

# To the fauna of Pterophoridae of Bolivia with a description of three new species (Lepidoptera: Pterophoridae)

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## Abstract

The article describes three Pterophoridae species from Bolivia which are new to science: *Hellinsia swammerdami* Ustjuzhanin & Kovtunovich, sp. n., *Hellinsia sergeii* Ustjuzhanin & Kovtunovich, sp. n. and *Hellinsia ayмара* Ustjuzhanin & Kovtunovich, sp. n. Nine Pterophoridae species are reported from Bolivia for the first time: *Lioptilodes rionegroicus* Gielis, 1991, *Lioptilodes zapalaicus* Gielis, 1991, *Stenoptilodes gilvicolor* (Zeller, 1877), *Exelastis phlyctaenias* (Meyrick, 1911), *Hellinsia chalupi* Gielis, 2013, *Hellinsia emmorus* (Walsingham, 1915), *Hellinsia yalae* Gielis, 2013, *Adaina bolivari* (Căpușe, 1987) and *Adaina hodias* (Meyrick, 1908).

KEY WORDS: Lepidoptera, Pterophoridae, biodiversity, new species, new data, Bolivia.

## La fauna de Pterophoridae de Bolivia con descripción de tres especies nuevas (Lepidoptera: Pterophoridae)

## Resumen

El artículo describe tres especies de Pterophoridae de Bolivia las cuales son nuevas para la ciencia: *Hellinsia swammerdami* Ustjuzhanin & Kovtunovich, sp. n., *Hellinsia sergeii* Ustjuzhanin & Kovtunovich, sp. n. y *Hellinsia ayмара* Ustjuzhanin & Kovtunovich, sp. n. Se citan nueve especies de Pterophoridae como nuevas para Bolivia por primera vez: *Lioptilodes rionegroicus* Gielis, 1991, *Lioptilodes zapalaicus* Gielis, 1991, *Stenoptilodes gilvicolor* (Zeller, 1877), *Exelastis phlyctaenias* (Meyrick, 1911), *Hellinsia chalupi* Gielis, 2013, *Hellinsia emmorus* (Walsingham, 1915), *Hellinsia yalae* Gielis, 2013, *Adaina bolivari* (Căpușe, 1987) y *Adaina hodias* (Meyrick, 1908).

PALABRAS CLAVE: Lepidoptera, Pterophoridae, biodiversidad, nuevas especies, nuevos datos, Bolivia.

## Introduction

Information on Bolivia's Pterophoridae was considered in the works of GIELIS (2003, 2006, 2011, 2013), KOVTUNOVICH *et al.* (2016), USTJUZHANIN & KOVTUNOVICH (2018). In the materials on Pterophoridae, collected by V. Sinyayev and his assistants in Bolivia, we found three species new to science, and 9 species previously unknown for the fauna of this country. As a result, the Pterophoridae fauna of Bolivia now comprises 53 species.

## Material and methods

The Pterophoridae were collected at night and in the twilight, using light traps. The studied specimens are deposited in the collection of the Zoological Institute St. Petersburg, Russia (ZISP) and

in the Collection of P. Ustjuzhanin and V. Kovtunovich, Novosibirsk and Moscow, Russia, (CUK). The holotypes and paratypes of the new species are deposited in the collection of Zoological Institute, St. Petersburg, Russia (ZISP).

### List of species

*Lioptilodes rionegroicus* Gielis, 1991

*Lioptilodes rionegroicus* Gielis, 1991. *Zool. Verh. Leiden*, **269**: 20

Type locality: ARGENTINA, Rio Negro, San Carlos de Bariloche

Material examined: BOLIVIA, Santa Cruz, Amboro Nat. Park, 17° 59,2' S, 63° 59,8' W, 1800 m, 1 ♂, 05-XI-2010, V. Sinyaev & O. Romanov leg.; Lago Titicaca, 3 ♂♂, 1 ♀, 11-I-2010, V. Sinyaev, S. Sinyaev & A. Zamesov leg.; La Paz, Santa Rosa de Lima, 16° 23.6' S, 67° 41.8' W, 1550 m, 1 ♀, 20-22-X-2010, V. Sinyaev & O. Romanov leg.

