

Family CHAMAELEONIDAE
Genus Chamaeleo Laurenti, 1768

Chamaeleo Laurenti, 1768, Syn. Rept. p. 45 g. Type by subsequent designation (Broadley, 1966), C. parisiensium Laurenti = Lacerta chamaeleon Linnaeus.

The genus is characterised by a single parietal usually much narrowed and compressed, not forming a roof over the temporal region, meeting at its posteriormost point with upper extremities of squamosals, which form a post-temporal arch enclosing the large supra-temporal fossa. Prefrontals and postorbitals usually meeting to form upper boundary of orbit. Lachrymal usually present, sometimes absent. Rostral appendages present or absent. Occipital dermal lobes present or absent. Lungs usually with diverticula more or less well developed. Gular and ventral crests present or absent. Claws simple. Scales on soles of feet smooth. Tarsal process in males, present or absent. Tail as long as or longer than body, frequently shorter.

Only one species of the genus occurs in the Transvaal, namely C. d. dilepis Leach. A discussion on whether Transvaal material should be included as d. quilensis or d. dilepis is included in the species account.

Chamaeleo dilepis dilepis Leach, 1819

Chamaeleo dilepis dilepis Leach 1819, in Bowdich. Mus. Ashantee, App. p. 493. Type locality: Gaboon.

Chamaeleo dilepis dilepis Leach. FitzSimons 1943, pp. 153; De Witte 1953, pp. 50, pl. 8, fig. 1, fig. 8; Branch 1981, p. 150; Jacobsen 1977, p. 19; Pienaar et al 1983, p. 57, pl. 17; Pienaar 1966, p. 52, pls 11A, 1978, p. 46, pls 12 & 12A; De Waal 1978, p. 33; Auerbach 1987, p. 101, pl. 10 fig. 1; Patterson & Bannister 1987, p. 47, figs; Welch 1982, p. 56; Branch 1988a, p. 186, pl. 86, 1988b, p. 7.

Chamaeleo dilepis quilensis Bocage. FitzSimons 1943, p. 155.

Chamaeleo quilensis Bocage. De Witte 1953, pp. 56, fig. 9. Welch 1982, p. 60.

Description. 190 specimens examined.

Colour. Variable depending on mood, hormonal state and background. Normally green with a line of ventrolateral white scales which together form an irregular broad white band. An irregular white patch may be present just below and extending posteriorly from the flap at the levels of the shoulders. A pale line extends from the corner of the mouth posteriorly for a short distance. Gular crest white extending the length of the belly and onto the underside of the tail. Inside of mouth yellow. Interstitial skin of gular is yellow. At night the lizards become pale green to yellowish green.

Lepidosis: Casque feebly developed and median parietal crest poorly developed. No rostral enlargement. Nostril pierced between a number of small rounded scales. Canthus rostralis well developed. UL 16-25, mostly 18-22; LL 15-26, mostly 18-23. The supraorbital crest strongly developed. Occipital lobes small to absent, rarely in narrow contact mesially. Gular scales grouped in irregular longitudinal bands interspersed by folds of interstitial skin bare of scales. Gular crest of pointed conical scales continued along median ventral line to just anterior to anus. Tail covered in rings of small square rounded scales. A distinct tarsal spur or process present in males. Digits opposing, two outside and three inside anteriorly and three outside, two inside on the hind feet.

Size: Largest male SVL = 140,0 mm (N5707 - Rooipoortje 453IQ), mass = 44,3 g (N5707); Largest female SVL = 180,0 mm (J1784 - Phayizani), mass = 92,0 g (J1784). Mean male SVL = 107,89 mm \pm 18,34 (1SD) n=9, mass = 29,92

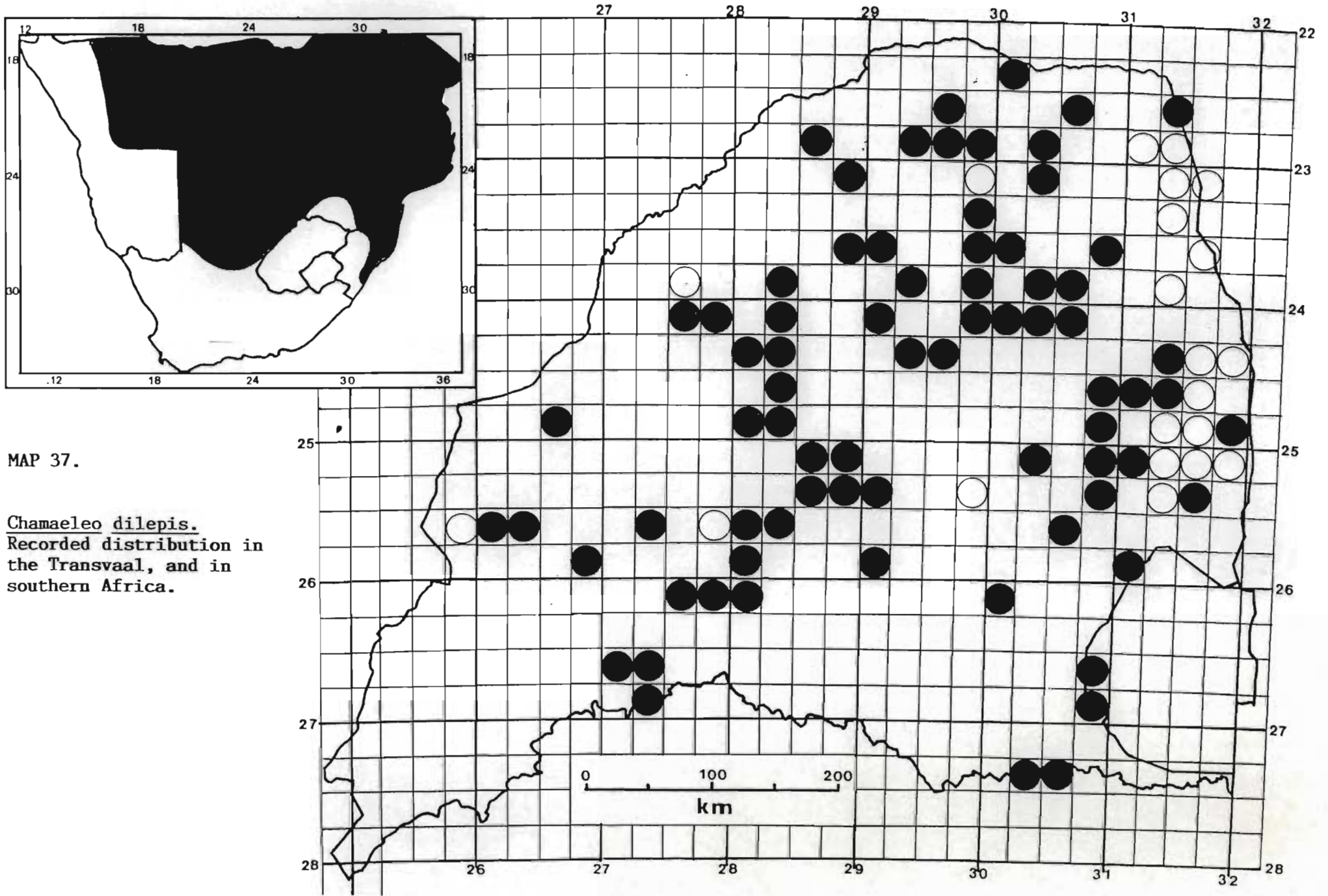
$g \pm 9,98$ (1SD) $n=9$; Mean female SVL = $112,82 \text{ mm} \pm 26,44$ (1SD) $n=19$, mass = $44,18 \text{ g} \pm 28,64$ (1SD) $n=18$.

Distribution

Cameroon east to Kenya and south to northern South West Africa, Botswana, central and northern Transvaal, Natal and Mozambique.

Distribution in Transvaal (Map 37).

7 km W, of Groot Marico; 18 km NE. of Skukuza; 17 km S. of Tshokwane; Acornhoek; Barberton; Berlin State Forest; Bleskop Siding; Blinkwater 680LR; Boekenhoutskloofdrift 286JR; Boschkopje 519LS; Boschpoort 473KR; Buffelshoek 471IQ; Buiskop 464KR; De Rust 12JU; Die Bron; Doornspruit 215KQ; Doreen 108MT; Entabeni Forest Reserve 251MT; Gravelotte; Geelhoutkop; Gladdespruit; Griffin Mine; Groot Denteren 533LR; Hartebeeshoek Provincial Nursery; Hartebeesfontein 437IQ; Hartebeestlaagte 325IS; Hectorspruit; Houdkop 475IT; Johannesburg; Kameelpoort 202JR; Klein Tshipise; Koster; Krabbefontein; Krige 495MS; La Belle Esperance 191HT; Leipzig Mission; Letaba; Letsitele; Levubu; Louis Moore Gold Mine; Ludlow 227KU; Lydenburg; Lyttelton 381JR; Malmaniesrivier 236KQ; Makapansgat 39KS; Malta 65KT; Maribashoek 50KS; Mariepskop; Matlapitsi R.; Meidingen 398LT; Morgendal 216KS; Naauwpoort 441KS; Nelspruit; Olievenhoutfontein 111KR; Outlook 789MS; Phayizani; Pietersburg; Pilgrims Rest Nature Reserve; Pretoria; Pretoria, Sjambokstad; Pretoria, Wonderboom; Pretoria, Waterkloof; Pretoria, Groenkloof; Pretoria, Meyers Park; Pretoria, Arcadia; Pretoria, Brooklyn; Redcliff 426IT; Riekerts Laager 165JR; Rietfontein 214JR; Rietspruit 412KR; Rochdale 700MS; Rolle 235KU;



MAP 37.

Chamaeleo dilepis.
 Recorded distribution in
 the Transvaal, and in
 southern Africa.

Rooipoortje 453IQ; Rosehaugh State Forest; Ross 55KU; Rust der Winter Nature Reserve; Rustenburg East; Sabie; Scrutton 23MT; Selati; Shiluvane; Smaldale 225KP; Thambandou, Sibasa Dist.; The Downs 34KT; Tshakuma; Turfloop 987LS; Uitkomst 769LS; Vulcanus 584LS; Vyeboom; Vygeboompoort 456KR; Warmbaths; Waterpoort; Wonderfontein 258JP; Woodbush; Zebediela; Zondagfontein 300MR; Zoutpan 459MS; Zuurbron 132HT near Debegeni Falls; near Vaalwater; Between Saselondonga Spruit and Pafuri; On road between Honeydew and Ben Schoeman Highway.

Literature Records

De Kroon; Dientje 453KT; Doornkop 356JR; Hope, near Vaalwater; Louis Trichardt; Newington; Zeerust (FitzSimons, 1943); Skukuza; Lower Sabie road; Kingfisherspruit; Tshokwane; Shingwedzi camp; Pumbe picket area; Nwanedzi drift, Letaba section; Doispane road near Njagamtepe; Makadze firebreak road near Manyeleti dam; between Babalala and Stangene on the main Punda Maria-Shingwedzi road; Shaben experimental plot No. 5; Mooiplaas experimental plot No. 7; Satara camp; near Leeupan; Machache drift on road to Nwanedzi camp; Nwashitsaka experimental plot No. 7; eastern boundary just north of Saselandonga gorge; Nwambiya pan; Nahpe road 11,2 km west of Skukuza; near Air Force-dam; Main road between Mareyo and Kumane; between Tihathla and Manzimhlope; Malonga; sandveld north of Saselandonga gorge; Masbambela picket; Shithlave-dam area; Malelane ranger's quarters (Pienaar et al (1983). Wolkberg wilderness area (Snyders 1987).

Habitat and Ecology

Widespread in the Transvaal with the exception of the southern highveld regions. Otherwise inhabits most areas

which are well wooded, with the possible exception of forested areas. As the animals have been extensively transported by humans it is difficult to decide whether areas in the SW are part of the original distribution of the species or represent an artifact. This species is arboreal but frequently descends to the ground to cross open stretches. These stretches are covered in a curious slow see-sawing pace which is no doubt designed to confuse would-be predators, but as these chameleons often cross roads, this habit results in many being killed. Under duress they will run at a shambling, rocking pace. However, once in the trees these gaits render the animal unobstrusive. If a chamaeleon knows it is being observed it will sway from side to side imitating a leaf shaking in the wind.

Chameleons are catholic in their taste of food, feeding on flies, beetles, moths, butterflies and other insects. Once the revolving eyes have spotted prey both eyes line up and the chameleon begins to stalk its prey, which is captured with the remarkable tongue. The tongue may be as long as the animal itself and is an adaptation to an arboreal existence, as are the opposing digits.

Chamaeleo dilepis is oviparous, laying usually 30-40 eggs with up to 77 being recorded, in a hole in the ground. This is dug with the fore feet to a depth of ± 4 cm. The eggs measure from 13,5 - 16,0 mm x 7,0 - 9,1 mm. The eggs have a lengthy incubation of up to a year. Hatchlings or neonates measure from 28,0 - 29,0 mm SVL, 25,5 - 28,0 mm T, 54,0 - 57,0 mm total length, with a mass of 0,65 - 0,75 g.

Conservation Status.

Protected. Schedule 2, Nature Conservation Ordinance 12 of 1983. Widespread, it is found in many provincial nature reserves and in the Kruger National Park. It is however subject to considerable predation pressure

particularly around conurbations where man - introduced predators such as cats take a tremendous toll. Their habit of moving slowly across open spaces leads to many roadkills. Coupled with this is large - scale habitat destruction for agriculture. The spraying of fruit trees in orchards during pest control and other activities all have had an impact on these lizards. Quantifiable data is lacking but it is likely that this species is declining over much of its range. More information is needed on population densities in various parts of its range. It is currently still considered out of danger.

Remarks

Various interpretations of this species have been made in South Africa. FitzSimons (1943) included both C. d. dilepis as well as C. d. var. quilensis Bocage in his revision of the Lizards of South Africa. De Witte, (1953) maintained that C. quilensis was a species distinct from dilepis on the basis of the reduced flaps, which do not meet behind the head. This view is upheld by Welch (1978). None of the specimens examined from the Transvaal exhibited typical dilepis flaps. Instead they were all variations on the quilensis theme. De Witte (1953) maintains that as both forms occur in the same habitat and place, they are distinct and should be referred to on the specific level. If this view is accepted then all the Transvaal material must belong to quilensis.

Genus Bradypodion Fitzinger, 1843

Bradypodion Fitzinger, 1843, Syst. Rept. pp. 15 & 43.
Type: Chamaeleon pumilus Latrielle = Lacerta pumila
Gmelin, by original designation.

Although Hillenius (1959) and (1986) maintains the dwarf chamaeleons under the genus Chamaeleo, a move followed by Broadley (1966), Loveridge (1957) in Broadley (1966, p. 139) remarked that if the C. pumilus group warranted generic status, priority be extended to Bradypodion Fitzinger. Raw (1976) re-instated Bradypodion as a separate genus from Chamaeleo, and elevated melanocephalum to specific level as well as describing three new species. Subsequently he described a fourth species from Natal (Raw 1978).

In the Transvaal, collections of dwarf chameleons indicate 9 separate populations scattered along the Transvaal Drakensberg from Barberton to the Soutpansberg. FitzSimons (1943) had incorporated many into "transvaalensis" but an examination revealed a number of forms which on morphological grounds suggest seven species and two subspecies. However Dr. D. Gordon of the Transvaal Museum is investigating protein banding which appears to shed new light onto the relationships between the forms. Until this is complete a firm statement on the number of forms must be deferred. Bradypodion transvaalensis FitzSimons sensu stricto is a distinct species restricted to the Woodbush and Wolkberg, with a closely related form from the Soutpansberg.

The acceptance here of Bradypodion Fitzinger follows that of Raw (1976) who provided generic characters as follows:-

Small ovoviparous chameleons with heterogeneous scalation and tail approximately equal to SVL. Gular and vertebral crests present, the components of the gular crest usually in the form of scaly lobes. Ventral crest absent as are axillary pits, occipital flaps, tarsal spurs, protuberances and horns. Skull with broad parietal, roof-like, with posterior lateral processes descending to meet the squamosals on the sides of the head. Parietal with a single, unforked, median crest and a pair of lateral marginal crests. These lateral crests are continuous with the canthus rostralis and orbital crests. Dentition acrodont. Lungs relatively small, without diverticula, alveolar network over whole lung, not divided into chambers by longitudinal septa.

Bradypodion transvaalensis (FitzSimons, 1930)

Chamaeleon damaranus (non Boulenger) Matschie 1891, Zool. Jahrb. Syst. 5, p. 608. (Mphome near Haenertsburg.

Chamaelon transvaalensis FitzSimons 1930, Ann. Tvl. Mus. 14, p. 37. Type locality: Haenertsburg, Transvaal.

Microsaura pumila transvaalensis (FitzSimons) 1943, p. 164-165.

Bradypodion transvaalensis (FitzSimons). Raw, 1976, p. 149, Welch 1982, p. 54; Branch 1988, p. 184, pl. 94, 1988b, p. 7.

Description. 58 specimens examined.

Colour: Variable according to mood, hormonal state and background. Mostly olive green to olive brown with variable irregular dark bars extending from the vertebral crest downwards.

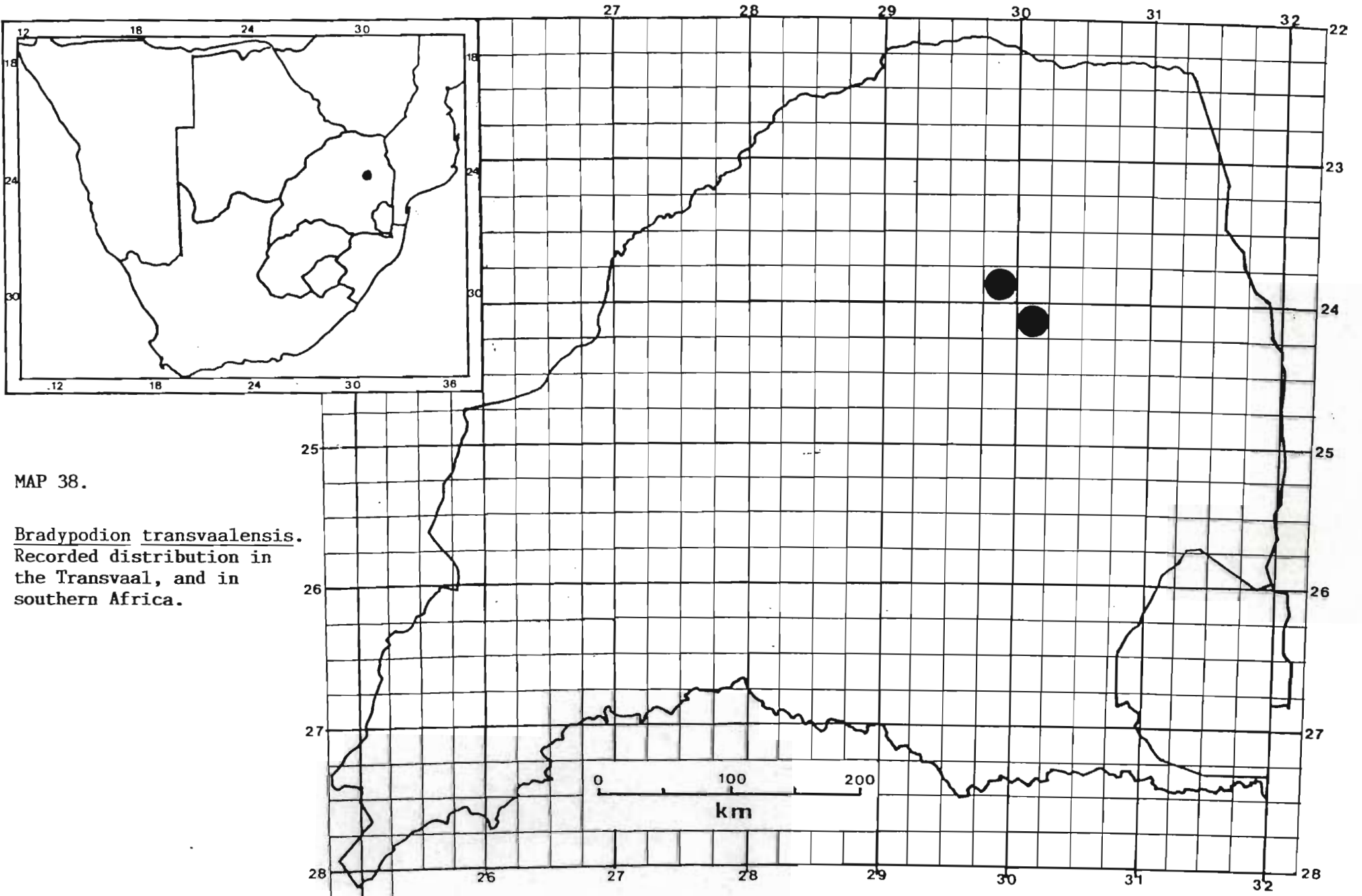
Lepidosis: Casque well developed, distinct and elevated, descending abruptly to the vertebral region. Height of casque from commissure of mouth is slightly longer than length of mouth; casque more pronounced in males than in females, cranial crests well developed and in males may

be horn coloured. A distinct canthus rostralis is found; nostril directed backwards and inserted under the rim of the canthus; UL 11-15, mostly 14; LL 11-16, mostly 14; eyelid comprised of uniform rounded granules interspersed by smaller flattened ones. Eyelid fringed by larger flattened and elongate granules. Temporals scales large, variable and flattened. Gular comprised of large rounded tubercles interspersed and surrounded by smaller rounded granules. Interstices between these rows formed by smaller rounded granules. Gular crest well developed with anterior lobes broader to as broad as long becoming smaller and longer posteriorly. The lobes are scaly and bluntly toothed, 10-16 (mostly 13) in number. The vertebral crest is composed of stout triangular, rearwards pointing tubercles spaced by two or more granules. Tubercles are laterally compressed and range from 20-33, mostly 22-27, extending onto proximal two-thirds of tail. Body covered by variably sized enlarged tubercles separated by smaller rounded tubercles and granules. One to three rows of enlarged rounded tubercles are found midlaterally. Limbs covered by spaced large, round and flattened tubercles interspersed by small round to irregularly shaped granules. Enlarged tubercles cover dorsal half of tail. Belly covered with homogeneous rows of round separated tubercles.

Size. Largest male SVL = 68,0 mm (N11292 - Rondefontein 974 LS, N11298 - Haenertsburg); Largest female SVL = 82,0 mm (N11288 - Serala 5KT); Mean male SVL = 57,28 mm \pm 7,04 (1SD) n=7; Mean female SVL = 61,3 mm \pm 12,74 (1SD) n/10.

Distribution

Restricted to the north-eastern Transvaal.



MAP 38.

Bradypodion transvaalensis.
 Recorded distribution in
 the Transvaal, and in
 southern Africa.

Distribution in Transvaal (Map 38).

Haenertsburg; Rondefontein 974LS; Serala 5KT; Woodbush Forest Reserve.

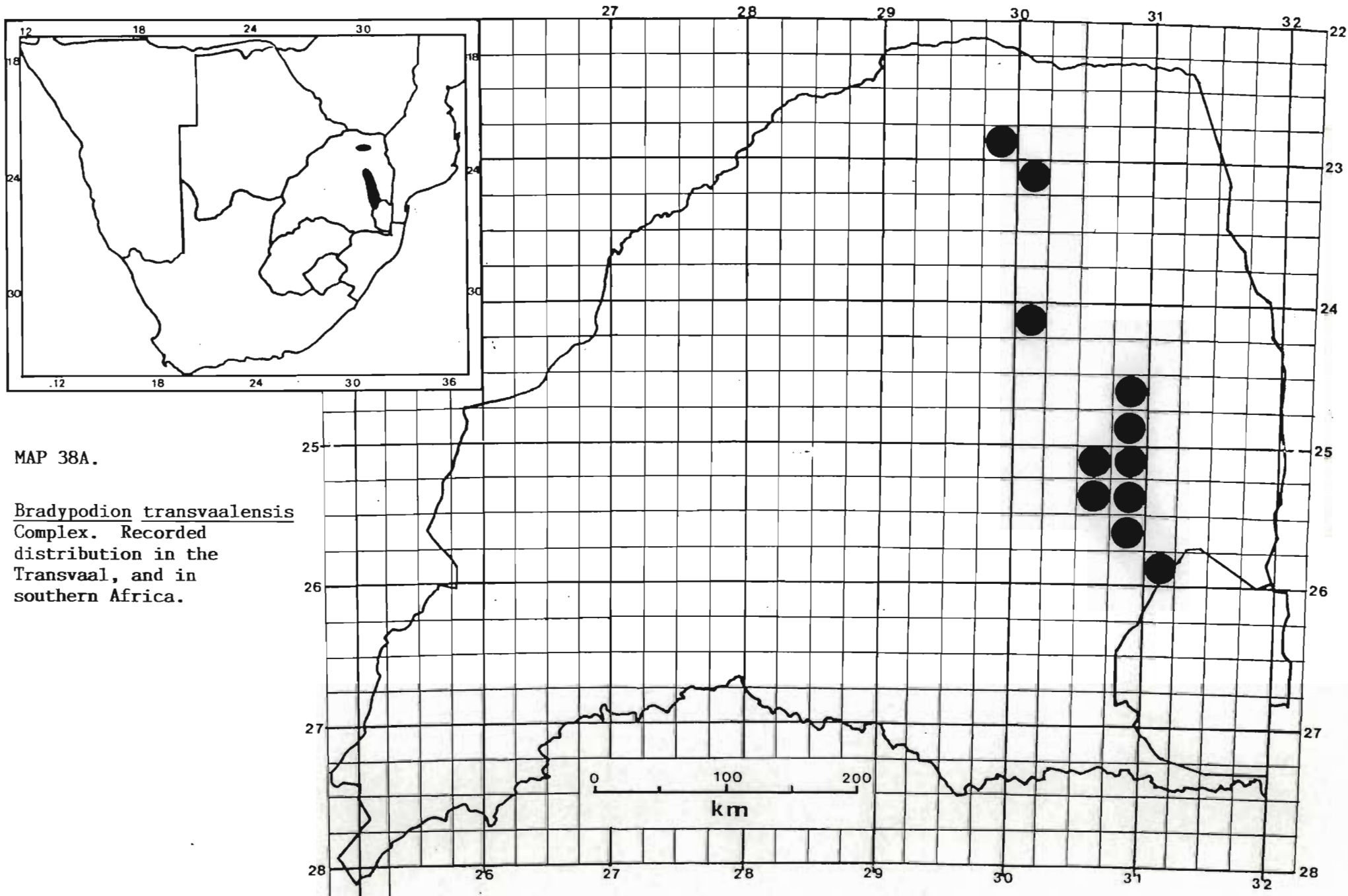
Habitat and Ecology

Essentially a forest species at altitudes of 1500-1900 m it has also adapted to inhabiting scrub-covered road verges in the vicinity of the forests. Diurnal, it forages among the foliage of low hanging branches and shrubs. With the large scale alteration of habitat by afforestation at Woodbush it is commonly found in foresters gardens, on hedges and shrubs. Roosts at night at the tip of branches and on the tips of grass spikes, bracken and herbs at less than a metre off the ground. They adopt a pale green colour at night and are easily seen in the light of a torch.

Ovo-viviparous from 7-17 young are born at the end of winter to early spring. On two occasions births took place in the middle of the day. Neonates measured from 21,0 - 23,0 mm SVL, 22,0 - 26,0 mm T. with a mass of 0,15 - 0,25 g.

Conservation Status.

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1985. One of the most common dwarf chamaeleous in the Transvaal although very locally distributed. It occurs in the Wolkberg Wilderness Area and is therefore protected. However this population is slightly different in colour to those from the Woodbush/Haenertsburg population which is only marginally protected. Specimens are from time to time killed in the roads in and around the forests, and more are probably



killed during the burning of firebreaks and in veld fires in general. No details are available when timber is felled across stretches of natural vegetation. Its status is vulnerable based on its limited range and the type of development taking place there.

Remarks

FitzSimons (1943) tentatively included all specimens from the Transvaal under transvaalensis and aligned them with pumila. Raw (1976) pointed out the fragmented allopatric distribution in Natal, which seems to indicate that they are relict populations of long standing. This is also the case with dwarf chamaeleons in the Transvaal, which are scattered from the Soutpansberg to Barberton separated from each other by tracts of drier country and vast river valleys which appear to be physical barriers between populations. Map 38A shows the distribution of the various phenotypes in Transvaal. A total of nine forms can be separated on subspecies and species level, following Raw (1976). There are essentially two main species complexes in the Transvaal, those north and those south of the Olifants river. Those to the north have colour patterns in males with yellow and black as well as various morphological attributes. One of these is the number of tubercles along the vertebral crest which in the northern specimens range from 20-29, mostly 22-27, while these from the south range from 27-43, mostly 30-35 while the colour of males includes pale blue, white and a little black.

