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New species of plume moths of the genus *Agdistis* Hübner, 1825 (Lepidoptera: Pterophoridae: Agdistinae) from southern Africa. 6

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ABSTRACT

Five new species of plume moths, viz. *Agdistis iversoni* sp. n., *A. vansonii* sp. n., *A. buffelsi* sp. n., *A. samknotti* sp. n. and *A. kaunda* sp. n., are described from South Africa. Previous records of *Agdistis* species from southern Africa are summarised.

KEY WORDS: Afrotropical Region, South Africa, Pterophoridae, *Agdistis*, plume moths, new species.

INTRODUCTION

The present paper is the sixth one in a series of articles that deal with southern African representatives of the genus *Agdistis* Hübner (Kovtunovich & Ustjuzhanin 2009a, b, 2010a–c). Kovtunovich and Ustjuzhanin (2009a) summarised records on 26 species previously described or known from southern Africa, predominantly from arid parts of it, and started adding new species to the regional fauna.

Below is the account of species described by us earlier:

Kovtunovich & Ustjuzhanin (2009a) – *danutae* (Namibia), *dicksoni* (Western Cape, Northern Cape), *endrodyi* (Western Cape), *jansei* (Western Cape, Northern Cape, Free State, Mpumalanga), *krooni* (Northern Cape), *kruegeri* (Western Cape, Northern Cape, Eastern Cape, KwaZulu-Natal), *potgieteri* (Limpopo, Free State, Western Cape, Northern Cape), *varii* (Limpopo, Mpumalanga; Zimbabwe).

Kovtunovich & Ustjuzhanin (2009b) – *anikini* (Eastern Cape), *arenbergeri* (Western Cape, Northern Cape; Namibia), *dazdraperma* (Northern Cape), *kevintucki* (North West, Free State, Eastern Cape), *myburgi* (Western Cape, Northern Cape), *swierstrai* (Northern Cape).

Kovtunovich & Ustjuzhanin (2010a) – *gornostaevi* (Western Cape, Northern Cape), *mostovskii* (Western Cape, Northern Cape), *violaceus* (Western Cape, Northern Cape).

Kovtunovich & Ustjuzhanin (2010b) – *augrabiesi* (Northern Cape), *namaqua* (Northern Cape), *nikolaii* (Northern Cape), *prisoner* (Western Cape, Northern Cape), *streltsovi* (Western Cape, Northern Cape), *yakovi* (Western Cape).

Kovtunovich & Ustjuzhanin (2010c) – *capensis* (Western Cape), *insolitus* (Northern Cape), *springbok* (Northern Cape).

Another five new species have been found in the Western Cape and Northern Cape provinces, and one new species has been discovered in the Eastern Cape; all are described in the present article.

MATERIAL AND METHODS

This paper is based on the material collected in South Africa by the authors and their colleagues in 2008–2010, as well as on holdings of the Ditsong National Museum of Natural History (formerly Transvaal Museum, Pretoria; TMSA) and the Natural History Museum (London; BMNH). Holotypes and paratypes of newly described species are deposited at the TMSA and BMNH; some paratypes are in the private collection of the authors (CUK).

Details of genitalia are essential for the identification of Pterophoridae. The abdomen is normally boiled in a 10–15 % solution of potassium hydroxide until it becomes semitransparent. It is then thoroughly rinsed, soaked in 100 % ethanol, and transferred in a drop of Euparal for permanent preparation and further identification. If structures of the genitalia are not well sclerotised, they are stained with Chlorazol Black, to give greater contrast. A permanent preparation dries for at least two weeks before it can be studied.

TAXONOMY

Genus *Agdistis* Hübner, 1825

Agdistis iversoni sp. n.

Figs 1, 2

Etymology: The species is named after Kenneth Eugene Iverson (1920–2004), a Canadian computer scientist who developed the programming languages APL and J.

