

New data on Bactrini (Lepidoptera, Tortricidae) from Africa

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Bactra helgei sp. n., *B. magnei* sp. n. and *Syntozyga triangulana* sp. n. are described. The genus *Syntozyga* Lower, 1901 is reported from the Afrotropical region for the first time. The male of *Bactra endea* Diakonoff, 1963 is described and figured.

Key words: Lepidoptera, Tortricidae, *Bactra*, *Syntozyga*, new species, Africa.

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INTRODUCTION

Bactrini is a tribe within the tortricid subfamily Olethreutinae. As currently understood (Horak 2006) Bactrini contains three genera: *Bactra* Stephens, 1834, *Endothenia* Stephens, 1852 and *Syntozyga* Lower, 1901. Dang (1990) described four synapomorphies linking *Endothenia* and *Bactra*, formerly treated in separate tribes, and Horak (2006) pointed out that *Syntozyga* shares one of these synapomorphies with *Endothenia* and *Bactra*, viz. the reduced tarsal setae. Already Diakonoff (1973) had associated *Syntozyga* with *Bactra* in his subtribe Bactrae. In a series of papers Diakonoff revised the world fauna of *Bactra*, and he published his revision of the African fauna in 1963 (Diakonoff 1963). Diakonoff divided the genus into five subgenera, and the two new species described herein belong to the subgenus *Nannobactra* Diakonoff, 1956, which is characterised by the presence of large strong spines along the cucullus margin in the male genitalia. The third species discussed, *Bactra endea* Diakonoff, 1963, belongs to the subgenus *Chiloides* Butler, 1881, which is characterised by an elongate cucullus with only short and weak spines.

MATERIAL & METHODS

The material was collected during the author's stay in Tanzania in 1991–1993, and on a visit to Malawi in 2004. The specimens of *Bactra* described below were all captured by means of light. The new *Syntozyga* species was swept from the vegetation in the afternoon. After maceration male and female genitalia were dissected under a stereoscopic microscope and embedded in euparal on glass slides. Photos of the genitalia were taken using a Leica DFC 420 digital camera. Imagines were photographed using Microptics photographic system. The digital images were manipulated with Adobe Photoshop CS. Holotypes are preserved in the Natural History Museum, University of Oslo (NHMO). Paratypes remain in the author's private collection (LAA), but will later be transferred to NHMO. The terminology of genitalia and morphological structures follows Horak (2006), the terminology of wing pattern elements follows Razowski (2003).

SYSTEMATICS

Bactra (Nannobactra) helgei sp. n.

Type material. Holotype male: TANZANIA Morogoro Distr. & Town 550–600 m. 3.V.1992



Figure 1. Imago of *Bactra helgei* sp. n.

L. Aarvik leg., genital slide 2222 L. Aarvik, coll. NHMO.

Paratype male. TANZANIA Morogoro Distr. & Town: Kigurunyembe 700–900 m. 2.VI.1992 L. Aarvik leg., coll. LAA.

Etymology. The species is named after my eldest son, Helge Aarvik, who participated in moth collecting during our stay in Tanzania in 1991–1993.

Description. Figure 1. Male. Wingspan 12 mm. Labial palp twice diameter of eye, segment 2 with strong scaling concealing third segment, cream coloured, with some brown admixture; head cream; thorax cream mixed with brown. Forewing upperside light ochreous, costal strigulae present from base to apex, interspaces brownish; dorsal three fifths suffused with fuscous; terminal line fuscous, distinct; two light ochreous patches in tornal area; cilia basally cream, distally and towards apex becoming light brownish. Hindwing underside dark grey, cilia basally grey, distally light grey. Abdomen dark grey.

Female. Not known.

Male genitalia (Figure 5). Cucullus margin with

row of spines; sacculus relatively large, sub-quadratic, upper half with numerous short spines, outer edge with triangular fold; aedeagus thick, curved, without cornuti.

Distribution. Tanzania.