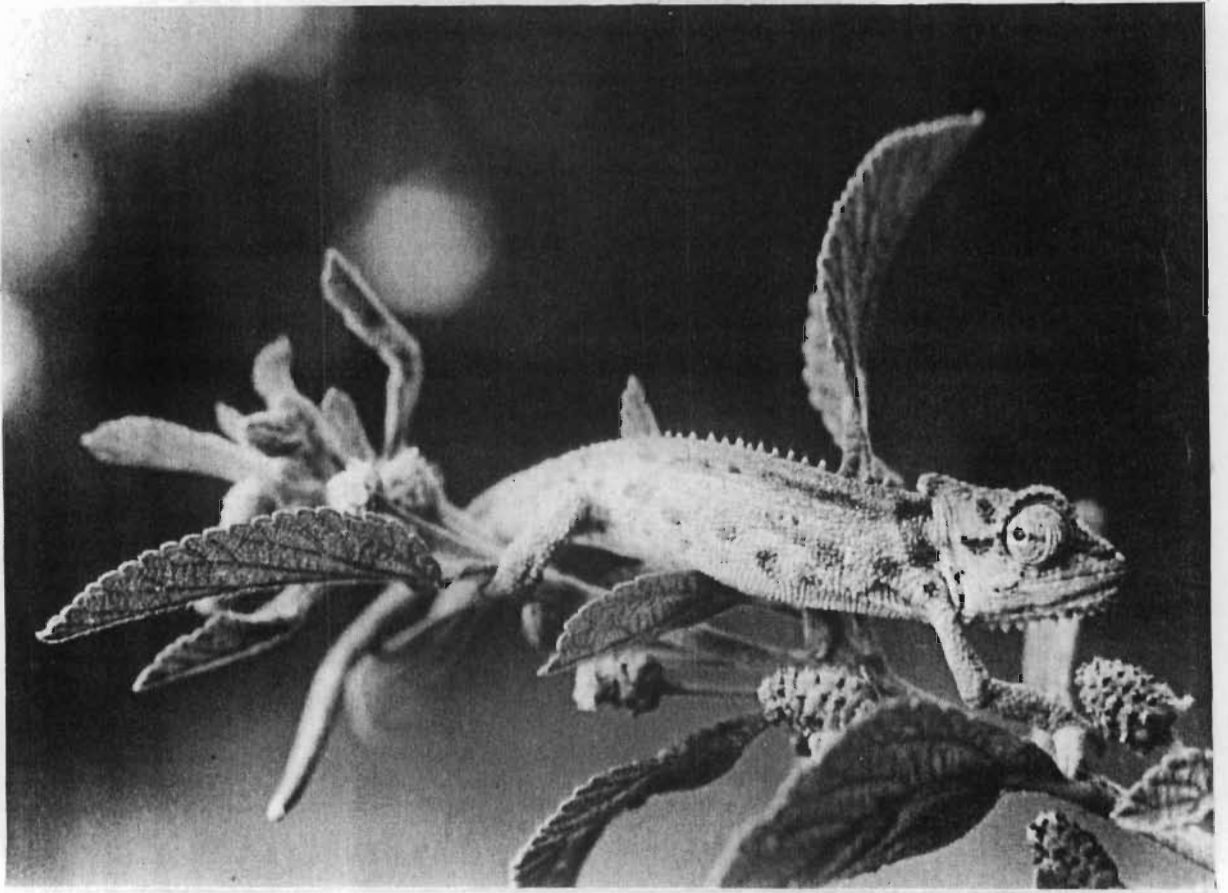
Figure 13 shows the great variation between the various phenotypes in the Transvaal. The various parameters measured and counted were analysed using a multiple components analysis, which resulted in a phenogram indicating the degree of relationship between the forms (Figure 14).



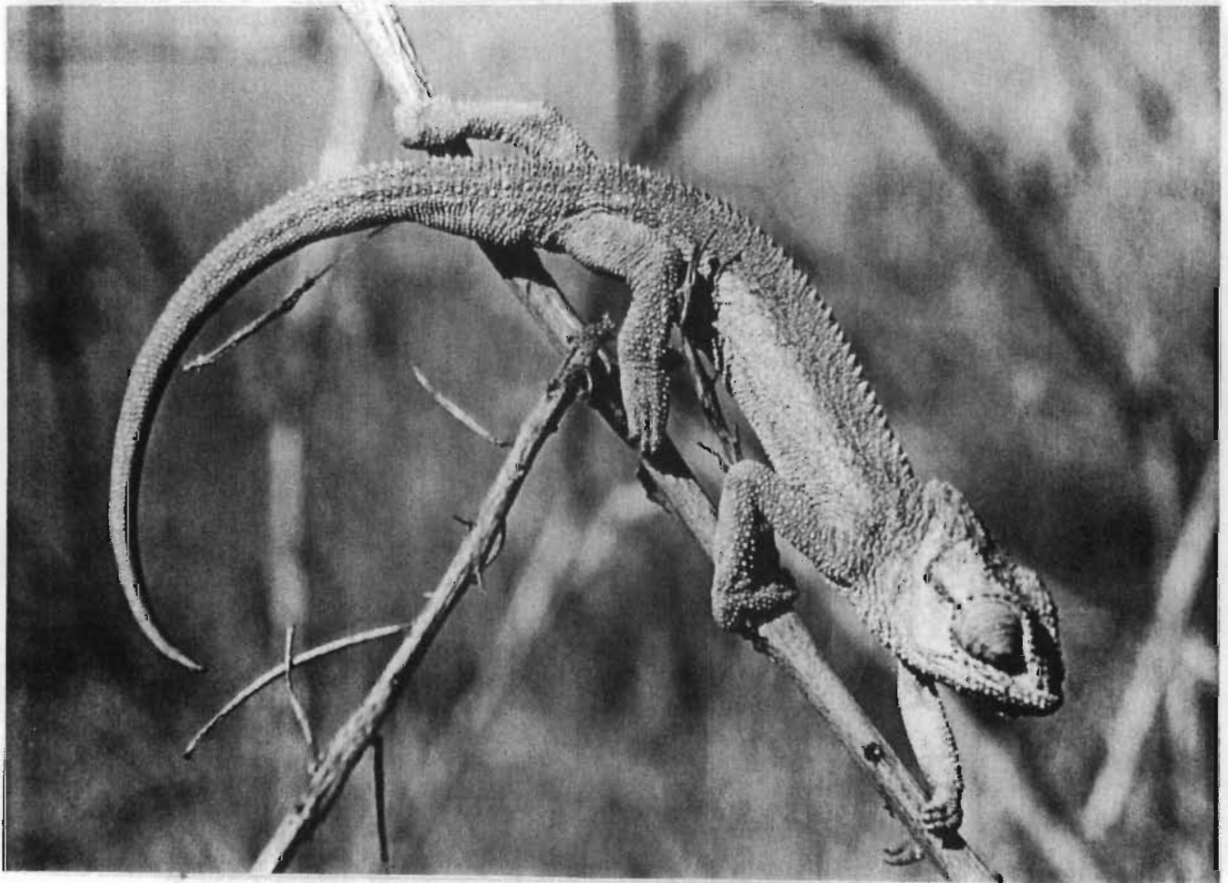
A



B

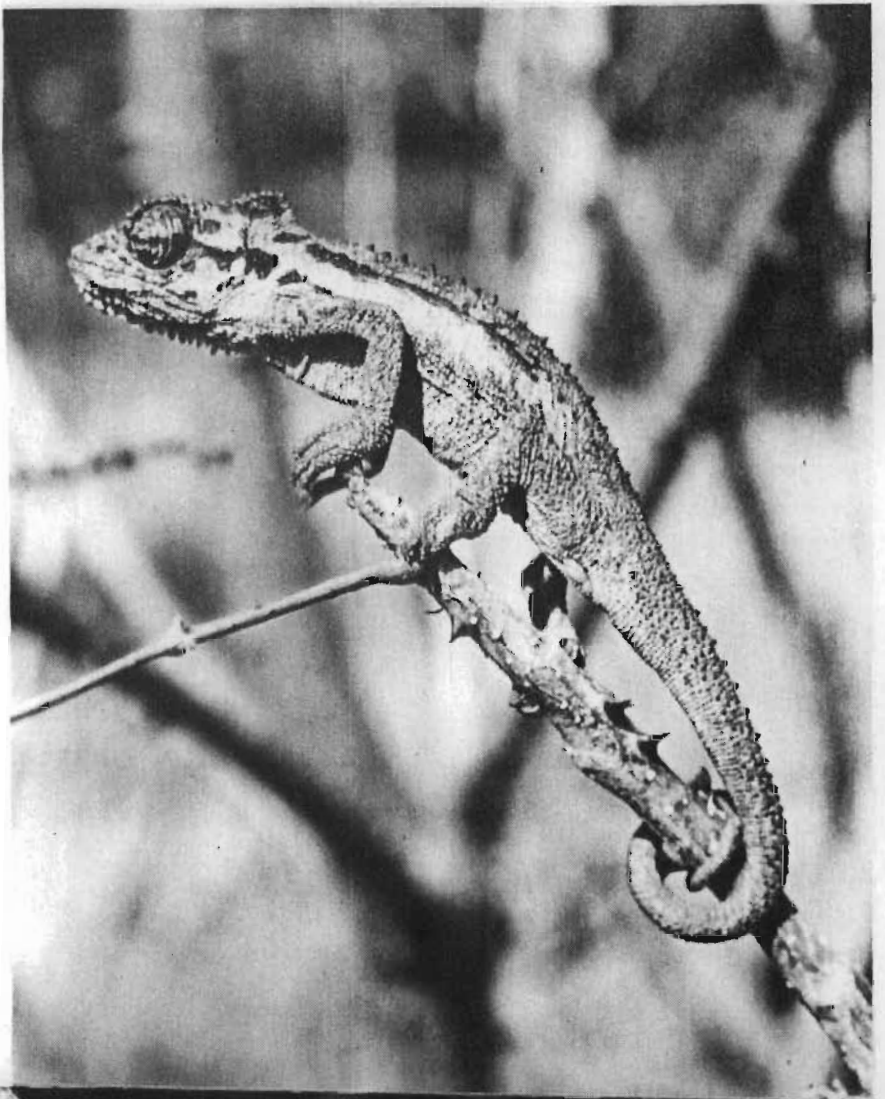


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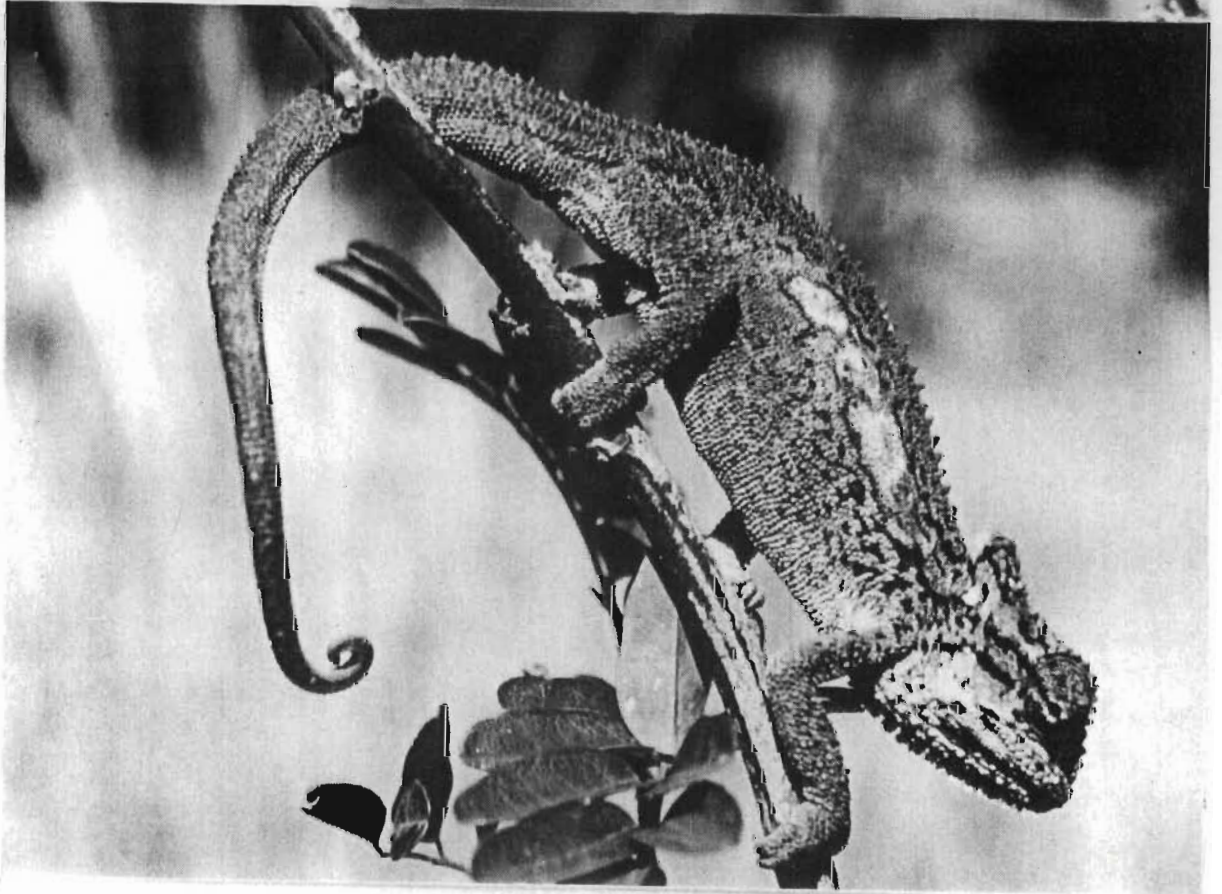


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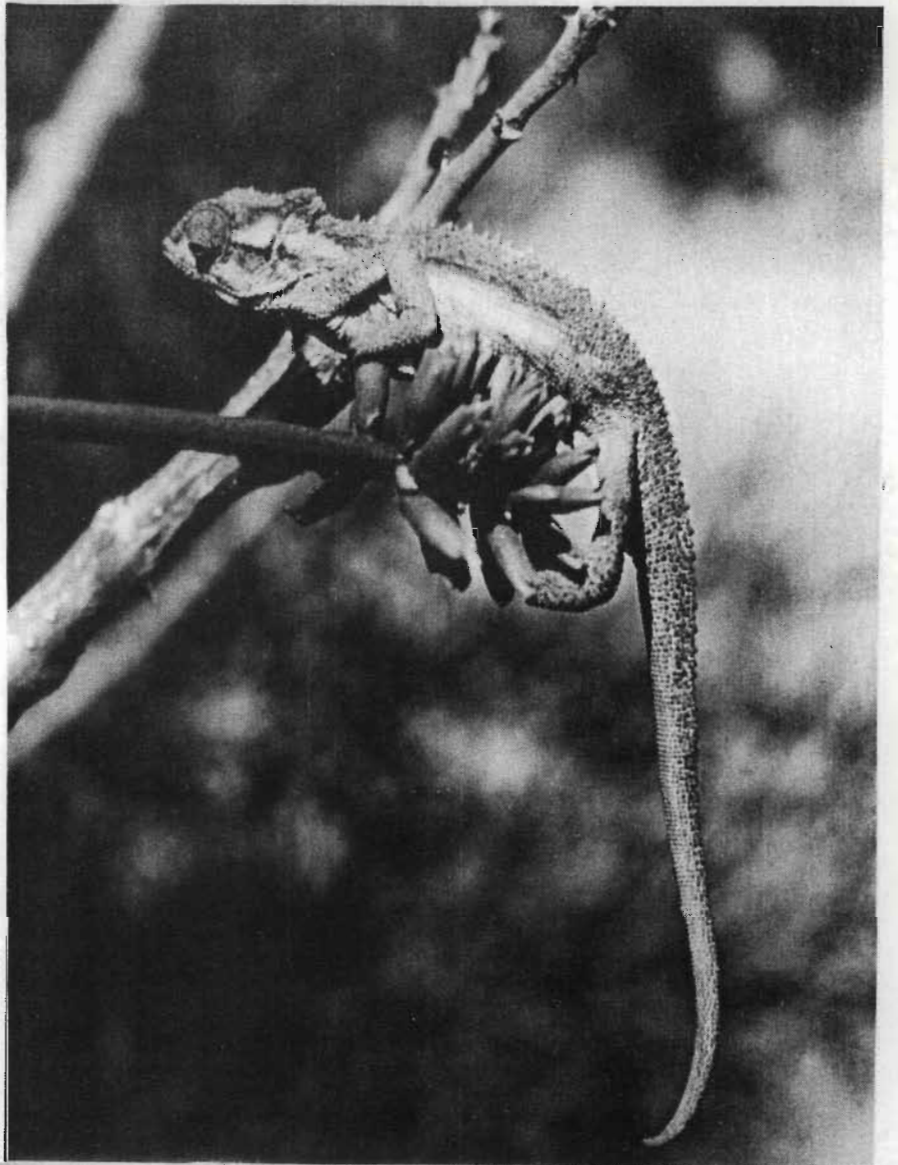
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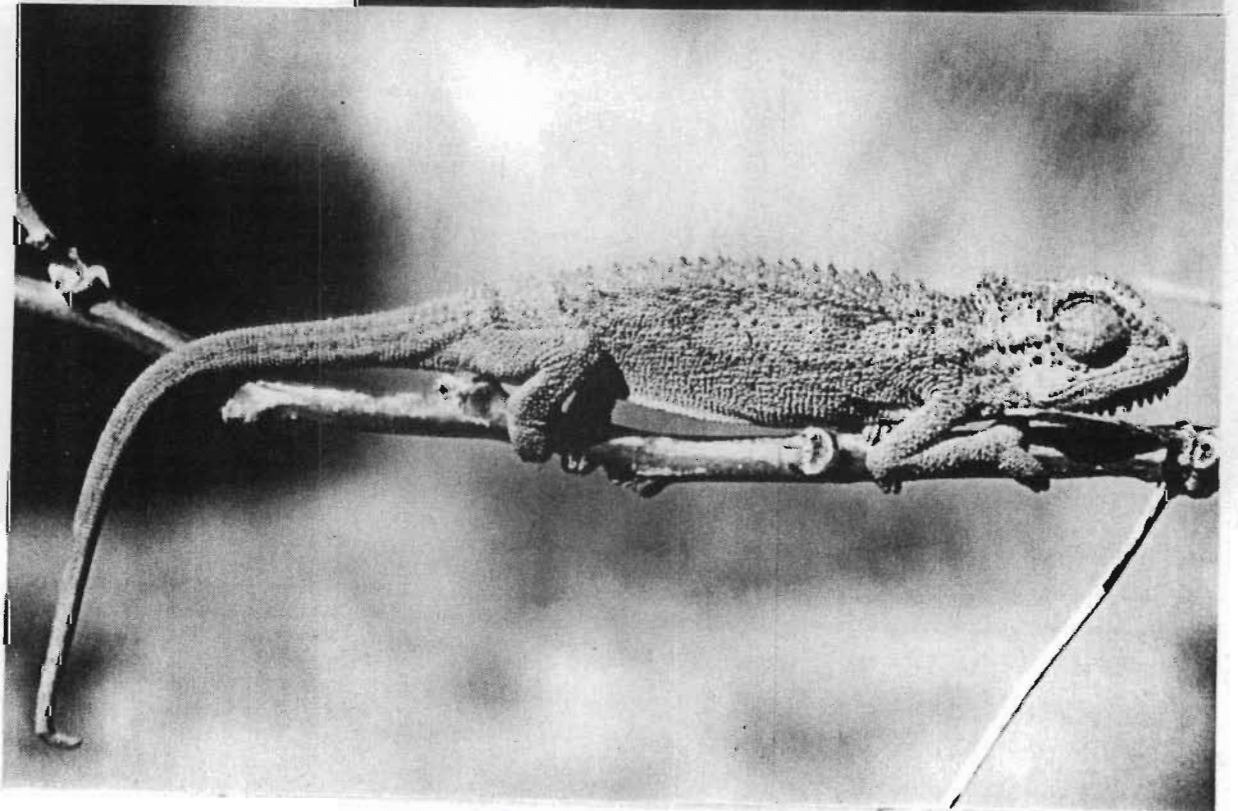
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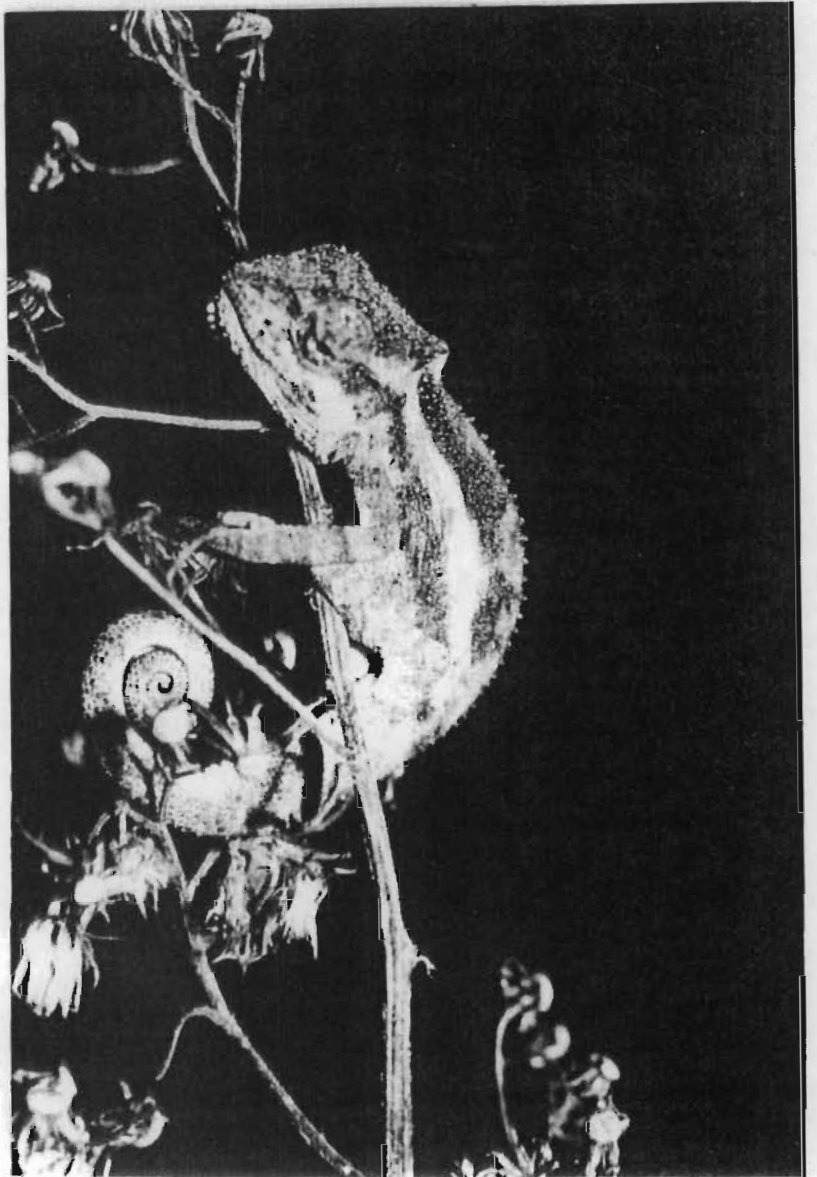


Figure 13: The various forms of Bradypodion in the Transvaal.
A. Soutpansberg; B. Woodbush; C. The Downs; D.
D. Pilgrims Rest; E. Mariepskop; F. Sabie;
G. Longtom Pass; H. Kaapsche Hoop; I. Barberton.

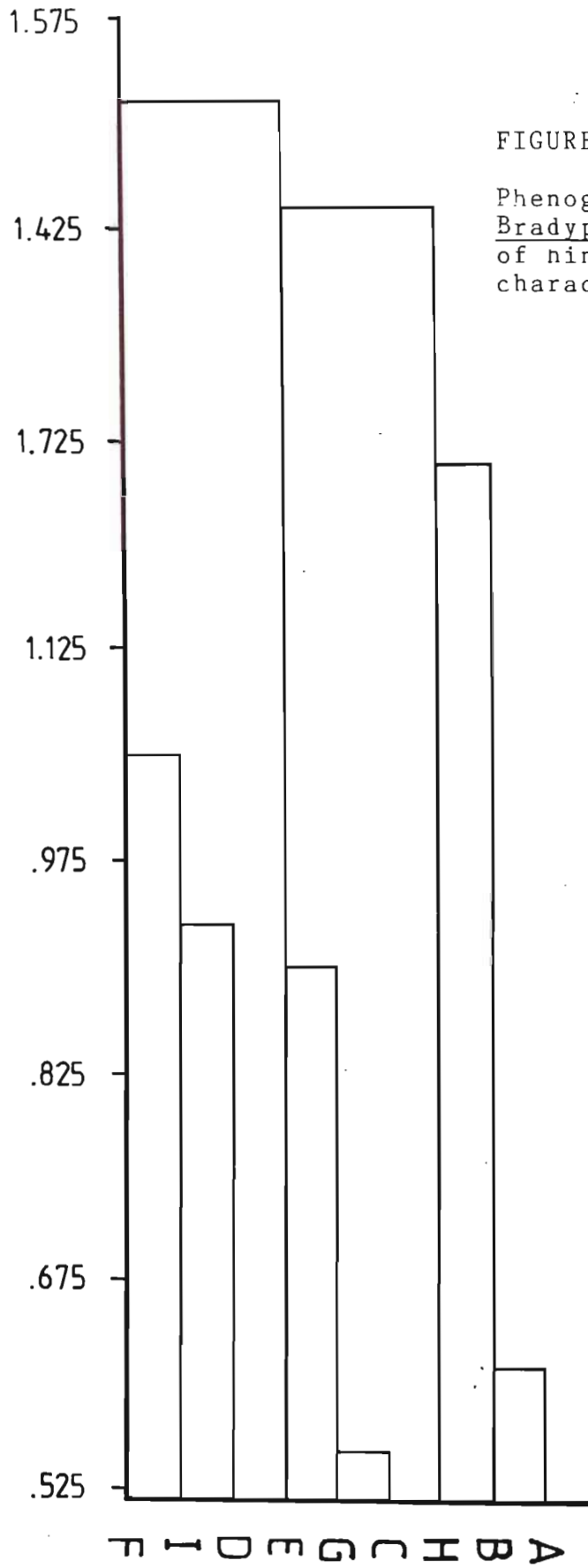


FIGURE 14:

Phenogram of Transvaal Bradypodion based on analysis of nine morphological characters.

This indicates the presence of seven species and two subspecies. Currently biochemical analyses of these forms is being undertaken at the Transvaal Museum by Dr. D. Gordon in order to clarify and finalise the situation.

Family SCINCIDAE

Genus Scelotes Fitzinger, 1826

Scelotes Fitzinger, 1826, Neue Classif. Rept. p. 23.

Type: S. anguineus Fitzinger = S. bipes L.

Scelotes is a Southern African genus with most species endemic to South Africa. The genus shows great variations in limb reduction and body attenuation. In the Transvaal there are four species and one subspecies differing largely on the degree of digit and limb reduction.

The genus is characterised by having the palatine bones in contact with one another along mesial line of palate or separated. Palate toothless. Teeth conical. Eyelids developed, lower eyelid scaly or with a semitransparent to transparent disc. Ear-opening distinct or hidden. Nostril pierced between the rostral and a very small nasal which may often be reduced to a very narrow ring or sometimes absent. A small postnasal present or absent. Prefrontals and frontoparietals usually absent. Body more or less elongate to distinctly elongate. Limbs more or less developed, rudimentary or absent, (FitzSimons, 1943).

Key to the Transvaal species.

- | | | |
|----|---|----------------|
| 1. | Both fore- and hindlimbs present | 2 |
| | Forelimbs absent, hindlimbs present | 4 |
| 2. | Forelimbs pentadactyle | <u>S. mira</u> |
| | Forelimbs di- or tridactyle | 3 |

3. Forelimbs tridactyle; Supraciliaries 5;
ventrum spotted S. l. limpopoensis
Forelimbs didactyle; supraciliaries 6;
ventrum immaculate S. l. albiventris
4. Hindlimbs didactyle S. bidigittatus
Hindlimbs monodactyle S. brevipes

Scelotes mira (Roux, 1907)

Herpetosaura mira Roux 1907, Zool. Jahrb. Syst. 25, p. 435, pl: 14, figs 7-8. Type locality: Transvaal.

Scelotes mira (Roux). FitzSimons 1943, p. 182-183, figs. 52-53; Welch 1982, p. 76; Jacobsen 1987b, p. 375; Branch 1988a, p. 123, pl. 49, 1988b, p. 9.

Description. 106 specimens examined.

Colour: Brown overall dorsally; the lateral and ventral scales in many specimens have a darker spot of varying intensity. This spottedness is emphasised on the tail, which in young lizards is bright blue becoming more gunmetal blue as the lizard ages. Ventrally the colour is white to pinkish and in some specimens heavily speckled.

Lepidosis: Snout rounded; rostral broader than high; nostril pierced between rostral and a single small ring-like nasal. Supranasals in broad contact behind rostral and in contact with 1st upper labial. Fronto-nasal broader than long, in contact with loreals; Frontal wedge to bell-shaped and interparietal broader than long and in contact with posterior supra oculars. UL 5-7, mostly 6; LL 4-6, mostly 5; mental broader than deep, with a single large postmental scale between the 1st lower labials; this is followed by two equal sized chin shields; body scales rounded, overlapping and in

20-24, mostly 22 scale rows at midbody. Limbs reduced and pentadactyle. Body and tail cylindrical; original tail longer than SVL but tail autotomy common, 62/85 (72,94%) regenerating indicating considerable predation pressure.

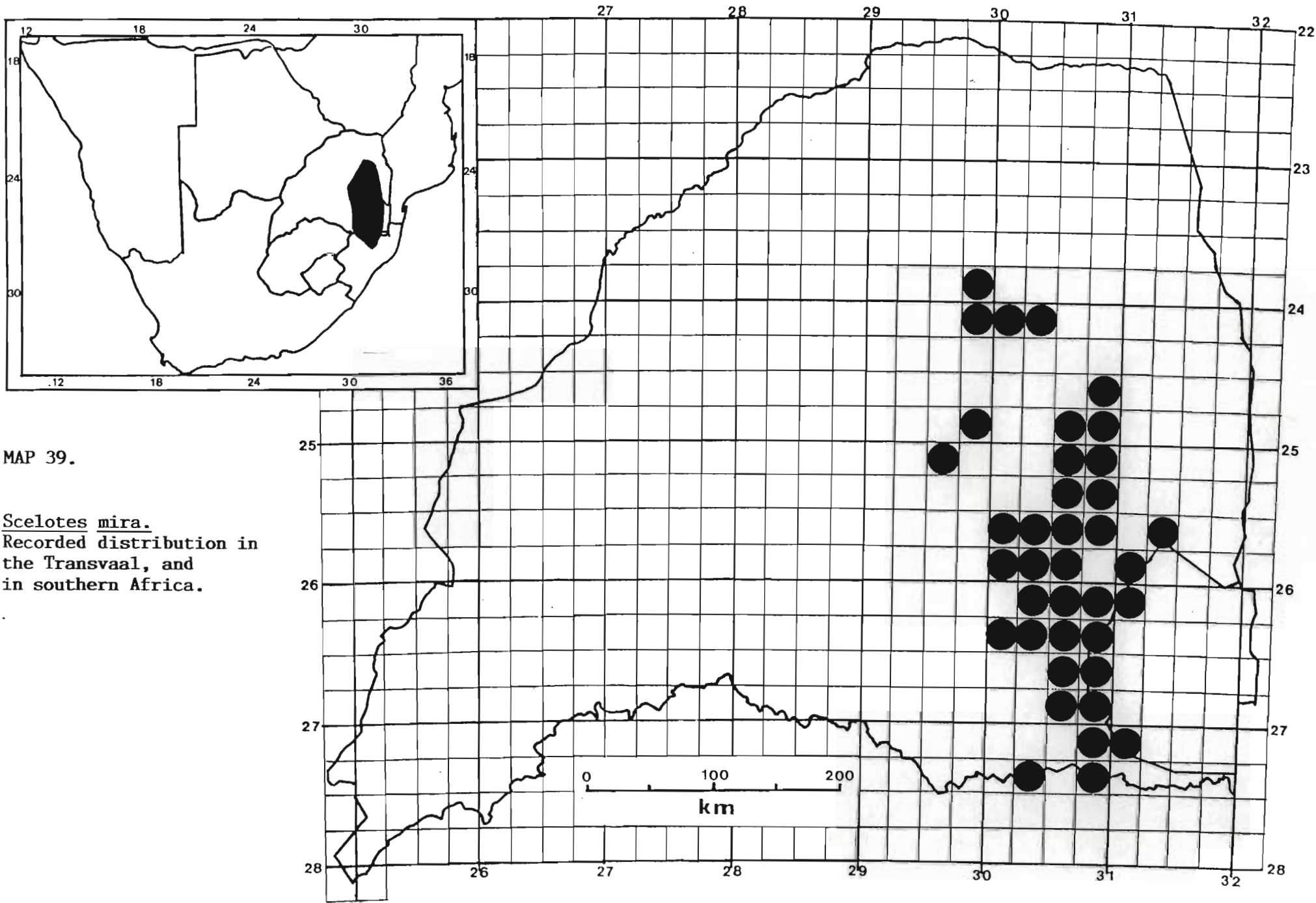
Size: Largest male SVL = 80,0 mm (J8619 - Farrefontein 349JT) mass = 4,9 g (P10323A - Lochiel 192 IT); Largest female SVL = 85,0 mm (Louws Creek), mass = 3,9 g (P10477 - Bloemkrans 121IT); Mean male SVL = 67,86 \pm 7,57 (1SD) n=32, mass = 2,35 g \pm 0,87 (1SD) n=32; Mean female SVL = 70,0 mm \pm 9,14 (1SD) n=23; mass = 2,51 g \pm 0,74 (1SD) n=23.

