

Antlions of southern Africa: *Annulares* nov. gen. (Neuroptera, Myrmeleontidae, Palparini) including two new species, with comments on the tribe Palparini¹

M.W. MANSELL

Abstract: A new genus and two new species of Palparini are described from southern Africa. – Three endemic species comprise the genus. They extend from western Namibia across the southern Kalahari region of Namibia, Botswana and South Africa, eastwards into the sandy areas of the northern Kruger National Park of South Africa. A five-toothed larva is known for one of the species, and the genus is further characterized by a prominent black stripe across the head and thorax, uniformly dark legs, clavate labial palpi with a slit-shaped sensory organ and a prominent gonarcular bulla in the males.

Key words: Myrmeleontidae, Palparini, new genus, new species, larvae, southern Africa.

Introduction

Southern Africa harbours the world's richest fauna of Palparini (Neuroptera: Myrmeleontidae), with at least 43 species in 8 genera, as well as several new and endemic taxa. The generic placement of most Afrotropical species is largely unresolved, as the largest genus, *Palpares* RAMBUR 1842, comprises a polyphyletic assemblage of taxa (MANSELL 1992a). A revision of the tribe is consequently in progress, and this paper highlights an enigmatic new genus comprising three species from the subregion.

MANSELL (1992a) identified key characters for the phylogeny and classification of the Palparini, and divided the tribe into species-groups according to these characters. The groups were intended as tentative genera aimed at resolving the confusion surrounding the genus *Palpares*. Subsequent research has confirmed the generic status of these species-groups, and three, *Pamares* MANSELL, *Pamexis* HAGEN and *Palparellus* NAVÁS (*nyassanus*-group sensu MANSELL 1992a) have been revised (MANSELL 1990, 1992b, 1996). The current paper treats the species in the *annulatus*-group, as delimited by MANSELL (1992a).

The new genus, described below, comprises three species, *Palpares annulatus* STITZ 1912, and two new taxa. The three species occur where deep sandy areas are prevalent and extend from the Namib Desert of western Namibia, through the southern Kalahari and into the sandveld of the northern Kruger National Park of South Africa.

The central area of this distribution, the Kalahari savannah of Namibia, South Africa and Botswana is inhabited by *P. annulatus*, while the other two species occupy the western and eastern extremes of the distribution range of the genus. The larva of *P. annulatus* is known, and is described here.

The contribution is concluded with a consideration of the tribe Palparini, and an evaluation of the status of the Palparinae.

Material examined is in the following institutions: South African National Collection of Insects, ARC-Plant Protection Research Institute, Pretoria (SANC), accession code NEUR; Transvaal Museum, Pretoria (TMSA), accession code NEUT; Zoological Institute, Lund University, Sweden (ZILS), accession code ZILS; Zoological Museum, Humboldt University, Berlin, Germany (ZMHB).

Abbreviations: T = tergite, Ta = tarsomeres.

¹ This paper presents an opportunity to pay tribute to Univ.-Prof. Dr. Horst Aspöck, University of Vienna, on the occasion of his 65th birthday. Prof. Aspöck has made an outstanding contribution to Neuropterology, and can justifiably be regarded as one of the most eminent neuropterists of all time. He has also advanced the exploration and documentation of the rich southern Africa fauna through collaboration, publications and joint expeditions with Prof. Dr. Ulrike Aspöck, Prof. Herbert Hölzel, Prof. Dr. Peter Duelli, the late Dr. Peter Ohm and the present author. This paper and a striking new palparine species are consequently cordially dedicated to Prof. Horst Aspöck in recognition of his personal and scientific achievements, and for the inspiration he has provided over many years.

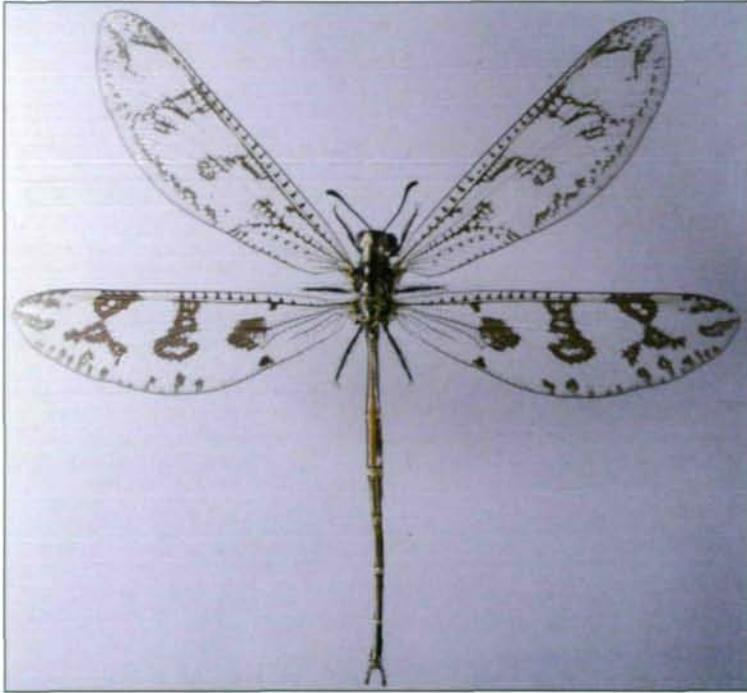


Fig. 1: *Annulares annulatus* (Twee Rivieren) (forewing length 45 mm).

