

A new species of the genus *Polychrysia* (Lepidoptera: Noctuidae: Plusiinae) from the Inner Tian-Shan, Kyrgyzstan

Новый вид рода *Polychrysia* (Lepidoptera: Noctuidae: Plusiinae) из Внутреннего Тянь-Шаня, Киргизия

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Abstract. *Polychrysia iuno* sp. nov. is described from the Inner Tian-Shan, Kyrgyzstan (Dzhumgaltoo Range, Sary-Kayky Massif, right bank of Karakol River, 42°11.300'N 74°03.193'E, 2093 m asl). The new species differs from the closely related *P. esmeralda* (Oberthür, 1880) in the wing pattern and ground colour tone, and by the structure of male genitalia.

Резюме. Из Внутреннего Тянь-Шаня, Кыргызстан (хребет Джумгалтоо, массив Сары-Кайкы, правый берег р. Каракол, 42°11.300'N 74°03.193'E, 2093 м над ур. м.) описывается *Polychrysia iuno* sp. nov. Новый вид отличается от наиболее близкого *P. esmeralda* (Oberthür, 1880) крыловым рисунком, тоном основного фона крыльев и строением гениталий самца.

Key words: Kyrgyzstan, *Polychrysia*, new species, description

Ключевые слова: Киргизия, *Polychrysia*, новый вид, описание

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Introduction

Polychrysia Hübner, [1821] is the Holarctic genus of the owlet moths, comprising eight species (Ronkay et al., 2008; Lafontaine & Schmidt, 2010; Saldaitis & Benedek, 2015): *P. moneta* (Fabricius, 1787) (Central and North Europe, Ural, Caucasus, Asia Minor, and North-West Iran), *P. esmeralda* (Oberthür, 1880) (Ural, Siberia, Mongolia, Russian Far East, Eastern Tibet and Sichuan Province of China, and North-West of USA and Canada), *P. aurata* (Staudinger, 1888) (south of Russian Far East, southern part of Kam-

chatka Peninsula, Japan, North Korea, and North-East China), *P. splendida* (Butler, 1878) (middle part of West Siberia, mountains of South Siberia, Russian Far East, Korea, Japan, and North-East China), *P. praemium* Saldaitis et Benedek, 2015 (north of Sichuan Province in China), *P. sica* (Graeser, 1890) (south of Russian Far East and North-East China), *P. imperatrix* (Draudt, 1950) (Himalayas and Tibet), and *P. morigera* (Edwards, 1886) (USA: Mississippi, Missouri and Ohio river valleys from Pennsylvania to Tennessee; Rocky Mountains from Montana to Colorado; and west coast from Oregon to northern California).

During the course of faunistic studies on the owl moths of Kyrgyzstan (Korb et al., 2016), a new species of the genus, that is closely related and sympatric to *P. esmeralda*, was found; it is described herein.

The following abbreviations are used for collections: OP – Oleg Pekarsky private collection, Budapest, Hungary; SKK – Stanislav K. Korb private collection, Nizhniy Novgorod, Russia; ZISP – Zoological Institute, Russian Academy of Sciences, St Petersburg, Russia; ZMHU – Museum für Naturkunde Leibniz-Institut für Evolutions- und Biodiversitätsforschung, Berlin, Germany; ZMKU – Zoological Museum, Kiev University, Kiev, Ukraine.

Taxonomic part

Order Lepidoptera

Family Noctuidae

Subfamily Plusiinae

Genus *Polychrysia* Hübner, [1821]

Polychrysia iuno sp. nov.

(Figs 1, 2, 7, 8)

Holotype. Male, **Kyrgyzstan**, *Naryn Prov.*, Dzhungaltoo Range, Sary-Kayky Massif, right bank of Karakol River, 42°11.300'N 74°03.193'E, 2093 m asl, 17.VII.2015, S.K. Korb leg., slide Matov0416 (ZISP).

Paratypes. Same locality and collector, 17.VII.2015, 1 male, slide Matov0417 (ZISP), 25.VII.2016, 1 male (SKK).

