

**REVISION OF THE CHILEAN GENUS *PTYOPHIS*  
(SCARABAEIDAE: MOLOLONTHINAE: MACRODACTYLINI)**

**REVISIÓN DEL GÉNERO CHILENO *PTYOPHIS*  
(SCARABAEIDAE: MOLOLONTHINAE: MACRODACTYLINI)**

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**ABSTRACT**

The genus *Ptyophis* Redtenbacher, endemic to central Chile, is revised and now includes two species: *P. paulseni* (Philippi) and *P. eiderae* Mondaca and Ocampo, nov. sp. Redescription of the genus, diagnosis, key to species, illustrations and distribution map are provided. Based on morphological examination, we transfer *Ptyophis* from Tanyproctini to Macroductylini, and hypothesized relationships with other Chilean macroductylines. To preserve nomenclatural stability, a lectotype is designated for *Ptyophis macrophylla* Redtenbacher and a neotype is designated for *Tetraphyllus paulseni* Philippi. Observations on the habitat, natural history, and distribution of species are given.

**Key words:** Central Chile, junior homonym, Pachydemini, Tanyproctini, *Tetraphyllus*.

**RESUMEN**

El género *Ptyophis* Redtenbacher, endémico de Chile central, es revisado y ahora incluye dos especies: *P. paulseni* (Philippi) y *P. eiderae* Mondaca y Ocampo, nov. sp. Se provee una redescrición del género, diagnosis, clave para las especies, ilustraciones y un mapa de distribución. Basado en un estudio morfológico, transferimos a *Ptyophis* desde la tribu Tanyproctini a la tribu Macroductylini, e hipotetizamos las relaciones con otros Macroductylini chilenos. Para preservar la estabilidad nomenclatural, designamos un lectotipo para *Ptyophis macrophylla* Redtenbacher y un neotipo para *Tetraphyllus paulseni* Philippi. Se entregan observaciones sobre el hábitat, historia natural, y distribución de las especies.

**Palabras clave:** Chile Central, homónimo menor, Pachydemini, Tanyproctini, *Tetraphyllus*.

**INTRODUCTION**

*Ptyophis* Redtenbacher is a little-known genus of melolonthine scarab with a short and confusing nomenclatural history that is endemic to central Chile. It previously included *Ptyophis paulseni* (Philippi) as valid species

and, according Lacroix (2007), it belongs to the tribe Tanyproctini (formerly called Pachydemini, see Bouchard *et al.*, 2011). The original description of *P. paulseni* was likely based on a single male specimen captured in the locality of “Cordillera de Santiago”. At the time of the original description the species was placed in the monotypic genus *Tetraphyllus* Philippi, 1864. However, the name *Tetraphyllus* was already used for a different taxon, *Tetraphyllus* Laporte and Brullé, 1831 (Tenebrionidae), thus making *Tetraphyllus* Philippi a junior homonym of *Tetraphyllus* Laporte and Brullé.

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Subsequently, Redtenbacher (1868) described and illustrated the genus *Ptyophis*, with *P. macrophylla* Redtenbacher as a new species from Chile. Coincidentally this species turned out to be the same species described four years before by Philippi (1864) as *Tetraphyllus paulseni*. Both species names were cited in old catalogs as different species, synonyms, or as *incertae sedis* (Harold, 1869; Reed, 1876; Philippi, 1887; Germain, 1911; Dalla Torre, 1913; Blackwelder, 1944).

Based on correspondence with the entomologist Gilbert Arrow, Gutiérrez (1950) clarified the validity of *Ptyophis* over *Tetraphyllus*, and established *Ptyophis paulseni* (Philippi) as the valid combination for this taxon (see also Martínez, 1975; Evans, 2003; Smith and Evans, 2005; Lacroix, 2007; Evans and Smith, 2009).

Specimens of *Ptyophis* are rare and poorly represented in collections. Recently, we had the opportunity to study some specimens of *P. paulseni* and numerous specimens of *P. eiderae* belonging to different museums and private collections.

In this paper, we redefine the generic concept, describe a new species, and provide a modern taxonomic treatment of the genus. Additionally, we provide additional information on the taxonomy of this poorly known genus, and its natural history and distribution. We also transfer *Ptyophis* from Tanyproctini to Macroductylini, and discuss the morphological characters that justify this transfer.

## MATERIALS AND METHODS

One hundred fifteen specimens were examined from the following institutions and private collections: The Natural History Museum of London, London, United Kingdom (BMNH); Canadian Museum of Nature, Ottawa, Ontario, Canada (CMNC); Instituto de Entomología, Universidad Metropolitana de Ciencias de la Educación, Santiago, Chile (CUMCE); Field Museum of Natural History, Chicago, Illinois, USA (FMNH); Fran-

cisco Ramírez F. Collection, Santiago, Chile (FRFC); Instituto Argentino de Investigaciones de las Zonas Áridas, Mendoza, Argentina (IAZA); José Mondaca E. Collection, Santiago, Chile (JMEC); Lyman Entomological Museum, McGill University, Ste.-Anne-de-Bellevue, Québec, Canada (LEMQ); Laboratorio de Entomología Ecológica, Universidad de La Serena, La Serena, Chile (LEULS); Muséum National d'Histoire Naturelle, Paris, France (MNHN); Museo Nacional de Historia Natural, Santiago, Chile (MNNC); Naturhistorisches Museum, Vienna, Austria (NMHW); Museo de Zoología, Universidad de Concepción, Concepción, Chile (UCCC); University of Nebraska State Museum, Lincoln, Nebraska, USA (UNSM); Museum für Naturkunde der Humboldt-Universität zu Berlin, Germany (ZMHB).

