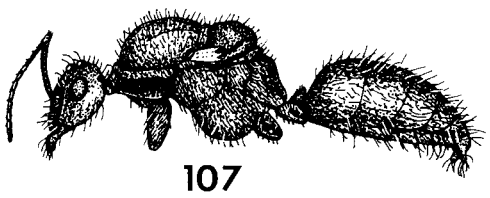
Myrmecocystus semirufa. Creighton 1950. Bull. Mus. Comp. Zool. 104:442, 449 *(in part, misidentification).*

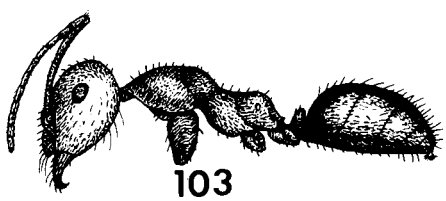
Myrmecocystus semirufus, Cook 1953. The Ants of California, Palo Alto, p. 345 *(in part, misidentification);* Gregg 1963. The Ants of Colorado, Boulder, pp. 643, 653–655 *(in part, misidentification);* La Rivers 1968. Occ. Papers, Biol. Soc. Nev. 17:9 *(misidentification);* Wheeler and Wheeler 1968. Ann. Entomol. Soc. Amer. 61:213 *(larva, misidentification).*

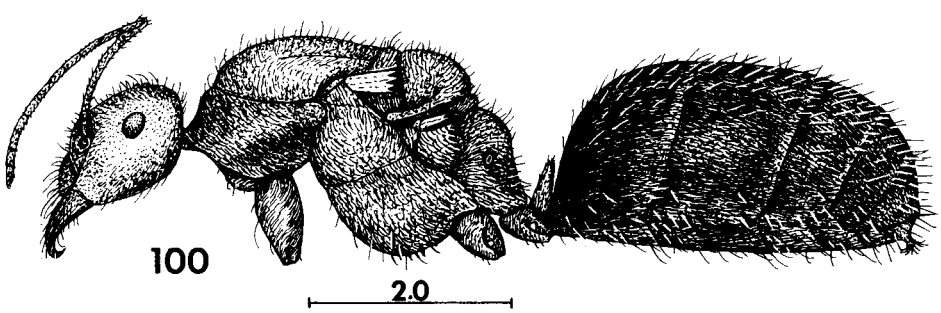
Myrmecocystus kennedyi, Snelling 1969. Contr. Sci., L.A. Co. Mus. 170:6; Wheeler and Wheeler 1973. Ants of Deep Canyon, 122, Fig. 45.

Diagnosis. Worker: Malar area with fewer than three erect hairs in frontal view; head polished, sparsely pubescent; promesonotal hairs short, even in length;









FIGURES 100–108. *M. kennedyi*. 100, female, lateral view; 101, head of female, frontal view; 102, mesoscutum of female, distribution of punctures; 103, major worker, lateral view; 104, head of major worker, frontal view; 105, head of minor worker, frontal view; 106, major worker, vestiture of third tergum; 107, male, lateral view; 108, head of male, frontal view.

third tergum thinly pubescent; CI in excess of 90 in more than 85% of population. *Female:* Mesoscutum with large impunctate median area; parapsis with punctures of two sizes; penultimate segment of maxillary palp slender, parallel sided; malar area with few or no erect hairs; occiput with abundant fine punctures. *Male:* Lower lobe of aedeagus convex in profile; mesoscutum with shiny areas along midline; parapsis mostly polished and shiny; anterior mesoscutal hairs long.

WORKER. *Measurements.* HL 0.87–1.27 (1.17); HW 0.77–1.23 (1.07); SL 1.03–1.47 (1.37); WL 0.9–2.0 (1.6); PW 0.5–0.9 (0.7).