Distribution: Argentina, Chile, Peru, Bolivia. **New species for Bolivia.**

*Lioptilodes zapalaicus* Gielis, 1991

*Lioptilodes zapalaicus* Gielis, 1991. *Zool. Verh. Leiden*, **269**: 18

Type locality: ARGENTINA, Neuquen, Zapala, El Marucho.

Material examined: BOLIVIA, Sierra Siberia, 18 km SE Pojo, 17° 50.6' S, 64° 41.8' W, 2500 m, 1 ♂, 15-I-2010, V. Sinyaev, S. Sinyaev & A. Zamesov leg.

Distribution: Argentina, Chile, Peru, Bolivia. **New species for Bolivia.**

*Stenoptilodes gilvicolor* (Zeller, 1877)

*Platyptilia gilvicolor* Zeller, 1877. *Hor. Soc. Ent. Ross.*, **13**: 462

Type locality: COLOMBIA, Bogota

Material examined: BOLIVIA, Cotapata, 16° 16,8' S, 67° 52,6' W, 3210 m, 1 ♂, 6-7-I-2010, V. Sinyaev, S. Sinyaev & A. Zamesov leg.

Distribution: Chile, Colombia, Bolivia. **New species for Bolivia.**

*Exelastis phlyctaenias* (Meyrick, 1911)

*Marasmarcha phlyctaenias* Meyrick, 1911. *J. Bombay nat. Hist. Soc.*, **21**(1):106

Type locality: SRI LANKA

Material examined: BOLIVIA, Santa Cruz, 11 km NE Tatarenda, 19° 50.3' S, 63° 43.5' W, 680 m, 1 ♂, 27-XII-2009, V. Sinyaev, S. Sinyaev & A. Zamesov leg.

Distribution: Sri Lanka, Oman, Philippines, Tanzania, Malawi, Madagascar, Reunion Island, Ethiopia, Ghana, Virgin Islands, Bolivia. **New species for Bolivia.**

*Hellinsia chalupi* Gielis, 2013

*Hellinsia chalupi* Gielis, 2013. *Boln Soc. ent. aragon.*, **53**: 99

Type locality: ARGENTINA, Tucuman, Alto de San Agustin

Material examined: BOLIVIA, Santa Cruz, La Higuera, 18° 47.7' S, 64° 12.1' W, 2050 m, 1 ♂, 19-20-XII-2009, V. Sinyaev, S. Sinyaev & A. Zamesov leg.

Distribution: Argentina, Bolivia. **New species for Bolivia.**

*Hellinsia emmorus* (Walsingham, 1915)

*Pterophorus emmorus* Walsingham, 1915. *Biol. C.-Am. Lep. Ins. Het.*, **4**: 441

Type locality: MEXICO, Veracruz, Orizaba

Material examined: BOLIVIA, 9,3 km SE Coroico, 16° 14.7' S, 67° 39.6' W, 1980 m, 1 ♀, 02-03-I-2010, V. Sinyaev, S. Sinyaev & A. Zamesov leg.

Distribution: Mexico, Guatemala, Honduras, Bolivia. **New species for Bolivia.**

*Hellinsia yalae* Gielis, 2013

*Hellinsia yalae* Gielis, 2013. *Boln Soc. ent. aragon.*, **53**: 97

Type locality: ARGENTINA, Jujuy, Yala

Material examined: BOLIVIA, La Paz, Santa Rosa de Lima, 16° 23.6' S, 67° 41.8' W, 1550 m, 1 ♂, 20-22-X-2010, V. Sinyaev & O. Romanov leg.

