

## New species of South African Plume moths (Lepidoptera: Pterophoridae)

### Новые виды южно-африканских пальцекрылок (Lepidoptera: Pterophoridae)

Р.Ya. Ustjuzhanin<sup>1</sup>, V.N. Kovtunovich<sup>2</sup>  
П.Я. Устюжанин<sup>1</sup>, В.Н. Ковтунович<sup>2</sup>

<sup>1</sup> Altai State University, Lenina 61, Barnaul 656049, Russia. E-mail: petrust@mail.ru

<sup>1</sup> Алтайский государственный университет, пр. Ленина 61, Барнаул 656049, Россия.

<sup>2</sup> Moscow Society of Nature Explorers. Home address: Malaya Filevskaya str., 24/1, app. 20, Moscow 121433, Russia. E-mail: vasko-69@mail.ru

<sup>2</sup> Московское общество испытателей природы. Домашний адрес: ул. Малая Филёвская, 24/1, кв. 20, Москва 121433, Россия.

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КЛЮЧЕВЫЕ СЛОВА: Pterophoridae, Южная Африка, новые виды.

ABSTRACT. Basing on the materials from the Russian expedition of 2008–2010 to the Republic of South Africa, and also on the materials from the collections of the Ditsong National Museum of Natural History RSA, Pretoria and Natural History Museum, UK, London, three new species of Pterophoridae are described: *Crassuncus koperbergi* Ustjuzhanin et Kovtunovich **sp.n.**, *C. hawkingi* Ustjuzhanin et Kovtunovich **sp.n.** and *Hellinsia katerina* Ustjuzhanin et Kovtunovich **sp.n.**

РЕЗЮМЕ. По материалам российских экспедиций 2008–2010 гг. в Южно-Африканскую Республику, а также материалам из коллекций Музея естественной истории ЮАР в Претории и Музея естественной истории в Лондоне, описываются три новых вида пальцекрылок: *Crassuncus koperbergi* Ustjuzhanin et Kovtunovich **sp.n.**, *C. hawkingi* Ustjuzhanin et Kovtunovich **sp.n.** и *Hellinsia katerina* Ustjuzhanin et Kovtunovich **sp.n.**

### Introduction

This study is a continuation of the South African Pterophoridae fauna investigation. Special modern research of the South African Pterophoridae is associated with the work of renowned specialists, who have described species new for science [Arenberger 1986, 1988, 1996, 2008, 2009; Gielis 1986, 2011; Kovtunovich, Ustjuzhanin 2009a, b, 2010a, b, c, 2011, 2015; Ustjuzhanin, Kovtunovich 2010, 2015]. Types are deposited in institutions and collections as noted in the material examined, with the abbreviations listed below.

Abbreviations:

BMNH — Natural History Museum, UK, London;

CUK — Collection by P. Ustjuzhanin and V. Kovtunovich (Novosibirsk and Moscow, Russia);

DNMNH — Ditsong National Museum of Natural History, Pretoria, RSA (former Transvaal Museum);

NHMO — Natural History Museum, University of Oslo, Norway;

ZISP — Zoological Institute, St. Petersburg, Russia;

ZMHB — Museum für Naturkunde, Leibniz Institut für Evolution und Biodiversitätsforschung (Berlin, Germany).

### Taxonomy

*Crassuncus koperbergi*  
Ustjuzhanin et Kovtunovich, **sp.n.**  
Figs 1–3.

MATERIAL. Holotype: Male. SOUTH AFRICA: Northern Cape: 5 km SE of Springbok, Koperberg farm, S 29°42' E 17°55', 760 m, 3–4.x.2009, V. Kovtunovich & P. Ustjuzhanin (BMNH gen. pr. 22756) Paratypes: 1 male, (BMNH gen. pr. 22757, 25 ex., same data as holotype; 1 male, SOUTH AFRICA: Northern Cape: Namaqua N.P., History Prison, S 29°53' E 17°39', 7.x.2009, V. Kovtunovich & P. Ustjuzhanin (ZISP, NHMO, ZMHB, CUK); 1 male, SOUTH AFRICA: Northern Cape: 9 km S of Springbok, 18–20.x.1954, A.J.T. Janse (DNMNH).