Head: Longer than broad to a little broader than long, CI 80–103 (91) (exceeding 90 in 88% of specimens measured), shorter than scape, SI 109–130 (117); sides, in frontal view straight or gently convex, slightly convergent toward mandibular insertions. Occiput, in frontal view, flat or slightly convex, without perceptible lateral angles. Eye small, 0.9–1.1 × first flagellomere; OMD 1.42–2.25 (1.88) × EL. Mandible with seven teeth.

Thorax: Slender to moderately robust, rarely robust, PW 0.37–0.67 (0.43) × WL; mesonotum, in profile, evenly sloping to metanotum. Propodeum about as high as long, basal face broadly rounded into posterior face.

Petiole: Thick in profile, summit rounded; in frontal view, crest narrow, convex, without median incision.

Vestiture: Pubescence fully appressed, very short, fine and sparse on head, a little more abundant on occiput. Denser on thorax, especially on sides, and propodeum. Dense and fully appressed on first two terga, extremely scattered on third and following segments.

Malar area usually with three or four short, fine, erect hairs near base of mandible, rarely two to four elsewhere; occipital hairs sparse, short, longest hairs equal to about 0.5 × MOD. Erect hairs sparse on thoracic dorsum, longest pronotal hairs not more than 0.5 × MOD. Propodeum with conspicuous erect hairs on basal and lateral faces, all hairs shorter than longest pronotal hairs. Crest and sides of petiole with sparse, short, erect hairs. Erect discal hairs of first two terga numerous, short, about as long as minimum thickness of hind tibia; longer, sparser, on following segments and ventrally. Scape with numerous fine, erect hairs on all except posterior surface, with interspersed subdecumbent to suberect finer pubescence. Femora and tibiae with numerous fine erect hairs on all except inner surface of fore femur.

Integument: Head moderately shiny, very lightly shagreened and with scattered fine, obscure punctures; frontal lobes more coarsely, closely and sharply punctate; clypeus polished, with scattered coarser punctures. Mandibles finely striate and with sparse, fine punctures. Thorax slightly shiny, closely micropunctate and shagreened. First two terga slightly shiny and closely micropunctate; third tergum shiny, almost polished, with scattered micropunctures and finely shagreened.

Color: Head, thorax and appendages clear light ferruginous. Gaster blackish to brownish, rarely with yellowish median blotches on first two terga (see *Discussion*).

FEMALE. *Measurements.* HL 1.57–1.70; HW 1.64–1.87; SL 1.50–1.70; WL 3.4–3.9; PW 2.1–2.4.

Head: Sides straight, slightly convergent toward mandibular insertions; head broader than long, CI 105–109, slightly longer than, to as long as, scape, SI 95–100. Occiput, in frontal view, evenly and rather strongly convex from side to side, with no trace of lateral angles. Eye small, about 1.1 × first flagellomere; OMD 1.46–1.63 × EL. OOD 4.0–5.3 × OD; IOD 3.0–4.0 × OD. Penultimate segment of maxillary palp slender, parallel-sided. Mandible with seven teeth.

Thorax: Moderately to very robust, PW 0.57–0.71 × WL. Scutum and scutellum strongly flattened. Propodeum with strongly sloping basal face.

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

Vestiture: Pubescence diffuse on front of head and occiput, longer and denser on malar area, especially near base of mandible. Pubescence of thoracic dorsum sparse; longer and denser on sides and propodeum. Dense on gaster, producing noticeable sheen on first three terga, sparser on fourth segment.

Malar area with 1–6 erect hairs visible in frontal view; longest occipital hairs exceeding 0.5 × MOD. Longest mesoscutal hairs subequal to those of occiput; longest scutellar hairs exceeding MOD; longest pleural hairs shorter than those of scutellum. Propodeum with erect hairs about equal to those of mesoscutum present on basal and lateral faces. Petiole with sparse short, erect hairs on crest and sides. Terga with numerous short, fine, erect hairs discally, longer on succeeding segments and on sterna. Appendages with numerous fully decumbent to erect, short, fine hairs, except on posterior surface of scape and inner surface of fore femur, where subdecumbent to suberect pubescence is present. Wings without marginal fringes.

