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Puelchesia gracilis, a new genus and species of Pachydemini endemic to the Monte biogeographic province in Argentina (Coleoptera: Scarabaeidae: Melolonthinae)

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Abstract

A new scarab beetle genus and species, *Puelchesia gracilis*, is described based on specimens collected in the Monte biogeographic province of west central Argentina. This genus is placed in the tribe Pachydemini based on an evaluation of the characters within the context of the current classification of the subfamily Melolonthinae. The distribution and natural history of the taxon is also discussed.

Key words: Argentina, new species, Pachydemini, Melolonthinae

Resumen

Puelchesia gracilis, nuevo género y nueva especie, es descripto en base a ejemplares colectados en la provincia biogeoráfica del Monte and el centro Oeste de Argentina. Éste género es ubicado en la tribu Pachidemini en base a la evaluación de caracteres en el contexto de la clasificación actual de Melolonthinae. La distribución e historia natural del taxon son discutidos.

Introduction

During one night of collecting near the southern border of Mendoza Province in central Argentina, we collected numerous specimens of a new melolonthine species and genus. Subsequently, a number of additional specimens were discovered in museum collections. The new taxon has a set of characters that places it within the tribe Pachydemini in the current classification scheme of the subfamily Melolonthinae (Scarabaeidae) (Evans

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2003).

The purpose of this paper is to describe the new genus and species and to discuss what is know of its distribution and natural history.

Materials and methods

Definition of taxonomic characters and character examination

Internal and external morphological characters formed the basis of this work. Specimens were examined using a dissecting microscope (6.5 to 40 X) and fiber-optic lights. For measurements, we used an ocular micrometer. Internal sclerotized structures were dissected by relaxing the specimen in hot water. Heavily sclerotized parts were soaked in a dilute solution (about 15%) of potassium hydroxide and neutralized in a dilute solution (about 15%) of acetic acid. For dissected specimens, wings and genitalia were card-mounted or placed in a glycerin-filled vial beneath the specimen.

The following standards were used for characters:

Body Length. Measured from the apex of the clypeus to the apex of the elytra.

Puncture Density. Defined as dense if punctures are nearly confluent to less than two puncture diameters apart, moderately dense if punctures are between two to six puncture diameters apart, and sparse if punctures are separated by more than six puncture diameters.

Length of Setae. Defined as minute if less than 0.2 mm, short if between 0.2–0.5 mm, moderately long if between 0.5–1.0 mm, and long if between 1.0–2.0 mm.

Type of Setae. Defined as ‘‘hair-like’’ if slender and erect (Figs. 1–3), ‘‘thickened’’ if slightly thick and erect or partially decumbent (Figs. 1, 2, 7, 8), and ‘‘spine-like’’ if broad and thick (Figs. 1, 2, 7, 8). Setae are subject to wear and may be abraded.

Color. Described based on specimens that are viewed with magnification and illumination.

Material examined

The results of this study were based on specimens from the following institutions and collections. The collections and their acronyms are as follows.

ABTS	Andrew B. T. Smith Collection, Ottawa, Canada.
CMNC	Canadian Museum of Nature, Ottawa, Canada (R. S. Anderson, F. Génier).
CNCI	Canadian National Collection of Insects, Ottawa, Canada (P. Bouchard).
FCOC	Federico Carlos Ocampo Collection. Buenos Aires, Argentina.
FMNH	Field Museum of Natural History, Chicago, IL, USA (A. Newton, M. Thayer).
HAHC	Henry and Anne Howden Collection, Ottawa, Canada.
IADIZA	Instituto Argentino de Investigaciones de Zonas Aridas, Argentina (S. Roig-Juñent).
MLPA	Museo de La Plata, La Plata, Argentina (A. Lanteri).

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MNNC Museo Nacional de Historia Natural, Santiago, Chile (M. Elgueta).
UNSM University of Nebraska State Museum, Lincoln, NE, USA (B. Ratcliffe, M. L. Jameson).
USNM United States National Museum, Washington D.C., USA (D. Furth).