Remarks. Smaller size and different colour serve to distinguish *B. helgei* sp. n. from the only other member of the subgenus *Nannobactra* known from East Africa, viz. *B. magnei* sp. n. described below. *B. minima* Meyrick, 1909 is a widespread Asiatic species that even penetrates into the Palaearctic region as far west as the Canary Islands and the Azores Islands (Diakonoff 1964). It has so far not been recorded in Africa south of Sahara. Male genitalia of *B. helgei* sp. n. lack the lowest large spine on the cucullus edge which is present in *B. minima* (Diakonoff 1964, figs. 57, 60). Also resembling *B. legitima* Meyrick, 1911 (Diakonoff 1963, fig. 66 [the fig. number erroneously given as 68]), but that species has proportionally much smaller sacculus which is armed with larger spines.

***Bactra (Nannobactra) magnei* sp. n.**

Type material: Holotype male: TANZANIA Morogoro Distr. & Town: Kihonda 500 m.



Figure 2. Imago of *Bactra magnei* sp. n.

1.VI.1992 L. Aarvik leg., genital slide 2223 L. Aarvik, coll. NHMO.

Etymology. Named after my youngest son, Magne Aarvik, who – in spite of being too young to catch moths – very much enjoyed our stay in Africa.

Description. Figure 2. Male. Wingspan 14 mm. Labial palp twice diameter of eye, segment 2 with strong scaling, cream coloured, but segment 2 mainly fuscous; head cream; thorax cream, but tegulae with some greyish tipped scales. Forewing upperside cream coloured; interspaces of costal strigulae form fuscous streaks from base to apex; fuscous streaks present in fold and along dorsum; fuscous marks present near apex, near tornus and discal area; some nerves in apical third suffused with fuscous, forming longitudinal streaks; terminal line distinct, fuscous; cilia fuscous, white tipped scales form three thin cilia lines, cilia become lighter in tornal area. Hindwing upperside and hindwing cilia grey, cilia line formed by darker grey.

Female. Not known.

Male genitalia (Figure 6). Cucullus margin with 6 strong spines; sacculus rounded, with the group of relatively strong spines placed rather distally, outer edge with triangular fold that forms a sharp point; aedeagus thick, curved, without cornuti.

Distribution. Tanzania.

Remarks. *B. magnei* sp. n. is easily separated from the previous species, *B. helgei* sp. n. by larger size and much lighter colour. The size and position of the spines on sacculus distinguishes *B. magnei* sp. n. from the other known species of the subgenus except *B. legitima* Meyrick, 1911 (Diakonoff 1963, fig. 66 [the fig. number erroneously given as 68]), but that species lacks the pointed triangular fold at the margin of sacculus which is present in *B. magnei* sp. n. In addition *B. legitima* has the cluster of spines on sacculus in a more medial position than *B. magnei* sp. n.



Figure 3. Imago of *Bactra endea* Diakonoff.

***Bactra (Chiloides) endea* Diakonoff, 1963**

Bactra (Chiloides) endea Diakonoff, 1963: 321, Figures 28–31.

Material examined. MALAWI Central Region, Lilongwe District: Dzalanyama Forest Lodge 1270 m. 2♂♂ 15.II.2004 L. Aarvik leg., genital slide 2686 L. Aarvik, coll. LAA

Description of male. Figure 3. Wingspan 10–12 mm. Labial palp twice diameter of eye, segment 2 with strong scaling concealing third segment, grey coloured, except tip which is cream; head cream; thorax cream, but tegulae with greyish tipped scales. Forewing narrow, upperside ground colour white, with slight ochreous suffusion especially in dorsal half; interspaces of costal strigulae form fuscous streaks from base to apex; fuscous streaks present in fold; dorsum with small fuscous dots; apical dot distinct, blackish; lower edge of discal spot formed as a wide u; nerves in apical third suffused with fuscous, forming longitudinal streaks; terminal line only in tornal part; cilia grey, white tipped scales form three thin cilia lines. Hindwing with cilia and upperside grey, veins darkened. Abdomen light grey.

Female. Described by Diakonoff (1963: 321).

Male genitalia (Figure 7). Cucullus slender, distally with group of spines; cucullus large, rounded, with row of slender spines along edge; aedeagus long, curved, distally with cluster of 5–6 spine-shaped cornuti and one shorter cornutus fixed to the aedeagus wall.

Distribution. Gambia and Malawi.

