New butterfly records for the Tyva Republic [Tuva], I. Description of a new subspecies of *Hyponephele narica* (HÜBNER, [1813]) (= *H. huebneri* KOÇAK, 1980) (Lepidoptera: Satyridae)

● OLEG G. KOSTERIN

Abstract. *Hyponephele narica* (HÜBNER, [1813]) (= *Hyponephele huebneri* KOÇAK, 1980) is for the first time reported from Siberia in the sandy desert patch Tsugeer-Els, S Tyva Republic (Ubsu-Nur [Uvs-Nor] Intermontane Hollow). *Hyponephele narica ambialtaica* subsp. nov. also inhabiting the Hovd Aimak of Mongolia and the surroundings of Lake Zaisan in Eastern Kazakhstan is described and illustrated.

Zusammenfassung. *Hyponephele narica* (HÜBNER, [1813]) (= *Hyponephele huebneri* KOÇAK, 1980) wird erstmals aus Sibirien aus dem Sandwüstengebiet Tsugeer-Els, S Tyva Republic (Ubsu-Nur [Uvs-Nor] Intermontane Senke) gemeldet. *Hyponephele narica ambialtaica* subsp. nov., die auch den Hovd Aimak in der Mongolei und die Umgebung des Zaisan-See in Ost-Kasakhstan besiedelt, wird beschrieben und abgebildet.

Key words. Lepidoptera, Rhopalocera, Satyridae, *Hyponephele huebneri; Hyponephele narica ambialtaica* subsp. nov., Siberia, Tuva, Tyva, Mongolia, Kazakhstan, Dzhungaria, sandy desert.

Introduction

During an expedition to the Tyva Republic (Russia, southern Central Siberia), or Tuva (a traditional Russian spelling) in July 2000, I obtained some interesting butterfly records. In this paper, the first record of *Hyponephele narica* (HÜBNER, [1813]) (= *Hyponephele huebneri* KOÇAK, 1980) from Siberia is presented, allowing the description of the easternmost subspecies of this species. Further findings will be published in the near future.

H. narica was found in its specific habitat – sand desert – in the barkhan sands Tsugeer-Els [*Mong.* 'just sand'] at the left bank of the Test-Khem river. These sands represent the north-eastern extreme of the large Altan-Els desert [Mongolian: '*golden sand*') occupying the central part of the Ubsu-Nur [Uvs-Nor] Intermontane Hollow (the northern part of the Hollow of the Great Lakes). *H. narica* is known to be strictly confined to true sand desert, and Tsugeer-Els represents just a patch of that, with a diverse and very specific psammophytic flora and vegetation, described in detail by KHAMNINCHUN *et al.* (1997), KOROLYUK (1999) and HILBIG & KOROLYUK (2000).

So far, the range of *H. narica* was assumed to be as follows: Astrakhan Province, Russia, southern Kazakhstan (from the Caspian Sea to the southern Altai, including the Lake Zaisan area), north-western Iran, Turkmenistan, Uzbekistan, Tajikistan, Afghanistan, Pakistan, western Mongolia (Hovd Aimak) and western China (LUKHTANOV & LUKHTANOV 1994, SAMODUROW *et al.* 2000). However, records from Iran refer in fact to a different species (V. A. LUKHTANOV, pers. comm.), while the identification of specimens from Afghanistan and Pakistan needs to be revised. Thus, the known range of *H. narica* extends continuously through the Turanian arid zone, from the Caspian Sea to the southern Altai Mts., and, in the east, includes some additional parts behind the Tarbagatai and Altai mountain systems: southern Tuva, western Mongolia, Dzhungaria and, perhaps, wider areas in North-West China.

Reference to western Mongolia was so far based on a single male specimen (fig. 1) preserved in the collection of the Zoological Institute, St. Petersburg (ZISP; see *'Material studied'* below). A. KOTLOBAI (Moscow) kindly informed me that about 20 years ago *H. narica* was collected in the Mongolian part of the Ubsu- Nur Hollow by D. ZAMOLODCHIKOV (however, without subsequent publication). Thus ours is not the first record of *H. narica* for the Hollow.

In addition, there are 2 ♂ 1 ♀ (worn specimens) from *'East Tsaidam'*, collected by P. K. KOZLOV. Unfortunately, a precise identification of this locality is not possible.