Distribution

A Southern African endemic occurring in the eastern and south-eastern Transvaal, Swaziland and northern Natal.

Distribution in Transvaal (Map 39).

30 km Nelspruit to Mbabane; Bakenkop 152HT; Bendor 211HT; Bloemkrans 121IT; Blyde River Camp Site; Blyde River Nature Reserve; Bothwell 90IT; Barberton; Confidence 17HU; Cyprus 68KT; Desire 563KT; Dientje 453KT; Diepdal 244IT; Diepgezet 388JU; Doornhoek 545KT; Dycedale 368JU; Farrefontein 349JT; Flynn 217KS; Glen Aggy 406IT; Goedehoop 152JS; Goedeverwachting 334JT; Goedgevonden 134HT; Groenkloof 464JQ; Harlem 443IT; Heerenveen 27IT; Inhlovudwalile 421IT; Iron Crown; Ishlelo 441IT; Kaapsche Hoop 483JT; Kafferskraal 618JT; Lake Chrissie 92IT; Lisbon State Forest; Lochiel 192IT; Loopfontein 298JT; Louws Creek 271JU; Mac Mac Pools; Mariepskop; Maryvale 248IT; Masleroems Oude Stad 840KS; Misty Mountain; Morgenzon State Forest; Ohrigstaddam Nature Reserve; Olifantsgeraamte 198JT; Paardeplaats 154JT; Pilgrim's



MAP 39.

Scelotes mira.
 Recorded distribution in
 the Transvaal, and
 in southern Africa.

Pass; Pilgrim's Rest; Pittville 197IT; Redcliff 426IT; Rietfontein 255JT; Rietvlei 375JT; Rosehaugh Station; Schelem 32KT; Stanley Bush Kop; Suikerboschfontein 422JT; The Crows Nest, The Downs 34KT; Tygerkloof 193IT; Vlakfontein 323JT; Waaiheuvel 360JU; Waterval Boven; Zevenfontein 388JT.

Habitat and Ecology

The species is found in montane grassland and scrub (Veldtypes 8, 9, 10, 19, 57, 62, 63 and 64) at altitudes between 800-2000 mm. It is most frequent around rocky outcrops where sufficient cover in the form of scattered rocks are found. On being exposed when the rock is lifted the lizard attempts to burrow deeper and if it manages to cover itself, will lie still.

This species is viviparous with two young produced per season in summer (December - April). The neonates measure from 31,0-36,0 mm SVL, with a mass of 0,2 g.

Remarks

A fairly uniform species with moderate individual variation. Two relict populations exist, one in the Wolkberg which is separated from the populations on the Blyde River nature reserve by the dry Olifants river valley. The other is found on the north western side of the Steelpoort river where isolated montane habitats still exist (Map 39).

Scelotes limpopoensis limpopoensis FitzSimons, 1930

Scelotes limpopoensis FitzSimons 1930, Ann. Tvl. Mus. p. 35, figs. 17-20. Type locality: Messina, Transvaal. FitzSimons 1943, p. 185-186, figs. 56 & 57; Pienaar et al 1983, p. 60, pl. 18; Auerbach 1987, p. 103; Welch 1982, p. 76.

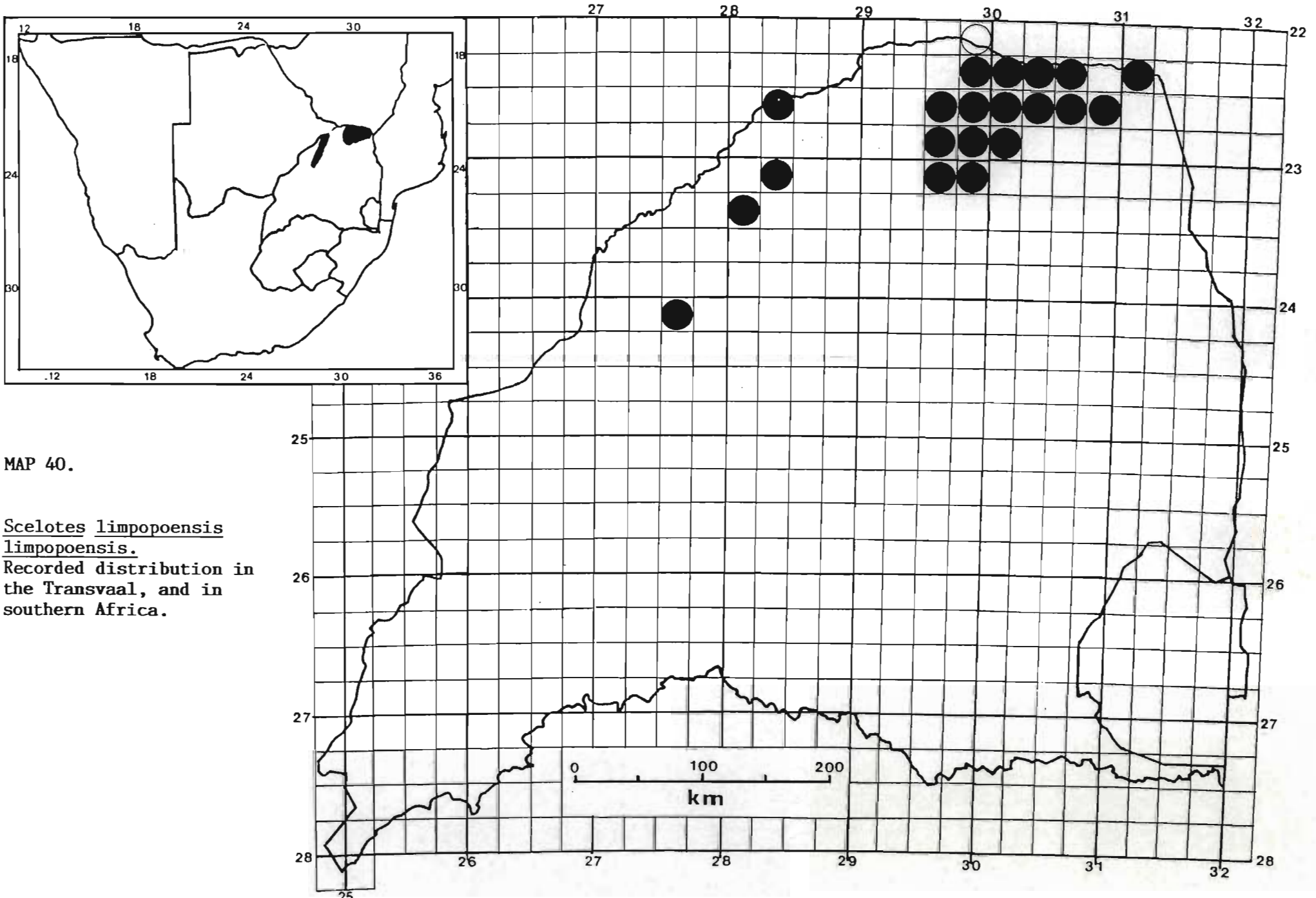
Scelotes limpopoensis limpopoensis FitzSimons. Jacobsen 1987b, p. 371; Branch 1988a, p. 123, pl. 47, 1988b, p.9.

Description. 59 specimens examined.

Colour: Two colour phases are apparent. The most common form is brown with a broad dark brown vertebral stripe extending from behind the rostral onto most of the tail. This is flanked on either side by a buffy dorsolateral streak extending onto the tail. Below this is a broad dark brown stripe extending from the snout through the eye to the tail tip. Ventrally each scale has a small transverse spot highlighting the rows. The other phase is more uniform brown in ground colour with the lighter dorsolateral streak present.

Lepidosis: Body cylindrical, snout rounded; rostral broader than deep; nostril pierced between rostral and small oval nasal; supranasals in contact behind rostral and separated from the 1st upper labials by a small postnasal; frontonasal broader than long; frontal almost as broad as long; Interparietal concave anteriorly, the arms in contact with posterior supraoculars; five supraciliaries and four supraoculars; UL 6 or 7; LL 4-6, mostly 5 or 6; Mental broader than deep, with one postmental as broad as long; scales on body smooth, rounded, overlapping and in 20-24, mostly 22 rows at midbody; Limbs very much reduced; hindlimbs tetradactyle, forelimbs tridactyle rarely mono- or didactyle. Ventrally rounded overlapping scales; tail cylindrical and longer than SVL (original); tail autotomy prevalent, 22/34 (64,7%) have been regenerated.

Size: Largest male SVL = 76,0 mm (TM59149 - Gumela), mass = 3,25 g (TM59149); Largest female SVL = 85,0 mm (TM59165 - 5 km N. of Tshamavhudzi Peak), mass = 3,0 g (TM59156 - Tshidzi Hill). Mean male SVL = 64,0 mm \pm 7,96 (1SD) n=13, mass = 1,93 g \pm 0,70 (1SD) n=13; Mean female SVL = 67,5 mm \pm 8,25 (1SD) n=13, mass = 2,19 g \pm 0,57 (1SD) n=13.



MAP 40.

Scelotes limpopoensis
limpopoensis.
 Recorded distribution in
 the Transvaal, and in
 southern Africa.

Distribution

Southern Zimbabwe, the north eastern Kruger National Park westwards along the Soutpansberg and the low-lying country to the north in an arc to the foothills of the Waterberg near Bulge River.

Distribution in Transvaal (Map 40)

4 km N of Tshamavhudzi Peak; 5 km N of Tshamavhudzi Peak; Albasini 524MS; Bronkhorstfontein 42LR; Capesthorne 233LS; Dambale Hills; Fontainebleau 212MS; Fontainebleau 537MS; Gulliver 237MS; Gumela; Holworth 783MS; Koeberg 52MR; Lucerne 198MS; Malala Drift 83MT; Messina Experimental Agricultural Farm; Mollevel 614MS; Near Shabaku; Niklaas 148MT; Overwinning 713MS; Rochdale 700MS; Sonskyn Spa; Suzette 32MT; Trevenna 119MT; Tshidzi Hill; Tshipise 105MT; Uitenpas 2MT; Van Collers Pass; Varkfontein 141KQ; Vhuswinzhe; Wemmersvlei 185LR; Wylliespoort.

Literature Records

Beit Bridge (FitzSimons 1943).

Habitat and Ecology

A fossorial species it is found under stones or logs in sandy soil. Often associated with aeolian Kalahari sands but also known in sands formed from the weathering of Waterberg sandstone along the Soutpansberg and Waterberg. Occurs in veld types 15,18 (mostly), 19, 20 (Acocks, 1975) at an altitude between 300-1100 m. Stones and logs under the shade of trees or shrubs are usually inhabited. Mostly solitary, on occasions two individuals are found under the same shelter. Sometimes a female and

her two young are found together. Viviparous, two young are born in early summer. The neonates measure 22,5-23,0 mm SVL with a total length of 51,0 mm and a mass of 0,2 g.

Conservation Status.

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. Occurs in the north eastern Kruger National Park. Also likely to be found in the Messina nature reserve. Most of the area occupied by this species is marginal for agriculture and mostly devoted to ranching and game farming which would ensure the survival of the species. Currently considered secure.

Remarks

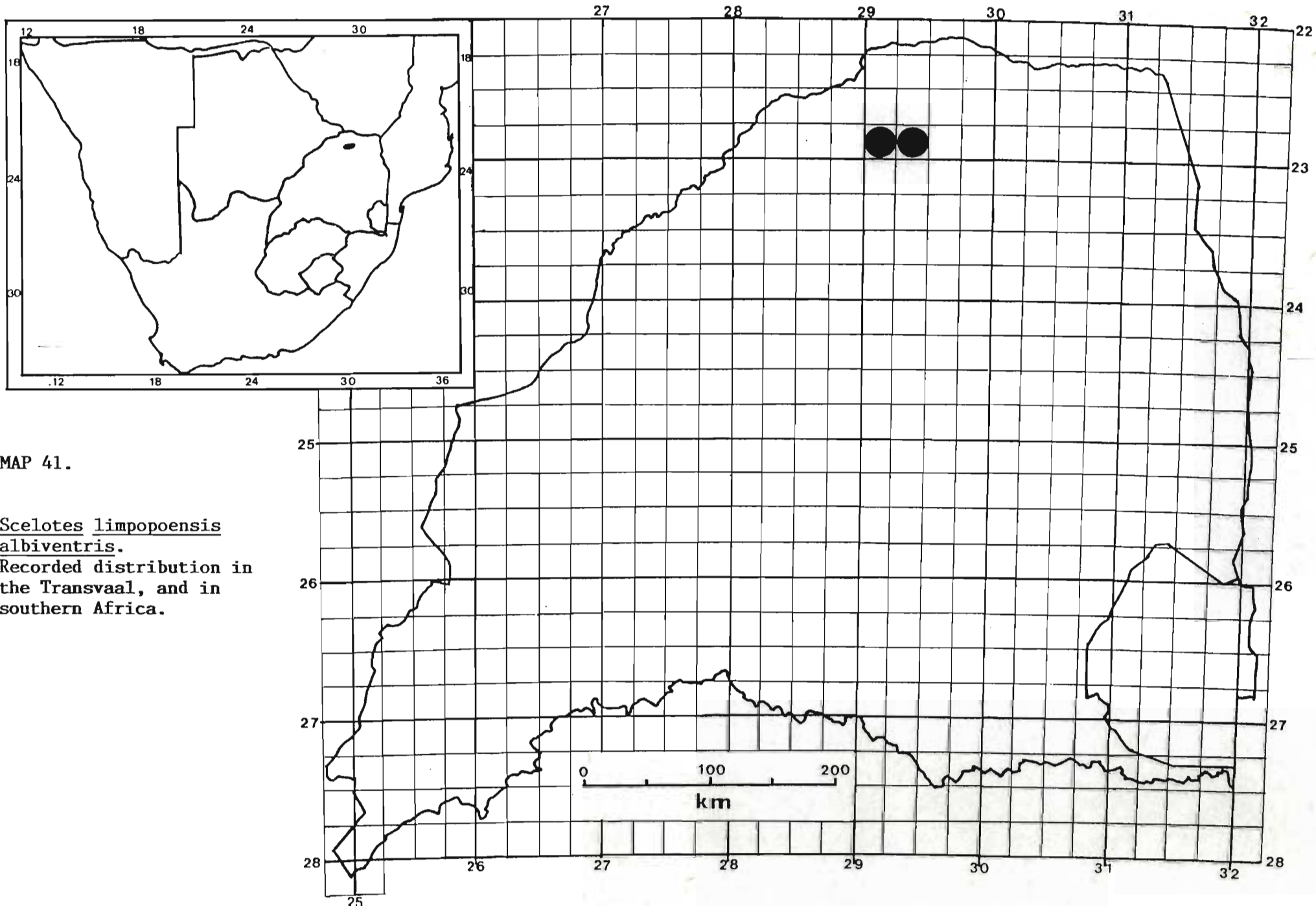
The occurrence of the race S. l. albiventris Jacobsen in the middle of the distribution range of S. l. limpopoensis has been reported on (Jacobsen 1987b). Further anomalies from this vicinity include a relict population of Typhlosaurus lineatus Boulenger described by Broadley (1968d) and ovoviviparous Mabuya capensis (Gray) while the species in the northern Transvaal is oviparous. This indicates that this area was isolated for a lengthy period of time and that the climate in all probability became colder, during this period of isolation.

Scelotes limpopoensis albiventris Jacobsen, 1987

Scelotes limpopoensis albiventris Jacobsen 1987, Ann. Tvl. Mus. 34(17), p. 371-376, fig. 1. Type locality: Langjan Nature Reserve. Branch 1988a, p. 123, 1988b, p. 9.

Description. 12 specimens examined.

Colour: A broad dark brown vertebral stripe is found



MAP 41.

Scelotes limpopoensis
albiventris.
 Recorded distribution in
 the Transvaal, and in
 southern Africa.

from rostral to the tail. A well defined buffy streak extends dorso-laterally from the nostril to the tail, laterally, a broad dark brown stripe of similar length is found. Ventrally for a width of 8-10 (mostly 10) scale rows, immaculate white.

Lepidosis: As for the nominate race with the exception of six supraciliaries and the forelimbs mostly (91,67%) didactyle (rarely mono- or tridactyle).

Size: Type specimen 70,0 mm SVL, tail 71,0 mm.

Distribution

Restricted to the Transvaal

Distribution in Transvaal, (Map 41)

Auf der Haard 455MS; Langjan nature reserve; Philipstown 390 MS, Wintersveld 427MS.

Habitat and Ecology

Under logs and stones in the shade of trees and shrubs in sandy soil, deep in the Kalahari sands of the Langjan nature reserve and shallow on the top of the eastern Blouberg. Solitary and fossorial, it keeps buried when uncovered, simply by wriggling swiftly into the loose sand. Found primarily in Veld types 18 and 19 at altitudes between 800-1050 m, above sea level. Presumably viviparous, as in the nominate race with two young being born at a time.

Conservation Status. (RDB 1988, Restricted).

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. The species occurs in the Langjan nature reserve while the other localities where it is

found are used for ranching purposes. Its status appears secure.

Remarks

Scelotes bidigittatus FitzSimons, 1930

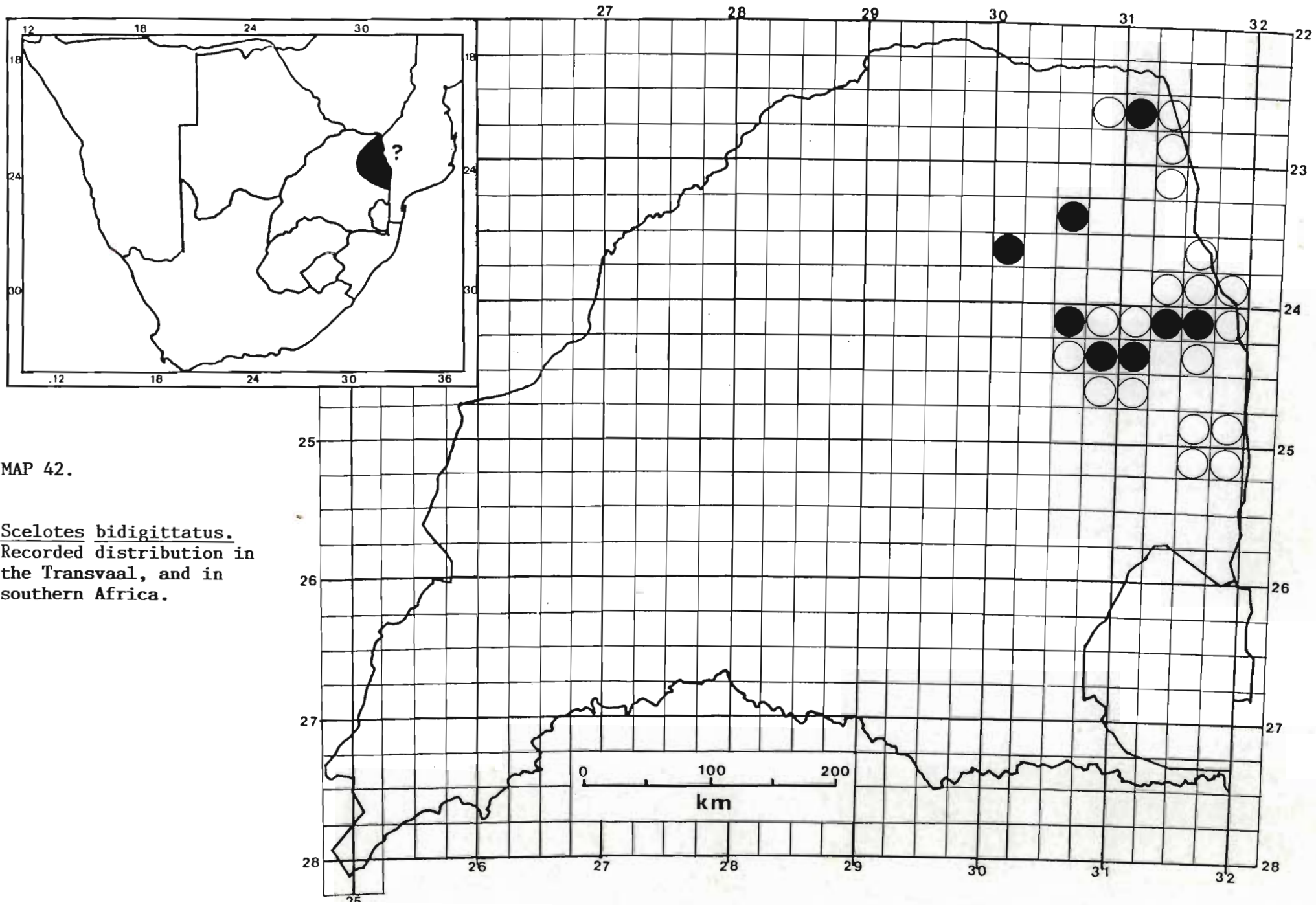
Scelotes bidigittatus FitzSimons 1930, Ann. Tvl. Mus. 14, p. 34, figs. 15 & 16. Type locality: Farm Madrid on the Brak river, eastern Transvaal; Pienaar 1966, p. 56, pl. 12, 1978, p. 50, pl. 13; Pienaar et al 1983, p. 62, pl. 18A; Jacobsen 1987b, p. 376; Branch 1988a, p. 120, pl. 48, 1988b, p. 9.

Scelotes bidigittata FitzSimons. Welch 1982, p. 75.

Description. 22 Specimens examined.

Colour: A dark brown vertebral stripe extends from the crown of the head to the tail where its colour merges and becomes blackish-blue. Adjacent and dorsolaterally is a narrow buffy streak extending from the supraoculars to the base of the tail where it continues as a blue stripe. Laterally each scale has a dark brown centre which becomes smaller ventrolaterally and ventrally giving a striped appearance on a greyish buffy background. Tail blue above becoming gunmetal blue in older specimens.

Lepidosis: Body elongated and cylindrical. Head very small; rostral broader than high; nostrils pierced in rostral and bordered below by a small semicircular nasal; supranasals in broad contact behind nostril and with 1st upper labial on each side. Frontonasal broader than long; frontal wedge-shaped; interparietal broader than frontal and in contact with posterior supraoculars; 4 supraoculars; 5 supraciliaries; a pair of parietal shields are in broad contact behind the interpanetal; UL 6; LL 5; Mental large, broader than long; one large postmental in contact with 1st lower labials. Body



covered with rounded, overlapping scales above and below, in 18-22 (mostly 20) scale rows; Forelimbs absent, hindlimbs didactyle; tail (original) longer than SVL and caudal autotomy is prevalent with 12/18 (66,67%) regenerated.

Size: Largest male SVL = 75,0 mm (J1651 - Duivelskloof 436LT), mass = 1,55 g (J1651); Largest female SVL = 83,0 mm (N5613 - Guernsey 81KU), mass = 1,4 g (N5613); Mean male SVL = 69,25 mm \pm 5,12 (1SD) n=4, mass = 1,26 g \pm 0,32 (1SD) n=4; Mean female SVL = 72,2 mm \pm 6,75 (1SD) n=5, mass = 1,23 g \pm 0,16 (1SD) n=5.

Distribution

The north-eastern Transvaal lowveld between the Soutpansberg and the Olifants river and its tributaries extending south-east to northern Zululand.

Distribution in Transvaal (Map 42)

Argyle 46KU; Duivelskloof 436LT; Guernsey 81KU; Hoedspruit; Mashatukop, KNP; Picket Road, Tseri River, KNP; Punda Milia; Selati Ranch 143KT; Seshwene; Shamiriri; Turbine Waters; York 188KT.

Literature Records

Klaserie; Madrid 247KT; Perkeo 223KT; Zeekoegat 12KU; near Mica, (FitzSimons 1943). Recorded localities: Matukwane ridge; Boyela windmill; Mashagadzi; Olifants camp; Dongadziba; Gumbandevu ridge near Punda Maria; Ngirivane sandstone reef; near Olifants river gorge (Msimbit forests); Malonga spring; Tshokwane; along eastern tributary of Bangu spruit; Olifants river bridge; Mbulwene sandstone reef; Matikiti koppie near Nwanedzi east windmill; Dinbo ridge near Punda Maria;

Skukuza; rocky outcrop along Olifants river 3,2 km east of Munyekelani drift; Hlanganine sandstone reef, Letaba section; Nwashitsaka drift near Skukuza; eastern boundary between Nchindo and Tabanglovu beacons; south bank of Sabie river between Nwatimhiri and Lubyelubye; between Shidzivane turnoff and Malituve; Pumbe sandveld; Tseri; Mshatukop, (Pienaar et al 1983).

Habitat and Ecology

A fossorial species usually found singly (rarely in pairs) under a rock, rotting log or other debris such as car tyres. Occasionally also found in leaf litter and among grass tussocks buried in the loose soil. Found in various veld types including Acocks No. 8 and 11 at an altitude between 300-1000 m a.s.l. They are very active when exposed and writhe away rapidly, often attempting to burrow deeper. Viviparous, gravid females with full term neonates have been found during December. Two young appears to be the norm.

Conservation Status.

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. Not currently known to occur in a provincial nature reserve but is widespread in the Kruger National Park. Most of its distribution range is in areas mainly used for cattle and game ranching. In parts of Gazankulu and Venda, burning practices and agriculture may influence the viability of the species. Similarly the large scale habitat destruction on arable land elsewhere and particularly along rivers must also have had an impact on the species. Considered currently secure, a more detailed survey of habitat requirements and distribution are needed.

Remarks

A distinct Scelotes unlikely to be confused with other species.

Scelotes brevipes Hewitt 1925.

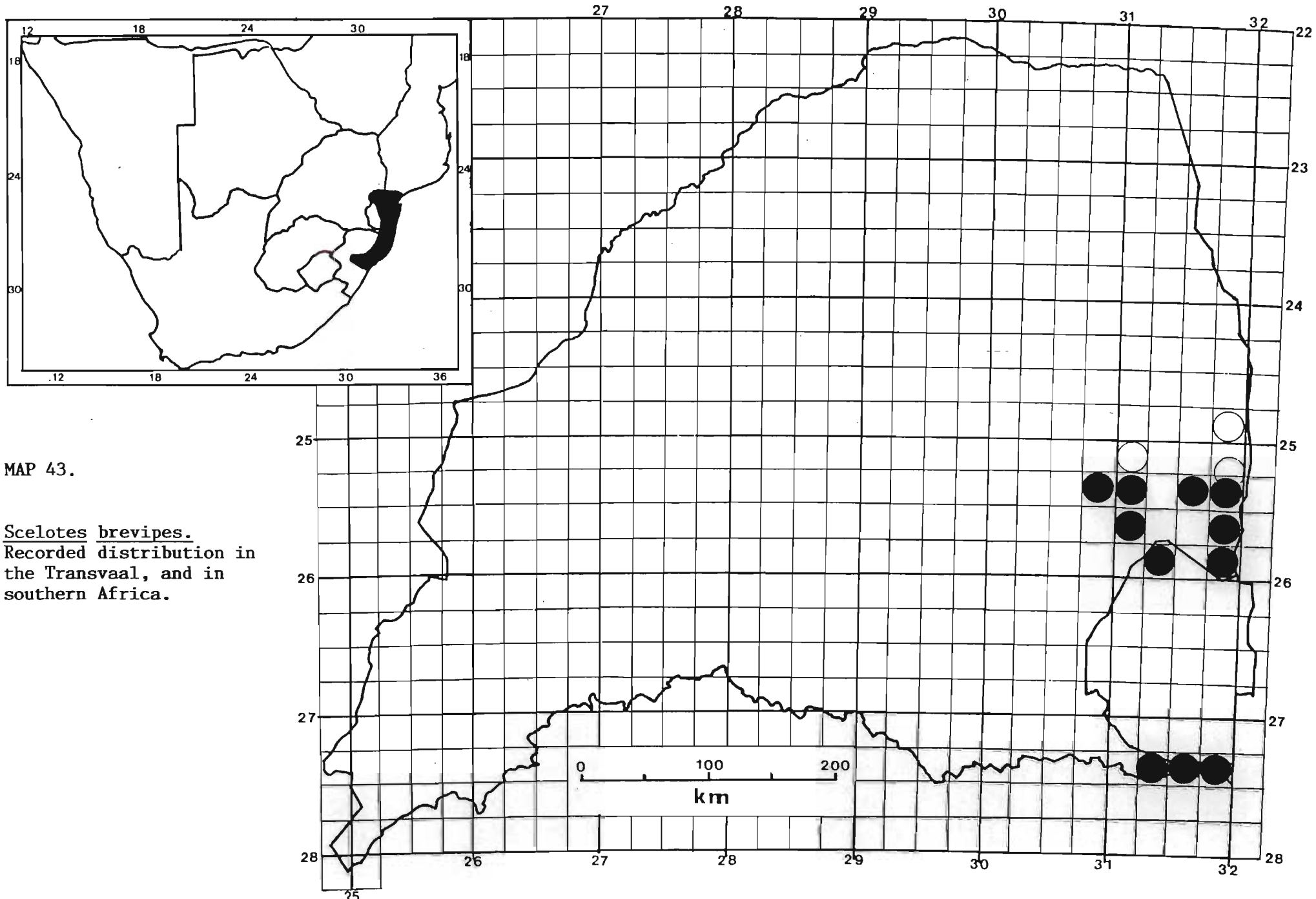
Scelotes brevipes Hewitt 1925, Rec. Alb. Mus. 3, p. 353, pl. 15, fig. 4. Type locality: Lourenco Marques, Mozambique. FitzSimons 1943, p. 194-195, figs. 69 & 70; Pienaar 1966, p. 57, pl. 13, 1978, p. 51, pl. 14, Pienaar et al 1983, p. 62, pl. 19; Welch 1982, p. 76; Jacobsen 1987b, p. 376; Branch 1988a, p. 121, pl. 47, 1988b, p. 9.