Description. Male (Figs 1, 2). Head, thorax, collar and tegulae pale ochreous. Forewing length: holotype – 18 mm, paratypes – 17 and 18 mm, respectively. Forewing ground colour in marginal and submarginal parts pale ochreous; subdiscal, discal and basal areas yellowish ochreous; wing pattern consisting of two irregular thin dark lines in marginal and submarginal parts, one wide v-shaped dark line with dark spot in its costal part, and several (2–3) thin dark irregular lines in basal area; veins slightly darker than ground colour; discal ocelli white, with two yellowish ochreous centres, each consisting of three fragments; several scattered small black spots, being larger in basal and discal parts and smaller in marginal and submarginal parts. Hindwing ground colour pale ochreous; wing pattern consisting of dark veins,

with darker (pale grayish) marginal and submarginal areas forming poorly visible marginal belt, and well visible dark discal stroke. Fringes of same colour as surface of wing.

Male genitalia (Figs 7, 8). Uncus long, cylindrical, curved at approximately right angle along entire length, with pointed apex. Tegumen wide, triangle. Juxta triangle, with pointed apical process. Valvae elongated, wide in medial part and narrower in both apical and basal parts, diamond-shaped, with pointed apex. Cucullus long, triangular. Sacculus short, its dorsal margin rounded. Clasper very long, straight, with finely rounded apex. Aedeagus straight, slightly wider at base. Vesica broadly tubular, especially in basal third, curved on to right in ventro-lateral direction. Medial diverticulum large, projecting forward, terminal one long, located opposite basal one and very long. Cornutus long, narrow, with wide base and pointed apex.

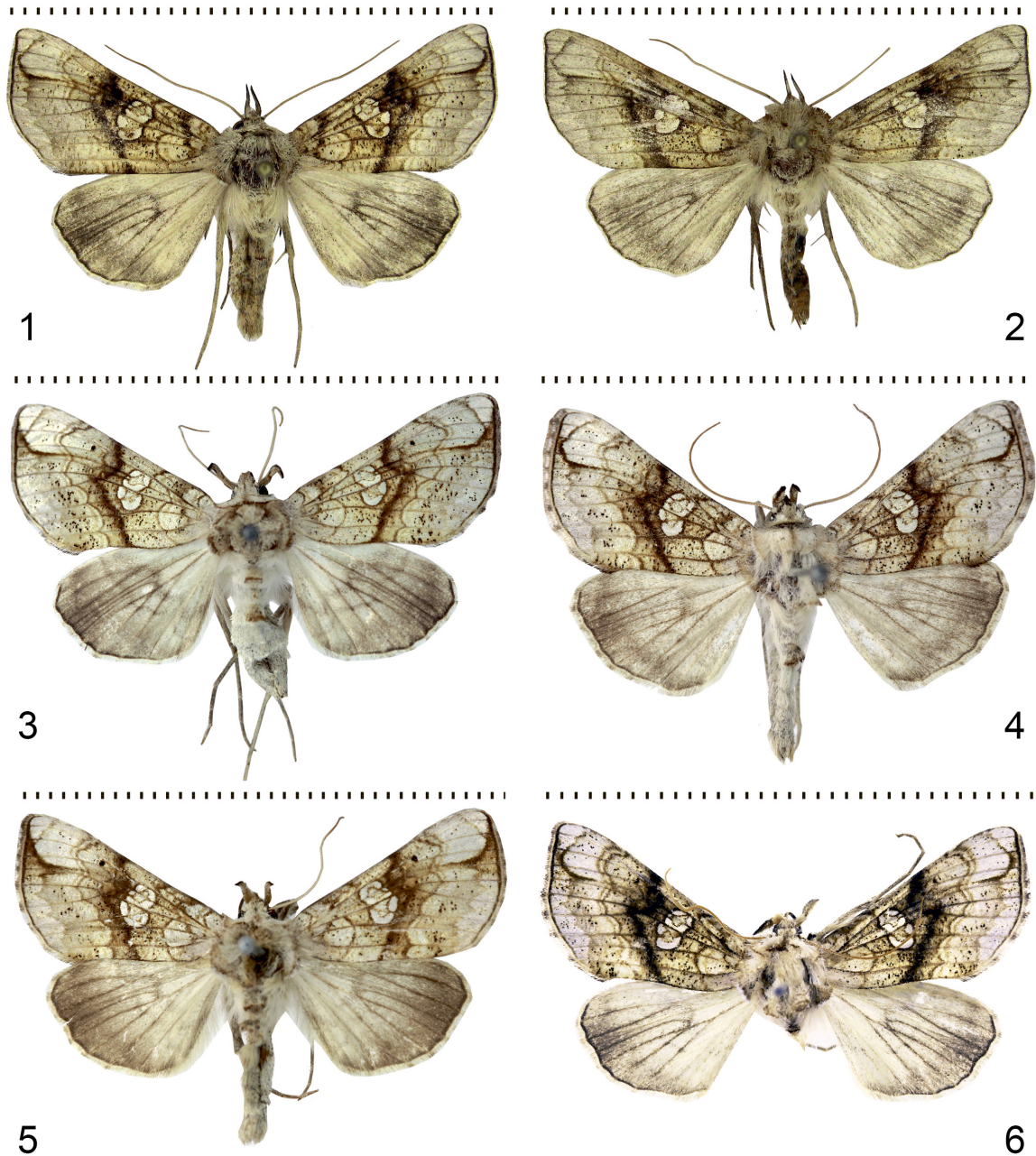
Female. Unknown.

