

***Umkulunkula* gen. nov. - a new genus of Pyralinae (Insecta: Lepidoptera, Pyraloidea) from southern Africa**

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Summary: The new genus *Umkulunkula* gen. nov. is established here for an undescribed pyraline species. It has a wide distribution in southern Africa and is named *U. kalahariensis* sp. nov. The detailed description of the species is based on male and female adults and include external and genital features. The new genus is characterised by four presumed apomorphies: discal spot in forewings with semi-erect scales, male genitalia with juxta and separate transtilla forming a forked appendage, abdominal segment VIII of females with separate sternite and tergite, mid-tibia of both sexes enlarged by long piliform scales. The sistergroup is currently unknown. Closely related genera are *Pyralis* and *Pyralosis* by sharing the same wing form, venation and head morphology.

Key words: Lepidoptera, Pyralinae, *Umkulunkula kalahariensis* gen. nov., spec. nov., taxonomy, Namibia, South Africa

Introduction

During the last years the author conducted fieldwork in Namibia and South Africa as a member of the German-Namibian-South African BIOTA-Project. At the beginning of the project a large number of bio-observatories were established along a transect from the Cape Peninsula in the south to the Okavango River in the north. Some of these observatories and the adjacent areas were visited regularly and all groups of Lepidoptera were collected. The correct identification of the collected material was (and still is) a major challenge. It necessitated the study of type material of nearly all the encountered species. Fortunately, the types of the south African species are not scattered around the world, but are more or less concentrated in the collections of the large natural history museums in London, Paris, Berlin, Pretoria and Cape Town. In the course of determining species a rather large number of apparently undescribed taxa were found. Some of them could not be placed with certainty in any of the known genera (cf VARI *et al.* 2002) and were provisionally assigned to existing genera. But in some cases species were found that were too strikingly different. They differed too much from possible congeners that inclusion in any existing genus would render it polyphyletic. For one of these species, which undoubtedly belongs to the Pyralinae, a new genus is established here.

Acronyms of depositories

NMNW – National Museum of Namibia, Windhoek.
MfNB – Museum für Naturkunde Berlin.
TMSA – Tranvaal Museum of South Africa, Pretoria.

***Umkulunkula* gen. nov.**

Gender: feminine

Derivatio nominis: The generic name is derived from the mythology of the Matabele tribe and means “the ancient spirit of all things”.

Adult: Proboscis present; labial palpi broad, ascending, third segment very small; ocelli and chaetosema present, erect scales on vertex (Fig. 6); tegulae in males moderately enlarged, ventral side with a chorema consisting of a bundle of apically curled androconial hairs; epiphysis present on base of forelegs, spurs 0.2.4., mid-tibia broadened by long, piliform scales; forewing venation (Fig. 8) with large anal loop and remains of Cu2 on wing margin, M2 and M3 in both wings separate and not with common stalk.

Male genitalia: Tegumen broad, with rounded emargination on anterior margin; uncus tongue-shaped, gnathos long and up-curved apically; vinculum a small half-ring with a triangular saccus, valvae long, without internal processes; juxta plate-like and weakly

sclerotised, bifid transtilla present; aedeagus angled at one third, cornuti absent.

Female genitalia: abdominal segments forming a long ovipositor; apophyses anteriores and posteriors long; segment IX with separate tergite and triangular sternite; antrum broad triangular in ventral view, ductus bursae sclerotised until origin of ductus seminalis, bursa without signum.

Umkulunkula kalahariensis spec. nov.

Holotype ♂: “S[outh]Afr[ica]/T[rans]v[aa]l, K[ruger] N[atational] P[ark]/ Skukuza; 25°00’S 31°35’E/ 3.-11.iii.1992/ Krüger & Dunning” (TMSA)

Paratypes: 1 ♂, 2 ♀♀, **RSA**, same place as holotype, 12.-27.3.1992 (TMSA); 1 ♀, same place as holotype, 26.11.1993 (TMSA); 4 ♂♂, 1 ♀, same place and collector, 26.11.-24.12.1993 (TMSA); 1 ♂, 2 ♀♀,

