

*Neivamyrmex chamelensis*, n. sp.  
(Hymenoptera: Formicidae: Ecitoninae)  
from Jalisco, Mexico

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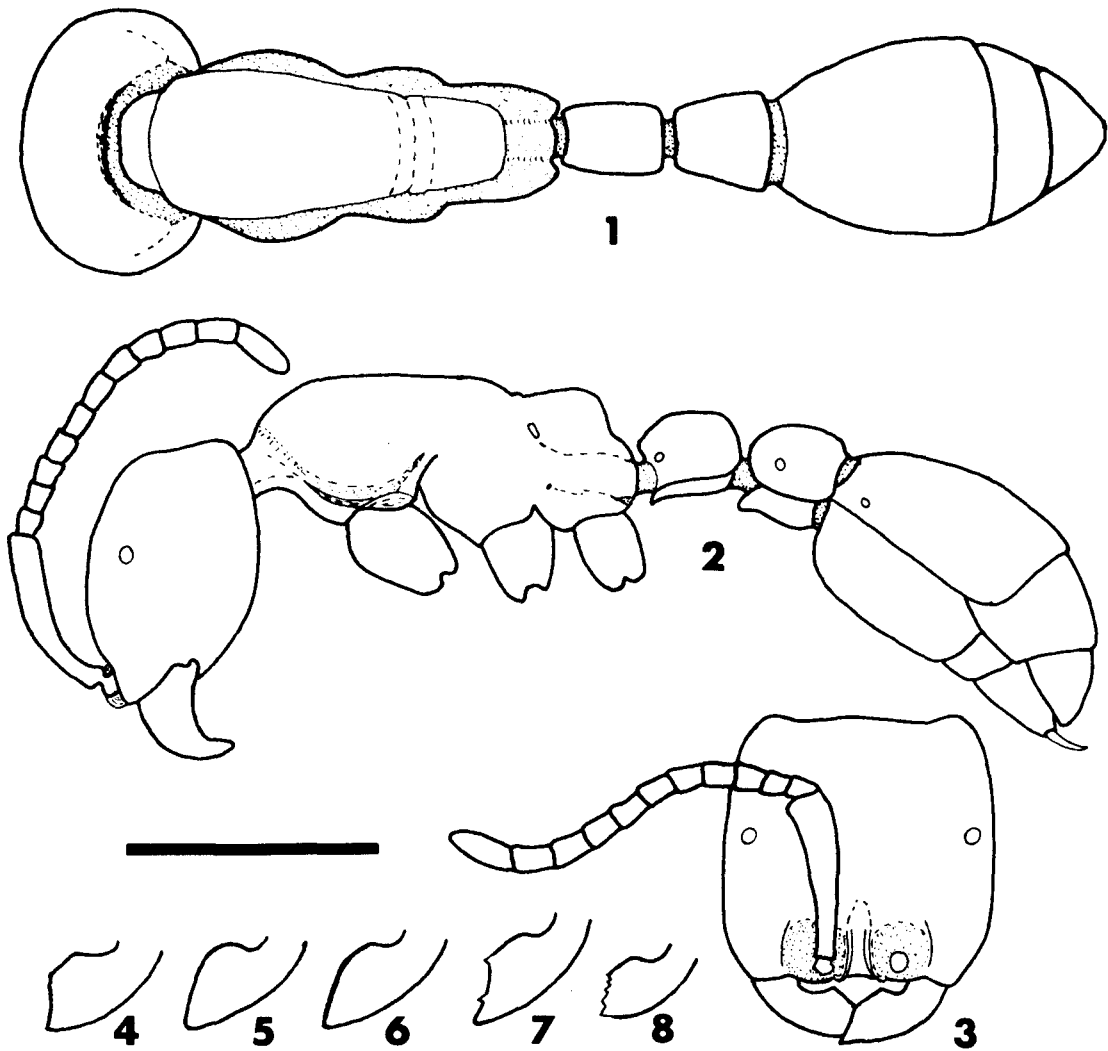
ABSTRACT: The worker and queen of *Neivamyrmex chamelensis*, n. sp. (Hymenoptera: Formicidae: Ecitoninae) are described from ants collected from the Chamela Biological Station, Jalisco, Mexico. The species appears to be most closely related to *N. californicus* (Mayr) and *N. opacithorax* (Emery). The holotype worker is deposited in the National Museum of Natural History, Washington, D.C., U.S.A.

