

# *Megachile (D.) semirufa* Sichel (Hymenoptera, Megachilidae): Redescription and First Argentinean Records

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## ABSTRACT

*M.(D.) semirufa* is redescribed based on a lectotype and paralectotype, here designed, and new characters for their identification are included. New country record for Argentina is given.

**Keywords.** Hymenoptera. Megachilidae. *Megachile (Dasymegachile) semirufa*. Redescription. Distribution.

## INTRODUCTION

*Megachile semirufa* was described by Sichel (1867) (female and male, Chile). Pérez (1899) described *M. porteri* (female, Valparaiso, Chile); and the synonymy of both species was established by Jaffuel and Pirion (1926). On the other hand, the species was assigned to the subgenus *Dasymegachile* by Mitchell (1943); later *Dasymegachile* was transferred to the genus *Cressoniella* by Mitchell (1980), and recently Michener (2000) included the subgenus in the Group 1 of genus *Megachile*. Until the present this species was mentioned only from Chile (Gazulla and Ruiz 1928; Ruiz and Stuardo 1935; Ruiz 1942), central region (Toro 1986) and Magallanic Region (Pérez D'A. and Petersen 1989) of this country. We have found *Megachile semirufa* at six new localities in Argentina.

In the present paper we redescribe *M. (D.) semirufa* based on a lectotype and paralectotypes, which are here designated, and include some new characters for its recognition and some new localities which update its distribution.

## MATERIAL AND METHODS

The examined material is housed at the Museum National D'Histoire Naturelle, Paris, France (MNHN), Museo Argentino de Cs. Naturales "Bernardino Rivadavia", Buenos Aires (MACN), Museo de La Plata, Argentina (MLP), and Snow Entomological Museum, University of Kansas, USA (SEMC). Morphological terminology follows Engel (2001), Mitchell (1980) and Fischer (1956). The following abbreviations are used in the descriptions: F, flagellomere; S, metasomal sternum; Sc, scape;

Pe, pedicel; T, metasomal tergum. All measurements are indicated in millimeters and were taken with an ocular micrometer attached to a stereoscopic microscope. For examination with scanning microscope (SEM) Jeol-JSM-T100, specimens were mounted on metal studs, coated with gold-palladium.

**Megachile (Dasymegachile) semirufa** Sichel (Figs. 1-7)

*Megachile semirufa* Sichel, 1867: 150

*Megachile porteri* Pérez, 1899: 108.

*Megachile (Dasymegachile) semirufa*, Mitchell, 1943: 669.

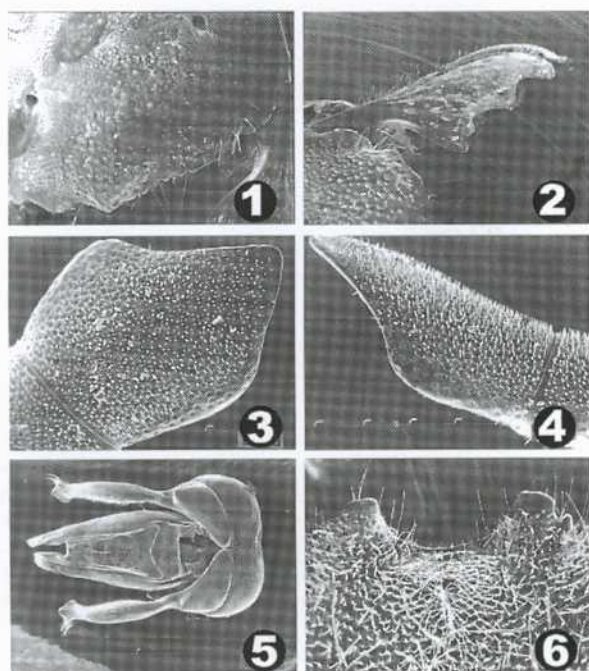
**Redescription.**—**Lectotype. Female.** Length, 15.24 mm. *Color.* Black. Mandible reddish brown near the teeth. Wing yellowish brown; tegula and veins dark brown. Legs and tibial spurs brown, protibial spur pale brown. Claws brown, ferruginous basally.

*Pubescence.* Generally long and abundant, coloration ferruginous and black. Clypeus, supraclypeal area, paraocular area, frons and gena with abundant black pubescence. Occipital area and vertex with abundant ferruginous hairs, vertex with intermixed sparse black hairs. Mesoscutum, scutellum, tegula, pronotal lobe, upper portion of episternum, metanotum and propodeal triangle with ferruginous hairs; mesosoma ventrally black; legs with black setae; inner face of protibia, mesotibia and tarsus dark brown. T1-4 with ferruginous pubescence and T5-6 completely black; T and S without apical faciae. Scopa black; E6 with black scopal hairs.

