

New *Dasypolia* GUENÉE, 1852 species from China, part II (Lepidoptera, Noctuidae)

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Abstract. Description of three new subgenera, (*Fumopolia* BENEDEK & SALDAITIS **subgen. nov.**, *Yetipolia* BENEDEK & SALDAITIS **subgen. nov.** and *Zheduopolia* BENEDEK & SALDAITIS **subgen. nov.**) and four new *Dasypolia* (s. l.) GUENÉE, 1852 species (*D. (Yetipolia) migoii* BENEDEK & SALDAITIS **spec. nov.**, *D. (Yetipolia) miche* BENEDEK & SALDAITIS **spec. nov.**, *D. (Fumopolia) sigute* SALDAITIS & BENEDEK **spec. nov.** and *D. (Dasypolia) irene* FLORIANI, BENEDEK & SALDAITIS **spec. nov.**) from Sichuan and Yunnan Provinces in China are given here with comparisons with their closest relatives in order to arrive at their correct taxonomic position. The male of *Dasypolia (Tatsipolia) vignai* **stat. n.** (RONKAY & ZILLI, 1993) is described and the species is transferred from *Sinipolia* RONKAY & ZILLI, 1993 to the subgenus *Tatsipolia* BENEDEK, BEHOUNEK, FLORIANI & SALDAITIS, 2011. The subgenus *Sinipolia* is upgraded to generic level, the female of *Dasypolia* (s. l.) *confusa* HREBLAY & RONKAY, 1995 is described and *Dasypolia (Zheduopolia) rasa* SALDAITIS, BENEDEK, BEHOUNEK & FLORIANI, 2011 **stat. n.** is transferred from the subgenus *Cteipolia* STAUDINGER, 1986 to the new subgenus *Zheduopolia* BENEDEK & SALDAITIS **subgen. nov.**

Key words

Dasypolia, new subgenera and new species, China, taxonomy.

Introduction

The present article is the second publication dealing with the genus *Dasypolia* occurring in the eastern part of the Himalaya. Since our first studies published in 2011 (BENEDEK et al., 2011), further expeditions to the region have been undertaken in early and late seasons, resulting in some more interesting material and data. These results repeatedly revealed the richness of the late season high-mountain Noctuidae fauna in the region and also the high diversity of different evolutionary lineages within *Dasypolia*, which sometimes shows extraordinary morphological variability. The fact that present knowledge of this very high species number and diversity is the result of just occasional sampling and not a real systematic survey, suggest that the Himalayan late season is still the most promising for triline Noctuidae research, and it is clear that the last word on the *Dasypolia* of the region will be awaited for decades. Due to the very small material of females available for comparison, our studies based on the external and genital characters of the males and DNA barcoding results of both sexes.

We hope that our work will inspire other Noctuidae researchers to continue and extend these surveys.

Materials and methods

The moths were collected at night using ultraviolet lights and sugar ropes. DNA barcodes (658 base pairs of Cytochrome Oxidase Subunit I 5' region, COI-5P) for several specimens of *Dasypolia* were sequenced in Paul HEBERT's laboratory at the University of Guelph. Numerous genitalia dissections following the technique of Lafontaine (2004) were mounted in euparal on slides. The abdominal integuments were cut lengthwise, descaled, and also mounted on slides. A Wild M3Z microscope and Canon EOS 350D camera were used to prepare images. Nomenclature used in this study relies upon taxonomical authorities and relevant literature (BENEDEK, BEHOUNEK, FLORIANI & SALDAITIS, 2011; BOURSIN 1954; BOURSIN 1968; Chen 1990; DRAUDT 1950; GYULAI & RONKAY 1995; GYULAI & RONKAY 1998; HACKER 1993; HACKER & PEKS 1990; HACKER & PEKS 1996; HACKER & RONKAY 1996; HREBLAY & RONKAY 1995; HREBLAY & RONKAY 1998; HREBLAY & RONKAY 1999; HREBLAY, RONKAY & PLANTE 1998; KAPUR 1962; RONKAY & PLANTE 1992; RONKAY & ZILLI 1993; RONKAY, NEKRASOV & SZABÓKY, 1995; RONKAY, VARGA & HREBLAY 1998; VARGA 1982).

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Abbreviations of depositories

AFM – Alessandro FLORIANI (Milan, Italy);
BBT – Balázs BENEDEK (Törökbalint, Hungary);
GBG/ZSM – Gottfried BEHOUNEK (Grafin, Germany)/Zoologische Staatssammlung, München (Germany);
HNHM – Hungarian Natural History Museum (Budapest, Hungary);
NRCV – Nature Research Centre (Vilnius, Lithuania).

Systematic Part

Yetipolia BENEDEK & SALDAITIS **subgen. nov.**

Type species

Dasypolia (Yetipolia) yeti HACKER & PEKS, 1993

Diagnosis. *Yetipolia subgen. nov.* forms a compact unit within the genus. It contains four species in our present knowledge which can be separated into two species-pairs by both external and genital characters. The general features of the male genitalia are as follows: valvae broad with parallel margins, apically tapered, cucullus somewhat rounded, fultura inferior heart-shaped, fultura anterior larger, plate-shaped, clasper large, thick, hook-like, strongly sclerotized, acute, single curved and not extending over the costa, broad based and with long basal bar. The configuration of the aedeagus-vesica is the simplest within the whole *Dasypolia* genus. Aedeagus roughly the same length as vesica, straight, only slightly arched on ventral side, coecum rounded, carina a more or less triangular bar, dorsal plate absent, vesica tubular, broader at basal part without diverticulum and spiculi.

The female genitalia of *D. (Yetipolia) yeti*, described in detail by HREBLAY and RONKAY at 1995. The specific details are the elongated ovipositor, the very long posterior apophyses, the thin, membranous ductus bursae and the small corpus bursae.

D (Y.) yeti species-group:

yeti HACKER & PEKS, 1993

miche spec. nov.

D. yeti and *D. miche* can be separated from the *D. mirka-D. migoi spec. nov.*, species-pair externally by the lighter, brownish ground colour (in case of *D. miche*) and the larger, oblong reniform and larger orbicular stigmata. The male genitalia differ in the weaker, apically less acute uncus and the U-shaped vinculum.

D (Y.) mirka species-group:

mirka BENEDEK, BEHOUNEK, FLORIANI & SALDAITIS, 2011

migoi spec. nov.

D. mirka and *D. migoi* can be distinguished from the *D. yeti-D. miche* species-pair by the apically somewhat more acute forewing and uniformly blackish ground colour, decorated with narrow, sharply defined, yellowish reniform stigma and the yellowish colouration of the antennae of male. The male genitalia have a stronger, apically acute uncus and V-shaped vinculum.

Dasypolia (Yetipolia) yeti HACKER & PEKS, 1993

(Plate 1, fig. 1; gen. fig. 1)

Material examined:

Holotype: ♀, Indien, Himachal Pradesh, Rohtang-Pass-S-Seite, unterhalb Mahri, 32°22'N, 77°15'E, 3000m, 17.X.1990, leg. HACKER & PEKS, slide No.MH7161 (coll. ZSM).

1 ♂, China, Tibet, 8 km S of Nyalam, 85°57'E, 28°07'N, 3220 m, 4.X.1994, leg. Márton HREBLAY & Tibor CSÓVÁRI, slide No.MH6813 (coll. HREBLAY, HNHM).

Dasypolia (Yetipolia) miche BENEDEK & SALDAITIS **spec. nov.**

(Plate 1, fig. 3; gen. fig. 2)

Holotype: ♂, China, N. Sichuan, road Barkam/Hong Yuan, H-3400 m, 23. IX. 2011, N32°10.353", E102°29.692", FLORIANI leg., slide No. JB1859♂ (coll. GBG/ZSM).

