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Cover illustration: *Monopeltis infuscata* from the farm Tweepoort 380, Gordonia district, Northern Cape (28°25'24"S, 22°10'45"E). This specimen was released after capture. (Photo: D.W. Pietersen)

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New amphisbaenian records for the Northern Cape, South Africa

by

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ABSTRACT

Bates, M.F., Pietersen, D.W. & Measey, G.J. 2010. New amphisbaenian records for the Northern Cape, South Africa. *Navors. nas. Mus., Bloemfontein* 26(3): 61-72. New distribution records are provided for four species of amphisbaenians from Northern Cape Province, South Africa. We report on the third South African locality for *Dalophia pistillum*, representing the first record of the species from the Northern Cape and the most southerly record for the species. An amphisbaenian from the Kgalagadi Transfrontier Park is tentatively referred to *Monopeltis sphenorhynchus* and may represent the first record of this species from the Northern Cape, and the most westerly record for the species. Four new localities - including the southernmost record for the species - are provided for *Monopeltis mauricei*, a widespread species previously known in South Africa from only a few localities and six specimens. Two adjacent new localities are recorded for *Monopeltis infuscata*, partially filling a large gap in the known range of this species in the Northern Cape. We also report the first known instances in South Africa of parapatry between *M. mauricei* and *M. infuscata*, and sympatry between *M. mauricei* and *D. pistillum*. South African localities for *D. pistillum* and *M. mauricei* are discussed and details corrected where necessary.
(Key words: Amphisbaenidae, *Dalophia*, *Monopeltis*, South Africa, Northern Cape, distribution)

OPSOMMING

Nuwe verspreidingsrekords vir vier spesies wurm-akkedisse uit die Noord-Kaap Provinsie, Suid-Afrika, word verskaf. Ons doen verslag oor die derde Suid-Afrikaanse lokaliteit vir *Dalophia pistillum*, wat die eerste rekord van dié spesie uit die Noord-Kaap is en ook die mees suidelike rekord van hierdie spesie. ‘n Individu vanaf die Kgalagadi-oorgrenspark is voorlopig verwys na *Monopeltis sphenorhynchus* en kan die eerste rekord van hierdie spesie van die Noord-Kaap verteenwoordig, en ook die mees westelike rekord. Vier nuwe lokaliteite – insluitend die mees suidelike rekord vir die spesie – word vir *Monopeltis mauricei* verskaf, ‘n weidverspreide spesie wat voorheen in Suid-Afrika slegs van ses eksemplare in enkele lokaliteite bekend was. Twee aangrensende nuwe lokaliteite is vir *Monopeltis infuscata* aangeteken, wat ‘n leemte in die bekende verspreiding van hierdie spesie in die Noord-Kaap vul. Ons doen ook verslag oor die eerste bekende gevalle in Suid-Afrika van parapatrie tussen *M. mauricei* en *M. infuscata*, en simpatrie tussen *M. mauricei* en *D. pistillum*. Suid-Afrikaanse lokaliteite vir *D. pistillum* en *M. mauricei* word bespreek en die besonderhede gekorrigeer waar nodig.

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INTRODUCTION

Amphisbaenians are seldom seen as a result of their fossorial habits. Although some species are apparently common in suitable habitat (e.g. Broadley, Gans & Visser 1976), there appears to be a paucity of records in many areas in southern Africa, e.g. South Africa's North West Province (Jacobsen 1989) and the poorly surveyed Northern Cape (Visser 1984; Branch 1998). Accurate distribution records are important for subterranean species as their cryptic lifestyles render population declines hard to detect and monitor (Measey, Armstrong & Hanekom 2009).