Diagnosis: In the male genitalia, the new species resembles *A. anikini* Kovtunovich & Ustjuzhanin, 2009 in the shape of the valvae and aedeagus, but can be separated from that species by a different structure of the costal projections of the valvae, uncus and by the shape of sternite VIII (tips of projections of sternite VIII are broad with additional short projections in *A. anikini* and evenly narrowing in the new species).

Description:

Male.

External characteristics (Fig. 1): Wingspan 19–21 mm (21 in holotype). Forewing grey with apical part of wing having paler brown area that wedges out to central cell. Distal part of forewing with black spot along costal margin. Posterior part of forewing with two black spots, in centre and closer to apex. Hindwing uniformly grey, with noticeable darkening posteriorly.

Male genitalia (Fig. 2): Valvae asymmetrical. Left valva rather broad and narrowing distally. Lower edge of right valva obliquely cut, its distal part narrow and elongated. Costal projections asymmetrical in both valvae and run beyond midlength of each valva. Distal part of left costal projection forms broadened elongated plate. Distal part of right costal projection broader and shorter than left one. Uncus clavate and bifurcated apically. Sternite VIII with shallow oval-shaped incision. Aedeagus short, slightly winding, as long as costal projection.

Female. Unknown.

Holotype: ♂ SOUTH AFRICA: *Northern Cape*: Kotzesrus, 30°57'S 17°50'E, 22.viii.1979, to kerosene lamp, Endroödy-Younga (TMSA, gen. pr. 15264).

Paratypes: SOUTH AFRICA: *Northern Cape*: 4♂ Springbok, Namaqua National Park, 30°03'S 17°27'E, 5.x.2009, Kovtunovich & Ustjuzhanin (BMNH, CUK).



Figs 1, 2. *Agdistis iversoni* sp. n., holotype: (1) adult; (2) male genitalia, TMSA 15264.

Distribution: South Africa (Northern Cape).

Remarks: Flight period in August and October.

***Agdistis vansonii* sp. n.**

Figs 3, 4

Etymology: The species is named after Georg (Yuri) Stephanovich van Son (1898–1967), a famous South African lepidopterologist who collected numerous Pterophoridae.

Diagnosis: The new species resembles *A. krooni* in having a similar shape of the valvae and sternite VIII, but differs significantly from that and all other known species in a beak-shaped uncus and in the shape of the costal projections of the valvae.

Description:

Male.

External characteristics (Fig. 3): Wingspan 21–27 mm (22 in holotype). Forewing ashy grey. Two black spots in distal part of forewing parallel to outer margin; another black spot closer to forewing base and posteriad of costal margin. Hindwing uniformly grey.



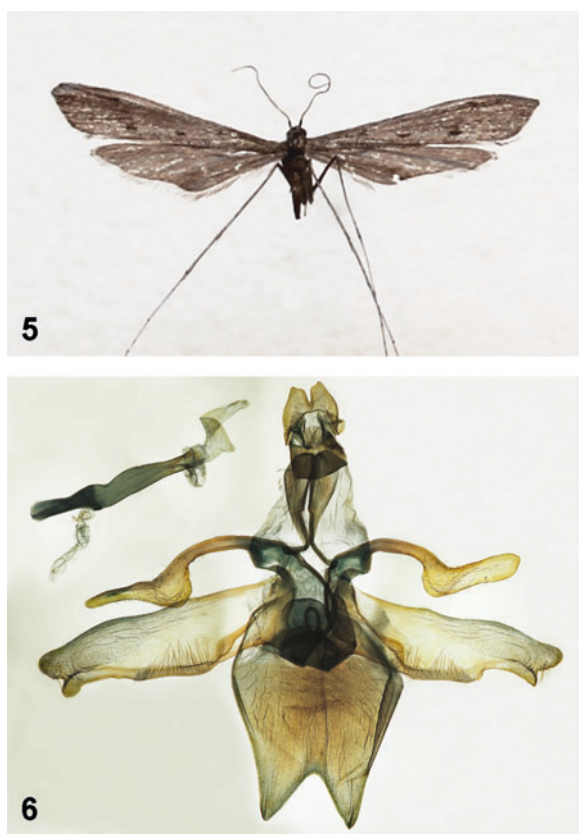
Figs 3, 4. *Agdistis vansoni* sp. n., holotype: (3) adult; (4) male genitalia, BMNH 22728.

