

Status and revision of the genus *Philanglaus* Butler, 1882 (Lepidoptera: Cossidae: Hypoptinae) from Southern Peru and Chile

Статус и ревизия рода *Philanglaus* Butler, 1882 (Lepidoptera: Cossidae: Hypoptinae) из Южного Перу и Чили

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КЛЮЧЕВЫЕ СЛОВА: биоразнообразие, древоточцы, фауна, Патагония, Неотропический регион, таксономия.

ABSTRACT. The article confirms the generic status of *Philanglaus* Butler, 1882. The genus includes two species: *P. ornatus* Butler, 1882 and *Philanglaus xylopoecila* (Zukowsky, 1954), distributed in semi-desert regions of southern Peru and Chile. The illustrated redescrptions of both species are provided. One new combination is established: *Philanglaus xylopoecila* (Zukowsky, 1954) **comb.n.** The genus distribution map is given.

РЕЗЮМЕ. В статье подтверждается родовой статус рода *Philanglaus* Butler, 1882. Род включает два вида: *P. ornatus* Butler, 1882 и *P. xylopoecila* (Zukowsky, 1954), распространённых в полупустынных регионах юга Перу и Чили. Даны иллюстрированные переописания обоих видов. Выделен неотип *Langsdorfia xylopoecila* Zukowsky, 1954. Установлена новая комбинация — *Philanglaus xylopoecila* (Zukowsky, 1954) **comb.n.** Дана карта распространения рода.

Introduction

South American Cossidae are studied very poorly, it primarily concerns the large subfamily of Hypoptinae. The revision of the subfamily started by us [Yakovlev et al., 2019; Naydenov et al., 2020] has already allowed to describe more than 30 taxa of species and generic range from various parts of the Neotropics. Examining the collections materials in the museums of Europe and

South America, we studied the type and supplementary specimens of peculiar Hypoptinae from the deserts of southern Peru and Chile, that allowed us to obtain new data on the taxonomy and distribution of the genus *Philanglaus* Butler, 1882, the status of which had been often changed before.

Philanglaus Butler, 1882 was described as genus in the family Hepialidae for the unique species *Philanglaus ornatus* Butler, 1882 from Chile [Butler, 1882]. Schaus [1905] moved the genus to Cossidae. Later, Schaus [1905, 1921] and Dognin [1910, 1923] described four species in the genus *Philanglaus*: *P. sobrana* Schaus, 1905, *P. metana* Dognin, 1910, *P. beatrix* Schaus, 1921, and *P. invetita* Dognin, 1923. Dyar [1940] suggested the new combinations: *Langsdorfia metana*, *L. sobrana* and *L. beatrix*. Ureta [1957] suggested the combination *Langsdorfia ornata*. Clench [1957] described *Philanglaus penai* Clench, 1957 from Chile. Gentili [1985] synonymized *penai* with *ornatus* and returned the generic status to the genus *Philanglaus*. Schoorl [1990], without examinations of genital structures, synonymized several Neotropical genera, including *Philanglaus*, with *Hypopta* Hübner, 1818. Donahue [1995] accepted the synonymy suggested by Schoorl [1990] and gave the following combinations: *Hypopta ornata* (= *penai*), *H. xylopoecila*, *H. metana*, *Langsdorfia sobrana*, *L. watsoni* Schaus, 1901 (= *invetita*), and *Inguromorpha beatrix*. Later, the combination *Dogninia beatrix* (Schaus, 1921) [Yakovlev et al., 2019] was suggested.

Basing on the study of the type specimens male genitalia and a large amount of supplementary materials, the status of two genera, *Dolecta* Herrich-Schäffer, 1854 and *Breyeriana* Orfila, 1957 was restored by us [Penco et al., 2019; Naydenov et al., 2020]. Examining the type specimens of *Philanglaus ornatus* Butler, 1882 we reconstructed its generic status too. The status and generic affiliation of other species, mentioned in the Introduction, needs a further study.

Material and methods

Male genitalia were mounted in euparal on slides following Lafontaine [2004] examined with an Olympus SZX16 microscope. The images were taken with the Olympus SZX16 camera. Images of imago were taken by the digital camera of Apple iPhone 7, illuminated in Lightbox. The images were processed using CorelDraw software.