Diagnosis. In *Polychrysia iuno* sp. nov., dark subdiscal line v-shaped, with dark spot in its costal part; in closely related *P. esmeralda* (Oberthür, 1880), this line w-shaped, without such dark spot (Figs 1–6); moreover, ground colour in *P. iuno* sp. nov. slightly more yellowish. The new species is well distinguished from *P. esmeralda* by the shape of valva: it is rhomboid, with pointed apex (*vs* elongated, with rounded apex) (Figs 7–10).

Habitat and bionomics (Figs 11, 12). The new species was collected at light on the right bank of Karakol River at the altitudes between 2000 and 2200 m. Its habitat is stony slopes of the southern exposition, with diverse steppe vegetation including *Stipa* spp., *Thymus* spp., *Artemisia* spp., etc. The new species is rather rare: in 2015, only two specimens from about 30 of all *Polychrysia* specimens were collected; in 2016, only one specimen from about 40 specimens; and in 2017, no specimens were collected at all. In its biotope, *P. iuno* sp. nov. flies together with *P. esmeralda* at the same time, and this makes the search for the described here species very difficult, because the external features are very weak for the field identification.

Distribution. Only known from the type locality.

Etymology. The new species is named after the ancient Roman goddess Iuno (in Latin spelling). Since one of the names of Iuno was Moneta, this specific name shows that the new species belongs to the group of *Polychrysia moneta*.



