

## A New Record of Butterfly Species, *Apatura metis* Freyer, 1829 (Lepidoptera: Nymphalidae) in Mongolia

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### Abstract

A butterfly species, Freyer's purple emperor (*Apatura metis* Freyer, 1829) is recorded for the first time in Mongolia. The specimens of both males and females of this species were collected in willow groves (*Salix* sp.) growing on the river banks and valley of Onon river, in Norovlin soum of Hentii aimag. Supplementary data on morphology, bionomics, habitat ecology, and distribution, as well as conservation status of this species are given.

**Key words:** *Apatura metis*, butterfly, new record, Mongolia

### Introduction

The Freyer's purple emperor (*Apatura metis* Freyer, 1829) is a species of brush-footed butterfly belonging to the subfamily Apaturinae Boisduval, 1840, family Nymphalidae Rafinesque, 1815, which was first described in Hungary, but later recorded in the vast areas of northern Eurasia (Coutsis & Ghavalas, 1991; Korshunov, 2002).

This is an example of a so-called Amphipalaeartic species, which ranges in Europe, Central and East Asia. These range parts are inhabited with different subspecies, namely: *A. metis metis* (distributed in southeastern Europe), *A. metis bunea* (South-European Russia and Caucasus), *A. metis substituta* (Japan), *A. metis irtyshika* (southwestern Siberia and Kazakhstan), *A. metis separata* (Transbaikalia of Russia), *A. metis heijona* (Korea and the Amur and Ussuri regions of Russian Far East), and *A. metis doii* (Kurul Islands of Russia). However, very often it is not easy to distinguish these subspecies. Therefore, some scientists do not accept the validity of all these subspecies as separate taxa, and in the literature very frequently refer only to the name of nominal species (Korshunov, 1982). It is noteworthy that most forms of the species display yellow bands on the wings.

According to literature data, more than 40 species of Nymphalidae have been recorded in Mongolia, but no representative of this genus had ever been recorded in the country (Forster, 1965, 1967, 1971; Korshunov, 1976; Korshunov & Soljanikov 1977; Namkhaidorj, 1988).

### Results

During the field survey of soil and terrestrial arthropods in Eastern Mongolia in 2004, several individuals of a butterfly species, *Apatura metis* Freyer, 1829 were found in the valley of Onon river, Norovlin soum of Hentii aimag (N48°50'22", E111°37'59", elev. 923 m a.s.l). The specimens of both males and females were collected in the willow grove (*Salix* sp.) growing on the river bank and valley, in June 2004.

Onon is one of the largest rivers in Mongolia with surrounded mountains covered with larch and birch forests. The area receives a relatively large amount of annual precipitation (> 250 mm). The river valley and floodplains are a home to a large number of flowering plant species.

It was difficult to certainly determine the subspecies status of our specimens since there is no fully acceptable diagnosis. However, according to general morphology pattern and geographical range, it is most probable to be *A. metis separata* Tuzov, 2000.

**Morphology.** General appearance of this species is dark wings with reddish and yellowish bands. Wing side length is about 63-74 mm. The small black spot on the forewing helps in identification. Wings of the males are bluish purple if the observer sees it from a right angle. *A. metis* is very similar to the Lesser purple emperor, *A. ilia*, and sometimes they occur sympatrically in the same habitat. However, these two species are distinguished by the smaller body size of the *A. metis*, and the small spot in the post discal