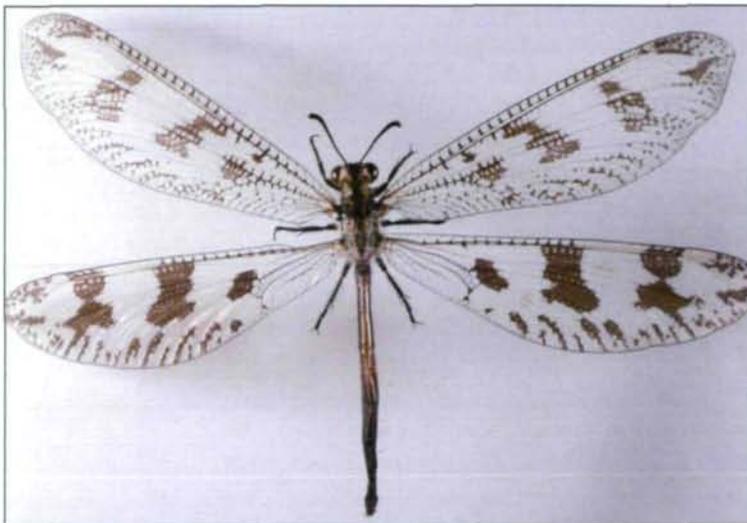


Fig. 3: *Annulares lanner*, paratype female (forewing length 52 mm).

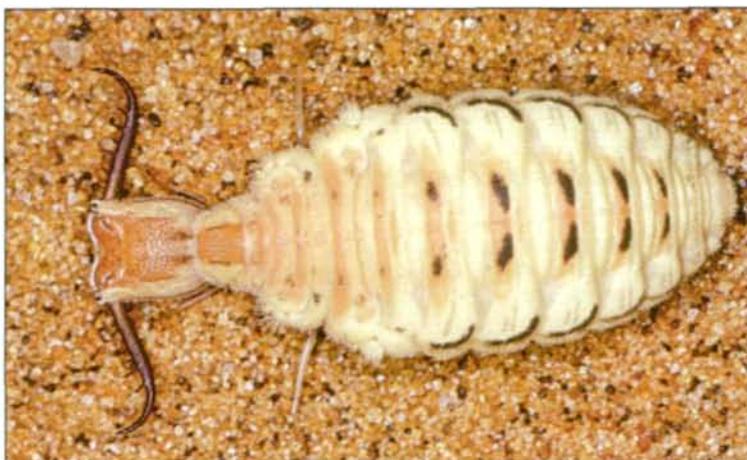


Fig. 4: Larva of *Annulares annulatus* (Twee Rivieren) (length 25 mm).



Fig. 2: *Annulares aspoecki*, holotype (forewing length 45 mm).

Genus *Annulares* nov. gen.

Type species: *Palpares annulatus* STITZ 1912; 108, hereby designated.

Etymology: A combination of the specific epithet *annulatus*, the name of the type species, and *Palpares*. Gender: masculine.

Diagnosis: Medium-sized nocturnal Palparini with robust heads and smallish eyes. Terminal labial palpomeres clavate, with a short slit-shaped opening to the sense organ. Body yellow and black with prominent median stripe across head and thorax. Legs uniformly dark-brown to black. Wings narrow; thorax with sparse pilosity. The known larvae have five-toothed mandibles. This is a group of closely related species that inhabit sandy areas of Botswana, Namibia and South Africa.

Description: Size (mm). Body length male 48.0-70.0, female 36.0-47.0; forewing length male 34.0-47.0, female 42.0-50.0; hind wing length male 39.0-45.0, female 41.0-47.0; antenna 5.0-8.0.

Head: Vertex inflated; yellow with black median stripe over vertex and occiput; frons black, clypeus and labrum yellow, palpi yellow and brown to black; terminal labial palpi clavate with short tip and slit-shaped opening to sensory organ; antennae uniformly dark-brown to black.

Thorax: Pronotum yellow with broad median black stripe, lateral margins black; long white setae present on anterior margin, black along posterior margin and laterally. Mesothorax yellow with broad black median stripe; pleurites and sternites uniformly black; soft white setae present dorsally and ventrally. Metathorax colour similar to mesothorax, scutellum yellow with very broad black median mark.

