

A new *Homopholis* (Sauria, Gekkonidae) from the northern Transvaal with a discussion of some generic characters

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A new gecko, *Homopholis mulleri*, from the Transvaal Province of South Africa, is described. It is compared with the other two African species of the genus. The new species is closest to *Homopholis fasciata* of East Africa and Ethiopia. Some generic characters are discussed.

'n Nuwe geitjie-spesie, *Homopholis mulleri*, van Noord-Transvaal (Suid-Afrika), word beskryf. Dit word met die ander twee spesies van die genus in Afrika vergelyk. Die nuwe spesie is verwant aan *H. fasciata* van Oos-Afrika en Etiopië. Sekere generiese eienskappe word bespreek.

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Homopholis wahlbergii (A. Smith) is currently regarded as the only African species of the genus *Homopholis* to occur south of the Republic of Tanzania (FitzSimons 1943; Loveridge 1947; Russell 1978). Recently, however, a smaller, distinctively patterned gecko of this genus was collected in the northern Transvaal of the Republic of South Africa which, although superficially similar in general appearance to *wahlbergii* of less than 70 mm body size, is not conspecific. The Transvaal gecko is also specifically distinct from the similarly sized *Homopholis fasciata* of East Africa and Ethiopia, the only other African species of the genus, and is accordingly described as *Homopholis mulleri* sp. nov.

Homopholis mulleri sp. nov.

Holotype. An adult male (TM 64393) of 67,5 mm snout-vent length and regenerated tail of 31 mm, from the farm 'Command', No. 588 Messina District, just east of Huntleigh Siding (22°43'S/29°52'E) and 30 km north-east of Waterpoort, northern Transvaal, collected by Douglas Muller and John Visser on June 5, 1981.

Paratypes. Five adult males (SAM 45500, SAM 47140, MCZ 163267, MCZ 163268, BM 1982.1318), ranging in size from 63,5–70,8 mm in snout-vent length and one adult female (BM 1982.1317) of 71 mm snout-vent length. All except SAM 47140 which was taken on the same date as the holotype, collected at the type locality on November 10, 1981, by Douglas Muller.

Definition and diagnosis. A small species of *Homopholis* with a distinctive colour pattern (Figure 1; cf. Figures 2 & 3), subimbrication of the dorsal scales (Figure 4A; cf. Figures 4B, C, D), 18–20 small scales between eye and anterior border of the ear (Figure 5A; cf. 5B) as opposed to 10–14 in *fasciata* and 26–30 in *wahlbergii*, postmentals similar to those of *wahlbergii* but much larger than in *fasciata* (Figure 6A; cf. 6B), and with large pore-bearing scales either meeting or separated by a single, much smaller scale (Figure 7A; cf. 7B, C, D). The new form has a greater number of scale rows around midbody (65–72, \bar{x} = 69,2; N = 6) than *fasciata* (52–61, \bar{x} = 56; N = 4) but fewer than *wahlbergii* (80–87, \bar{x} = 84; N = 6).

Holotype. Rostral, oblong, about 1,5 times wider than deep, without a median cleft and not entering the nostril. Nostril pierced between the first upper labial and four scales of which the anterior are largest. Three large internasals, two in tandem,

