

Taxonomic notes on the African leaf-roller moth *Gypsonoma paradelta* (Meyrick, 1925) (Lepidoptera, Tortricidae)

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Eucosma paradelta Meyrick, 1925 and *E. picrodelta* Meyrick, 1932 are synonymized. The female genitalia are figured for the first time.

Key words: Lepidoptera, Tortricidae, *Gypsonoma*, new synonymy, Africa.

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INTRODUCTION

Recently large series of a characteristic African tortricid belonging to the tribe Eucosmini, have become available for study. Comparison with published figures of type specimens (Clarke 1958, Razowski & Krüger 2007) showed that the species had been described twice by Edward Meyrick. In the present paper the two names are formally synonymized and the female genitalia are figured for the first time.

MATERIAL & METHODS

Specimens used in the present work were collected in Kenya in 1998–2000 by David Agassiz, and in Tanzania in 2005 by Michael Fibiger, Anthony Kingston and the author. One additional specimen from Tanzania was discovered in the collections of the Zoological Museum, University of Copenhagen (ZMUC). Photos of the genitalia were taken using a Leica DFC 420 digital camera. The photos of the moths were taken using Microptics photographic system. The digital images were manipulated with Adobe Photoshop CS. The terminology of genitalia and other morphological structures follows Horak (2006). Specimens presently in the collection of David Agassiz will later be transferred to the Natural History Museum

in London. Abbreviations: NHMO = Natural History Museum, University of Oslo; LAA = Leif Aarvik; TK = Timm Karisch

TAXONOMY

Eucosma paradelta Meyrick, 1925: 141.

Gypsonoma paradelta Razowski & Krüger, 2007: 123, Figures 86, 217.

Eucosma picrodelta Meyrick, 1932: 111; Clarke, 1958: 383, Figures 1, 1a. **Syn. nov.**

Material examined. KENYA: Rift Valley Prov. Turi 8000 ft. 1♂ 23.X.1998; 1♂ 25.X.1998; 1♀ 27.X.1998; 1♀ 15.I.1999, with genitalia on slide LAA 2007.020; 1♂ 12.III.1999, with genitalia on slide TK 1927; 1♂ 23.V.1999; 1♂ 8.VI.1999, with genitalia on slide LAA 2007.019; 1♀ 25.VI.1999, with genitalia on slide LAA 2008.018; 1♂1♀ 29.II.2000 leg. D.J.L. Agassiz; TANZANIA: 1♀ Tanga Region Lushoto Distr., 1400 m. Mazumbai Forest Reserve 30.XI.-7.XII.1995 leg. S. McKamey et al. coll ZMUC, Denmark, with genitalia on slide LAA 2007.021; 7♂♂,7♀♀ Tanga Reg., Mufindi Distr. Kigogo Forest 1900 m. 23–25.XI.2005 leg. L. Aarvik, M. Fibiger A. Kingston, genital slides ♂ LAA 2730, ♀ LAA 2731, ♂ LAA 2770, coll. LAA, to be deposited in NHMO.

Meyrick's (1925) original description (Figure 1)

"Head white. Palpi dark fuscous, terminal joint and apex of second white. Thorax white, shoulders and a broad dorsal stripe blackish. Forewings costa without fold, termen faintly sinuate, somewhat oblique; white, markings blackish; costal edge black from base to beyond middle; an oblique trapezoidal spot on base of costa, including a white costal dot; a semioval spot on costa beyond this; a transverse mark from middle of costa, and three small marks between this and apex; an oblique triangular blotch from dorsum before middle, reaching more than half across the wing; a triangular præternal spot; scattered black scales towards upper part of termen: cilia grey mixed dark fuscous (imperfect), on tornal area white, on præternal spot dark fuscous. Hindwings 3 and 4 stalked; cilia grey. Forewings beneath with patch of modified greyish-ochreous scales occupying anterior half of cell and extending a little above it."