Male genitalia (Fig. 4): Valvae asymmetrical with angular projections along costal margin. Left valva slightly narrowed distally and acute apically. Costal projection on left valva ends with strong brush-like plate with serrate outer margin. Right valva slightly narrowed distally and forms small incisions on cucullar side. Costal projection on right valva has strong serrated plate on upper edge, projection's tip markedly narrowed. Uncus beak-shaped, strongly developed and bifurcated. Sternite VIII with oval-shaped incision. Lobes of sternite VIII rather long, noticeably narrowed distally. Aedeagus slightly longer than costal projection on right valva, apically slightly bent and tapering.

Female. Unknown.

Holotype: ♂ SOUTH AFRICA: *Northern Cape*: 40 km SW of Springbok, Namaqua National Park, 30°01'S 17°25'E, 200 m, 6.x.2009, Kovtunovich & Ustjuzhanin (BMNH, gen. pr. 22728).

Paratype: SOUTH AFRICA: *Northern Cape*: 1 ♂ 40 km SW of Springbok, Namaqua National Park, History Prison, 29°53'S 17°39'E, 13.i.2008, Kovtunovich & Ustjuzhanin (CUK, gen. pr. 195). *Western Cape*: 1 ♂ Vredendal, 23–30.vii.1927, G. van Son (TMSA, gen. pr. 15263).



Figs 5, 6. *Agdistis buffelsi* sp. n., holotype: (5) adult; (6) male genitalia, BMNH 22732.

Distribution: South Africa (Northern Cape, Western Cape).

Remarks: Flight period in January, July and October.

Agdistis buffelsi sp. n.

Figs 5, 6

Etymology: The species is named after the Buffels River, which runs close to the type locality.

Diagnosis: The new species resembles *A. quagga* Arenberger, 2009 in the shape of the valvae, costal projections and aedeagus, but differs in the structure of the uncus, shape of sternite VIII and apically bifurcated valvae.

Description:

Male.

External characteristics (Fig. 5): Wingspan 23–25 mm (24 in holotype). Forewing ashy-grey. Two black spots in distal part of forewing parallel to outer margin; another two black spots closer to forewing base and centrally. Hindwing uniformly grey.

Male genitalia (Fig. 6): Valvae symmetrical, with small excavations distally along lower margin, apically slightly split. Costal projection on left valva thickened beyond midlength and narrowed apically. Costal projection on right valva resembles sole in distal part. Uncus forms broadly rounded plate with truncated apex and narrow excavation. Sternite VIII with triangular incision. Aedeagus straight, as long as costal projection.

Female. Unknown.

Holotype: ♂ SOUTH AFRICA: *Western Cape*: 10 km S of Laingsburg, 33°15'S 20°49'E, 9.x.2009, Kovtunovich & Ustjuzhanin (BMNH, gen. pr. 22732).

Paratypes: SOUTH AFRICA: *Western Cape*: 1 ♂ Worcester, 25.x.1965, L. Vari (TMSA, gen. pr. 15267); 1 ♂ Worcester, 14–21.x.1966, Vari & Potgieter (CUK, gen. pr. 197).

Distribution: South Africa (Western Cape).

Remarks: Flight period in October.

Agdistis samknotti sp. n.

Figs 7–10

Etymology: The species is named after the type locality, Sam Knott Nature Reserve.