Several specimens were recently collected in close proximity by the second author, about 90 km east of Upington in the Gordonia district of Northern Cape. This collection included a specimen of *Dalophia* Gray, 1865, easily identified by its naturally truncated tail tip, and seven specimens of *Monopeltis* A. Smith, 1848, most of which were damaged and in poor condition. Subsequent analysis of mitochondrial DNA sequences from some of these specimens (Measey, Tolley & Bates in prep.) indicated the presence of three species, including two taxa of *Monopeltis*. Detailed examination of the voucher specimens indicated the presence of three species, namely *D. pistillum* (Boettger, 1895), *M. mauricei* Parker, 1935 and *M. infuscata* Broadley, 1997. These records are significant as they include the southernmost limits of the ranges of the first two species, the first case of parapatry between the two *Monopeltis* species in South Africa, and the first case of sympatry between *D. pistillum* and *M. mauricei* in South Africa.

Additional records of *M. mauricei*, which in the Northern Cape is known from only a small area and a few localities, are also documented. We also report on what may be the first record of *Monopeltis sphenorhynchus* Peters, 1879 in the Northern Cape, based on a specimen collected in the Kgalagadi Transfrontier Park.

MATERIALS AND METHODS

Material examined is housed in the collections of the National Museum in Bloemfontein (NMB) and Ditsong National Museum of Natural History (formerly Transvaal Museum) in Pretoria (TM). Specimens were examined using a Carl Zeiss binocular dissecting microscope (up to 40 times magnification). Scale characters and counts generally follow Broadley *et al.* (1976). The number of dorsal rows of body annuli is sometimes difficult to determine using the method of Broadley *et al.* (1976) because of difficulty in determining the position of intercalation of partial annuli on the anterior part of the body, especially when specimens are not well preserved. Rows of body annuli in *Monopeltis* were therefore counted along the middle of the back, and where possible, the number of rows along the middle of the ventral surface of the body was also counted. Partial annuli – constituting less than half the width of regular adjacent annuli – were not counted. Following Broadley *et al.* (1976), caudal annuli were counted ventrally from the first continuous row posterior to the cloacal cap to the last distinct row before the terminal cap. In other words, the first row of small scales immediately posterior to the cloaca was excluded; if the next row of scales was somewhat constricted, it was still counted, but indicated as such. Several specimens were in poor condition, being either dehydrated, damaged or having the anterior or posterior parts of the body missing. It was therefore not always possible to obtain a full set of scale counts or measurements. Snout-vent and tail length were measured (in mm) after preservation using a ruler.

RESULTS AND DISCUSSION

Dalophia pistillum (Boettger, 1895)

New material

Ganna Vlakte

On 3 May 2010 an adult *D. pistillum* (SVL 315 mm, tail length 45 mm) was collected by the second author after it was unearthed while a stretch of sand was being tilled to create a firebreak. The site was on an east-facing dune - about 10 m from a clay-rich depression - situated on the farm Ganna Vlakte 385, Gordonia district, Northern Cape (28°31’29”S, 22°08’46”E; 2822CA; 1119 m above sea level [a.s.l.]) (Fig. 1). This site is about 88 km ESE of Upington and immediately west of the Skurweberg Mountains. According to Mucina & Rutherford (2006) the area falls within the vegetation type Olifantshoek Plains Thornveld (SVk13), but the actual collection site is best described as Gordonia Duneveld (SVkd1), which is situated within the Kalahari Duneveld Bioregion. Unfortunately the specimen was cut in two, but both halves were collected and deposited in the herpetological collection of the National Museum, Bloemfontein (NMB R9126).

Scalation

NMB R9126: Azygous head shields fused; no preocular; 3 supralabials and 3 infralabials on either side of head; no precloacal pores; 30 caudal annuli (one is constricted); no constricted autotomy annulus; body annuli estimated as 341 (based on a count of 329, plus 12 more - for a damaged part of the body where for the same distance on an undamaged part of the body directly anterior thereto there are 12 such annuli); 24 dorsal and 16 ventral

segments in a midbody annulus, 6 distinctly elongated and longitudinally parallel pectoral segments; each ocular scale moderate, rectangular, in broad contact with second supralabial, and separated from median parietals by a lateral parietal; ocular in narrow contact with nasal on right side, very narrowly separated by suture of rostral and second supralabial on left side; 6 supernumerary dorsal half-annuli; 2 supernumerary ventral half-annuli; body and tail cream in colour, with minute dark dorsal speckles.

