

## A NEW HARVESTER ANT FROM THE MOUNTAINS OF SOUTHERN CALIFORNIA (HYMENOPTERA: FORMICIDAE)

WILLIAM P. MACKAY

Division of Biological Control, University of California, Riverside, CA 92521

**ABSTRACT.** *Pogonomyrmex montanus* (Formicidae: Myrmicinae) is described from specimens collected 18 Aug. 1978, 4 km NW Fawnskin, San Bernardino Co., California, at an altitude of 3,000 m. *Pogonomyrmex montanus* is most closely related to *P. salinus*, but may be easily distinguished by the shape of the superior lobe of the scape. Characters are given to distinguish it from other members of the *occidentalis* complex. The males are dimorphic in size. Most species in the genus *Pogonomyrmex* occur at lower elevations in hot dry habitats; they are typically desert or prairie ants. This species is unusual in that it occurs at high altitudes in pine forests.

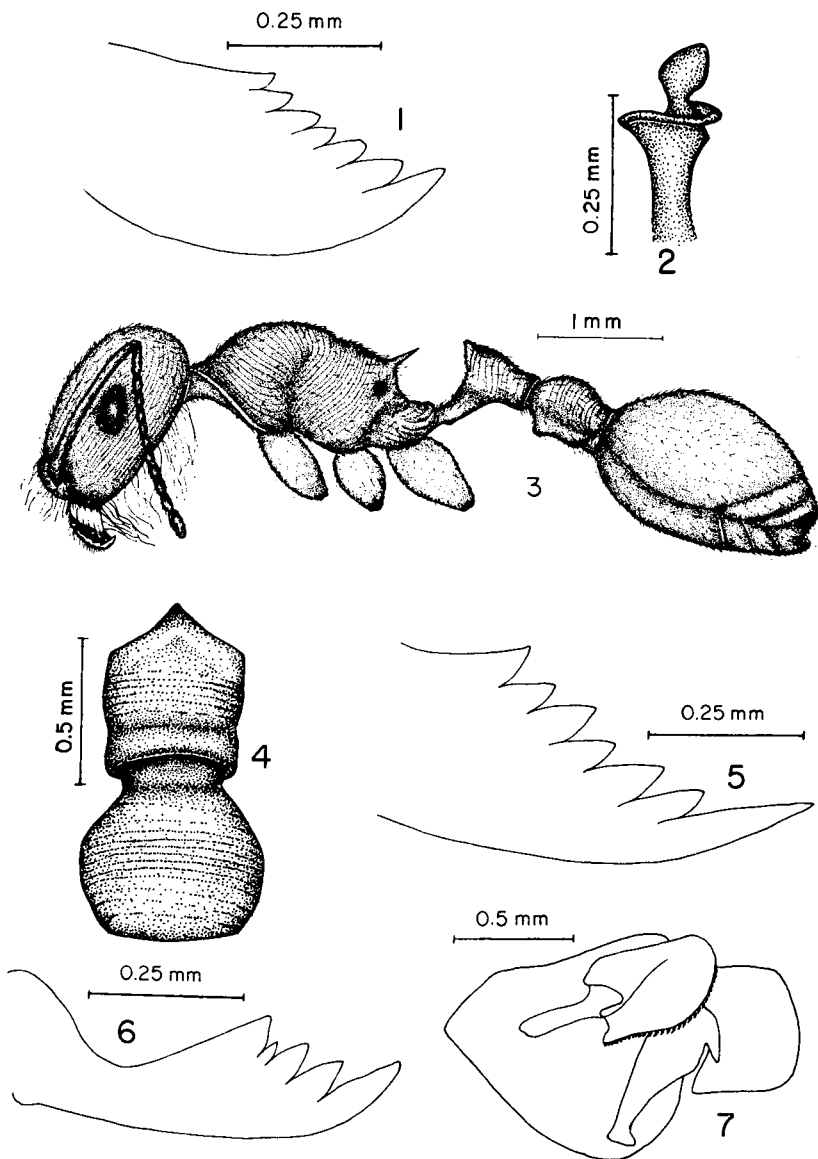
In an investigation of the ants of the San Bernardino Mts. of southern California, a new harvester ant in the genus *Pogonomyrmex* was discovered. The biology of this interesting ant is being investigated and will be reported later. The description of this new species is presented now.