one oblong. Head, oviform, slightly longer than broad, somewhat flattened, swollen over the temporal region. Snout, obtusely rounded, with a longitudinal concavity, 1,7 times the diameter of the eye and equal to the distance from the eye to the anterior border of the ear. Scales on the snout, subconical, unequal, and much larger than the granular scales of the occiput, with those over the temporal region largest and uniform. Ten upper and nine lower labials. Mental subpentagonal, as long as and broader than adjoining labials, bordered behind by a pair of large, subpentagonal postmentals, which are longer than broad. Two rows of enlarged scales behind and to each side of the median postmentals, terminating at the level of the fourth lower labial, and much larger than the following scales over the throat. Scales on the throat small, decreasing in size towards the midline and intermixed posteriorly with minute scales in front of the neck. Body cylindrical, with 67 scales around midbody. Dorsal scales flat, subimbricate, ovoid anteriorly, larger, broadly subtriangular and intermixed with polygonal scales posteriorly. Scales on ventrum subimbricate, similar in shape and disposition to those of the dorsum. Scales on unregenerated part of tail juxtaposed, polygonal above, wider than long laterally, not verticillate. Digits spatulate, clawed, with some webbing between second, third and fourth digits. Digits 1 of manus and pes clawed and with the first lamella divided. Number of transversely enlarged lamellae for digits 1–5 of the right manus, 9.10.10.10.11 and of the right pes, 10.10.12.10.11. A single, large pore in the centre of each of the two pore-bearing scales which are about three to four times larger than surrounding scales and separated by a much smaller wedge-shaped scale. Three enlarged, flattened, slightly projecting scales on the left of the cloaca of which the anteriormost scale is largest, and a single, much enlarged, projecting scale on the right of the cloaca. Head length, 15,7 mm, width 15,2 mm.

Variation. (As per holotype unless indicated.) Nostril surrounded by first labial and three scales (in five specimens). Internasals usually two (exceptionally one or three in two specimens). Mental pentagonal, as long as and narrower than adjoining labials except in SAM 47140 in which it is shorter and much narrower. A single postmental which is broader than long in SAM 47140. Upper labials nine (on five sides) or 10 (on five sides) (exceptionally 11 on one side in each of two specimens). Scales around midbody, 65–72 (\bar{x} = 69,6; N = 5). Lower labials, nine (on seven sides) or 10 (on five



Figure 1 *Homopholis mulleri* sp. nov., (holotype TM-64393).



Figure 2 *Homopholis f. fasciata* (MCZ-96969, MCZ-96972, MCZ-96973) and *Homopholis f. erlangeri* (MCZ-49113).

sides), exceptionally eight or 11 (one side in each of two specimens). Number lamellae (modes in parenthesis) for digits 1-5 of right manus, 8-10 (9 or 10), 9-11 (9 or 10), 11-12 (12), 9-13 (9), 10-11 (10) and for right pes, 8-10 (10),

10-11 (10), 10-13 (11 or 12), 9-13 (10 or 13), 9-13 (11). Pore-bearing scales in contact in BM 1982.1318, MCZ 163267 and SAM 47140, with small wedge-shaped scale displaced anteriorly. Two enlarged scales on each side of cloaca in BM

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Figure 3 *Homopholis wahlbergii* (SAM 47141).

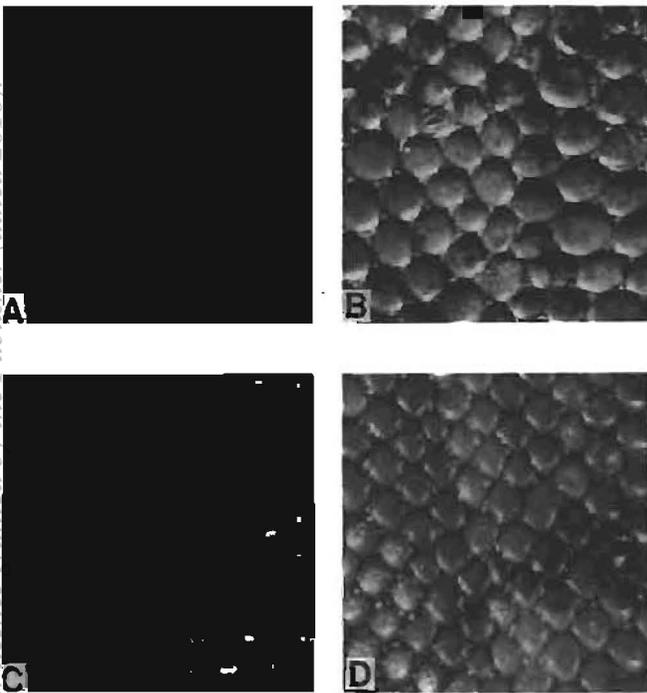


Figure 4 A, B, C. Subimbrication of dorsal (midbody) lepidosis of A, *Homopholis mulleri* sp. nov., (SAM 47140), compared with tubercular scaling of B, *H. f. fasciata*, (MCZ-96969) and C, *H. f. erlangeri* (MCZ-49113), and imbrication in D, *H. wahlbergii* (SAM 47141).