Figure 1: Distribution records of *Dalophia pistillum* in South Africa. The shaded area represents the known range of this species elsewhere in southern Africa within the boudaries of the map (Broadley *et al.* 1976).

Discussion

The first two specimens of *D. pistillum* from South Africa were collected in 1932 at "Hope", a locality between Vaalwater and Nylstroom (now Modimolle) in the Waterberg district of Limpopo Province, South Africa, and described as a new species, namely *Monopeltis granti transvaalensis* (FitzSimons 1933). Loveridge (1941) later revised the family Amphisbaenidae and considered this taxon to be a junior synonym of *D. pistillum*. The latter is a wide-ranging species found in Zambia, northern Zimbabwe, northern Mozambique, southern Angola, eastern Namibia, northern and western Botswana, and the northern parts of South Africa (Loveridge 1941; Broadley *et al.* 1976; Auerbach 1987; Branch 1998). However, in his monograph of the lizards of South Africa, FitzSimons (1943) continued to recognize *M. g. transvaalensis*, adding the locality "Zoetvlei nr. Vryburg". Broadley *et al.* (1976) subsequently revised the genera *Monopeltis* and *Dalophia*

and again referred *M. g. transvaalensis* to the synonymy of *D. pistillum*. This taxonomic arrangement was accepted by subsequent authors (e.g. Jacobsen 1989; Branch 1998). The last report (FitzSimons 1943) documenting a unique locality for this species in South Africa was therefore published 67 years ago.

There has been some confusion regarding the correct location of the two previous South African records of *D. pistillum*. These records are therefore discussed and corrected below.

Mount Hope

The first locality for this species was simply referred to as "Hope" between Vaalwater and Nylstroom (FitzSimons 1933). This locality was subsequently given as "Hope, farm on Mogul River, Waterberg Dist., N.W. Tvl." by FitzSimons (1943). Although plotted on the maps of Broadley *et al.* (1976), it is difficult to investigate the accuracy of its location, and the locality was not listed in their gazetteer. It was plotted at quarter-degree loci 2428AC and 2428CB by Jacobsen (1988) who apparently attempted to represent all quarter-degrees likely to cover the collection site. The two units plotted by Jacobsen (1988) include the towns of Vaalwater and Nylstroom (now Modimolle) and most of the area covered by the road between them (except a small portion in locus 2428CA). Both Broadley *et al.* (1976) and Jacobsen (1989) referred to "Hope" as a farm, but the latter plotted it at the junction of quarter-degree loci 2428AC, AD, CA and CB, which is essentially a point midway between the two towns. It is apparent that none of the above-mentioned authors had actually located a place or farm by the name of "Hope". However, examination of 1: 50 000 topocadastral maps indicated that the center of a farm called Mount Hope (151) is situated in the Waterberg district of Limpopo Province - in the vicinity of the Sandrivierberg Mountains - about 11.5 km SSE of Vaalwater. The center of the farm is identified by the co-ordinates 24°23'15"S, 28°10'00"E (2428AC; Fig. 1). This farm is situated in the Central Bushveld Bioregion, in vegetation types known as Central Sandy Bushveld (SVcb12) and Waterberg Mountain Bushveld (SVcb17) (Mucina & Rutherford 2006). We suggest that these are the correct locality details for the place referred to as "Hope" by FitzSimons (1941), Broadley *et al.* (1976) and Jacobsen (1989).

Zoetvlei

The second known locality for *D. pistillum* is the one referred to by FitzSimons (1943) and Broadley *et al.* (1976) as "Zoetvlei near Vryburg". This locality was not plotted on the maps of Broadley *et al.* (1976), although they did list "Vryberg 2624D3" in their gazetteer. It was plotted at 2624DC (synonymous with 2624D3) by Jacobsen (1988), who was probably referring to the center of the town of Vryburg, situated within this quarter-degree unit. However, examination of 1: 50 000 topocadastral maps revealed the existence of a farm called Zoetvlei (623) in Vryburg district, North West Province. The center of this farm is at 27°05'30"S, 24°14'00"E (2724AA) - at an elevation of about 1400 m a.s.l. – and about 53 km WSW of Vryburg (Fig. 1). It is located within Mucina & Rutherford's (2006) Mafikeng Bushveld (SVk1) in the Eastern Kalahari Bushveld Bioregion. We suggest that the locality data above more correctly reflects the Zoetvlei record.