Abbreviations list: ANIC — Australian National Insect Collection, Division of Entomology, CSIRO (Canberra, Australia); CMNH — Carnegie Museum of Natural History (Pittsburg, USA); IPCN — Instituto Pat-

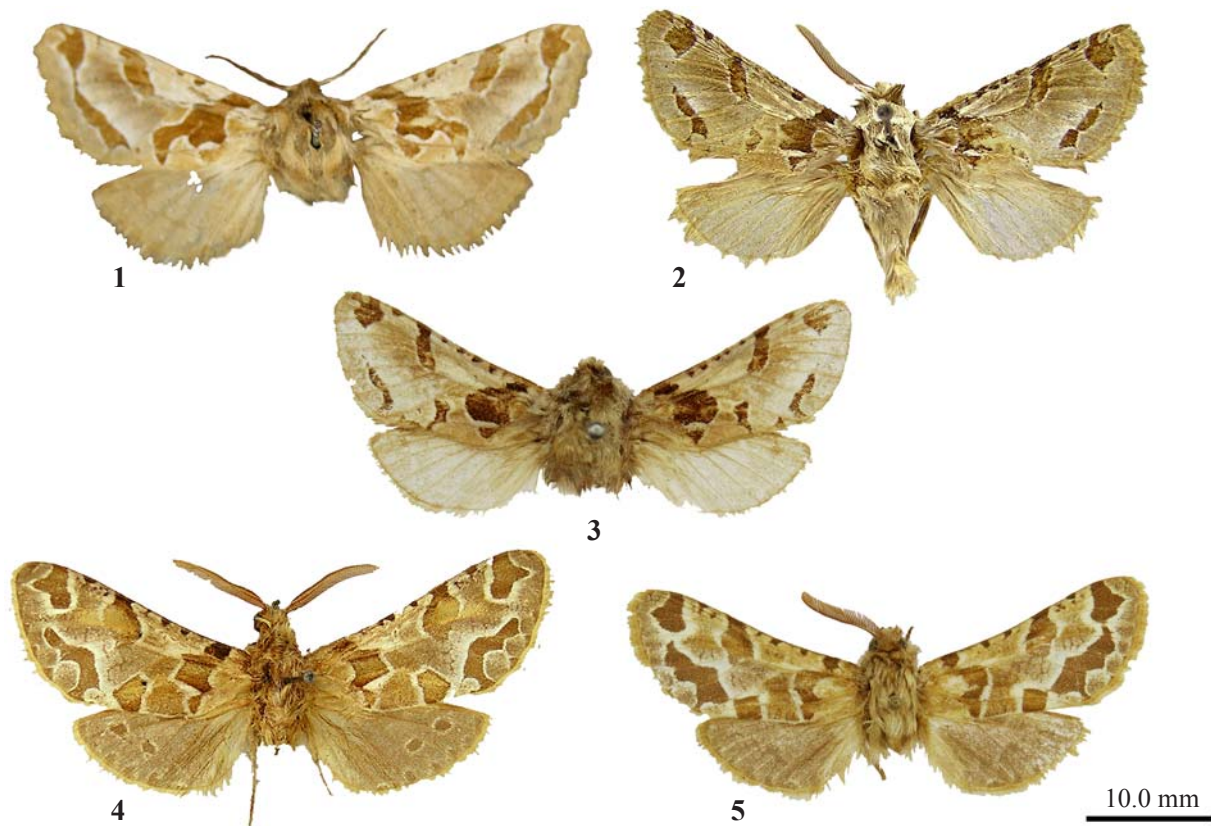
agónico de Ciencias Naturales, San Martín de los Andes (Neuquén, Argentina); MNHC — Museo Nacional de Historia Natural (Santiago, Chile); MNKB — Museum für Naturkunde, Leibniz Institut für Evolution und Biodiversitätsforschung (Berlin, Germany); MWM — Museum Witt (Munich, Germany); MZUC — Museo de Zoología de la Universidad de Concepción (Concepción, Chile); NHMUK — The Natural History Museum of United Kingdom (London, U.K.).