1982.1317, SAM 45500, MCZ 163268, with three on left of both SAM 47140 and BM 1982.1318. The tail of SAM 45500 is complete (unregenerated) with a total length of 49 mm and is 0,74 of the snout-vent length (65,8 mm).

Colour during life. Top of head, white with black suffusion and minute spotting, passing to darker suffusion posteriorly with one or two light, silvery lines on each side, the innermost

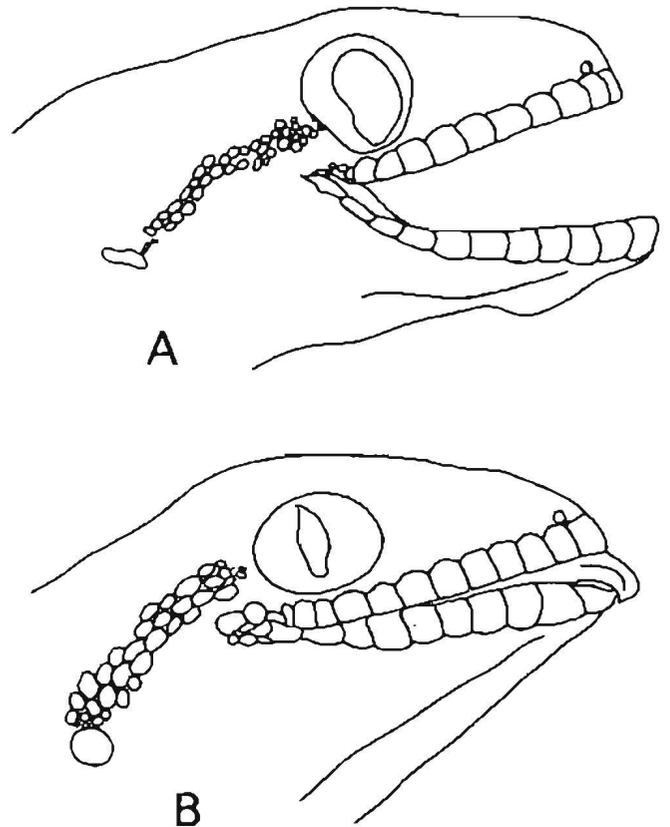


Figure 5 A, B. The less convex snout and much smaller and more numerous scales between eye and ear of A, *H. mulleri* sp. nov., (holotype, TM 64393) compared with B, *H. f. erlangeri* (MCZ 96972).

of these longest. Iris orange with prominent black veins, pupil crenulated, and closing down to four pinholes. All upper labials and rostral pure white, sometimes orange-tinged. A wide, black band borders the labials, encircles the snout and continues behind eyes as a thin, strongly tapering line, ending