The new Ganna Vlakte specimen is morphologically similar to other specimens of this species from South Africa (see Broadley *et al.* 1976), although the numbers of body annuli (about 341 vs 321 and 327) and caudal annuli (29 vs 27 and 26) are slightly higher.

Ganna Vlakte is about 260 km south-west of the Zoetvlei locality and represents the most southerly occurrence of the species (see maps in Broadley *et al.* 1976; Branch 1998).

Monopeltis* cf. *sphenorhynchus Peters, 1879

New material

An adult (SVL 220 mm, tail length 11 mm) *M. sphenorhynchus* - in good condition - in the collection of the National Museum (NMB R5708) was collected on the farm Monro (69) in Kgalagadi Transfrontier Park (26º18'S, 20º34'E; 2620BC; 908 m a.s.l.) (Fig. 2) by G.V. Haagner on 30 October 1988. The area is situated in Auob Duneveld SVkd3 in the Kalahari Duneveld Bioregion (Mucina & Rutherford 2006).

Scalation

NMB R5708: One pre-cloacal pore on either side of vent; 10 caudal annuli (one constricted); 228 body annuli dorsally, 206 ventrally; 24 dorsal and 29 ventral segments in a midbody annulus, 6 distinctly elongated and longitudinally parallel pectoral segments; ocular somewhat elongate and separated from nasal and postnasal by second supralabial; ocular on right side separated from medial parietal by lateral parietal, but on left side a small scale is present between the ocular and lateral parietal (although this small scale could be considered the posterior part of a divided ocular).

Discussion

Broadley *et al.* (1976) recorded *M. s. sphenorhynchus* from southern Mozambique, the northern half of Limpopo Province and northeastern KwaZulu-Natal. Subsequently, it was recorded from Beitbridge district in south-western Zimbabwe (Broadley 1988) and in the eastern Tswapong Hills in south-eastern Botswana (Broadley 2001). In the latter paper Broadley elevated this taxon to species status on the basis of a lack of intergradation between *M. s. sphenorhynchus* and *M. s. mauricei*.

Broadley *et al.* (1976) distinguished between *M. sphenorhynchus* and *M. mauricei* as follows:

Ocular separated from the nasal by second supralabial; oculars small and separated from the medial pair of parietals by lateral parietals; body annuli 228-284……**....*sphenorhynchus***
Ocular usually in contact with the nasal or postnasal; oculars elongate and usually in contact with the medial pair of parietals; body annuli 275-316……..…..**....** ***mauricei***

Morphologically the new specimen appears to be referable to *M. sphenorhynchus* despite being collected about 825 km south-west of the nearest other locality (Tswapong Hills) for this species, and well within the range of *M. mauricei* (Fig. 2). It is possible that this population - and possibly some of the other isolated populations of *M. sphenorhynchus* - represents a cryptic species, but such resolution will require a molecular assessment.