***Puelchesia* Ocampo and Smith, gen. nov.**
(Figs. 1–13)

Type species. *Puelchesia gracilis* Ocampo and Smith, here designated.

Description. *Head* (Figs. 1–4): Eye canthus absent (Figs. 3, 4). Clypeus broadly rounded, margin reflexed. Labrum reduced, conical, not visible beyond clypeal margin. Labium reduced, labial palpus absent. Antennae with 8 antennomeres, antennal club 3-segmented. *Pronotum* (Figs. 1–3): Convex, wider than long. Marginal bead present in all margins; anterior margin concave, with membrane; lateral margins slightly angular; posterior margin slightly sinuous. Anterior angles acute; posterior angles broadly rounded. *Elytra* (Figs. 1, 2): Convex, elongate, subparallel, completely covering dorsal surface of abdomen. Elytra with 9 striae. *Venter*: 3 ventrites exposed medially, penultimate ventrite broadly membranous on apical margin. Pygidium oblique with respect to body, not recumbent toward metacoxae. *Legs* (Figs. 1, 2, 7–9): Protibiae with 3 teeth, protibial spur slightly curved. Meso- and metatibiae with medial transverse carinae. Meso- and metatibial spurs subcontiguous, metatibial spurs both set below tarsal articulation. Metatibial tarsal insertion simple, without notch. Metatarsus 1.7 times longer than metatibia. Pro-, meso-, and metatarsomeres 1–4 subequal in length, tarsomere 5 longer than 1–4 individually; all tarsi with long, apical setae (Figs. 1, 2, 7, 8). Tarsal claws simple (without teeth, lobes, or bifurcations), symmetrical (Figs. 1, 2, 7, 8). *Male Genitalia* (Figs. 10, 11): parameres simple, symmetrical, elongate, gracile,

Classification. This genus is placed in the tribe Pachydemini based on the characters listed below in the Diagnosis section. The tribe Pachydemini includes 116 genera and approximately 530 species worldwide (Evans 2003; Smith & Evans 2005; Lacroix 2006). They are distributed in all major biogeographic regions except India and Australia. Neotropical Pachydemini are mainly distributed in the Monte, Chacoan, Central Chile, and Patagonian biogeographical provinces. In the Neotropics, the group is represented by 18 genera and approximately 30 species, although several new taxa are in the process of being described by the senior author and Eider Ruiz Manzanos. The classification of this tribe is tenuous (Evans 1988, San Martin & Martín Piera 2000) and is currently under review by Ocampo and Eider Ruiz-Manzanos. Under the current Melolonthinae classification system, the placement of this genus in Pachydemini is warranted.

Etymology. *Puelchesia* is a Latinization of the name for the Puelches indigenous people from southern Mendoza. The name is feminine in gender.

Diagnosis. The genus *Puelchesia* can be distinguished from all other Neotropical

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Melolonthinae by the following combination of characters: size 5 mm or less; clypeus broadly rounded; labrum reduced, conical, not visible beyond clypeal margin; antennae with 8 antennomeres, antennal club 3-segmented; venter with 3 ventrites exposed medially; pygidium oblique with respect to body, not recumbent toward metacoxae; metatibial spurs subcontiguous, both set below tarsal articulation; metatarsus longer than metatibia; pro-, meso-, and metatarsomeres 1–4 subequal in length, tarsomere 5 1.3 times longer than 1–4 individually; tarsal claws simple (not toothed), symmetrical.

Neotropical Pachydemini were briefly reviewed by Martínez (1975), who also provided a genus-level key to the tribe. *Puelchesia* will key out to the subgenus *Acylochilus* (*Acylochiloides*) Martínez in Martínez's key but can be separated from this genus by having the metatibia longer than the metafemur (shorter in *Acylochilus*); the pygidial apex not recumbent toward the metacoxae; three ventrites exposed (one ventrite is exposed in *Acylochilus*); and elongate, gracile parameres (short and thick in *Acylochilus*). Due to the small size of *Puelchesia*, it could also be confused with the genus *Longicrura* Frey. However, the later genus is known only from Brazil, has 9 antennomeres, and dentate claws.