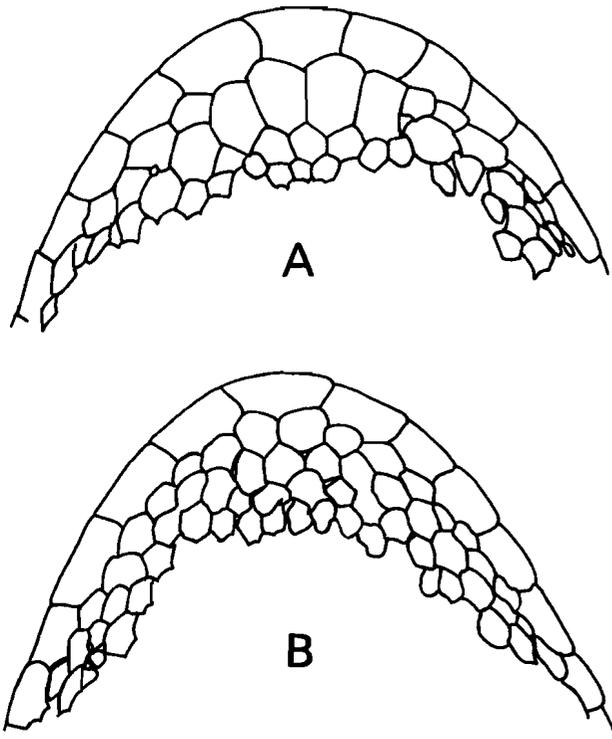


Figure 6 A, B. The large chinshields and associated scales in A, *H. mulleri* sp. nov., (holotype TM 64293) compared with those of B, *f. fasciata* (MCZ-96972).

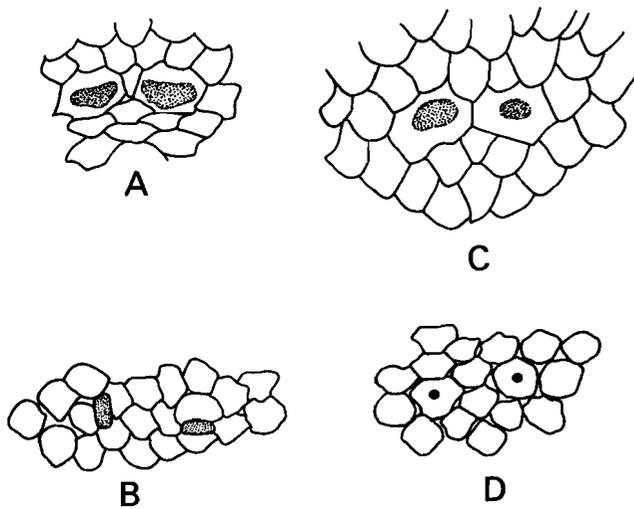


Figure 7 A, B, C, D. Arrangement of the pore-bearing scales, pores, and adjacent scales in males of, A, *H. mulleri* sp. nov., (holotype TM 64393), B, *H. wahlbergii* (SAM 47141), C, *f. fasciata* (MCZ-96972), and female, D, *f. erlangeri* (MCZ-49113).

well in front of the ear opening. From upper, posterior part of orbits, two much wider black or dark grey bands pass over the temporal region to first complete chevron on the back. Dorsum, dark grey to light brown, with nape and anterior third of body with three large silvery white blotches, followed by four large forwardly projecting silvery white chevrons which are black-margined anteriorly. Sides of body and flanks with five to six silvery blotches of which the upper series are larger. A silvery blotch on tail root, with regenerated part of tail silver with numerous black longitudinal streaks. Lower labials, white or orange-tinged. Throat, sides of neck, and

gular region immaculate white. Chest, white with light spotting. Ventrums, with small spots or thin distinct black lines which may form reticulations posteriorly. Upper surfaces of limbs, hands and feet, with irregular, alternating silvery white and brown blotches.

Remarks

In general proportions, size and scalation, *H. mulleri* is much closer to *fasciata* than it is to *wahlbergii*.

The new form is in all probability broadly sympatric with *wahlbergii* in the northern Transvaal. The stable colour pattern of the former readily distinguishes it from the latter even though *H. wahlbergii* may occasionally be more heavily patterned than illustrated in Figure 3 and show a broad black dorsal band down each side as well as a number of dark wavy crossbars on the dorsum (as shown in Plate 7 of Pienaar, Haacke & Jacobsen 1983). However, the pure white upper and lower labials which contrast with the wide, continuous black band around the snout are characteristic features of *mulleri* and serve for its instant identification in the field.