Olifants Camp, K[ruger] N[atational] P[ark] Survey, 25. & 27.9.1966, leg. Potgieter & Goode (TMSA); 1 ♀, Nyandu Bush, K[ruger] N[atational] P[ark] Survey, 3.12.1964, leg. Vári & Potgieter (TMSA); 1 ♀, Pafuri, 2.1961, leg. H. Mockford (TMSA); 2 ♂♂, [Farm] Rochdale 700, Soutpansberg Distr[ict], 20-24.1.1972, leg. Potgieter & Jones, (TMSA); 1 ♂, P[aul] P[otgieters] Rust, 23.12.[19]24, 4 ♂♂, ibidem, 24.12.[19]24, 1 ♂, ibidem, 24.12.[19]25, 1 ♂, ibidem, 25.12.[19]25, all leg. A.J.T. Janse, (TMSA); 2 ♂♂, Modderpoort, 18.12.[19]25, leg. A.J.T. Janse, (TMSA); 1 ♀, Limburg, T[rans]v[aa]l, Potgietersrus Distr[ict], 12.12.1963, leg. L. Vári (TMSA); 1 ♂, Zoutpan, P[re]t[ori]a, 8.12.1926, leg. G. v[an] Son, (TMSA); 1 ♂, Farm Scott /Amatola, 8 km E. Vivo, Mixed Bushveld, 22.56S 29.23E, 26.1.1998, leg. Krüger & Dombrowsky, (TMSA); 1 ♀, RSA, Nylsvley, Sericea Farm (W. Tarberton), 28.-30.11.2004, LF, leg. W. Mey (MfNB); 1 ♀, RSA, Limpopo Pro-

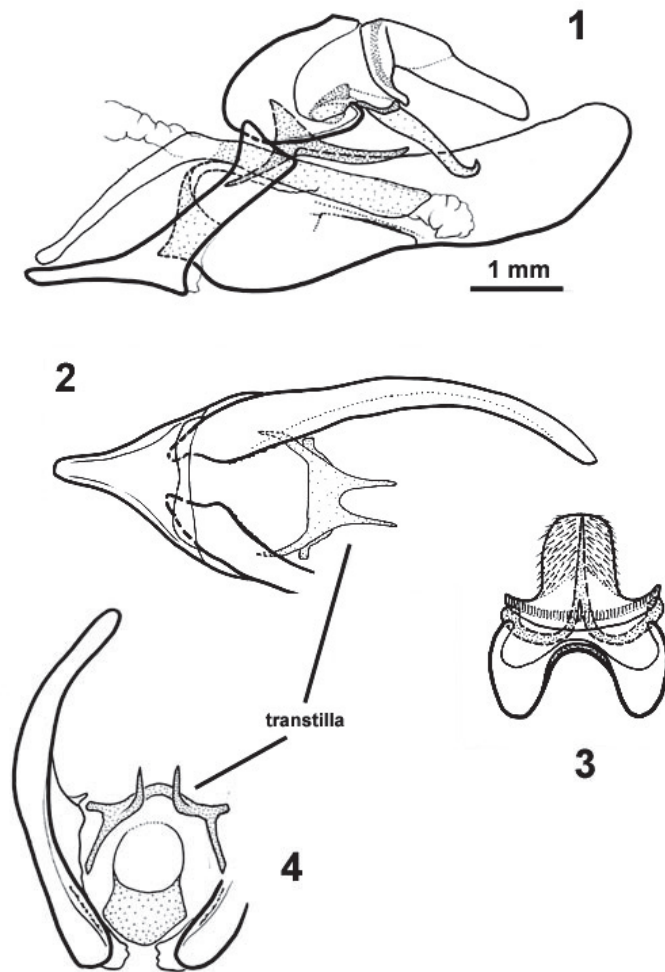


Fig. 1-4. *Umkulunkula kalahariensis* gen. nov., spec. nov., male genitalia, 1) lateral, 2) ventral, 3) dorsal, 4) caudal view

