

## Two new species of the ant genus *Pogonomyrmex* (Hymenoptera: Formicidae) from Argentina

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### Dos nuevas especies de *Pogonomyrmex* (Hymenoptera: Formicidae) de la Argentina

■ **RESUMEN.** Se describen dos nuevas especies de *Pogonomyrmex* Mayr para la Argentina: *P. mendozanus* sp. nov. y *P. kusnezovi* sp. nov. Se presenta una lista actualizada de las especies de *Pogonomyrmex* de la Argentina junto con datos de distribución, comentarios sobre la biología de las especies nuevas y figuras. Se ofrece una clave revisada, basada en obreras, para todas las especies del género citadas para la Argentina.

**PALABRAS CLAVE.** *Pogonomyrmex mendozanus*. *Pogonomyrmex kusnezovi*. Myrmicinae. Ambientes áridos. Taxonomía. Especies Nuevas.

■ **ABSTRACT.** Two new species of *Pogonomyrmex* Mayr from Argentina, *P. mendozanus* sp. nov. and *P. kusnezovi* sp. nov., are described. An updated list of species of *Pogonomyrmex* from Argentina is provided, as well as distributional data, comments on the biology of new species, and figures. A revised key of the known species for Argentina based on workers is offered.

**KEY WORDS.** *Pogonomyrmex mendozanus*. *Pogonomyrmex kusnezovi*. Myrmicinae. Arid environments. Taxonomy. New species.

### INTRODUCTION

The ant genus *Pogonomyrmex* was created by Mayr (1868) to include a group of ants inhabiting arid and semiarid environments of the Americas, with the highest species diversity occurring in the south of USA and Argentina. The majority of species are mostly adapted to collecting seeds in arid, open habitats (Lattke, 2006). As other desert ants (such as *Dorymyrmex* Mayr, *Forelius* Emery, etc), several species have a

high degree of hybridization, so setting strong and stable taxonomic boundaries between species is often a difficult matter. Main sources of information for Argentinean species are condensed in Kusnezov (1949, 1951) and Gallardo (1931, 1932). A taxonomic key and phylogenetic proposal for North American species were presented by Taber (1990). Regional contributions to *Pogonomyrmex* were made by Mackay *et al.* (1985) and Taber (1998). Additional new species were recently described by Fernández & Palacio

- 21'- Dorsum of first gastral segment without rugae .....23
- 22- Head sculpture with longitudinal and transversal rugae on occipital margin. Posterior clypeal surface between frontal lobes with only 3-4 longitudinal rugae. Mesosomal profile continuous .....  
..... *P. pronotalis*
- 22'- Head without transversal rugae on occipital margin. Posterior clypeal surface between frontal lobes with more than 6 longitudinal rugae. Mesosomal profile interrupted by strong metanotal carina .....  
..... *P. mendozanus* sp. nov.
- 23- Lower propodeal spine well developed, with acute end ..... 24
- 23'- Lower propodeal spine poorly developed, with rounded end ..... 25
- 24- TL 6.5-8 mm Mesonotal rugae feebly vermiculated ..... *P. rastratus*
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- 26- Upper propodeal spine well developed. (Species found at high altitude, more than 3000 m. a.s.l.).....  
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- 27- CI < 100. Scape with erect setae. Upper propodeal spine as a tubercle .....  
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- 28- Scape long surpassing occipital margin of head ..... *P. lobatus*
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- 29- Scape base conspicuously expanded. Femur I strongly incrassate. Worker caste strongly polymorphic with large-headed majors ..... *P. coarctatus*
- 29'- Scape base without expansion. Femur I feebly incrassate. Worker caste weakly polymorphic ..... 30
- 30- Head dull, with conspicuous rugae, specially well developed in the occipital corners ..... *P. micans*
- 30'- Head shining, with fine rugae, specially poorly developed in the occipital corners ..  
..... *P. bruchi*

***Pogonomyrmex mendozanus* sp. nov.**

(worker Figs. 1-2; queen Figs. 5-6; male Figs. 7-11)

**Worker diagnosis.** Posterior margin of head slightly concave, covered with longitudinal rugae and without transverse rugae (Fig. 1). Clypeal area between frontal lobes with 6-8 rugae always present and well developed. Dorso-lateral angle of pronotum rounded, slightly evident. In lateral view, the entire mesosomal area is covered by fine and very regular rugae (Fig. 2). Peduncle of petiole long, with slightly developed ventral process (Fig. 2). Gaster smooth and shiny.