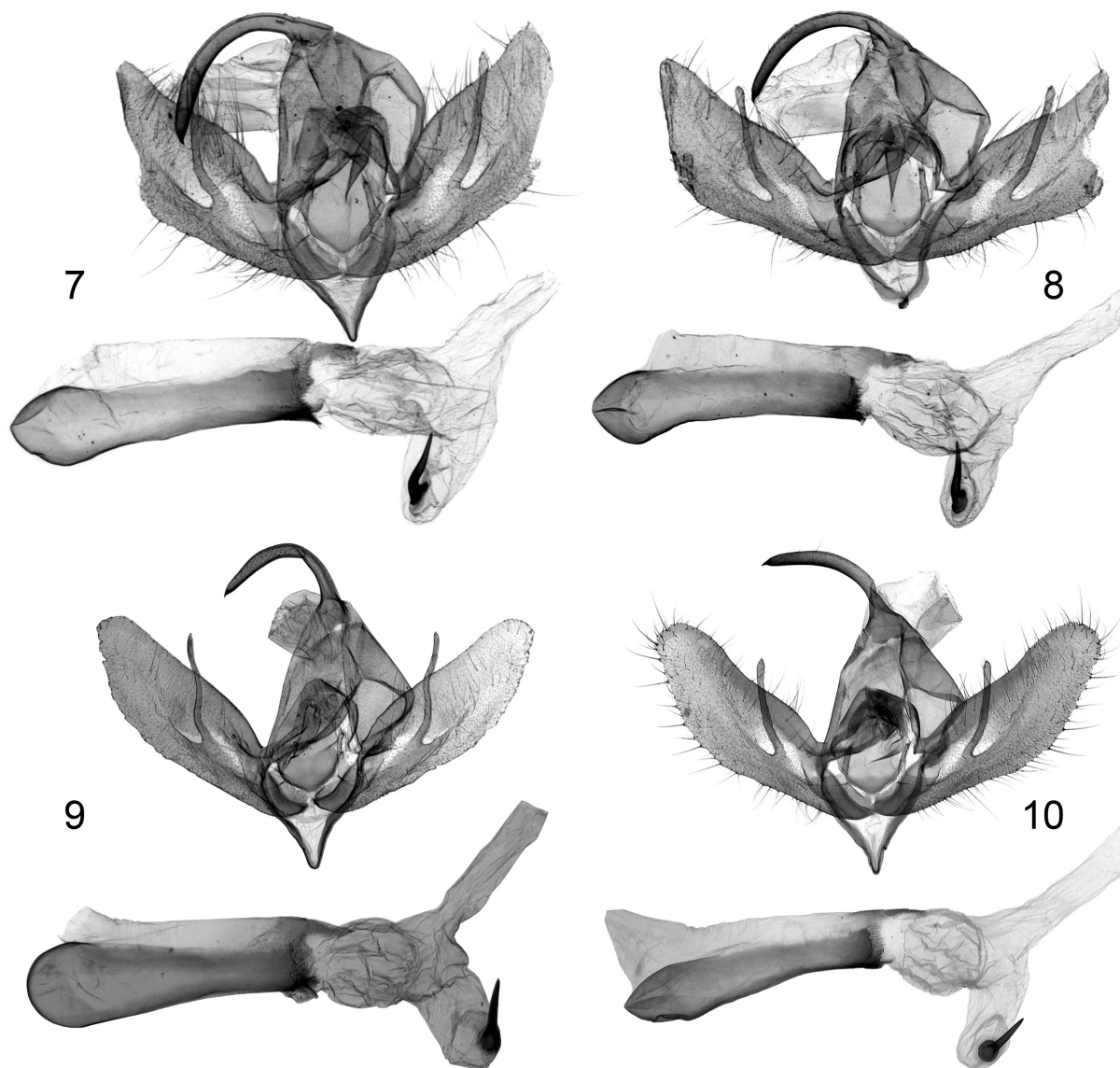
Figs 1–6. Habitus of *Polychrysia iuno* sp. nov. (1, 2) and *P. esmeralda* (Oberthür, 1880) (3–6). 1, holotype; 2, paratype; 3, topotype, Askold I. (ZMHU); 4, Tibet, Kuku-Nor lake (ZMHU); 5, “Altai” (ZMHU); 6, Inner Tian-Shan, Sary-Kayky Massif (SKK). Scale division interval: 1 mm.

***Polychrysia esmeralda* (Oberthür, 1880)**
(Figs 3–6, 9, 10)

Plusia moneta var. *esmeralda* Oberthür, 1880: 85.

Material examined. **Kyrgyzstan:** *Chuy Prov.:* Kirghizskiy Range, Ala-Archa National Park, 42°39'N 74°30'E, 2400 m, 23.VII.2014, S.K. Korb leg., 2 males (SKK); Kirghizskiy Range, Chon-Kuurchak valley,

2600 m asl, 3–6.VIII.2017, A. Baryshev leg., 1 male, slide K647 (SKK); Suusamyrtoo Mts, Kyzyl-Oy environs, 41°57'N, 74°09'E, 1900 m asl, 1.VIII.2000, I. Pliushch leg., 1 male (ZMKU); *Naryn Prov.:* Inner Tian-Shan, Min-Kush Settlm., 41°40'N, 74°27'E, 2300 m asl, 2.VIII.2000, I. Pliushch leg., 1 male (ZMKU); Dzhungaltoo Range, Sary-Kayky Massif, right bank of Karakol River, 42°11.300'N 74°03.193'E, 2093 m