***Puelchesia gracilis* Ocampo and Smith sp. nov.**
(Figs. 1–13)

Type material. The type series consists of a holotype and 136 paratypes. Holotype male at IADIZA labeled: "ARGENTINA: Mendoza / RP 20, 36 km W Pata Mora / S 36° 58' 20" W 69° 06' 19" / Jan-7-2003, 1145 m / F. C. Ocampo, A. B. T. Smith" and "*Puelchesia gracilis* / HOLOTYPE / F. C. Ocampo / and A. B. T. Smith" (red holotype label, handwritten). Seventy-eight paratypes with same label as holotype at ABTS (10), CMNC (10), CNCI (3), FCOC (12), FMNH (2), IADIZA (12), MLPA (5), MNNC (5), UNSM (15), USNM (4). One paratype at IADIZA is a DNA voucher specimen stored in 95% alcohol and preserved at -80° C. It bears the additional label "UNSM SCARAB DNA / VOUCHER SPECIMEN / AS 118 / MAY 2003" (label with black double border). Thirty-five paratypes labeled: "Malargüe: a 7 km / de Ranquil camino a / Barrancas / 24-1-79 / Sergio Roig" at FCOC (3), ABTS (2), IADIZA (25), and UNSM (5). Two paratypes at IADIZA labeled: "Malergüe: camino / a Barrancas a / 7 km de Ranquil Norte / 24-1-79 / Sergio Roig." One paratype at IADIZA labeled: "Malargüe: Entre / Ranquil Norte y Ba- / rrancas, 27 km de Ranquil / 24-1-79. / Sergio Roig." One paratype at IADIZA labeled: "San Rafael / 25 de Mayo / 1-ii-79 / Sergio Roig." Four paratypes at IADIZA labeled: "Mendoza: San Rafael / 6 km N Punta del Agua / 14/XII/98 Flores/Roig" and "35° 28.25'S / 68° 04.32'W." Thirteen paratypes deposited in ABTS (1), FCOC (1), UNSM (1), and IADIZA (10) labeled: "RA Mza Malargüe O de / Sierra Chachahuen / 07-1-03 S. Roig Debandi." Two paratypes at HAHC labeled: "ARGENTINA: Pr. / de La Pampa / Col. 25 de Mayo / 29-30.XII.1970 / A. Martínez" and "H. & A. HOWDEN / COLLECTION /