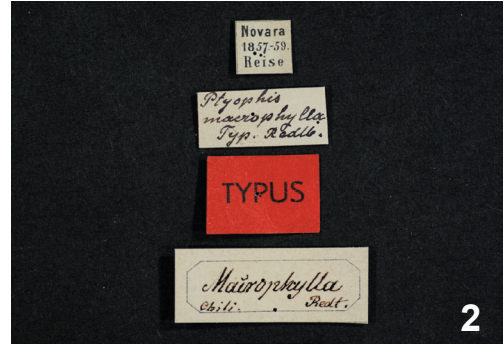
Species descriptions are based on analyses of external and internal morphological characters. All specimens were examined, dissected, and illustrated using a dissecting stereomicroscope (10-60x). The mouthparts and male genitalia were dissected by relaxing the specimens in hot water and placed in a glycerin-filled vial pinned under the specimen.

The following definitions and standards were used in the descriptions and diagnoses: *Color* is based on dried, pinned specimens. *Body length* was measured dorsally along the midline, from the apex of the mandibles to the elytral apex. *Body width* was measured at the widest point, typically at the middle of the elytra. *Puncture density* was 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. *Puncture size* was defined as small if punctures were 0.02 mm or smaller, moderate if 0.02-0.07 mm, and large if 0.07 mm or larger. *Setae* were defined as sparse if there were few setae, moderately dense if the surface was visible but with many setae, and dense if the surface was obscured by setae.

### Designation of neotype and lectotype

A neotype and a lectotype were designated to provide the nomenclatural stability of the

taxa studied, according to the Article 72 of the International Code of Zoological Nomenclature (International Commission on Zoological Nomenclature, 1999).



Figures 1-2. *Ptyophis macrophylla* Redtenbacher, 1868. 1. Habitus of the male lectotype, 2. Labels of the lectotype.

### Taxonomic treatment

Genus *Ptyophis* Redtenbacher, 1868  
(Figs. 1-13)

*Ptyophis* Redtenbacher, 1868: 69. Harold, 1869: 1188; Philippi, 1887: 74 (as synonym of *Tetraphyllus*); Dalla Torre, 1913: 303; Blackwelder, 1944: 227; Gutiérrez, 1950: 64; Martínez, 1958: 100; Martínez, 1972: 86; Martínez, 1975: 229, 243 (as *Ptiophis*); Evans, 2003: 223; Smith and Evans, 2005: 53; Lacroix, 2007: 377; Evans and Smith, 2009: 190.

**Type species.** *Ptyophis macrophylla* Redtenbacher, by monotypy.

**Synonymy.** *Tetraphyllus* Philippi, 1864: 449 (junior homonym of *Tetraphyllus* Laporte and Brullé, 1831). Reed, 1872: 194; Reed, 1876: 287 (as *Tetraphylla*); Philippi, 1887: 690; Blackwelder, 1944: 227; Martínez, 1958: 100 (synonym of *Ptyophis*); Martínez, 1972: 86 (synonym of *Ptyophis*); Martínez, 1975: 229 (synonym of *Ptyophis*), 243; Evans, 2003: 223; Smith and Evans, 2005: 53; Lacroix, 2007: 378; Evans and Smith, 2009: 190.

**Type species.** *Tetraphyllus paulseni* Philippi, by monotypy.

**Diagnosis.** The genus *Ptyophis* can be recognized from other Chilean Macroductylini by the following combination of characters: Medium size (9-13 mm), dorsal and ventral surface moderately setose, color light brown, reddish-brown, or dark brown. Clypeus well-developed, with margins reflexed (Figs. 14, 15, 16, 17). Labrum flattened, not visible beyond clypeal margin (Figs. 18, 19). Antenna with 9 antennomeres, club with 3-5 antennomeres, 2x longer than the pedicel in male and subequal or slightly longer in female (Figs. 3, 5, 14, 15). Pronotum wider than long, laterally surrounded with abundant long setae (Figs. 14, 15, 16, 17). Protibia with two apical teeth on outer margin, with series of teeth situated medially and basally (Figs. 11, 14, 15). Mesotibiae and metatibiae with incomplete transverse carina; apex with 2 contiguous spurs (Fig. 13). All tarsal claws symmetrical, toothed at base and split subapically as Fig. 12.

**Redescription.** Male. *Form*: Body elongate-oval, dorsally flattened (Figs. 14, 15). Length:

9.0-13.0 mm. Width: 5.0-7.0 mm. Vestiture: Dorsal and ventral surface moderately setose. *Head*: Clypeus rounded, subquadrate or trap-ezoidal, with margins strongly reflexed; anterior margin complete or emarginate at middle. Frontoclypeal suture evident, slightly bisinuate. Frons flat or convex on basal half. Eyes prominent, ventrally globose; canthus long and narrow distally, with long setae on anterior margin (Fig. 4). Antenna large, with 9 antennomeres; antennomere 1 robust, claviform; 2 globular; 3-4 cylindrical; 5 dilated distally or laminiform; 6 disk shaped or laminiform; club large, with 3-5 antennomeres, 2x longer than pedicel (Fig. 3). Labrum flattened, rounded or subrectangular, not visible beyond clypeal margin (in dorsal view); anterior margin setose, setae thick and long (Figs. 18, 19). Labium ellipsoidal, subovate, or pyriform, depressed longitudinally at middle; labial palpus with 3 palpomeres; palpomeres 1-2 conical, 3 fusiform (Figs. 20, 21). Mandibles subtriangular, strongly sclerotized (Fig. 9). Maxilla 3x longer than wide; galea distally without teeth in inner face; maxillary palpus with 4 palpomeres; palpomere 1 short, half the length of 2; 2-3 subconical, 2 more length to 3; 4 fusiform, subequal to 2-3 combined (Fig. 10). *Pronotum*: Widest medially, slightly convex; lateral margins with long and moderately dense setae; anterior margin with short and dense setae; anterior angles obtuse, anterolateral margins slightly angular or rounded; posterior angle and margins broadly rounded (Figs. 14, 15). *Scutellum*: Subtriangular, wider than long, with apex rounded (Figs. 14, 15). *Elytra*: Flat, elongate, with 9 striae in each elytron, intervals rugose (Figs. 14, 15). *Hind wing*: Fully developed, functional (Fig. 6). *Legs*: Protibiae narrow, with two apical teeth on outer margin, with series of small teeth medially and basally; protibial spur slightly curved, shorter than protarsomere 1 (Figs. 11, 14, 15). Mesofemur and metafemur slender. Mesotibiae and metatibiae moderately setose, with outer surface flattened and with incomplete transverse spinose carinae. Mesotibial and metatibial apex with 2 contigu-