Description. 20 specimens examined.

Colour: Uniform dark brown above and below. Dorsals have a small dark spot at the rear of the scale. This spot becomes larger and more central laterally and ventrally. Tail blue in juveniles becoming dark grey-blue with age.

Lepidosis: Head small, rostral rounded and broader than long; nostril pierced between rostral and a very small ring-like nasal; nasal in contact with 1st upper labial and supranasals; supranasals in broad contact behind rostral; frontonasal broader than long; frontal wedge shaped and longer than broad; interparietal broader than long, concave and in contact with posterior supraoculars; supraoculars 4, supraciliaries 6; UL 5-6; LL 5; mental large, broader than long; a single large postmental followed by two chin shields; body elongated and cylindrical with 18-20 (mostly 18) scales at midbody; Forelimbs absent; hindlimbs monodactyle and totally rudimentary; tail cylindrical, original as long or longer than SVL; tail autotomy present 9/17 (52,9%) regenerated.

Size: Largest SVL = 68,5 mm (J6952 - Halfkroonspruit,



MAP 43.

Scelotes brevipes.
 Recorded distribution in
 the Transvaal, and in
 southern Africa.

KNP), mass = 1,2 g (N7805 - Duurstede 361 JU); Mean SVL = 57,53 mm \pm 10,05 (1SD) n=15; mass = 0,74 g \pm 0,32 (1SD) n=15.

Distribution

Eastern Transvaal lowveld through Mozambique, Swaziland to Zululand.

Distribution in Transvaal (Map 43)

Broedershoek 129JU; De Hoop 203JU; Drum Rock Hotel; Duurstede 361JU; Eureka City; Godlwayo; Halfkroonspruit KNP; Halfkroonspruitmond KNP; Hectorspruit; Mananga; Matabula; Nelspruit; Pongola Nature Reserve; Zwartkloof 60HU.

Literature Records

Boulder-strewn ridge north of the Nwaswitsontso river at Orpen dam; Ship Mountain; lower reaches of the Makatlanyane spruit; Lebombos; in the vicinity of Beacon A, Lebombos; Shaben Hill, near Pretoriuskop, (Pienaar et al 1983).

Habitat and Ecology

A specialised fossorial species found mainly under rocks or rotting logs in loamy soil. Occurs at altitudes between 240-1300 m a.s.l. in veld types 6, 9, 10 and 63, mostly in open mixed bushveld but also riparian woodland and montane grassland.

FitzSimons (1943) records the species as being oviparous with two young being born in late summer.

Conservation Status.

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. This species is widespread in the southern Kruger National Park and also occurs in the Pongola nature reserve (Jacobsen et al, 1986). Elsewhere subjected to considerable agricultural and afforestation development pressure. Currently widespread along the Lebombo mountains and other rocky areas in the lowveld, its status can be considered secure.

Remarks

A distinct species unlikely to be confused with other Scelotes forms.

Genus Mabuya Fitzinger, 1826

Mabuya Fitzinger, 1826, Neue Classif. Rept., pp. 23 & 52.

Type: M. dominicensis = Lacertus mabouja Lacépede, 1788.

A widely distributed, almost cosmopolitan genus it is characterised by having palatine bones in contact with one another mesially; palatal notch entirely separating the pterygoids and extending forward to between the centres of the eyes; pterygoid teeth minute or absent. Maxillary teeth conical or bicuspid. Eyelids movable, with or without a transparent disc. Ear-opening distinct, but tympanum more or less deeply sunk. Nostril pierced in a single nasal: supranasals usually present (absent in only one Malayan species); prefrontals present; paired frontoparietals present, sometimes united into a single shield; interparietal usually distinct, sometimes fused with parietals. Limbs well-developed and pentadactyle; digits subcylindrical or compressed, with smooth or keeled transverse lamellae inferiorly. No preanal nor femoral pores.

A homogeneous genus, Mabuya is represented by six species and two subspecies in the Transvaal. One species is undescribed and Mabuya varia is very variable and in need of further subdivision. Other species are relatively distinct. The occurrence of M. homalocephala smithii (Gray) is interesting and unique.

Two species namely M. capensis (Gray) and M. varia (Peters) show reproductive bimodality being both ovoviviparous and oviparous in the Transvaal, a feature as yet inexplicable and requiring further research.

Key to the Transvaal species.

1. Scales on soles of feet non-spinose, smooth or tubercular and rounded; subdigital lamellae

- smooth or at most bluntly keeled 2
- Scales on soles of feet keeled and usually sponose; subdigital lamellae sharply uni- or tricarinate 4
2. Scales at midbody 29-31 3
- Scales at midbody 38-46 (mostly 40-43) M. quinquetaeniata
margaritifer
3. Dorsal scales feebly tricarinate with 6 black longitudinal stripes extending down the back. Body slightly depressed M. homalocephala
smithii
- Dorsal scales mostly quinquecarinate, rarely tri- or septemcarinate; dorsum uniform golden brown with distinct black lateral stripe. Head and body depressed M. homalocephala
depressa
4. Subocular not narrowed below, similar to upper labials M. capensis
- Subocular, narrowed below or excluded from lip by labials 5
5. Nostril directed upwards its centre above or in front of suture between rostral and first labial. Adults less than 48,0 mm SVL M. variegata punctulata
- Nostril directed outwards and upwards; centre of nostril usually posterior to the suture between rostral and first labial. Adults exceed 48, 0 mm SVL 6

6. Midbody scale rows 30-36 (mostly 32-34) 7
Midbody scale rows 33-42. 8
7. 40-48 (mostly 42-46) scales between occiput
and sacrum; midbody scale rows 30-34 (mostly
32 to 34); 2-3 obtuse lobes at anterior margin
of ear; habitat terrestrial M. varia
46-52 (mostly 48-51) scales between occiput
and sacrum; midbody scale rows 32-36 (mostly
34); 2-4 lanceolate lobes at anterior margin
of ear opening; habitat rupicolous M. sp. nov.
8. Subocular usually excluded from lip;
dorsum usually olive-brown to reddish-brown with
well defined yellow dorsolateral stripes;
habitat usually arboreal but also terrestrial
and more rarely rupicolous M. s. striata
Subocular in contact with lip; dorsum
blackish with a pair of pale dorsolateral
stripes present; dark spotting on the dorsum
may form semi continuous longitudinal lines
down the back M. s. punctatissimus

Mabuya homalocephala smithi (Gray, 1845)

Euprepes smithii Gray 1845, Cat. Liz. p. 112.

Type locality: South Africa.

Mabuya homalocephala smithii (Gray). FitzSimons 1943,
p. 210-211; Branch 1981, p. 158; 1988a, p. 129, pl. 52,
1988b, p. 9; De Waal 1978, p. 35; Welch 1982, p. 85.

Description. 4 Specimens examined.

Colour: Brown above with 6 black longitudinal lines
extending from behind the head to the base of the tail;
dorsolaterally an offwhite to brownish-white stripe
extends from the supraoculars to the base of the tail.
Below this and extending from the snout through the eye

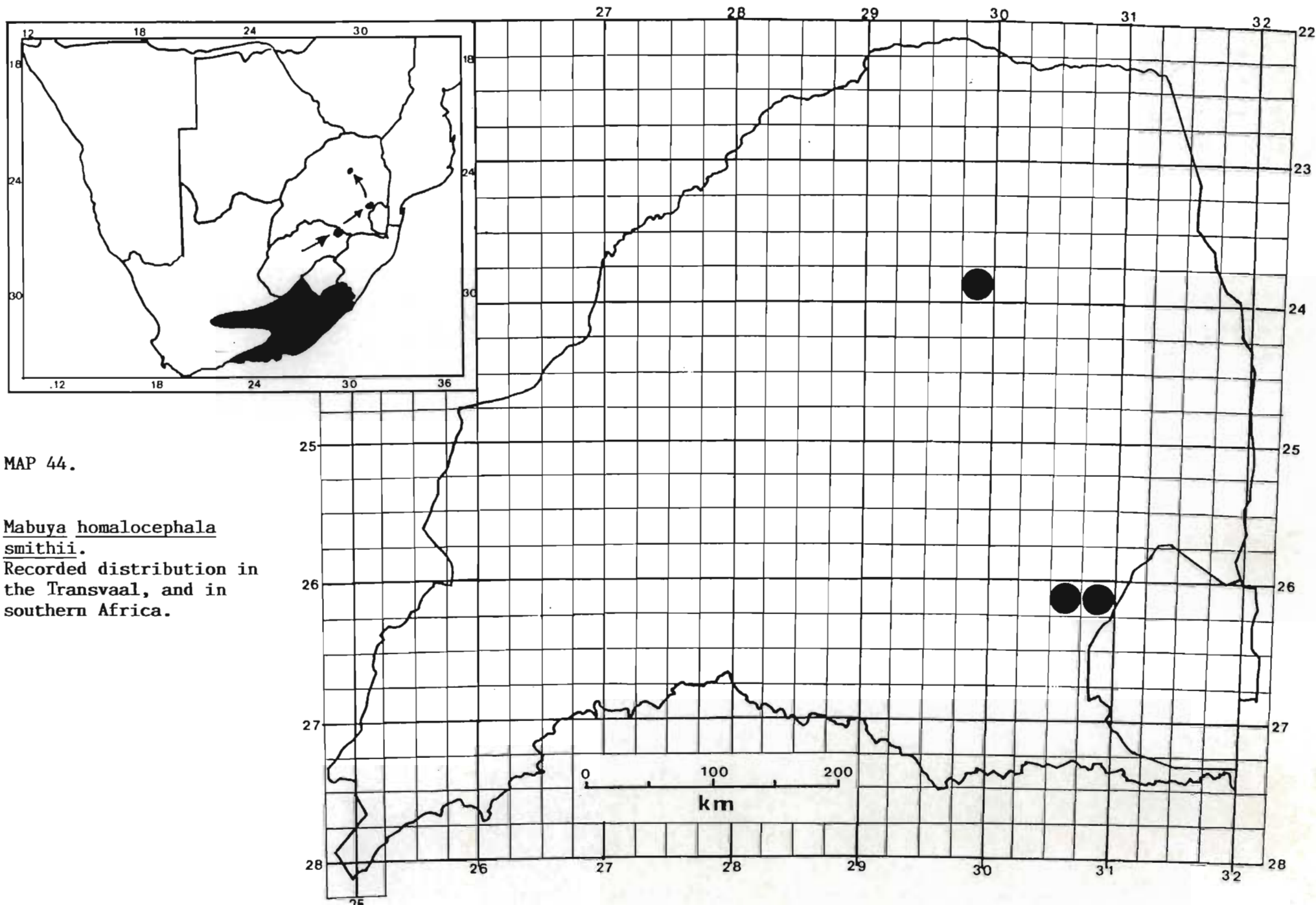
onto the sides of the tail is a broad black band. This is bordered below by a white to brownish white stripe extending from the tip of the snout to the groin. The black of the sides extends below this white stripe for about one to $1\frac{1}{2}$ scale rows whereafter it merges into the white of the belly. The soles of the feet are dark brown to black. Head shields edged with dark brown.

Lepidosis: A slightly depressed stocky lizard with a long tapering tail. Limbs well developed. Rostral much wider than high; nostril pierced near posterior margin of nasal narrowly separated from the posterior nasal and supranasal; Supranasal obliquely elongate and narrowly separated or in contact behind rostral; frontonasal broader than long and in contact with loreals; prefrontals separated by frontal or narrowly in contact, and in contact with preocular; frontal more or less heptagonal; fronto-parietals in contact with 3rd and 4th supraoculars; interparietal small and roughly triangular with wavy anterior margin; parietals in narrow contact behind interparietal; supraoculars 4; supraciliaries 5; preoculars 3, postoculars 3 plus one or more accessory scales; UL 7; LL 6-7; Mental wide and narrow with a concave posterior margin; one large broader than long postmental followed by two chin shields; 2-3 lanceolate lobules at anterior margin of ear; dorsal scales very feebly tricarinate and imbricate; 29-30 scales at midbody; limbs pentadactyle, subdigital lamellae 15-18 and unicarinate; scales under feet rounded or nodular. Ventral scales overlapping and smooth.

Size: Largest SVL = 65,0 mm (P10309 - Lochiel 192 IT), mass = 5,9 g (P10309).

Distribution

Eastern Cape Province to the Transkei, Natal, Orange Free State and Transvaal.



MAP 44.

Mabuya homalocephala smithii.
 Recorded distribution in
 the Transvaal, and in
 southern Africa.

Distribution in Transvaal (Map 44)

Iron Crown; Lochiel 192 IT; Pittville 197IT.

Habitat and Ecology

Rocky hillsides and outcrops in veld types 57 at altitudes ranging from 1550 to 1800 m. An exclusively rupicolous lizard it lives mainly in crevices between rocks but at the Iron Crown is found under rocks often buried in the soil.

Conservation Status.

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. Owing to its limited distribution it does not occur in any nature reserve in the Transvaal. Its distribution overlaps those areas used extensively for afforestation. This has no doubt affected its abundance and distribution. Its status is vulnerable and more intensive surveys are needed to establish to what degree afforestation poses a threat in the future.

Remarks

Another temperate species which has migrated along the mountains in the past to establish populations as far north as the Iron Crown in the Wolkberg. These populations are now relict and widely separated from conspecifics and in time may develop into species in their own right. However the apparent paucity of individuals at this most northern site indicates a population on the decline.

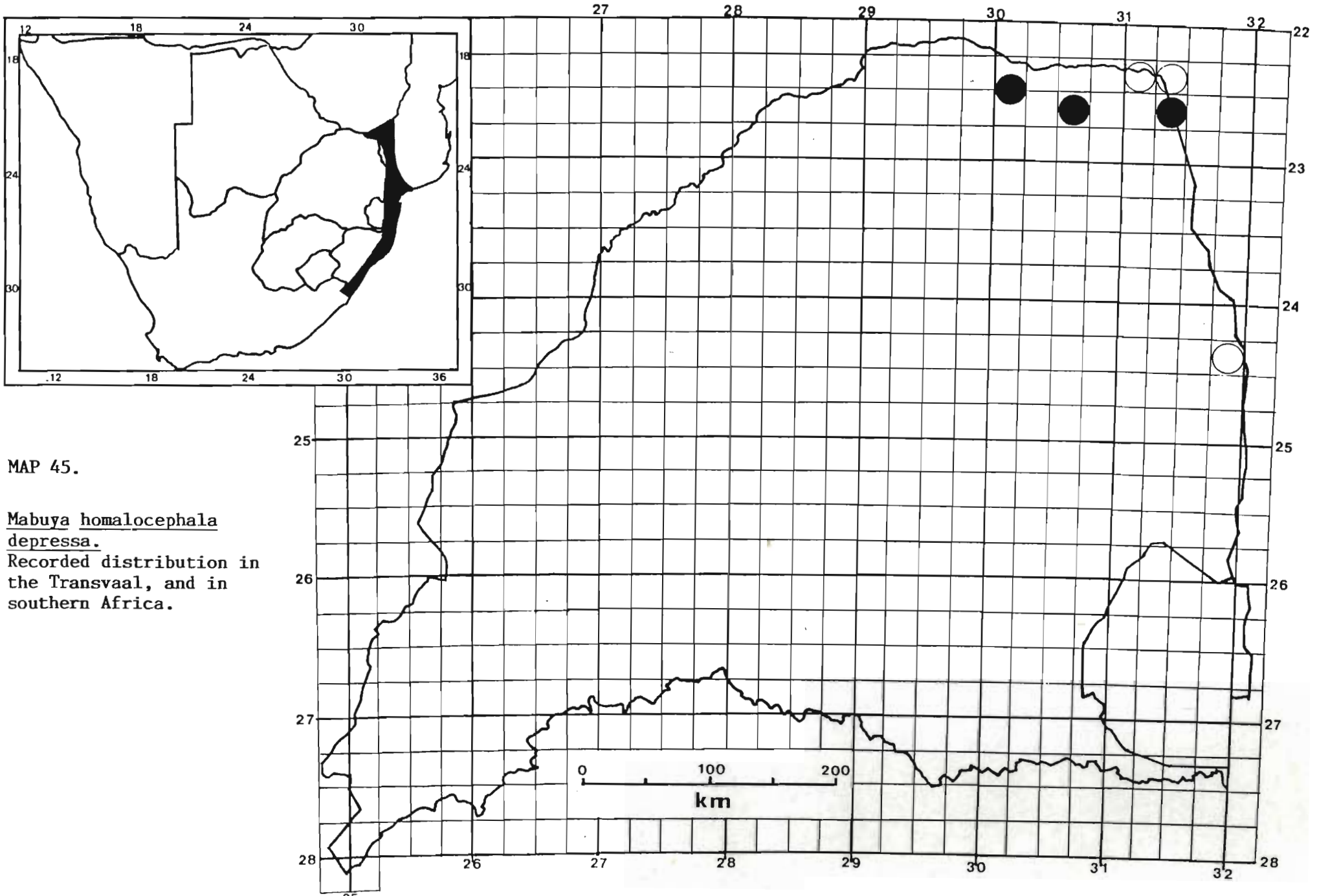
Mabuya homalocephala depressa (Peters, 1854)

Euprepes depressus Peters 1854, Monatsb. Akad. Wiss. Berlin, p. 618. Type locality: Tete, Mozambique. Mabuya homalocephala depressa (Peters). FitzSimons 1943, p. 211-212, figs. 88 & 89; Pienaar 1966, p. 59, pl 14, 1978, p. 53, pl. 15; Pienaar et al 1983, p. 65, pl. 20; Welch 1982, p. 85; Branch 1988a, p. 129, pl. 52, 1988b, p. 9.

Description. 12 Specimens examined.

Colour: Uniform pale brown dorsally with a slightly paler dorsolateral stripe fringing a broad lateral black stripe extending from the anterior margin of the eye to the base of the tail, above the cloaca. Dorsal scales dark edged posteriorly giving a reticulate appearance. Ventrally white, becoming slightly pigmented ventro laterally. Limbs reddish-brown with dark edged scales. Tail similar to dorsum becoming paler ventrally.

Lepidosis: Head and body slightly depressed, snout tapered; Rostral much broader than high; nostril pierced in small nasal; postnasal present, supranasals separated; frontonasal broader than long and in contact with rostral and loreals; prefrontals in narrow contact separating frontal and frontonasal; frontal elongate, longer than broad and tapering posteriorly; Supraoculars 4; supracileries 5; UL 7; LL 6-7; two anterior parietals, small and in contact with frontal; interparietal wedge-shaped; posterior parietals in narrow contact behind interparietal; a pair of curved nuchals in contact behind the parietals; Three narrow pointed scales enter the ear opening. Dorsal scales quinquecarinate rarely septemcarinate; scales on tail similar to dorsals; 29-31 (mostly 30) scales at midbody. Ventral scales smooth and imbricate. Limbs well developed, scales on soles of feet non-spinose. Tail



MAP 45.

Mabuya homalocephala depressa.
 Recorded distribution in the Transvaal, and in southern Africa.

slightly depressed proximally becoming rounded distally and tapered to a fine point; caudal autotomy is evident with 4/8 (50%) regenerated.

Size: Largest male SVL = 68,5 mm (JN342 - 5 km N. of Tshamavhudzi peak), mass = 6,0 g (JN342); Largest female SVL = 58,0 mm (J10175 - Mahlaguza pan, KNP), mass = 2,8 g (J10175).

Distribution

Natal and Zululand northwards to Mozambique and west into the north-eastern Transvaal and southeastern Zimbabwe (Broadley 1988b).

Distribution in Transvaal (Map 45)

4 km N. of Tshamavhudzi Peak; 5 km N. of Tshamavhudzi Peak; Mahlaguza Pan; Nyandu Bush; Nzhelele R; Between Saselondonga and Pafuri near Mahlaguza Pan.

Literature Records

Confluence of Luvuvhu and Limpopo rivers; Klawerpan firebreak road; Malonga spring area; eastern boundary between Mathlakuza pan and Saselandonga gorge; between Mathlakuza pan and Shimuhene pan; Mathlakuza pan area; eastern boundary just south of Mathlakuza pan; Pumbe sandveld; Crooks corner; sandveld north of Saselandonga gorge; Masbambela picket, (Pienaar et al 1983).

Habitat and Ecology

A terrestrial psammophilous lizard found in the Transvaal only in areas of deep loose sands. When pursued this species dives into the sand and with lateral threshing movements disappears under the soil surface to a depth of about 10 cm. Diurnal, it may often be seen on the boles

of trees near the base much like Mabuya varia, which species it appears to replace in these areas of Kalahari sand. Appears also to adopt a "wait and see" foraging strategy, and is only able to run swiftly over short distances. It is found in Veld types 15, 18/19, in open wooded, savanna in the KNP as well as in tall woodland and scrub at the foot of the Soutpansberg, at altitudes between 400-800 m a.s.l.

Conservation Status.

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. Most of its distribution range lies within the Kruger National Park. Only two relict populations are known from outside the boundaries of the Park, one in northern Venda and the other along the Njelele river with an unknown locality. The Venda population is important as it includes the type locality of another skink Typhlosaurus lineatus richardi Jacobsen. This locality is used primarily for grazing but could conceivably be incorporated in the nearby Nwanedzi game reserve. The status of this lizard in Transvaal is secure.

Remarks

Transvaal populations are different in colour pattern from those in Natal. They are not spotted with black above and have a more prominent black lateral stripe. This is no doubt a clinal phenomenon.

Mabuya quinquetaeniata margaritifera (Peters, 1854)

Euprepes margaritifera Peters, 1854, Monatsb. Akad. Wiss. p. 618. Type locality: Tete, Mozambique.

Mabuya quinquetaeniata margaritifera (Peters). FitzSimons 1943, p. 213-215, figs. 92 & 93, pl. 22, figs 1 & 2;

Pienaar et al 1983, p. 66, pl. 21; Auerbach 1987, p. 113, pls 10 fig. 8 & 11 fig. 1. Patterson & Bannister 1987, p. 50, fig; Welch 1982, p. 87; Branch 1988a, p. 130, pl. 55, 1988b, p. 9.

Mabuya quenquetaeniata margaritifera (Peters). Pienaar 1966, p. 61, pl. 15 & 16; 1978, p. 54, pl. 16 & 16A.

Description. 450 specimens examined.

Colour: Sexual dimorphism is apparent in this species which is a robust slightly dorsoventrally depressed species. Females are characterised by being black above with three longitudinal off-white to pale brown stripes, one from the occiput along the vertebra to the base of the tail; the dorsolateral stripes extend from the nostrils eventually merging on the distal half of the tail. Head variegated with brown and black; laterally the black extends to above the upper labials, above the shoulder and along to the upper thighs and limbs; below this is a broad greyish brown streak including the angle of the jaw through to the axis of the hind limbs. This streak is streaked with black edged scales; Ventrally white to yellowish white. Tail striped blue and black in juveniles, the blue becoming a gunmetal blue in older specimens the distal half turning brown in some.

Male greyish brown above with irregularly scattered, white specks dorsally, becoming larger and dark edged dorsolaterally and laterally; a dark blackish streak extends from the nostrils through the lower half of the eye along the upper edge of the ear opening to the shoulder region. Laterally grey below bordering onto the white ventrals. Limbs greyish brown to grey. Tail orange-brown. Immature males have the same colour as females and presumably only change colour once of age or if there is no mature male already present. A male 116,0 mm SVL has a blue tail while another of 95,0 mm has already the mature male coloration.

Lepidosis: Rostral round, broader than high; nostril pierced in a small nasal which adjoins a postnasal and a supralabial; Supranasals in contact behind rostral; frontonasal broader than long; prefrontals in very narrow contact or may be separated by narrow contact between the frontal and frontonasal; frontoparietals in contact with frontal and 3rd and 4th supraocular; Interparietal small, with posterior parietals in contact behind it; 4 supraoculars; 4-5 (mostly 5) supraciliaries; UL 6-8 (mostly 7 or 8); LL 5-8 (mostly 6 or 7); mental large, wider than deep with a single large broad postmental scale; two large chin shields in contact with postmental and 2nd, 3rd and 4th LL. Ventrally scales smooth and overlapping; dorsally scales feebly to strongly tricarinate; nuchals multicarinate; between 38-46 scales (mostly 40-43) at midbody; Limbs well developed, feet pentadactyle, scales under feet non spinose; tail autotomy present 182/361 (50,41%) being regenerated.

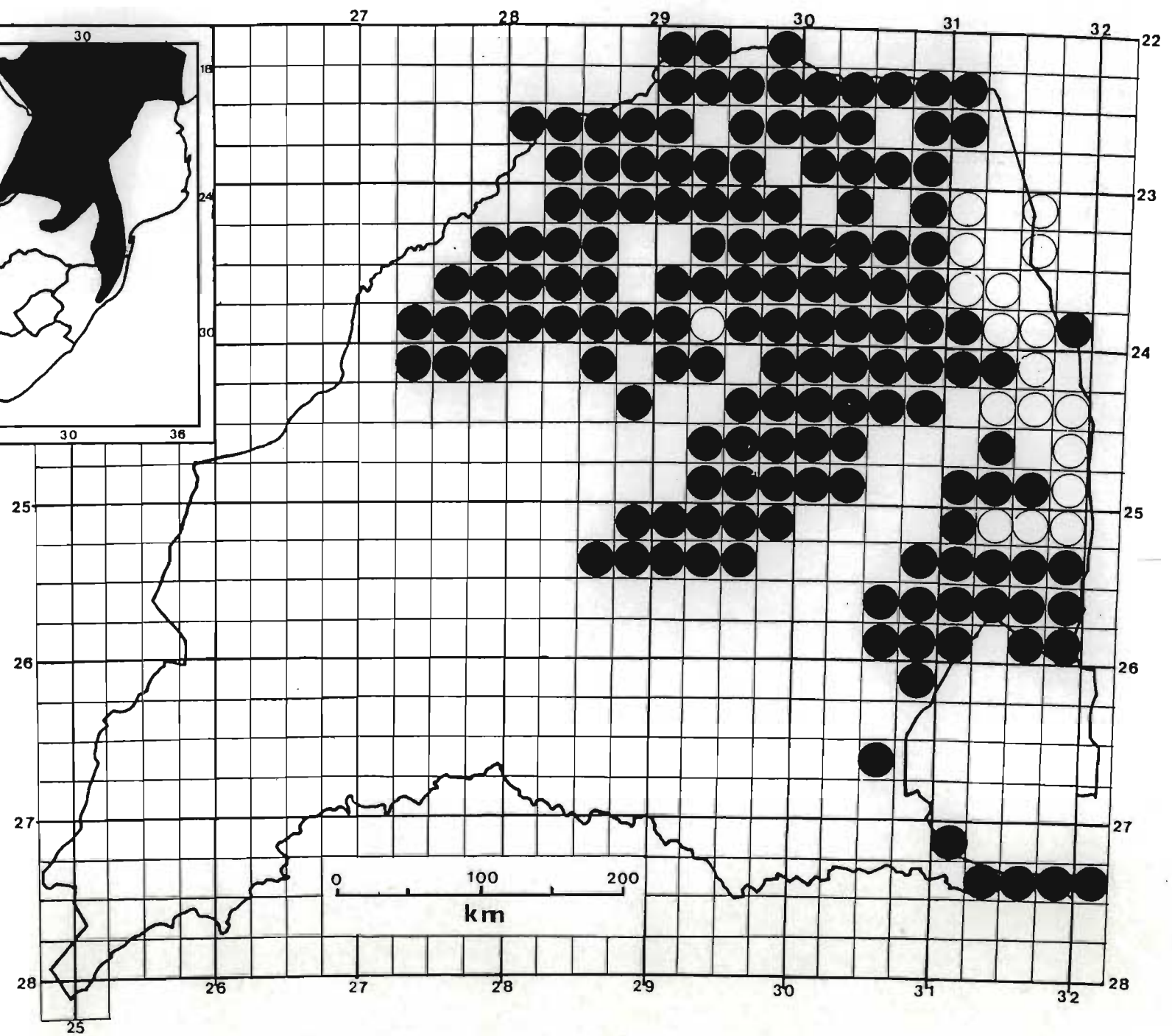
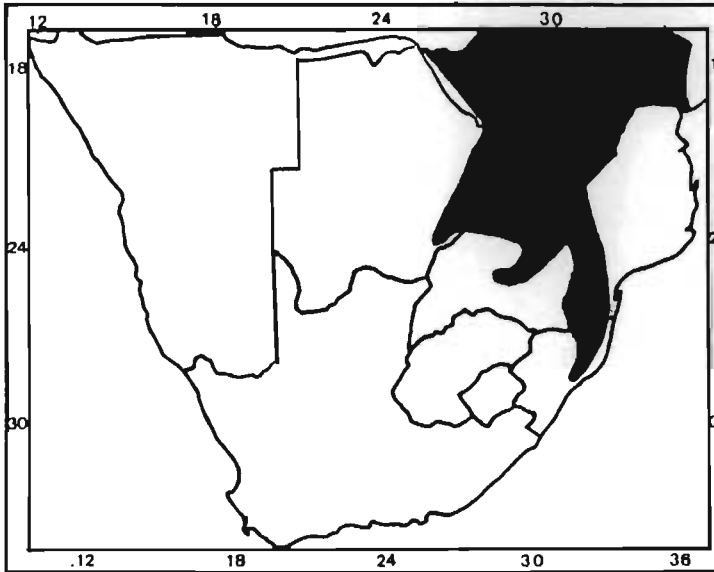
Size: Largest male SVL = 118,0 mm (P10301 - Kafferskraal 618 JT), mass = 44,5 g (J1382 - Auf der Haard 445 MS); Largest female SVL = 112,0 mm (N7159 - Mala Mala), mass = 42,5 g (P11317 - Excelsior 266 KU); Mean male SVL (60,0 mm) = $90,35 \text{ mm} \pm 16,36$ (1SD) n=50, mass = $21,33 \text{ g} \pm 10,65$ (1SD) n=51; Mean female SVL (60,0 mm) = $93,63 \text{ mm} \pm 13,26$ (1SD) n=50, mass = $22,74 \text{ g} \pm 9,05$ (1SD) n=51.