Supplementary description

Wingspan 15–21 mm. Labial palp 1,5 times diameter of eye, second segment with brush of appressed scales, slightly widened, third segment not concealed by second. Antenna serrate, minutely ciliate in male. Thorax without crest. Forewing with all veins separate, chorda present, trunk of M expressed in discal cell. In hindwing M3 and Cu1 stalked. Forewing underside in male with patch of modified scales in anterior half of cell and a little above it. Male also with pencil of hair-scales on both sides of thorax, running from underside of mesothorax parallel with body and reaching tibia of hindleg. Abdomen of male with tergum 8 roughly T-shaped; 8th segment with large lateral lobes concealing the genitalia in retracted position (Figure 3).

Male genitalia (Figure 4). Tegumen low, narrowing distally, but uncus not differentiated, socii weakly sclerotized, setose, broad; gnathos a narrow band attached near top of tegumen, medially with sub-quadratic plate; tegumen on each side with group of long scales connected to tegumen by long and slender band; valva oval, cucullus not differentiated, tip with (7–8 spines, external surface with large transparent scales;



Figure 1. *Gypsonoma paradelta* (Meyrick), female from Tanzania.



Figure 2. *Gypsonoma paradelta* (Meyrick), aberrant female from Kenya.

caulis long; aedeagus simple, becoming slightly narrower towards tip, with two bundles of long deciduous cornuti (Figure 4).

Female genitalia (Figure 6). Ovipositor lobes slender; apophyses posteriores and anteriores of roughly similar length; sternite 7 with rounded concavity; ostium oval, lamella postvaginalis broad, with short setae; ductus bursae with sclerotized ring just before ostium, inception of ductus seminalis slightly closer to ostium than to corpus bursae, without sclerite at inception of ductus seminalis (Figure 7); corpus bursae with two nail-shaped signa of nearly the same size.

REMARKS

The descriptions of *Eucosma paradelta* Meyrick, 1925 and *E. picrodelta* Meyrick, 1932 were based on single males, and the wings and genitalia of the types were figured by Razowski & Krüger (2007) and Clarke (1958) respectively. The type of *E. paradelta* came from Natal in South Africa, and *E. picrodelta* from Ethiopia. Because good series of

the species recently have been collected in Kenya and Tanzania, comparison with the figures of the types could be made, also taking variation into account. There is variation in wingspan, but the wing pattern is uniform in most specimens. Some females tend to have dark suffusion in the distal half of the forewing. One female in the series from Kenya (Figure 2) differed from the others, and it was dissected. The genitalia showed it to be conspecific with *G. paradelta*. The number of spines on the tip of the male valva is fairly constant, 8 in most dissected specimens. In one case the two valvae had different numbers, 7 and 8. The modified scales on the forewing underside mentioned by Meyrick (1925) in the original description, is a secondary sexual character present only in males. The presence of this scale patch was confirmed also in males from Kenya and Tanzania.

Razowski & Krüger (2007) placed this species in the genus *Gypsonoma* Meyrick, 1895. *G. paradelta* has peculiar male genitalia, particularly the shape of the valva which obscures the distinction between sacculus and cucullus. However, a similar tendency can be seen in other species of *Gypsonoma*. In the European *G. aceriana* (Duponchel, 1843), compare Plate 31, fig. 319 in Razowski (2003), the distinction between sacculus and cucullus has become vague, and the neck of the valva has practically disappeared. The modification, though, is less extreme than in *G. paradelta*. Also the cluster of distal spines in the European species of *Gypsonoma* is ventral, suggesting that the dorsal area of the cucullus has been strongly reduced in *G. aceriana*. Species of *Gypsonoma* have coremata attached to the tegumen. Usually they are attached directly on the tegumen or on a short-stalked disc. In *G. paradelta* it is attached by a long slender band, which can be considered as a modification of the short-stalked condition found in other species of the genus. *Gypsonoma paradelta* has broad scales on the external surface of the valva, which is a trait shared with other species of the genus. The female genitalia of *G. paradelta* are rather simple. Ostium is not surrounded by an elaborate sterigma, and the ductus bursae is not sclerotized