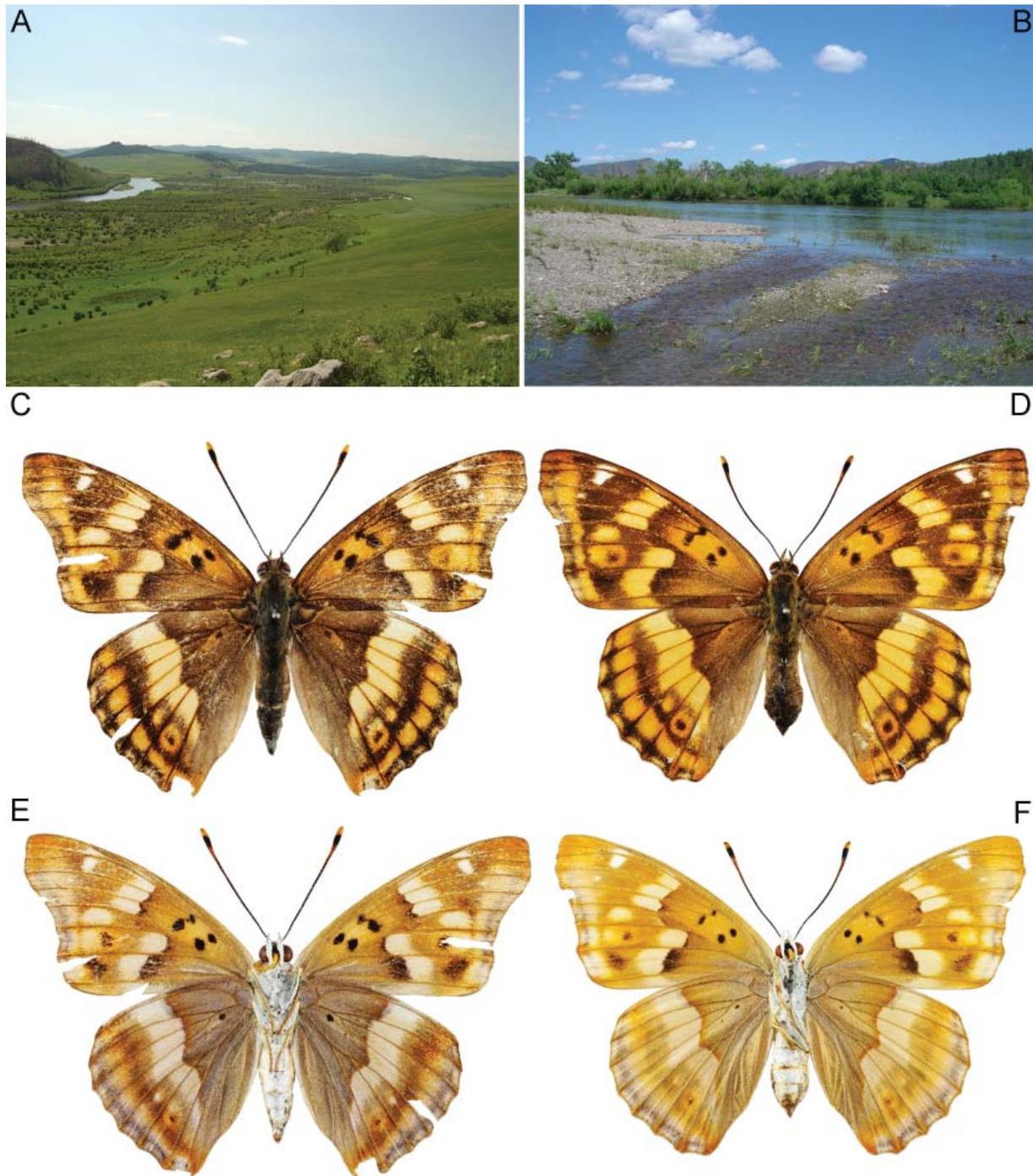


Figure 1. Habitat and idiosoma of *Apatura metis* Freyer, 1829. A – Valley of Onon river; B – Willow grove growing on the river bank; C – Dorsal view of male; D – Dorsal view of female; E – Ventral view of male; F – Ventral view of female.

band, two upper forewing and hindwing spots are orange on a dark background compared to dark spots on orange background for *A. ilia* (Mairiaux & Hutsebaut, 1997).

**Habitat ecology.** This species usually inhabits forests and associated with river systems. The female spends the majority of its life in the foliage. It is certainly associated with the larval food plant,

willow, which is very closely associated with river banks, river valleys or irrigation channels as well as lowlands and mountain foothills.

**Bionomics.** Usually it has one, but sometimes two generations, the first in May and June, the second in July and August. Flight time starts at the end of May or beginning June for the first brood and end of July or early August for the

second brood (Tolman & Lewington, 1997). The butterflies fly powerfully in and out of riverside/woodland edge trees from ground level, but most frequently at 5 to 10 m or more in height.

**Geographical range.** Europe: Hungary, Bulgaria, Serbia, European part of Turkey. Asia: Irtysh and Ishim river valleys in West Siberia, Omsk and Chita Provinces, Transbaikalian region, Russia; Pavlodar Province, Kazakhstan; northeastern China; Korean Peninsula, except Cheju island, Korea; Hokkaido, Honshu, Shikoku, Kyushu, Japan; Norovlin soum, Hentii aimag, Mongolia (Korshunov, 2002).

**Distribution of subspecies.** The subspecies *A. metis bunea* Herrich-Schaffer, 1845 (= *gertraudis* Stichel, 1909; = *oberthueri* Le Moul, 1947) inhabits the south European part of Russia and the northern slopes of the Caucasian mountains. *A. metis irtyshika* Korshunov, 1982 occurs in the western Siberia, and *A. metis separata* Tuzov, 2000 is distributed in Transbaikalian area of Russia. From Korea, *A. metis heyona* Matsumura, 1928 (= *gracilis* Bang-Haas, 1936; = *asiatica* Le Moul, 1947; = *mirei* Le Moul, 1947) has been described, to which the populations from the Amur and Ussuri regions are likely to belong. In the Kuril Islands, *A. metis doii* Matsumura, 1928 is known to occur, which is very close to the mainland taxon. Populations from Japan belong to *A. metis substituta* Butler, 1873 (= *gifuensis* Matsumura, = *takanonis* Matsumura, 1919, = *yanagawensis* Matsumura, 1928, = *japonica* Le Moul, 1947) (Tuzov *et al.*, 2002).

**Conservation status.** According to the IUCN category the species is included in Data Deficient regional category, and it is included in the Appendix II of the Bern Convention. The species is also listed as vulnerable in the Red Data Book of European Butterflies (van Swaay & Warren, 1999), as well as in the Red Data Book of Serbian Butterflies (Jakšić, 2003).

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### Хураангуй

Хайрсан далавчтаны багийн мөлхөө эрвээхэйн овогт хамаарах *Apatura metis* Freyer, 1829 зүйл Монгол оронд шинээр тэмдэглэгдэв. Энэ зүйлийн эр, эм бодгалиудыг Хэнтий аймгийн Норовлин сумын нутагт байрлах Онон голын эрэг болон татмын нугад ургасан бургасан (*Salix* sp.) шугуйгаас цуглуулав. Уг зүйлийн эрвээхэйн морфологи, биологи, амьдрах орчны экологи, тархалт болон хамгааллын статусын талаарх нэмэлт мэдээллийг энэхүү өгүүлэлд тусгасан болно.

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