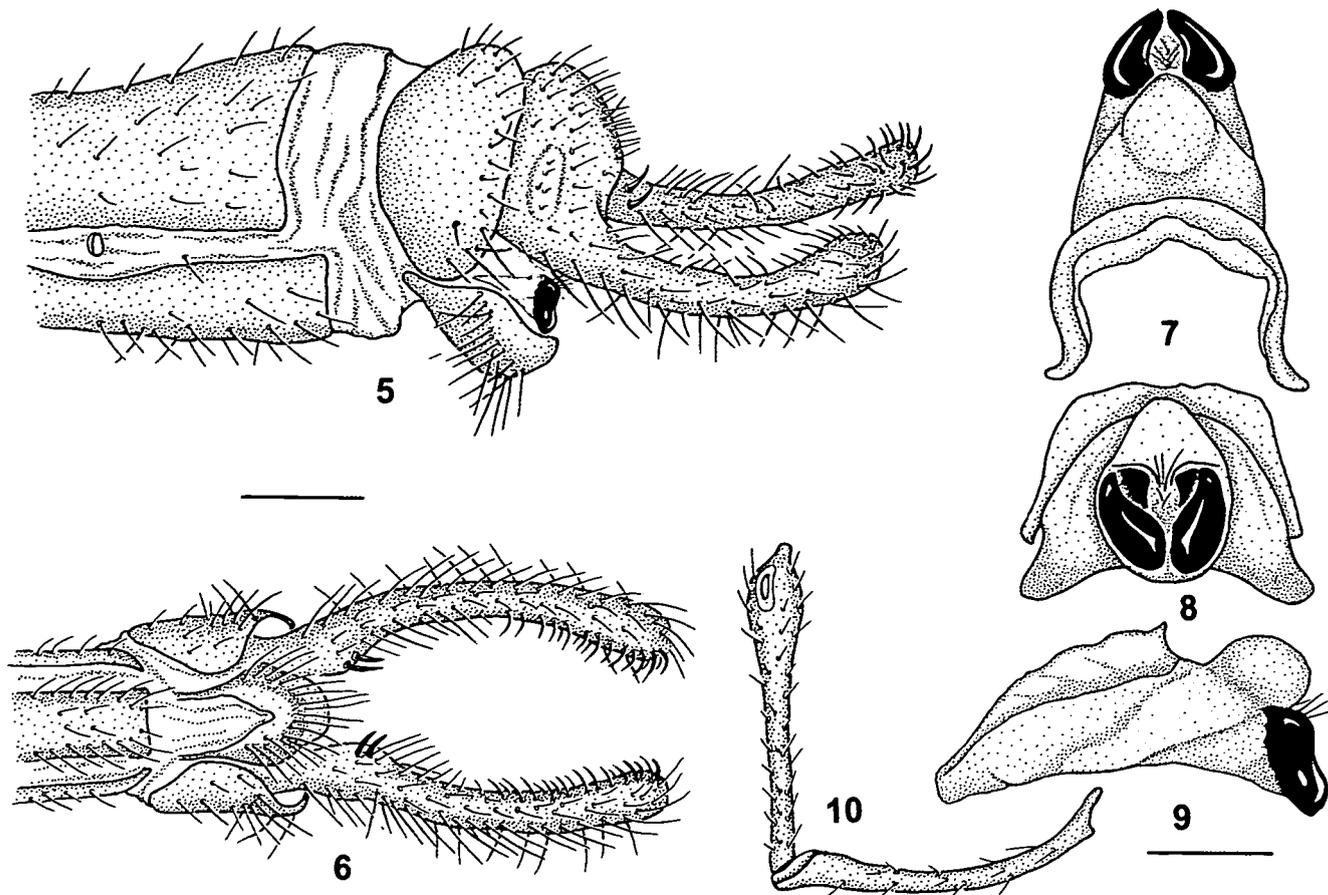


Fig. 5-10: *Annulares annulatus*. 5, male terminalia, lateral; 6, same ventral; 7, gonarcus and parameres, dorsal, 8, same caudal, 9, same lateral; 10, left labial palp. Scale bars = 1 mm (Fig. 5, 6), 0.5 mm (Fig. 7-10).

Wings: Long, narrow, hyaline with blackish-brown markings. Forewings with four diffuse transverse bands, penultimate apical band hook-shaped. Hind wings with four bands or spots, a large basal spot situated close to recurrent vein.

Legs: Uniformly dark-brown to black, slender, longish, extending almost to posterior margin of T3, spurs and claws dark reddish-brown, Ta5 approximately same length of Ta1-Ta4 combined.

Abdomen: Black laterally and ventrally, broadly yellow along dorsal midline. Male abdomen long, longer than wings, ectoprocts yellow to black, gonarcus large, rounded, parameres prominent, shiny-black.

Larvae: Known larvae with five mandibular teeth.

Remarks: *Annulares* is most similar to *Palparellus* NAVÁS, but is clearly distinguished by the median black stripe over the head and thorax, the prominently inflated vertex and smaller eyes than *Palparellus*. The labial palpi have a slit-like sensory opening on the palpimacula and the palpi are clavate with short acute tip (spindle-shaped in *Palparellus* with round or oval sense organ). The male abdomen is relatively long in *Annulares*, while the go-

narcal bulla is more prominently developed than in *Palparellus*.

***Annulares annulatus* (STITZ) nov. comb. (Fig. 1, 4, 5-10, 23)**

Palpares annulatus STITZ 1912: 108.

Diagnosis: A distinctly yellowish species, with prominent brown markings on the wings and body. Wing veins mainly yellow. Penultimate band in forewings distinctly hook-shaped. Labial palpi short, slender with short slit-shaped sensory opening. Larva with five mandibular teeth.

Redescription: Size (mm). Length of body male 51.6 (48.0-58.0), female 41.7 (36.0-48.0); forewing length male 43.7 (41.0-46.0), female 47.7 (44.0-55.0); hind wing length male 41.3 (37.0-44.0), female 46.6 (43.0-53.0); antenna 6.6 (5.0-8.0) (n = 20).

Head: Vertex inflated, yellow with black median stripe over vertex and occiput; frons black, clypeus and labrum yellow, palpi yellow ventrally, brown dorsally, terminal labial palpi (Fig. 10) short, clavate with short tip and small slit-shaped opening to sensory organ; antennae uniformly black.