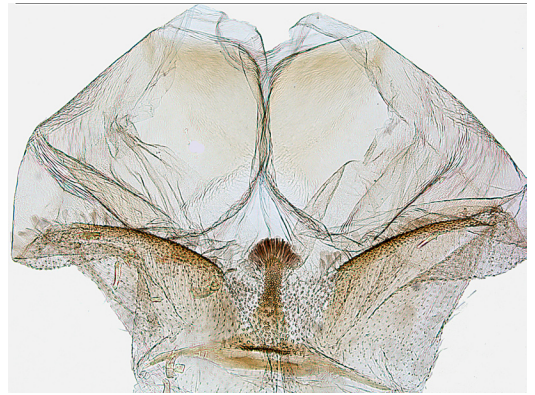


Figure 3. *Gypsonoma paradelta* (Meyrick), posterior part of male abdomen.

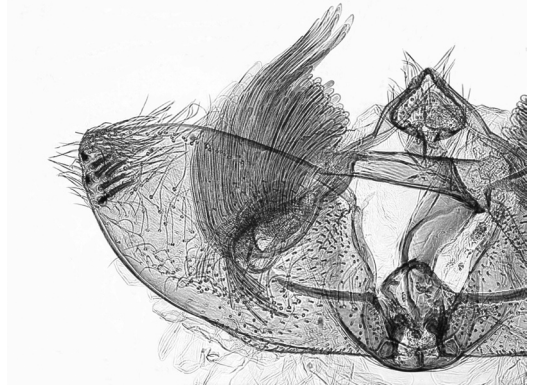


Figure 4. *Gypsonoma paradelta* (Meyrick), male genitalia (right valva omitted).

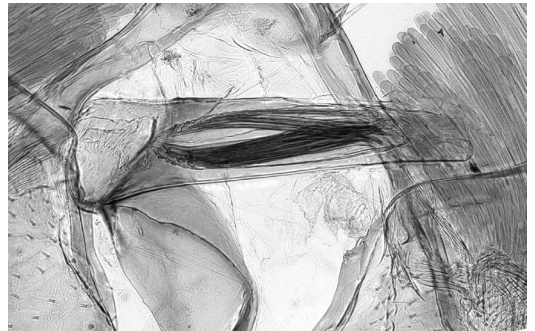


Figure 5. *Gypsonoma paradelta* (Meyrick), male genitalia, aedeagus and caulis under high magnification.

except for a narrow ring before ostium. The ring is normally present in *Gypsonoma* species. In other species of *Gypsonoma* ductus bursae has an additional well developed sclerite, cingulum, at the inception of ductus seminalis. This is lacking



Figure 6. *Gypsonoma paradelta* (Meyrick), female genitalia.

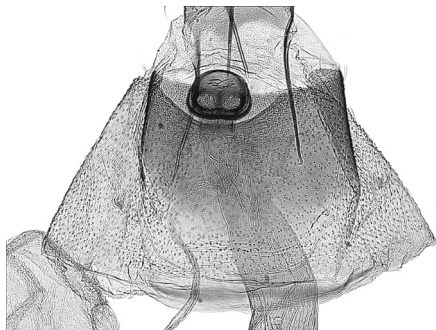


Figure 7. *Gypsonoma paradelta* (Meyrick), female genitalia, 7th sternite and ostium under high magnification.

in *G. paradelta*. There are indications in both male and female genitalia that a separate genus should be erected for *G. paradelta*. However, the African fauna of the tribe Eucosmini is poorly known, and it is likely that further related species will be discovered in the future. This will give opportunities to re-evaluate the generic position of *G. paradelta*.

Distribution. Republic of South Africa, Tanzania, Kenya and Ethiopia.

Comment on *Gypsonoma penthetria* Diakonoff, 1992.

Diakonoff (1992) described *G. penthetria* based on 2 males and one female from Madagascar. From

the genitalia figures in the original description it is clear that *G. penthetria* is closely related to *G. paradelta*. The male valva of *G. penthetria* differs by having a concave ventral edge, and the distal spines in a different position. Diakonoff stated that the tegumen was missing from the preparation, but actually his figure 5 shows the tegumen in an upside down position. Judging from Diakonoff's figure 12, the female genitalia do not differ substantially from those of *G. paradelta*.

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