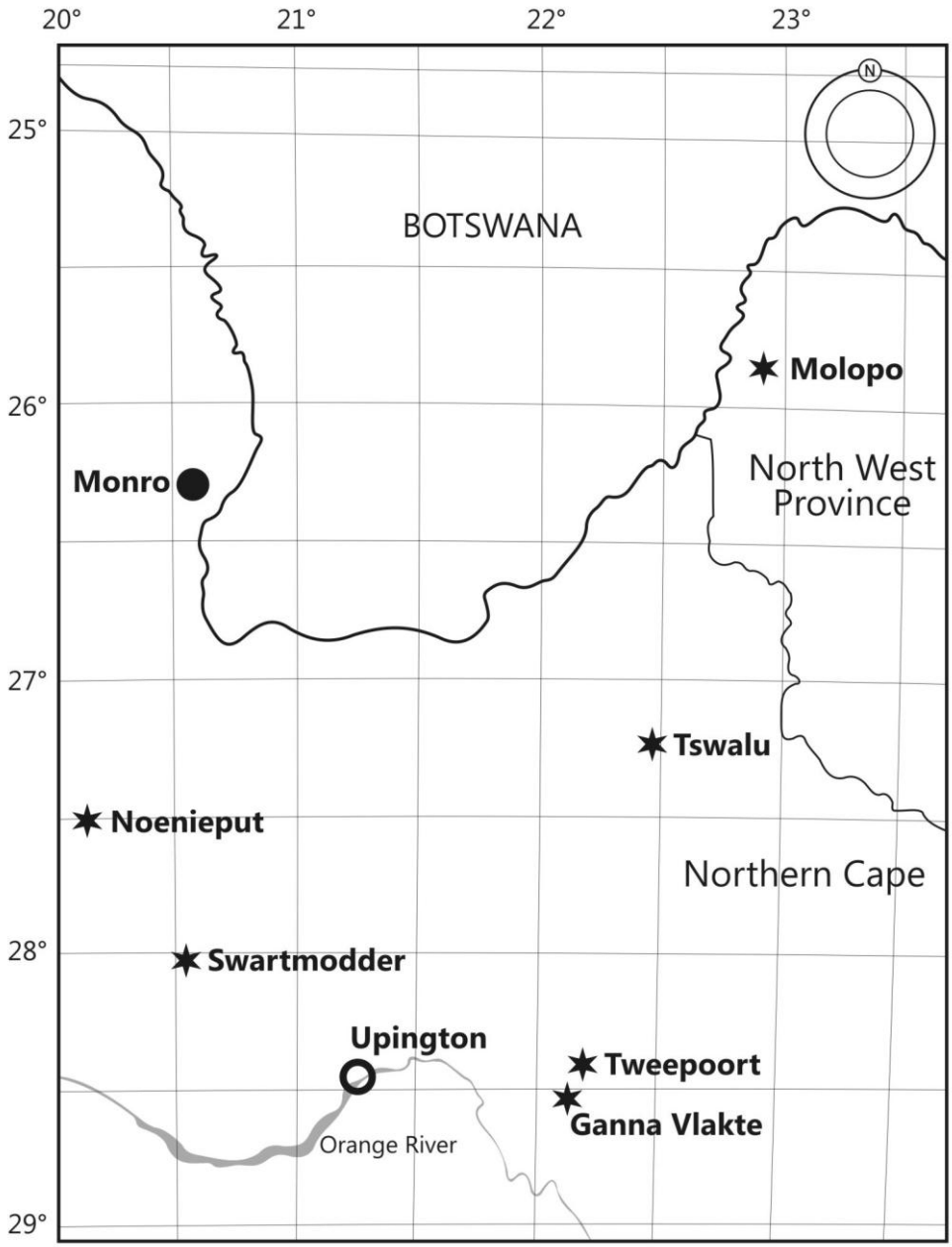

Figure 2: Distribution records for *Monopeltis* cf. *sphenorhynchus* (●) and *M. mauricei* (★) in the Northern Cape Province, South Africa.