Diagnosis. *D. miche* (Plate 1, fig. 3) can be distinguished from the closely related *D. yeti* (Plate 1, figs 1, 2) by the more rounded, chocolate-brown forewing with more distinct pattern: large, conspicuous reniform, orbicular and claviform stigmata; the subterminal fascia on the new species is decorated with large black interneural arrowhead marks and the terminal field is lighter in colour. The male genitalia differ from those of *D. yeti* (gen. fig. 1) in the shorter uncus and the shorter, thicker and broader based clasper.

In addition to the morphological evidence, DNA barcoding confirms the existence of a new species of *Dasypolia*. Molecular variation based on the Kimura two-parameter distance model for COI DNA barcodes between single specimen of *D. miche* and two specimens of *D. mirka* are 2.54% while divergence rates between *D. miche* and three *D. migoi* varied from 3.5% to 3.83%.

Description. Wingspan 34 mm, length of forewing 15 mm. Antennae of male shortly bipectinate, front collar and thorax greyish-brown, mixed with black hairs. Forewing rounded, ground colour chocolate-brown with fine golden gloss, reniform and orbicular stigmata large, distinct, yellowish with brown internal filling and black outline, claviform stigma also distinctly marked with black outline. Subterminal fascia yellowish, with long black interneural arrowhead marks; terminal field lighter, terminal fascia obsolete; cilia long, shiny light brown mixed with patches of fine black hairs. Hindwing light grey with paler, dirty-white terminal band, discal spot obsolete, cilia long, light cream-coloured.

Male genitalia (gen. fig. 2). Uncus medium long, narrow, with apex rounded, tegumen low positioned, vinculum short, U-shaped, valvae medium broad with parallel margins, apically tapered, cucullus rounded, apically finely pointed, fultura inferior heart-shaped, fultura anterior larger, plate-shaped, clasper thick, single curved and acute, with strong conical basal segment and long basal bar. Aedeagus long, ventrally slightly arched, carina with rather weak triangular bar, dorsal plate completely reduced, vesica tubular, without diverticulum and spiculi, basal segment broad, medial and terminal third narrow.

Female unknown.

Bionomics and distribution. Known only from the Zhe Gu Shan Mountains of Sichuan Province, China, on the eastern edge of the Tibetan plateau, *D. miche* is likely to be endemic to West Sichuan. A single male was collected at light in September at altitude ca. 3400 m. This new species appears to have a very local distribution, so far found in only one small valley near Barkam. It was collected in mountainous mixed forest with swampy and mossy meadows, the habitat dominated by various species of *Alnus*, *Prunus*, *Quercus*, *Rhododendron*, *Abies* and different species of other smaller shrubs and ferns. Other autumn noctuids collected there at that time include *Xestia elisabetha* GYULAI, RONKAY & SALDAITIS, 2013, *X. aplectoides* (DRAUDT, 1963), *Parvispinia barkama* BABICS, KONONENKO & SALDAITIS, 2012, *P. geminus* BABICS, KONONENKO & SALDAITIS, 2012, *Hoeneidia cidarioides* BOURSIN, 1954 and many others.

Etymology. Miche is another Tibetan name for the Yeti, means "man-bear".

***Dasypolia (Yetipolia) migoi* BENEDEK & SALDAITIS spec. nov.**

(Plate 1, figs 2, 4; gen. fig. 3)

Holotype: ♂, China, N. Sichuan, near Jiuzhaigou, H-2161 m, 13-17.X.2012, N29°87.340", E102°30.970", A. FLORIANI leg., slide No. JB2110♂, (coll GBG/ZSM).

Paratypes: 1 ♀, China, W. Sichuan, Kangding, near Zheduo Pass, 3700-4200 m, 14.X.2009, leg. A FLORIANI; 2 ♀♀, China, W. Sichuan, Kangding, near Zheduo Pass, 3400-3700 m, 13.X.2009, leg. A FLORIANI; 1 ♀, China, N. Sichuan, near Chuan Zhu Si, N32°57.714", E103°41.912", h-3100m, 25.IX.2011, leg. A FLORIANI; slide Nos GB7023♀, JB1860♀ (colls BBT and AFM).

Diagnosis. *D. migoi* (Plate 1, figs 2, 4) is the allopatric sister species of *D. mirka* (Plate 1, fig. 5). It can be distinguished externally by the wider reniform stigma, more acute forewing and more distinct discal spot on the hindwing. The male genitalia of *D. migoi* (gen. fig. 3) differ from those of *D. mirka* (gen. fig. 4) in the more acute uncus, the higher positioned tegumen, the calyculate fultura anterior, thicker vinculum, slightly narrower clasper with narrower base and apically narrower valvae with more rounded cucullus. The coecum of the new species is more rounded, the carina is not acute, the vesica is narrower and almost straight. Molecular variation based on the Kimura two-parameter distance model for COI DNA barcodes between holotype of *D. migoi* and holotype of *D. mirka* is 3.47%.

Description. Wingspan 35 mm, length of forewing 16 mm. Antennae of male light brownish and shortly bipectinate with very fine hair. Head, thorax and ground colour of forewing jet-black with smooth brownish tinge, median field darker. Forewing triangular with acute apex, reniform stigma conspicuous, oblong, yellowish-white with a fine black internal shade, orbicular stigma very small, obsolescent, yellowish-white, costa decorated with two small white patches at antemedian fascia and above the reniform stigma and three tiny white streaks in subterminal field. Antemedian and postmedian fasciae strongly sinuous, diffuse, ash-grey, subterminal fascia lighter, yellowish-white with black interneural arrowhead-streaks. Terminal fascia dirty whitish-grey, cilia concolorous. Hindwing filmy ash-grey, postmedian and terminal fasciae pale, discal spot conspicuous.

Male genitalia (gen. fig. 3). Uncus long, thick and acute, tegumen rather high positioned, fultura anterior large, calyculate, fultura inferior somewhat smaller, shield-like, vinculum thick, U-shaped, valvae broad, apically tapered, subapical part ventrally widely incised, cucullus rounded, clasper thick, acute, hook-like, strongly curved throughout. Aedeagus medium long, with rounded coecum, slightly arched on ventral side, carina more or less oblong, vesica tubular, almost straight, basal and middle sections broader, terminal third short and much narrower.

Female unknown.

Bionomics and distribution. The holotypus male was collected at ultraviolet light on October 2012 in southwest Sichuan Province, China, in a remote, area located at the southern end of the Minshan mountain range. The collecting area is near the incomparable Jiuzhaigou National Park. The climate in the valley is cool, with a mean annual temperature 7.2 °C and total annual rainfall 661 mm, 80% of which occurs between May and October. The ecosystem of Jiuzhaigou is classified as temperate broad-leaved forest and woodlands, with mixed mountain and highland systems. Nearly 300 km² of the core scenic area are covered by virgin mixed forests and are home to oaks, endemic species of rhododendron and bamboo, and the endangered giant panda. Other autumn noctuid species collected there at the same time include *Nyctycia pectinata* DRAUDT, 1950, *Allophyes heliocausta* BOURSIN, 1957, *Conistra lateris* BENEDEK, BABICS & SALDAITIS, 2013 and many others.

Etymology. Migoi or Mi-go one more Tibetan name of the Yeti, translates "wild-man".

***Fumopolia* BENEDEK & SALDAITIS subgen. nov.**

Type species

Dasypolia (*Fumopolia*) *sigute* SALDAITIS & BENEDEK, **spec. nov.**

Diagnosis. The uniformly dark grey ground colouration, yellowish reniform stigma and antennae of the type-species of this subgenus show close resemblance members of the *D. (Yetipolia) mirka* species-group. Characters distinguishing *Fumopolia* are the less prominent wing pattern, the straight, not waved antemedian fascia and the translucent scaling of the forewing. Despite the superficial similarity, the configuration of the male genitalia of the type-species (gen. fig. 5) of *Fumopolia* differs strongly from that of *Yetipolia* in having autapomorphic characters which include the narrower uncus, the rounded and low positioned tegumen, the long, less sclerotized clasper which extends over the costa, the large, strong, thick and standard U-shaped vinculum, the longer aedeagus, the dorsally backwardly curved vesica and the presence of a spiculi-field on the middle section.