Remarks. *B. endea*, by Diakonoff (1963) recorded from Gambia and Malawi, is a species with fuscous pattern on a whitish background and thus it resembles the species described above, *B. magnei* sp. n. However, the difference in wing shape immediately separates the two species. When Diakonoff (1963) described *B. endea*, he was in doubt whether to treat it as specifically distinct from *B. angulata* Diakonoff, 1956 from East Asia. Diakonoff only knew the female of *B. endea*. He stated (Diakonoff 1963: 322): “The genitalia, however, differ sufficiently to justify the separation of *endea*. The ostium bursae in *B. angulata* is stronger, at top more compressed so as



Figure 4. Imago of *Syntozyga triangulana* sp. n.

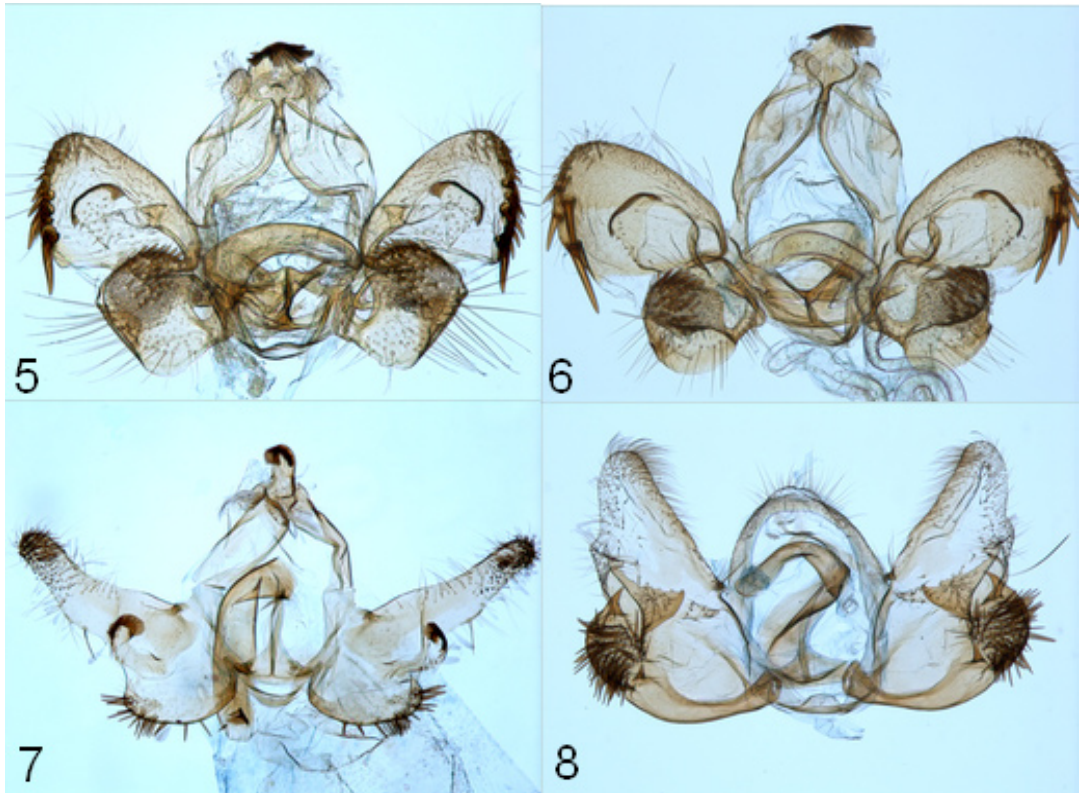
to form a median and two lateral spout-like folds, plates at the foot of ostium are standing upright and are much more sclerotized, the caudal edge of the eight segment is more distinctly modified". The discovery of the male confirms the close affinity between *B. angulata* (Diakonoff 1956, fig. 23) and *B. endea* (Figure 7). They are so close that without the evidence of the female (see above), I would not hesitate to consider *B. endea* and *B. angulata* as conspecific. The only difference noted in the male genitalia is the presence in *endea* of a strong spine low on the outer edge of cucullus. This is lacking in *B. angulata*. Because males and females of *B. endea* never have been found together, the identity of the males of *B. endea* published here, is based on the indirect evidence of the close relation with *angulata*. In the future, when more material becomes available, further study may show that the two taxa, *B. angulata* and *B. endea*, should be separated on the subspecific level only. The slender cucullus separates *B. endea* from all other African species of the subgenus *Chiloides*.