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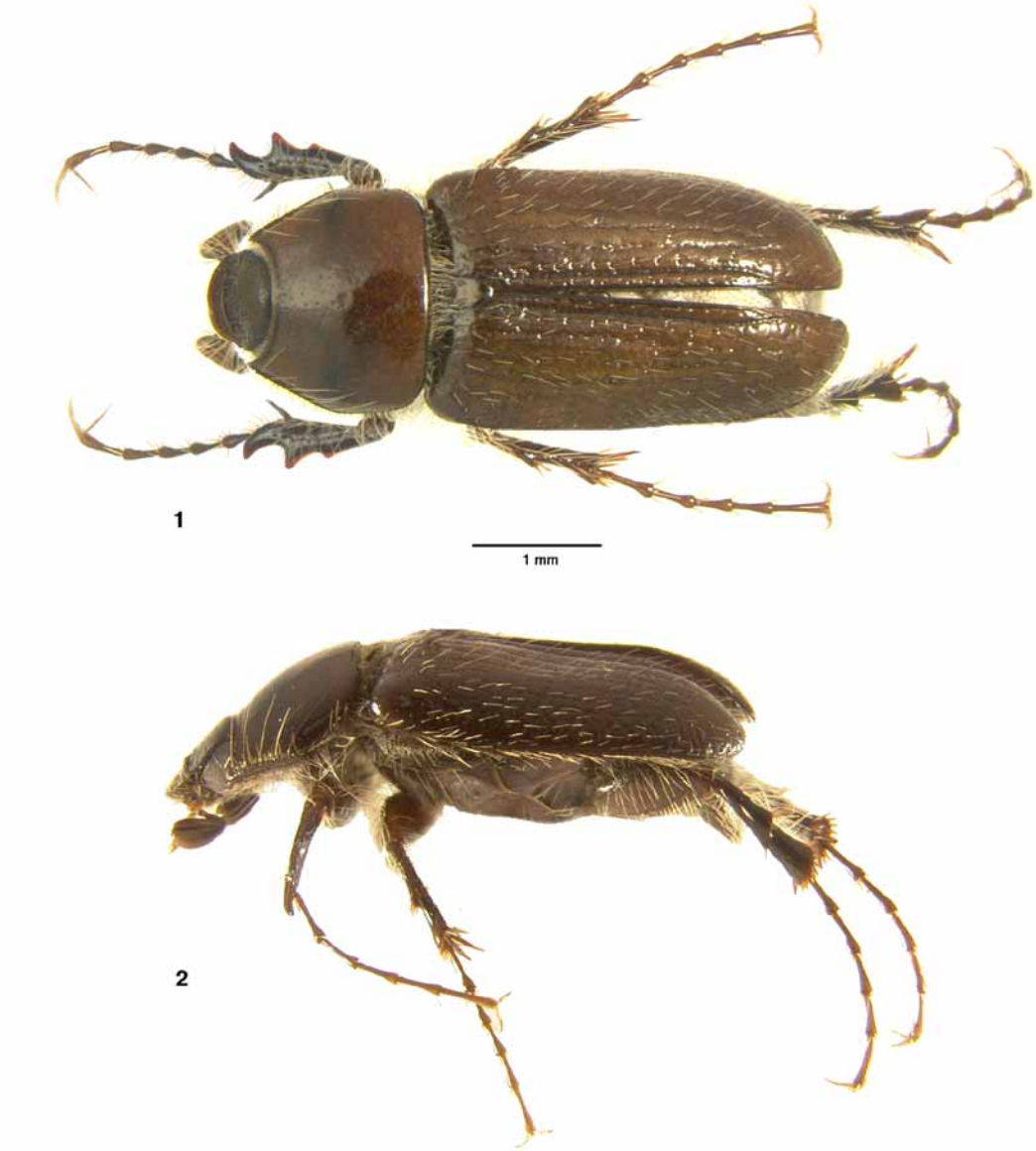
Ottawa, Canada" (white label with black border). All paratypes with a yellow paratype label: "*Puelchesia gracilis* / PARATYPE / Ocampo and Smith."

Type locality. Argentina, Mendoza, 36 km west of Pata Mora, S 36° 58' 20" W 69° 06' 19" (Fig. 12).



FIGURES 1–2. *Puelchesia gracilis* dorsal and lateral view.

Description of holotype. Male. Length 4.81 mm, width 1.93 mm. Head, pronotum, elytra, venter, and legs light brown; head and legs darker brown. Surface shiny. *Head* (Figs. 3, 4): Surface glabrous; flat except for weak medial tubercle near frontoclypeal suture; densely punctate, punctures moderate in size (0.03–0.08 mm). Interocular width