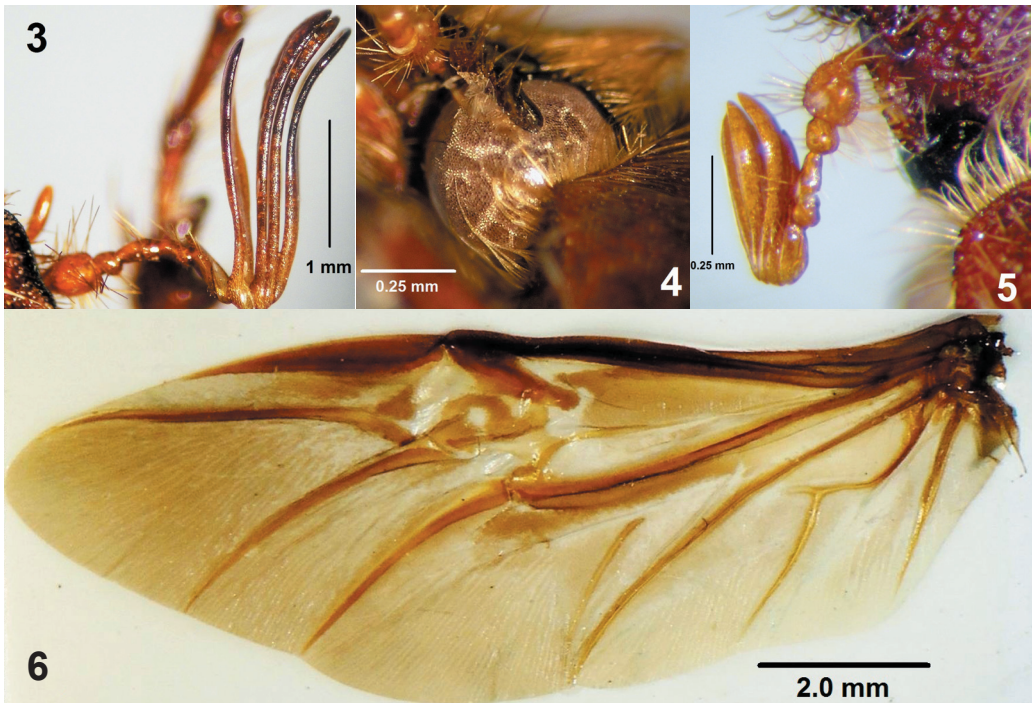
ous spurs (Fig. 13). Tarsi longer than protibiae, mesotibiae, and metatibiae (Figs. 14, 15). Tarsal claws symmetrical, toothed at base and split subapically (Fig. 12). *Abdomen*: Ventrite 2-4 subequal; 5 more than twice the length of the preceding; propygidium shorter than 3; 5-6 separated by a membrane (Fig. 7). Pygidium subtriangular, wider than long, with apex rounded. *Male genitalia*: Parameres as Figs. 22, 23, 24, 25. Spiculum gastrale slender, Y-shaped (Fig. 8).

**Description.** Female. As male except in the following respect. *Form*: Body elongate-oval, dorsally convex (Figs. 16, 17). *Head*: Clypeus rounded or subquadrate, with margins moderately reflexed; anterior margin complete or emarginate at middle. Eyes small, ventrally globose, 1/3 of ventral diameter visible in dorsal view; canthus short and wide. Antenna small, with 9 antennomeres; club short, with 3-4 antennomeres, subequal or slightly longer than the pedicel (Fig. 5). *Pronotum*: Widest medially, convex; anterior angles obtuse or subacute, anterolateral margins angular; posterior angle and margins slightly angular or broadly rounded (Figs. 16, 17). *Elytra*: Convex, elongate, with 9 striae in each elytron; intervals rugose (Figs. 16, 17). *Legs*: Protibiae wide, with two prominent apical teeth on outer margin, and few great teeth medially and basally; protibial spur short and wide. Mesofemur and metafemur greatly enlarged. Tarsi shorter than male, subequal or longer than the protibiae, mesotibiae and metatibiae. Tarsal claws as male (Fig. 12).

**Remarks:** Compared with the males, females are larger overall and have reduced eyes, and shorter and broader appendages. Similar to other genera of Chilean Macrodactylini (*Ampliodyctylus*, *Pristerophora*, *Pusiodactylus*, etc.), the female of *Ptyophis* has wings fully developed and functional.

**Distribution** (Fig. 26): Species of *Ptyophis* inhabit semiarid environments in central Chile, from sea level to high altitudes in the Andes Mountains (from 22-2,100 m). Species





Figures 3-6. *Ptyophis paulseni* (Philippi). 3. Right antenna male in dorsal view, 4. Left eye male in lateral view, 5. Left antenna female in dorsal view, 6. Left hindwing male in dorsal view.

occur in the Central Chilean subregion, in the Coquimbo and Santiaguina biogeographical provinces (as defined by Morrone, 1999).