The Tuvinian specimens are large and have a very contrasting wing pattern. The Mongolian male exhibits an almost identical appearance. Also specimens from the sands in the Kara-Irtysh (or Chernyi Irtysh) valley (e. g. the Irtysh River upstream of Lake Zaisan, geographically belonging to Dzhungaria) are quite similar. It appears that butterflies from the eastern-most part of the range, i.e. behind the Tarbagatai Mts., from both sides of the Mongolian Altai, represent a new subspecies which is described below.

Describing a subspecies within *H. narica* one should bear in mind that the type locality of *H. narica* is ambiguous and has been reconstructed to be the southern Ural or Astrakhan Province (BUTLER 1868). This problem will be fixed in a forthcoming paper by V. LUKHTANOV (in prep.) designating a neotype from the Astrakhan Province. Furthermore, KOÇAK (1980) claimed the name *Papilio narica* HÜBNER, [1813] to be a junior primary homonym of *Papilio narica* FABRICIUS, 1793 (presently within *Leptosia* HÜBNER, [1818], Pieridae). However, these names refer to taxa which have not been considered as congeners after 1899. According to the *Code for Zoological Nomenclature* (2000: art. 23.3, 23.9.)

Fig. 1. *Hyponephele narica ambialtaica* subsp. nov., paratype ♂. Mongolia, Hovd [Aimak, Buyan-Tu River valley), 12/VII 1903, leg. GRUM-GRSHIMAILO (ZISP) (Courtesy of Dr. V. A. LUKHTANOV).

Paratypes. 1 ♂ 1 ♀ (fig. 2 b); Russia, Siberia, Tyva Republic, barkhan sand massif Tsugeer-Els 12 km E of Lake Tere-Khol', 50°05'N 95°19'E, 1200 m, 15/VII 2000, N. PRIIDAK, O. KOSTERIN leg., coll. Prof. T. FUJIOKA (Tokyo). 1 ♂ (fig. 1); Mongolia, 'Cobdo Altai 12VII 03"; coll. ZISP (Zoological Institute, St. Petersburg) [According to (KERZHNER 1972), on 12/VII 1903, butterfles were collected by GRUM-GRSHIMAILO in the Buyan-Tu River valley, presently Hovd Aimakl. 12 ♂ 2 ♀, E Kazakhstan, Lake Zaisan area, Kara-Irtysh River left bank sands at bridge downstream of Buran settlement, barkhan sands, 420 m, 12/VI.1998. V. A. LUKHTANOV leg; coll. SZMN (1 ♂) and coll. Dr. V. A. LUKHTANOV. 4 ♂; E Kazakhstan, Kara-Irtysh valley, sands Akzhan, 25/V 2000, R. A. YAKOVLEV, P. YA. USTJUZHANIN leg., coll. R. A. YAKOVLEV (Barnaul). 1 ♂ (fig. 2 c), E Kazakhstan, Zaisan District, 6 km S of Buran settlement, sands Aigyrkum, 28/V 2000, P. YA. USTHJUZHANIN leg.; coll. P. YA. USTJUZHANIN (Novosibirsk); 2 ♂ 2 ♀, E Kazakhstan, S Altai, 30 km W of Takyr village, 500 m above sea level, 16/V 2000, A. IRTLACH leg., coll. 1. G. PLJUSHCH (Kiev).

Derivatio nominis. The name refers to the distribution of the new taxon on both sides of Mongolian Altai.

Description. Male. Large, FW length 21.5 mm in holotype and the Tuvinian paratype, wing expanse 38 mm; FW length of paratypes from the Kara-Irtysh valley 22–25 mm, wing expanse 39–44 mm. Wing pattern characteristic for the species. In holotype, apical spot on UPF relatively large and consisting of an inner dark spot, 1.5 mm in diameter and an outer gray rim, 2.5 mm in diameter. Sex brand relatively broad, even, about 1.5 mm wide, up to middle of space between Cul and Cu2, where incised to a hook-like apical part. On UPH, a twisted border is seen of a lighter postdiscal area, absent in the nominate subspecies. UNS pattern very contrasting. In the holotype, the apical ocel-

the name *Papilio narica* HÜBNER, [1813] should not be replaced automatically.