Diagnosis: The new species resembles *A. quagga* Arenberger, 2009 in the shape of the valvae and aedeagus, but differs significantly from it in the presence of the narrow excavation on the uncus, as well as in having narrower costal projections and long projections of sternite VIII. The new species also resembles *A. buffelsi* sp. n. in having apically split valvae and in the shape of the uncus; however, it differs significantly from the latter in the shape of the costal projections of the valvae and sternite VIII lobes. In females, the new species is similar to *A. korana* Arenberger, 1988 in the shape of *lamina postvaginalis*, but differs in the short antrum and *ductus bursae*.

Description:

External characteristics (Figs 7, 8): Wingspan 19–20 mm (20 in holotype). Forewing dark grey with two black spots in distal part of forewing parallel to outer margin; another black spot closer to forewing base below costal margin. Hindwing uniformly grey with noticeable darkening in anal region.

Male genitalia (Fig. 9): Valvae symmetrical, with small depressions along upper edge in basal part; apical portion of each valva slightly split. Costal projections on valvae narrow, thickened in middle and apical parts, barely reaching beyond midlength of valva. Uncus broad, with narrow excavation apically. Sternite VIII with oval-shaped incision; lobes of sternite VIII long and narrow. Aedeagus slightly bent, as long as costal projection.

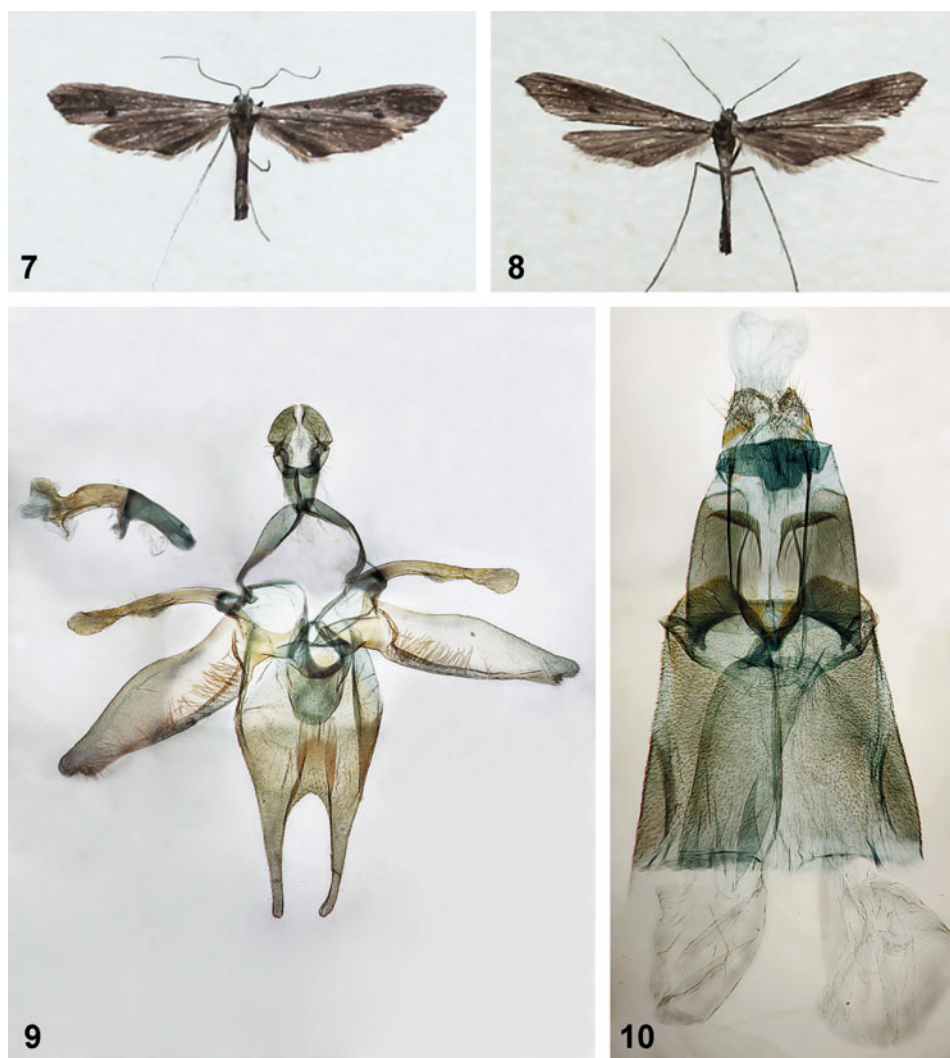
Female genitalia (Fig. 10): *Papillae anales* oval-shaped. *Apophyses posteriores* thin and long, 3× as long as *papillae anales*. *Apophyses anteriores* short and spine-like. *Lamina antevaginalis* V-shaped. *Lamina postvaginalis* of sternite VII in form of two rectangular lobes. *Antrum* short, tubular. *Ductus seminalis* long, oval-shaped; *bursa copulatrix* rounded, as long as *ductus seminalis*.

