

Records of *Dodia* Dyar, 1901 species in Russian Altai (Lepidoptera: Erebidae, Arctiinae)

J. Šumpich, M. Dvořák, M. Pikner & T. Kadlec

Abstract

Faunistic records of *Dodia* Dyar, 1901 species collected in Altai Mountains (Russia) in 2015-2019 are given. Rare Holarctic species *Dodia albertae* Dyar, 1901 is firstly reported from this territory.

KEY WORDS: Lepidoptera, Erebidae, Arctiinae, faunistic, Altai Republic, Russia.

Registros de las especies de *Dodia* Dyar, 1901 en el Altái ruso (Lepidoptera: Erebidae, Arctiinae)

Resumen

Se dan registros faunísticos de las especies de *Dodia* Dyar, 1901 recogidas en el Macizo de Altai (Rusia) en los años 2015-2019. Para este territorio, se registra por primera vez, la rara especie *Dodia albertae* Dyar, 1901.

PALABRAS CLAVE: Lepidoptera, Erebidae, Arctiinae, faunística, República de Altai, Rusia.

Introduction

Dodia Dyar, 1901 is species-poor genus of erebid moths comprises seven species yet. It is characteristic by external appearance with almost transparent wings with reduced patterns, unique within family Erebidae. Three species have Palearctic distribution: *D. diaphana* (Eversmann, 1848), *D. maja* Rekelj & Česánek, 2009 and *D. sasonovi* Dubatolov, 1990, two are Nearctic distribution *D. tarandus* Schmidt & Macaulay, 2009 and *D. verticalis* Lafontaine & Troubridge, 1999 and two are Holarctic distribution *D. albertae* Dyar, 1901 and *D. kononenkoi* Tshistjakov & Lafontaine, 1984. According DUBATULOV (2008), two additional taxa had been originally described as subspecies of *D. kononenkoi* Tshistjakov & Lafontaine, 1984 which were considered as valid species, both with Palearctic distribution (*D. sikhotensis* Tshistjakov, 1988, *D. transbaikalensis* Tshistjakov, 1988). All *Dodia* species occur in boreal and subarctic areas and within Holarctic fauna represent unique cold-adapted group associated with cold mountain habitats, peat bogs or subarctic tundra. This strong specialisation on extreme habitats could be probably the reason why the most of taxa were described only in the last thirty years, and altogether with that only several few faunistic records of these species were published since their descriptions.

The Altai mountain is possible considered to be one of the most attractive mountain range of southern Siberia, frequently visited by lepidopterologists since 19th century. TSHISTJAKOV (1988: 641) published the first records of *Dodia diaphana* from Altai Republic (incorrectly mentioned as Altayski Krai) collected already in 1898. The Arctiinae fauna of southern Siberia was studied in detail by DUBATULOV (1990), and in this work *D. sasonovi* Dubatolov, 1990 was described from high elevation of Altai Mts. Its distribution is known only from the Russian republics of Altai and Tuva so

far, and within genus it has the most restricted distribution area. Despite the intensive work of many lepidopterologists in Altai to date, only these two *Dodia* species were known from here, and additional *Dodia* species - *D. albertae* Dyar, 1901 - was recorded just recently. The main aim of this paper is to present the first records of *D. albertae* from Altai Mts. Additionally, based on the taxonomical and faunistic works of TSHISTJAKOV (1988), TSHISTJAKOV & LAFONTAINE (1984), DUBATOLOV (1990), LAFONTAINE & TROUBRIDGE (1999), MURZIN (2003), REKELJ & ČESÁNEK (2009), SCHMIDT & MACAULAY (2009) and WITT & RONKAY (2011), we present the first preliminary world checklist summarizing the current state of knowledge of taxonomy and distribution of all *Dodia* species (Table 1).

Material and methods

Moths were collected by using portable light traps in which the one ultraviolet 8 W / 12 V tube (powered by 7.2 Ah / 12 V lead battery) was used as bait. Some specimens were captured by using net during daytime search. Photographs of voucher specimen were taken with Canon EOS 750 D digital camera, and genitalia with Canon 1100 D mounted in Olympus BX41 microscope.

Abbreviations of museums and private collections in which presented material is deposited:

| | |
|------|---|
| NMPC | National Museum, Natural History Museum, Prague, Czech Republic |
| RCMD | Research collection of Marek Dvořák, Smrčná, Czech Republic |
| RCMP | Research collection of Michal Pikner, Kněžpole, Czech Republic |

Dodia albertae Dyar, 1901 (figs 1-3)

RUSSIA, Altai Republic, 6 ♂♂, 18 km SW of ULAGAN, 50°32'32"N; 87°46'44"E, boreal forest, 1700 m a.s.l., 28-VI-2019, gen. prep. Jan Šumpich 19980, M. Dvořák, T. Kadlec, M. Pikner & J. Šumpich leg. (NMPC, RCMD, RCMP).