Monopeltis mauricei Parker, 1935

New material

On 12 March 2010 a desiccated adult *M. mauricei* (NMB R9120) was found on the farm Tweepoort (380), Gordonia district, Northern Cape (28°24'54"S, 22°11'26"E; 2822AC; 1082 m a.s.l.) (Fig. 2). Later, on 3 May 2010, another adult (NMB R9123) was unearthed while discing a firebreak in the same region but on the farm Ganna Vlakte (385) (28°31'29"S, 22°08'17"E; 2822CA; 1097 m a.s.l.). Two juveniles (NMB R9124-5) were also collected on the latter farm (28°31'29"S, 22°08'41"+46"E; 1119 m a.s.l.) at the same time, and another (NMB R9127) was unearthed nearby (28°30'48"S, 22°08'57"E; 1136 m a.s.l.) three days later while re-grading a road. The latter three slender specimens were damaged: NMB R9124 and 9125 consist of only the anterior part of the body, but have the head scalation typical of *M. mauricei*, while NMB R9127 - although provisionally identified as this species - consists only of the posterior half of the body (see below). In the provisional mtDNA analysis, specimens NMB R9120 (clearly identifiable morphologically as *M. mauricei*), NMB R9125 and NMB R9127 grouped together to form a separate lineage (Measey, Tolley & Bates in prep.). The Tweepoort locality is about 91 km east of Upington, whereas the Ganna Vlakte localities are 88-89 km ESE of this town. The Skurweberg Mountains are to the east of the collecting sites. According to Mucina & Rutherford (2006) the farms Tweepoort and Ganna Vlakte fall within the vegetation type Olifantshoek Plains Thornveld (SVk13) in the Eastern Kalahari Bushveld Biogerion. However, although NMB R9123 was collected in this vegetation type, the remaining sites are best described as Gordonia Duneveld (SVkd1), which is situated within the Kalahari Duneveld Bioregion.

A somewhat desiccated specimen (TM 85133; SVL 333 mm, tail length 13 mm) of *M. mauricei* from Molopo Nature Reserve (25°51'27"S, 22°54'26'E; 2522DD; 1006 m a.s.l.) (Fig. 2) in Vryburg 1 district, Northern Cape, collected on 3 September 2003 by T.J. Hibbitts and housed in the Ditsong National Museum of Natural History collection, was also examined.

The first author has also examined a photograph of a *Monopeltis* from Tswalu Kalahari Reserve (27°14'07"S, 22°27'35"E; 2722AB; 1176 m a.s.l.; Fig. 2) taken by G. van Dyk in February 2005. The specimen is pink, lacks dorsal infuscations and is provisionally referable to *M. mauricei*.

Scalation

Data for NMB R9120 are provided first, followed by NMB R9123 and TM 85133: One pre-cloacal pore on either side of vent (not evident in NMB R9123); caudal annuli 10/–/11; body annuli dorsally 301/–/290; dorsal segments in a midbody annulus 39/34/–; ventral segments in a midbody annulus 29/22/–; 6 distinctly elongated and longitudinally parallel pectoral segments; ocular elongate, in narrow contact with postnasal (not visible in TM 85133); ocular in contact with pair of median parietals. All specimens are cream in colour and unpigmented, or with tiny flecks of grey in some, and tail unpigmented. Because of damage, only limited scale data could be determined on three specimens: In NMB R9124 the ocular is elongate and in contact with the postnasal, and in contact with the pair of median parietals. In NMB R9125 (right side, left side dehydrated) the ocular is divided, the

elongate anterior scale being in contact with the postnasal, and the smaller pentagonal posterior scale being in contact with the pair of median parietals. There are 6 distinctly elongated and longitudinally parallel pectoral segments in NMB R9124 and seven in NMB R9125. In NMB R9127 (head missing) there is one pre-cloacal pore on each side of the vent, and 11 caudal annuli (one is constricted). All three specimens are cream, with minute dark dorsal speckles restricted to the back.

Discussion

This species was described as *Monopeltis mauricei* Parker, 1935 but treated as a subspecies of *Monopeltis sphenorhynchus* Peters, 1879 by Broadley *et al.* (1976). The latter authors also referred *Monopeltis ocularis* FitzSimons, 1941 to the synonomy of *M. s. mauricei*. Broadley (2001) later re-instated *M. mauricei* as a full species on the basis of an absence of intergradation between this form and typical *M. sphenorhynchus*.