Integument: Clypeus shiny, with scattered coarse punctures; frontal lobes coarsely punctate, punctures separated by about a puncture diameter, interspaces smooth and shiny; except for sparsely punctate area before ocellar triangle, front of head coarsely and closely punctate, punctures separated by 2–3 puncture diameters; malar area with punctures coarse, close, mostly separated by a puncture diameter or less, tending to be linearly arranged, some elongate. Mesoscutum shiny, with scattered fine punctures, center of disc impunctate; parapsis finely punctate, punctures uniform in size, separated by up to twice a puncture diameter. Scutellum finely and sparsely punctate, especially along midline, shiny. Anepisternum moderately shiny, finely and sparsely punctate, interspaces finely shagreened; katepisternum duller, finely and closely punctate. Propodeum dull, finely and closely punctate,

interspaces roughened. Summit of first tergum with dense micropunctures; discs of second and third terga similar.

Color: Head and appendages light ferruginous, gaster blackish; thorax usually mostly light ferruginous, but scutum and pleura may be brownish. Wings light brownish yellow, veins and stigma ferruginous.

MALE. *Measurements.* HL 0.78–0.86; HW 0.73–0.85; SL 0.86–1.03; WL 1.8–2.1; PW 1.0–1.3.

Head: A little longer than broad to as broad as long, CI 94–100, shorter than scape, SI 108–120; in frontal view, sides straight, convergent toward mandibular bases; occiput, in frontal view, evenly arched, with barely perceptible lateral angle. OMD 0.82–1.00 × EL; OOD 2.8–4.0 × OD; IOD 2.5–3.5 × OD. Mandible without preapical notch or basal denticles.

Thorax: Robust, PW 0.56–0.68 × WL. Propodeum evenly sloping in profile, without basal face.

Petiole: Cuneate in profile, summit sharp; in frontal view; crest notched in middle or straight.

Vestiture: Pubescence everywhere sparse, except on pleura.

Pilosity short on front and vertex, a single hair in front of each lateral ocellus longer, exceeding 0.5 × MOD; hairs longer on side of head. Mesoscutal hairs numerous, stiff, longest less than MOD; some scutellar hairs a little longer; pleural hairs abundant, stiff, equal to those of scutum; propodeum with a few longer hairs on each side. Petiole with short erect hairs on sides and crest. Gaster with sparse long hairs. Scape, femora and tibiae with abundant, short, subdecumbent to erect hairs on all surfaces. Wings without fringe hairs on apical or posterior margins.

Integument: Malar area with close fine punctures, head otherwise polished, with scattered micropunctures; discs of scutum and scutellum polished and shiny, with scattered fine piligerous punctures. Pleura slightly shiny, integument roughened between fine punctures which are 2–4 puncture diameters apart. Propodeum moderately shiny and closely micropunctate on side, middle shinier, smooth and nearly impunctate. First three terga subpolished and shiny, with scattered micropunctures only.

Color: Blackish brown, mandibles, antennae and legs light brownish to yellowish. Wings faintly brownish, veins and stigma light yellowish.

Terminalia: Figures 173, 184, 192.

Type Material. Described from all castes from Indian Cove, nr. Hammett, Elmore Co., IDAHO (A.C. Cole). Holotype and paratypes of all castes in LACM. Additional paratypes in AMNH, MCZ, USNM.

Distribution. Southern Idaho and Oregon south to northern Baja California and Sonora; western Utah and Arizona (Fig. 365).