*Neivamyrmex chamelensis*, new species  
(Figs. 1-11)

MAJOR WORKER (HOLOTYPE): Length 4.10 mm. Reddish brown alitrunk, petiole and postpetiole, with slightly lighter head. Yellowish brown gaster and legs. Head, gaster and legs smooth, except for scattered seta-bearing punctations. Alitrunk, petiole and postpetiole finely granulated, except sides of pronotum which appear smooth to slightly shagreened, depending on the light angle (50×). Setae moderately abundant, semierect with variable lengths up to 0.30 mm.

*Head*: Frontal view (Fig. 3): quadrate; median length (exclusive of mandibles) 1.00 mm; greatest width 1.10 mm; slightly narrowed posteriorly (i.e., upward from frontal view) with slightly to moderately projecting upper corners (depending on angle of view). Frontal carinae short and not extending across the fronts of the antennal fossae. Each eye is ocellus-like with a distinct convex cornea. Antennal scape gradually thickened distally and slightly bent outward; length 0.80 mm; proximal width 0.10 mm; distal width 0.20 mm. Antennal flagellum with 11 segments, slightly and gradually thickened distally; width of segment two 0.10 mm; width of segment eleven 0.15 mm; flagellum length 1.65 mm; segments 1-10 each about as long as wide or slightly longer; segment eleven about twice as long as greatest width. Mandible with triangular upper margin which forms a slight corner with masticatory surface which lacks distinct teeth (*caution*: see Variation).

*Alitrunk*: Lateral view (Fig. 2): length 1.50 mm; promesonotum about twice as long as propodeum; dorsum of pronotum without a distinct anterior transverse ridge; anterodorsum of pronotum gradually rounds upward to an almost level promesonotal surface which sharply declines posteriorly to a distinctly depressed propodeum; almost level dorsum of propodeum rounds into a steeply declining, slightly concave posterior surface; propodeum and metapleuron combined about as high as long; sutures indistinct, except promesopleural. Dorsal view (Fig. 1): dorsum gradually narrowed posteriorly; dorsum of promesonotum about twice as long as greatest width; dorsum of propodeum about as long as greatest width. Length of hind leg 4.29 mm (coxa 0.40 mm; trochanter 0.10 mm; femur 1.05



Figs. 1-8. Major worker of *Neivamyrmex chamelensis*, n. sp. 1. Dorsal view without antennae and legs. 2. Lateral view without legs. 3. Frontal view of head without left antenna. 4-8. Anteroventral views of mandibles of different specimens. Scale line equals 1.0 mm.

mm; tibia 1.05 mm; tarsus: seg. one 0.72 mm, seg. two 0.30 mm, seg. three 0.25 mm, seg. four 0.17 mm, seg. five 0.25 mm). Tarsal claws without teeth on inner borders.

*Petiole*: Dorsal view (Fig. 1): rectangular; length (0.40 mm) 1.4 times its width (0.28 mm); anterior border slightly concave; sides almost straight. Lateral view (Fig. 2): dorsum unevenly convex; height 0.35 mm; ventral surface with a small anterior protuberance, but without a distinct anteroventral tooth.

*Postpetiole*: Dorsal view (Fig. 1): trapezoidal; length 0.38 mm (almost equal to length of petiole); anterior width 0.27 mm; posterior width 0.38 mm. Lateral view (Fig. 2): dorsum convex with somewhat flattened middle area; height 0.38 mm.

*Gaster* (Figs. 1, 2): Length 1.30 mm; width 0.80 mm; height 0.75 mm; oval from a dorsal view; somewhat compressed, elongate-oval from a lateral view. Sting well developed.