Unfortunately, the new Code does not mention what should be done if the replacement name was proposed before the year 2000. It appears that this case should be submitted to the Commission for Zoological Nomenclature. At this stage I follow SAMODUROW *et al.* (2000), retaining the name *Papilio narica* HÜBNER, [1813] within *Hyponephele* MUSCHAMP, 1915.

Hyponephele narica ambialtaica subsp. nov.

(Figs 1–4)

Holotypus. (Fig. 2 a) ♂, Russia, Siberia, Tyva Republic, barkhan sand massif Tsugeer-Eis 12 km E of Lake Tere-Khol', 50°05' N 95°19' E, 1200 mn, 15/VII 2000. N. PRIIDAK, O. KOSTERIN leg.; coll. SZMN (Siberian Zoological Museum, Institute of Systematics and Ecology of Animals, Novosibirsk).

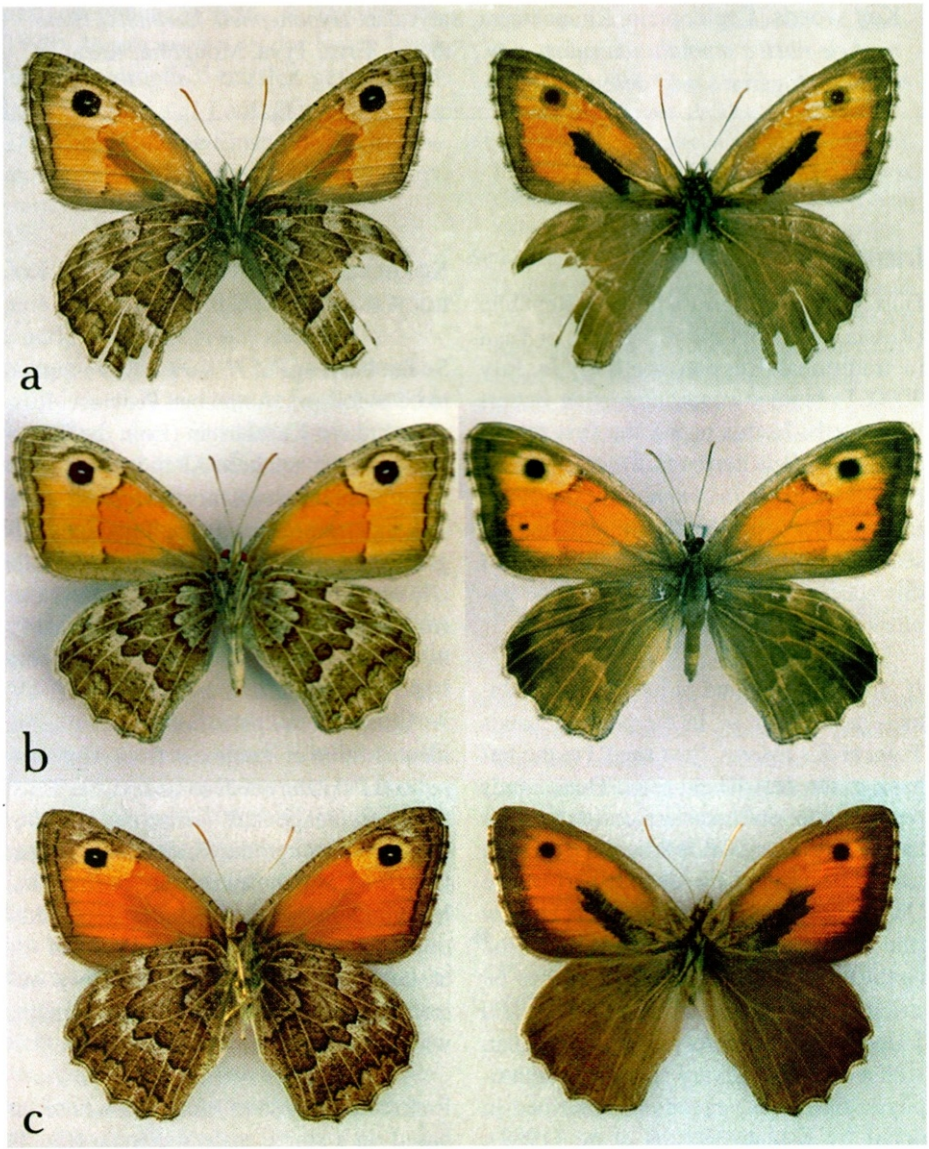

Fig. 2. *Hyponephele narica ambialtaica* subsp. nov. **a:** holotype ♂: Russia, Siberia, Tyva Republic, sand massif Tsugeer-Els 12 km E of Lake Tere-Khol', 50°05'N 95°19' E, 1200 m, 15/VII 2000, leg. N. PRIIDAK, O. KOSTERIN; **b:** paratype ♀, same data as holotype ♂; **c:** paratype ♂, E Kazakhstan, Zaisan District, 6 km S of Buran settlement, sands Aigyrkum, 28/V 2000, leg. P. YA. USTJUZHANIN, deviating towards the nominal subspecies by the weakly expressed border of the postdiscal zone on UNH.

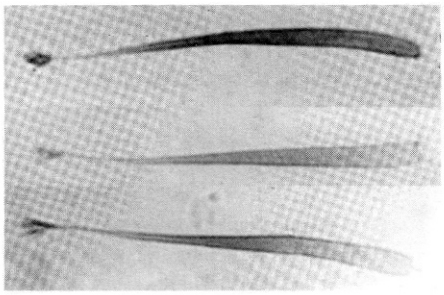

Fig. 3. *Hyponephele narica ambialtaica* subsp. nov., holotype ♂. Androconial scales.

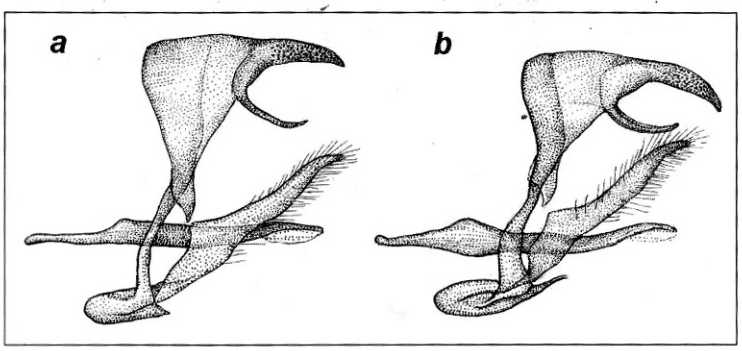

Fig. 4. *Hyponephele narica ambialtaica* subsp. nov., male genitalia structures. **a:** holotype ♂, **b:** paratype ♂ (see fig. 2 c).

lus on UNF somewhat elongate, 2.5 mm in diameter, and containing a white spot. Dark line, running about 1 mm from outer margin very distinct. The most unusual feature is a distinct border of a considerably lighter postdiscal area, strengthened with dark marks at both ends, at veins R and 2A, as in *Hyponephele naricoides* GROSS, 