Distribution

Uganda, Kenya south to Natal and Mozambique, then west through Zimbabwe, Transvaal and onto eastern Botswana.

Distribution in Transvaal (Map 46)

13 km W. of Venice 40KU; 16 km E. Duiwelskloof; 16 km S. of Nelspruit; 5 km N. of Hazyview; 50 km NW $\frac{1}{2}$. OF



MAP 46.

Mabuya quinquetaeniata margaritifera.
 Recorded distribution in the Transvaal, and in southern Africa.

Potgietersrus; 3 km S. of Skukuza turnoff on White River Road; 5 km W. of Lukale Hill; 45 km N. of Pietersburg; Albastross 201KU; Alfa 448JU; Alkmaar 286JT; Amsterdam 116LS; Amsterdam 208KT; Argyle 46KU; Auf Der Haard 445MS; Bakleikraal 265MR; Bambata 23MR; Bangu Gorge, KNP; Barberton Townlands 369JU; Barend 523MS; Bellevue C 518JT; Bergplaats 25HU; Blijdschap Nature Reserve 369LS; Blouberg; Boschdraai 340MR; Boschfontein 470JU; Breslau 2MS; Bristol 760MS; Broedershoek 129JU; Buisdorp 37LS; Copenhagen 58KU; Dambale Hills; Dansfontein 40LR; De Bad 396KT; De Beer 448KS; De Oude Stad van Sekwati 765KS; Den Staat 27MS; Diepkloof 44JS; Dongadziva, KNP; Doorndraaidam Nature Reserve; Doreen 108MT; Duikerhoek 489JU; Duivelskloof 436LT; Dwars R., N. Tvl.; Elandshoek; Essexvale 61MR; Eureka City; Excelsior 266KU; Fourieskloof 557LQ; Ga-Chweni; Galakwyns Stroom 745LR; Glen Alpine 304LR; Glengarry 652IT; Godlwayo; Godwan R; Goedehoop 31KS; Goedehoop 749KS; Government Ground 846KS; Gravelotte; Greefswald 37MS; Grietjie 6KU; Greenfield 333MS; Groningen 779LR; Groot Denteren 533LR; Groothoek 129LS; Ha Madzhiga; Haddon 27MT; Haffenden Heights 35KT; Hanover 181KQ; Hartz 233MS; Hectorspruit 164JU; Humansrust 192KS; Illovo 187MR; Invicta 255MS; Isipingo 37MR; Jachtdrift 190LT; Jongmanspruit 234KT; Kaapmuiden; Ka Mininginisi; Kafferskraal 618JT; Kalkfontein 367KT; Kameelpoort 202JR; Kasteel 766LT; Keulen 669LT; Kgoloko Location; Klein Denteren 495LR; Klipbank 406LS; Klipfontein 11KQ; Klipheuwel 573KS; Klipnek 199JS; Klipplaatdrift 193JR; Kliprivier 692MS; Klipspruit 255KR; Klipspruit Camp, Ben Lavin NR; Komatipoort; Koningsmark 117MS; Kranskop 422IT; Kwaggadraai 137LR; Lake Fundusi; Lapalala Nature Reserve; Leeuwfontein 188JR; Letsitele; Leydsdorp; Lillie 148KT; Lomati 466JU; Loskopdam Nature Reserve; Louws Creek; Luphisi; Maandagshoek 254KT; Mabofuta Ridge; Mabelikwa;

Machabesane; Maiepo; Malamala 359KU; Maleshwane;
Malta 65KT; Manamela; Mananga; Manyeleti Game Reserve;
Manwayingwe; Mashakiri Waterhole, KNP; Masisi; Matalas
Location 591LS; Matlapitsi R; Mecklenburg 112KT;
Melkboomfontein 919LS; Middlesex 205KT; Moletsi
Location; Mokeetsi; Monte Christo 388LR; Mpafuri's
Location; Naauwpoort 363LQ; Nelspruit; New Belgium
608LR; New York 490LQ; Newington 255KU; nGwaribango;
Nuwelust 482MS; Nwanedzi R; Nwanedzi Dam; Nzhelele R;
Ostrolenka 107MS; Othobothini; Over Yssel 512LR; Pade
Hill; Percy Fyfe Nature Reserve; Perkeo 223KT;
Phayizani; Pongola Nature Reserve; Praktiseer 275KT;
Punda Milia; Queens R.; Ratho 1MS; Retief 290LR;
Rietfontein 214JR; Riverhead 755LT; Rochdale 700MS;
Roodewal 251JT; Rooiboschfontein 576KS; Rustfontein
781LS; Sais 277MR; Sand R. near Mopane; Schelem 32KT;
Schiettocht 25LU; Schrikfontein 715LR; Schroda 46MS;
Scrutton 23MT; Sekororo; Selati Ranch 143KT;
Shamiriri; Sheldrake 239MS; Shiluvane; Smithfield
456MS; Sterkriviernedersetting 253KR; Steynsdrift
145JS; Streatham 100KT; Tati 59MR; Theespruit 156IT;
The Grange 471LS; The Oaks 198KT; Thabajwane Camp, Ben
Lavin NR; Thonondo Peak; Thor 147MS; Thornhill Farm
171JU; Tilburg 145LQ; Tivoli 98KT; Tropic of
Capricorn/Great North Road; Tshidzi Hill; Tula Mila;
Tuli 56MR; Turbine Waters; Turfloop 987LS; Uitspanning
38JS; Urk 10LS; Varkfontein 141KQ; Veltevreden 822KS;
Venice 40KU; Waterval 197KR; Waterval 601LQ; Weipe
47MS; Weltevreden 596LQ; Weltevreden 822KS;
Wemmersvlei 185LR; Wilhanshohe 78LS; Wonderboomhoek
550LQ; Woodbush; Zandriverspoort 851LS; Zandspruit
189JR; Zeekoegat 421KS; Zoetfontein 154MR; Zwartkloof
60HU; Between Punda Milia and Pafuri, near Bridgewater;
Near Louis Trichardt; Near Vaalwater.

Literature Records

Arnhemburg; Hope, near Vaalwater; Pietersburg; Potgietersrust; Theespruit; White River, (FitzSimons 1943). Mashikiri poort; Klopperfontein dam; Gudzane dam area; Nahpe and Mbyamiti koppies; Orpen dam area; Kukumezane pan area; Olifants Gorge; Tlapa-la-Mokwena; Nwanitsana dam area; Tswiriri dam area; Masoweni koppies on road to Mahlangene; Shipikane koppies; Mashetse koppies; Tula-mila hill, Pafuri; Shiyanamane dam-site; Lebombos at Shingedzene, Nkuane and Munweni; ridge behind Punda Maria camp; Bangu gorge; Numbi hill; confluence of Bkwenene and Nsikazi rivers; Magadyane koppie, Ngirivane road; Mlambane dam area; Godleni spruit; eastern boundary; Dzungwene kop; Ngirivane sandstone reef; Shahulu spring area; Mbulweni sandstone reef; Matilôlô koppies; rocky outcrop on south bank of Luvuvhu west of Shipale spring; Macili kop; Timisini spring area; Ship Mountain; sandstone koppie between Klopperfontein and Mashikiri; Matikiti koppie; Shikwembu waterhole, Mayumbye spruit; Hlanganine sandstone reef; eastern tributary of the Bangu spruit; rocky outcrops along the Olifants river at Mnyekelani drift as well as 3,2 km east of the drift; near confluence of Sand and Sabie rivers; broken country along lower reaches of Mulalane spruit, Letaba section; Mahulule kop; Lubyelubye; Pombo hippo pool area; Machuluane mountains, Malelane section; Pafuri rangers quarters; Leonhardi koppie near Mutale-Luvuvhu junction; Red rocks; Tree Aloe gorge, Kandizwe; Stolznek; Kingfisherspruit; Tseri; Mshatu kop; Boesmanklip dam site; Mshatu mouth; Mabyeni hill, near Shabaku, (Pienaar et al 1983). Wolkberg wilderness area, (Snyders 1987).

Habitat and Ecology

A widespread totally rupicolous species found in the northern and eastern half of the Transvaal (Map 46).

Inhabits outcrops of sandstone, granite, rhyolite dolerite and basalt and many others living in vertical and horizontal crevices. Gregarious, it is usually found in pairs or family groups with numerous juvenile and immature specimens basking or foraging among the rocks. It inhabits veld types 6, 8, 9, 10, 11, 12, 14, 15, 18, 19, 20, 19/57, 63 and 67 at altitudes ranging from 200-1500 m. These lizards are often found in the company of many other rupicolous species such as Pachydactylus bibroni, Gerrhosaurus validus, Platysaurus spp., and Cordylus warreni. No interactions have been seen and these rocky outcrops communities appear harmonious. The Blue-tailed koppie skink is very varied in its diet feeding opportunistically on what is available including grasshoppers, beetles, termite alates, centipedes and Lepidopteran caterpillars. They appear to adopt a "wait and see" foraging strategy using the boulders as vantage points from which they rarely venture far.

Contrary to FitzSimons (1943) but in agreement with Visser (1975), these lizards are oviparous throughout their range in the Transvaal. Gravid females and eggs are found in October, November, December and January, but October-November appears to be the main egg-laying period. Clutches range from 6-10 eggs but communal nesting taken place and up to 70 eggs have been found under favoured rocks. Eggs measure 16,5 - 21,0 mm x 8,0 - 13,6 mm with the mass of the eggs ranging from 0,9 - 2,1 g. The hatchlings hatch in about two months with neonates measuring 26,0 - 34,0 mm SVL, 37,0 - 52,0 mm T and a mass of 0,5 - 0,6 g. Neonates and juveniles were observed from December to March.

Conservation Status.

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. A widespread abundant species it occurs in many provincial nature reserves and throughout the Kruger National Park. Its status is secure and under no threat.

Remarks

Broadley (1966c) referred to the great variation in midbody scale counts when discussing the validity of the subspecies obsti. It would appear that none of the quarter degree squares in the Transvaal would average 44 or higher as only a single count of 46 was observed. Owing to the great degree of variation found, it would be difficult to justify subspecific status.

Mabuya capensis (Gray, 1830)

Tiliqua capensis Gray 1830, in Griffith's Anim. King. 9, Syn. p. 68 and 1938. Ann. Nat. Hist. (1)2, p. 290. Type locality: Cape of Good Hope.

Mabuya capensis (Gray). FitzSimons 1943, p. 216-218, figs. 94 & 95, Branch 1981, p. 158; Jacobsen 1977, p. 19; De Waal 1978, p. 36; Auerbach 1987, p. 110, pl. 10, fig. 6; Patterson & Bannister 1987, p. 50, fig. Welch 1982, p. 84; Brown-Wessels 1988, p. 46; Branch 1988a, p. 128, pl. 52, 1988b, p. 9.

Description. 297 Specimens examined.

Colour: Above light brown to olive- or greyish brown, reddish- or dark brown with three off white, yellowish to pale slaty-brown longitudinal stripes, one broad vertebral and the others narrow dorsolateral; these

stripes may be black-edged; spaces between the stripes barred with irregular black scale rows extending onto the tail becoming black spots posteriorly. Laterally upper half, brown with darker barring and on occasions a row of off white, dark edged ocelli from behind the shoulder onto the anterior half of the tail. Ventrally off white to white.

Lepidosis: Characterised by a short head and strong cylindrical body and tail (original) much longer than SVL. Rostral small but much broader than high; nostril pierced in a small nasal just above 1st upper labial/rostral suture; posterior nasal present; supra-labials in narrow contact behind rostral. Frontonasal broader than long and in very narrow contact with the frontal separating the prefrontals; frontal large and in contact with 2nd and 3rd supraocular usually separated from the 1st supraocular; Supraoculars 4, supraciliaries 5, UL 5-8, mostly 6 or 7; LL 5-8 (mostly 6); mental much broader than deep, with a single large postmental followed by two large chin shields; ear opening crescentic and narrow almost obscured by overlapping scales; Dorsals feebly to strongly tricarinate; scales at midbody 30-40 (mostly 34, 133/248 (47,84%); Ventrals smooth and overlapping; Limbs short but sturdy, pentadactyl, digits well developed with 13-21 subdigital scales under 4th toe. Caudal autotomy is very much in evidence with 127/233 (54,51%) tails regenerated indicating a high predation pressure.

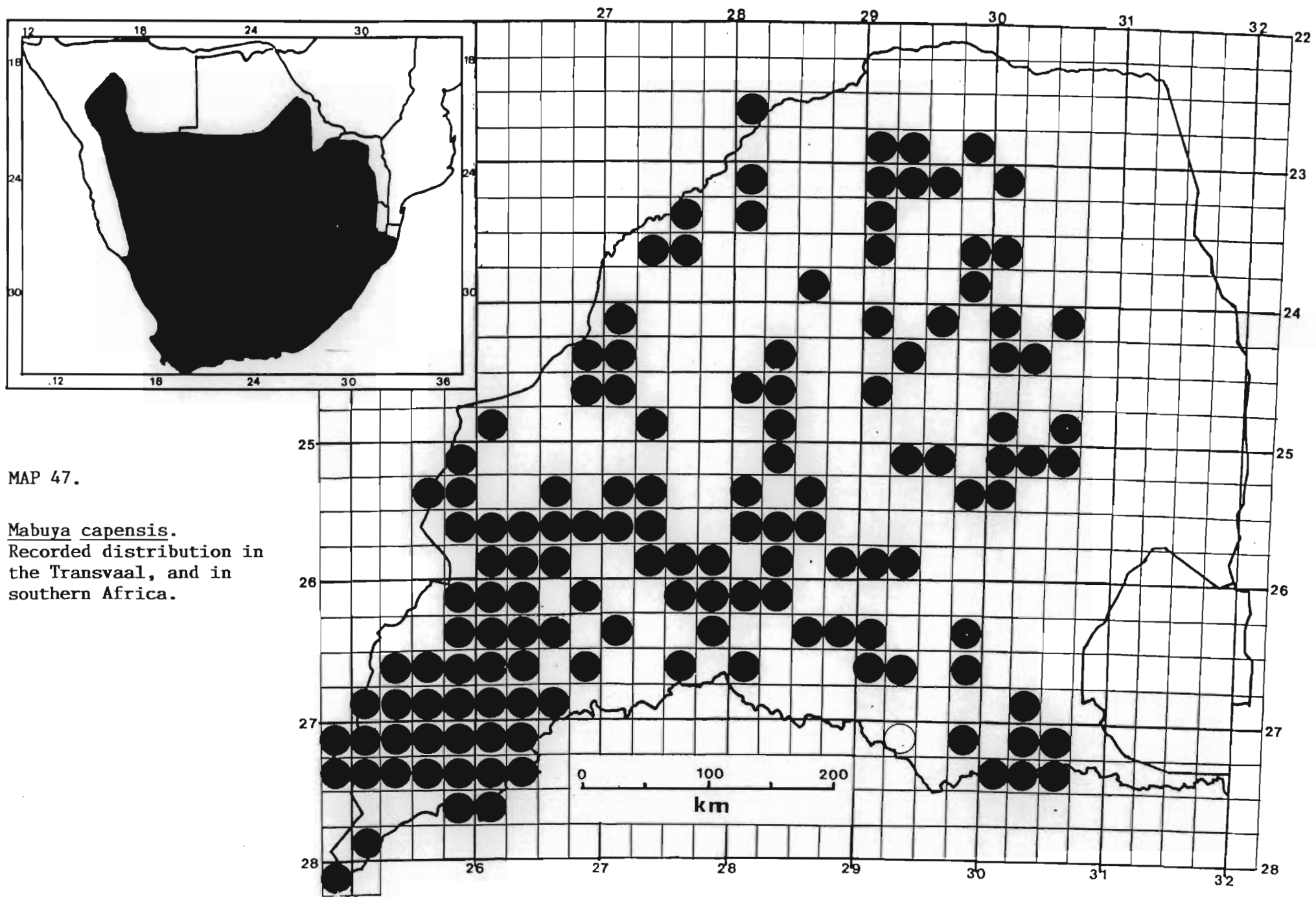
Size: Largest male SVL = 150,0 mm (N 5998 - Ohrigstad-dam nature reserve) mass = 92,0 g (N 5998); Largest female SVL = 136,0 mm (P 10108 - Lindley's poort 220 JP), mass = 55,5 g (P 10108). Mean male SVL (60,0 mm) $91,42 \text{ mm} \pm 21,41 = (1SD) n=49$, mass = $23,58 \text{ g} \pm 18,64 (1SD) n = 47$. Mean female SVL (60,0 mm) = $90,16 \text{ mm} \pm 19,98 (1SD) n=50$, mass = $19,63 \text{ g} \pm 13,39 (1SD) n=51$.

Distribution

South Africa, Botswana, Zimbabwe, Zambia and South West Africa, probably also Mozambique.

Distribution in Transvaal (Map 47)

4 km W. of Dinokana; Ameland 11LS; Amersfort 26LS; Amsterdam 116LS; Anysspruit 139HT; Barberspan; Bluegumspoort 779MS; Boekenhoutskloofdrift 286JR; Boschhoek 36JT; Bridgewater 307KQ; Buitenzorg 114HT; Christiana 325HO; De Berg 71JT; De Nyl Zyn Oog 423KR; De Roodepoort 435IS; Drakenstein 77LQ; Doornkop 356JS; Dwarsvlei 503JQ; Eerstelling 63HP; Ellisras; Entabeni Forest Reserve 251MT; Fernie 243IT; Ganahoek 111KQ; Geelhoutkop; Gestoptefontein 349IQ; Gwenscht 562KS; Gillooly's Farm; Goedehoop 152JS; Goedehoop 290IS; Goedvertrouwd 499JR; Graspan 230HO; Greenfield 333MS; Groenkloof 464JQ; Groot Geluk 711MS; Groothoek 171HT; Groot Zwart Bult 290LQ; Gwaai 62MR; Harnham 793MS; Hartbeespoort 482JQ; Hartebeestlaagte 325JS; Hartebeesvlakte 163JT; Hennops R. 489JQ; Holfontein 279IP; Honesty 43HN; Houthaaldoorns 2IP; Houwater 54JQ; Italie 123HO; Jakkalskraal 45KP; Johannesburg, Florida; Johannesburg, Sandown; Johannesburg, Hill; Kafferskraal 381IR; Kalkfontein 367KT; Kalkheuvel 454MS; Kameelspruit 29KQ; Kareepan HO; Kastrol Nek; Klipkuil 352JP; Klipsruit 89HP; Kraaihoek 269JQ; Krabbefontein; Kromdraai 352IP; Kromrivier 347JQ; Kruisrivier 270JP; Kuilfontein 324JP; KwaLobatlang; Langjan Nature Reserve; Leeuwfontein 185HO; Leeuwpoort 373KR; Leiden 340IT; Lindleyspoort 220JP; London 112HO; Lot 19 20HO; Lot 43 250IO; Lydenburg; Mabalanes Location; Maribashoek 50KS; Matlapitsi R; Meanderthal 188LS; Middelburg; Mount Sheba; Moilwas Location; Moleps Location 187KS; Moonlight 111LR;



MAP 47.

Mabuya capensis.
Recorded distribution in
the Transvaal, and in
southern Africa.

Nylstroom; Ohrigstad; Ohrigstaddam Nature Reserve;
Onrust 332HO; Orkney Townlands 437IP; Paardeplaats
101HT; Paardeplaats 154JT; Palmietfontein 337IR;
Pankoppen 36JR; Pretoria; Pretoria, Hornsnek;
Pretoria, Gezina; Pretoria, Witfontein; Pretoria,
Proclamation Hill; Pretoria, Meintjieskop; Pretoria,
Zoo Hill; Pretoria, Sunnyside; Pretoria, Garstfontein;
Pretoria, Mayville; Pretoria, Koedoespoort; Pretoria,
Rosslyn; Putney 110KT; Randfontein; Rhenosterfontein
560IQ; Rietfontein 214JR; Rietfontein 313IR; Rietpoort
83HS; Rietspruit 83JQ; Rietspruit 412KR; Roodeplaat
293JR; Roodepoort 302IQ; Rustfontein 781LS; Rustenburg
Nature Reserve; Rustenburg Townlands 272JQ; Rustkraal
129HP; Selati; Sjambok Zyn Oude Kraal 258JR; Smaldeel
36KP; Springbokpan 61IO; Sterkstroom 411JP;
Syferfontein 13HP; Syferfontein 293IQ; Syferfontein
303IP; Tafelkop 26HT; The Willows 340JR; Tolwe;
Turfloop 987LS; Tweelingspruit 162IQ; Uitvalskop 14HN;
Vaalbank 388HO; Vaalboschfontein 188HO; Vergulde Helm
316LQ; Verpoort 161KP; Venterskroon; Vetpan 131IP;
Vlaktefontein 315IP; Vlakspruit 308IS; Vogelfontein
400JP; Vredeburg 256IO; Vulcanus 584LS; Vygeboompoort
456KR; Wakkerstroom; Wanhoop 78JT; Weltevreden 176HO;
Wemmervlei 185LR; Wintersveld 427MS; Witpoort
Dorpsgebied; Wonderboom 98KP; Woodbush; Zebediela;
Zondagsfontein 124IS; Zwartkopjes 296JQ; Zoutpan 104JR;
Zoutpan 459MS; Zwartkop 369KQ; Zyferfontein 293JP;

Literature Records

Honingfontein = Heuningfontein; Ottoshoop; Pienaars
River; Premier Mine; Standerton; Swagershoekberg =
Swaershoekberge, (FitzSimons 1943). Wolkberg wilderness
area, (Snyders 1987). arbeidsgenot, Waterberg.

Habitat and Ecology

A large terrestrial lizard with a solid cylindrical body for dashing through grass tussocks and brush. Diurnal, most specimens were collected singly (rarely two) under rocks, pieces of concrete, tin and other debris lying on the soil including rotting logs. May also be found inside moribund termitaria. At other times observed while foraging amongst grass tussocks and brush and rushing off torpedo-like entering the burrows of rodents and other holes, or else taking refuge in thick brush. On one occasion an adult even took refuge in a pool of water, remaining under water for 20 minutes after which it was captured. The three-lined skink will also climb shrubs to bask in the late afternoon. The species is mostly found in the south western Transvaal but is also widespread on the highveld and eastern Transvaal escarpment. Much less common in the northern Transvaal. It has been recorded from a wide variety of veld types namely 8, 12, 13, 14, 16, 18, 19, 20, 48, 50, 52, 54, 55, 57, 61, 62, 63 and 64 at altitudes ranging from 700-2300 m. It is therefore a highly tolerant species. FitzSimons (1943) records the species as being primarily viviparous, but in the Transvaal the species exhibits a bimodal reproductive strategy including both oviparity and viviparity. Brown-Wessels (1989) investigated the phenomenon and found that viviparity was widespread in the Cape Province, Orange Free State and Lesotho as well as in Central South West Africa, southern Botswana and parts of the Transvaal. Pretoria seems to be unique as both live-bearing as well as oviparous forms occur, probably correlated with the transition from highveld to bushveld. There are indications that in the bushveld areas largely oviparous forms occur as opposed to the highveld and a curious record from the farm Wintersveld 456MS in the northern Transvaal. It has already been

mentioned (p. 312) that this latter area is the type locality of two localised subspecies of otherwise widespread species, indicating a degree of isolation possibly coupled with temperature changes. This could have been responsible for the anomalies experienced here.

Conservation Status.

Protected, Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. This species is well represented in many provincial nature reserves particularly those in the south western Transvaal and on the highveld. It is also found at Roodeplaat, Nylsvley, Ohrigstaddam and other bushveld nature reserves. Its status is currently secure although the great degree of habitat destruction over most of its preferred range in the south west, must have precipitated a great decline. Specimens in these areas are obtained on road verges as this is in many cases the only habitat available.

Remarks

The remarkable bimodality of reproductive strategy in this species is most unusual. It may be possible that two very similar species are involved. It also remains to be seen whether a viviparous specimen is always viviparous or whether it becomes oviparous under different climatic conditions. Another skink Mabuya varia Peters is also known to be bimodal in reproduction and the same problems pertain.

Mabuya varia (Peters, 1867)

Euprepes varius Peters 1867, Monatsb. Akad. Wiss. Berlin. p. 20. Type locality: Tete, Mozambique.

Mabuya varia (Peters). FitzSimons 1943, p. 221-224,

figs. 98 & 99, Branch 1981, p. 159; Jacobsen 1977, p. 19; Pienaar 1966, p. 63, pl. 17; De Waal 1978, p. 38. Auerbach 1987, p. 111, pl. 10 fig. 7, Branch 1988b, p. 9. Mabuya varia varia (Peters) 1978, p. 56, pl. 17; Pienaar et al 1983, p. 68, pl. 22; Welch 1982, p. 88; Branch 1988a, p. 133, pl. 84.

Description. 748 Specimens examined.

Colour: Variable as the specific name suggests. Pale to dark brown dorsally with or without irregularly arranged dark brown to black spots near the posterior margins of scales. The broad dorsal stripe is usually 6 scale rows wide and flanked on either side by a white to pale brown longitudinal stripe extending from the temporal region onto the base of the tail fading posteriorly. This stripe runs down the centre line of a row of scales on each side. Below the pale stripe lies a brown to blackish brown streak from posterior margin of the eye to the inguinal region variously flecked with white and black spots. Extending from rostral along the supralabials a white stripe extends to the inguinal region highlighting the dark lateral streak. Below this white stripe the brown extends for a distance of 1-2 scale rows. The head is yellowish brown to reddish brown above. Ventrally white. During the reproductive season, the females take on a bronze sheen to the dorsals which is very noticeable.

Lepidosis: A squat, broader than high lizard with shortish limbs and a tail longer than the SVL, being 55,84-64,33% of total length. Rostral pentagonal, broader than high; nostril pierced at posterior margin of nasal adjacent to posterior nasal; supranasals diagonally elongate and in contact (rarely separate) behind the rostral; Frontonasal broader than long and in contact with loreals, supranasals and frontal. Frontal penta- to heptagonal and in contact with 2nd and 3rd

supraoculars, fronto-nasal (rarely separate), frontoparietals and the prefrontals; Prefrontals mostly separate, rarely in contact; interparietal large; parietals large and in contact (34,78%) or separate (65,22%), n=115, behind the interparietal. Supraoculars 4, supraciliaries 5; loreal mostly in contact (rarely separate) with 1st upper labial; UL 4 or 5; LL 5-9 (mostly 6 or 7); 3 or 7th subocular bordering lip and narrow by 25-40% below; 2-3 obtusely pointed lobules on anterior border of ear opening; dorsals overlapping and tricarinate, pronounced dorsally, fading laterally; Ventrals smooth and overlapping; midbody scale rows ranging from 30-34 (mostly 32-34); 40-48 (mostly 42-46 dorsal scales from occiput to sacrum above the cloacal opening. Limbs pentadactyle with 18-23 (mostly 19-21) subdigital scales under the 4th toe; subdigital scales tricarinate. Tail rounded and tapering; tail autotomy frequent and 54/108 (50%) had regenerated tails.

Size: Largest male SVL = 73,5 mm (JN 332 - 5 km N. of Tshamavhudzi peak), mass = 6,7 g (N 5184 - Leeukop 425 KS); Largest female SVL = 68,5 mm (J 6338 - Thornhill farm 171JU), mass = 8,8 g (P10092 - Rietfontein 179JP); Mean male SVL = 52,67 mm \pm 6,43 (1SD) n=50, mass = 3,77 g \pm 1,16 (1SD) n=50; Mean female SVL = 57,0 mm \pm 7,75 (1SD) n=50, mass = 4,87 g \pm 2,11 (1SD) n=50.