### ***Pogonomyrmex montanus*, new species**

*Worker (HOLOTYPE)* (My collection #2536-a; dimensional abbreviations as defined by Cole 1968.)

HL 1.60 mm, HW 1.70 mm, CI 106.25, SL 1.28 mm, SI 82.82, EL 0.38 mm, EW 0.26 mm, OI 23.75, WL 2.00 mm, PNL 0.56 mm, PNW 0.48 mm, PPL 0.56 mm, PPW 0.64 mm.

Mandible as illustrated in Fig. 1; seven teeth, somewhat blunt, apical tooth acute, slightly wider and somewhat longer than others; subapical slightly longer than first basal; third basal slightly larger than first, second, penultimate, and ultimate teeth; ultimate basal not offset from straight basal mandibular margin. Base of antennal scape as illustrated in Fig. 2; basal enlargement well developed; superior lobe prominent, strongly convex, well set off from shaft by broadly rounded angle; inferior declivity interrupted by a strong point; basal flange strong, extending slightly beyond apex of superior lobe; lip broad but thin. Frontal lobes large, well developed. Cephalic rugae strong, well separated, divergent at posterior corners of head, forming a few poorly defined concentric whorles above eye. Interrugal spaces densely and strongly punctate, the punctures producing a beaded appearance.



**Figs. 1–7. *Pogonomyrmex montanus*, n. sp. 1. right mandible of holotype; 2. base of antennal scape of paratype worker; 3. lateral view of holotype (legs not illustrated); 4. dorsal view of petiole and postpetiole of holotype; 5. right mandible of paratype female; 6. right mandible of paratype male; 7. inner lateral view of right male genitalia.**

Contour of thorax, petiole, and postpetiole in lateral view illustrated in Fig. 3. Thoracic dorsum convex between base of propodeal spine and pronotum; mesopropodeal suture well defined; thoracic rugae similar to cephalic rugae. Propodeum armed with a pair of well-developed, pointed spines, directed upward and backward. Venter of petiolar peduncle without a process but with a small bump; apex of petiolar node strongly acute; nipple prominent; anterior declivity of node nearly straight. Postpetiolar ventral process broad, strongly developed. Dorsum of petiolar and postpetiolar nodes with transverse, prominent, subparallel, and closely spaced rugae (Fig. 4), interspaces densely punctate. Base of first gastral tergum finely punctate, remainder of gaster strongly shining. Body color (including propodeal armature) ferruginous; mandibular teeth somewhat darker.

*Female (paratype)* (My collection #2538-a). HL 1.72 mm, HW 1.72 mm, CI 100.00, SL 1.32 mm, SI 84.42, EL 0.44 mm, EW 0.28 mm, OI 25.58, WL 2.68 mm, PNL 0.60 mm, PNW 0.56 mm, PPL 0.58 mm, PPW 0.84 mm.

Mandible as shown in Fig. 5, slightly larger than worker mandible, apical tooth acutely pointed considerably longer than other teeth; first basal larger than subapical; third basal larger than second basal, penultimate and ultimate basal. Base of antennal scape similar to worker. Cephalic rugae similar to worker except interrugal spaces less strongly punctate and weakly shiny. Ocelli well developed.

Pronotum well differentiated from large protruding mesonotum; propodeum with a pair of prominent angles. Petiole, postpetiole, and gaster similar to worker; petiolar node well developed, differentiated from body of petiole and directed strongly upward. Color similar to worker.

*Male (paratype)* (My collection #2537-a). HL 1.38 mm, HW 1.48 mm, CI 107.25, SL 0.60 mm, SI 44.59, EL 0.52 mm, EW 0.34 mm, OI 37.68, WL 2.48 mm, PNL 0.52 mm, PNW 0.64 mm, PPL 0.42 mm, PPW 0.86 mm.

Mandible as shown in Fig. 6, denticulate margin long, oblique, bearing five teeth; apical tooth acutely pointed, much longer than others; subapical and first basal equal in size and somewhat larger than ultimate; penultimate very small. Vertex of head moderately elevated; ocelli very distinct; cephalic rugae weak, interrugal punctures sparse, interspaces shining.