In addition to the morphological evidence, DNA barcoding corroborates the existence of a new subgenus and species of *Dasypolia*. Full length 658 base pair 'barcodes' of the Cytochrome Oxidase Subunit 5' Region (COI-5P) gene were prepared by the University of Guelph's barcode of Life Data Systems (BOLD) by methods described in HEBERT et al. (2003). Molecular variation based on the Kimura two-parameter distance model for COI DNA barcodes between two specimens of *D. sigute* and two specimens of *D. mirka* are 3.52% while divergence rates between *D. sigute* and two *D. migoi* are at least 4.1%. *D. sigute* differs from *D. miche* by 3.59%.

The new subgenus is named after the smooth, smoky ground colouration of the type species.

***Dasypolia (Fumopolia) sigute* SALDAITIS & BENEDEK, spec. nov.**

(Plate 1, fig. 6; gen. fig. 5)

Type material.

Holotype: ♂, China, NW-Yunnan, road from Zhongdian to Deqin, 3900 m, Baima Xue Shan Mt., N28°24.900", E98°59.600", 19. X. 2011, A. FLORIANI leg., slide No.JB1968m (coll. GBG/ZSM).

Paratypes: 6 ♂♂ males with the same data as the holotype (Colls AFM & BBT).

Description. Wingspan 37 mm, length of forewing 17 mm. Antennae light yellowish; head, thorax and ground colour of forewing slightly translucent with dark smoky grey scaling, costa decorated with three fine whitish patches. Forewing pattern pale, obsolescent, reniform stigma oblong, distal part light yellowish, proximal part grey-filled. Antemedial fascia black, rather broad and straight, dorsal region proximally refracted at vein A1; postmedial fascia black, gently waved; subterminal fascia faint, lighter than ground colour; terminal fascia black; cilia long, uniformly dark grey. Hindwing lighter, dirty grey, discal spot and postmedian fascia slightly transparent from the underside.

Male genitalia (gen. fig. 5). Uncus narrow, medium long, apically pointed, tegumen low positioned, rounded and softly hairy, juxta rather large but less sclerotized, plate-like rhomboidal with a more or less conical anterior appendage, vinculum large, strong and thick, standard U-shaped, sacculus rather small, clasper large and strong, extending over the costa, moderately curved throughout, and proximally also slightly curved with a long and straight basal bar, valvae medium broad, gradually tapered, triangular with a very weak apical lobe segmented from the small, conical cucullus. Aedeagus long and rather strongly curved, coecum rounded, carina weak, followed by a large coarse patch on the surface of vesica basis; vesica distinctly dorsally curved backward, basal section broader, basin-shaped, middle part tapered, armed with an elongated, lenticular patch of fine spiculi, terminal region almost straight, narrow.

Female unknown.

Bionomics and distribution. Seven males were collected at ultraviolet light on 19 October 2011 in in northwest Yunnan Province China, in a remote area, located near Yak La Pass of the Baima Xue mountain range (Plate 3, fig. 5). They were collected at an elevation of 3900 m. in mountain mixed forest dominated by various conifer trees, bushes and rhododendron. Other autumn noctuids collected at the same time include *Altipolia plantei* HACKER & PEKS, 1993, *A. illecebrosa* (PÜNGELER, 1906), *Dasypolia irene* **spec. nov.**, *D. carlotta* FLORIANI, BENEDEK, BEHOUNEK & SALDAITIS, 2011, and many others.

Etymology. The new species is named after the sister of the second author, the prominent Lithuanian pedagogue Mrs Sigita ŽUKLIJENĖ (Kaunas, Lithuania).

***Dasypolia (Dasypolia) irene* FLORIANI, BENEDEK & SALDAITIS, 2011 spec. nov.**

(Plate 2, fig. 1; gen. fig. 6c)

Holotype: ♀, China, NW Yunnan, Baima Xue Shan, near Yak La pass, N28°24.900", E98°59.800", 21-22.V.2012, 3900 m, leg. FLORIANI, slide No. JB2018♀ (coll. GBG/ZSM).

Paratypes: 17 ♀♀ with the same data as the holotype, 1 female, China, NW-Yunnan, road from Zhongdian to Deqin, mt. 3900, Baima Xue Shan, N28°24.900", E98°59.600", 19.X.2011, A. FLORIANI leg. (colls AFM, BBT & NRCV).

Diagnosis. The new species (Plate 2, fig. 1) is the eastern allopatric sibling species of *Dasypolia rufatrox* HREBLAY & RONKAY, 1995 (Plate 2, fig. 2). It differs in the more copper-brownish ground colouration, the yellowish reniform and orbicular stigmata and the larger and more elongated discal spot on the hindwing. The other similar species *Dasypolia bicolor* HREBLAY & RONKAY, 1995 (Plate 2, fig. 3) is more pinkish flesh-coloured and also has white reniform stigma like *D. rufatrox*. The female genitalia of *D. irene* (gen. fig. 6c) differ from those of *D. rufatrox* (gen. fig. 6b) in the longer, more acute papillae anales, the rhomboidal antrum, the sclerotization of ductus bursae and the shape of cervix and corpus bursae, from *D. bicolor* (gen. fig. 6a) in the more elongated papillae anales, the thicker apophysis anterioris and the configuration and shape of the ostium, ductus and corpus bursae.

In addition to the morphological evidence, DNA barcoding corroborates the existence of this new species. Molecular variation based on the Kimura two-parameter distance model for COI DNA barcodes between two specimens of *D. irene* and two specimens of *D. bicolor* are 4.43%.

Description. Wingspan 54 mm, length of forewing 25 mm. Antennae of female filiform, light rusty-brown like head and thorax. Ground colour of forewing copper-brown with intense gloss and rich decoration of distant silver-whitish scaling. Forewing pattern well defined, reniform and orbicular stigmata ochreous; antemedial fascia rather broad, darker rusty-brown, postmedial fascia sharply defined and strongly sinuous, accompanied with yellowish terminal shade, subterminal fascia less sinuous, also defined with yellowish band; cilia long, concolorous. Hindwing light copper-yellowish with fine grey suffusion and grey scaling along veins, discal spot rather large and elongated, cilia long, light yellowish-brown, slightly paler than on forewing.

Female genitalia (gen. fig. 6c). Papillae anales elongated, conical, apophysis posterioris longer, narrower than apophysis anterioris and both rather strongly sclerotized, thick and straight, ostium wide, gently arched, antrum calyculate, complemented with a triangular plate on the 8th abdominal segment, ductus bursae long, straight and medially sclerotized almost throughout, cervix bursae rather large, membranous, conical, corpus bursae globular.

Male unknown.

Bionomics and distribution. Originally, a single female was collected at ultraviolet light on 19 October 2011, in a remote area of Yunnan Province, NW China, near Yak La Pass of the Baima Xue mountain range. Later, at the end of May, 2012, a series of overwintering females was obtained in the same locality (Plate 3, fig. 5). The new species was collected at an elevation of 3900 m. in mountain mixed forest dominated by various conifer trees, bushes and rhododendron. Other autumn and spring noctuids collected there at that time include *Dasypolia sigute spec. nov.*, *D. carlotta* FLORIANI, BENEDEK, BEHOUNEK & SALDAITIS, 2011, *Lasianobia pensottii* SALDAITIS, FLORIANI, IVINSKIS & BABICS, 2013, *Athetis furcatula* HAN & KONONENKO, 2011, *A. longiharpe* HAN & KONONENKO, 2011 and many others.

Etymology. The new species is named after our good friend and regular participant on the China trips, Mrs Irene FLORIANI (Milan, Italy).