Localities. UNITED STATES. Idaho: Elmore Co.: Indian Cove, nr. Hammett, 12 Apr. 1932 (A.C. Cole, type series of *M. melliger semirufa* var. *kennedyi;* AMNH, LACM, MCZ, USNM); 1.6 mi W Hammett, 2625′, 19 June 1967 (R.R. Snelling, No. 67–169; LACM). *Gooding Co.:* Tuttle, 16 Aug., 27 Aug., 19 Sept. 1930 (USNM). *Oregon: Harney Co.:* Harney Lake Basin, 4200′, 44.2 mi SW Burns, 10 June 1967 (R.R. Snelling, No. 67–133; LACM). *Malheur Co.:* 39 mi W Jordan Valley, 4500′, 20 June 1967 (R.R. Snelling, No. 67–178; LACM). *Lake Co.:* Alkali Lake, 4500′, 9 June 1967 (R.R. Snelling, No. 67–124, 125; LACM). *Nevada: Humboldt Co.:* Massacre L., 14 June 1962 (R.R. Snelling; LACM); Soldier Mdws., 4400′, 2 July 1965 (R.C. Bechtel; NDA). *Pershing Co.:* 10 mi S Lovelock, 13 May 1951 (I. LaRivers, No. 1210; USNM). *Washoe Co.:* Mullen Gap, 1550′, 5 mi W Pyramid L., 18 May 1952 (I. LaRivers; USNM); Nevada Dominion Mine, 5 mi W Pyramid L., 8 May 1951 (I. LaRivers; USNM); Pinnacles, n. end Pyramid L., 28 Mar. 1952 (I. LaRivers; USNM); Pyramid L., no date ("E.J.N."; USNM); Lemmon Valley, 25 May 1968 (G.C. & J. Wheeler, No. Nev. 325; GCW); 2.8 mi W Wadsworth, 30 June 1963 (G.I. Stage; LACM); 6 mi N Nixon, 26 June 1965 (G.I. Stage; LACM). *Churchill Co.:* nr. Fallon, 25 Mar. 1956 (I. LaRivers; USNM); 3 mi E Fallon, 4000′, 29 Apr. 1965 (R.C. Bechtel; NDA). *Lyon Co.:* 2.5 mi N Smith, 7 Sept. 1965 (G.I. Stage; LACM). *Mineral Co.:* n. end Walker L., 11 Mar. 1964 (R.C. Bechtel; NDA). *Nye Co.:* 7 mi S Currant, 5000′, 2 Aug. 1969 (O. Shields & T. Emmel, No. 242b; LACM); Potts, 6700′, 27 Sept. 1966 (R.C. Bechtel & P.C. Martinelli; NDA). *Clark Co.:* Riverside, 1600′, 2 Apr. 1970 (G.C. & J. Wheeler, No. Nev. 698; GCW); Nelson, 3200′, 11 Apr. 1964 (R.C. Bechtel; NDA). *Utah: Washington Co.:* 5 mi S St. George, 2900′, 4 Aug. 1969 (R.R. Snelling, No. 69–236; LACM). *California: Lassen Co.:* 18 mi S Ravendale, 14 June 1962 (R.R. Snelling; LACM); 5.3 mi NE Litchfield, 4200′, 14 June 1969 (R.R. Snelling, No. 69–200; LACM). *Mono Co.:* 15 mi N Bishop, 4500′, 2 May 1971 (R.J. Hampton, *et al.;* LACM, RJH). *Inyo Co.:* Sand Spg., 3100′, Death Valley, 7 Mar. 1968 (G.C. & J. Wheeler, No. Calif. 328; GCW). *Kern Co.:* 6.5 mi S, 5 mi W Inyokern, 2 May 1970 (L. Lester; LACM). *Santa Barbara Co.:* Ventucopa, 2 Mar. 1960 (R.P. Allen; CDA, LACM). *Los Angeles Co.:* Llano, 9 Mar. 1957 (R.R. Snelling & M.D. Stage; LACM). *San Bernardino Co.:* Twentynine Palms, 2000′, 6 Nov. 1967 (R.R. Snelling; Nos. 67–288, 289; LACM); 10.7 mi N Earp, 375′, 2 Apr. 1967 (R.R. Snelling; LACM); Needles, no date (W.M. Wheeler; USNM); Dry Morongo Cyn., Morongo V., 7 Apr. 1963 (R.R. Snelling; LACM). *Riverside Co.:* Whitewater, 26 Oct. 1952 (R.F. Smith & E.G. Linsley; CIS); 5 mi NW Indio, 28 Oct. 1952 (R.F. Smith & E.G. Linsley; CIS); 5 mi W Indio, 16 Mar. 1963 (R.R. Snelling & R.H. Crandall; LACM); 5 mi E Thousand Palms, 100′, 16 Feb. 1963 (W.S. Creighton; LACM); Palm Springs, 23–25 Mar. 1919 (J.C. Bradley; CU, USNM); 3 mi E Mecca, 13 Apr. 1963 (R.R. Snelling; LACM); Palm Desert, 6 Dec. 1967 (G.C. & J. Wheeler, No. Calif. 276; GCW); 18 mi W Blythe, 21 June 1963 (F.D. Parker & L.A. Stange; UCD); Blythe, 4 July 1964 (Killgore; CDA); Indian Wells, 21 Sept. 1934 (H.H. Kiefer; CDA). *Imperial Co.:* Sandhills Hwy. Maint. Sta., 150′, 24 Oct. 1952 (W.S. Creighton; LACM); Glamis, 26 Nov. 1967 (M. Wasbauer; CDA); nr. Gray's Well, 22 June 1963 (R.L. Westcott; LACM). *Arizona: Maricopa Co.:* Phoenix, May 1905 (W.M. Wheeler; AMNH, MCZ). *Mohave Co.:* Yucca, May 1905 (W.M. Wheeler; USNM). *Yuma Co.:* Vintner, 150′, 26 Oct. 1952 (W.S. Creighton; LACM); Yuma, 26 Nov. 1910 (W.M. Wheeler; USNM). *MEXICO. Baja Calif.:* Arroyo Calamajué, 1400′, 11 Oct. 1975 (R.R. Snelling, No. 75–65; LACM). *Sonora:* Punta Peñasco, 11 Nov. 1966 (R.J. Hamton; LACM, RJH); 7 mi N Punta Peñasco, 200′, 1 Nov. 1952 (W.S. Creighton; LACM); Tepoca Bay, 25 Apr. 1921 (E.P. Van Duzee; CAS).