Pronotum well differentiated from protruding mesonotum; propodeum with a pair of prominent angles. Petiolar node in anterior declivity short, nearly straight; node rounded, bulbous and very shiny; ventral process of petiolar peduncle absent; ventral process of postpetiole moderately well developed; dorsum of postpetiole moderately shiny. Gaster strongly shiny. Genitalia typical of genus (Fig. 7). Aedeagus usually with 30 teeth which are variable in size.

Head, thorax, and petiole dark brown; gaster and postpetiole somewhat paler.

*Type locality*.—Hanna Flat, 3,000 m elev., 4 km NW Fawnskin, San Bernardino Mts., San Bernardino Co., California. The holotype and paratypes were collected by William and Emma MacKay on 18 Aug. 1978.

*Distribution*.—*Pogonomyrmex montanus* is found in sagebrush (*Artemisia rothrockii*) or manzanita (*Arctostaphylos* spp.) clearings or "islands" surrounded by pine forest. It is common in the area northwest of Fawnskin, extending north past Big Pine Flats. In other areas of the San Bernardino Mts. it is rare or absent. It has also been collected near Lake Fulmor in the San Jacinto Mts., Riverside Co. Roy Snelling (pers. commun.) has collected the species at Blue Ridge in the San Gabriel

Mts., Los Angeles Co. We have not collected this species below 1500 m; it is most common near 3000 m elevation.

*Disposition of types.*—The holotype, 20 paratype workers, 15 paratype females, and 15 paratype males will be deposited in the Los Angeles County Museum of Natural History. Paratypes (6 workers, 6 females, 6 males) will be deposited in each of the following: American Museum of Natural History, U.S. National Museum of Natural History, Museum of Comparative Zoology, and the entomology collections of the University of California at Riverside, University of California at Berkeley, and the California Academy of Science.

*Variations in paratype series.*—Variation in the worker is in size, color, and mandibular dentition. Size variation follows: HL 1.32–1.61 mm, HW 1.22–1.72 mm, CI 92.42–106.83, SL 1.12–1.29 mm, SI 82.50–100.98, EL 0.28–0.39 mm, EW 0.22–0.27 mm, OI 21.21–24.22, WL 1.60–2.08 mm, PNL 0.46–0.58 mm, PNW 0.36–0.49 mm, PPL 0.44–0.57 mm, PPW 0.50–0.65 mm.

Occasionally the gaster of a worker is partly or completely black. Some of the mandibular teeth may be badly worn or broken but give the appearance that they were originally similar to the holotype. The propodeal armature is always well developed although there is some variation in the length of the spines.

Size variation in females follows: HL 1.65–1.75 mm, HW 1.68–1.75 mm, CI 100.0–102.44, SL 1.32–1.33 mm, SI 83.60–86.43, EL 0.42–0.46 mm, EW 0.24–0.32 mm, OI 25.61–26.29, WL 2.64–2.70 mm, PNL 0.60–0.61 mm, PNW 0.56–0.57 mm, PPL 0.56–0.58 mm, PPW 0.82–0.85 mm.

The color is more uniform than that of the workers. Most have a dark blotching of the first gastral segment but its size varies, especially when compared to females of other nests. The mandibles are always similar to that shown in Fig. 5.

The males are dimorphic in size (Fig. 8) and can be easily divided into two size classes without the aid of a microscope. Weber's length (length of the thorax in profile view, measured diagonally from the anterior declivity of the pronotum to the tip of the metasternal lobe at the side of the articulation of the petiolar peduncle) was measured, but the dimorphism is evident in dimensions of other characters.

Size variation follows: HL 1.18–1.53 mm, HW 1.10–1.64 mm, CI 93.22–107.19, SL 0.56–0.69 mm, SI 46.28–56.00, EL 0.44–0.60 mm, EW 0.32–0.41 mm, OI 37.29–39.22, WL 2.16–2.72 mm, PNL 0.42–0.62 mm, PNW 0.46–0.73 mm, PPL 0.38–0.49 mm, PPW 0.68–0.97 mm.