Bionomy: Adults are usually flying in June and July at boreal peat bogs, but also at rocky scree with *Cedrus* and *Larix*, frequently confined to humid areas with dominance of *Salix* and *Alnus* trees. The Altaic specimens were attracted to light traps during the very cold night (temperature approximately 7-9° C) in boreal forest with dominant *Larix sibirica* Ledeb., and with distinctive growths of *Vaccinium* species and *Ledum palustre* L., in undergrowth (Fig. 3).

Remark: According to DUBATULOV (1990: 148) it is rare species in Russia, nevertheless new records from Altai as well as recently published record from Kazakhstan (WITT & RONKAY, 2011: 291) confirm the large distribution area of this species. New species for Altai Republic (Russia).

Dodia diaphana (Eversmann, 1848)

RUSSIA, Altai Republic, 7 ♂♂, Aktash env., road to 9. station (below Zavod), 50°19'14"N; 87°42'57"E, mountain meadows, 2260 m a.s.l., 22-23-VI-2015, M. Dvořák & J. Šumpich leg. (RCMD, NMPC); 4 ♂♂, Kurai env. (15 km SW), Dzhangyskol lake, 50°10'49"N; 87°44'19"E, coniferous forest, 1830 m a.s.l., 29-30-VI-2019, M. Pikner leg. (RCMP).

Bionomy: Adults occur in June and July in dry habitats, predominantly on rocky scree, but also in humid boreal forests. Moths are active mainly at night.

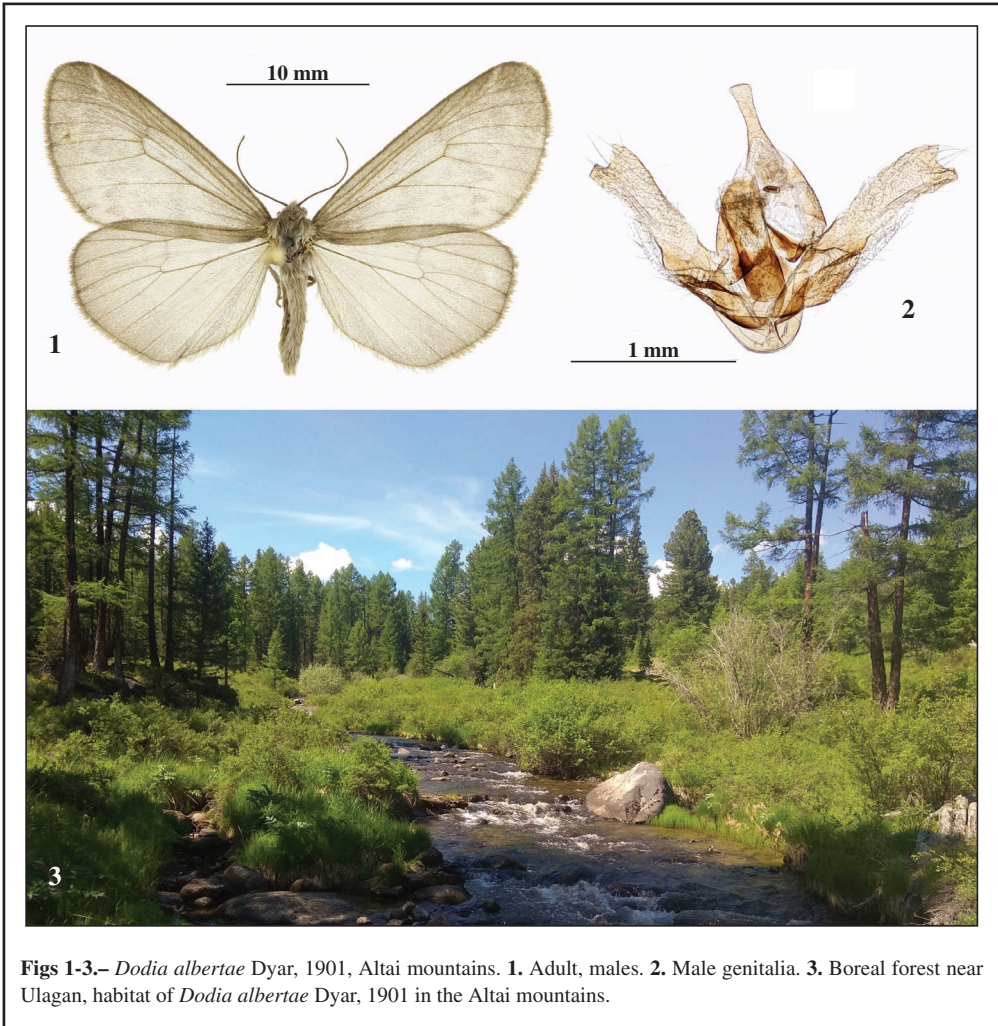
Remarks: In the Altai mountains it is the most distributed *Dodia* species but it is very local and only exceptionally more abundant.