Ecology. Known habitats for *kennedyi* range from Sagebrush Steppe and Great Basin Sagebrush in the north to Creosote bush-Bur sage and Palo verde-Cactus shrub desert in the south. Cole (1934a) noted that this ant (as *melliger semirufus*) is found in ". . . all parts of the desert region irrespective of the soil type . . ." Since the present interpretation of *kennedyi* is more restrictive than previous interpretations, it follows that this no longer is strictly true. Thus, while *kennedyi* does exhibit a broad spectrum of nest sites, there is a decided preference for well-drained, coarse desert sands.

Cole (1934b) found that in southern Idaho nests were found in bare sandy areas between shrubs on small stable sand dunes. My own experiences parallel this observation: *kennedyi* tends to locate its nests in bare areas away from vegetation. Areas of dense grass, especially, seem to be avoided.

Nest tumuli of fully mature colonies may be as much as 20 cm in diameter, but rarely more than 6 cm high. These tumuli are usually in the form of very regular craters.

Wheeler (1908) reported finding workers tending pseudococcids (*Orthezia* sp.) near Needles, Calif. The pseudococcid *Phenacoccus gossypii* Townsend and Cockerell was found to be tended by *kennedyi,* near Gray's Well, Calif. (McKenzie, 1967). Shields (1973) found that larvae of the lycaenid, *Philotes rita pallescens,* were being tended by this ant near Currant, Nev. Specimens collected by the author south of Ravendale, Calif., were soliciting honeydew from an unidentified aphid feeding on *Lupinus*. In addition to soliciting honeydew from other insects, *kennedyi* very actively gathers nectar directly from floral and extra floral nectaries.