***Syntozyga triangulana* sp. n.**

Type material: Holotype male: TANZANIA Arumeru Distr.: Usa River 1170 m. 30.VIII.1991 L. Aarvik leg., genital slide 2761 L. Aarvik, coll. NHMO. Paratypes: 5 ♂♂ from the same locality as holotype, 24.VII.1991, 28.VII.1991, 31.VII.1991, 9.IX.1991, two of them dissected with genitalia on slides 2291 & 2292 L. Aarvik, in coll. NHMO, the three undissected paratypes in coll. LAA.

Etymology. The species' name indicates the triangular mark on the forewing costa.

Description. Figure 4. Male. Wingspan 11,5–12 mm. Labial palp twice diameter of eye, segment 2 with well developed scale brush, dark brown, basally light brown; head light brown, thorax dark brown with some light tipped scales. Forewing upperside ground colour yellowish white; fuscous brown pattern consisting of basal plus sub-basal fascia which on costa extends to wing base, an angled median fascia broken below middle of wing, a tornal blotch, a smaller patch near middle of termen, and an apical spot; four costal pairs of



Figures 5–8. Male genitalia. 5. *Bactra helgei* sp. n. 6. *B. magnei* sp. n. 7. *B. endea* Diakonoff. 8. *Syntozyga triangulana* sp. n.

strigulae present beyond middle; two pairs of costal strigulae between median and sub-basal fasciae extending to dorsum in form of two double angled bands; light discal spot intercepts into outer edge of median fascia; lighter part of pattern suffused with greyish, and darker parts suffused with ochreous; cilia light ochreous, with two double dark cilia line, costal part of median fascia together with its external dark suffusion form a triangular mark. Hindwing upperside brownish fuscous, cilia light grey with fuscous base. Abdomen brownish fuscous, anal tuft light brown.

Female. Not known.

Male genitalia (Figure 8). Tegumen low, dorsally spined and with slight convexity; sacculus of valva broad, rounded, before neck forming rounded convexity with one ventral and

one dorsal tooth in addition to numerous strong spines, two triangular sclerites present near neck, the inner one smaller and more slender than the distal one; anellus long; aedeagus long, curved, without cornuti or carinae.

Distribution. Tanzania.

Remarks. *S. triangulana* sp. n. does not appear to be closely related with any of the other *Syntozyga* species figured by Diakonoff (1973) or Horak (2006). Though it shares some traits, i.e. the low and simple tegumen, the long anellus, the long curved aedeagus, and the bulbous convexity of the sacculus, with some of the core species of the genus, e.g. the type species *S. psammetalla* (Lower, 1901) and *S. anconia* (Meyrick, 1911) (Diakonoff 1973, figs. 534, 535, 536). The wing pattern displayed by *S. triangulana* sp. n. and congeners is very basic, showing most of the

elements typical for the subfamily Olethreutinae. This is very different from *Bactra* which generally shows a more simplified, derived pattern. For the time being no close relative that could be confused with *S. triangulana* sp. n. is known from Africa.

DISCUSSION

Of 102 species in the genus *Bactra* (Brown 2005), 27 are known from Africa south of Sahara, Madagascar excluded. According to current knowledge 21 of these are restricted to an area within the borders of the Republic of South Africa. Only 11 species (excluding the two species described in the present work) have so far been discovered in tropical Africa. This indicates the presence of a centre of endemism of *Bactra* in South Africa, but also that the tropical part of Africa is poorly investigated with respect to Microlepidoptera. The genus *Syntozyga* is distributed in Sri Lanka, India, southern Asia to the Philippine Islands, New Guinea and Australia (Horak 2006). Thus the discovery in Africa greatly extends the range of the genus. As pointed out by Diakonoff (1963) in *Bactra* there are groups of species that are distributed both in Africa and Asia/Australia, and even extending to South America. The two sister taxa discussed above, *B. angulata* and *B. endea*, is a good example. Now *Syntozyga* shows the same pattern.

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