**QUEEN**: Nonphysogastric. Length 10.70 mm. Entire body uniformly yellowish

brown, except for gaster which has dark brown mottling. Punctations thick and distinct on head and dorsal surfaces of alitrunk and petiole ( $12.5\times$ ), but more scattered and less noticeable on rest of body. Setae short, fine and semierect on most body surfaces, except slightly longer and appressed on the gaster.

*Head:* Frontal view (Fig. 11): median length (exclusive of mandibles) 1.70 mm; width 1.60 mm; upper surface with a small median concavity; upper corners broadly rounded; sides slightly convex; triangular frontal depression shallow and bordered by rounded frontal carinae; lower border of clypeus almost straight, but slightly irregular. Each eye consists of a small yellowish, ocellus-like spot with a flattened cornea, and is located on the side of the head near the middle so that it is barely visible from the front. Antennal scape thickened distally; proximal width 0.13 mm; distal width 0.25 mm; length 0.75 mm. Antennal flagellum not distinctly thickened apically; length about 2.20 mm; width about 0.17 mm; 11 segments. Mandible curved inward with a sharp apex and a moderate convexity on inner median border. Dorsal view (Fig. 9): frons slightly indented; sides rounded; occipital concavity almost covered by pronotal flange. Lateral view (Fig. 10): anterodorsum of head rounded; posterior surface almost straight; eye located near middle.

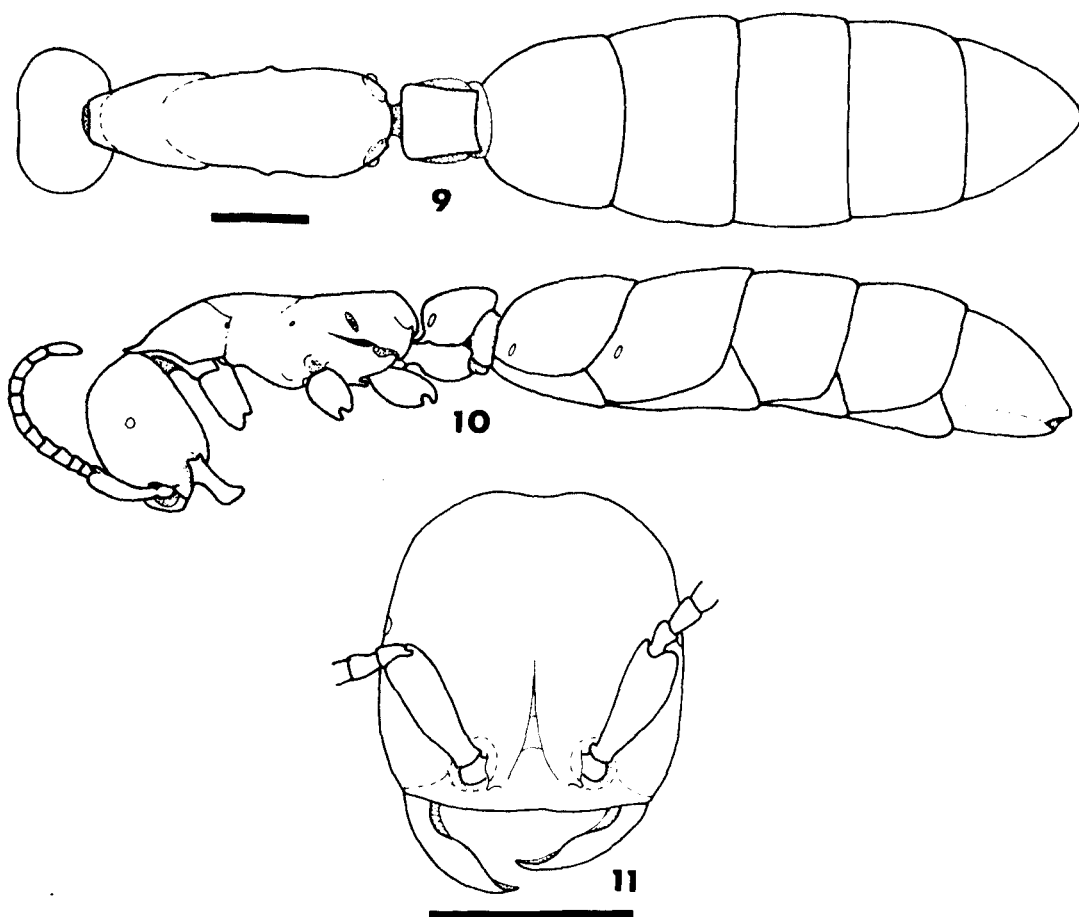
*Alitrunk:* Dorsal view (Fig. 9): length 3.20 mm; gradually widened from pronotum to propodeum; distinct small bumps at levels of pro- and mesothoracic spiracles; width of propodeum 1.20 mm; prominent anterior pronotal flange almost covers the occipital concavity; sutures indistinct. Lateral view (Fig. 10): height at the propodeum 0.90 mm; pronotum with a prominent anterior flange which extends above the occipital concavity; dorsum of pronotum slopes upward posteriorly to an almost level mesonotal-propodeal surface which bluntly rounds into a steeply declining posterior surface; promesothoracic suture distinct; a lamella extends from the orifice of metapleural gland anteriorly along lower border of propodeum; meso- and metathoracic spiracles very small; propodeal spiracle oval and relatively long (0.25 mm); meso- and metapleural glands with distinct orifices and indistinct bullae. Length of hind leg 5.82 mm (coxa 0.70 mm; trochanter 0.20 mm; femur 1.20 mm; tibia 1.30 mm; tarsus: seg. one 1.00 mm, seg. two 0.45 mm, seg. three 0.35 mm, seg. four 0.22 mm, seg. five 0.40 mm). Apices of metatibia and metatarsal segments one through four with stout spines. Claws without teeth on inner borders.