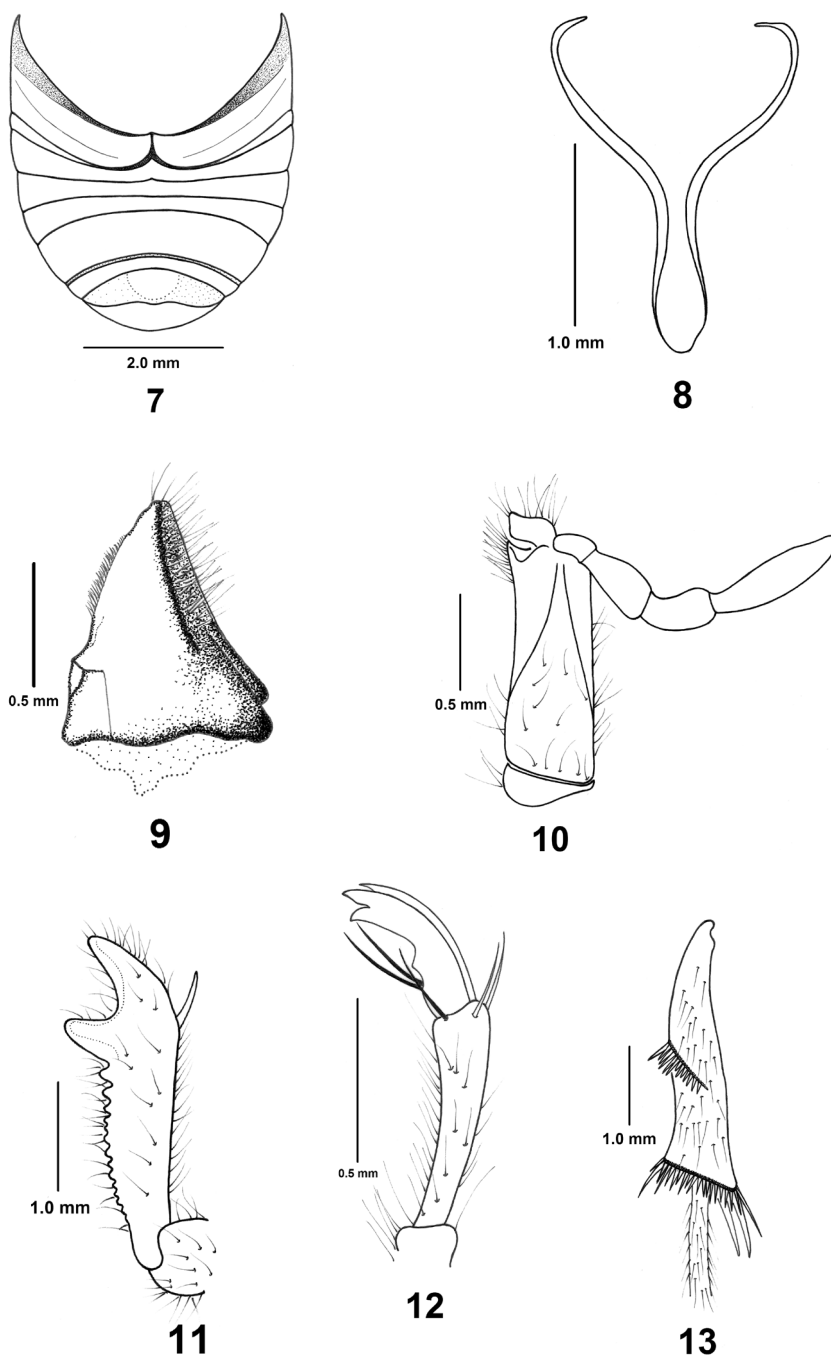
**Natural history:** Little is known about the natural history of *Ptyophis* species. Specimens of both species have been collected at lights at night and with pitfall traps. Numerous specimens of *Ptyophis paulseni* were obtained floating on a water reservoir located on the northern slope of Cerro Manquehue, situated east of Santiago. Species of *Ptyophis* occur in dense xerophytic and sclerophyll shrub habitats in central Chile (Figs. 27-30). Adults of both species have been observed flying at dusk and at night among the dense shrubs and grasses. On the coast of Choapa province many adults of *P. eiderae* were found during the day buried in sand, while in Farellones (high Santiago Mountains) an adult of *P. paulseni* was found hidden under dried cow dung. The larvae of

*Ptyophis* have not been formally described, but one of our collaborators (Pablo Pinto) found some larvae feeding on grass roots in the same locality where adults have been collected.

#### Classification and relationships

The systematic placement of *Ptyophis* has been complex, because the concepts currently used to diagnose Neotropical Tanyproctini and Macroductylini make it difficult to characterize and even separate these two tribes (Neita and Ocampo, 2012).

Various authors have placed *Ptyophis* in the tribe Tanyproctini (previously called Pachydemini) (Gutiérrez, 1950; Martínez 1958, 1972, 1974; Evans, 2003; Smith and Evans, 2005; Lacroix, 2007; Evans and Smith, 2009), without clearly stating the reason of this placement. However, we think that this clas-



Figures 7-13. Generic characters for members of the genus *Ptyophis* Redtenbacher. 7. Abdomen, 8. Spiculum gastrale, 9. Right mandible, 10. Maxillae, 11. Left protibia, 12. Protarsal claws, 13. Left metatibia.

sification seems to be based principally on the number of antennomeres of the antennal club mentioned by Martínez (1958, 1975). Based on our examination of the different parts of the head, mouthparts, antenna, legs and abdominal segments, we determined that the taxon is not a member of the tribe Tanyproctini where it is currently classified. Instead, characters of the taxon indicate that it is a member of the tribe Macroductylini *sensu* Evans (2002) and Katovich (2008).