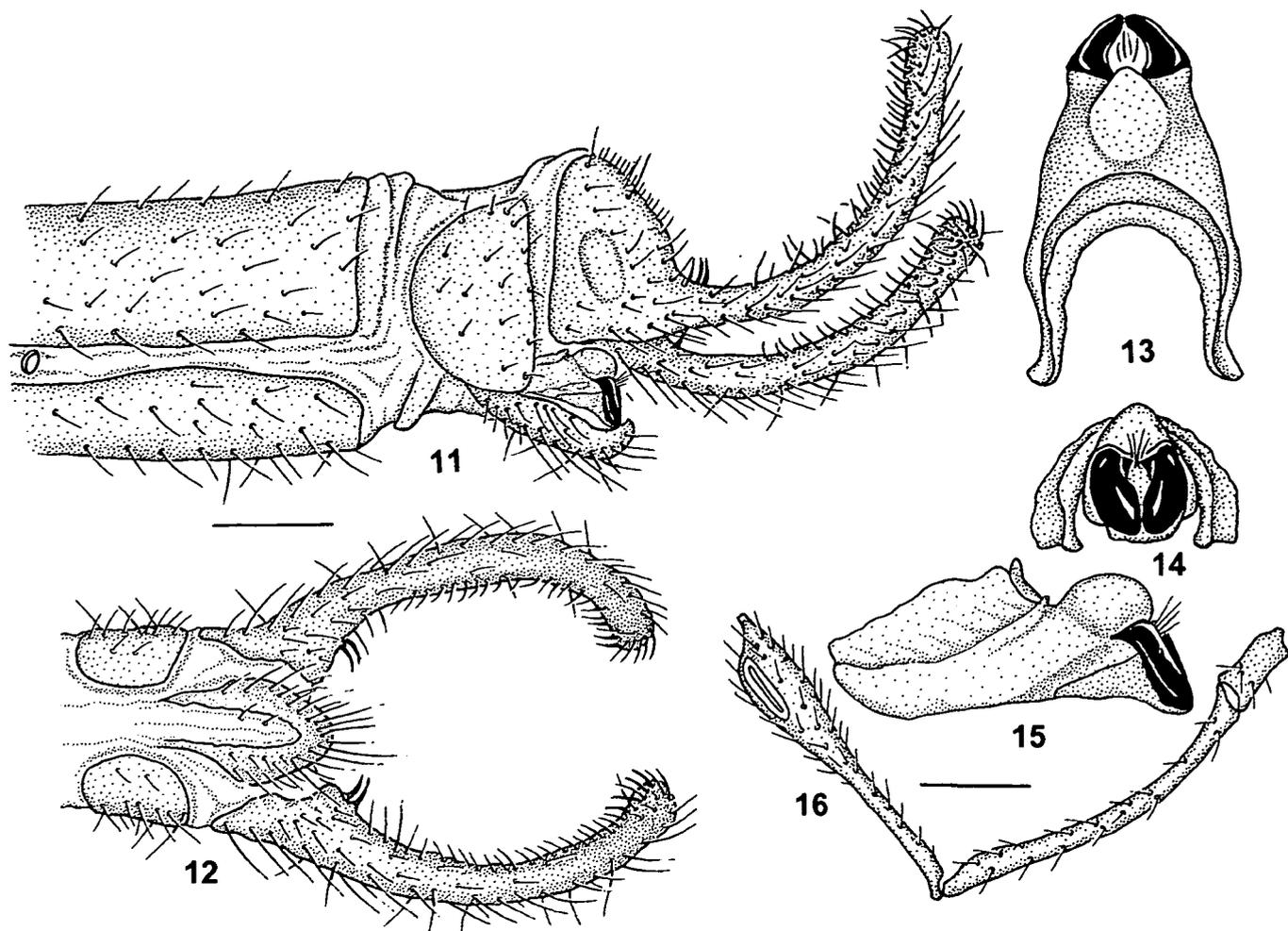


Fig. 11–16: *Annulares aspoECKi*. 11, male terminalia, lateral; 12, same ventral; 13, gonarcus and parameres, dorsal, 14, same caudal, 15, same lateral; 16, left labial palp. Scale bars = 1 mm (Fig. 11, 12), 0.5 mm (Fig. 13–16).

Thorax: Pronotum yellow with broad median black stripe, lateral margins black; long white setae present on anterior margin, black along posterior margin and laterally. Mesothorax yellow with broad black median stripe, pleurites and sternites uniformly black; sparse long white setae present dorsally and ventrally. Metathorax similar to mesothorax, scutellum yellow with very broad black median mark.

Wings: Long, narrow, hyaline with brown markings, darker in hind wings. Forewings with four diffuse transverse bands, penultimate apical band distinctly hook-shaped. Hind wings with four prominent bands or spots, a large basal spot situated close to recurrent vein.

Legs: Uniformly dark-brown, paler at joints, slender, longish, extending almost to posterior margin of T3, spurs and claws dark reddish-brown, Ta5 approximately same length of Ta1–Ta4 combined.

Abdomen: Black laterally and ventrally, broadly yellow along dorsal midline. Male abdomen long, longer than wings, ectoprocts yellow, gonarcular bulla large, rounded, parameres prominent, shiny-black.

Distribution: Endemic to the Kalahari savannah of Namibia, Botswana and South Africa, extending from southeastern Namibia, across southern Botswana and northern South Africa to Langjan Nature Reserve in Limpopo Province. It is common in the Kalahari Gemsbok National Park.

Larva: Characterised by five mandibular teeth, white body, with red on head, thorax and abdomen and prominent brown marks along abdomen.

Size (mm): Body length (including mandibles) first instar 12.5 (12.0–13.0), second instar 17.2 (16.0–19.0), third instar 23.2 (20.0–27.0); body width first instar 3.7 (3.5–4.0), second instar 5.4 (5.2–5.6), third instar 5.6 (4.8–6.0); head width first instar 1.5 (1.4–1.5), second instar 2.2 (2.0–2.4), third instar 3.5 (3.3–3.7); head length (excluding mandibles) first instar 1.9 (1.8–1.9), second instar 2.8 (2.6–3.1), third instar 4.3 (3.9–4.6); mandible length first instar 2.6 (2.5–2.7), second instar 3.5 (3.3–3.7), third instar 5.1 (4.7–5.5).

Head: Mandibles dark-brown, with five teeth, basal three teeth short, penultimate tooth long, distal tooth