DESCRIPTION: External characteristics (Fig. 1): Head, thorax and tegulae pale grey. Labial palpi straight, short, length 1,5 times less than that of the eye diameter. Antennae thin, pale grey. Wingspan 14–18 mm, holotype — 17 mm. Fore wings pale grey, fringe with brown hairs at cleft base. First and second lobes of hind wings dark grey. Fringe of hind wings monochromatic pale grey. Hind legs pale yellow.

Male genitalia (Fig. 2): Valves symmetrical, oval. Harpes at valves long, arched, wide at base, greatly sharpened in distal part. Uncus reduced. Anellus with two short wide arms, sharpened in distal part. Phallus thin, almost straight.

Female genitalia (Fig. 3): Papillae anales wide, short. Apophyses posteriores two times longer than papillae anales, widened at terminus. Apophyses anteriores thick, sinuous, slightly shorter than apophyses posteriores. Antrum tubulate, sclerotized. Ductus very short and wide. Bursa copulatrix oval, with no signa.

**DIAGNOSIS.** The peculiar structure of the male genitalia (the reduced uncus) differs the new species from all the known species of this genus and also from the other genera of Pterophorinae subfamily. At the moment, we are inclined to attribute this species to the genus *Crassuncus* Gibeaux, 1994, although it is possible that later, in our further study, at the detailed develop-

ment of the African Pterophoridae generic taxonomy, the new species will be allocated as a separate independent genus.

**DISTRIBUTION:** Rep. S. Africa (Northern Cape).

**FLIGHT PERIOD:** October.

**ETYMOLOGY.** Toponymic name. Koperberg farm is the typical place of the discovered new species.



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Figs 1–3. *Crassuncus koperbergi* sp.n. 1 — adult, male, holotype; 2 — male genitalia, holotype (gen.pr. 22756 BMNH); 3 — female genitalia, paratype (slide 22757 BMNH).

Рис. 1–3. *Crassuncus koperbergi* sp.n. 1 — имаго, самец, голотип; 2 — гениталии самца, голотип (ген.пр. 22756 BMNH); 3 — гениталии самки, паратип (ген.пр. 22757 BMNH).

*Crassuncus hawkingi*  
Ustjuzhanin et Kovtunovich, **sp.n.**  
Figs 4–6.