The morphological characters that justifying the inclusion in this tribe are: labrum not visible in dorsal view, locate below the clypeus. Mouthparts well developed, not reduced. Antenna with 9 antennomeres, club with 3-5 antennomeres. Abdominal segments not constricted medially; ventrites 2-4 subequal in length, 5 longer than 4; 5 lacking a complete suture between the ventrite and tergite (in lateral view). Mesotibiae and metatibiae with 2 adjacent apical spurs, inserted below the tarsal articulation.

With respect to relationships, we have identified the Chilean genus *Pristerophora* Harold (Macroductylini) as the closest taxon. This genus is similar to *Ptyophis* based on the following characters: body elongate, dorsally and ventrally pilose. Clypeus broadly rounded or trapezoidal, with margins reflexed; anterior margin emarginate at middle. Frons flat on basal half. Eyes prominent, ventrally globose. Antenna with 9 antennomeres, club with 3-5 antennomeres. Elytra flat, elongate, with 9 striae in each elytron. Protibiae with two apical teeth on outer margin, with series of small teeth medially and basally. Mesotibiae and metatibiae with transverse carina. Tarsal claws symmetrical, toothed at base and split subapically.

#### Key to species of *Ptyophis* Redtenbacher

1. Body elongate-oval, color light brown, reddish brown or dark brown (Figs. 14, 16). Male and female antennal club variable, with 3-5 antennomeres, each unequal in length (Figs. 3,

5, 14). Labrum subrectangular (Fig. 18). Labium ellipsoidal or subovate (Fig. 20). Male genitalia with parameres strongly curved at apex in lateral view (Fig. 23). Chile, Región Metropolitana de Santiago.....  
*Ptyophis paulseni* (Philippi)  
 1' Body elongate-oval, color light brown to dark brown (Figs. 15, 17). Male and female antennal club with 3 antennomeres, each subequal in length (Figs. 15, 17). Labrum rounded (Fig. 19). Labium pyriform (Fig. 21). Male genitalia with parameres weakly curved at apex in lateral view (Fig. 25). Chile, Región de Coquimbo.....  
*Ptyophis eiderae* Mondaca and Ocampo, nov. sp.

*Ptyophis paulseni* (Philippi, 1864)  
 (Figs. 3-6, 14, 16, 18, 20, 22, 23)

**Original combination.** *Tetraphyllus paulseni* Philippi, 1864: 449. Type locality: "Santiago, Cerro Manquehue" (original type locality: "Cordillera de Santiago"). Type material. Neotype male at MNNC labeled: a) "Chile, Santiago / Cerro Manquehue / 22-XI-1981 / Coll. G. Arriagada" (white label, typeset); b) "*Tetraphyllus / paulseni* / Philippi [male symbol] / NEOTYPE / Det. J. Mondaca & F.C. Ocampo, 2012" (red label, typeset). **Neotype here designated.** All reasonable steps were exhausted to trace the original type material of this taxon. One of us (JM) unsuccessfully searched for type material of this taxon at the MNNC. We can only conclude that the type material has been lost, as indicated by Germain (1911). The specimen selected as the neotype matches the original description of Philippi (1864) and was collected reasonably close to original type locality.

**Synonym.** *Ptyophis macrophylla* Redtenbacher, 1868: 70 (original combination). Type locality: "Chile". Type material. Lectotype male at NHMW labeled: a) "Novara / 1857-59 / Reise" (small white label, typeset); b) "*Ptyophis / macrophylla* / Typ. Redtb." (white label, handwritten); c) "TYPUS" (red label, typeset); d) "*Macrophylla* / Chili. Redt." (white la-

bel, handwritten); e) “*Ptyophis / macrophylla* / Redtenbacher [male symbol] / LECTOTYPE / Det. J. Mondaca & F.C. Ocampo, 2012” (red label, typeset). **Lectotype here designated.**

**Specimens examined:** 56 specimens were examined from BMNH, CMNC, FMNH, FRFC, JMEC, LEMQ, MNNC, NHMW, ZMHB.

**Diagnosis.** Male (Fig. 14). Length 10.9-13.0 mm. Body color light brown, reddish brown or dark brown. Clypeus rounded, subquadrate, or trapezoidal (Fig. 14). Frons flat on basal half; surface coarse and densely punctate and setose. Labrum flattened, subrectangular, with anterior margin slightly produced and moderately setose (Fig. 18). Labium ellipsoidal or subovate (Fig. 20). Antennal club with 3-5 antennomeres, the inner antennomere is always shorter than preceding (Figs. 3, 14). Elytra clearly striate and rugose at intervals; striae generally of a different color as the rest of the integument. Tarsi 1.9 times longer than protibiae in the male. Male genitalia with parameres strongly curved at apex in lateral view (Fig. 23). Female (Fig. 16). Length 11.0-11.3. Body color as male. Clypeus rounded or trapezoidal, with apical margin sometimes emarginate at middle; dorsal surface coarse and densely punctate, punctures large. Eyes small, ventrally globose. Antennal club with 4 antennomeres, shorter than the funicle; the inner antennomere is shorter than preceding (Fig. 5).

**Habitat** (Fig. 27): *Ptyophis paulseni* lives in the Central Chilean subregion and occupies the Santiaguina biogeographic province proposed by Morrone (1999). This species is restricted to the central valley, hills, and high mountains habitats near Santiago.

**Distribution** (Fig. 26): Chile, Región Metropolitana de Santiago, provinces of Chacabuco, Santiago, and Melipilla.

CHILE: REGIÓN METROPOLITANA DE SANTIAGO (56): Camino a Farellones km 6, Altos del Naranjo (31), Cerro Manquehue (10), Colina km 16 1/2 (5), Cordillera de San-

tiago (1), Farellones (1), Melipilla (1), Peñalolen (1), Renca, La Quebrada (1). REGIÓN DEL BIOBÍO: Chillán? (1). Chile (with no precise data) (4).