In addition to the above food sources, this species is also a general scavenger. The workers forage actively during the hot midday hours and secure large quantities of dead arthropods. Some are freshly killed and I have seen this species attack living insects. Those attacks which I have witnessed from inception are all similar to the following incident, observed near Mecca, Calif. on 13 Apr. 1963.

1311 hrs—Forager discovered live crab spider on ground under *Sphaeralcea,* grasped left fourth tarsus; spider attempted to dart away but ant pulled in opposite direction and impeded progress.

1314—Second forager discovered struggling pair; attempted to grasp left third tarsus, but moved to opposite side, took hold of right third tarsus. Both ants now pulling backward.

1315—Third ant joined, attached to left third tarsus; spider now being dragged toward nest about 1.5 m away.

1318—Two more ants: one more on left third tarsus; one, after considerable "indecision" finally settled on right fourth tibia.

1319—About 1.25 m from nest and another ant joined the attack, grasping first the right fore tarsus, but shaken off, managed firm hold on right second tarsus.

1320—All ants now working concertedly to stretch prey and at same time move toward nest.

1321—Two more ants—one on right second tarsus, one grasped side of abdomen in front of spinnerets.

1324—About 0.5 m from nest; six or seven more ants, but they continually change holds on spider, now effectively "spread-eagled".

1328—Spider carried down nest entrance by a mass of ants.

On another occasion a sphecid wasp, *Ammophila* sp., had "cached" a paralyzed lepidopteran larva while opening up her burrow. The caterpillar was discovered by a *kennedyi* worker which began to drag it away. The wasp, upon discovering the removal of her prey began a search, found it and began to drag it back toward the burrow. She was, however, driven off by the arrival of several more ants. Such "brigandage" may be fairly common.

Little is known about predation on honey ants by other animals. However, that horned lizards may occasionally prey on *Myrmecocystus* is indicated by an unpublished record before me. Mr. Lan Lester, Natural History Museum of Los Angeles County, found *Phrynosoma platyrhinos* feeding on *kennedyi* workers near Inyokern, Calif.

Known activity of the sexual forms is summarized in Table 3.

Discussion. This is the species erroneously referred to as *melliger semirufa* by Wheeler (1908) and subsequent authors. As shown by Snelling (1969), *melliger semirufa* is a very different species, belonging to the *melliger* complex. Cole's name, described as a variety of *melliger semirufa,* is available and must be used for this common species.

Creighton (1950) placed *melliger semirufa* var. *testacea,* sensu Wheeler (1908) and subsequent authors, in the synonymy of *semirufa (i.e., kennedyi).* Since the ant which Emery described as *testacea* is actually a senior synonym of *mojave* of the nominate subgenus, Snelling (1971) renamed *testacea* auctorum as *wheeleri.* Although related and superficially similar, there are numerous features by which *kennedyi* and *wheeleri* are separable, as discussed under the latter species.

The cephalic characters of this species show several interesting clinal variations. Gross head size averages larger in northern populations. While northern and southern populations both include the full range of variation, measurements from southern samples tend to be distributed in the lower half of the regression zone.

Overall eye size is of interest, too. Eye length increases by about 6% between the northern extremity of the range and the Mexican border. Below the border, there are too few samples to indicate a clear trend, but there appears to be a reversal. Thus, specimens from Idaho

TABLE 3

Activity of Reproductives of:

Locality	Date	Activity
M. mimicus Wheeler		
N.MEX., Jornada Exp. Range	26–27 Feb. 1972	♂♂, ♀♀ in nest
N.MEX., Jornada Exp. Range	26 July 1972	♂♂, ♀♀ mating flight
N.MEX., 0.6 mi S Cuervo	21 Aug. 1967	♀♀ in nest
ARIZ., 7 mi E Robles Jct.	24 Feb. 1968	♂♂, ♀♀ in nest
ARIZ., Texas Cyn.	11 Aug. 1967	♂♂ in nest
CALIF., 8.6 mi E Temecula	7 Mar. 1973	♂♂, ♀♀ in nest
CALIF., 5.8 mi W Kettleman City	25 Mar. 1967	♂♂, ♀♀ in nest
CALIF., 1 mi N Warner Spgs.	28 Mar. 1963	♀♀ in nest
CALIF., 9 mi E Temecula	3 May 1969	♂♂, ♀♀ in nest
CALIF., 1 mi N Warner Spgs.	3 May 1969	♀♀ in nest
B. CALIF., 5 mi S Rosarito	14 May 1952	♀♀ in nest
M. kennedyi Cole		
IDA., Indian Cove	12 Apr. 1932	♂♂, ♀♀ in nest
IDA., 1.6 mi W Hammett	19 June 1967	♀♀ in nest
ORE., Alkali Lake	9 June 1967	♂♂ in nest
NEV., near Fallon	25 Mar. 1956	♂♂, ♀♀ in nest
NEV., Riverside	2 Apr. 1970	♂♂, ♀♀ in nest
NEV., 3 mi E Fallon	29 Apr. 1965	♂♂ in nest
NEV., Nevada Dominion Mine	8 May 1951	♂♂, ♀♀ in nest
CALIF., 5 mi E Thousand Palms	16 Feb. 1963	mating flight after rain
CALIF., Twentynine Palms	6 Nov. 1967	♂♂, ♀♀ in nest

have an average EL of 0.244 mm, those from southern California average 0.267 mm and those from the Punta Peñasco area of Sonora average 0.247 mm. The similar, and closely related *nequazcatl* has an average EL of 0.267 mm. The apparently reversed cline of *kennedyi* may be an example of "character displacement". However, until sympatric populations of the two species, if such exist, can be studied this phenomenon, as described by Brown and Wilson (1956) is not definitely demonstrated.

Myrmecocystus (Endiodioctes) nequazcatl

new species

Figures 109–116, 162, 174, 186, 194

Diagnosis. Worker: Malar area with fewer than three erect hairs in frontal view; head polished, sparsely punctate, especially on vertex; promesonotal hairs long, some equal to EL; third tergum usually closely pubescent; CI less than 90 in more than 90% of specimens. *Female.* Mesoscutal disc polished, with scattered punctures; parapsis with punctures of two sizes, sparse except near parapsidal line; penultimate segment of maxillary palp slender, broadest near middle, more strongly tapering apicad; mesoscutal hairs long. *Male.* Terga polished and shiny, sparsely pubescent; mesoscutal hairs long; lobe of aedeagus convex below, finely dentate.

WORKER. *Measurements.* HL 0.98–1.34 (1.34); HW 0.83–1.23 (1.23); SL 1.20–1.50 (1.50); WL 1.6–2.3 (2.3); PW 0.6–1.0 (1.0).

Head: Longer than broad, CI 83–93 (93) (89 or less in over 90% of specimens), shorter than scape, SI 108–124 (112); sides in frontal view, straight or slightly convex, slightly convergent toward mandibular base. Occiput, in frontal view, flat or slightly convex, without perceptible lateral angles. Eye small, 1.0–1.1 × first flagellomere; OMD 1.50–2.00 (1.80) × EL. Mandible with seven teeth.

Thorax: Slender, PW 0.38–0.45 (0.44) × WL. Mesonotal profile even. In profile, basal face of propodeum flat, meeting posterior face in narrowly rounded angulation of about 130°.

Petiole: Node, in profile, with anterior and posterior face parallel below, anterior face sloping back in upper half to broadly rounded summit; in frontal view, crest flat or gently convex, without median notch.

Vestiture: Pubescence sparse on head, abundant on thorax and first two or three terga.

Cephalic hairs abundant on frons and occiput, slender, flexuous on latter, some occipital hairs about equal to EL; malar area with one or two hairs near mandibular base. Promesonotum with numerous long, slender, flexuous hairs, some about as long as MOD; base and side of propodeum with shorter flexuous hairs. Side and crest of petiole with flexuous hairs about equal to those of propodeum. Terga with numerous long hairs,