The head and thorax are usually darker than the gaster. The mandibular structure is uniform.

*Etymology of specific epithet.*—Latin: montanus, in reference to living in the mountains.

**DISCUSSION.** *Pogonomyrmex montanus* belongs to the subgenus *Pogonomyrmex*, and to the *occidentalis* complex. The workers are easily distinguished from those of other species of the complex as follows: 1) The occipital corner does not bear a prominent carinate ruga as *P. anzensis* Cole. 2) The interrugal spaces of the head possess a beaded appearance unlike that of *P. subnitidus* Emery, *P. brevispinosus* Cole, and *P. subdentatus* Mayr. 3) The basal tooth of the mandi-

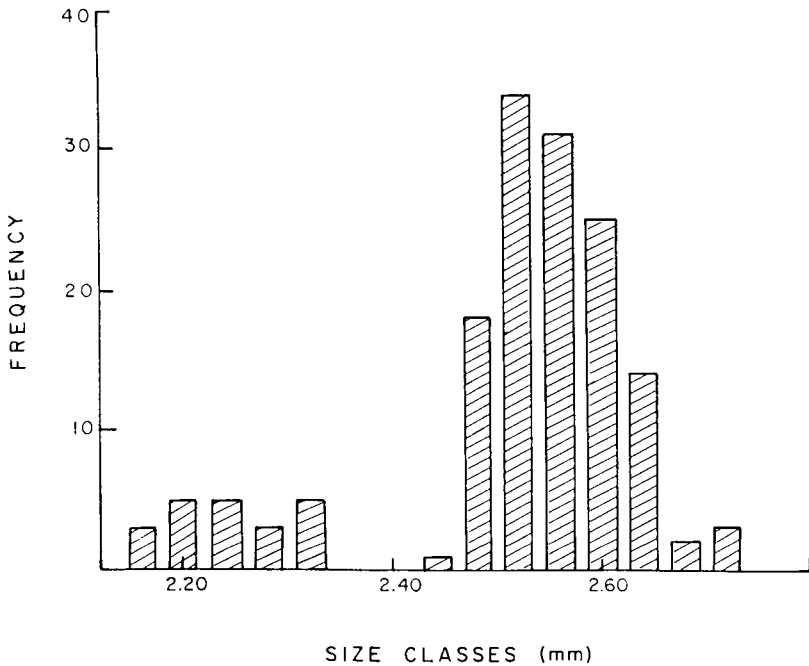


Fig. 8. Frequency distribution of the size classes of males based on Weber's length.

ble is not offset as in *P. occidentalis* (Cresson). 4) The dorsum of the petiolar and postpetiolar nodes are covered with numerous, strong, closely spaced, subparallel, transverse rugae, which distinguishes it from *P. owyheeii* Cole. 5) The superior lobe of the scape is prominent and strongly convex, the basal flange is strong and extends slightly beyond the apex (Fig. 2). This easily differentiates it from *P. salinus* Olsen.

This new species is most closely related to *P. salinus* Olsen, possessing a similar petiole and postpetiole; the base of the first gastral tergum is finely punctate. Both species live at higher elevations, *P. salinus* preferring regions of pinyon-juniper in Nevada and *P. montanus* apparently only occurring in pine forested areas of southern California. The following species of the *occidentalis* complex also occur in "island clearings" in pine forests: *P. occidentalis*, *P. owyheeii*, and *P. salinus* (R. Snelling, pers. commun.) and *P. subnitidus* (in the area near Fulmor Lake in the San Jacinto Mts. of Riverside Co., California).

*Biology.*—Extensive analysis of the biological aspects of *Pogonomyrmex montanus* will appear later.

I wish to thank R. Snelling, G. Gordh, R. Ruibal, R. Luck, J. Pinto, C. Sassaman, and G. Scherba for kindly reading the manuscript and E. MacKay who prepared the figures. The research was supported by the Theodore Roosevelt Memorial Fund of the American Museum of Natural History.

#### LITERATURE CITED

COLE, A. C. 1968. *Pogonomyrmex* harvester ants, a study of the genus in North America. Knoxville Univ. Press, 222 pp.