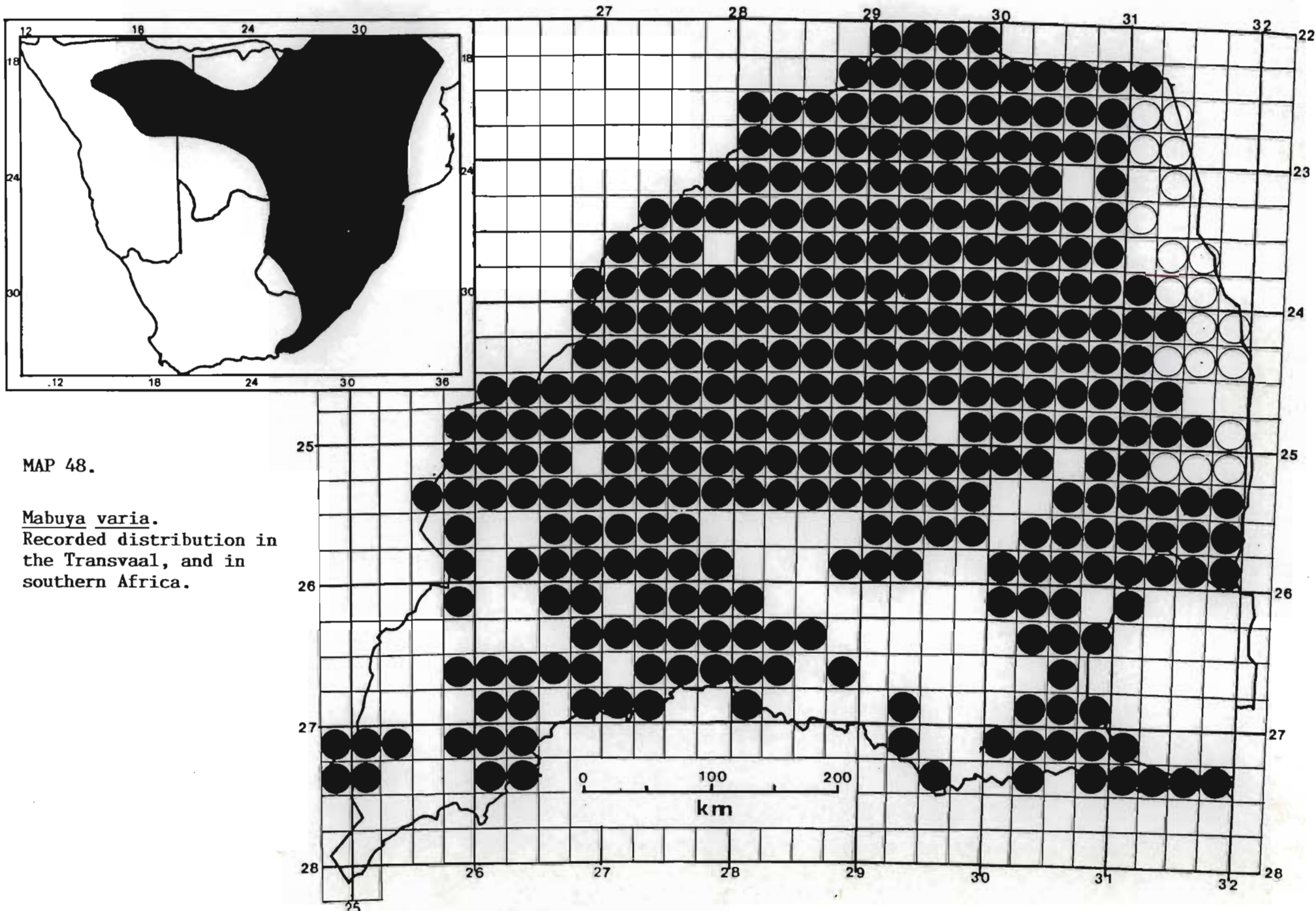
Distribution

From the southern Cape Province eastwards and northwards throughout the eastern half of southern Africa to Somaliland and westwards across Botswana, South West Africa to Angola and Zambia (FitzSimons, 1943).

Distribution in Transvaal (Map 48)

3 km E. of Lukale Hill; 3 km E. of Mwamatatau; 3 km

W. of Masisi; 5 km N. of Tshamavhudzi Peak; 5 km W. of
Lukale Hill; Alldays 295MS; Ameland 11LS; Argyle 46KU;
Auf Der Haard 445MS; Backwood 348LQ; Bekaf 650MS; Ben
Lavin Nature Reserve; Bergplaats 25HU; Bievack 14MR;
Bismarck 116MS; Blaauwbloemkloof 428KS; Blinkwater
680LR; Bloukop 514MS; Boompan 237LQ; Border 136MS;
Boschfontein 470JU; Boschhoek 36JT; Boschkom 272JT;
Boschrand 158HO; Bristol 760MS; Bronkhorstfontein 42LR;
Buffelshoek 446KQ; Buffelskraal 486LR; Buffelspoort
421KR; Buffelspruit 443KR; Buisdorp 37LS; Buisfontein
451KR; Buitenkui 11KO; Bulskop 225IP; Bulskop 299MR;
Bultfontein 174JR; Calais 563KS; Caledonia 97IT;
Carnethy 113MS; Cloudend 279LS; Constantia 122LQ;
Cookham 186MR; Copenhagen 58KU; Crimea 747MS; Dambale
Hills; Dansfontein 40LR; Dardanellen 203MR; Dawn 71MT;
De Bad 396KT; De Hoop 136MR; De Loskop 205LS; Delet
499MS; Desire 563KT; Dientje 453KT; Diepdal 244IT;
Diepgelegen 945LS; Diepkloof 186JS; Diepkloof 44JS;
Diepkui 135KQ; Dirleton 276MS; Doornhoek 284KR;
Dordrecht 190KP; Du Plessis 18MR; Dzumeri; Eendracht
95LQ; Elandsdoorns 144JP; Elandsfontein 335KQ;
Elandslaagte 30JQ; Engeland 183KP; Entabeni Forest
Reserve 251MT; Eureka City; Excelsior 266KU;
Flamingopan 40KQ; Fourieskloof 557LQ; Ga-Chweni;
Galakwyns Stroom 745LR; Gana Hoek 111KQ; Gewenscht
562KS; Glen Alpine 304LR; Godlwayo; Goedehoop 31KS;
Goedehoop 749KS; Goedgelegen 194LR; Goedgevonden 134HT;
Goevernements Plaats 417KQ; Graaf Reinet 71MR;
Greenfield 333MS; Groeneboom 236KP;
Groenfontein 458KQ; Groningen 779LR; Groot Denteren
533LR; Grootfontein 352KQ; Grootfontein 47LT;
Groothoek 171HT; Grootpan 7KQ; Grootpoort 123KP;
Gulliver 237MS; Gunfontein 71KR; Gwaai 62MR; Ha
Madzhiga; Hackthorne 30MS; Haddon 27MT; Hanover 181KQ;
Harriet's Wish 393LR; Hartebeestfontein 437IQ;
Hartebeestpoort E. 215JQ; Hartebeestpoortje 451IQ;



MAP 48.

Mabuya varia.
 Recorded distribution in
 the Transvaal, and in
 southern Africa.

Hartshoogte 17HN; Hartz 233MS; Helena 400JU; Hilda 23MS; Holland 237KP; Honeymoon 80KQ; Houwater 54JQ; Inkom 305MR; Ishlelo 441IT; Jeppes Rust 469JU; Jerome 287MT; John Marcus 336LQ; Ka Kheyi; Ka Mininginisi; Kaapsche Hoop 483JT; Kafferskraal 55LQ; Kaffirskraal 43JQ; Kalkfontein 367KT; Kalkfontein 589KR; Kameelpoort 202JR; Kasteel 766LT; Ketting 368LR; Keulen 669LT; Kgoloko Location; Khavagari Mountain; Killaloe 235MS; Klein Denteren 495LR; Klipfontein 11KQ; Kliprivier 692MS; Koningsmark 117MS; Koppieskraal 157IR; Korannafontein 350IO; Kromdraai 106MT; Kwa Seane; Kwaggadraai 136LR; Lake Fundudzi; Leeuwfontein 188JR; Leeuwfontein 61JP; Leeuwklip 363JS; Leeuwkop 425KS; Leeuwater 251KQ; Leiden 340IT; Lillie 148KT; Lindleyspoort 220JP; London 29KP; Loretto 264MS; Loskopdam Nature Reserve; Ludlow 227KU; Luphisi; Maandagshoek 254KT; Mabyeni Hill; Madimbo; Malamala 359KU; Malavuke; Malemetsa; Maleshwane; Malmaniesrivier 236KQ; Malok Zyn Kop 58JS; Malongwa Flats; Mananga; Manwayingwe; Marico Bosvelddam; Mariepskop 420KT; Matalas Location 591LS; Matane's Location 695KR; Matangari; Matiwa Lookout, Entabeni 251MT; Meanderthal 188LS; Melinda 164LR; Merriekloof 420IT; Mgcobaneni; Mietjiesfontein 220MR; Mogomane Hill; Moilwas Location; Mondplaisier 494MS; Monte Christo 388LR; Moorddrift 289KR; Morgendal 216KS; Morgenrood 354LT; Motswedi; Mpafuri's Location; N slopes of Tshamavhudzi Peak; NE slopes of Tshamavhudzi Peak; Naauwpoort 363LQ; Nahala 75HU; New Belgium 608LR; Newgate 802MS; Newington 255KU; Nieuwpoort 516KQ; Nooitgedacht 345JS; Nooitgedacht 471JQ; Nuwelust 482MS; Nylsvley Nature Reserve; Ohrigstaddam Nature Reserve; Oostenryk 92KS; Ostend 104KT; Paardedrift 303KR; Paardekraal 135LT; Paardeplaats 101HT; Paarl 102LQ; Pankoppen 36JR; Percy Fyfe Nature Reserve; Pittville 197IT; Pongola Nature Reserve;

Praktiseer 275KT; Preezburg 400LR; Ramsgate 543MS;
Ratho 1MS; Redcliff 426IT; Rhenosterpoort 402KR;
Rhenosterspruit 326IP; Richmond 4LQ; Riekertsvraag
593KR; Rietfontein 179JP; Rietfontein 214JR; Riverhead
755LT; Rolle 235KU; Roode Kopjes Put 32JP;
Roodekopjesfontein 15JP; Roodewal 251JT; Rooibokbult
330LQ; Rooiboklaagte 112KS; Rooy Hoogte 347MR;
Rooykrans 538KQ; Ruhrord 324MS; Rustenburg 205KP;
Rustfontein 781LS; Schelem 32KT; Schiettocht 25LU;
Schoonkloof 273KP; Schoonoord 326KT; Schrikfontein
715LR; Schroda 46MS; Sionwe Mountain; Smithfield
456MS; Stateland; Steamboat 306MR;
Sterkriviernedersetting 253KR; Sterkspruit 412KT;
Steynsdrift 145JS; Streatham 100KT; Suikerkop 62KU;
Sweet Home 322KQ; Syferfontein 13HP; Syferfontein
178JP; Tafelkop 46KR; Tata 7LR; Tati 59MR; The Downs
34KT; The Grange 471LS; The Hippos 192JU; The Oaks
198KT; Thonondo Peak; Thor 147MS; Thornhill Farm
171JU; Tilburg 145LQ; Tivoli 98KT; Tshenzhelani;
Tshidzi Hill; Tshikuyu; Tuli 56MR; Turfsloot 81KP;
Tweefontein 58JO; Twilight 6MT; Umkoonyan 42HU; Urk
10LS; Vaalkop 192JQ; Van Stadenshoek 12KP; Varkenskuil
605KR; Ventersdorp Dorpsgebied; Vergulde Helm 316LQ;
Vhurivhuri Plantation; Vlakfontein 723KS; Vlakplaats
535KS; Vogelfontein 400JP; Vogelstruiskraal 397KQ;
Vrieskraal 4JS; Vryheid 97HT; Vulcanus 584LS;
Vygeboomspruit 286LS; Waaiheuwel 360JU; Waerkum 302LS;
Waterval 128HS; Waterval 561KQ; Weihoek 540KQ;
Welgedacht 130JR; Welgevonden 36LT; Wemmersvlei 195LR;
White River 64JU; William Porter 90MS; Wolmunster
108LQ; Wolvenkraal 13JS; Wonderboom 98KP;
Wonderboomhoek 550LQ; Woodbush; Worcester 5LP;
Zandriverspoort 851LS; Zinnshoek 140KQ; Zoetfontein
154MR; Zoutpan 104JR; Zwartkloof 60HU; Zwartkopfontein
7KO.

Literature Records

Kingfisherspruit; Mashikiri poort; Shalungwa spring; Malonga spring; Skukuza; Tshokwane; Tswiriri dam area; Mangwa-induna; Nwambiya pan area; Machai pan area; Matukwane and Gumbandevu ridges; Punda Maria area; Shingwedzi; Peru beacon; Shiyanamane dam-site; Ship mountain-Klokwene firebreak; Shawu experimental plots; Lebombos at Shingedzene, Munweni and Nkuane; ridge behind Punda Maria camp; Dipene, Shingwedzi poort; Mthlamhala spruit; Bangu gorge area; Pumbe; Msimbit forest, eastern boundary between Nkulumbene and Mahewane; Magadyane koppie, Ngirivane road; Hape hill, Pafuri; Dzundwene kop; Nyandu firebreak road; Ngirivane sandstone reef; Mbulweni sandstone reef; Matilôlô koppies; rocky outcrops south bank of Luvuvhu west of Shipale spring; Klein Newu kop; Matikiti koppie; broken country along lower reaches of Mashikiri spruit; Lebombos at Godleni and Makatlanyane; Ramiti pan area; Lebombos at Shinobyeni headwaters; rocky outcrops along Olifants river 3,2 km east of Mnyekelani drift; Mahulule kop; Hlanganine sandstone reef; between Mathlakuza pan and Shimuhene pan; Mlambane koppies; Gaben; Masbambela picket; Malonga; Mutale-Luvuvhu junction; Pafuri rangers quarters; Red rocks; Phalaborwa; Nhlarulumi drift; Gwalali; Mabyeni hill; Tseri; Boesmanklip dam site; Mshatu kop; Mshatu mouth, (Pienaar et al 1983). Komatipoort, (NMZB).

Habitat and Ecology

A terrestrial lizard which is widespread in the Transvaal particularly north of the highveld. It is normally observed among rocks, on the boles of trees near the base, on dead logs and foraging under shrubs and among grass tussocks. A diurnal species, it roosts at night

under stones, the bark of dead logs, buried in the leaf litter and in holes in the ground. Not a swift moving lizard it prefers to forage from vantage points in a "wait and see" manner, and if prey is observed the lizard rushes down and snatches up the insect and returns to the vantage point as soon as possible. This species occupies all vegetation types with the exception of the Highveld grassland types 52, 53 and 54, at altitudes between 200-1500 m.

Feeds on a variety of organisms and is opportunistic. On the Nylsvley nature reserve near Naboomspruit the lizards mainly consumed spiders, grasshoppers, termites, beetles, lepidopteran larvae, ants and sucking bugs with grasshoppers and beetles most frequent (Jacobsen, 1982). Other invertebrate groups were also included in small numbers. There were also three records of Mabuya varia feeding on Panaspis wahlbergi (A. Smith), which is also substantiated by Broadley (1966c) with a record from Mutare, Zimbabwe. This species feeds mostly during the afternoon. Mabuya varia exhibits a bimodal reproductive pattern. Both oviparity and viviparity occur in the species. In most bushveld areas Mabuya varia lays from 6-12 eggs mainly from October to December. Viviparity occurs along the Drakensberg escarpment as well as on the south-eastern highveld while a record from Thabazimbi was quite unexpected.

Conservation Status.

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. Its widespread distribution along rocky outcrops and mountain ranges as well as occurring in several provincial nature reserves renders the status of this species secure.

Remarks

The taxonomy of this species is still vague. The viviparous specimens all appear uniform brown with indistinct dorsolateral stripes. Whether this represents another form has still to be determined. This form also appears to extend further north, as Broadley (1966c p. 166) mentions dark and slender forms from all montane areas in Central Africa. He regarded them as variants of M. varia but this may bear looking into. Another form is somewhat depressed and is striped. This form is widespread in the Transvaal including the south west where typical "varia" is not found. However this is a difficult and muddled situation which needs further clarification.

Mabuya sp. aff. M. lacertiformis (Peters)

Mabuya varia (Peters) FitzSimons (1943) p. 221-224, (part).

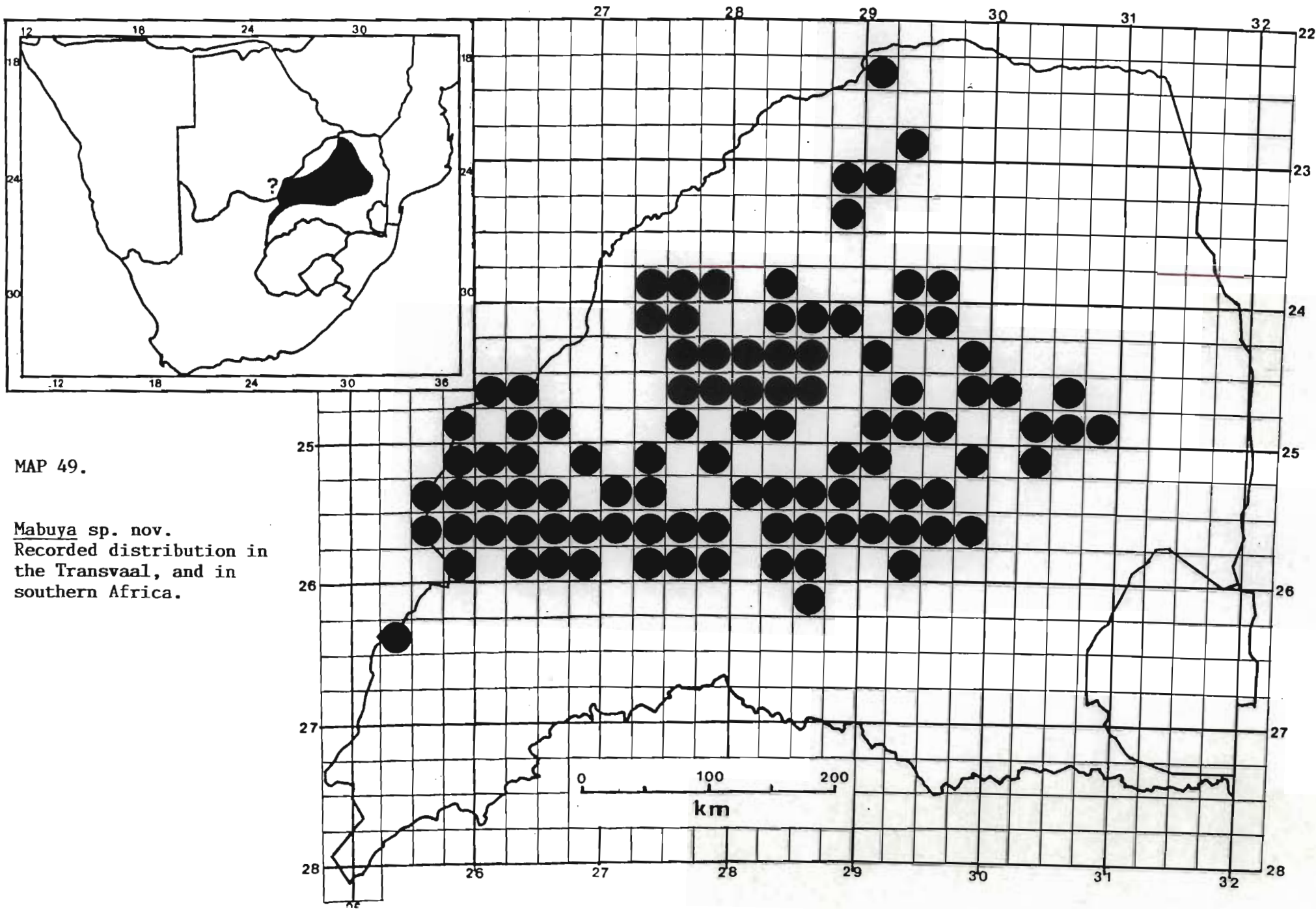
Mabuya sp. aff. M. lacertiformis (Peters). Jacobsen 1977, p. 20.

Description. 181 Specimens examined.

Colour: Variable, a brown, reddish brown to dark brown 7-8 scales broad, dorsal stripe extending from occiput tapering off on the proximal half of the tail. From 2 to 3 white, yellow-brown to pale brown stripes are found dorsally, including in some specimens a vertebral stripe and always two dorsolateral stripes. These stripes are usually formed on two scale rows including half of each; but the stripes may also run down the centre of a longitudinal scale rows as in M. varia. The dorsal scales usually have black edges or marked with white, black and brown to form interrupted longitudinal lines from behind the head to the base of the tail. Limbs

brown, to red-brown or dark-brown. Laterally a white stripe extends from the posterior margin of the upper labials across the ear to the groin. Above this a brown, red-brown to dark brown stripe occurs which may be uniform in dark specimens or flecked with dark brown to black. Below the white stripe the brown to blackish is found for a distance of two scale rows. Ventrally white. The head shields are normally edged and spotted with dark brown and both upper labials and lower labials are irregularly marked at the sutures between the scales.

Lepidosis: A more slender and depressed lizard than Mabuya varia. Limbs well developed and pentadactyle. Tail longer than SVL and between 61,05-65,00% of total length. Rostral roughly pentagonal nostril pierced near posterior margin of nasal, in contact or narrowly separated from postnasal and supranasal; supranasals in median contact behind rostral and elongate; frontonasal 1,5 times as wide as long and in contact with rearly separated from frontal; frontonasal in contact with loreal; prefrontals moderate, in contact with loreal and preocular/loreal; frontal, roughly hexagonal, narrowly in contact with frontonasal; anterior parietals in broad contact anterior to interparietal; interparietal, diamond shaped; posterior parietals rounded posteriorly and in contact (exceptionally narrowly separated) behind interparietal; two elongated occipitals in contact behind parietals; Supraoculars 4; Supraciliaries 5; postnasal 1; anterior loreal smaller than posterior, and longer than high; preocular 1; suboculars 3-4 with 2,3 and 4 in contact with lip; a cluster of small overlapping postocular scales present; UL 5 rarely 4 anterior to the subocular; Mental 2 or more times as broad as deep and slightly concave posteriorly; postmental a single large scale; LL 6-7; 2-4 elongate, pointed scales at anterior margin of ear opening; Dorsals rounded to hexagonal and imbricate, feebly



tricarinate; scales between nuchals and sacrum above the cloaca, 46-52 (mostly 48-51); midbody scales 32-36 (mostly 34 (61,7%)); Ventral scales smooth and imbricate; limbs pentadactyle with 16-23 (mostly 19-21), tricarinate subdigital scales under the 4th toe; scales on soles of feet pronounced bluntly spinose; Tail rounded and tapered; caudal autotomy prevalent with 19/35 (54,28%) of tails regenerating.

Size: Largest male SVL = 62,0 mm (P 10605 - Mooifontein 285JS), mass = 5,3 g (P 10605); Largest female SVL = 67,0 mm; (J 1900 - Klipfontein 11KQ), mass = 7,05 g (J 1900); Mean male SVL = 52,73 mm \pm 5,85 (1SD) n = 33, mass = 3,35 g \pm 0,99 (1SD), n=32; Mean female SVL = 52,68 mm \pm 7,39 (1SD), n=35, mass = 3,53 g \pm 1,49 (1SD), n=34.

Distribution

Only known to date from the Transvaal and adjacent south-east Botswana.

Distribution in Transvaal, (Map 49)

Leeufontein 228JS; Leeuwkop 425KS; Leeuwpoort 283JS; Little Muck 26MS; Lomati 466JU; Loopfontein 298JT; Loskopdam Nature Reserve; Mac Mac Pools; Mapochsgronde 500JS; Mariepskop 420KT; Marokane 1HN; Maryvale 248IT; Matiwa Lookout, Entabeni 251MT; Medfordt Park 52JP; Melkboomfontein 919LS; Moilwas Location; Molepos Location 187KS; Mooifontein 285JS; Mooiplaats 242JS; Mooiwater Estates 145KR; Morgendal 216KS; Marokane 1HN; Naauwpoort 363LQ; Nooitgedacht 471JQ; Nooitgedacht 508IQ; Ohrigstaddam Nature Reserve; Paardekraal 135LT; Paardeplaats 101HT; Paardeplaats 177IQ; Palmietfontein 24KS; Pipe Klip Berg 21HU; Rhenosterdrift 172JQ; Rhenosterfontein 560IQ; Rietfontein 487JP; Rietgat

224JQ; Rietpoort 193IR; Rietspruit 83JQ; Rietspruit 91KQ; Rietvallei 130IQ; Rietvlei 375JT; Roode Kopjes Put 32JP; Roodewal 322JQ; Rustenburg Nature Reserve; Schoonheid 2HN; Schweizer Reinecke Dorp 62HO; Shylock 256JQ; Smithfield 456MS; Sterkrieviernedersetting 253KR; Steynskraal 399IR; Strydkraal 477IT; Suikerboschfontein 422JT; Suikerboschkop 361JS; Suikerbosrand Nature Reserve; Sweethome 315LR; Syferfontein 293IQ; Tafelkop 46KR; Takane; Tevreden 56IT; The Downs 34KT; Trehowel 133KR; Turfsloot 81KP; Tweefontein 523JQ; Van der Waltspoort 81HT; Van der Waltspoort 81HT; Vergelegen 728JT; Vlakfontein 522KR; Vogelfontein 400JP; Waaikraal 396JQ; Waterpan 292IQ; Waterval 128HS; Welbedacht 382IS; Weltevreden 596LQ; William Porter 90MS; Witpoort Dorpsgebied; Wolwefontein 149KR; Woodbush; York 108LS; Zandspruit 287KR; Zuckerboschkop 361JS; Zuni Zuni 96KP; Zuurbron 132HT; Zwartkloof 60HU; Zwartkrans 172IQ; Zwartrand 123IP above Motswedi.

Habitat and Ecology

A totally rupicolous species, it is widespread in the Transvaal along all the major rocky outcrops and mountain ranges. It inhabits the most rocky areas, whereas Mabuya varia is usually found lower down the slope where less rock is found and more ground inbetween rocks. On the Nylsvley nature reserve, where my attention was first focussed on this species, it inhabits a narrow band of sandstone fringing Maroelakop, the highest point on the reserve, while both above, on the plateau and below, Mabuya varia was abundant. Elsewhere it is sympatric with M. varia over most of its range but with overlap in habitat only at the fringes where the outcrops become more open and dispersed. Takes refuge in crevices between and under rocks and often in the company of other rupicolous species such as Platysaurus spp. and

Pachydactylus affinis. Occurs in veld types 13, 18, 19, 20, 50, 57, 61, 67 at altitudes between 500-1650 m a.s.l.

Conservation Status

A widespread species, it is found in several provincial nature reserve. Coupled with its rupicolous habit it can be considered secure.

Remarks

This species is closely related to M. varia and is no doubt a sibling species bridging the gap between M. lacertiformis and M. varia. The few morphological differences usually overlap on the fringes with those of M. varia. However the characteristic dorsal colour pattern, the depressed slender body, parietals more in contact as opposed to separate and essentially the rupicolous habit, as well as the wide degree of sympatry leads to the conclusion that this is a distinct species related to both M. lacertiformis and M. varia.

Mabuya variegata punctulata (Bocage, 1872)

Euprepes punctulatus Bocage 1872, J. Sci. math. phys. nat. Ser. 1(4) p. 76. Type locality: Coroca, Mossemedes, Angola.

Mabuya damarana (not Peters). FitzSimons 1943 p. 224 (part), figs. 100-1.

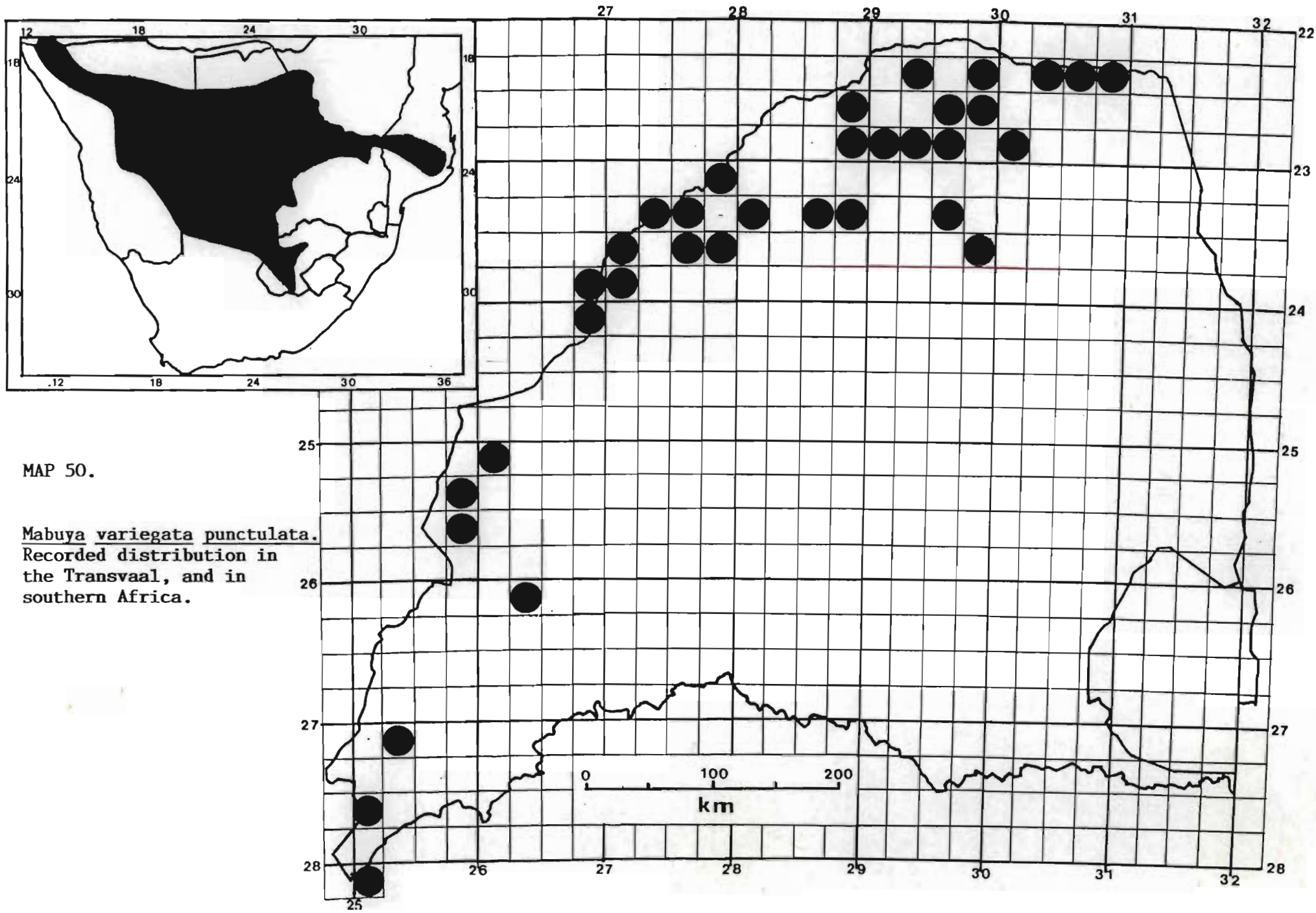
Mabuya longiloba longiloba Methuen & Hewitt. Broadley 1966, p. 160.

Mabuya variegata punctulata (Bocage). Broadley 1975b, p. 7, Branch 1981, p. 159; De Waal 1978, p. 41; Auerbach 1987, p. 111; Welch 1982, p. 88; Branch 1988a, p. 134, pl. 53, 1988b, p. 9.

Diagnosis: 69 Specimens examined.

Colour: Pale brown, reddish brown to dark brown dorsally with a paler vertebral stripe. Two white to brownish white dorsolateral stripes extend from above the posterior margin of the ear posteriorly to the base of the tail. Irregular black spots are clearly arranged from behind the head extending posteriorly onto the base of the tail. The black spots may or may not be present varying from individual to individual. A brown band starts behind the nostrils and extends through the eye to the base of the tail. This band is speckled and spotted with black and/or white in varying degrees. This band is flanked below by a narrow white stripe extending from the nostril along the upper labials and posteriorly onto the base of the tail. This stripe is flanked below by a dappled brown stripe 1-1,5 scale rows broad. The tail is often a reddish brown colour dorsally. Ventrally the species is white, this extending in a narrow band under the tail.