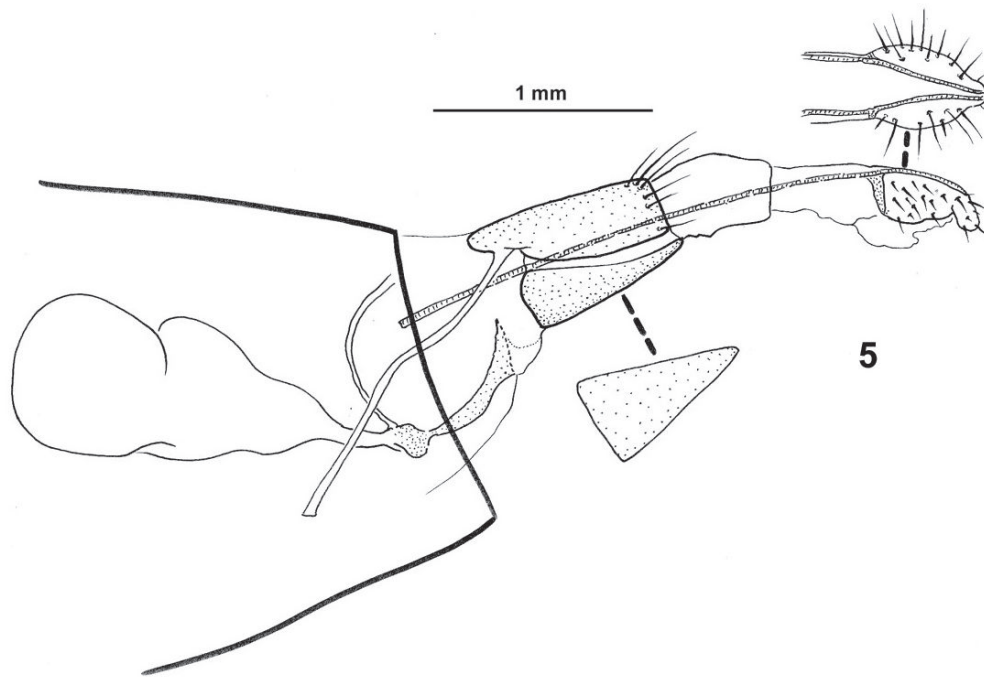


Fig. 5. Female genitalia, lateral view.

vince, 6,5 km NNW Gramadoela, 425 m, Phalaborwa, Mopane Buschland, S 23°53 E 31°06, 19.1.2007, leg. J. Rudloff (MfNB); 1 ♂, **Botswana**, Nata, 13-15.1.1978, leg. M. J. Scoble, (TMSA); 1 ♀, 20 km W. of Maun, Lake Ngami Road, 19.1.1978, leg. M. J. Scoble (abdomen lost), (TMSA); 7 ♂♂, 4 ♀♀, **Namibia**, ca. 60 km N Gobabis, BIOTA observatory Sandveld, 22.- 28.1.2007, genitalia slides Mey 1/09, 24/09, leg. W. Mey & K. Ebert (MfNB, NMNW); 1 ♂, Namibia, 50 km N Okahandja, BIOTA observatory Erichsfelde, LF, leg. W. Mey & K. Ebert (MfNB); 1 ♂, Namibia, Waterberg National Park, Okatjikona, 14.- 18.2.2008, LF, leg. W. Mey (MfNB); 2 ♀♀, Abachaus, S[outh] W[est] A[frica], Jan. 1944, 1 ♀, ibidem, Dec. 1944 (abdomen lost), 2 ♀♀, ibidem, Jan. 1945, 2 ♂♂, 2 ♀♀, ibidem, March 1945, all leg. G. Hobohm, (TMSA); 1 ♂, **Zimbabwe**, Victoria Falls, coll. Janse, (TMSA); 2 ♂♂, 1 ♀, **Namibia**, Kunene, Baynes Mts., 23.2.2008, leg. W. Mey.

Derivatio nominis: The specific epithet is derived from „Kalahari“, the large dry savannah and semiarid region in the interior of southern Africa where the new species is widely distributed.

Wing span 17 – 19 mm. Head and thorax grey with white tipped scales, palpi and dorsal side of antennae densely scaled; flagellomeres of first half of antenna with long and short cilia on the ventral side (Fig. 7), becoming smaller towards tip of antenna. Forewings

grey to brown-grey (Fig. 9), with a brown diagonal fascia, lined with a fine white stripe, discocellular spot with erect, brown or red-brown scales, a short comma-like, white streak present on subapical costa; hindwings pale brown in basal area and more brown beyond pale and indistinct post-medial line; fringes in both wings with cilia line, separating grey and white-grey scales; female with three frenular bristles, male with hamus and retinaculum; legs grey, with scattered brown scales on the lateral sides.

Male genitalia (Figs. 1-4): tegumen unsclerotised laterally, vinculum overlaps dorsally with tegumen, gnathos arms long, fused to form a median process in the last third, valvae concave on ventral margin, rounded apically, transtilla a free sclerite unconnected to apodem of valva, with two long, median processes.

Female genitalia (Fig. 5): bursa and ductus bursae small, not extending anteriorly beyond segment VI; ductus bursae with a small bulbous widening at begin of ductus seminalis; papillae anales, large weakly sclerotised dorsally.