Taxonomic part

Philanglaus Butler, 1882

Type species (by monotypy) *Philanglaus ornatus* Butler, 1882
REDESCRIPTION. Size medium (length of fore wing 17–21 mm). Antenna bipectinate; in males — crest processes three times longer than antenna rod diameter, in females — 1.5 times longer than antenna rod diameter. Wings light-brown from above, fore wing with contrast pattern of bright brown undulated bands and spots. Hind wing light-brown with poorly expressed pattern.

Male genitalia (Figs 6–7). Uncus long, robust; gnathos arms ribbon-like, short, not fused; gnathos reduced; valve short, apically semicircular; costal edge basally with long



Figs 1–5. Adult specimens of *Philanglaus*: 1 — *P. ornatus* (Butler, 1882), ♀, holotype (NHMUK); 2 — *P. ornatus*, ♂, holotype of *Philanglaus penai* Clench, 1957, Chile, Pichinahuel, 1100–1400 m, 23–31.I.1954, leg. L. Peña (CMNH); 3 — *P. ornatus*, ♂, Chile, Caramavida Araulo, 50 m, 13–14.I.1988, leg. J. Gonzales (MWM); 4 — *P. xylopoecila* (Zukowsky, 1954) **comb.n.**, ♂, neotype, Peru, Arequipa, 23.III.1936 (MHUB); 5 — *P. xylopoecila*, ♂, Chile, Prov. Tarapaca, Tarapaca, 25.I.1992 (MWM).

Рис. 1–5. Имаго *Philanglaus*: 1 — *P. ornatus* (Butler, 1882), ♀, голотип (NHMUK); 2 — *P. ornatus*, ♂, голотип *Philanglaus penai* Clench, 1957, Chile, Pichinahuel, 1100–1400 m, 23–31.I.1954, leg. Л. Песа (CMNH); 3 — *P. ornatus*, ♂, Chile, Caramavida Araulo, 50 m, 13–14.I.1988, leg. J. Gonzales (MWM); 4 — *P. xylopoecila* (Zukowsky, 1954) **comb.n.**, ♂, неотип, Peru, Arequipa, 23.III.1936 (MHUB); 5 — *P. xylopoecila*, ♂, Chile, Prov. Tarapaca, Tarapaca, 25.I.1992 (MWM).

harpe gradually narrowing from base to apex; juxta scaphoid with two robust sickle-curved lateral processes apically extended and bent; saccus robust, pyramidal; phallus thin, slightly shorter than valve, slightly curved, vesical aperture in dorso-apical position, vesical without cornuti.

DIAGNOSIS. The genus *Philanglaus* Butler, 1882 is morphologically close to the genera *Hypopta* Hübner, 1818 and *Laberlia* Yakovlev, Naydenov & Penco, 2020 from which it differs in the bright contrast pattern of the fore wing, and the relatively smooth edged of the harpe. The apomorphies of the genus are the sickle-curved lateral processes of the juxta with expended curved apices.

COMPOSITION. Two species: *Philanglaus ornatus* Butler, 1882 and *Philanglaus xylopoecila* (Zukowsky, 1954) **comb.n.**

DISTRIBUTION. Southern Peru and Chile.

Philanglaus ornatus Butler, 1882

Figs 1–3, 6, 8.

Butler, 1882: 28–29 (in Hepialidae)
= *Philanglaus penai* Clench, 1957: 138–139.

MATERIAL EXAMINED: **Chile:** holotype (♀) *Philanglaus ornatus* Butler, 1882 (Gen. slide № 124) (NHMUK); holotype ♂ of *Philanglaus penai* Clench, 1957, Pichinahuel, 1100–1400 m, 23–31.I.1954, leg. L. Peña (slide no. C-514, male genitalia; C. M. Ent. type series no. 327) (CMNH); 1♂, Caramavida Araulo, 50 m, 13–14.I.1988, leg. J. Gonzales (Genitalpräparat Heterocera № 28.530) (MWM).