1977, but lacking the dark spot at apex of cell. In one paratype from Kara-Irtysh valley (fig. 2) this border is rather indistinct, as in the nominal subspecies. UNH contrasting, with almost white basal area and postdiscal area margin adjacent to medial band, white veins quite conspicuous.

Androconial scales typical for the species. Those of Tuvinian males, including the holotype, are remarkable for their pigmentation, scarce at base and increasing gradually towards the middie (fig. 3), while in specimens from the Kara-Irtysh valley, as well as in those of the nominal subspecies examined, the scales are evenly pigmented.

Male genitalia (fig. 4). Resembling those from other parts of the species' range (SAMODOROW *et al.* 2000). It should be noted that the genitalia of the holotype have been illustrated by GORBUNOV (2001), however slightly incorrect: the valva is shown as being straight while in fact it is curved apically.

Female. FW length in paratype from Tyva 24 mm, wing expanse 43 mm, in other paratypes FW length 25–25.5 mm, wing expanse 46–48 mm. UPS contrasting. Apical ocellus 2.5 mm in diameter, with an additional small spot between Cul and Cu2. Postdiscal area notably lighter, especially at apical ocellus, bordering medial line very distinct and marked with brown between costa and M3, also with a dark spot on transversal vein. UPH with a conspicuous lighter medial line. UNS extremely contrasting. On UNF, submarginal line bright and almost black, dark area above apical ocellus dark brown, with a whitish area at wing apex-medial line, bordering lighter postdiscal area, brown throughout and especially bright at its ends; spot between Cul and Cu2 only to be seen as transparency from upperside. UNH most strongly contrasting among all species representatives examined, with basal area as whitish as postdiscal one at medial band- white veins very conspicuous.