***Dasypolia (s. l.) confusa* HREBLAY & RONKAY, 1995**

(Plate 2, figs 4-6; gen. figs 7, 8)

Material examined:

Holotype, ♂, China, Tibet, 4 km S.E. of Karru-Ochen Tso, 65°54'E, 28°30'N, 4850m., 2.X.1994., leg. Marton HREBLAY & Tibor CSOVARI, slide No.MH6870 (coll. HREBLAY, HNHM);

1 ♂, China, W. Sichuan, Kangding, near Zheduo Pass, 3700-4200 m, 14.X.2009, leg. A FLORIANI (coll. GBG/ZSM); 1 ♂, 1 ♀, China, W. Sichuan, Kangding, near Zheduo Pass, 3400-3700 m, 13.X.2009, leg. A FLORIANI (coll. AFM); slide Nos GB7021 ♂, JB1487 ♂, GB7022 ♀.

Female genitalia: (gen. fig. 8) Papillae anales moderately elongated, conical, apophysis posterioris twice as long as apophysis anterioris, both strongly sclerotized and straight, ostium wide with rather deep medial incision, antrum somewhat funnel-shaped lateral pocket well developed, ductus bursae long, medially gently arched and strongly sclerotized, cervix bursae well separated, conical, corpus bursae rather small, globular.

***Zheduopolia* BENEDEK & SALDAITIS subgen. nov.**

Type species

Dasypolia (Zheduopolia) rasa SALDAITIS, BENEDEK, BEHOUNEK, & FLORIANI, 2011 **stat. nov.**

Diagnosis. *D. (Zheduopolia) rasa* was formerly placed incorrectly to the subgenera *Cteipolia*, but the more detailed comparisons showed that it should represent another separate lineage, treated here as a new subgenera. Externally, the distinguishing features of the new subgenera are the combination of the following characters: small size, pectinated male antennae, narrow, elliptical forewing shape and brownish-reddish ground colouration with various present of dark patterns. In the male genitalia, those are the narrow but long uncus, the low positioned tegumen, the large juxta rhoboidal in shape, the elongated vinculum, the rather broad shape of the valvae and the huge, thick and sinuously curved harpe. The aedeagus is very long, narrow and straight and the vesica is also long, thin, tubular and nearly straight. The female genitalia is more resembles to those of certain *Cteipolia* species in the elongated ovipositor and apophyses posterioris, but the antrum is more calyculate and the ductus bursae is much narrower. The new subgenus is named after the type-locality.

Dasypolia (Zheduopolia) rasa SALDAITIS, BENEDEK, BEHOUNEK, & FLORIANI, 2011

(Plate 3, fig. 1; gen. fig. 9)

Material examined:

1 ♂, China, N. Sichuan, road Jiuzhaigou-Songpan, 3081 m, 12.X.2012, N29°87.340", E102°30.970", A. FLORIANI leg., slide No. JB2171♂; 1 ♂, China, W. Sichuan, near Xinduqiao, 3611 m, 08.X.2012, N30°04.256", E101°25.156", A. FLORIANI leg. (coll. AFM).

This species was known previously only from type locality (West Sichuan, Kangding, Zheduo Pass), North Sichuan, Jiuzhaigou region and West Sichuan near Xinduqiao (in Tibetan plateau) are new localities for *D. rasa*.

Dasypolia (Auropolia) carlotta FLORIANI, BENEDEK, BEHOUNEK & SALDAITIS, 2011

Material examined:

Long series of ♂♂, China, NW-Yunnan, road from Zhongdian to Deqin, mt. 4100 – 4200 m, Baima Xue Shan, N28°19.900", E96°05.400", 17-19.X.2011, A. FLORIANI leg. (Colls AFM, BBT & NRCV).

Previously, this species was known only from type locality (West Sichuan, Kangding, Zheduo Pass). North West Yunnan is a new locality for *D. carlotta*.

Dasypolia (Tatsipolia) vignai (RONKAY & ZILLI, 1993) **stat. nov.**

(Plate 3, figs 3, 4; gen. fig. 10)

Material examined:

Holotype, ♀, China, Sichuan, Gonggo Shan, Yantsoko valley, 4100m., 27.V.1990, A. VIGNAI & TAGLIANTI leg., slide No. LR3865 (coll. HHNM); 1 ♂, China, W. Sichuan, near Moxi, H-3954 m, 07.X.2011, N29°53.097", E102°00.459" A. FLORIANI leg., slide No. JB2170♂, (coll. AFM).

Male genitalia: (gen. fig. 10) Uncus short but broad, more or less conical, subapical hairs long, tegumen low positioned, penicular lobes rather strong, oblong, juxta large, shield-like, oblong, ventral edge pointed, apical process large and conical, vinculum weak, short, widely V-shaped, saccular process large, broad, finger-shaped, connected with the valvae by a membranous plate, clasper reduced, valvae narrow, ventrally curved, cucullus rounded, armed with a large, hook-like strong and thick subapical process, corona well developed. Aedeagus short with somewhat broader coecum, carina segmented with a large medial incision into two conical processes; vesica short with extremely coarse surface and a large group of strong cornuti on the middle of the dorsal side.

Taxonomic remarks: Formerly, *D. vignai* was placed into the subgenera *Sinipolia*, but the comparison of the male genitalia (gen. fig. 10) with those of *Dasypolia (Tatsipolia) ruficilia* BENEDEK, BEHOUNEK, FLORIANI & SALDAITIS, 2011 (gen. fig. 11), revealed the fact that they are representing the same subgenera, therefore *D. vignai* **stat. nov.** is transferred here to the subgenus *Tatsipolia*.

The type-species of *Sinipolia*, *S. acrophila* (HAMPSON, 1906) **comb. nov.** is standing rather remote from *Tatsipolia* and also from all other known *Dasypolia* species, some details of the male genitalia (e.g. the shape of the harpe and valvae) resembles to those of the genus *Altipolia* PLANTE, 1985. It's autapomorphic characters are the large, spatula-like uncus, the short but broad, thick, thumb-like harpe and the simple, short but narrow, forefinger-shaped valvae. Considering this unique characters, *Sinipolia* is upgraded here to genus level.