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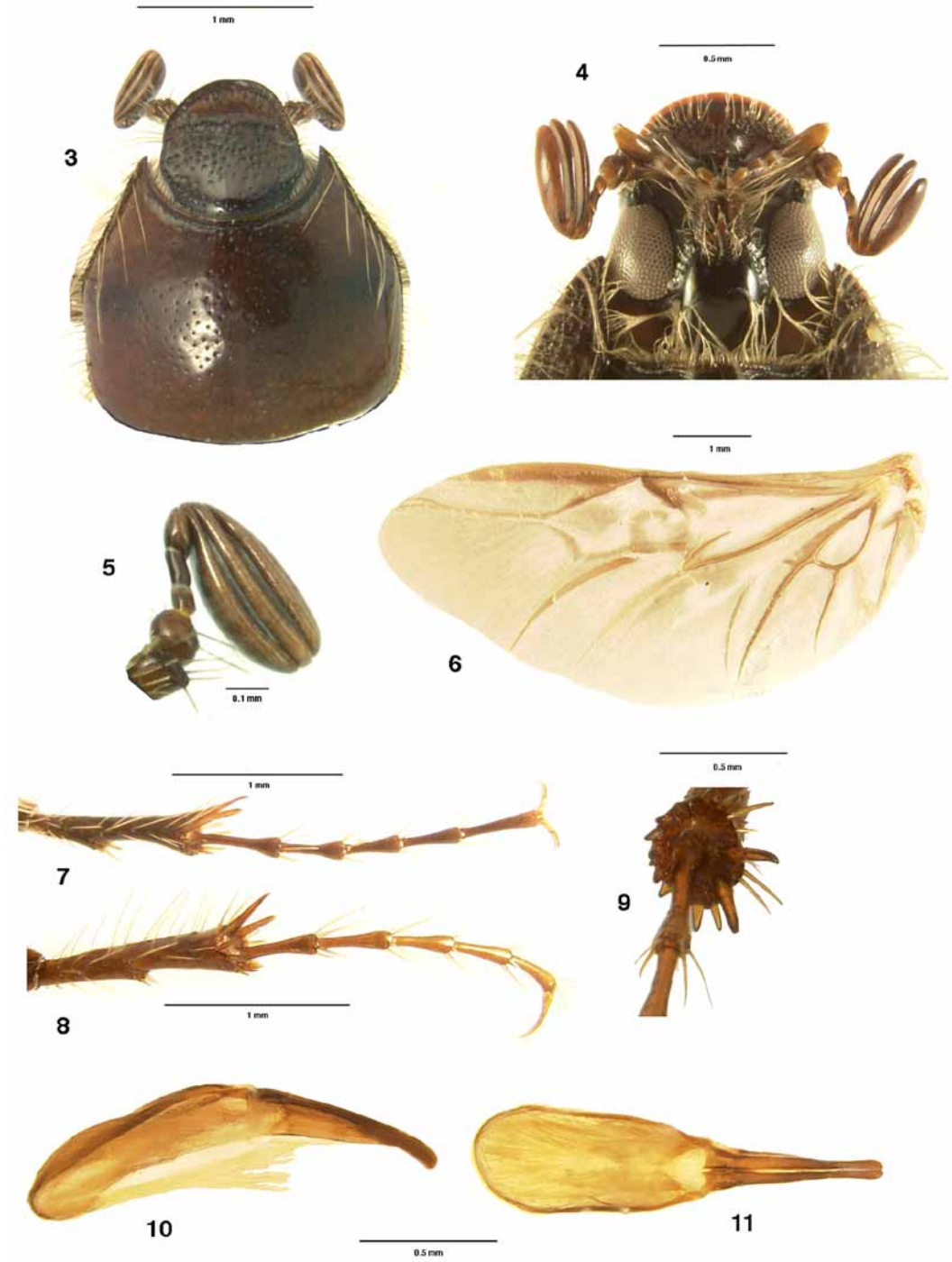

FIGURES 3–11. *Puelchesia gracilis*; 3) head and pronotum, dorsal view; 4) head, ventral view; 5) antenna, dorsal view; 6) left hind wing; 7) left mesotibia and tarsus; 8) left metatibia and tarsus; 9) metatibial apex; 10, 11) male genitalia, lateral and dorsal view.