Differential diagnosis. All examined specimens of *H. n. narica* (HÜBNER, [1813]) (= *H. huebneri* KOÇAK, 1980) have the male sex brand somewhat narrower and narrowing throughout its length, while in the new subspecies it is evenly wide until its very apical part. By this trait it approaches *H. n. iliensis* LUKHTANOV, 1999, described from the Ili River valley, S Kazakhstan, where the brand is even wider, but the UNH pattern is greatly reduced, just in contrast to the situation in *H. n. ambialtaica* subsp. nov. The taxon *iliensis* may represent an independent species inhabiting riparian forests along rivers flowing through deserts (tugai) rather than sand desert (LUKHTANOV 1999, and pers. comm.). Specimens of *H. n. narica of* various origin vary substantially in coloration. In some of them UNH is contrasting to an extent comparable with that in the new subspecies. However, the new subspecies differs significantly by: 1) the distinct border of the lighter postdiscal area on UNF in males (with rare exceptions) and both FW sides in females, with a trace of a dark mark at the cell apex in females; 2) a very contrasting UNH pattern in which the basal area is as whitish as the postdiscal area at medial band, and distinctly bordered with a black line, while in the nominal subspecies it is darker, less contrasting to the medial area. The new subspecies exhibits nearly the maximum size observed within the species The large size of the Irtyshian butterflies, as well as the darkness of the females, was already noted by SAMODUROW *et al.* (2000).

The closely related species *Hyponephele naricina* (STAUDINGER, 1870), occurring in Turkmenia, Kazakhstan, Tian Shan, Dzhungaria (where it should be sympatric with the new taxon), and Afghanistan (TUZOV *et al.* 1997, SAMODUROW *et al.* 2000) differs clearly from *H. narica ambialtaica* subsp. nov. by the nearly complete absence of the UNH pattern and very narrow sex brands in the males. It prefers clayey deserts and foothills.

Range and discussion. *H. n. ambialtaica* subsp. nov. is known from three sites: the southern vicinities of Lake Zaisan, the Hovd Airnak of Mongolia, and the Ubsu-Nur [Uvs-Nor] Hollow. Geographically, the former site belongs to the large intermontane hollow in Dzhungaria, mostly within China, bordered by the Saur and Tarbagatai Mts. in the north, the Tian Shan Mts. in the west and south, and the Mongolian Altai Mts. in the north-east. The two latter sites belong to the Hollow of Great Lakes, mostly within Mongolia, separated from Dzhungaria by the Mongolian Altai and bordered by the Tannu-Ola Mts. in the north and the Hangai Mts. in the east. The Ubsu-Nur Hollow (with its northern part within Russia) is situated in the north of the Hollow of the Great Lakes and is incompletely separated from its main area by the latitudinally running Khan-Khukhei range.

The new subspecies should occupy the whole of Dzhungaria which is rich of sandy deserts. It is not surprising that *H. narica* is found in Dzhungaria, because the Kara-Irtysh River valley and the Dzhunga-

rian Gate between the Dzhungarian Alatau and Tarbagatai Mts connect it with the deserts of Kazakhstan. The question arises, how this species could penetrate into the Hollow of the Great Lakes and what are its eastern and southern borders. Since *H. narica* is strictly linked to sand deserts, it was unable to cross the major mountain chains, such as the Mongolian Altai. It is to be noted that the Hollow of the Great Lakes is open to the east through the so-called Lake Valley, that is the latitudinal depression between the parallel systems of the Hangai and the Mongolian Altai and in turn open to the Mongolian Gobi in the east. Although consisting mostly of stony deserts and clayey dry steppes, this depression and the Mongolian Gobi harbour small, but numerous patches of free sands in extinct lake kettles. Therefore, the new subspecies may have penetrated from Dzhungaria into western Mongolia and southern Tuva from the east, around the Mongolian Altai and Gobi Altai, via the very sandy Dzhungarian Gobi and Transaltai Gobi, Mongolian Gobi and Lake Valley. One would expect a wide occurrence of the species (or maybe even the new subspecies) in the deserts of Inner Asia. There are no geographical reasons why this species should not occupy the Takla-Makan and the Ala-Shan Deserts. It cannot be excluded that the worn-out specimens from Tsaidam may represent the actual southernmost range of the species, although this depression is completely separated from the above mentioned deserts by the Nan-Shan and the Richthofen Mts and so may harbour yet another new subspecies.