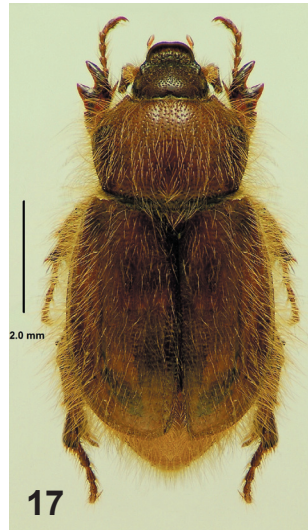
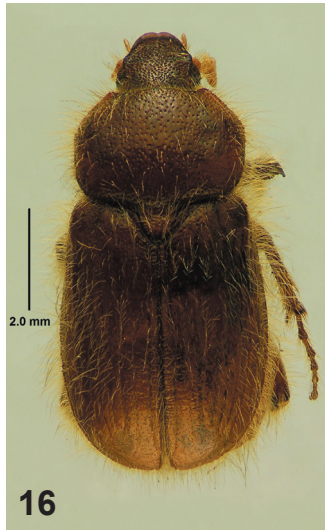
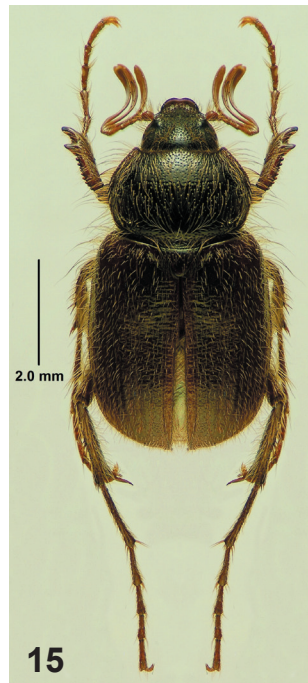
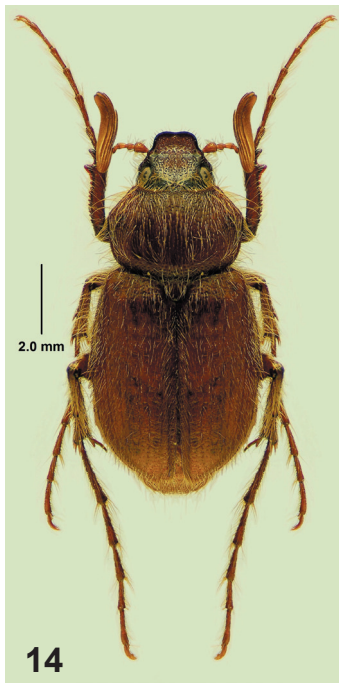
**Temporal distribution:** January (2), February (2), October (5), November (41), December (2).

**Remarks:** Germain (1911), in a brief commentary, indicated that the generic characters of *Tetraphyllus* were confusing and inaccurate. He also mentioned that the type specimen of *Tetraphyllus paulseni* was lost. Germain (1911) also cited *Isonychus buschmanni* (specific name not publish, erroneously attributed to Philippi by Germain, *op. cit.*) as a synonym of *Ptyophis macrophylla* and listed *Philochloenia ursina* Germain as a new scarab from Chile. The names *Isonychus buschmanni* and *Philochloenia ursina* were never formally described and must be regarded as *nomina nuda* according to Article 12 of the International Commission on Zoological Nomenclature (1999). The specimen considered by Germain (1911) to be *P. ursina* was examined and we concluded that it is a male specimen of *Ptyophis paulseni*.

*Ptyophis eiderae* Mondaca and Ocampo, nov. sp.  
(Figs. 15, 17, 19, 21, 24, 25)

**Type material:** Holotype male and 59 paratypes deposited in 12 institutions and private collections. Holotype male at MNNC labeled: a) “CHILE CHOAPA / Los Vilos / 22-X-1981 / col. G. Carrasco” (typeset); b) “*Ptyophis eiderae* Mondaca and Ocampo, 2012 / HOLOTYPE male” (red label, typeset). Five male paratypes at MNNC labeled: a) as holotype. Two male paratypes at MNNC labeled: a) “Chile Coquimbo / Los Vilos / 18/25-X-1981 / Coll. G. Carrasco” (typeset). One male paratype at MNNC labeled: a) “CHILE CHOAPA / Pichidangui / 6-X-2004 / col. J. Mondaca E. One male paratype at FMNH labeled: a) “Los Vilos / Prov. Coquimbo / 27-NOV-1970; b) “Mario Pino”; d) “FMNH986 / L. Peña Coll.





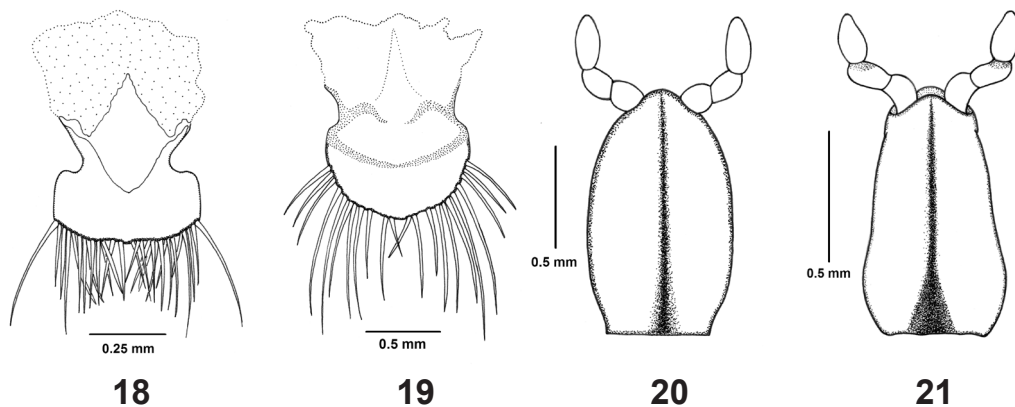
Figures 14-17. Dorsal habitus of *Ptyophis* species. 14. Male of *P. paulseni*, 15. Male of *P. eiderae*, 16. Female of *P. paulseni*, 17. Female of *P. eiderae*.