Although *mulleri* and *wahlbergii* both occur in the northern Transvaal, they were not found to co-exist. All *mulleri* were taken from under bark and from holes in marula (*Sclerocarya caffra*) and knob-thorn (*Acacia nigrescens*) trees in open, mixed mopane-veld. The narrowness of the gap under the peeling bark and the small size of the holes utilized by *mulleri* would seemingly exclude adult *wahlbergii* from utilizing these niches. It seems equally likely that the lack of rock outcrops with canopy, usually favoured by *wahlbergii* in such open habitat, at the type locality has limited contact with *mulleri*. Mopane-veld is a prominent feature of the south-eastern African landscape and it is to be anticipated that *mulleri* will be found elsewhere within this vegetation type. Mopane-veld is low in reptile diversity, and accordingly does not invite thorough inspection by collectors, perhaps explaining why *mulleri* was not found earlier.

Russell (1978) has recently re-defined the genus *Homopholis*. Some divergences from his delimitation were noted during the present study and concern the claw and division of the first lamella on digit 1 of the hands and feet as well as the presence of preanal pores in the female sex. The terminally divided lamella and claw on digit 1 of both manus and pes are easily seen features of both *wahlbergii* and *mulleri*. However, the presence or absence of a claw on these digits in *fasciata* has a history of dispute. Boulenger (1890) used the absence of a retractile claw on the thumb and first toe in *fasciata* as the primary character in the definition of his genus *Platypholis*. Steindachner (1906) assigned his species *erlangeri* to *Platypholis* rather than *Homopholis* on the basis of this character. He later (1907) found claws on these digits and duly re-assigned his species to *Homopholis*. After synonymizing *Platypholis* with *Homopholis* in 1944, Loveridge (1947) stressed that all species possess claws on digits 1 of the hands and feet. Russell (1978), however, states that 'It is evident that within the genus some species possess a distinct claw on the first digit while in *H. fasciata* all external traces of the claw on this digit have been lost'. He used this observation in his re-diagnosis of the genus and for the figuring of a morphocline which commenced with *fasciata* (clawless and no lamellar division), proceeded to *wahlbergii* (minute claw and one divided lamella) and terminated with *boivini* (moderate claw and three divided lamellae).

There is very considerable variation in *fasciata* in respect of lamellar division and the presence or absence of a claw on digit 1 of which Russell (1978) was apparently unaware.

Table 1 Variation in terminal features of digit 1 of the manus and pes of *H. fasciata*

	Manus		Pes	
	Lamella	Claw	Lamella	Claw
<i>fasciata</i> , MCZ 96972, ♂	Undivided	Absent	Divided	Present
<i>fasciata</i> , MCZ 96973, ♂	Undivided on left, divided on right	Absent	Divided	Present
<i>fasciata</i> , MCZ 96969, ♀	Undivided	Absent	Divided	Present
<i>erlangeri</i> , MCZ 49113, ♀	Undivided on right, divided on left	Absent on right, present on left	Divided	Present

The variation in the small series available to me is recorded in Table 1. Clearly, however, the presence or absence of these features should be re-assessed in larger samples as at this time the variation reported by Russell is at the one extreme (digit 1 of both hands and feet without division of the first lamellae and claws absent), those of Loveridge at the other (digit 1 of both hands and feet with a divided first lamellae and clawed) and my findings intermediate (some individual variation for the hands but with the feet showing consistent division of the first lamella and always clawed). That such variation in this species exists is beyond dispute and it follows that clawlessness and undivided lamellae of digit 1 of the hand and foot in *fasciata* are therefore neither generic nor specific absolutes as claimed by Russell (1978).

Preanal pores in males have also been listed by Russell as a generic character. It is thus of interest to note that the single female *f. erlangeri* of the present series possesses preanal pores (Figure 7D) and even though these appear to be less developed than in the male sex of the other forms (Figure 7A, B, C), their absence in females, as implied by Russell, is erroneous.

Finally, both Russell (1978) and Welch (1982) list *Homopholis wahlbergii arnoldi* Loveridge (1944) as a valid race, in apparent oversight of Broadley's rejection of it in 1962. The co-type of this race is in the South African and examination of it during the course of this present work leaves no doubt that *w. arnoldi* belongs in the synonymy of *wahlbergii*.

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