Acknowledgernents. I express my sincere gratitude to Prof. Dr. T. FUJIOKA (Tokyo) for financial support of the trip, to Drs. V. A. LUKHTANOV (St. Petersburg) and V. A. DUBATOLOV (Novosibirsk) for permanent help during this work, to P. YAKOVLEV (Barnaul) for help with materials, to A. D. DODUK, Director of Ubsunurskaya Kotlovina State Nature Reserve (Kyzyl) and Dr. D. N. SHAULO (Novosibirsk) for invitation to join their expedition, and to N. V. PRIIDAK (Novosibirsk) for assistance in the field.

References

BUTLER, A. G. 1868. *Catalogue of the diurnal Lepidoptera of the family Satyridae in the collection of the British Museum.* 211 pp. London (Trust. Brit. Mus.)

GORBUNOV, P. Y. 200 *1. Butterflies of Russia: classification, keys for identification, genitalia.* 320 pp. Thesis, Ekaterinburg.

HILBIG, W. & KOROLYUK, A. Yu. 2000. Sanddünenvegetation im Uvs-nuur-Becken (Mongolei und Tuwa/Russiand). *Feddes Repertorium* **111**: 29–37.

KERZHNER, I. M. 1972. To the history of investigations of the entomofauna of the Mongolian People's Republic. Pp. 57–112, *in* KERZHNER, I. M. (Ed.), *Insects of Mongolia* 1. Leningrad (Nauka, Leningrad Division). [In Russian.]

KHANMINCHUN, V. M., SEDEL´NIKOVA, N. V. & PEROVA, N. V. 1997. *[Flora of Tsuger-Eliss of the Ubsu-Nur Hollow]*. 62 pp. Barnaul (Altai State University Press). [In Russian.]

KOÇAK, O. On the nomenclature of some genus- and species-group names of Lepidoptera, 1. *Priamus* **1**: 46–90, 155–167.

KOROLYUK, A. Y. 1999. [Vegetation of the sand massif Tsuger-Ellis (Ubsu-Nur Hollow. Abstracts of the international conference 'Priroda Zapadnoi Mongolii' [Nature of West Mongolia]. Tomsk. pp. 59–60. [In Russian.]

LUKHTANOV, V. A. 1999. Neue Taxa und Synonyma zentralasiatischer Tagfalter (Lepidoptera, Papilionoidea). *Atalanta, Würzburg* **30:** 135–150.

LUKHTANOV, V. A. & LUKHTANOV, A. G. 1994. Die Tagfalter Nordwestasiens. – *Herbipoliana* **3.** 440 pp. Marktleuten.

SAMODUROW, G. D., KOROLEW, W. A. & TSCHIKOLOWEZ, W. W. 2000. Eine Übersicht über die Satyriden der Gattung *Hyponephele* MUSCHAMP, 1915. VI. Die *Arten Hyponephele capella* (CHRISTOPH, 1877), *H. narica* (HÜBNER, [1808–1813]), *H. naricina* (STAUDINGER, 1870), *H. fusca* (STSHETKIN, 1960) und *H. naricoides* GROSS, 1977 (Lepidoptera, Satyridae). *Atalanta, Würzburg* **31:** 134–170.

TUZOV, V. K., BOGDANOV, P. V., DEVYATKIN, A. L., KAABAK, L. I., KOROLEV, V. A., MURZIN, V. S., SAMODUROV, G. D. & TARASOV, E. A. 1997. *Guide to the Butterflies of Russia and Adjacent Territories (Lepidoptera, Rhopalocera)* **1**. Hesperiidae, Papilionidae, Pieridae, Satyridae. 480 pp. Sofia, Moscow (Pensoft).

● Dr. OLEG E. KOSTERIN,
Institute of Cytology & Genetics,
Acad. Lavrentiev ave. 10,
Novosibirsk 630090, Russia;
E-mail: kosterin@bionet.nsc.ru.