Dodia sazonomi Dubatolov, 1990

RUSSIA, Altai Republic, 5 ♂♂, Aktash env., road to 9. station (Závod), 50°19'34"N; 87°43'54"E, mountain meadows, 2400-2900 m a.s.l., 23-VI-2015, M. Dvořák & J. Šumpich leg. (NMPC, RCMD).

Bionomy: Closely associated to the rocky rubble, caterpillars polyphagous (DUBATOLOV, 1990: 149).

Remarks: Presented specimens were probably collected on the type locality (coordinates were not stated in the original description) during daytime. Until recently, it was considered as endemic for Altai Mts. but IVINSKIS & SALDAITIS (2004: 107) and REKELJ & ČESÁNEK (2009: 275) reported it also from neighbouring Tuva Republic (West Tannu Ola Mts., Tsagan Shibetu Mts.).



Figs 1-3.– *Dodia albertae* Dyar, 1901, Altai mountains. **1.** Adult, males. **2.** Male genitalia. **3.** Boreal forest near Ulagan, habitat of *Dodia albertae* Dyar, 1901 in the Altai mountains.

Discussion

According to MURZIN (2003: 32) and WITT & RONKAY (2011: 143) the new Altaic specimens of *D. albertae* could belong to subspecies of *D. atra atra* which was originally described from Sajon mountains in southern Siberia, Russia. However, this taxon was already synonymized by TSHISTJAKOV & LAFONTAINE (1984: 1553) with nominal subspecies described from Canada. In contrast to that, one of these authors later described new subspecies *D. atra eudiopta* from central Siberia, namely from the area between Alakit and Verhnaya Tomba rivers, imprecisely presented as the

lower reaches of the Lena river (TSHISTJAKOV, 1988: 638). This description is based on the smaller wingspan, lighter pattern on the forewings and shorter protrusion in ventral part of the apex of valvae. However, the shape of valva of this taxon, published by TSHISTJAKOV (1988: 637), corresponds with our Altaic specimens (Fig. 2). Moreover, SCHMIDT & MACAULAY (2009: 82) showed the high variability of this character, where the shape of valvae of sample from Muskox Lake in Canada represented in Figure 4c also fully fits with our Altaic specimen. Similarly, the specimen collected also in the Yukon Territory in Canada and published by REKELJ & ČESÁNEK (2009: 278) has identical genitalia with our Altaic specimen, too. Therefore, taxonomic position of particular taxa of *D. albertae* require future study, and presented ordering to subspecies *atra* is necessary to consider as provisional. Similarly, also taxonomic position of further *Dodia* taxa, primarily *sikhotensis* and *transbaikalis* should be revised due their unclear status (cf. MURZIN, 2003: 33; DUBATULOV, 2008: 297).

Checklist of *Dodia* Dyar, 1901

(Legend: HO - Holarctic distribution, PA - Palearctic distribution, NE - Nearctic distribution)

Note: * Affiliation of North American populations to concrete subspecies is unclear so far, holotypus originates from Magadan Region in Russia (TSHISTJAKOV & LAFONTAINE, 1984: 1554).

| Taxon | Distribution |
|---|---|
| <i>Dodia albertae</i> Dyar, 1901 | HO |
| <i>D. albertae albertae</i> Dyar, 1901 (subspecies) | NE (USA: Alaska, Canada) |
| <i>D. albertae atra</i> A. Bang-Haas, 1912 (subspecies) | PA (Russia: mountains in Siberia, Kazakhstan, N Mongolia) |
| <i>D. albertae eudiopta</i> Tshistjakov, 1988 (subspecies) | PA (Russia: subarctic tundra) |
| (= <i>D. kozhantshikovi</i> Sheljuzhko, 1918) | PA (Russia: Dzhugdzhur Mountains) |
| <i>Dodia diaphana</i> (Eversmann, 1848) | PA |
| <i>D. diaphana diaphana</i> (Eversmann, 1848) | PA (Russia: Siberia, Far East, Mongolia) |
| <i>D. diaphana arctica</i> Tshistjakov, 1988 (subspecies) | PA (Russia: subarctic area) |
| <i>Dodia kononenkoi</i> Tshistjakov & Lafontaine, 1984 | HO* |
| <i>D. kononenkoi kononenkoi</i> Tshistjakov & Lafontaine, 1984 (subspecies) | PA (Russia: Siberia) |
| <i>D. kononenkoi sikhotensis</i> Tshistjakov, 1988 (?subspecies) | PA (Russia: Far East) |
| <i>D. kononenkoi transbaikalis</i> Tshistjakov, 1988 (?subspecies) | PA (Russia: southern Siberia) |
| <i>Dodia maja</i> Rekelj & Česánek, 2009 | PA (Russia: Magadan) |
| <i>Dodia sazonomi</i> Dubatolov, 1990 | PA (Russia: Altai, Tuva) |
| <i>Dodia tarandus</i> Schmidt & Macaulay, 2009 | NE (Canada) |
| <i>Dodia verticalis</i> Lafontaine & Troubridge, 1999 | NE (Canada) |

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