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0.26 mm. Eye canthus absent (Figs. 3, 4). Frontoclypeal suture well defined, complete. Clypeus broadly rounded; surface flat, sparsely punctate; punctures moderate in size (0.03–0.08 mm) (Fig. 3). Clypeal margin reflexed. Clypeal ventral surface setose, setae long. Labrum reduced, conical, setose; setae moderate in length. Labium reduced, labial palpi absent. Maxillae reduced, maxillary palpi with 4 palpomeres, palpomere 4 as long as palpomere 1–3 combined. Antennae with 8 antennomeres; antennomere 1 robust; antennomere 2 globose; antennomere 3–4 cylindrical; antennomere 5 short, wider than long; antennal club 3-segmented, segments tomentose on margins and apex (Figs. 4, 5). *Pronotum* (Figs. 1–3): Convex, wider than long at middle. Surface glabrous, sparsely punctate; punctures moderate in size (0.03–0.08 mm). Marginal bead present; anterior margin concave, with membrane; lateral margins slightly angular, setose (setae hair-like, long); posterior margin slightly sinuous. Anterior angles acute; posterior angles broadly rounded. *Scutellum* (Fig. 1): Surface shiny, glabrous, apex rounded. *Elytra* (Fig. 1, 2): Convex, elongate, subparallel. Surface shiny, sparsely punctate, setose; punctures moderate in size (0.03–0.08 mm); setae long, hair-like. Elytra with 9 striae; area between elytral suture and stria 1 (1st interstria) tapered at apex; stria 1 impressed; striae and interstriae punctate, setose. Elytral margins setose; setae long, hair-like. *Hind wings* (Fig. 6): Subcostal and radial vein well sclerotized, not reaching radial sector vein at wing apex; radial sector vein forked at apex; medial vein well developed; medial loop short; cubital vein poorly sclerotized apical to medial loop connection; anal veins 1 and 2 connected. *Venter*: Pro- and metasternum with surface glabrous, margins setose; setae long or short. Metasternum with surface sparsely setose, outer half more densely setose; slightly concave on outer half. Three ventrites exposed medially. Penultimate ventrite broadly membranous on apical margin, sparsely setose; setae long. *Legs* (Figs. 1, 2, 7–9): Coxae sparsely setose, setae long. Femora with surface smooth, with fringe of setae on anterior face, sparsely setose dorsally. Protibiae with 3 teeth; basal tooth small, apical tooth longer than protibial spur; surface with two fringes of long setae (Fig. 1); protibial spur slightly curved. Meso- and metatibiae with medial transverse carinae, carinae with 4–6 spine-like setae; apex semicircular, transversely truncate (Figs. 7, 8). Meso- and metatibial spurs subcontiguous, medial. Metatibial tarsal insertion simple, without notch (Fig. 9). Pro-, meso-, and metatarsomeres 1–4 subequal in length, tarsomere 5 1.3 times longer than 1–4 individually; apex of all tarsi with long, apical setae (Figs. 1, 2, 7, 8). Tarsal claws simple, gracile, symmetrical. *Genitalia* (Figs. 10, 11): Parameres simple, symmetrical, elongate, gracile.

Female. Unknown.

Paratypes. Length 3.70–5.60 mm. width 1.85–2.10 mm. The paratypes do not vary significantly from the description of the holotype.

Etymology. *Gracilis* is Latin, meaning slender. This refers to the general form of this species.

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FIGURE 12. The type locality of *Puelchesia gracilis*.

Natural history. The bulk of the type series of this species was collected in a canyon beside a dry river bed (Fig. 12). At the time these scarabs were collected, the canyon was extremely dry and it was obvious that it had not rained recently. There was very little insect activity and *Puelchesia gracilis* was the only species that came to our lights in any significant numbers. We used 250 watt mercury vapor bulbs at night to attract this species. We did not observe this species on any of the plants around the collecting area. Further natural history details are unknown.

Habitat and distribution (Figs. 12, 13). The Monte Central is a part of the Monte biogeographic province, which extends from La Rioja to southern Mendoza in Argentina with annual mean temperatures between 13–15°C (Roig-Juñent & Flores 2001). The habitat where specimens of *Puelchesia gracilis* were collected is categorized as scrub desert. The area is dominated by vegetation communities of *Larrea divaricata* Cavanilles, *L. cuneifolia* Cavanilles (Zygophyllaceae), *Bulnesia retama* (Gillies ex Hooker and Arnott), *Zuccagnia punctata* Cavanilles, , *Geoffroea decorticans* (Gillies ex Hooker and Arnott) (Fabaceae), *Prosopis alpataco* Philippi (Mimosaceae), and *Capparis atamisquea* Kuntze (Capparidaceae) (according to Morello 1958).