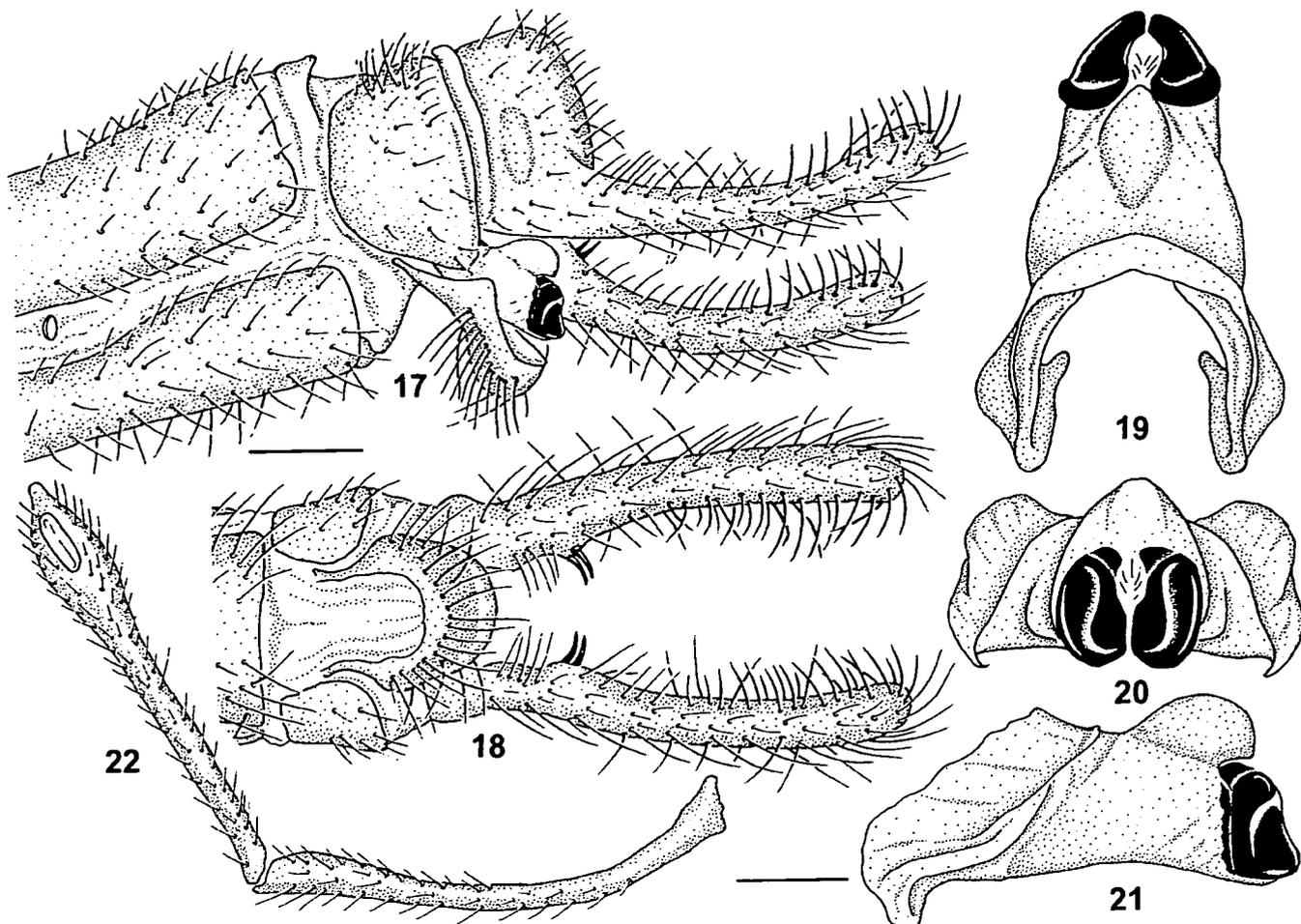


Fig. 17–22: *Annulares lanner*. 17, male terminalia, lateral; 18, same ventral; 19, gonarcus and parameres, dorsal, 20, same caudal, 21, same lateral; 22, left labial palp. Scale bars = 1 mm (Fig. 17, 18), 0.5 mm (Fig. 19–22).

slightly shorter. Head rectangular, pale with broad red area dorsally. Fringe of white setae present on anterior margin of clypeus. Eyes on prominent tubercles, with six facets. Lateral surfaces of head with longitudinal brown stripe, ventral surface of head uniformly pale.

Thorax: Prothorax pale dorsally with broad reddish median stripe, flanked by longitudinal brown stripes. Anterior margin with fringe of pale setae. Mesothorax broader than prothorax, pale with reddish on dorsum; lateral margins with long pale setae. Metathorax similar but wider.

Abdomen: Tapered, pale with red areas centrally on dorsum and a prominent brown mark on either side of midline on segments 1–5. A prominent curved stripe also present laterally on segments 1–5; segments 6–8 pale; segment 8 with a pair of blade-like digging appendages present in second and third instars; posterior margins of 6–8 also armed with short black spines. Ventral surface of abdomen, and legs pale.

Biology: Larvae inhabit loose dune sand near vegetation. They are present near the surface in the early morning and late afternoon, but are difficult to detect alt-

hough they lie just below the surface in wait for prey. The dorsal surface of the head and thorax is red, perfectly matching the red sand of the Kalahari dunes (Fig. 4). Many palparine larvae, including *A. annulatus* are white, with some disruptive brown markings on the dorsal surface. The white body is doubtless an adaptation to radiate heat thereby enabling the larva to tolerate surface temperatures more effectively. The increased number of teeth also appears to be an adaptation in these ambush predators that lie just below the surface. An increased number of teeth enhance the efficacy of the mandibles to secure fast-moving prey.

Type material examined: Holotype ♀, Botswana, labelled: "Betschuanaland Prot., x.04, L. Schultze S (ZMHB).

Additional material examined: South Africa, Northern Cape Province: 1 ♀, Aoub-Nossob Junction, 26.26S 20.38E, 15.iv.1939, G. Van Son (NEUT02030); 4 ♂♂, Mata Mata, 25.47S 20.00E, 16.ii.1961, L. Vari (NEUT00518); 2 ♂♂, 4 ♀ ♀, Twee Rivieren Camp, 26.28S 20.37E, 11.ii.1958, G. Van Son (NEUT00521); 1 ♀, same locality but 22.ii.1959, B. Brain (NEUT00519); 1 ♀, same locality but 15.ii.1961, L. Vari (NEUT00515) (all TMSA); 1 ♂, 1 ♀, same locality but 28.i.1969, J. Snelling (NEUR03016); 1 ♀, same locality but