Lepidosis: A small cylindrical bodied lizard with well developed limbs and digits. Tail (original) longer than SVL. Rostral very narrow band-like, much wider than high; nostril pierced in small nasal at posterior margin and in contact or narrowly separated from the postnasal and supranasal; the nostril is directed upwards; supranasals in narrow to broad contact behind rostral; frontonasal equal to or slightly broader than long; prefrontals mostly separate (rarely in contact); frontal roughly heptagonal and in broad contact with the frontonasal, prefrontals, 2nd and 3rd supraoculars (narrowly to broadly separated from 1st supraocular) and anterior parietals; interparietal short and broad; posterior parietals in broad contact behind interparietal; supraoculars 4; supraciliaries 4-6, mostly 5; UL 4-5 (anterior to subocular); LL 6-7; mental broad and slightly concave posteriorly followed by broad, large postmental; two large chin shields are posterior to



MAP 50.

Mabuya variegata punctulata.
Recorded distribution in
the Transvaal, and in
southern Africa.

this; 1-3 (mostly 2) elongate, lanceolate but variable ear lobes present. Midbody scales 30-34; dorsals tri-quinquecarinate. Limbs pentadactyle with subdigital lamellae tricarinate. Tail round and cylindrical. Caudal autotomy present with 33/52 (63,46%) of tails regenerating.

Size: Largest male SVL = 43,0 mm (N2061 - Steamboat 306MR), mass = 1,9 g (N2061); Largest female SVL = 48,0 mm (N711 - Lucerne 198MS), mass = 2,75 g (N711). Mean male SVL = 36,59 mm \pm 3,85 (1SD) n=27, mass = 1,23 g \pm 0,38 (1SD) n=27; Mean female SVL = 37,64 mm \pm 5,12 (1SD) n=22, mass = 1,25 g \pm 0,48 (1SD) n=22.

Distribution

Northern Cape Province, Botswana, Zimbabwe, Zambia, Mozambique and Transvaal extending westwards to South West Africa and Angola.

Distribution in Transvaal, (Map 50).

3 km W. of Masisi; 4 km W. of Dinokana; Bloukop 514MS; Bordeaux 555MS; Carnethy 113MS; Dardanellen 203MR; Dawn 71MT; Delet 499MS; Entabeni 251MT; Fontainbleau 537MS; Gulliver 237MS; Harriet's Wish 393LR; John Marcus 336LQ; Kalkfontein 1JP; Kameelpan 276HO; Killialoe 235MS; Klein Engeland 9KP; Kliprivier 692MS; Langjan Nature Reserve 370MS; Lily 47LQ; Lisbon 19LQ; Lucerne 198MS; Makoppa 466LS; Malongwa Flats; Melinda 164LR; Moilwas Location; Monte Christo 388LR; Nwanedzi R.; Onrust 332HO; Ostrolenka 107MS; Schweizer Reinecke Dorp 62HO; Steamboat 306MR; Sunnyside 532LQ; Swelpa 245LQ; Uitkomst 769LS; Van Wyksfontein 3LR; Wintersveld 427MS; Witpan 20IP; Worcester 5LP; Zoutpan 459MS.

Habitat and Ecology

A terrestrial arenicolous lizard usually observed sheltering under bushes and grass tussocks. The lizards flee from tussock to tussock when disturbed attempting to hide in the grass. Also takes refuge in leaf litter, under rocks or stones and other debris such as plough shares and at times even in holes in the ground. This lizard always runs from cover to cover. Has been found widespread along the south western, western, north western to northern Transvaal border in veld types 13, 14, 15, 16, 18, 48, 50, 61 although mostly in 14 and 15 and at altitudes ranging from 350-1650 m a.s.l.

The species is viviparous producing from two to four young per season throughout the summer. Neonates measure 18,0 - 20,0 mm SVL, 22,5 - 33,0 mm T. with a mass of 0,10 - 0,15 g.

Conservation Status.

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. A widespread peripheral species, it occurs in the Langjan and possibly the Messina nature reserves but sparsely distributed. May in time be found to occur in the northern Kruger National Park. According to current land use practices the species is likely to remain secure.

Remarks

Broadley (1975) has remarked on the difference between the eastern and western forms of this species. The Transvaal population falls well within the limits proposed by Broadley (op. cit.). They are considerably smaller than the nominate race and are rarely rupicolous. Both tri- and quinquecarinate forms are found and the ear lobes are usually 2, with a low midbody scale count.

Mabuya striata striata (Peters, 1844)

Tropidolepisma striatum Peters 1844, Monatsb. Akad. Wiss. Berlin, p. 36. Type locality: Mozambique.

Mabuya striata (Peters). FitzSimons 1943, p. 229-232 (part), figs. 104-105. Pienaar 1966, p. 65, pl. 18 & 18A. Welch 1982, p. 88.

Mabuya striata striata (Peters). Broadley 1966c, p. 177, 1977e, p. 72, pl. 2; Pienaar 1978, p. 58, pls. 18 & 18A); Pienaar et al 1983, p. 70, pl. 23 & 23A; Auerbach 1987, p. 109, Branch 1988a, p. 132, pl. 54, 1988b, p. 9.

Description. 168 Specimens examined.

Colour: Olive, olive brown to dark brown above, flanked dorsolaterally by a broad pale olive yellow to yellowish stripe extending from the posterior supraoculars posteriorly onto the base of the tail. In some specimens these stripes become much paler and indistinct posteriorly. A dark brown to black band extends from behind the nostrils through the eye to just beyond the shoulder merging into the brown colouration of the area below the yellow stripe. Head scales and dorsal scales dark edged. Ventrolaterally the brown sides merge into grey. Ventrally white with the exception of the gulars which are variably spotted or mottled with dark grey to black. Underparts of limbs and a narrow band under the tail white.

Lepidosis: A stout, rotund lizard becoming broader with age. Tail elongate, longer than SVL and cylindrical. Limbs well developed. Rostral wider than high; nostril pierced in nasal and marginally separated from to in contact with the post- and supranasals. Supranasals in broad contact behind rostral. Frontonasal slightly broader than long and in contact with loreals, prefrontals and frontal. Prefrontals separate, rarely in

contact; frontal large and in contact with 2nd and 3rd supraocular, narrowly excluded from 1st; interparietal diamond shaped and usually separating parietals posteriorly, occasionally in contact; supraoculars 5; supraciliaries usually 5 rarely 4 or 6; UL 5-8 mostly 6; LL 7; Subocular separated from lip by 5th - 7th supralabial; mental broader than deep; one postmental followed by two chin shields. Dorsals 3-6 keeled, mostly tricarinate; Scales at midbody 33-42; limbs pentadactyle with 14-19 (mostly 14-17) subdigital lamellae under 4th finger. Tail autotomy is common, and 50/84 (59,52%) regenerated.

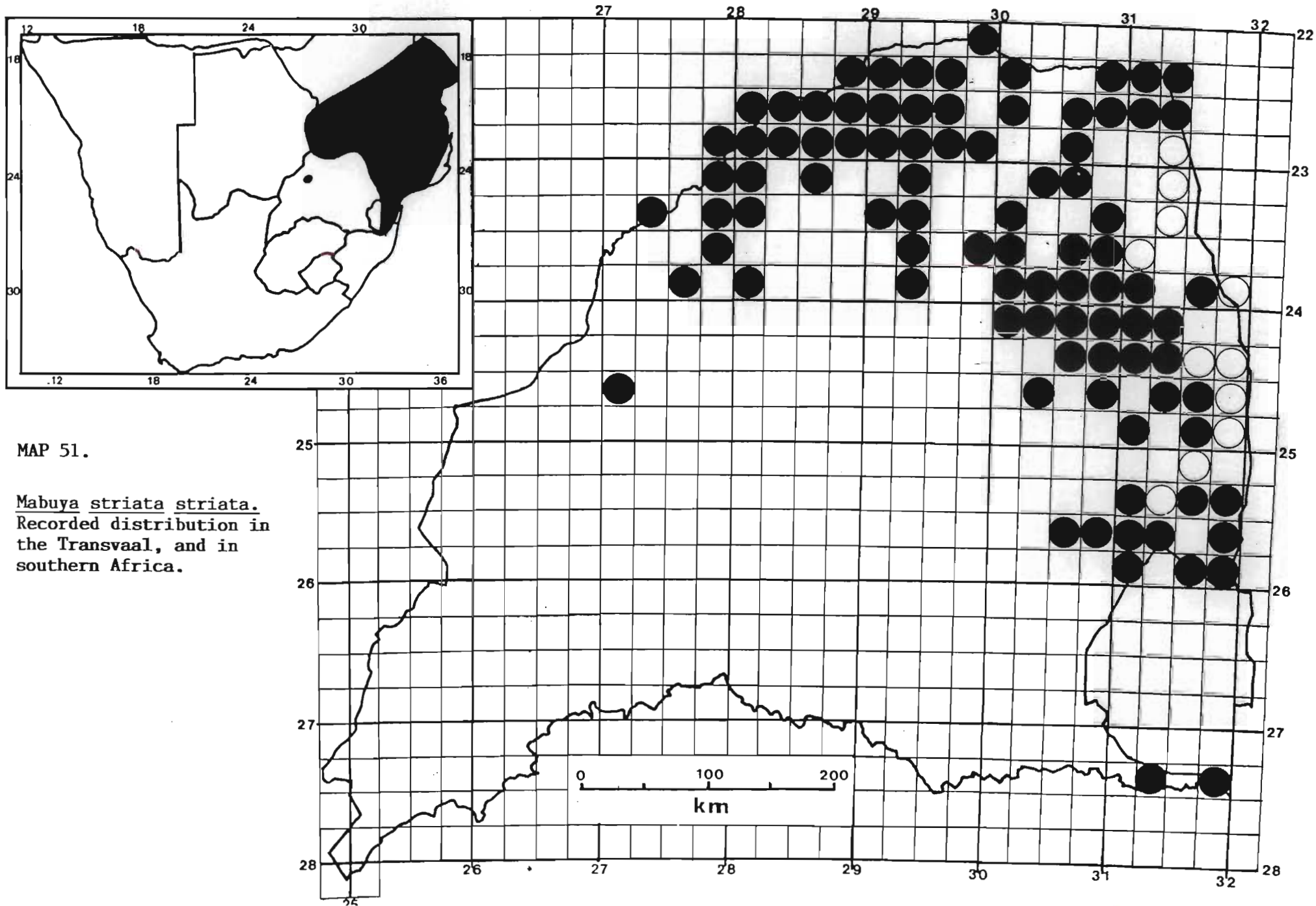
Size: Largest male SVL = 101,5 mm (N579 - Doreen 108MT), mass = 23,4 g (J1559 - Wemmervlei 185 LR); Largest female SVL = 102,0 mm (J6099 - Anlage 225KT), mass = 25,9 g (JN 548 - Carpe Diem 76Ki); Mean male SVL (60,0 mm) = 82,97 mm \pm 9,85 (1SD) n=32, mass = 14,53 g \pm 4,98 (1SD) n=31; Mean female SVL (60,0 mm) = 87,45 mm \pm 8,93 (1SD) n=22, mass = 16,23 g \pm 5,11 (1SD) n=21.

Distribution

Ethiopia and south-eastern Sudan, south to Natal, west to eastern Zaire, Malawi, south-eastern Zimbabwe and the northern and eastern Transvaal.

Distribution in Transvaal, (Map 51).

10 km W. of Punda Milia; Alfa 448KU; Alldays; Anlage 225KT; Argyle 46KU; Barberton; Belvedere 184MS; Berlyn 670LT; Bievack 14MR; Bilton 2LQ; Bordeaux 555MS; Border 136MS; Bottellang 115MR; Breslau 2MS; Broedershoek 129JU; Canterbury 254MR; Carpediem 76KT; Celine 547MS; Corea 96MS; Doreen 108MT; Duikerhoek 489JU; Eerste Rivier 232MR; Elandsfontein 335KQ; Elandshoek; Essexvale 61MR; Fontainbleau 537MS; Graaf Reinet 71MR;



MAP 51.

Mabuya striata striata.
 Recorded distribution in
 the Transvaal, and in
 southern Africa.

Gravelotte; Griffin Mine; Greenfield 333MS; Grootpan 90LQ; Guernsey 81KU; Gwaai 62MR; Ha Mwametatau; Hans Merensky Nature Reserve; Hartz 233MS; Hectorspruit; Hermitage 205KU; Injoka 267KU; Ka Kheyi; Kafferskraal 55LQ; Kalkfontein 173LS; Klein Tshipise; Komatipoort; Kwarriehoekpoort 108MR; Letaba; Liamule Hill; Lillie 148KT; Limpopodraai; Loretto 264MS; Louws Creek; Mabelikwa; Madrid 39KU; Mangombe; Mariepskop; Manyeleti Game Reserve; Matabula; Matlapitsi R.; Meidingen 398LT; Melkbosch 49MR; Moletsi Location; Moonlight 111LR; Mukula; Naudes Rust 272JU; New Belgium 608LR; Nwanedzi R.; Nyandu Bush, KNP; Nzulase; Ostrolenka 107MS; Paardekraal 135LT; Paarl 102LQ; Pafuri; Paris 206KT; Pietersburg; Pongola Nature Reserve; Punda Milia; Retief 280LR; Rochdale 700MS; Rooy Hoogte 347MR; Ross 55KU; Ruhrord 324MS; Sandilands 708MS; Sarabank 323KU; Selati; Sekororo; Sheiding 746LT; Shelton Hall 182MS; Shiluvane; Skukuza, KNP; Shinyolo; Steamboat 306MR; Sunnyside 532LQ; Ten Bosch 162JU; The Downs 34KT; The Oaks 198KT; Thornhill Farm 171JU; Tshidzi Hill; Tshikuyu; Tshipise; Umzinto 36MR; Venice 40KU; Viljoenshoop 299KT; Vreedzaam 822LS; Wemmersvlei 185LR; Wilkenshof 252JT; Zandput 202LS; Zoutpan 459MS.

Literature Records

Brak R; Kaapmuiden; Pretoria, Hornsnek; Martins Drift; Magalakwin R; Mokeetsi; Mopane; Tzaneen; Umlazi; Vaalwater; Vivo, (Broadley 1977). Skukuza; Shingwedzi; Nwanedzi camp; Punda Maria; Tshokwane; Shipandane valley; Mahlangene; Machai pan; Shangoni; ridge behind Punda Maria; Msimbit forest, eastern boundary between Nkulumbene and Mahewane; Letaba camp; Dongadziba; Shahulu spring; Kumane; Lower Sabie camp; Crocodile Bridge quarters; near Limpopo-Luvuvhu

junction, Pafuri; Satara experimental plots; Ramiti pan area; north bank of the Sabie river, 4,8 km east of Skukuza; between Mathlakuza pan and Shimuhene pan; Malonga spring; Nwambiya pan area; Pumbe sandveld; Pretoriuskop; Pafuri ranger's quarters; Malelane; near Shabaku, (Pienaar et al, 1983).

Habitat and Ecology

Basically an arboreal species, it is versatile and often observed around human habitation, on the walls of houses, huts and bridges. Appears not to inhabit rocky outcrops as much as is typical of M. s. punctatissimus. Foraging takes place from perches and the species adopts a "wait and see" strategy, waiting for prey to move past before descending rapidly and snapping it up. Invertebrates are mostly fed on but is known to even feed on maize porridge. Becomes very tame when not subjected to harassment. Often roosting with other lizards such as Hemidactylus mabouia. Occurs in veld types 6, 8, 9, 10, 11, 14, 15 and 18 at altitudes between 300-1000 m a.s.l. The species is ovoviviparous with 3-10 neonates born during mid- to late summer.

Conservation Status.

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. Widespread in the northern and eastern Transvaal and therefore occurring in several nature reserves as well as the length and breadth of the Kruger National Park. It is very adaptable and is considered secure.

Remarks

A distinct species in the lowveld of the northern and

eastern Transvaal, it becomes increasingly difficult to separate the subspecies M. s. striata from M. s. punctatissimus (A. Smith) in the north-western Transvaal (Map 53). Here numerous transitional specimens are found, both in lepidosis and in habitat choice. Broadley (1977e) records geographical variation in subocular condition. He records that in all southern African specimens the subocular is separated from the lip by the supralabials. In some M. s. punctatissimus this is also the case, although in most the subocular is in contact with the lip.

Mabuya striata punctatissima (A. Smith, 1849)

Euprepes punctatissimus A. Smith 1849, Illus. Zool. S. Afr. Rept. pl. 31, fig. 1. Type locality: north-eastern districts of Cape Colony.

Mabuya striata (Peters). FitzSimons 1943, p. 229 (part).
Mabuya striata punctatissimus (A. Smith). Broadley 1977e, p. 64, pls. 18 & IIIA. Branch 1981, p. 158; Jacobsen 1977, p. 20.

Mabuya striata punctatissima (A. Smith). De Waal 1978, p. 43; Auerbach 1987, p. 107, pl. 11 fig. 4; Branch 1988a, p. 132, pl. 54, 1988b, p. 9.

Description. 363 Specimens examined.

Colour: Dark brown to blackish dorsally, with dark edged and spotted head shields; black on dorsal scales may be pronounced enough to give the impression of striations down the length of the back although most prominent in the nuchal region. Pale spots or streaks also occur. Dorsolaterally a greenish yellow to greenish white stripe extends from above the eye becoming more and more indistinct posteriorly and most pronounced from the head to behind the shoulders. Laterally olive grey to brown flanked below by grey which terminates irregularly on the

ventrals. A blackish stripe extends from anterior to the eye, through the latter to above the shoulder. Ventrally throat heavily mottled but mottling less pronounced and only occasional along the ventrals. Ventrals mostly white to yellowish. Limbs dark olive black above and white below.

The lizards are more depressed dorsoventrally than are M. s. striata and do not achieve the large size of the latter.

Lepidosis: Rostral wider than high; nostril pierced near posterior of nasal and narrowly separated or in contact with postnasal and supranasal; supranasals in broad contact; fronto-nasal about as broad as long and in contact with loreals supranasals, prefrontals and frontal; frontal large and roughly pentagonal, in contact with 2nd and 3rd supraocular but widely separated from 1st; interparietal small; parietals large and mostly 51/68 (75%) in contact behind interparietal; Supraoculars 4-5, mostly 5; supraciliaries usually 5; UL 4-7, mostly 5, (anterior to subocular); LL 7; Subocular usually in contact with lip, rarely separate 10/85; mental broader than long with a large broad postmental followed by two chin shields. Dorsals tricarinate and midbody scales in 34-42, mostly 37-39 rows; Limbs pentadactyle with 12-17 (mostly 14-16) lamellae under the 4th finger. Caudal autotomy is prevalent with 55/79 (69,62%) regenerated.

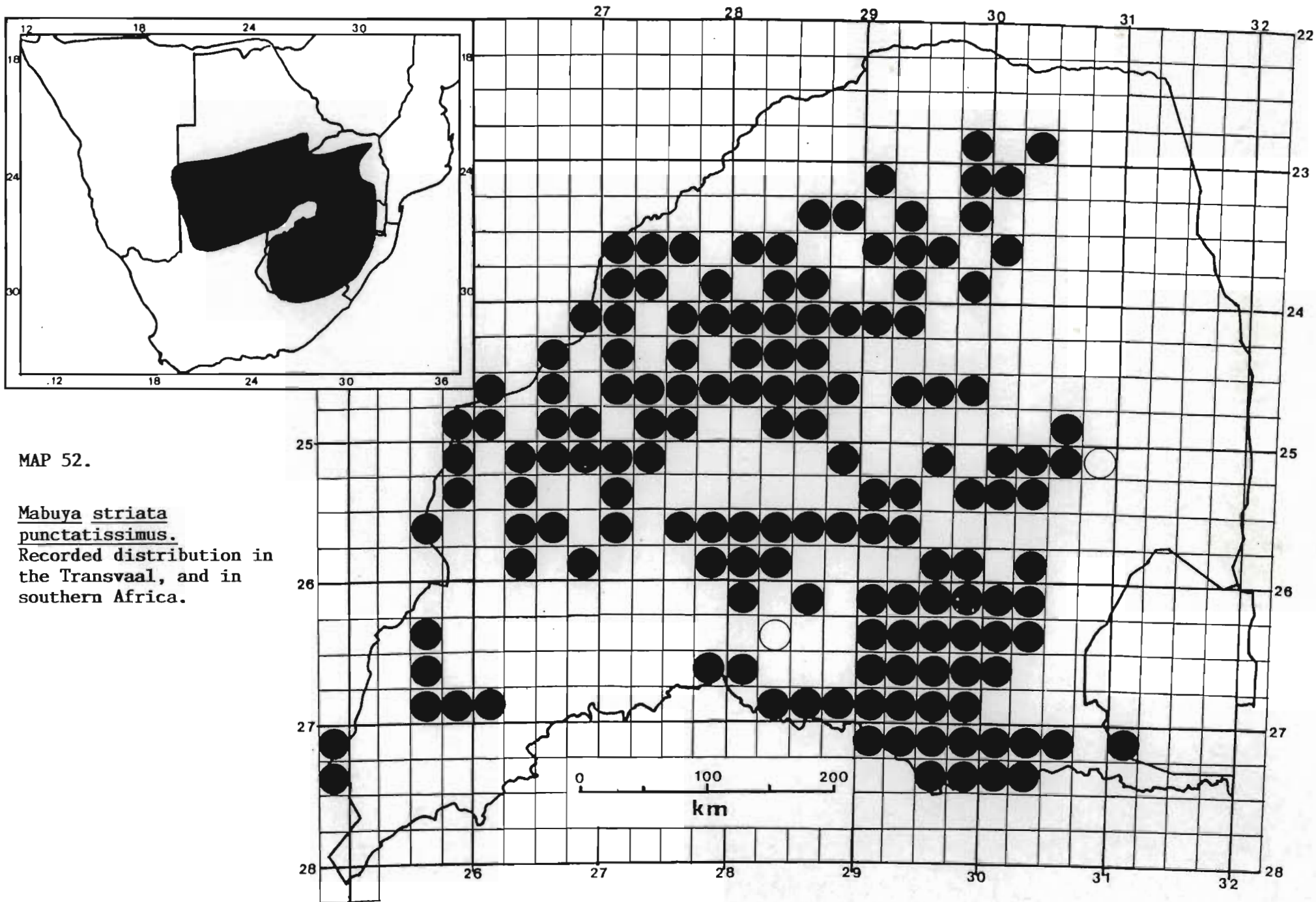
Size: Largest male SVL = 85,0 mm (N2364 - Naauwpoort 363LQ), mass = 16,0 g (P10489 - Bothwell 90IT); Largest female SVL = 96,0 mm (J1981 - Varkfontein 141KO), mass = 19,5 g (N3831 - Kareelaagte 45JO); Largest intergrade male SVL = 87,0 mm (J3017 - Hanover 181KQ), mass = 17,4 g (J3017); Largest intergrade female = 88,0 mm (J4472 - Van Tondersheek 10KO), mass = 16,0 g (J4472). Mean male SVL (55,0 mm) = $68,65 \text{ mm} \pm 9,10$ (1SD) n=50, mass = $7,74 \text{ g} \pm 3,22$ (1SD) n=50; Mean female SVL (55,0 mm) = $73,76 \text{ mm} \pm 10,07$ (1SD) n=44, mass = $9,44 \pm 4,06$ (1SD) n=42.

Distribution

North-eastern Cape Province; western Natal, Lesotho, Orange Free State, Swaziland to central and southern Transvaal and southern Botswana. Relict populations occur along the eastern highlands of Zimbabwe and the southern highlands of Malawi (Broadley 1977e).

Distribution in Transvaal (Map 52).

Amsterdam 116LS; Barberspan Nature Reserve; Bealey 260LR; Ben Lavin Nature Reserve; Blijdschap Nature Reserve; Bloemkrans 121IT; Boekenhoutskloof 187KR; Bothwell 90IT; Brits; Britsville 483IR; Brosdoornhoek 433KQ; Buffelshoek 277KR; Buffelshoek 446KQ; Calais 563KS; Clearwaters, Haenertsburg; Crocodile R. near Hartebeespoort Dam; Confidence 17HU; De Gladde Klipkop 763LS; De Goedverwachting 571IT; De Kroon; De Rocdepoort 435IS; Diepgelegen 945LS; Donderhoek 172HT; Donderhoek 312JQ; Donkdrkloof 162KR; Doornhoek 284KR; Doornhoek 545KT; Doornkop 356LS; Doornkraal 420JR; Elandsfontein 335KQ; Entabeni Forest Reserve 251MT; Ermelo; Galakwyns Stroom 745LR; Geluks Location; Goedehoop 152JS; Goedehoop 31KS; Goedgezicht 38HS; Goedgevonden 95HT; Goedgevonden 134HT; Goedgevonden 149JP; Goevernements Plaats 417KQ; Groenfontein 254KR; Groot Nylsoog 447KR; Groote Zwart Bult 290LQ; Grootfontein 352KQ; Groothoek 171HT; Grootpan 7KQ; Haasfontein 28IS; Halfgewonnen 190IS; Hanover 181KQ; Harriet's Wish 393LR; Hartebeestpoort B. 410JQ; Hartshoogte 17HN; Heerenveen 271IT; Hexrivier 634IR; Honeymoon 80KQ; Houwater 54JQ; Irene; Johannesburg, Bryanston; Johannesburg, Buccleuch; John Marcus 336LQ; Kafferskraal 513IS; Kaffirskraal 43JQ; Kareehoek 274KQ; Kareekuul 356IQ; Kareelaagte 45JO; Kastrol Nek; Klein Denteren 495LR; Klein Engeland 9KP; Klipfontein 9JO;



Klipplaatdrift 504IS; Kloppersdam 187JR; Knapdaar 92JT;
Koedoespoort 402LS; Kosterfontein; Krabbefontein;
Kromdraai 325IS; Kromdraai 486JS; Krugerskraal 583KR;
Kuilfontein 324JP; Langfontein 84HT; Lapalala Nature
Reserve; Leeuwfontein 228JS; Leeuwpoort 373KR; Leonard
360IO; Long Tom Pass; Loskop Dam Nature Reserve; Louis
Trichardt; Lydenburg; Maleshwane; Manamela; Marico
Bosveld Dam; Mezeg 77JP; Moletsi Location; Monte
Christo 388LR; Mooifontein 597KR; Mooiplaats 242JS;
Mooiplaats 65KP; Moorddrift 470LQ; Morgenzon; Mountain
Inn; Naauwpoort 363LQ; Napoleon 197KP; Nederhorst
Siding; Nooitgedacht 17JP; Nylstroom; Paardeplaats
101HT; Percy Fyfe Nature Reserve; Pietersburg;
Pretoria; Pretoria, Mayville; Pretoria, Florauna;
Pretoria, Mountain View; Pretoria, Meintjieskop;
Pretoria, Garstfontein; Pretoria, Rosslyn; Pretoria,
Sinoville; Pretoria, East Lynne; Pretoria, Lynnwood
Glen; Pretoria, Waverley; Pretoria, Hornsnek;
Pretoria, Les Marais; Ratomba; Rhenosterpoort 283KQ;
Rietkolk 96IO; Rietkuil 491JS; Rietspruit 91KQ;
Rietvlei 33IS; Rivola Hill; Roodepoort 598IR; Roodewal
102HS; Rooikoppen 408IS (Standerskop); Ruighoek 169JP;
Schoonheid 2HN; Smaldale 225KP; Smalkloof 122HS;
Spitskop 276IS; Springbokfontein 107IQ; Sterkstroom
411JP; Sterkstroom 565KR; Suikerbosfontein 422JT;
Suikerbosrand Nature Reserve; Sweet Home 322KQ; Swelpan
245LQ; Tafelkop 270IS; Tafelkop 46KR; Tambotierand
366KR; Troya 151JR; Turfloop 987LS; Turfsloot 81KP;
Tweefontein 467IS; Uitspanning 38JS; Uitzoek 63KR; Van
Tondershoek 10K0; Varkfontein 141K0; Verkyk 88HS;
Victoria 532LR; Vierfontein 61IS; Vlakfontein 457JR;
Vlakplaats 283KP; Vlakplaats 535KS; Vlakspruit 308IS;
Vygeboompoort 456KR; Wakkerstroom; Wanhoop 78JT;
Warmbaths; Waterval 128HS; Weihoek 540KQ; Welbedacht
382IS; Welgemeend 206IS; Weltevreden 174IS;
Weltevreden 596LQ; Witbank 236IS; Witfontein 306IP;

Witklipbank 202IR; Witrand 103IS; Wonderboom 98KP;
Woodbush; Zondagsfontein 124IS; Zuurbron 132HT;
Zwartwater 288IT;

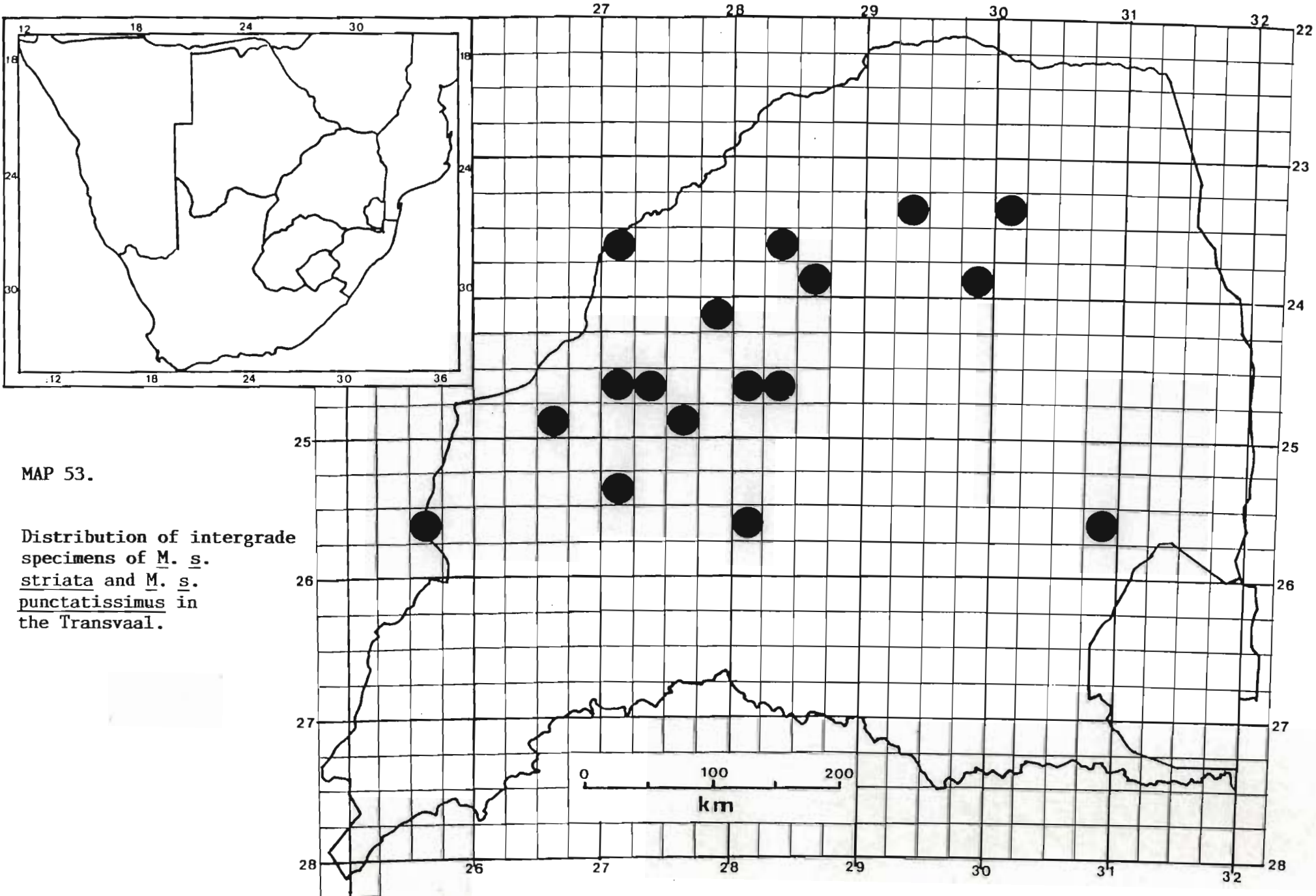
Literature Records

Gerlachshoop; Glentig; 20 km S. of Groblersdal;
Heidelberg; Linokana; 25 km e. of Lydenburg;
Moddernek; Mhome; 50 km NW of Potgietersrus;
Rustenburg; Sabie; Wonderfontein, (Broadley, 1977e).
Wolkberg wilderness area, (Snyders 1987).