/ Acc#17-422". One male paratype at UCCC labeled: a) "Los Vilos / Prov. Coquimbo / 27-NOV-1970 / Mario Pino"; b) "ex colec. Mario Pino / Jun. 1989"; c) "SSSA database

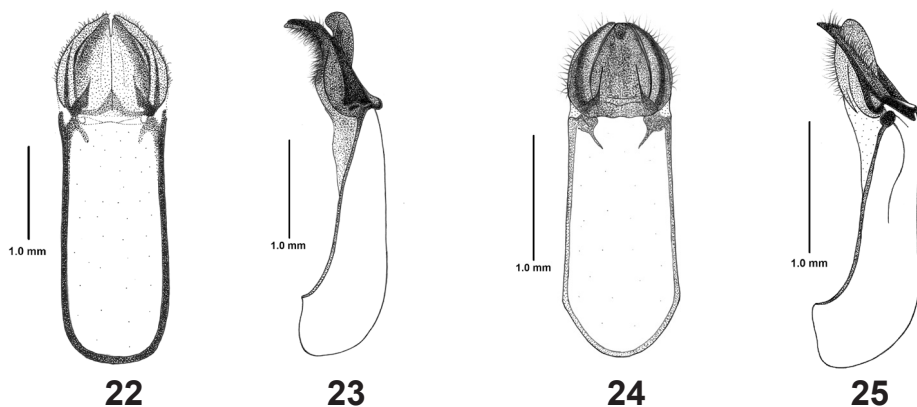
#3000078"; d) "*Ptyophis paulseni* (Philippi, 1864) male symbol / Det. A.B.T. Smith, 2011". One male paratype at UCCC labeled: a) "Los Vilos / Prov. Coquimbo / 27-NOV-

1970 / Mario Pino”; b) “ex colec. Mario Pino / Jun. 1989”; c) “SSSA database #3000079”; d) “*Ptyophis paulseni* (Philippi, 1864) male symbol / Det. A.B.T. Smith, 2011”. Seven male paratypes, three at JMEC and four at IAZA labeled: a) “CHILE CHOAPA PROV. / Los Vilos / 8-XI-2005 / leg. J. Mondaca E.”. Six male paratypes at LEULS labeled: a) “CHILE PROV. CHOAPA / Fdo. Caracas, Los Vilos / 18-X-2008, 31°56'11.7" S / 71°28'46.8"W, 134 m / col. J. Pizarro-Araya”. Three male paratypes at JMEC labeled: a) “CHILE PROV. CHOAPA / Fdo. Caracas, Los Vilos / 18-X-2008, 31°55'08.2"S / 71°27'55.9"W, 143 m / col. J. Pizarro-Araya”. One male paratype

at LEULS labeled: a) “CHILE PROV. CHOAPA / Qda. Quereo, Los Vilos / 20-X-2010, 31°55'35.4"S / 71°30'51.1"W, 19 m / col. J. Pizarro-Araya”. Three male paratypes at LEMQ labeled: a) “CHILE: Coquimbo / Fray Jorge, 6-9. / XI. 1981, L. Peña”. One male paratype at LEMQ labeled: a) “CHILE: Coquimbo / Los Vilos, 16.XI. / 1984, L. Peña”. Three male paratypes at CMNC labeled: a) “COQUIMBO / Los Vilos / 2 Oct. 1961 / Coll: L.E. Peña”. One male paratype at CMNC labeled: a) “LOS VILOS / PROV. COQUIMBO / 27-NOV-1970 / MARIO PINO”; b) “H. & A. HOWDEN / COLLECTION / ex. A. Martínez coll.”. Eleven male paratypes, one at FRFC,



Figures 18-21. Mouthparts of *Ptyophis* species. 18. Labrum of *P. paulseni*, 19. Labrum of *P. eiderae*, 20. Labium of *P. paulseni*, 21. Labium of *P. eiderae*.



Figures 22-25. Male genitalia of *Ptyophis* species. 22-23. Aedeagus of *P. paulseni*, 24-25. Aedeagus of *P. eiderae*.

two at IAZA, seven at JMEC, one at CMNC labeled: a) “CHILE PROV. CHOAPA / Qda. Quereo, Los Vilos / 30-X-2011 / col. P. Pinto”. Twelve male paratypes, two at CUMCE, eight at JMEC, two at UNSM labeled: a) “CHILE PROV. CHOAPA / Qda. Quereo, Los Vilos / 30-X-2011 / col. S. Larrea”. One female paratype at JMEC labeled: a) “CHILE PROV. CHOAPA / Qda. Quereo, Los Vilos / nacida 22-IX-2011 / leg. P. Pinto”. All paratypes also labeled: “*Ptyophis eiderae* Mondaca and Ocampo, 2012 / PARATYPE” (yellow, typeset).