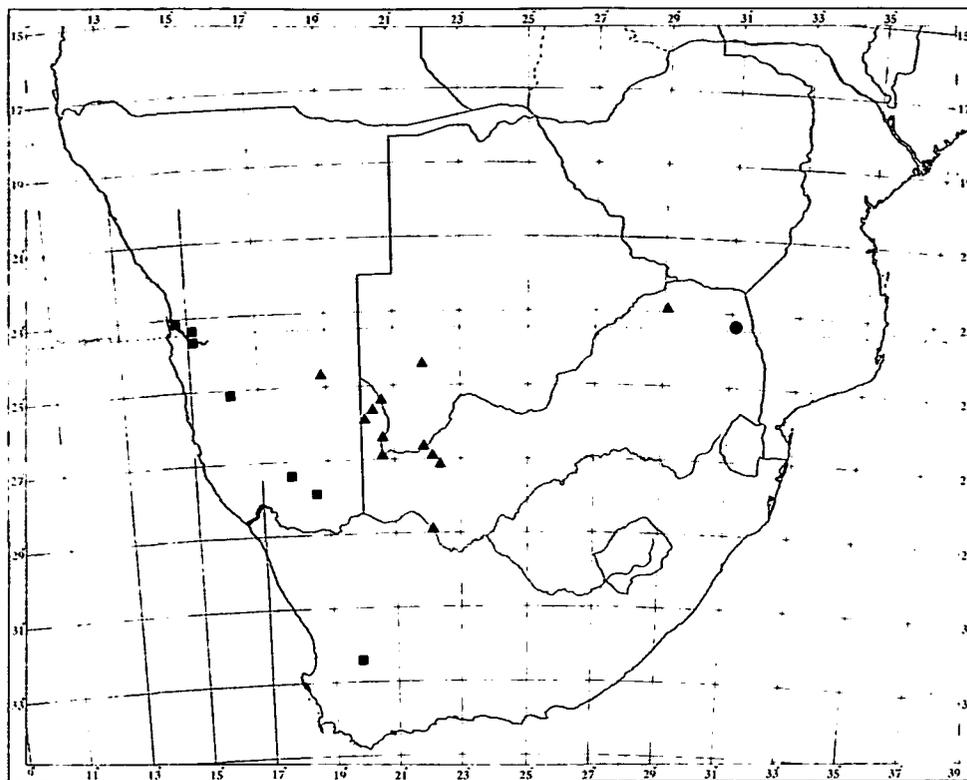


Fig. 23: Recorded distributions of: *Annulares aspoeckii* (squares); *A. annulatus* (triangles); *A. lanner* (circle).

02.ii.1972, M.W. Mansell (NEUR03105); 1♂, 2 ♀ ♀, same locality but 25.i.1989, M.W. Mansell (NEUR05745); 1♂, 2 ♀ ♀, same locality but 20.iii.1982, J.G. H. Londt (NEUR03401); 4♂♂, 5 ♀ ♀, same locality but 09.iv.1988, C.H. Scholtz (NEUR00906); 1 ♀, Leeudril, 26.23S 20.42E, 05.ii.1970, H.D. Brown (NEUR03107); 12♂♂, 2 ♀ ♀, Nossob Camp, 25.25S 20.36E, 11.ii.1972, M.W. Mansell (NEUR03102); 1♂, 1 ♀, same locality but 22.xii.1982, M.W. Mansell (NEUR03104); 1♂, 3 ♀ ♀, same locality but 14.ii.1988, L.R. Minter (NEUR00967); 3♂♂, same locality but 27.iii.1990, J. Klimaszewski (NEUR03119); 1♂, Rooiputs, 26.19S 20.43E, 26.i.1989, M.W. Mansell, C.H. Scholtz (NEUR03108); 1♂, 3 ♀ ♀, Kwang, 25.17S 20.33E, 23.i.1990, C.H. Scholtz (NEUR03118); 4 ♀ ♀, Haagners Loop, 25.26S 20.38E, 25.i.1990, C.H. Scholtz (NEUR03117); 1♂, 1 ♀, Bitterpan, 25.43S 20.24E, C.H. Scholtz (NEUR03116) (all SANC), all the above localities are in the Kalahari Gemsbok National Park. 1 ♀, Boegoeberg, 28.59S 22.11E, 21.ii.1961, L. Vari (NEUT00517); 1♂, 2 ♀ ♀, Vanzylsrus, 26.52S 22.03E, L. Vari (NEUT00516) (TMSA); 2 ♀ ♀, same locality but 12.ii.1988, M.W. Mansell (NEUR00947); 1♂, 1 ♀, Boshof Farm, 27.14S 22.27E, 28.xii.1989, H. & U. Aspöck, M.W. Mansell (NEUR01388); 1 ♀, Molopo Motel, 26.56S 20.39E, 25.x.1990, J.H. Hoffmann, V.C. Moran (NEUR05730). Limpopo Province; 1 ♀, Langjan Nature Reserve, 22.52S 29.14E, 02.ii.1984, M.W. Mansell (NEUR00222); 1 ♀, same locality but 12.iii.1990, C.D. Eardley (NEUR01646) (all SANC). Namibia: 1 ♀, Duineveld, 24.35S 18.50E, 21.ii.1957, TM Expedition (NEUT00520) (TMSA). Botswana: 1 ♀, Middelputs, 26.40S 21.53E, 19.ii.1991, P. Forchhammer (NEUR05644); 1♂, Tshane 30 km S, 24.20S 21.56E, 02.iii.1991, P. Forchhammer (NEUR05667) (all SANC).

Annulares aspoeckii nov. spec. (Fig. 2, 11-16, 23)

Etymology: This species is named for my esteemed friend and colleague, Univ.-Prof. Dr Horst Aspöck on the occasion of his 65th birthday and in recognition of his fundamental contribution to neuropterology.

Diagnosis: Characterised by the broad median stripe over the head and thorax, dark blackish-brown wing markings, but especially by the extraordinarily long abdomen in the male (Fig. 2).

Description: Size (mm). Body length male 64.3 (45.0-70.0), female 43.3 (39.0-47.0); forewing length male 42.9 (34.0-47.0), female 45.8 (42.0-50.0); hind wing length male 40.9 (30.0-45.0), female 43.5 (41.0-47.0); antenna 6.9 (5.0-8.0) (n = 14).

Head: Yellow, black median stripe over vertex and occiput, frons black, clypeus and labrum yellow, palpi black, labial palpi with slit-shaped opening on palpimacula (Fig. 16); antennae black.

Thorax: Pronotum yellow with broad median black stripe, lateral margins black, long white setae present on anterior margin, black along posterior margin and laterally. Mesothorax yellow with broad black median stripe, pleurites and sternites black, long recumbent soft white setae present dorsally and ventrally. Metathorax similar to mesothorax, scutellum yellow with very broad black median mark and velvety-orange band anteriorly.