*Sculpture.* Integument of the head generally coriaceous; strongly punctured; punctures with different diameter; clypeus with punctation dense, medial area with scattered punctures. *Structure.* Head, maximum width 4.92, maximum length 3.48. Width of clypeus more than twice its length (4.05-1.89). Transverse portion of the epistomal sulcus straight, apical margin irregular (Fig. 1); clypeus and supraclypeal area elevated as seen in profile. Paraocular area around antennal socket strongly depressed; posterior margin of vertex concave; gena subrectangular, narrower in upper area; maximum width of gena nearly equal to maximum width of compound eye (1.58-1.62); eyes slightly convergent below; paraocular carina present; upper interorbital distance slightly longer than lower interorbital distance (4.70-4.09); orbitooccipital distance 1.01; maximum width and maximum length of eye 2.02-4.57; interantennal distance longer than antennocellar distance (to median ocellus) (1.32-1.04), longer than antennocular distance (1.32-1.1), and longer than antennoclypeal distance (1.32-0.70). Sc, 1.10; Pe, 0.18; F1, 0.28; F2, 0.22; F3, 0.26; Sc longer than F1+F2+F3 (1.10-0.76). Ocellus located below supraorbital tangent line; interocellar distance (between lateral ocelli) shorter than ocellular distance (to lateral ocellus) (1.14-1.23) and subequal to ocellocipital distance (to lateral ocellus) (1.14-1.19). Mandible tridentate, with incomplete cutting edge in the second interspace and complete in the third interspace; tooth 4 blunt (Fig. 2). Scutellum rounded without a median elevation; metanotum vertical. Promediotarsus and mesomediotarsus cordate, metamediotarsus subcylindrical. *Metasoma*, T6, in dorsal view, rounded, in lateral view, concave.

**Male (Paralectotype).** Length. 10.86. Male differs from female by the following characters.

*Color.* Dark brown. Tegula and veins brown; protarsus brown, without black spot. Metasomal sternum reddish brown. *Pubescence.* Clypeus, supraclypeal area, paraocular area, with long, abundant and yellow to ferruginous hairs; frons and vertex with long, abundant and ferruginous pubescence; lower margin of mandible with brown yellowish pubescence; procoxae hairy; profemur, posterior surface with long, abundant, yellow pubescence; inner surface of protarsus,



Figs. 1-6. *Megachile (Dasymegachile) semirufa*, 1-2, Female. 1, Clypeus. 2, Mandible. 3-6, Male. 3-4, Antenna, F11. 5, Metasomal T6, dorsal view of carina. 6, Genitalia, dorsal view.

protibia and mesotibia with yellow hairs, mesotarsus and metatarsus ferruginous. Metasoma ventrally with sparse, dark brown pubescence. *Sculpture*. Integument relatively coriaceous. Head with dense punctures; clypeus with dense punctation. *Structure*. Head, maximum width 4.44, maximum length 2.88. Width of clypeus more than twice its length (3.60-1.54), upper clypeal area slightly protuberant; frons without tubercles; maximum width of gena narrower than maximum width of compound eye (1.23:1.40); hypostomal area flattened, without angle or projections; upper interorbital distance longer than lower interorbital distance (3.96:3.60); orbitoccipital distance 0.88; maximum width and maximum length of eye 2.02:4.09; interantennal distance longer than antennocellar distance (to median ocellus) (1.23:0.96), longer than antennocular distance (1.23:0.88) and longer than antennoclypeal distance (11.23:0.79); Sc, Pe and F1-F3= 1:0.15:0.26:0.31:0.32 (Fig. 3); scape longer than F1+F2+F3 (1:0.89); F11 lanceolate, with asymmetric sides, apex tapered (Figs. 3-4). Ocellus located above supraorbital line; interocellar distance (between lateral ocelli) subequal to ocellocular distance (to lateral ocellus) (1.10:1.14) and longer than ocellocipital distance (to lateral ocellus) (1.10:0.88). Mandible tridentate; without mandibular process. Procoxae with reduced tubercles; probasitarsus unmodified, basitarsal lobe absent. Mesotibial spur well developed. *Metasoma*, carina of T6 strongly emarginated, U-shaped, margin slightly serrulate and irregular; with anterior depression (Fig. 5). S5. Lateral portions of pregradular area broad as long; apical pubescence long and marginal; median portion of pregradular area narrow. Gradulus conspicuous medially. Postgradular area completely covered with simple and long hairs, apical margin



Figs. 7. *Megachile (Dasymegachile) semirufa*, geographic distribution (it includes references of the material studied and others records cited in the literature).

convex and pilose. Apical rim slightly arcuate. S6. Pregradular area well separated, quadrate, apical margin sinuate and pilose, with scarce hairy. Pubescence of postgradular area composed of lateral patch of simple setae, separate medially. Apical rim with conspicuous lateral lobes and straight medially. S7. Absent. S8. Apical lobe with distal margin bilobate, lateral margin straight and pilose (2-4 setae); surface subapically covered with fine and long hairs; basal margin acute. *Genitalia* (Fig. 6). Gonobase wider than long, basal margin concave medially. Gonoforceps slightly subcylindrical, with basal projection, inner surface hairy, apex simple, lanceolate and asymmetric, with subterminal brush of setae, their length not exceeding penis valve length. Penis valve flattened laterally; penis valve bridge subrectangular, superior margin arcuate and inferior margin straight. Volsella scarcely developed, acute.