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References

- BENEDEK B., G. BEHOUNEK, A. FLORIANI & A. SALDAITIS (2011) New *Dasypolia* species (Lepidoptera, Noctuidae) from China, Sichuan, part. I, Esperiana, Buchreihe zur Entomologie, **16**:107-126.
- BOURSIN Ch. (1954) Contr., 64, Contribution to the knowledge of the Agrotidae-Trifinae of Kashmir, Bull. Soc.Fouad d'Ent. Cairo, 1954:81-106.
- BOURSIN Ch. (1968) Contr., 160+161, Description de 26 espèces nouvelles de Noctuidae paléarctiques et d'un sous-génre nouveau de la sous-famille Apatelinae, Entomops Nice, **11**:43-108.
- CHEN Yi-Xin, WANG Bao-Hai & LIN Da-Wu (1990) The Noctuids Fauna of Xizang, Henan Scientific and Technical Publishing House, 1990:1-409.
- DRAUDT M. (1950) Beiträge zur Kenntnis der Agrotiden-Fauna Chinas aus den Ausbeuten Dr.H.Höne's, Mitteilungen der Münchner Entomologischen Gesellschaft, **40**(1):1-174.
- GYULAI P. & L. RONKAY (1995) New Noctuidae species from West and Central Asia, Folia Entomologica Hungarica, **56**:27-35.
- GYULAI P. & L. RONKAY (1999) The Noctuidae (Lepidoptera) material collected by two Hungarian expeditions to Mongolia in 1996 and 1997, Esperiana, Buchreihe zur Entomologie, **7**:687-713.
- HACKER H.H., (1993) Systematik und Faunistik der Noctuidae des himalayischen Raumes II, Esperiana, Buchreihe zur Entomologie, **3**:67-214.
- HACKER H. & H. PEKS (1990) 2. Beschreibung neuer Taxa und Übersicht über das Artenspektrum des von Dr.W.Thomas 1980-1988 in Ladakh gesammelten Materials, Teil.I, Esperiana, Buchreihe zur Entomologie, **1**:277-322.
- HACKER H.H. & H. PEKS (1996) Die Spätherbstfauna der Himalaya-Gebiete von Himachal Pradesh und der ariden Gebiete des Wüstenstaates Rajasthan, Esperiana, Buchreihe zur Entomologie, **4**:361-379.
- HACKER H. & L. RONKAY (1996) Three new genera, seven new species and a general view of the late autumnal fauna of the Himachal Pradesh region in India, Esperiana, Buchreihe zur Entomologie, **4**:337-359.
- HEBERT, P.D.N., CYWINSKA, A., BALL, S.L. & de WAARD, J.R. (2003) Biological identifications through DNA barcodes. Proceedings of the Royal Society B, **270**, 313–321.
- HREBLAY M. & L. RONKAY (1995) New Species of *Dasypolia* from the Himalayan Region. Acta Zoologica Academia Scientiarum Hungarica, **41**(4):349-378.
- HREBLAY M. & L. RONKAY (1998) in Haruta et al; Noctuidae from Nepal, Tinea, **15** (Suppl.1):117-310.
- HREBLAY M. & L. RONKAY (1999) Neue trifide Noctuidae aus dem himalayischen Raum und der südostasiatischen Region, (Lepidoptera, Noctuidae), Esperiana, Buchreihe zur Entomologie, **7**:485-620.
- HREBLAY M., L. RONKAY & J. PLANTE (1998) Contribution to the Noctuidae Fauna of Tibet and the adjacent regions (II.), A systematic survey of the Tibetan Noctuidae fauna based of the material of the Schäfer-Expedition (1938-1939) and recent expeditions (1938-1939). Part I, List of species collected by the Schäfer -Expedition. Part II, List of species of the expeditions 1996-1997. Part III, Descriptions., Esperiana, Buchreihe zur Entomologie, **6**:69-184.
- KAPUR A. P. (1962) On the genus *Cteipolia*, with description of a new species from Nepal, Rec. Indian. Mus., **58** (2):59-130.
- LAFONTAINE, J. D. (2004) Noctuoidea, Noctuidae (part), Noctuinae (part-Agrotini). In: Hodges, R.W. (Ed), The Moths of North America, Fascicle 27.1. The Wedge Entomological Research Foundation, Washington, 394 pp.
- RONKAY L. & J. PLANTE (1992) Un nouvelle espèce de *Dasypolia* de l'Himalaya, Alexanor, **17**(5):273-276.
- RONKAY L. & A. ZILLI (1993) New high montane *Dasypolia* species from Sichuan and Sikkim with remarks on the dasypolioid generic complex, Esperiana, Buchreihe zur Entomologie, **3**:497-506.
- RONKAY L., A. V. NEKRASOV & Cs. SZABÓKY (1995) On the taxonomy of the genus *Dasypolia*, Revision of the Subgenus *Cteipolia*, Annl. Hist. nat. Mus. nat. Hung., **87**:75-92.
- RONKAY L., Z. VARGA & M. HREBLAY, (1998) Twenty two new species and six new subspecies of Noctuidae from Turkmenistan and adjacent regions, Acta Zoologica Academia Scientiarum Hungarica, **44**(3):205-281.
- VARGA Z. (1982) Eine neue *Dasypolia* aus dem Pamir-Gebiet, Nachrichtenblatt der Bayerischen Entomologen, **31**(2):70-71.

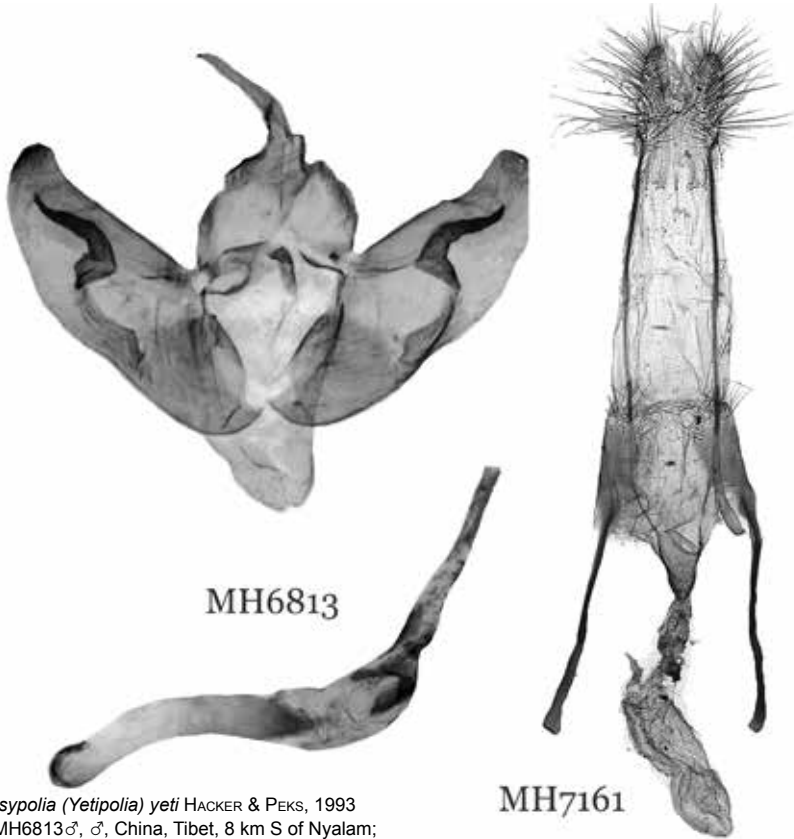


Fig. 1. *Dasyptolia (Yetipolia) yeti* HACKER & PEKS, 1993
 Slide No.MH6813♂, ♂, China, Tibet, 8 km S of Nyalam;
 Slide No.MH7161♀, holotype, ♀, India, Himachal Pradesh.



Fig. 2. *Dasyptolia (Yetipolia) miche* spec. nov.
 Slide No.BJ1859♂, holotype, ♂, China, N. Sichuan, road Barkham/Hong Yuan.

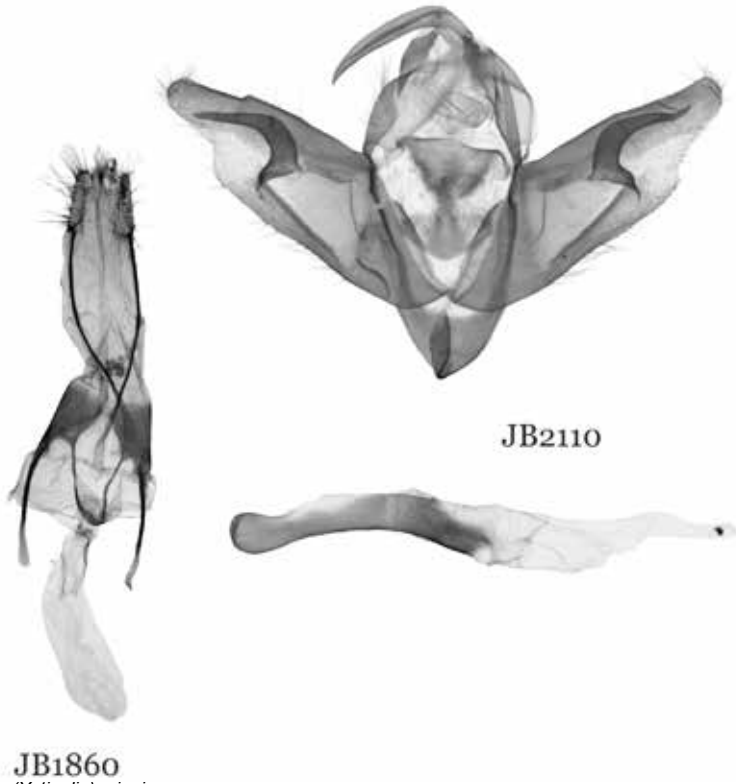


Fig. 3. *Dasyptolia (Yetipolia) migoi* spec. nov.
 Slide No. JB2110 ♂, holotype, ♂, China, N. Sichuan, near Jiuzhaigou.
 Slide No. JB1860 ♀, paratype, ♀, China, N. Sichuan, near Chuan Zhu Si.