Figs 7–10. Male genitalia of *Polychrysia iuno* sp. nov. (7, 8) and *P. esmeralda* (Oberthür, 1880) (9, 10). Lateral view, with aedeagus removed (top images) and aedeagus with vesica everted (bottom images). **7**, holotype, genitalia slide Matov0416; **8**, paratype, genitalia slide Matov0417; **9**, Vinogradovka Settlm. in Russia, genitalia slide Matov0524; **10**, Sary-Kayky Massif, Dzhumgaltoo Range in Kyrgyzstan, genitalia slide OP3324m.

asl, 17.VII.2015, 25.VII.2016, 19.VII.2017, S.K. Korb leg., 54 males, 9 females, slides K625–K645 (SKK); same locality and collector, 17.VII.2015, 1 male, slide OP3324m (OP); Sususamyrtoo Mts, Kekemeran River valley, 41°59.211'N, 74°09.396'E, 1700 m asl, 26.VII.2016, S.K. Korb leg., 1 male (SKK). **Kazakhstan**, “Ala Tau”, Haberhauer leg., 1 male, slide K125 (ZMHU). **Mongolia**, “Changai” [Khangai Mts], collector unknown, 1 male (ZMHU). **Russia**: “Altai”, Kindermann leg., 1 male, slide K132 (ZMHU);

Primorskiy Terr.: Askold I., Dörries leg., 1 male, slide K131 (ZMHU); “Ussuri Terr.”, Vinogradovka Settlm., 3.VII.1929, Djakonov & Filipjev, 1 male, slide Matov0524 (ZISP). **China, Tibet**: *Qinghai Prov.*, Kuku-Nor [lake], 1898, Rückbeil leg., 1 male, 1 female, slide K122 (ZMHU); *Qinghai Prov.*, “Sining” [Xining], 1895, Rückbeil leg., 1 male, slide K123 (ZMHU).

Distribution. Russia (Ural, Siberia, Far East including Kamchatka Peninsula, and Kuril Islands), Kyrgyzstan, Mongolia, China, Canada

(South Manitoba, South Saskatchewan, Alberta, and North-West British Columbia), and USA (Alaska).

Addenda

Electronic supplementary material. Figs 11, 12. Habitat of *Polychrysia esmeralda* (Oberthür, 1880) and *P. iuno* **sp. nov.** in Sary-Kayky Massif (Dzhungaltoo Range, Kyrgyzstan). **11**, hillside overgrown with steppe vegetation; **12**, general view of the habitat.

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References

- Korb S., Matov A., Pliushch I., Klyuchko Z. & Poltavsky A.** 2016. *The Noctuid moths of Kyrgyzstan*. Moscow: KMK Scientific Press. 230 p.
- Lafontaine J.D. & Schmidt B.C.** 2010. Annotated check list of the Noctuoidea (Insecta, Lepidoptera) of North America north of Mexico. *ZooKeys*, **40**: 1–239. <https://doi.org/10.3897/zookeys.40.414>
- Oberthür C.** 1880. *Études d'Entomologie. Faunes Entomologiques. Description d'insectes nouveaux ou peu connus. V. Faune des Lépidoptères de l'île Askold. Première partie*. Rennes: Oberthür et fils. 88 p. <https://doi.org/10.5962/bhl.title.9398>
- Ronkay L., Ronkay G. & Behounek G.** 2008. A taxonomic atlas of the Eurasian and North African Noctuoidea. Plusiinae I. In: *The Witt Catalogue*, **1**. Budapest: Heterocera Press. 348 p.
- Saldaitis A. & Benedek B.** 2015. A new *Polychrysia* (Lepidoptera, Noctuidae, Plusiinae) species from China. *Zootaxa*, **3974**(2): 290–296. <https://doi.org/10.11646/zootaxa.3974.2.12>

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