*Petiole:* Dorsum transversely concave in middle. Dorsal view (Fig. 9): node subquadrate, slightly narrowed posteriorly, with rounded anterior corners and angular posterior corners; length and anterior width about equal (0.80 mm). Lateral view (Fig. 10): node rounded anteriorly and bluntly projecting posteriorly; height of node 0.70 mm; spiracle prominent; ventral surface convex and without a distinct tooth.

*Gaster* (nonphysogastric, Figs. 9, 10): Length 6.00 mm; greatest width 2.20 mm; greatest height about 1.50 mm; elongate-oval from a dorsal view and more flattened from a lateral view; five visible segments; apex of fifth sternite with a triangular notch.

MALE: Unknown.

VARIATION: *Workers:* Length 2.5–4.5 mm. Mandibles (Figs. 4–8) highly variable; junctures of basal with masticatory surfaces vary from angular to rounded; basal surfaces vary from straight to convex; masticatory surfaces vary from straight



Figs. 9–11. Queen of *Neivamyrmex chamelensis*, n. sp. 9. Dorsal view without antennae and legs. 10. Lateral view without legs. 11. Frontal view of head with incomplete antennae. Scale lines equal 1.0 mm.

to slightly concave; apices vary from blunt to sharp; teeth usually absent on masticatory surfaces; however, some specimens have a single small tooth, and a few small workers have several small teeth. Transverse carina on dorsum of anterior border of pronotum present or absent. Propodeal dorsum varies from strongly depressed (majors) to weakly depressed (minors) below the mesonotum. Petiole lengths 1.15 to 1.57 times widths.

**TYPES:** Workers. Red determination labels. Colony W-329. Collected by J. F. Watkins II and C. J. Coody, 21 June 1984, Mexico, Jalisco, Chamela Biological Station. Holotype and 12 paratypes deposited in the National Museum of Natural History, Washington, D.C., U.S.A. Additional paratypes deposited in the American Museum of Natural History, New York; Museum of Comparative Zoology, Harvard; Los Angeles County Museum; Watkins Collection, Baylor Univ., Waco, Texas.