Fig. 4. *Dasyptolia (Yetipolia) mirka* BENEDEK, BEHOUNEK, FLORIANI & SALDAITIS, 2011
 Slide No. BJ1488 ♂, holotype, ♂, China, W. Sichuan, Kangding, near Zheduo Pass.

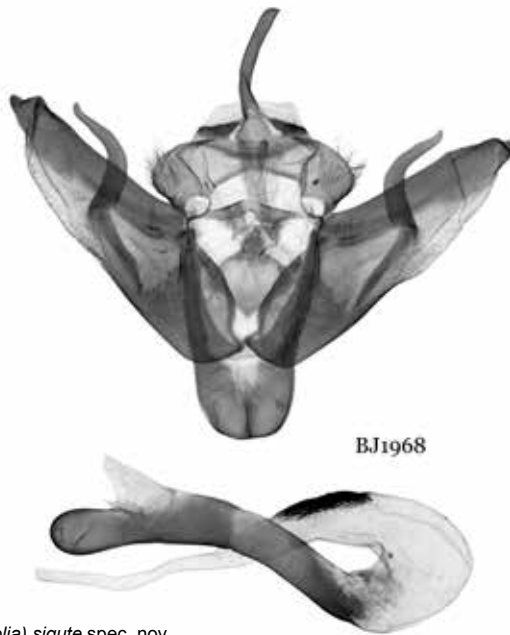


Fig. 5. *Dasyptolia (Fumoptolia) sigute* spec. nov.
Slide No. BJ1968 ♂, holotype, ♂, China, NW-Yunnan, road from Zhongdian to Deqin.

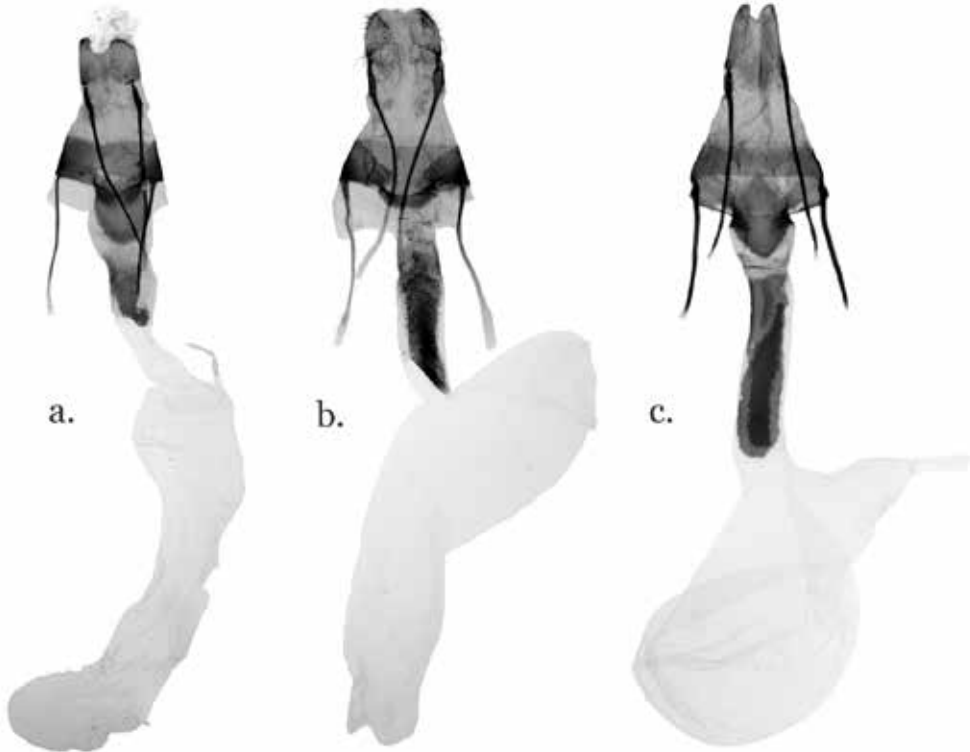


Fig. 6a. *Dasyptolia (Dasyptolia) bicolor* HREBLAY & RONKAY, 1995. Slide No. BJ2193 ♀, ♀, China, W. Sichuan, Kangding, near Zheduo Pass.
Fig. 6b. *Dasyptolia (Dasyptolia) rufatrox* HREBLAY & RONKAY, 1995. Slide No. BJ2159 ♀, ♀, Pakistan, Kashmir, Deosai Mts.
Fig. 6c. *Dasyptolia (Dasyptolia) irene* spec. nov. Slide No. BJ2018 ♀, ♀, China, NW-Yunnan, road from Zhongdian to Deqin.



Fig. 7. *Dasyptilia (s. l.) confusa* HREBLAY & RONKAY, 1995
Slide No. MH6870 ♂, holotype, ♂, China, Tibet, 4 km S.E. of Karru-Ochen Tso.

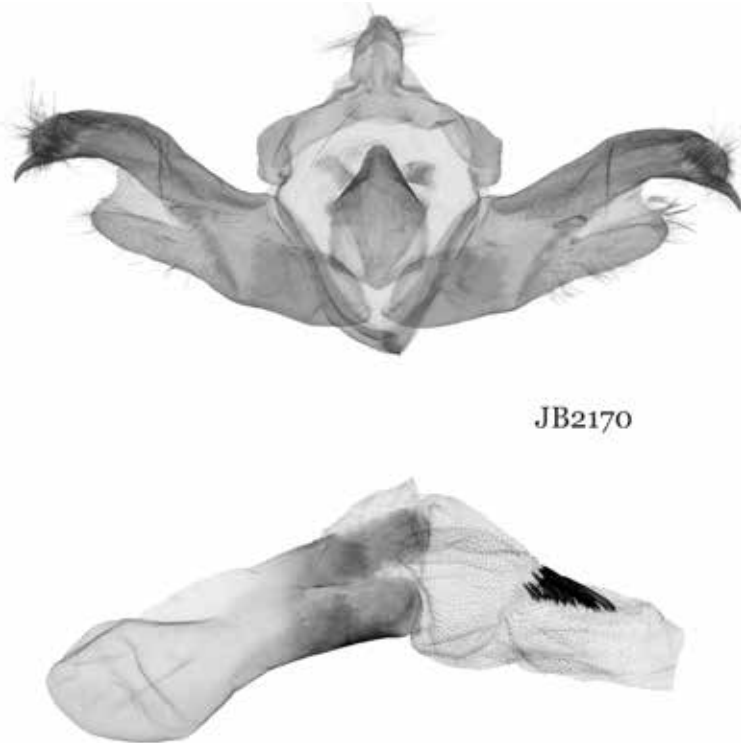


Fig. 8. *Dasyptilia (s. l.) confusa* HREBLAY & RONKAY, 1995
Slide No. GB7021 ♂, ♂, China, W. Sichuan, Kangding, near Zheduo Pass;
Slide No. GB7022 ♀, ♀, China, W. Sichuan, Kangding, near Zheduo Pass.



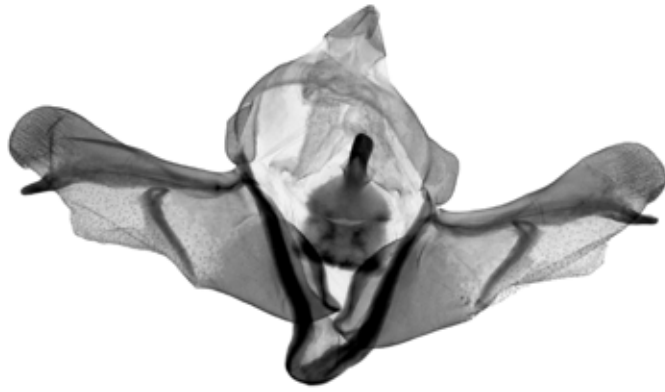
JB2171

Fig. 9. *Dasypolia (Cteipolia) rasa* SALDAITIS, BENEDEK, BEHOUNEK & FLORIANI, 2011
Slide No.BJ2171 ♂, ♂, China, N. Sichuan, road Jiuzhaigou–Songpan.