Reported by Gentili [1989]: 1♂, Arauco, Pichinahuel, 1100 m, (Nahuelbuta W.) 23–31.I.1954, leg. L. Peña (MZUC); 1♂, Loncotripán, Nahuelbuta, 27.I.1952, leg. G. Monsalve (MZUC); 2♂♂, 1♀, Malleco, Termas de Río Blanco, 1200 m, 13–14.II.1964, leg. Wagenknecht (ANIC); 1♂, 20.II.1955, leg. Wagenknecht (MNHC); 2♂♂, 26.II.1962, leg. E. Krahmer (Prep. № PG-248, PG-279, PG-287, PG-304, PG-315, PG-316, PG-333, PG-355) (IPCN).

DIAGNOSIS. The species differs from *Ph. xylopoecila* in the thinner brown band on the fore wing postdiscally, and in the lanceolate, basally wide harpe, gradually narrowing to apex.

DISTRIBUTION. Chile (Santiago, Cachapoal, Arauco and Malleco Province). Gentili [1989] commented it can be found in forest mixt of *Nothofagus* Blume (Nothofagaceae)

and *Araucaria* Juss. (Araucariaceae), between 1100 and 1400 meters above level sea, and between the 33°30' and the 38°30' S, by now only recorded in Chile.

NOTE. Zukowsky [1954] describes *Langsdorfia xylopoecila* Zukowsky, 1954, externally similar to the previous species, from southern Peru (Arequipa Plateau). In the type series Zukowsky includes nine males, wherein the holotype and part of co-types were kept in the Zoological Museum of Hamburg, but in 1943 it was destroyed during the war. Thus, we have a clear evidence of the nomenclature type specimen loss [Weidner, 1974; Penco *et al.*, 2020]. Examining the co-type (which we indicate as the neotype) deposited in MNKB and the supplementary materials from MWM, we established that this little known species also belongs to the genus *Philanglaus*.

Philanglaus xylopoecila
(Zukowsky, 1954), **comb.n.**

Figs 4–5, 7, 8.

Langsdorfia xylopoecila Zukowsky, 1954: 92.

MATERIAL EXAMINED. Neotype (designated here, ♂), **Peru**, Yaucatal bei Ica, Arequipa, 23.III.1936 (Prep. N PG-837 P. Gentili) (MNKB). **Chile:** 1♂, Prov. Tarapaca, Tarapaca, 25.I.1992 (Genitalpräparat Heterocera № 28.515) (MWM).

DIAGNOSIS. The species differs from *Philanglaus ornatus* Butler, 1882 in the more developed brown pattern on the fore wing and in the very thin harpe.

DISTRIBUTION. Peru (Department of Arequipa) and Chile (Tarapacá Region).

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Figs 6–7. Male genitalia of *Philanglaus*: 6 — *P. ornatus* Chile, Caramavida Araulo (Genitalpräparat Heterocera № 28.530) (MWM); 7 — *P. xylopoecila*, Chile, Prov. Tarapaca, (Genitalpräparat Heterocera № 28.515) (MWM).

Рис. 6–7. Гениталии самцов *Philanglaus*: 6 — *P. ornatus* Chile, Caramavida Araulo (Genitalpräparat Heterocera № 28.530) (MWM); 7 — *P. xylopoecila*, Chile, Prov. Tarapaca, (Genitalpräparat Heterocera № 28.515) (MWM).

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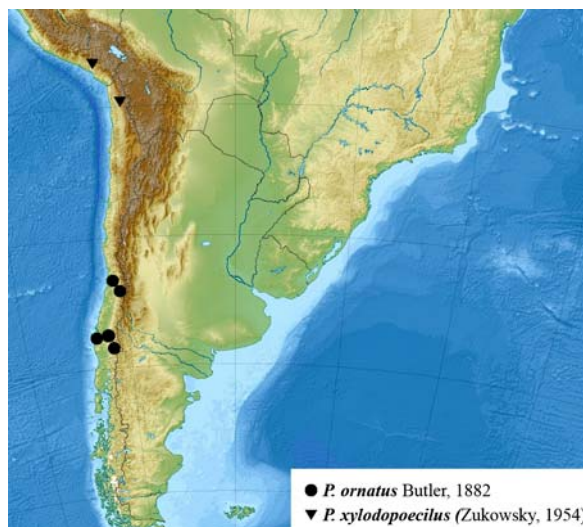


Fig. 8. Map of *Philanglaus* distribution.

Рис. 8. Карта распространения *Philanglaus*.