**TYPE LOCALITY:** Mexico, Jalisco, Chamela Biological Station, 19°30'N, 105°03'W. The Estación de Biología Chamela is a field station of the Instituto de Biología of the Universidad Nacional Autónoma de México. It has an area of 1400 hectares and is located about two kilometers from the Pacific coast in the state of Jalisco, at kilometer 59 on the highway from Barra de Navidad to Puerto Vallarta. The

topography is low hills and canyons without permanent streams. Average annual rainfall is 733 mm, and the dry season is from November to mid-June. The dominant vegetation is deciduous tropical forest generally less than 8 m in height.

**GEOGRAPHICAL DISTRIBUTION:** Known only from type locality.

**SPECIMENS EXAMINED:** Numerous workers from three nocturnal raiding columns (colonies: W-299, W-315, W-321) and one queen with several workers from a nocturnal migrating column (colony W-329) collected by J. F. Watkins II and C. J. Coody from the Chamela Biological Station (UNAM), Jalisco, Mexico on 5, 15, 17, 21 June 1984.

**DIFFERENTIAL DIAGNOSIS:** *Workers:* postpetiole well developed; eyes ocellus-like; antennal fossae not concealed by frontal carinae; tarsal claws without teeth; dorsum of mesonotum without a strong "hump"; propodeum without a transverse carina on its dorsoposterior corner, and without a strongly indented declining surface; eyes with convex corneas; head not granulated; postpetiole about as long as petiole; propodeum not distinctly longer than petiole; head and gaster without a blackish overcast; petiole broad (length 1.1–1.5 times width); frontal carinae do not continue completely across the fronts of antennal fossae; petiole without a distinct anteroventral tooth. *Queen:* gaster about twice as long as alitrunk; ocellus-like eyes present on sides of head; tarsal claws without teeth on inner borders; node of petiole subquadrate, not wider than long, with a shallow median sulcus, and without a transverse carina (dorsal view); venter of petiole convex and without a distinct protuberance (lateral view); inner border of mandible convex and without a distinct masticatory surface; pronotum with an anterior flange which extends above the occipital concavity, and the occipital corners do not project posteriorly when viewed from above.

### Discussion

*Neivamyrmex chamelensis* appears to be most closely related to *N. californicus* (Mayr); however, variations of the mandibles and petioles cause attempts to run the workers through existing taxonomic keys to be very confusing. Workers with mandibles whose basal margins curve into the masticatory margins without forming distinct corners may be keyed to *N. californicus* in Borgmeier (1955) and Watkins (1976); however, workers with mandibles whose basal margins form distinct corners at their junctures with the masticatory margins, and whose petioles are distinctly longer than broad may be keyed to *N. opacithorax* (Emery) in Borgmeier (1955). In Watkins (1982), workers with subquadrate petioles may be keyed to *N. harrisi* (Haldeman) and specimens with more elongate petioles may be keyed to couplet 8; however, they do not agree with all the characteristics in 8a (*N. manni*) or 8b (*N. opacithorax*). The petioles of *N. chamelensis* workers are relatively wider and the postpetioles are relatively longer than those of *N. californicus* and *N. opacithorax*. The postpetioles of *N. chamelensis* workers are about as long as their petioles, while the postpetioles of *N. californicus* and *N. opacithorax* are distinctly shorter than their petioles. The propodea of *N. chamelensis* workers are relatively shorter (shorter than the petioles), steeper posteriorly, and more depressed below their mesonota (majors) than those of *N. californicus* and *N. opacithorax*. Broad, upturned lamellae across the fronts of the antennal fossae are present in *N. harrisi* workers, but absent in *N. chamelensis*. Also, the propodea of *N. harrisi* workers are relatively longer.

The queen of *N. chamelensis* is also similar to the queen of *N. californicus*; however, they can be readily separated by the presence of the anterior pronotal flange of *N. chamelensis*, and the extension of the frontal carinae around the fronts of the antennal fossae of *N. californicus*. Also, the *N. californicus* queen has a more protruding petiole venter and more distinct dorsal alinotal sutures. The node of the petiole of *N. chamelensis* is about as long as wide or slightly longer; whereas, the node is slightly wider than long on the queen of *N. californicus*.

*Neivamyrmex chamelensis* is named after the Chamela Biological Station where the type specimens were collected.

#### Acknowledgments

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