Wings: Long, narrow, hyaline with dark blackish-brown markings. Forewings with four disrupted transverse bands, penultimate apical band hook-shaped, posterior margin hyaline with narrow longitudinal band offset from margin. Hind wings with four bands or spots, a large basal spot situated close to recurrent vein, hind margin with brown maculae.

Legs: Slender, longish, extending almost to posterior margin of T3, spurs and claws dark reddish-brown, Ta5 approximately same length of Ta1-Ta4 combined.

Abdomen: Black laterally and ventrally, broadly yellow along dorsal midline. Male abdomen (Fig. 2) extremely long, markedly longer than wings, T9 dark-brown, ectoprocts dark yellowish-brown, gonarcular bulla large, rounded.

Distribution: Western regions of Namibia and South Africa, extending from the Kuiseb River in Namibia to the Northern Cape Province of South Africa.

Biology: A putative larva (not reared) was collected from under vegetation on dunes near Gobabeb. This larva also had five teeth. Adults have mainly been collected at light, but two specimens were flushed from *Stipagrostis spinosa* in the bed of the Kuiseb River near Gobabeb.

Type material examined: Namibia: Holotype ♂, Gobabeb, 23.34S 15.03E, 18.ii.1983, M.W. Mansell, (NEUR00049). Paratypes, 1♂, 2♀, Homeb Dunes near Gobabeb, 23.38S15.09E, 03.ii.1983, M.W. Mansell (NEUR06046); 2♂♂, 1♀, Kuiseb River 8 km W Gobabeb, 23.24S 15.03E, 20.iii.1983, C.D. Eardley, R.G. Oberprieler (NEUR06047); 1♀, Narra Valley near Gobabeb, 23.34S 15.03E, 18.ii.1988, L.R. Minter (NEUR06045) (all SANC); 1♂, Rooibank, 23.10S 14.38E, 12.iii.1953, F. Gaerdes (ZILS00096) (ZILS) (all the above localities are in the Namib/Naukluft National Park). 1♀, Satco Farm, 27.55S 18.43E, 25.ii.1988, M.W. Mansell (NEUR01106); 1♀, Holoog, 27.24S 17.57E, 07.iii.1972, H.D. Brown (NEUR03115); 1♂, Orange River at Dreigatsberg, 28.06S 16.52E, C.H. Scholtz, K. Philips, 27.iii.2000 (NEUR03803); 2♂♂, Die Duine, 25.14S 16.04E, 29.x.2000, V. Grebennikov, M.W. Mansell (NEUR03817). SOUTH AFRICA, Northern Cape Province: 1♂, Oudebaaskraal Farm, 32.24S 19.54E, 22.ii.2001, M.W. Mansell, H. Hölzel, P. Duelli, H & U. Aspöck (NEUR06048) (all SANC).

***Annulares lanner* nov. spec.**
(Fig. 3, 17–22, 23)

Etymology: This species is named from the lanner falcon, *Falco biarmicus*, a bird of prey from which the type locality in the northern Kruger National Park derives its name. The species name is a noun in the nominative singular standing in apposition to the generic name.

Diagnosis: A large species with lightly marked wings and long labial palpi with slit-shaped openings on the palpimacula.

Description: Size (mm).. Length of body male 63.0, female 48.0; length of forewing male 51.0, female 50.0; length of hind wing male 48.0, female 48.0; antenna 8.0 (n = 2).

Head: Yellow, broad black median stripe over vertex and occiput, frons black, clypeus and labrum yellow, palpi dark-brown, labial palpi with slit-shaped opening on palpimacula (Fig. 22), antennae black.

Thorax: Pronotum yellow with broad median black stripe, lateral margins black, long white setae present on anterior margin, black along posterior margin and laterally. Mesothorax yellow with broad black median stripe, pleurites and sternites black with greyish pruinescence, sparse long recumbent white setae present dorsally and ventrally. Metathorax similar to mesothorax, scutellum yellow with very broad black median mark and velvety-orange band anteriorly.

Wings: Long, not markedly narrow, hyaline with diffuse pale brown markings. Forewings with four disrupted transverse bands, penultimate apical band hook-shaped

(but these marks much paler and more diffuse than in either *A. annulatus* or *A. aspoeki*), posterior margin lacking a narrow longitudinal band. Hind wings with four bands or spots, a large basal spot situated close to recurrent vein, hind margin with brown streaks.

Legs: Slender, extending to about middle of T3, spurs and claws dark reddish-brown, Ta5 approximately same length of Ta1-Ta4 combined, short white setae and longer black spines also present on legs.

Abdomen: Black laterally and ventrally, broadly yellow along dorsal midline. Male abdomen longer than wings, ectoprocts dark brown, gonarcular bulla large, rounded.

Distribution: Known only from one locality to the north of the Levuvhu River above Lanner Gorge in the Kruger National Park of South Africa.

Biology: The only two known specimens were attracted to light in a sparsely wooded sandy area.

Remarks: *Annulares lanner* is similar to both *A. annulatus* and *A. aspoeki* in general appearance and wing markings, but may easily be separated from both by the much lighter and diffuse appearance of these markings. The labial palpi of *A. lanner* are also much longer and have a longer palpimacula and sensory slit than either *A. annulatus* or *A. aspoeki*, and the male genitalia are larger and more robust than in either of these two species. It further separated from *A. annulatus* by the brown ectoprocts and from *A. aspoeki* by the much shorter male abdomen.

Type material examined: South Africa, Limpopo Province, Kruger National Park, ♂ holotype, ♀ paratype, Lanner Gorge, 22.21S 31.09E, 28.i.1984, M.W. Mansell (NEUR00263) (SANC).