Distribution: Argentina, Bolivia. **New species for Bolivia.**

***Hellinsia swammerdami* Ustjuzhanin & Kovtunovich, sp. n.** (Figs 1, 2)

Type material: Holotype, ♂, BOLIVIA, near Lagunillas, 18° 15.5' S, 64° 10.9' W, 1524 m, 17-XII-2009, V. Sinyaev, S. Sinyaev & A. Zamesov leg. (ZISP gen. prep. 1956). Paratypes: BOLIVIA, 1 ♂, same data as holotype (CUK); 7 km SW Mataral, 18° 09.2' S, 64° 15.8' W, 1524 m, 6 ♂♂, 15-16-XII-2009 (CUK gen. prep. 349, 350), (ZISP gen. prep. 1957); 7,7 km SW Comarapa, 1 ♂, 10-XII-2009, 17° 58.2' S, 64° 34.7' W, 1833 m, V. Sinyaev, S. Sinyaev & A. Zamesov leg. (CUK); 8,3 km W Mataral, 18° 07.7' S, 64° 17.1' W, 1661 m, 1 ♂, 19-I-2010, V. Sinyaev, S. Sinyaev & A. Zamesov leg. (CUK).

Description: Head, thorax and tegulae pale. Labial palpi brown, apically tapered, twice shorter than longitudinal eye diameter. Antennae pale brown. Wingspan 15-16 mm (holotype 16 mm). Fore wings grey. Alternating dark brown and white horizontal lines along costal edge above cleft. Fringe inside cleft basally white, medially and distally mixed with brown hairs. Both lobes of fore wing clarified with white scales. Small blurred brown spot at cleft base. Hind wings and fringe on all three lobes unicolorous grey. Hind legs pale yellow. Spurs on hind legs of unequal length.

Male genitalia: Valves narrow, long, asymmetric. Saccular process on left valve thick. Rod-like, with two processes distally and medially. Saccular process on right valve narrow, straight, without any spikes or protrusions, slightly extended basally. Saccus horseshoe-like. Aedeagus thick, short, almost straight. Cornutus long, slightly wavy, about half of aedeagus in length, distally noticeably narrowing. Anellus arms relatively short, of unequal length, right one noticeably longer than left. Uncus narrow, arched, apically acute. Gnathos expressed as robust oval bump densely covered with tiny spikes.

Diagnosis: The species is characterized by the special shape of the gnathos, there is no analogous structure in other species.

Flight period: December, January.

Distribution: Bolivia.

Etymology: The species is named after the famous Dutch naturalist, founder of the science of entomology Jan Swammerdam (1637-1680).

***Hellinsia sergeii* Ustjuzhanin & Kovtunovich, sp. n.** (Figs 3, 4)

Type material: Holotype ♂, BOLIVIA, La Paz, Santa Rosa de Lima, 16° 23.6' S, 67° 41.8' W, 1550 m, 20-22-X-2010, V. Sinyaev & O. Romanov leg. (ZISP gen. prep. 1958). Paratype, BOLIVIA, Santa Cruz Department, near Lagunillas, 19° 50.3' S, 63° 43.5' W, 1477 m, 1 ♂, 25-26-XII-2009, V. Sinyaev, S. Sinyaev & A. Zamesov leg. (CUK).

Description: Head, thorax and tegulae ocher-yellow. Labial palpi thin, 1,5 times longitudinal eye diameter. Antennae yellow. Wingspan 30 mm. Fore wings unicolorous, ocher-yellow, without pattern. Costal edge of fore wing darkened with brown scales up to cleft base. Fringe pale. Hind wings the same as forewings: ocher yellow. Hind legs pale yellow.

Male genitalia: Valves asymmetric, left one noticeably wider than right one. Saccular process on left valve long, almost reaching top of valve. Sacculus with small spike at base of right valve. Anellus arms short, of unequal length, right one noticeably longer than left one. Apices of Anellus arms beak-shaped, acute. Saccus arched. Uncus narrow, thin, apically acute. Aedeagus slightly shorter than valve, smoothly curved medially.