Holotype: ♂ SOUTH AFRICA: *Eastern Cape*: Sam Knott Nat. Res., 33°01'S 26°47'E, 5–6.iii.2010, Kovtunovich & Sochivko (BMNH, gen. pr. 22733).

Paratypes: Same data as holotype, 1 ♀ (BMNH, gen. pr. 22734), 2 ♂ (CUK).

Distribution: South Africa: Eastern Cape.

Remarks: Flight period: March.



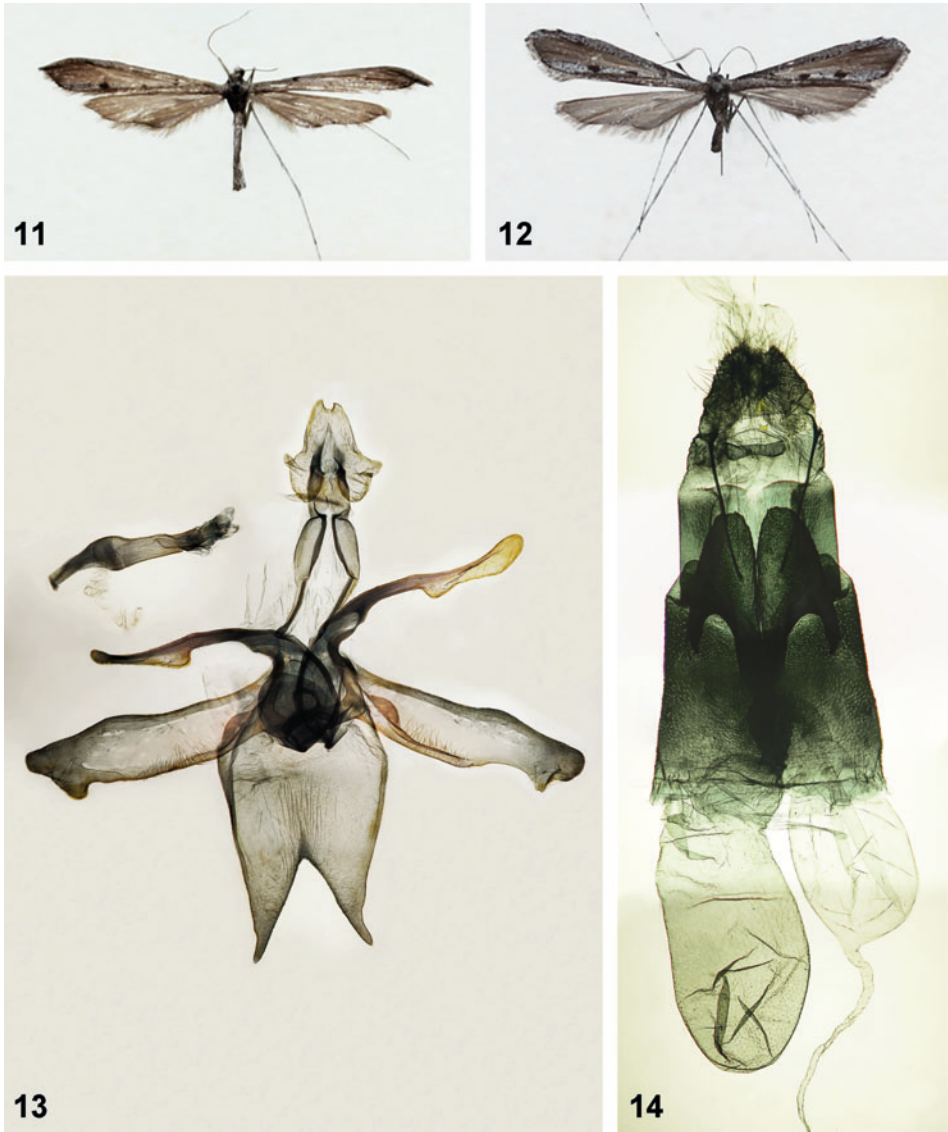
Figs 7–10. *Agdistis samknotti* sp. n., adults and genitalia: (7, 9) holotype, male, BMNH 22733; (8,10) paratype, female, BMNH 22734.