JB2170

Fig. 10. *Dasypolia (Tatsipolia) vignai* (RONKAY & ZILLI, 1992)
Slide No.BJ2170 ♂, ♂, China, Sichuan, near Moxi.



BG7015

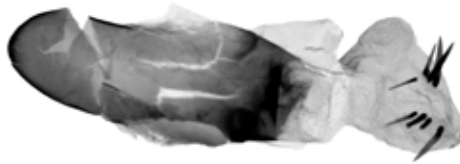


Fig. 11. *Dasypolia (Tatsipolia) ruficilia* BENEDEK, BEHOUNEK, FLORIANI & SALDAITIS, 2011
Slide No.BG7015♂, ♂, China, W. Sichuan, Kangding, near Zheduo Pass.



JB1497



Fig. 12. *Dasypolia (Sinipolia) acrophila* (HAMPSON, 1906)
Slide No.BJ1497♂, ♂, Pakistan, Kashmir, Deosai Mts.

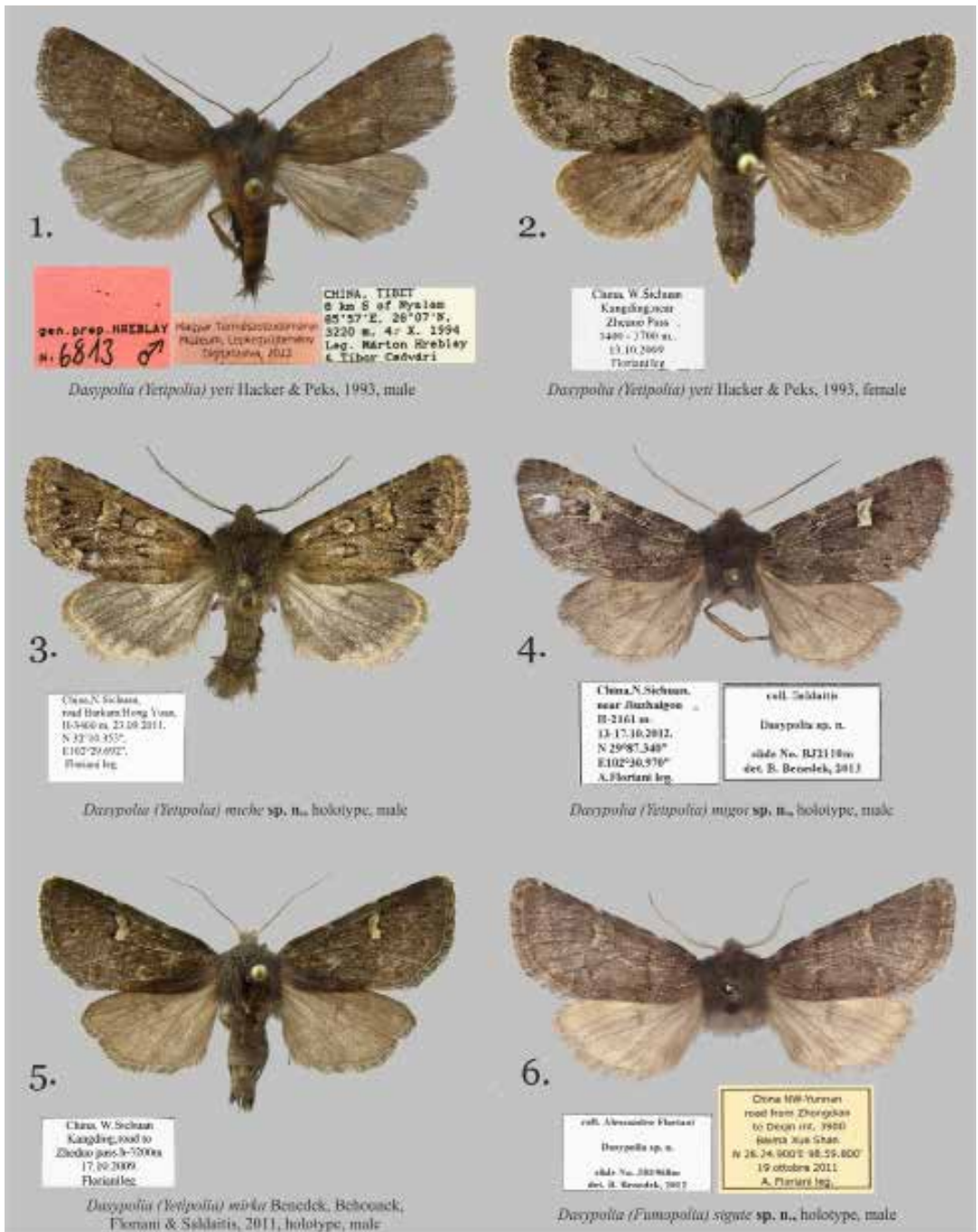


Plate 1

1. *Dasypolia (Yetipolia) yeti* HACKER & PEKS, 1993, male, China, Tibet, 8 km S of Nyalam (coll. HREBLAY, HNHM);
2. *Dasypolia (Yetipolia) yeti* HACKER & PEKS, 1993, female, China, W. Sichuan, Kangding, near Zheduo Pass (coll. AFM);
3. *Dasypolia (Yetipolia) miche* spec. nov., holotype, male, China, N. Sichuan, road Barkham/Hong Yuan (coll. GBG/ZSM);
4. *Dasypolia (Yetipolia) migor* spec. nov., holotype, male, China, N. Sichuan, near Jiuzhaigou (coll. GBG/ZSM);
5. *Dasypolia (Yetipolia) mirka* BENEDEK, BEHOUNEK, FLORIANI & SALDAITIS, 2011, holotype, male, China, W. Sichuan, Kangding, road to Zheduo Pass (coll. GBG/ZSM);
6. *Dasypolia (Fumopolia) sigute* spec. nov., holotype, male, China, NW-Yunnan, road from Zhongshan to Deqin, Baima Xue Shan Mt. (coll. GBG/ZSM).