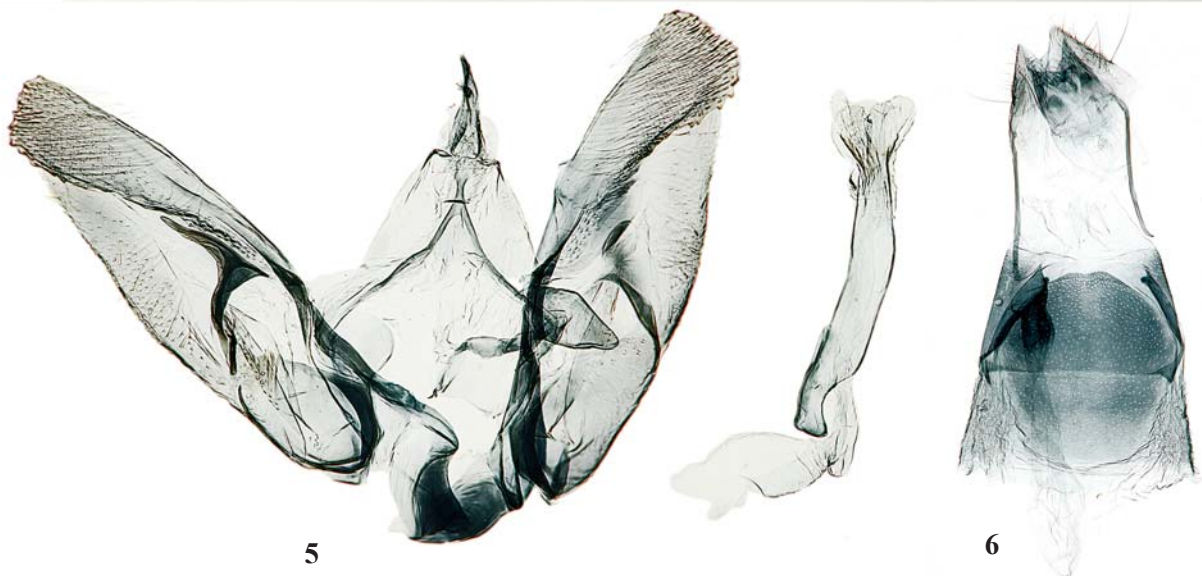
**MATERIAL.** Holotype: Male. SOUTH AFRICA: Northern Cape: 40 km SW of Springbok, Namaqua N.P., History Prison, S 29°53' E 17°39', 13.i.2008, V. Kovtunovich & P. Ustjuzhanin (BMNH gen.pr.22758). Paratypes: 2 males, 13 females, same data as holotype; 1 male SOUTH AFRICA: Northern Cape: Namaqua N.P.,

History Prison, S 29°53' E 17°39', 7.x.2009, V. Kovtunovich & P. Ustjuzhanin (BMNH, ZISP, NHMO, ZMHB, CUK); 1 male, SOUTH AFRICA: Northern Cape: 9 km S of Springbok, 18–20.x.1954, A.J.T. Janse (DNMNH); 2 females, Rep. S. Africa, Western Cape, Kogelberg, 34°10' S, 18°50' E, 3.04.1981, 1 male, 12.03.1983, D.M. Kroon (DNMNH).

**DESCRIPTION.** External characters (Fig. 4): Head, thorax and tegulae pale-yellow. Labial palpi straight, thin, equal to eye diameter. Antennae thin, yellow brown. Wingspan 12–



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Figs 4–6. *Crassuncus hawkingi* **sp.n.** 4 — adult, male, holotype; 5 — male genitalia, holotype (gen.pr. 22758 BMNH); 6 — female genitalia paratype (slide 22759 BMNH).

Рис. 4–6. *Crassuncus hawkingi* **sp.n.** 4 — имаго, самец, голотип; 5 — гениталии самца, голотип (ген.пр. 22758 BMNH); 6 — гениталии самки, паратип (ген.пр. 22759 BMNH).



16 mm, holotype – 12 mm. Fore wings yellow, with splashes of brown scales, cleft base with distinct brown spot. Costal margin of first lobe with three brown strokes lengthwise. Fringe inside cleft with brown hair. Hind wings grey, significantly darker than fore wings. Legs yellow grey.

Male genitalia. (Fig. 5): Valves asymmetrical. Costal margin of valves with wide folds, distal part of which is noticeably widened. Harpe at left valve consists of two sclerotized processes, front one directed to valve terminus, rear one directed to sacculus base, both processes sharpened at termini. Middle part of right valve with well expressed fold. Uncus arched, pointed to terminus. Saccus arched. Anellus arms of different length, right one significantly longer than left one. Phallus almost straight, its length 1,5 times shorter than that of valve.

Female genitalia. (Fig. 6): Papillae anales narrow, triangle. Apophyses posteriores long, thin. VIII sternite as wide semi-circular plate, with two narrow triangular folds at poste-

rior margin. Anrtum short, tubulate, located at left upper part of VIII sternite. Ductus narrow, membranous. Bursa copulatrix elongated, oval, with no signa. Ductus seminalis narrow and long.