Discussion

Within Pyralidae the subfamily Pyralinae is thought to contain the more ancestral taxa of the family. According to numbers of described species and genera (HEPPNER 1991) the African continent is the centre of taxonomic diversity for the group. Three recently established genera from the Brandberg in Namibia (LE-

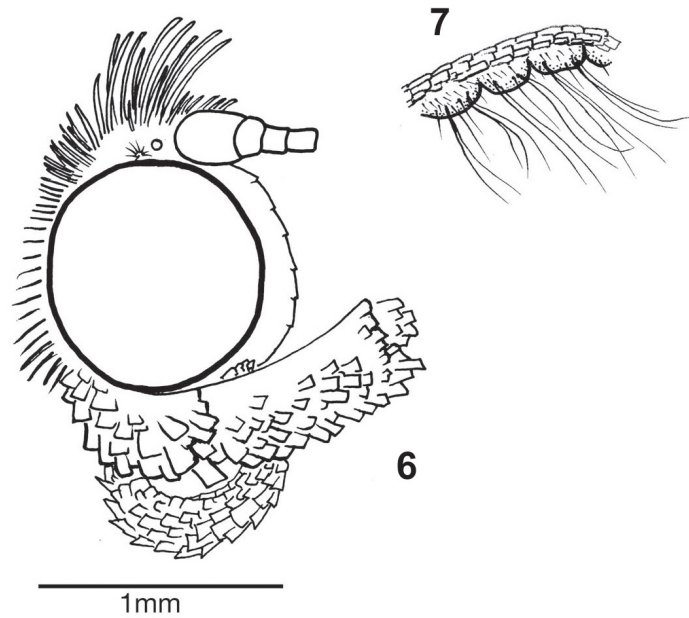


Fig. 6-7. *Umkulunkula kalahariensis* gen. nov., spec. nov. 6) head of female, lateral view; 7) male mid-flagellomeres, lateral view.

RAUT 2007) corroborates this statement. Pyralinae are thus a promising candidate for deciphering aspects of the faunal history in Africa and for the recognition of centres of endemism. Unfortunately, the taxonomic basis of the African Pyralinae is poor according to

modern standards. Most of the nominal taxa at the species and generic level are insufficiently described (cf. ZELLER 1852) and faunistic data beyond species descriptions are rarely available, neither as published records nor as identified specimens in museum col-

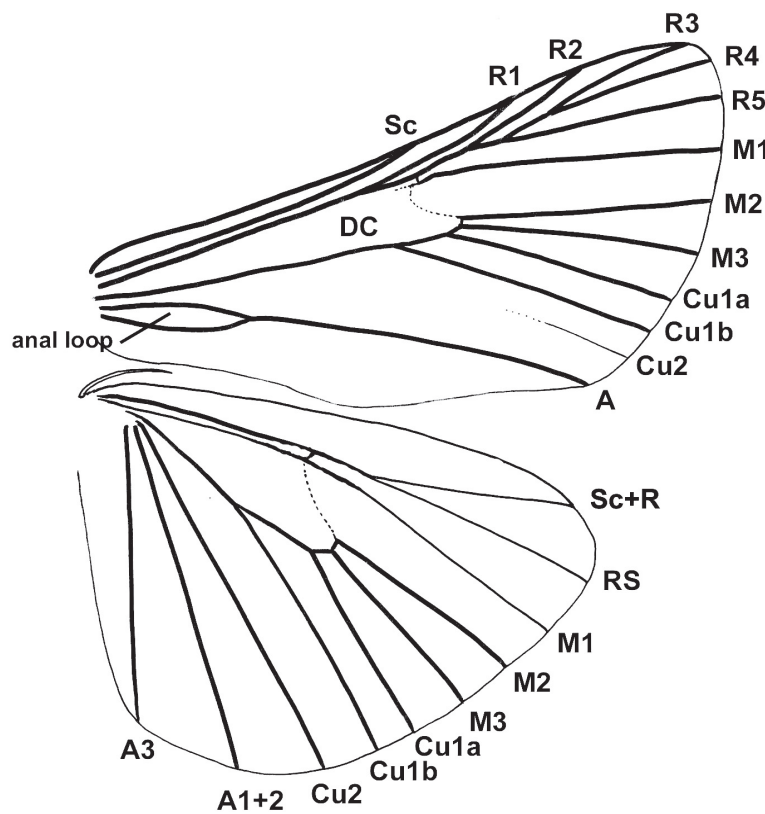


Fig. 8. *Umkulunkula kalahariensis* gen. nov., spec. nov.: wing venation.



Fig. 9. *Umkulunkula kalahariensis* gen. nov., spec. nov., female paratype.

lections. As a consequence, the ranges of the African species and their biology are largely unknown. These conditions are not a good starting point for introducing new genera and describing new species. How-

ever, the new genus description presented here is not so daring a venture as it might appear at first glance. The new species has a striking wing pattern which is diagnostic and prevents confusion with other species.