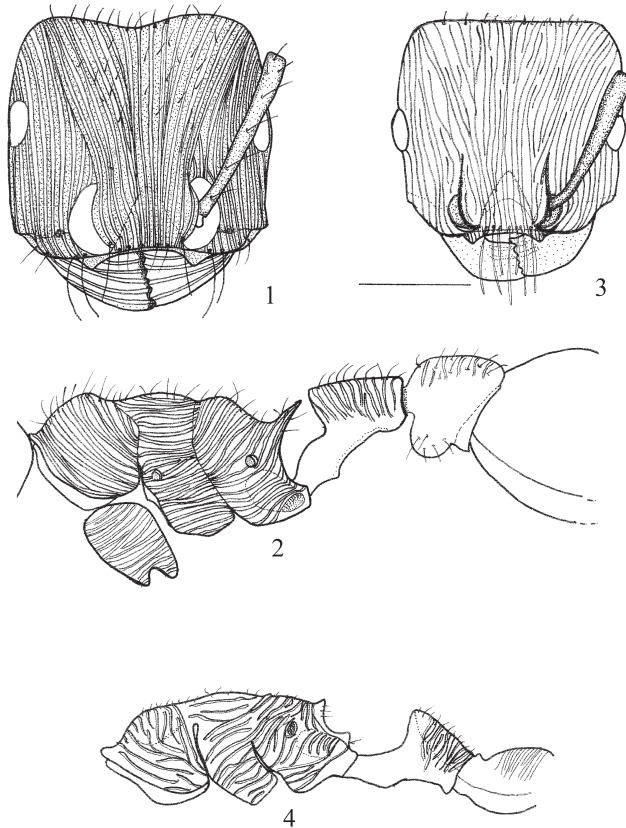
**Descriptions**

**Worker**

**Measurements.** Holotype worker (Paratype variations in parentheses, n=20, notation: minimum - maximum). HL: 1.775 (1.5-2.0); HW: 1.9 (1.625-2.075); SL: 1.35 (1.15-1.425); DFL: 0.775 (0.725-0.85); EL: 0.4 (0.325-0.425); OCD: 0.525 (0.45-0.625); PW: 1.175 (1.125-1.375); WL: 2.075 (2.0-2.525); CI: 107 (103-108); SI: 71 (70-71).

Head, mesosoma, petiole and postpetiole black to blackish brown, gaster yellow to reddish brown. Dorsal surface of body with short and whitish setae, sparsely distributed. Fine and very regular rugae present in dorsal surface of head, diverging towards occipital corners. Area between rugae, on dorsal surface of head, shagreened.

Head: slightly wider than long (CI= 103-108). Posterior margin slightly concave



**Figs. 1-4.** *Pogonomyrmex mendozanus* sp. nov. 1, worker head in full face view; 2, mesosoma and petiole. *Pogonomyrmex kusnezovi* sp. nov. 3, worker head in full face view; 4, mesosoma and petiole (Scale = 1 mm).

(Fig. 1), with longitudinal rugae, without transverse rugae. Mandible strongly striated with six teeth. Anterior clypeal margin convex, bidentate. Clypeal area, between frontal lobes, with six-eighth rugae always present. Eye convex, protruding from side of head, centered on midpoint of side of head, without hairs between ommatidia. Scape not reaching posterior margin of head, but surpassing midpoint between posterior edge of eye and occipital margin (Fig. 1). Scape covered by longitudinal rugae moderately to weakly developed. Psammophore well developed. Palpal formula: 4:3.