Agdistis kaunda sp. n.

Figs 11–14

Etymology: The species is named after Mr Sidney Kaunda, our assistant on many African expeditions.

Diagnosis: In males, the new species resembles *A. quagga* Arenberger, 2009 and *A. buffelsi* sp. n. in the shape of the valvae and costal projections, but differs from both in a different structure of the apical part of the valvae, in the presence of a small excavation and lateral spines on the uncus, and a deeply incised sternite VIII.



Figs 11–14. *Agdistis kaunda* sp. n., adults and genitalia: (11, 13) holotype, male, BMNH 22730; (12, 14) paratype, female, CUK 69E8.

Description:

External characteristics (Figs 11, 12): Wingspan 22–25 mm (25 in holotype). Forewing grey-brown. One rather large black spot beyond midlength of forewing in its posterior part; another smaller spot posteriorly in middle part; third spot closer to forewing base in its central part. Hindwing uniformly grey.

Male genitalia (Fig. 13): Valvae asymmetrical. Apical part of left valva slightly curved anteriorly and bent posteriorly. Apical part of right valva bluntly rounded and forms

small triangular projection at lower margin. Costal projection on left valva thickened in middle part along lower margin and ends with narrow apex. Costal projection on right valva also thickened in middle part but ends with broad apex. Both costal projections reach beyond midlength of valvae; right costal projection a little longer than left one. Uncus broad, with small excavation apically and with triangular projections laterally. Sternite VIII with deep triangular incision; lobes of sternite VIII narrowed in apical part. Aedeagus slightly bent, as long as costal projection of left valva.

Female genitalia (Fig. 14): *Papillae anales* elongated triangular. *Apophyses posteriores* thin and long, 3× as long as *papillae anales* and short and thick *apophyses anteriores*. *Lamina postvaginalis* of sternite VII bilobed. *Antrum* short and broad. *Ductus bursae* short. *Ductus seminalis* long, oval-shaped; *bursa copulatrix* also oval-shaped and a little longer than *d. seminalis*.

Holotype: ♂ SOUTH AFRICA: *Northern Cape*: Springbok, Kopperberg farm, 29°42'S 17°55'E, 3–4.x.2009, Kovtunovich & Ustjuzhanin (BMNH, gen. pr. 22730).

Paratype: SOUTH AFRICA: *Northern Cape*: 2♂ 1♀ Springbok, 18–20.x.1954, Janse (BMNH, gen. pr. 22731, TMSA, gen. pr.15265, 15266); same data as holotype, 50 specimens (BMNH, TMSA, CUK); 1♂ Nababiep, 13–14.viii.1961, van Son & Vari (CUK, gen. pr.198).

Distribution: South Africa: Northern Cape.

Remarks: Flight period in August and October.

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