If the four new Ganna Vlakte sites, situated in close proximity, are considered as a single locality, then there are now six localities for *M. mauricei* in South Africa, all in the Northern Cape (Fig. 2). The first specimen collected in the country appears to be FitzSimons' (1941) holotype and only specimen of *M. ocularis*, collected at "Swart Modder [= Swartmodder], Rietfontein". Broadley *et al.* (1976) listed three additional South African localities, namely "Noenieput (two specimens)", "Kalahari Gemsbok National Park – western boundary (two specimens)" and "Gordonia District (one specimen)". The center of the small town of Noenieput is situated at 27°30'40"S, 20°08'18"E (2720CA), and the entire town is at altitudes of 817-823 m, but the other two localities, both situated in that part of the Northern Cape between the south-eastern border of Namibia and the south-western border of Botswana, are too vague to plot on maps. Visser (1984), using maps prepared by Geoff McLachlan, plotted this species at three quarter-degree loci in the Northern Cape, namely 2620CA, 2720CA and 2820BA. The first locus is almost certainly in reference to the position at which Broadley *et al.* (1976) plotted the "Swart Modder, Rietfontein" locality. We consider this to be in error, however, as it represents the position of the town Rietfontein (center of town 26°44'45"S, 20°01'41"E; 2620CA; elevation range for whole town 840-850 m) near Aroab in Namibia, rather than the place called Swartmodder (center of town 28°01'37"S, 20°33'15"E; 2820BA; elevation range for whole town 780-820 m), 83 km NW of Upington. It seems most probable that FitzSimons (1941) was referring to Swartmodder itself and included "Rietfontein" as the collector probably drove to Swartmodder on the road from Rietfontein. The second locus (2720CA) plotted by Visser (1984) is apparently in reference to Noenieput, whereas his third record at 2820BA is in the same quarter-degree as Swartmodder.

Three of the Ganna Vlakte specimens (NMB R9123-5) mentioned above represent the southern-most extension of the species' range.

In terms of habitat, examination of Google Earth maps and the vegetation maps in Mucina & Rutherford (2006) indicate that this species occurs mainly in Eastern Kalahari Bushveld and Kalahari Duneveld bioregions, with a single record in the Bushmanland Bioregion.

1. Molopo (25º51'27"S, 22º54'26"E; Molopo Bushveld SVk11, Eastern Kalahari Bushveld Bioregion)
2. Tswalu (27º14'07"S, 22º27'35"E; Olifantshoek Plains Thornveld SVk13, Eastern Kalahari Bushveld Bioregion)

3. Noenieput (27º30’40”S, 20º08’18”E; Kalahari Karroid Shrubland Nkb5, Bushmanland Bioregion)
4. Swartmodder (28º01’37”S, 20º33’15”E; Gordonia Duneveld SVkd1, Kalahari Duneveld Bioregion)
5. Tweepoort (28º24’54”S, 22º11’26”E; Olifantshoek Plains Thornveld SVk13, Eastern Kalahari Bushveld Bioregion)
6. Ganna Vlakte (28º31’29”S, 22º08’17”E; Olifantshoek Plains Thornveld SVk13, Eastern Kalahari Bushveld Bioregion), (28º31’29”S, 22º08’41+46”E; 28º30’48”S, 22º08’57”E; Gordonia Duneveld SVkd1, Kalahari Duneveld Bioregion)

Monopeltis infuscata Broadley, 1997

New material

On 3 January 2010 an adult *M. infuscata* (NMB R9118; SVL 246 mm, tail length 15 mm) was found in water - where it had apparently drowned - following heavy rains. The site was on the farm Tweepoort (380), Gordonia district, Northern Cape (28º25’28”S, 22º10’40”E; 2822AC; 1097 m a.s.l.). This site is about 91 km east of Upington. The area is located within the vegetation type Olifantshoek Plains Thornveld (SVk13), situated within the Eastern Kalahari Bushveld Bioregion (Mucina & Rutherford 2006). On 11 April 2010 another specimen (NMB R9122) was found nearby (28º24’36”S, 22º11’38”E; 2822AC; 1074 m a.s.l.) on the same farm and in the same habitat as described above. In the provisional mtDNA analysis the two specimens mentioned above constituted a separate lineage (Measey, Tolley & Bates in prep.).