Diagnosis: In the yellowish color of the wings, the new species resembles *Hellinsia crescens* (Meyrick, 1926), but differs in the smaller size and the absence of the spots and dots on the wings. In

the male genitalia, in the saccular process on the left valve, the new species is also similar to *H. crescens*, but in the new species the process almost reaches the valve top, while in *H. crescens*, it hardly extends beyond the middle of the valve.

Flight period: October, December.

Distribution: Bolivia.

Etymology: The species is named after the brother of the first author, Sergei Ustjuzhanin, who instilled in me a love of entomology in my childhood.

***Hellinsia aymara* Ustjuzhanin & Kovtunovich, sp. n.** (Figs 5, 6)

Type material: Holotype, ♂, BOLIVIA, 9,3 km SE Coroico, 16° 14.7' S, 67° 39.6' W, 1980 m, 02-03-I-2010, V. Sinyaev, S. Sinyaev & A. Zamesov leg. (ZISP gen. prep. 1959).

Description: Head, thorax and tegulae pale brown. Labial palpi brown, thalf longitudinal eye diameter. Antennae transversely striated. Wingspan 15 mm. Fore wings pale brown. Longitudinal dark brown stroke along costal edge, above cleft base. Small blurred brown spot at cleft base. Hind wings unicolorous, pale brown. Fringe on all wings grey. Hind legs pale brown.

Male genitalia: Valves asymmetric, left one noticeably wider than right one. Saccular process on left valve bent at right angle to inner edge of valve. Saccular process on right valve shaped as simple straight cord. Anellus arms thin, equal in length. Saccus arched. Uncus narrow, thin, apically acute. Aedeagus almost straight, half valve length valve, distally with needle-like cornutus.

Diagnosis: In the male genitalia, in the hook-curved saccular process on the left valve and in the simple straight cord on the right valve, the new species is similar to *Hellinsia pseudobarbata* Gielis, 1999, from which it differs in the asymmetric valves (the left one is wider than the right one), and in the anellus arms equal in length, while in *H. pseudobarbata* the valves are of equal width, and the anellus arms are different in length.

Flight period: January.

Distribution: Bolivia.

Etymology: The species is named after the Indian people of Aymara, who live in the west of South America including Bolivia.

*Adaina bolivari* (Căpușe, 1987)

*Paravinculia bolivari* Căpușe, 1987. *Fauna hipógea y hemiedáfica de Venezuela y de otros países de América del Sur*, 1(18): 185

Type locality: VENEZUELA, Parque Nacional Rancho Grande

Material examined: BOLIVIA, La Paz, Santa Rosa de Lima, 16° 23.6' S, 67° 41.8' W, 1550 m, 1 ♂, 20-22-X-2010, V. Sinyaev & O. Romanov leg.

Distribution: Venezuela, Ecuador, Brazil, Bolivia. **New species for Bolivia.**

*Adaina hodias* (Meyrick, 1908)

*Marasmarcha hodias* Meyrick, 1908. *Trans. ent. Soc. London*, 1908: 492

Type locality: BRAZIL, São Paulo

Material examined: BOLIVIA, near Lagunillas, 18° 15.5' S, 64° 10.9' W, 1524 m, 1 ♀, 17-XII-2009, V. Sinyaev, S. Sinyaev & A. Zamesov leg.

Distribution: Brazil, Costa Rica, Mexico, Venezuela, Ecuador, Bolivia. **New species for Bolivia.**