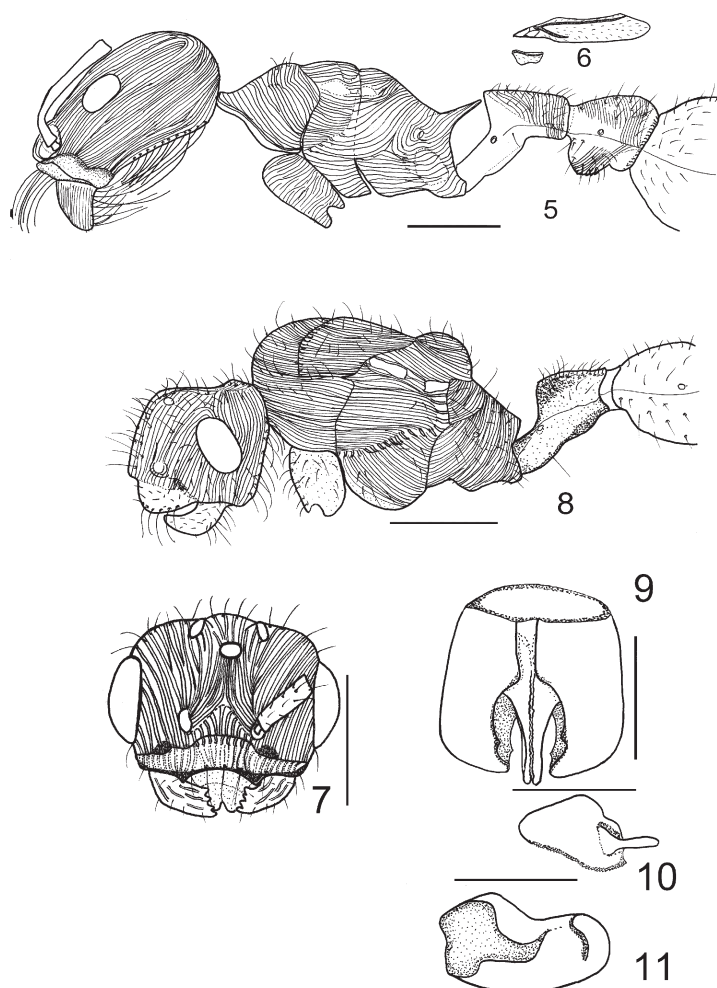
Mesosoma: profile interrupted by a strong ruga placed between mesonotum and propodeum (Fig. 2) Pronotal collar smooth and shiny. Dorso-lateral angle of pronotum poorly developed, rounded. From side view, pronotal profile higher than mesonotum

(Fig. 2). Dorsal surface of pronotum covered with thick rugae, conspicuous and extensive. Humerus angular, with tubercle rounded. Propodeal rugae fine, regular and transverse. Procoxa with transverse rugae strongly developed. Dorsal propodeal spine well developed, slender and acutely pointed, more than twice as long as ventral spine, connected by conspicuous keel to contralateral tooth.

Petiole: peduncle smooth and shining with a very weak ventral process (Fig. 2). Petiolar node elongated, more than twice longer than wide. Dorsal face with transversal rugae.

Postpetiole: dorsal surface with transversal rugae. Ventral process strongly developed and covered with transverse rugae.

Gaster: smooth and shiny with sparse piligerous punctulae. First segment without rugae.



Figs. 5-11. *Pogonomyrmex mendozani* sp. nov. 5, queen: mesosoma and petiole in lateral view; 6, fore and hind wings of queen; 7, male: head in full face view; 8, male: lateral view, excluding gaster; 9, male genital capsule in ventral view; 10, aedeagus; 11, parameres in lateral view (Scale = 1 mm).

### Queen

**Measurements.** n=4. HL: 2.075-2.3; HW: 2.43-2.73; ML: 1.03-1.28; EL: 0.48-0.53; EW: 0.2-0.28; SL: 1.55-1.65; DFL: 0.88-1.00; OCD: 0.6-0.7; PW: 1.45-1.58; WL: 2.4-2.73; CI:117-119; MI: 0.42-0.47; OI: 0.04-0.05; SI: 60-64.

Same pattern of color and sculpture as worker.

Head: Mandible striated with only six teeth. Scape short, not reaching posterior cephalic margin, covered with very fine rugae. Occipital margin slightly concave in

middle.

Mesosoma: Similar to worker in color and sculpture (Fig. 5). All four examined specimens are brachypterous. Forewing with only two longitudinal dark veins and no cells or pterostigma (Fig. 6).

Petiole and Postpetiole: Dorsal and lateral faces transversely striated (Fig. 5).