*Variation.*— Ferruginous hairs are yellowish either pale yellow, and black hairs are dark brown. In some specimens the pilosity on episternum is almost completely ferruginous. In some females, the extent of the ferruginous pubescence on face, posterior surface of profemur and inferior portion of gena is variable. In others specimens hairs on first and second escopal sternum are ferruginous. In some males, hairs of lower margin of mandible are ferruginous.

*Remarks.*—Sichel in 1867 designated two syntypes, one of the each sex. Within the series housed at the Museum National d'Histoire Naturelle, Paris, we have found 10 specimens of *Megachile semirufa*, seven females and three males from Chile, whose labels correspond to Sichel's paper. We believe that these specimens belong to type series. We also found one specimen with a lectotype label written by Moure in 1958; however there is no published lectotype designation. For this reason, we designate herein the female selected by Moure as lectotype and the remaining nine syntypes as paralectotypes.

We agree with the synonymy established by Jaffuel and Pirion (*op. cit.*) and the assignment of this species to group 1 of *Megachile* (Michener, 2000). This species resembles *M. (D.) australis* in coloration and morphology. *M. (D.) semirufa* is distinguished by the yellow to ferruginous pubescence of T1-T4; the straight epistomal sulcus of the clypeus in the female; the elevated clypeus and supraclypeal area as seen in profile; and the strongly depressed area around antennal socket. Male with F11 lanceolate and with asymmetric sides, apex tapered; protarsus with brown integument and yellow pubescence; carina of T6 strongly emarginated, U-shaped, with anterior depression; genitalia with basal margin of gonobase concave medially; gonoforceps slightly subcylindrical, apex simple, lanceolate and asymmetric, with subterminal brush of setae.

*Distribution.*—(Fig. 7) *M. (D.) semirufa* is distributed in central and austral region of Chile, and in southwestern Neuquén and Santa Cruz province, in Argentina. The biogeographic distribution of this species corresponds with the three subregions of the Andean Region: Central Chilean, Subantarctic and Patagonian (Morrone, 2001).

*Material Type examined.*—CHILE. Lectotype female labeled: "Chili", "Museum Paris/Chili/Coll. O. Sichel 1867" (green label), "M. Spino/lae \_\_", "Lectotype of / *M. semirufa*/ Sichel/ P.J.S. Moure 58" (red label) (MNHN). Paralectotype, 6 females and 3 males labeled: "Chili", "Museum Paris/Chili/Coll. O. Sichel 1867" (green label), "M. Spino/lae \_\_" (MNHN).

*Additional material examined.*—ARGENTINA (New records). Neuquén, Pucará (P.N. Lanín), XII-1950, Schajovskoi 1 female (MLP); Pucará (P.N. Lanín), XII-1952, Schajovskoi, 1 female (MLP); Pucará (P.N. Lanín), XII-1956, Schajovskoi, 1 male; Pucará (Lacar), II-1953, Oglöblin, 1 H (MLP); Isla Victoria (Nahuel Huapi), 1943, Harrilenku, 4 females (MLP); Isla Victoria (Nahuel Huapi), no date, Harrilenku, 1 female (MLP); Quila-Quina, 18-I-1941, 1 female (MLP); Isla Victoria, no date, 1 female (MLP); San Martín de Los Andes, I-1941, Bridarolli, 1 female, 4 males (MLP); Lago Hermoso (P.N. Lanín), XI-1949, Schajovskoi, 1 female (MLP); Nahuel Huapi, no date, 2 females (MACN); La Lipela, 24-XI-1964, Gai, 1 male (SEMC); Santa Cruz. Valle Túnel, no date, 1 females, 2 males (MLP); CHILE. *Área Metropolitana*. Santiago, I-1030 Mortera, 1 male (MLP); Nos, XI-1909, Videla, 1 female, 1 male (MACN); Nos, 1911, (col. Porter), 10 females, 2 male (MNHN); *Biobío*. Concepción, 15-I-1905, Herbst (col. Vachal), 1 male (MNHN); *Los Lagos*. Chiloé, 1915, Pérez, 1 male (MNHN); Valdivia, 1919, (col. J. De Gaullé), 1 female (MNHN); *Valparaíso*. Valparaíso, 1915 (col. Pérez), 1 female (MNHN); Valparaíso, Reed, 2 males (MACN); Los Andes, Aconcagua, 9-XII-1944, Ramirez, 1 male (MLP).

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