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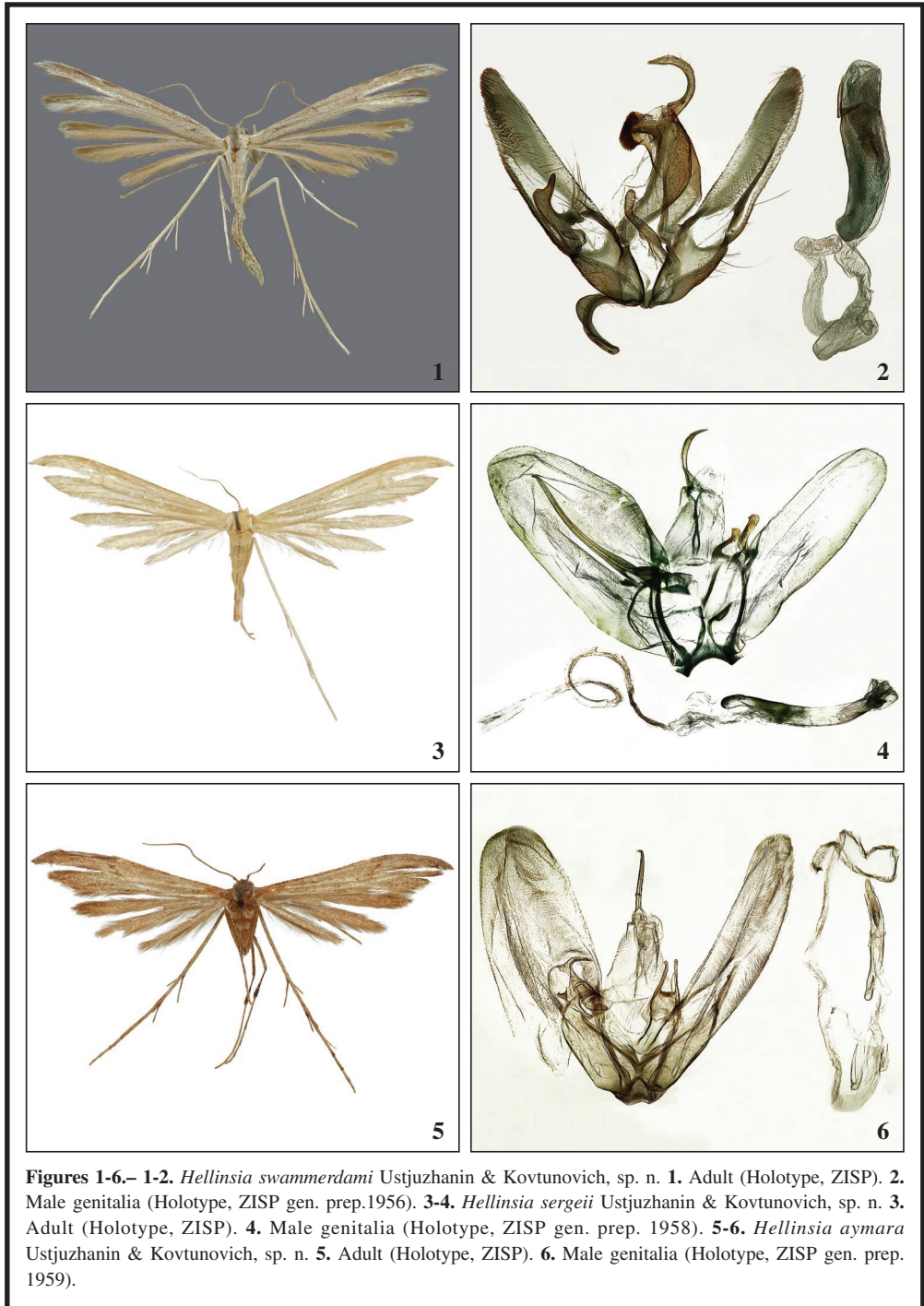
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**Figures 1-6.**– 1-2. *Hellinsia swammerdami* Ustjuzhanin & Kovtunovich, sp. n. 1. Adult (Holotype, ZISP). 2. Male genitalia (Holotype, ZISP gen. prep. 1956). 3-4. *Hellinsia sergeii* Ustjuzhanin & Kovtunovich, sp. n. 3. Adult (Holotype, ZISP). 4. Male genitalia (Holotype, ZISP gen. prep. 1958). 5-6. *Hellinsia aymara* Ustjuzhanin & Kovtunovich, sp. n. 5. Adult (Holotype, ZISP). 6. Male genitalia (Holotype, ZISP gen. prep. 1959).