Gaster: First gastral segment without sculpture, covered by scattered and appressed hairs.

### Male

**Measurements.** n=1. HL: 1.2; HW: 1.48;

ML: 2.5; EL: 0.55; EW: 0.18; SL: 0.45; PW: 1.4; WL: 2.5; CI: 123; MI: 169; OI: 0.07; SI: 30.

Pattern of color similar to that of worker and queen.

Head: subquadrate in frontal view, with posterior margin convex, with its maximum width after compound eyes (Fig. 7). Dorsal surface of body with short and whitish setae, sparsely distributed. Fine and very regular rugae present in dorsal surface of head, diverging towards occipital corners. Vertex covered with transverse rugae. Compound eye well developed, convex, occupying more than one-third of lateral cephalic margin. Clypeus without smooth areas, all its dorsal surface covered by longitudinal rugae. Mandible with rugae on the outermost margin and with only four teeth. Scape shorter than combined length of first two flagellar segments, without rugae and with short, erect whitish hairs.

Mesosoma: in profile strongly sculptured with longitudinal rugae (Fig. 8). Fore and hind wings well developed. Fore wing with two closed cubital cells and one discoidal cell. Hind wing with only two closed basal cells and a narrow costal cell. Hamulus with 10 hooks. Fore and hind wing disc covered with short hairs. Anterior surface of first coxa with long hairs. Coxa I shining. Propodeum without teeth, spines or tubercles in lateral view.

Petiole: Dorsal face areolate in lateral view, with very small ventral process below peduncle (Fig. 8).

Postpetiole: Dorsal face with few rugae.

Gaster: with only 5 visible tergites and 6 sternites. Pigostyle short, but present. Genital capsule strongly sclerotized (Fig. 9). Paramere without a differentiated cuspis (Fig. 10). Ventral border of aedeagus in lateral view with row of minute teeth (Fig. 11).

**Etymology:** The species name, *P. mendozanus*, refers to the province of Mendoza, Argentina, where this species was first collected.

**Type material.** Holotype worker (1w), Argentina, Provincia de Mendoza, Santa

Rosa, Ñacuñán, 12-II-1997, Silvia Claver coll. (deposited at IADIZA, Mendoza, Argentina). Paratypes (n= 106 workers, 1 male, 4 queens) from same locality and collector as the holotype, several samples collected with different data: 5w, 03-XII-1981; 9w, 16-III-1982; 67w, 26-III-98; 9w, 12-II-1997; 11w, 20-II-1997; 5w, 12-VI-1997; Paratypes will be deposited at the following institutions: 56w, 1m and 2q at IADIZA, 10w at MZSP, 5w at ICN, 5w at MIZA, 30w and 2q at IFML.

**Additional examined material:** For comparison, material from *P. pronotalis* workers from IFML, MACN, and MLP was examined.

**Type locality:** Argentina, Mendoza province, Dto. Santa Rosa, Ñacuñán.

**Discussion:** This species might be confused with *P. pronotalis* by color of the body, pilosity, and general aspect. Apparently, *P. pronotalis* is an endemic Argentinean species only known from the type locality: Cajón del Guanaco, Mendoza, Argentina. *Pogonomyrmex mendozanus* sp. nov. was mentioned as *Pogonomyrmex pronotalis* in Claver and Fowler (1993). The following characters are useful to separate both species: head sculpture fine and more regular in *P. mendozanus*, without transversal rugae on the occipital margin; posterior clypeal surface between frontal lobes with only 3-4 longitudinal rugae in *P. pronotalis*, more than 6 in *P. mendozanus*; mesosomal profile, in lateral view, continuous in *P. pronotalis* and interrupted by a strong metanotal carina in *P. mendozanus*; propodeal spine in *P. mendozanus* longer than in *P. pronotalis*; body sculpture in *P. mendozanus* more regular in dorsal and lateral view; both species have erect setae in dorsal surface of head, mesosoma and gaster, but this are shorter and sparsely in *P. mendozanus*; postpetiolar ventral process more developed in *P. pronotalis*, present but reduced in *P. mendozanus*.

**Biology.** We observed more than 20 nests of *Pogonomyrmex mendozanus* sp.