Scalation

Data for NMB R9118 are provided first, followed by NMB R9122: Dorsal head shield with blind lateral sutures; no precloacal pores; caudal annuli 10/11; body annuli dorsally 216/216, ventrally 197/–; supernumerary dorsal half annuli 17 (anterior part of body)/–; segments in a midbody annulus 24/26 dorsally, 23/25 ventrally; 6 distinctly elongated and longitudinally parallel pectoral segments; ocular moderate and contacting second supralabial; ocular separated from nasal (and a distinct postnasal on left side of head in NMB R9118) by second supralabial, and separated from the median pair of parietals by a lateral parietal. Both specimens have grey pigmentation dorsally, but this is more distinct in NMB R9118, in which the upper surface of the tail is also more heavily pigmented.

Discussion

This species, previously treated as *M. c. capensis* Group B (Broadley *et al.* 1976), was described by Broadley in 1997. It occurs from south-western Angola through Namibia, the southern half of Botswana and the Northern Cape, with scattered, often isolated, populations in North West Province, Gauteng, Limpopo and southern Zimbabwe (Broadley 1997). It is parapatric with *M. capensis* A. Smith, 1848 in the vicinity of the Free State/Northern Cape border. Broadley (1997) plotted *M. infuscata* at only 4-5 quarter-degree localities in the Northern Cape. The new records partly fill a large gap within the known distribution range of this species.

Parapatry and sympatry

On the farm Tweepoort, *Monopeltis mauricei* and *M. infuscata* were collected parapatrically. NMB R9120 (*M. mauricei*) and NMB R9122 (*M. infuscata*) were collected only 650 m apart, whereas NMB R9118 (*M. infuscata*) was separated from NMB R9120 (*M. mauricei*) by 1.64 km. These are the first reported instances of parapatry between these two species in South Africa.

Both *Dalophia pistillum* and *M. mauricei* were collected on the farm Ganna Vlakte. Of the four specimens (NMB R9123-5, 9127) from this locality considered referable to *M. mauricei*, only NMB R9123 was in good enough condition to allow a positive identification. This specimen was collected 790 m from the *D. pistillum* specimen (NMB R9126). However, NMB R9125 (which grouped with NMB R9120 [identifiable morphologically as *M. mauricei*] and NMB R9127 in the mtDNA analysis; Measey, Tolley & Bates in prep.) was found only 2 m from NMB R9126, and this could be considered a case of sympatry between the two species. NMB R9124 was collected only 140 m from the *D. pistillum* specimen, while NMB R9127 was found 1.30 km away, these being regarded as cases of parapatry. These are the first reported instances of sympatry and parapatry between these two species in South Africa.

Broadley (1988, 1997) recorded *M. infuscata* as being sympatric with as many as six other amphisbaenian species: five species of *Monopeltis* and one species of *Dalophia*. He noted that *M. infuscata* is sympatric with *M. anchietae* Bocage, 1873 at Humbe in Angola, Windhoek in Namibia, and 40 km west of Ghanzi in western Botswana; with both *M. anchietae* and *M. leonhardi* Werner, 1910 at a few localities in northern Namibia; with *M. sphenorhynchus* at Nottingham Estates in southern Zimbabwe; with *M. capensis* at Gabane in southern Botswana; and with both *M. mauricei* and *D. pistillum* at Mabuasehube Pan in south-western Botswana. *Dalophia pistillum* is also sympatric with both *Monopeltis zambezensis* Gans & Broadley, 1974 and *Zygaspis quadrifons* (Peters, 1862) in the Dande Safari Area of Zimbabwe (Broadley 1997). According to Broadley (1997) the only confirmed case of sympatry between different taxa in the *M. capensis* species complex is that between *M. rhodesiana* Broadley, Gans & Visser, 1976 and *M. decosteri* Boulenger, 1910 at Chipinda Pools on the Runde River, south-eastern Zimbabwe. Parapatry occurs between *M. infuscata* and *M. decosteri* in the vicinity of the Olifants Camp in the Kruger National Park, and between *M. zambezensis* and *M. rhodesiana* in the Lake Kariba area of Zimbabwe (Broadley 1997).

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