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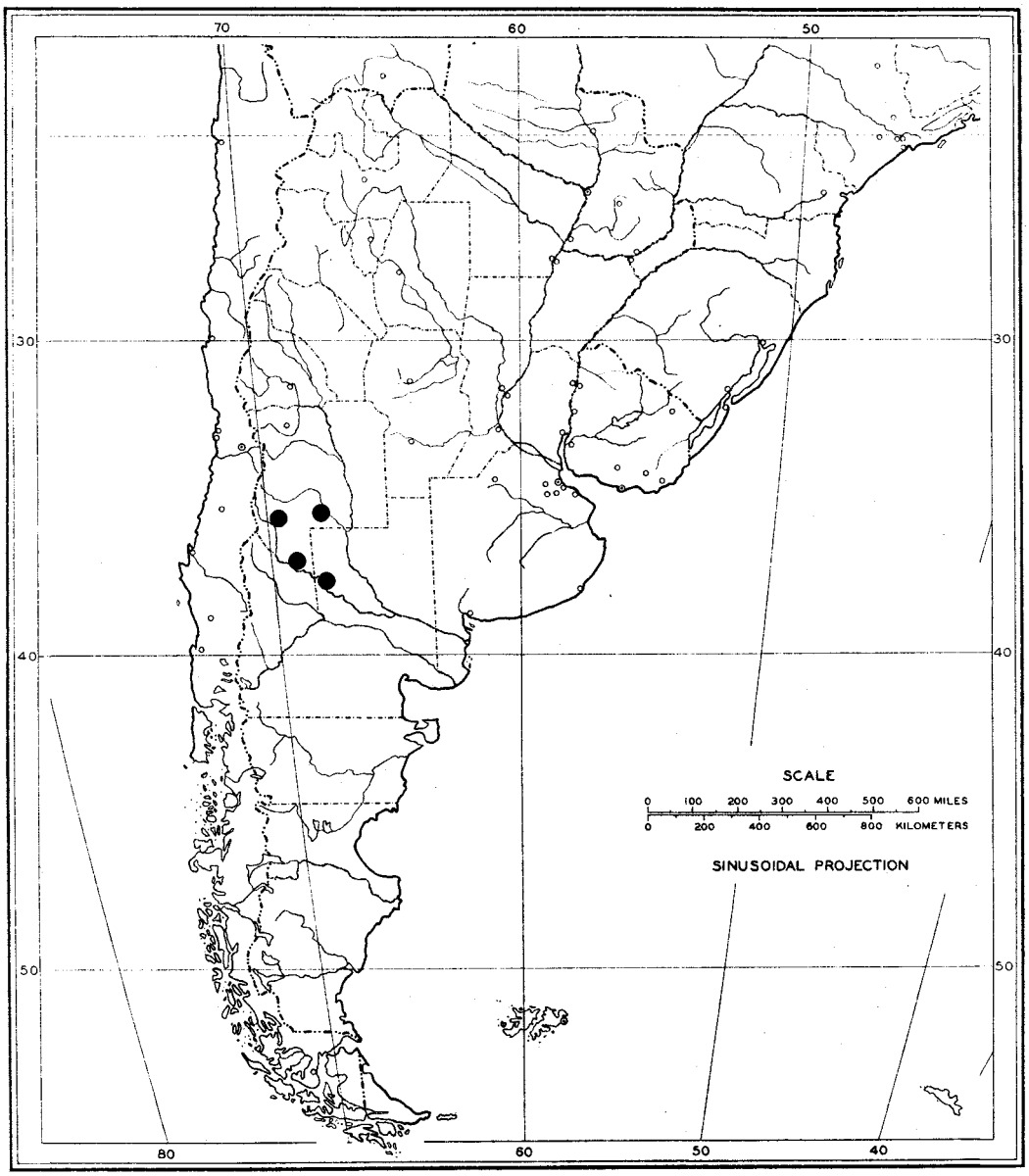

FIGURE 13. Distribution of *Puelchesia gracilis*.

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