**Type locality.** Chile: Choapa: Los Vilos.

**Diagnosis.** This species can be recognized from *Ptyophis paulseni* by the following combination of characters: Clypeus rounded or broadly rounded (Figs. 15, 17). Frons convex on basal half (Figs. 15, 17). Labrum flattened, rounded (Fig. 19). Labium pyriform (Fig. 21). Antennal club with 3 antennomeres of similar length (Fig. 15). Elytra weakly striate; striae of same color as the rest of the integument (Figs. 15, 17). Tarsi 1.5 times longer than protibiae in the male. Male genitalia with the parameres weakly curved at apex in lateral view (Fig. 25).

**Description of holotype.** Male. *Length*: 9.7 mm. *Width*: 5.4 mm. Dorsal and ventral color light brown. *Head*: Clypeus rounded, with margins reflexed; apical edge slightly emarginate at middle; dorsal surface densely punctate, setose; punctures large, with fine, sparse setae. Frons convex on basal half; surface densely punctate; punctures moderate to large. Antenna large, with 9 antennomeres; antennomeres weakly setose except for antennomere 1 and 2; antennomere 1 claviform; 2 moniliform; 3–4 cylindrical; 5 flattened and widened at the apex; 6 disk shaped; club with 3 antennomeres of similar length. Labrum flattened, rounded, with anterior margin setose. Labium pyriform; surface moderately setose, setae long. Eyes prominent, rounded; canthus long and narrow distally; anterior margin setose; setae long, moderately dense. *Pronotum*: Surface moderately to densely punctate and setose; setae pale yellow long,

moderately dense at sides and sparse at middle; anterior margin slightly produced; anterior angle obtuse, anterolateral margins rounded; posterior angle and margins broadly rounded. *Elytra*: Elongate-oval; dorsal surface with 9 striae in each elytron; elytral surface rugose and setose, with moderately dense, short and pale yellow setae. *Legs*: Protibia with two apical teeth on outer margin, with series of small teeth medially and basally; surface moderately setose, setae pale yellow, long. Mesotibial spurs similar in length; inner metatibial spur longer than outer. Tarsi 1.5 times longer than protibiae. Tarsal claws symmetrical, toothed at base and split subapically. *Abdomen*: Ventrites punctate and moderately setose. Pygidium longer than

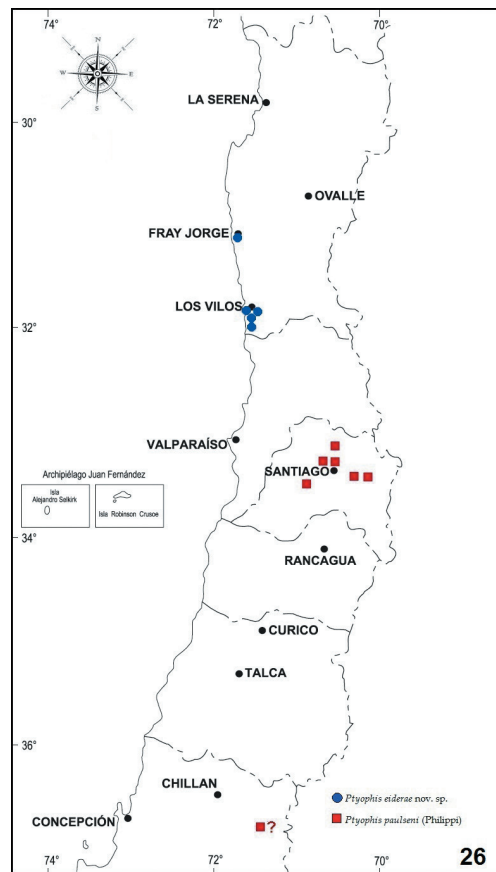


Figure 26. Chilean distribution of *P. eiderae* (blue circles), and *P. paulseni* (red squares).





Figures 27-30. Habitats of *Ptyophis* species in central Chile. 27. Cerro Manquehue, habitat of *P. paulseni*, 28-30. Fundo Caracas and Quereo, Los Vilos, habitats of *P. eiderae*.

wide, convex; surface punctate, moderately setose; pygidial apex rounded. *Male genitalia*: Parameres as Figs. 24, 25.

**Variation:** Size, length 9.3-9.7 mm, width 5.1-5.4 mm. Color variable; dorsal and ventral color light brown to dark brown. The female paratype is slightly smaller and pilose than the male, with eyes and antenna small, pronotum and elytra notoriously more convex, protibiae much shorter and wider, with two large apical teeth on outer margin, and few great teeth medially and basally, protibial spur short and wide, profemur, mesofemur, and metafemur greatly enlarged, ventrite 2-4 subequal at middle, pygidium exposed, longer than wide. The male paratypes don't vary significantly.

**Etymology:** This species is named in memory of our colleague and friend Eider Ruiz-Manzanos, whose premature death saddened all who were fortunate to know her.

**Habitat** (Figs. 28, 29, 30): *Ptyophis eiderae* inhabits a coastal semiarid environment with mixed xerophytic, open scrubs (including some bromeliad and cacti species) and grasses. This vegetation is characteristic of the coastal area of Coquimbo Region in northern Chile. This area is inserted in the Coquimbo biogeographic province in Central Chilean subregion (as defined by Morrone, 1999).

**Natural history:** Specimens of *P. eiderae* were captured during the spring (October-No-



vember) with pitfall traps installed in an area with mixed native vegetation and reforested land with *Acacia saligna* (Labill.) H.L.Wendl. in Fundo Caracas (east of Los Vilos), while a few specimens were captured with a light trap in Los Vilos and Pichidanguí.

**Distribution** (Fig. 26): Chile, Región de Coquimbo, provinces of Limarí and Choapa.

CHILE. REGIÓN DE COQUIMBO (60): Fray Jorge (3), Los Vilos (22), Fundo Caracas (9), Pichidanguí (1), Quebrada Quereo (24), near Quebrada de Quereo (1).

**Temporal data:** October (32), November (28).

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