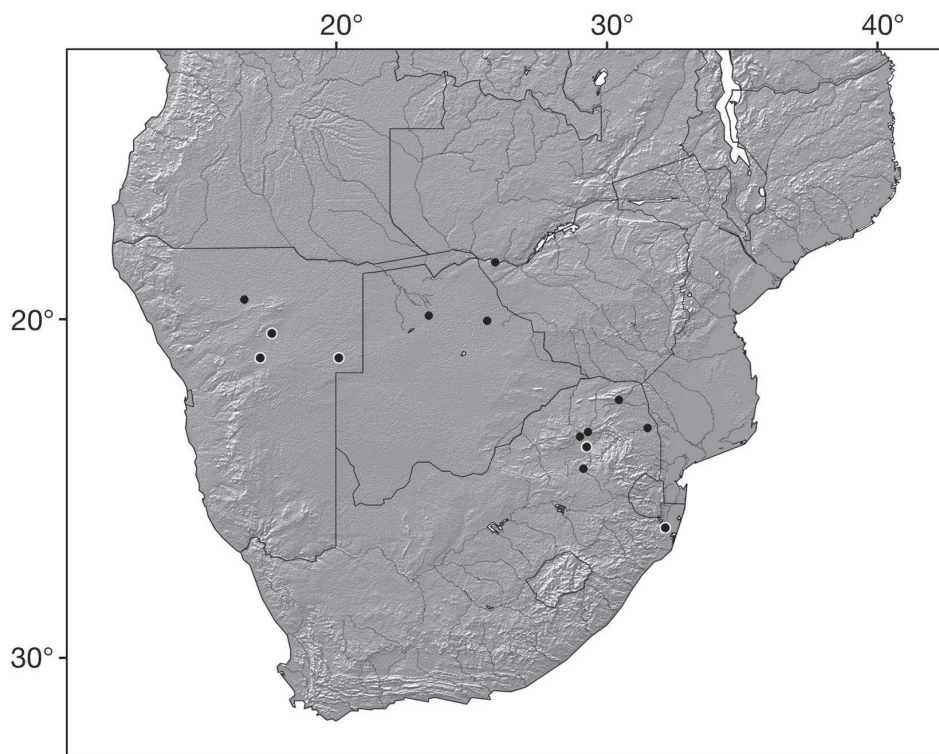


Fig. 10. Currently known distribution of *Umkulunkula kalahariensis* gen. nov., spec. nov. in southern Africa (points without white circles are based on material from the TMSA)

Individuals of the new species are absent in all systematic collections of the large European museums, and unknown to the curators and specialists of African Pyraloidea M. SHAFFER, P. LERAUT and K. MAES (*personal communications*). The following diagnostic characters or character combinations separate the new genus from all other African genera:

Apomorphies

1. Discocellular spot on forewings with erected scales;
2. VIII abdominal segment of females with separate sternite and tergite;
3. Free transtilla with two processes in male genitalia;
4. Mid-tibia of both sexes enlarged by long piliform scales.

Symplesiomorphies

1. Male with small coremata on ventral side of enlarged tegulae;
2. Hindwing with M2 and M3 separate, not stalked;
3. Large anal loop present.

According to the known localities the species has a wide range in southern Africa, spanning from north-west Namibia to the coast of the Indian Ocean (fig. 10). It occurs also in Zimbabwe and should be found in places of Mocambique too.

The biology of the species is unknown. The moths are attracted to light.

The sister genus of *Umkulunkula* gen. nov. is currently unknown. Related genera are *Pyraxis* LINNÉ, 1758 and *Pyraxis* AMSEL, 1957 which share the same wing form, venation and head morphology. The chorema of the male tegulae, however, are similar to those in *Zitha* WALKER, 1866, *Maradana* MOORE, 1884 or *Endotrichia* ZELLER, 1847. The erect scales on the forewings is a typical trait of the Epipaschiinae, and a transtilla also occurs in species of *Scotomera* BUTLER, 1881 and *Maradana* MOORE, 1884 (see LERAUT 2002, 2006). The wing venation does not exhibit any derived features. The presence of a large anal loop, remains of Cu2 in the forewings and the un-stalked veins M2 and M3 are all plesiomorphies that point to an ancestral nature of the new genus. *Umkulunkula* gen. nov. occupies for now an isolated position within the tribe Pyralini of the subfamily Pyralinae for the moment. Taxonomic studies of other pyraline groups will show if other species exist that are better placed

in the new genus, or whether further species of *Umkulunkula* gen. nov. will be discovered by ongoing fieldwork in Africa.

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