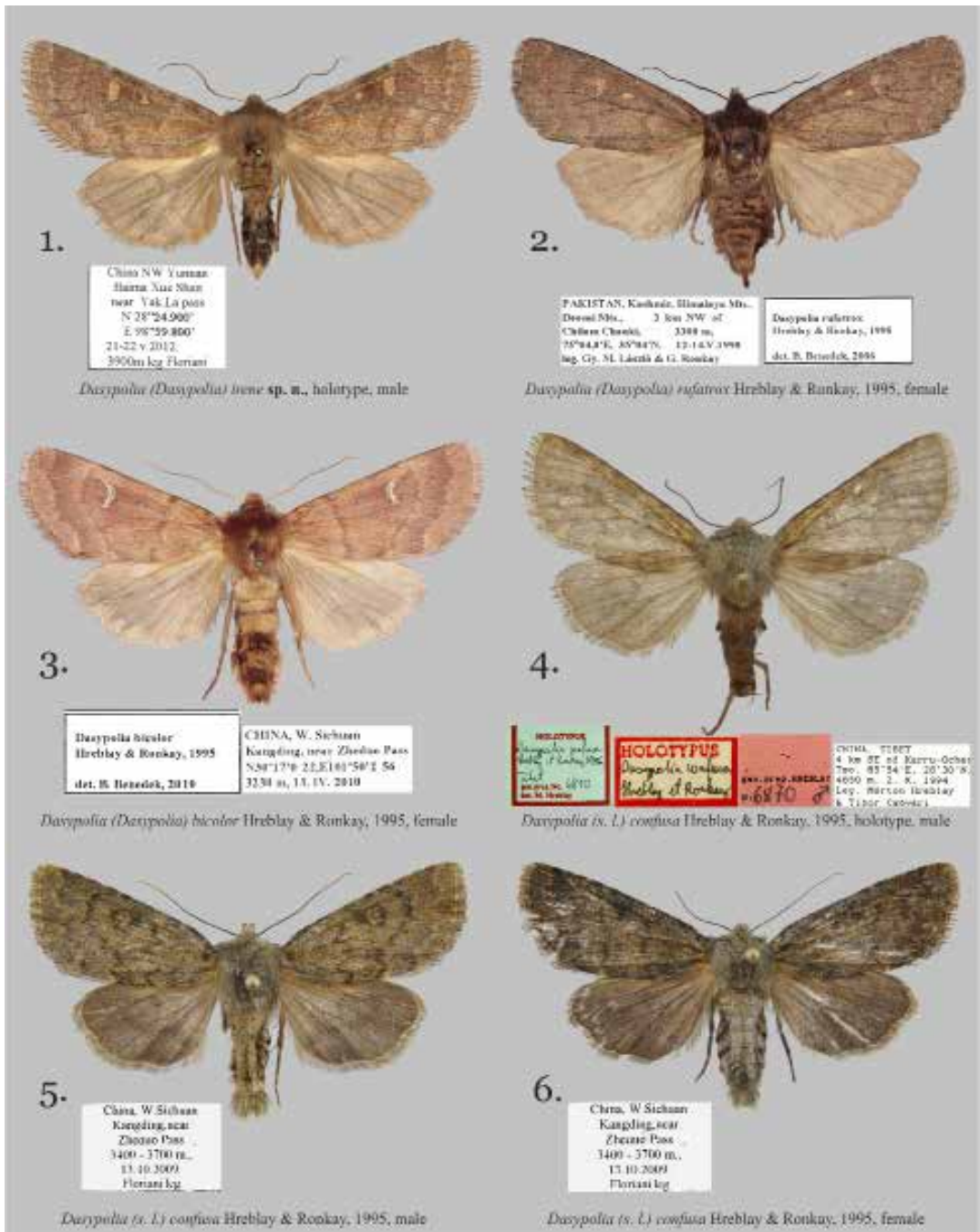


Plate 2

1. *Dasyptilia (Dasyptilia) irene* spec. nov., holotype, male, China, NW Yunnan, Baima Xue Shan, near Yak La pass (coll. GBG/ZSM);
2. *Dasyptilia (Dasyptilia) rufatrox* HREBLAY & RONKAY, 1995, female, Pakistan, Kashmir, Deosai Mts. (coll. BBT);
3. *Dasyptilia (Dasyptilia) bicolor* HREBLAY & RONKAY, 1995, female, China, W. Sichuan, Kangding, near Zheduo Pass (coll. BBT);
4. *Dasyptilia (s. l.) confusa* HREBLAY & RONKAY, 1995, holotype, male, China, Tibet, 4 km S.E. of Karru-Ochen Tso (coll. HREBLAY, HNHM);
5. *Dasyptilia (s. l.) confusa* HREBLAY & RONKAY, 1995, male, China, W. Sichuan, Kangding, near Zheduo Pass (coll. AFM);
6. *Dasyptilia (s. l.) confusa* HREBLAY & RONKAY, 1995, female, China, W. Sichuan, Kangding, near Zheduo Pass (coll. AFM).

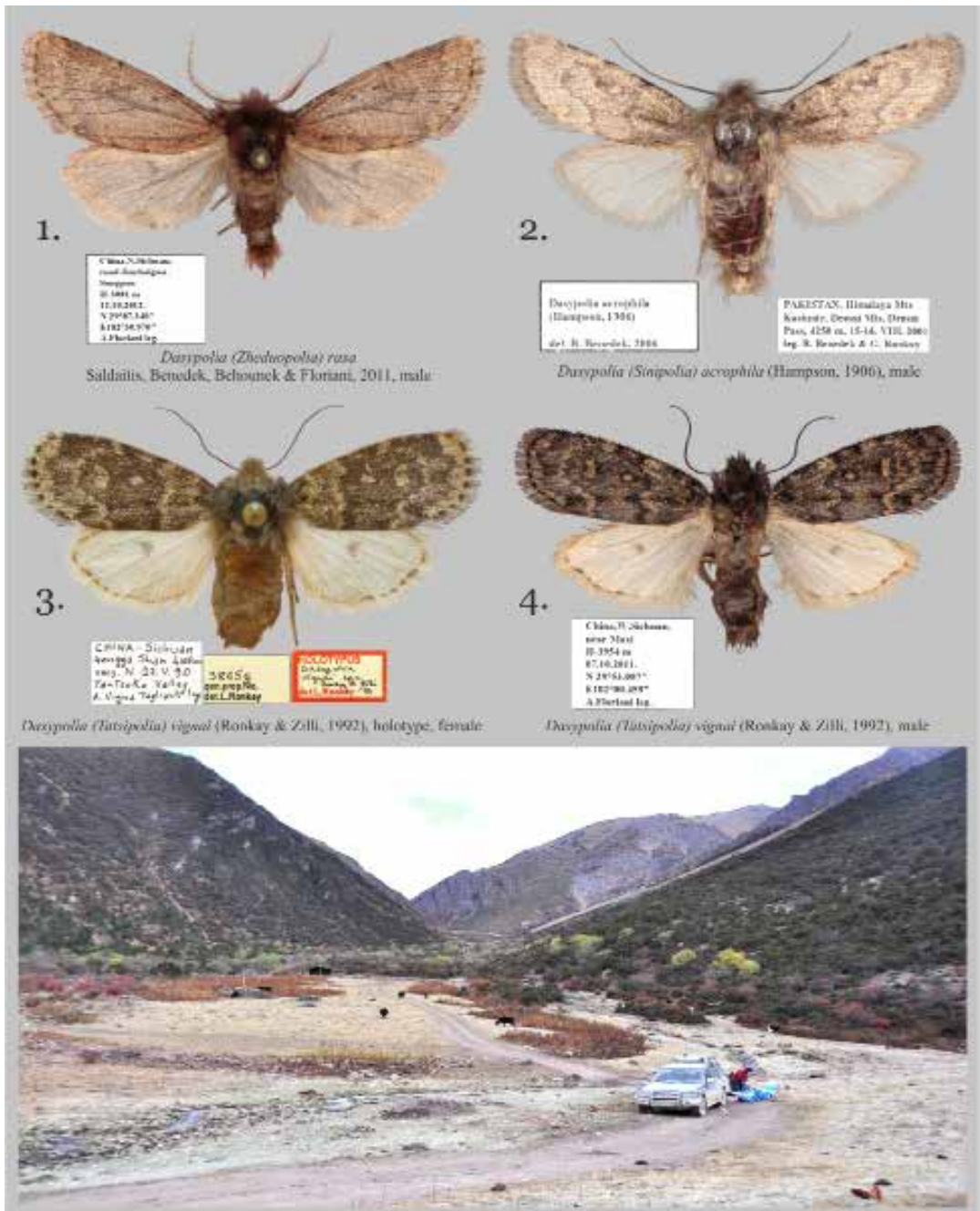


Plate 3

1. *Dasypolia (Cteipolia) rasa* SALDATIS, BENEDEK, BEHOUNEK & FLORIANI, 2011, male, China, N. Sichuan, road Jiuzhaigou – Songpan (coll. AFM);
2. *Dasypolia (Sinipolia) acrophila* (HAMPSON, 1906), male, Pakistan, Kashmir, Deosai Mts. (coll. BBT);
3. *Dasypolia (Tatsipolia) vignai* (RONKAY & ZILLI, 1992), holotype, female, China, Sichuan, Gonggo Shan (coll. HNHM);
4. *Dasypolia (Tatsipolia) vignai* (RONKAY & ZILLI, 1992), male, China, Sichuan, near Moxi (coll. AFM);
5. China, NW Yunnan, China, NW-Yunnan, road from Zhongdian to Deqin, mt., Baima Xue Shan, type locality of *Dasypolia (Fumopsalia) sigute* spec. nov. and *Dasypolia (Dasypolia) irene* spec. nov. (photo by Alesandro FLORIANI).