Comment on the tribe Palparini

BANKS (1911) introduced the tribe Palparini in a key, within the subfamily Myrmeleontinae. He then elevated it to subfamily (BANKS 1927), and the sub-familial status has been recognised by at least seven subsequent authors, listed by ASPÖCK et al. (2001). The distinction of the Palparinae has been largely based on the separation of the posterior cubital and first anal veins of the forewing, a feature generally considered to be plesiomorphic (HÖLZEL 1972). Only one contribution (STANGE & MILLER 1990) provided a clear autapomorphic feature (a pair of blade-like digging setae on the posterior margin of sternite 8) to substantiate the subfamily ranking, and to demonstrate its monophyly. These authors have also included a paraphyletic array of tribes within the subfamily, an arrangement not based on substantive characters. MARKL (1954) provided a list of characters that delimit the tribe Palparini, and MANSELL (1992a) provided list of autapomorphic features to characterise the tribe. One of these, the recurrent vein in the hind wings (MANSELL 1990:

Fig. 43) is the main autapomorphic character that defines the tribe, but it is doubtful whether this feature is sufficiently significant to warrant a subfamilial ranking. Application of this character does however exclude all tribes except the Palparini from the subfamily. In this context the Palparinae would constitute a monophylum, but owing to the prevailing lack of substantive autapomorphic characters to justify a subfamily, the present author prefers to regard the tribe Palparini as part of the subfamily Myrmeleontinae.

Acknowledgements

I thank the South African National Parks Board for permission to carry out research in the Kalahari Gemsbok and Kruger National Parks, and to the staff of these Parks who facilitated the visits. All persons mentioned in the text, who have contributed specimens to this study, are gratefully acknowledged. Prof. C.H. Scholtz (University of Pretoria) is especially thanked for organising many of the field trips that procured important material. The former Directorate of Nature Conservation and Recreational Resorts of Namibia are acknowledged for use of facilities at Gobabeb, and for permission to carry out research in the Namib/Naukluft Park. I am particularly grateful to Dr. M.K. Seely (Director of the Desert Ecological Research Station, Gobabeb) in this regard.

Zusammenfassung

Ein neues Genus und zwei neue Spezies der Palparini (Myrmeleontidae) aus dem südlichen Afrika werden beschrieben. Das Genus umfaßt drei endemische Arten; Seine Verbreitung erstreckt sich vom westlichen Namibia über das südliche Kalahari-gebiet von Namibia, Botswana und Südafrika nach Osten hin bis in die Sandgebiete des nördlichen Kruger Nationalparks in Südafrika. Von einer der Arten ist eine fünfzählige Larve bekannt. Das Genus ist durch folgende Merkmale charakterisiert: Ein auffälliger schwarzer Streifen über Kopf und Thorax, einheitlich dunkle Beine, keulenförmige Labialpalpen mit einem schlitzförmigen Sinnesorgan und eine prominente Gonarcus-Bulla der Männchen.

References

- ASPÖCK H., HÖLZEL H. & U. ASPÖCK (2001): Kommentierter Katalog der Neuropterida (Insecta: Raphidioptera, Megaloptera, Neuroptera) der Westpaläarktis. — *Denisia* **2**: 1-606.
- BANKS N. (1911): Notes on African Myrmeleontidae. — *Annals of the Entomological Society of America* **4**: 1-29.
- BANKS N. (1927): Revision of the Nearctic Myrmeleontidae. — *Bulletin of the Museum of Comparative Zoology at Harvard College* **68**: 1-84.
- HÖLZEL H. (1972): Die Neuropteren Vorderasiens. IV. Myrmeleontidae. — *Beiträge zur Naturkundlichen Forschung in Südwestdeutschland* **1**: 3-103.
- MANSELL M.W. (1990): The Myrmeleontidae of southern Africa: tribe Palparini. Introduction and description of *Pamaxes* nov. gen., with four new species (Insecta: Neuroptera). — *Journal of the Entomological Society of Southern Africa* **53**: 165-189.

MANSELL M.W. (1992a): Key characters in the phylogeny and classification of Palparini (Neuroptera: Myrmeleontidae: Palparinae). — In: CANARD M., ASPÖCK H. & M.W. MANSELL (eds), *Recent Research in Neuropterology. Proceedings of the Fourth International Symposium on Neuropterology*. Bagnères de Luchon, France. 243-253, Sacco, Toulouse.

MANSELL M.W. (1992b): The ant-lions of southern Africa: genus *Pamaxis* HAGEN (Neuroptera: Myrmeleontidae: Palparinae: Palparini). — *Systematic Entomology* **17**: 65-78.

MANSELL M.W. (1996): The antlions of southern Africa (Neuroptera: Myrmeleontidae): genus *Palparellus* Navás, including extralimital species. — *African Entomology* **4**: 239-267.

MARKL W. (1954): Vergleichend-morphologische Studien zur Systematik und Klassifikation der Myrmeleontiden (Insecta, Neuroptera). — *Verhandlungen der Naturforschenden Gesellschaft in Basel* **65**: 178-263.

RAMBUR M.P. (1842): *Historie Naturelle des Insectes, Névroptères*. — *Librairie Encyclopédique de Roret*. Fain et Thunot, Paris. 338-411, Paris.

STANGE L.A. & R.B. MILLER (1990): Classification of the Myrmeleontidae based on larvae (Insecta: Neuroptera). — In: MANSELL M.W. & H. ASPÖCK (eds), *Advances in Neuropterology. Proceedings of the Third International Symposium on Neuropterology*. Berg en Dal, Kruger National Park (R.S.A.) **1988**: 151-169, Pretoria.

STITZ H. (1912): *Palpares* aus der Sammlung des Berliner Museums. — *Mitteilungen aus dem Zoologischen Museum in Berlin* **6**: 105-116.

Address of the author:

Dr. Mervyn W. MANSELL
Department of Zoology and Entomology
University of Pretoria
Pretoria
0002 South Africa
and
ARC-Plant Protection Research Institute
Private Bag X134
Queenswood, Pretoria
0121 South Africa
E-Mail: mansel@mweb.co.za

ZOBODAT - www.zobodat.at

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Denisia](#)

Jahr/Year: 2004

Band/Volume: [0013](#)

Autor(en)/Author(s): Mansell Mervyn W.

Artikel/Article: [Antlions of southern Africa: Annulares nov. gen. \(Neuroptera, Myrmeleontidae, Palparini\) including two new species, with comments on the tribe Palparini 201-208](#)