DIAGNOSIS: In the male genitalia the species is distinguished by the wide folds at the costal margin of valves and by the form of the harpe at the left valve. The new species is similar to *Crassuncus defectus* (Bigot et Luquet, 1991) (from Madagascar), but differs from it by the more narrow uncus and by the less curved and more thick phallus. It also differs from *C. defectus* by the color of wings and smaller size.

DISTRIBUTION: Rep. S. Africa (Northern Cape, Western Cape).

FLIGHT PERIOD: January, March, April, October.

ETYMOLOGY. The species is named after the prominent scientists of our time, English theoretical astrophysicist Stephen Hawking, whose example of fortitude and vitality should be followed by each scientist.



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Figs 7–9. *Hellinsia katerina* sp.n. 7 — adult, male, holotype; 8 — male genitalia, holotype (gen.pr. 22760 BMNH); 9 — female genitalia, paratype (slide 22761 BMNH).

Рис. 7–9. *Hellinsia katerina* sp.n. 7 — имаго, самец, голотип; 8 — гениталии самца, голотип (ген.пр. 22760 BMNH); 9 — гениталии самки, паратип (ген.пр. 22761 BMNH).

*Hellinsia katerina* Ustjuzhanin et Kovtunovich, **sp.n.**  
Figs 7–9.

**MATERIAL.** Holotype: Male. SOUTH AFRICA: Western Cape, Karoo N.P., S 32°17' E 22°33', h 910 m, 12.xi.2010, Kovtunovich V. & Sochivko A. (BMNH gen.pr. 22760); Paratypes, 9 ex., same data as holotype (BMNH, DNMNH, ZISP, NHMO, ZMHB, CUK); 1 male, Rep. S. Africa, Northern Cape, Deelfontein, 8.iii.1902, collector unknown; 5 males, [NAMIBIA]: SWA, Karasberge, Farm Noachabib, 8–10.iv.1972, Jones and Strydom; 1 male, Swaziland, Mlawula, N.P., S 26°12' E 32°00', h 150 m, 24–25.xi.2010, V. Kovtunovich & A. Sochivko (CUK).

**DESCRIPTION:** External characters. (Fig. 7): Head yellow, thorax and tegulae pale brown. Labial palpi straight, short, two times shorter than eye diameter. Antennae yellowish grey, thick, ciliated. Wingspan 12–15 mm, holotype — 14 mm. Fore wings yellowish brown, with no distinct dark spots or strokes. Middle part from wing base to cleft covered with dark brown scales. Fringe inside cleft pale yellow. Hind wings darker than fore wings, with pale grey fringe. Hind legs pale yellow.

Male genitalia. (Fig. 8): Valves oval, asymmetrical. Harpe at left valve located in middle part, wide at base and pointed at apical part. Middle part of right valve with narrow longitudinal fold. Uncus straight, pointed and curved to its terminus. Saccus arched. Right arm of anellus well expressed, left arm reduced. Phallus thin, slightly arched, 1,5 times shorter than valve.

Female genitalia. (Fig. 9): Papillae anales oval. Apophyses posteriores short and thin. Lamina vaginalis wide, oval, with notch inside, its margins form triangle processes. Ostium oval. Ductus long, thin, membranous. Bursa copulatrix narrow, elongated, with no signa. Ductus seminalis very long, thin, longer than bursa copulatrix.

**DIAGNOSIS.** In male genitalia the new species is similar to *Hellinsia sphenites* (Meyrick, 1913), from which it differs by the harpe form, the anellus structure and more narrow uncus. In external characters of the adult it also resembles to *H. sphenites*, but differs from it by the absence of strokes and spots at the costal margin at the middle part of the fore wing. Also the dark brown hind wings of *H. sphenites* are significantly darker than those of the new species.

**DISTRIBUTION:** Rep. of S. Africa (Western Cape, Northern Cape), Namibia, Swaziland.

**FLIGHT PERIOD:** March, April, November.

**ETYMOLOGY.** The species is named after Ekaterina Fominykh, our translator from English, participant of the fifth Russian expedition to Africa.

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