Habitat and Ecology

A widespread essentially rupicolous species throughout most of its range in the Transvaal. It becomes somewhat arboreal in the west and south-west where rocky outcrops are few. It is frequently associated with human dwellings throughout its range, basking on the walls of huts and houses. Like its larger relative it also becomes relatively tame and forages freely on verandas and even entering houses on occasions. They are found in many veld types including 8, 9, 10, 12, 13, 14, 16, 18, 19, 20, 48, 50, 52, 53, 54, 55, 57, 61, 62, 63, 64 and 67 at altitudes varying from 800-2300 m a.s.l., Gregarious, as many as 50 lizards have been found together under a large slab of rock at Woodbush. They inhabit crevices between and under rocks, often in the company of other lizards including Cordylus spp., Afroedura spp., Pachydactylus spp. and many others. In the west they occupy holes in trees. They feed on invertebrates and appear largely opportunistic, depending on a "wait and see" foraging strategy.

Ovoviviparous, the young are born during December/January and again in late summer during March/April. Neonate SVL range from 27,0 - 29,0 mm with a 38,5 - 42,0 mm tail and a mass of 0,4 g. From 2 to 7 young are born at a time.



MAP 53.

Distribution of intergrade specimens of *M. s. striata* and *M. s. punctatissimus* in the Transvaal.

Conservation Status.

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. Widespread and adaptable this species occurs in many nature reserves. Its status is secure.

Remarks

As for the nominate race (Map 53).

Genus Lygosoma Hardwick & Gray, 1827.

Lygosoma Hardwick & Gray, 1827, Zool. J. 3, p. 228.

Type: L. quadrupes (Linnaeus).

The genus is represented by a single species in the Transvaal, L. s. sundevallii (A. Smith). Broadley (1966) revised Southern African material proposing the existence of only two species L. sundevallii (A. Smith) and L. afer Peters. The two species appear to be very close, differences being based on size and colouration. As there is some overlap in the former, more emphasis is placed on the latter. Greer (1977) synonymised sundevallii from Riopa to Lygosoma. Characteristics of the genus include palatine bones in contact with one another mesially; pterygoid bones in contact anteriorly, the palatal notch not extending forwards to between the centres of the eyes; pterygoid teeth absent, or reduced to one or two minute ones; maxillary teeth conical. Eyelids well developed, the lower one scaly or with a more or less transparent disc. Nostril pierced in the nasal; supranasals entire or united anteriorly with the nasal; prefrontals, frontoparietal(s) and interparietal distinct. Ear-opening distinct but tympanum deeply sunk. Limbs short or vestigial (FitzSimons, 1943).

Lygosoma sundevallii sundevallii (A. Smith, 1849).

Eumices (Riopa) sundevallii A. Smith 1849, Illus. Zool. S. Afr. Rept. App. p. 11. Type locality: Country to the eastward of Cape Colony.

Riopa sundevallii (A. Smith), FitzSimons 1943, p. 233-235, figs 108 & 109, pl. 22, fig. 3. Pienaar 1966, p. 67, pl. 19, Broadley 1966d, p. 1.

Riopa sundevalli sundevalli (A. Smith). Pienaar et al 1983, p. 72, pl. 24 & 24A; Auerbach 1987, p. 114, pl. 10 fig. 3; Patterson & Bannister 1987, p. 51, fig; Welch 1982, p. 82; Branch 1988a, p. 127, pl. 49, 1988b, p. 9.

Description. 383 Specimens examined.

Colour: Olive brown, brown to dark brown above, each scale dark edged posteriorly. A dark spot at the base of each scale forms interrupted linear lines down the body and continuing on the tail. The dark spotting fades laterally and the ventrolateral and ventral scales white in most specimens. In some specimens the ventrum is light to heavily spotted with dark brown this fading anteriorly. The underside of the tail is heavily and linearly spotted in all specimens. Tail brown to bluish grey above becoming paler below.

Lepidosis: Body stout and cylindrical, tail (original) equal in length to SVL or slightly longer, cylindrical and acutely tipped. Limbs much reduced but still pentadactyle. Rostral broader than high, pentagonal; nostril pierced in suture between nasal and postnasal, narrowly separated from supranasal; supranasals in contact behind rostral; frontonasal much broader than long and in contact with anterior loreals and frontal; prefrontals widely separated and in contact with posterior loreals; frontal large and heptagonal and in contact with 2nd and 3rd supraocular, narrowly separated from 1st; frontoparietals large; interparietal small and surrounded by parietals which meet in broad contact behind the interparietal; Supraoculars 5; supraciliaries 6-7 (rarely 5 or 8); UL 6; LL 6; Mental broader than long and straight edged posteriorly; a large, broader than long postmental followed by two chin shields. Dorsal scales uniform and imbricate; 24-28 (mostly 26) scale rows at midbody; limbs pentadactyle with 5-7 (mostly 6) subdigital lamellae under the fourth toe. Tail autotomy very common with 50/75 (66,67%) of the tails regenerated.

Size: Largest male SVL = 92,0 mm (N8314 - Elandsfontein 440JQ), mass = 16,1 g (N3195 - Matoks Location);

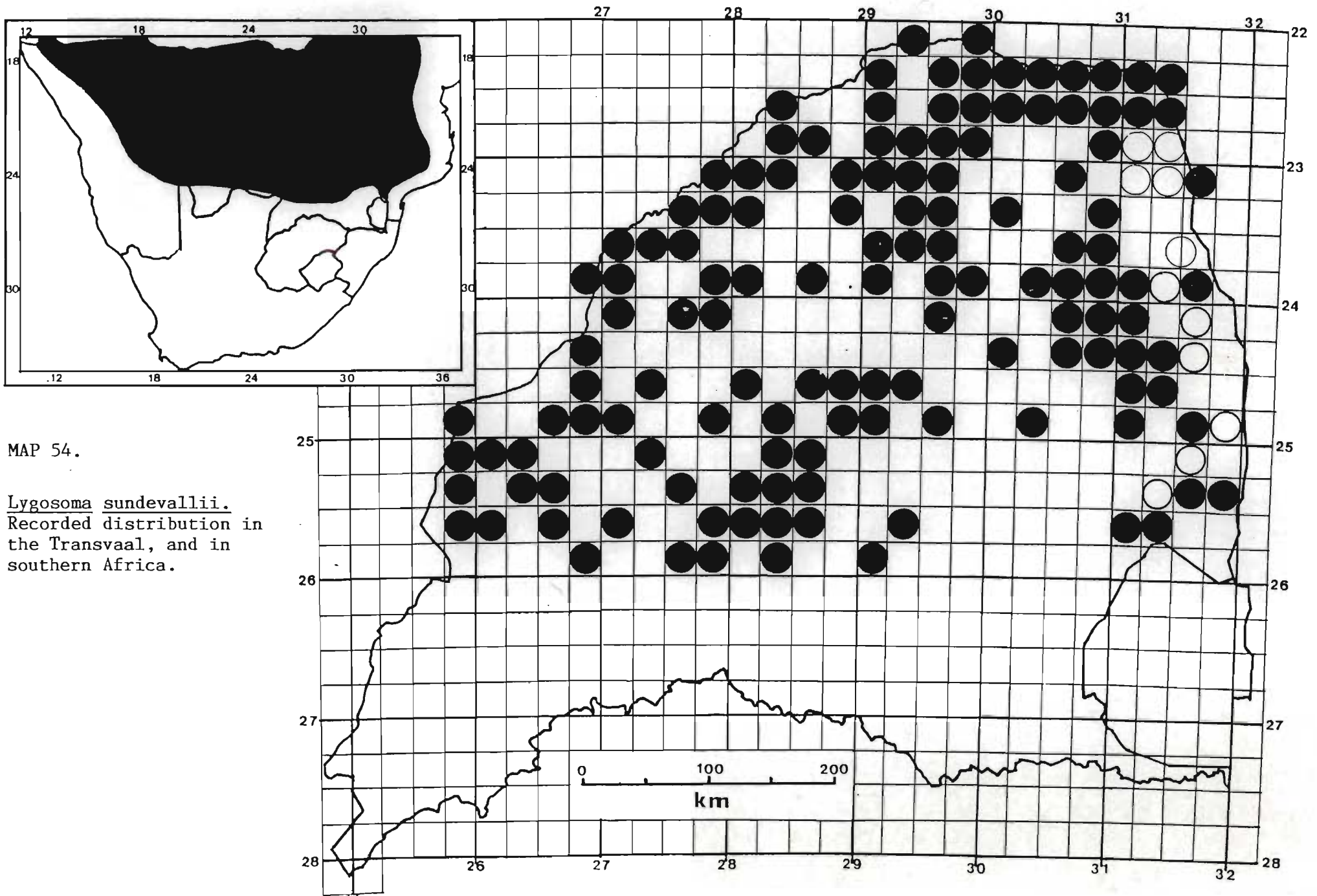
Largest female SVL = 95,0 (JN2782 - 2329DD), mass = 11,0 g (J4673 - Silonque 23LU). Mean male SVL (50,0 mm) = 72,71 mm \pm 8,89 (1SD) n=50, mass = 6,24 g \pm 2,64 (1SD) n=50; Mean female SVL (50,0 m) = 73,0 mm \pm 10,32 (1SD) n=50, mass = 5,65 g \pm 2,22 (1SD) n=48.

Distribution

Southern Angola, South West Africa, east through Botswana and Transvaal to western Mozambique north to Zimbabwe, Zambia, Malawi and Tanzania to Kenya. Replaced in Somalia by L. s. somalica Parker, (Broadley 1966).

Distribution in Transvaal (Map 54)

15 km E. of Langjan Nature Reserve; 10 km W. of Waterpoort; 5 km W. of Lukale Hill; Albasini 524MS; Ameland 11LS; Amesfort 26LS; Amsterdam 116LS; Archie 156KT; Backwood 348LQ; Bath 100LQ; Belvedere 184MS; Berg en Dalen 53MR; Berlyn 670LT; Bloemfontein 63JP; Blouberg; Boompan 237LQ; Bordeaux 555MS; Breslau 2MS; Brosdoornhoek 433KQ; Buffelfontein 174JR; Buisfontein 451KR; Bultfontein 174JR; Calais 563KS; Chester 235KT; Constantia 122LQ; Corea 96MS; Crocodile Pool near Shingwidzi; Daspoort 319JR; De Bad 396KT; De Gladde Klipkop 763LS; Dome Pools, Magaliesberg; Delet 499MS; Doornkraal 420JR; Doreen 108MT; Dwaalboom 217KP; Elandsfontein 440JQ; Esmefour 29MT; Excelsior 266KU; Fontainbleau 537MS; Galakwyns Stroom 745LR; Gewenscht 562KS; Greenfield 333MS; Guernsey 81KU; Hanover 181KQ; Hans Merensky Nature Reserve; Hartebeespoort 215JQ; Hartebeestpoort E. 215JQ; Hennops R. 489JQ; Hectorspruit; Houtbosdorp; Islet 137MS; Kaapmuiden; Ka Kheyi; Kalkfontein 589KR; Kalkfontein 615LS;



MAP 54.

Lygosoma sundevallii.
 Recorded distribution in
 the Transvaal, and in
 southern Africa.

Kalkfontein 84LR; Kalkheuvel 454MS; Kameelspruit 29KQ;
Killaloe 235MS; Klein Tshipise; Klipheuvel 573KS;
Komatipoort; Kosterfontein 460JP; Kromdraai 106MT;
Krokodilpoort; Krugerskraal 583KR; Kwa Seane;
Kwaggadraai 137LR; Lavhengwa Hills; Liamule Hill;
Lillie 148KT; Lolamontes 682KS; London 29KP;
Loopleegte 302LQ; Loretto 264MS; Madrid 39KU;
Mahlaguza Pan; Malamala 359KU; Malmaniesrivier 236KQ;
Manamela; Mangombe; Manyeleti Game Reserve; Marico
Bosveld dam; Matlala Hill; Matloes Location;
Mecklenburg 112KT; Melkboomfontein 919LS; Messina
Experimental Farm; Mica; Middelbult 41MT; Middlesex
205KT; Molepos Location 187KS; Mooiplaats 242JS;
Moonlight 111LR; Moriah 238KT; Motswedi; Mutalepoort;
Near Vhurivhuri Plantation; New Belgium 608LR;
Nooitgedacht 333JR; Nyandu Bush; Nylsvley Nature
Reserve; Olifantspoort 328LS; Overwinning 713MS;
Paarl 102LQ; Pankoppen 36JR; Pelindaba; Philipstown
390MS; Pretoria, Daspoort; Pretoria, The Willows;
Pretoria, Silverton; Pretoria, West End; Pretoria,
Wonderboom; Pretoria, Gezina; Pretoria, Capital Park;
Pretoria, Florauna; Pretoria, Koedoespoort; Punda
Milia; Riekertsvraag 593KR; Rietfontein 179JP;
Rietfontein 214JR; River 141MS; Rochdale 700 MS; Rolle
235KU; Roodekopjesfontein 15JP; Roodeplaat 293JR;
Rooikoppiesput 32JP; Ross 55KU; Rustenburg Town Kloof;
Sand R. near Messina; Schoonkloof 273KP; Scrutton 23MT;
Selati Ranch 143KT; Shaholle; Silonque 23LU; Silwana's
Location 719LT; Smithfield 456MS; Sonskyn Spa;
Sterkstroom 411JP; Sweet Home 322KQ; Sweethome 315LR;
Tafelkop 46KR; Tambootierand 366KR; Tata 7LR;
Thornhill 734MS; Trevenna 119MT; Tshenzhelani; Tshidzi
Hill; Tshikuyu; Tweefontein 58JO; Van Tondershoek
10KO; Van Wyksfontein 3LR; Varkfontein 141KQ; Venice
40KU; Vergulde Helm 316LQ; Vhurivhuri Plantation;
Vlakfontein 723KS; Vlaknek 392KQ; Vlakplaats 283KP;
Vogelstruiskraal 397KQ; Vygeboompoort 456KR;

Vygeboompoort 560LQ; Waterpoort; Weipe 47MS;
Welgedacht 130JR; Welgevonden 444LQ; Weltevreden 596LQ;
Wemmersvlei 185LR; Wintersveld 427MS; Wilhanshöhe 78LS;
Worcester 5LP; Zeekoegat 12KU; Zeerust Townlands; Ziek
771LT; Zoetfontein 137LT; Zondagfontein 300MR; Zoutpan
104JR; Zoutpan 459MS; Zuleika 238MS; near Letaba Camp;
near Luphephe Dam; near Mica; between Saselondonga and
Pafuri.

Literature Records

Brak river; Crocodile Poort; Junction Marico &
Crocodile rivers; Letaba; Leydsdorp; Messina;
Nzhelele river, (FitzSimons, 1943). Bandolierkop;
Buyskop, Warmbaths, (NMZB). Punda Maria; Skukuza;
Mphongolo near Shingwedzi; Shingwedzi quarters;
Matukwane ridge, Punda Maria; Nkayeni spruit; Olifants
camp; Ngirivane sandstone reef; Shahulu spring;
Klawerpan firebreak; Shalungwa spring area; W.N.L.A.
quarters, Pafuri; Malelane ranger's quarters: Sweni
drift on Pelwane road; Tshokwane; Olifantsriver bridge;
Mbulweni sandstone reef; Shawu experimental plots;
Letaba restcamp; Makangela spring area; in the broken
country along the lower reaches of the Mashikiri spruit;
Matishibila spring; along Phugwane spruit between Zari
waterhole and Mafayeni turnoff; Lebombos at Godleni;
Hlanganine sandstone reef; near Sabie and Sand river
confluence; between Mathlakuza pan and Shimuhene pan;
eastern boundary between Mathlakuza pan and Saselandonga
gorge; Machuluane mountains; Malelane section; between
Mahembane and Tsumanene; Pumbe sandveld; Mala-mala
picket area; Shirombe pan; Eastern boundary between
beacons 1-3, 7-9 and 9-10; Malonga; Kukumezane;
Olifants gorge; new tarred road north of Luvuvhu river 7
km and 10-12 km; Kingfisherspruit; Mutale gorge; near
Shabaku, (Pienaar et al 19839).

Habitat and Ecology

A nocturnal fossorial to terrestrial skink usually found under stones, rotting logs and other debris such as accumulations of dead leaves. Emerge at night and move about the surface of the soil before burying themselves again. Usually solitary, this species occurs in bushveld areas with sandy soils such as veld types 8, 9, 10, 11, 12, 13, 14, 15, 18, 19, 20, 61 and 67 at altitudes between 300-1500 m. It is even found along mountain ranges such as the Soutpansberg and Waterberg where it may be found in very shallow soil under rocks. Occasionally will also occupy the holes of other animals. A very muscular lizard, if exposed it rapidly dives into the sand and with writhing movements rapidly disappears under the surface. It is often found in the company of other umbrophile species such as Scelotes limpopoensis, Bufo fenoulheti and scorpions such as Hadogenes sp. Insectivorous, these lizards feed on invertebrates such as termites (Isoptera), ants (Hymenoptera Formicidae) and probably other groups as well.

Lygosoma sundevallii is oviparous laying from 2-6, (mostly 4) eggs during midsummer (November/December) which measure 15,0-15,3 x 7,4-8,0 mm. Neonates measure 50,0-55,0 mm total length (FitzSimons, 1943) and one measured was 29,8 mm SVL, 25,0 mm T = 54,5 mm.

Conservation Status.

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. A widespread species and found in many nature reserves in the Transvaal, as well as the Kruger National Park. Under no immediate threat.

Remarks

A uniform species showing remarkably little variation for such a widespread lizard. Some overlap in colour pattern with L. afer (Peters) in the form of a spotted ventrum occurs. Occasional specimens exceeding 80,0 mm SVL but rarely reaching 95,0 mm SVL are found in Transvaal and are thus in keeping with conspecifics from other areas of the species range.

Genus Panaspis Cope, 1868

Panaspis Cope 1868, Proc. Acad. Sci. Philadelphia, p. 317. Type: P. aeneus Cope.

Fuhn (1970) reappraised the African "ablepharin" skinks and split them into two genera Panaspis and Cryptoblepharus Wiegmann based on the immobile "brille" in the lower eyelid. The distribution of Panaspis was placed as Africa south of the tropic of Cancer. The only recognised South African representative is P. wahlbergii (A. Smith). During the survey it was evident that a smaller species was also present inhabiting the more arid regions of the Transvaal and has also been observed in Zimbabwe near the Victoria Falls. It is likely therefore that it is also widespread in southern Africa. This species is closely allied to P. wahlbergii on account of the fusion of the fronto-parietals forming a large plate. It differs mainly in colour but is also considerably smaller.

The genus is characterised by the palatine branches of the pterygoids having beaklike recurved processes, separated by a long pointed basal process of the palatines; a single postocular; prefrontals large, in contact or narrowly separated; frontal small and in broad contact with the 1st and largest of the supraoculars (after Fuhn, 1970).

Key to the Transvaal species

1. Size large reaching up to 50,0 mm SVL when adult.
Brown above occasionally with black spots on scales forming several longitudinal lines down the back. Laterally a broad black to grey-black band extends from the nostril to the groin. Males in breeding

season vermillion below from chin to underside of tail
(occasionally paler on the belly according to time
of year) P. wahlbergii
Size small reaching 43,0 mm SVL when adult.
Golden brown to pale brown above. Laterally males
are greyish and only have a black patch with
irregular white lines and speckles extending from
the posterior margin of the ear to just behind
the shoulder. Females have a greyish band from
nostrils to groin. During the breeding season
males only have a vermillion chin and throat,
being white over the ventrum P sp.
nov.

Panaspis wahlbergii (A. Smith, 1849)

Cryptoblepharus wahlbergii A. Smith 1849, Illus. Zool. S. Afr. Rept. App. p. 10. Type locality: country to the eastward of Cape Colony, probably Natal.

Ablepharus wahlbergii (A. Smith). Jacobsen 1977, p. 21; Pienaar 1978, p. 62; De Waal 1978, p. 45; Auerbach 1987, p. 115.

Panaspis wahlbergi (A. Smith). Fuhn 1970, p. 379, ll. 1, fig. 5, pl. 2, fig. 7; Welch 1982, p. 91.

Panaspis (Afroablepharus) wahlbergii (A. Smith). Pienaar et al 1983, p. 74, pl. 25;

Panaspis wahlbergii (A. Smith). Branch 1988a, p. 134, pl. 51, 1988b, p. 9.

Description. 320 specimens examined.

Colour: Olive brown to dark brown dorsally, uniform or with 6 longitudinal dark brown to blackish lines over the back. Two median lines are often close together forming a single thicker vertebral stripe, this line extending onto the base of the tail. A pale yellowish-brown to brownish-white stripe extends dorsolaterally from the nostrils through the eye to the sacrum merging into the

base of the tail. Below this and extending from behind the nostrils posteriorly through the eye and merging into the colour at the base of the tail is a broad black to grey-black band. This is often bounded below by a white stripe from the upper labials through the ear to the groin. Ventrally white with grey pigmented skin giving a greyish to bluish appearance. Breeding males usually pink to vermillion below from chin to under tail. Females remain white below throughout the year and lateral stripes less pronounced than in males.

Lepidosis: An elongated body, cylindrical with tail longer than SVL. Limbs reduced but still functional and pentadactyle. Rostral pentagonal and broader than high; nostril directed posteriorly and pierced in posterior half of nasal; nasals widely separated behind rostral; frontonasal wider than long and in contact with rostral frontal and anterior loreals; prefrontals widely separate and in contact with both loreals; frontal small and in contact with 1st supraocular and single entire frontoparietal; interparietal small; parietals large elongate and meet in broad contact behind interparietal; supraoculars 3; supraciliaries 4-5 (usually 5); UL 6-8 (usually 7); LL 6; mental wider than long with a broad postmental adjoining two large chin shields; Dorsal scales smooth and imbricate; 22-28 (mostly 24 or 26) scale rows at midbody; Limbs short and pentadactyle, subdigital lamellae unicarinate; palmar tubercles 21-24, round and slightly conical.

Size: Largest male SVL = 64,0 mm (J1143 - Matiwa lookout, Entabeni), mass = 1,25 g (J6047 - Witpan 20IP); Largest female SVL = 50,0 mm (P10028 - Doornplaat 177IP), mass = 1,45 g (N3166 - Rustfontein 781LS); Mean male SVL (30,0 mm) = 38,79 mm \pm 4,33 (1SD) n=53, mass = 0,78 g \pm 0,23 (1SD) n=51; Mean female SVL (30,0 mm) = 39,93 mm \pm 4,70 (1SD) n=50, mass = 0,80 g \pm 0,24 (1SD) .n=50. Although this indicates little difference between males

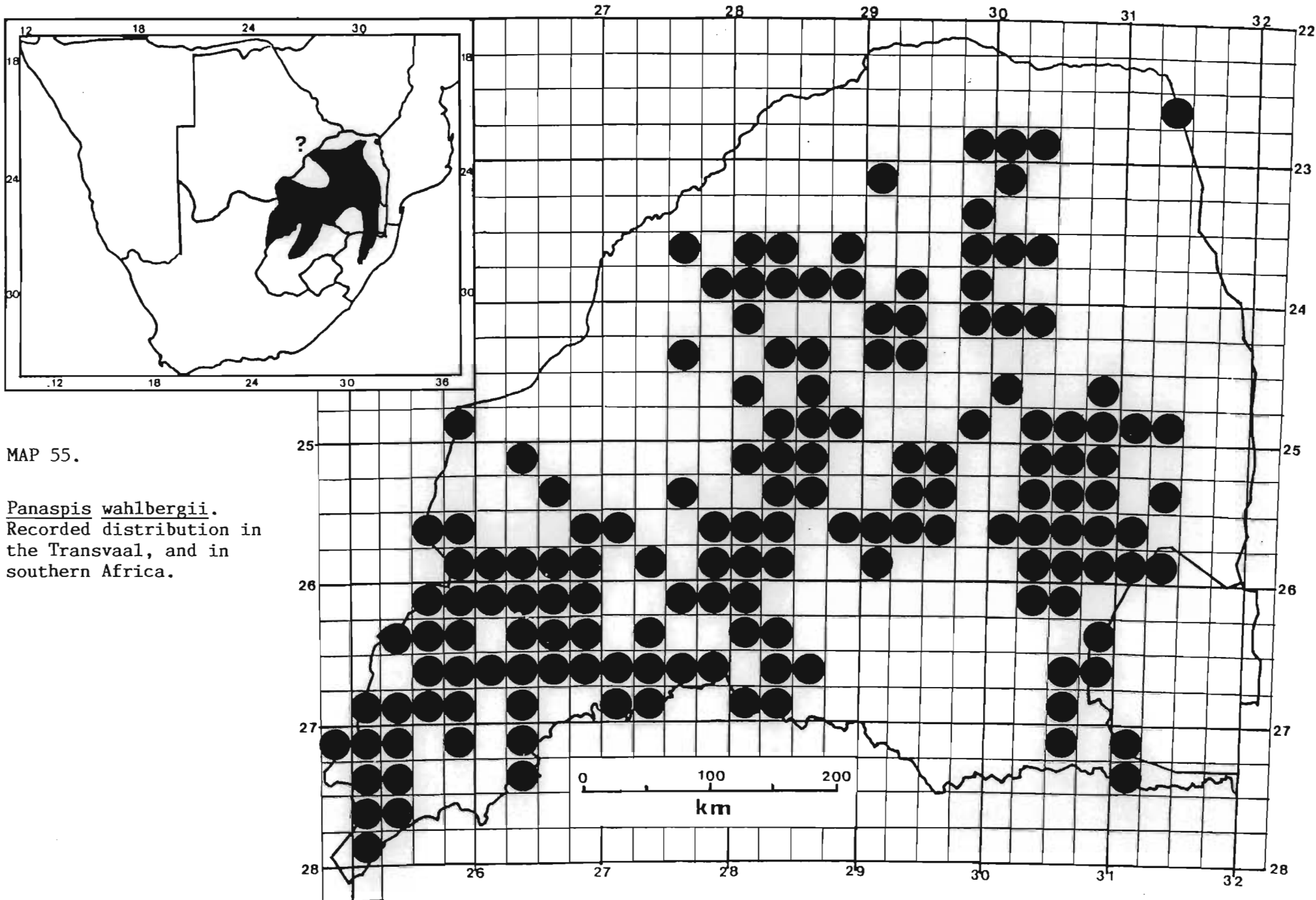
and females, studies on the Nylsvley nature reserve (Jacobsen, 1982) show that within a population, females generally predominate in the larger size classes and actually reach a greater SVL and age than males. The extremely large male from the Soutpansberg is interesting and indicates a population of large individuals.

Distribution

From Kenya, Tanzania, Malawi to Mozambique. Westwards through Zambia to Zaire and south through Zimbabwe eastern Botswana, South West Africa, to the Transvaal, KwaZulu and Natal.

Distribution in Transvaal (Map 55)

13 km W. of Klaserie; 4 km Sth of Tshamavhudzi Peak; 13 km from Kaapsche Hoop; Badplaas; Barberspan Nature Reserve; Barberton; Bergfontein 277KQ; Bergplaats 25HU; Blauwkrans 8OKS; Blesboklaagte 181IR; Blinkwater 680LR; Blouberg; Bluegumspoort 779MS; Boekenhout, Pretoria; Boschhoek 36JT; Boschkom 272JT; Boschkop 482IR; Boschplaats 138HO; Buffelsfontein 443IP; Bulskop 225IP; Bultfontein 92JO; Camelot 320JU; Carpediem 76KT; Christiana 325HO; Clearwaters, Haenertsburg; De Kroon 444JQ; De Putten 56JO; Desire 563KT; Dientje 453KT; Donkerkloof 435JQ; Doornfontein 345IP; Doornhoek 480LS; Doornplaat 106JO; Doornplaat 177IP; Doornpoort 262IP; Dusseldorp 22KT; Duurstede 361JU; Dycedale 368JU; Eendracht; Elandsfontein 471JT; Elandskop; Entabeni Forest Reserve 251MT; Eureka City; Excelsior 266KU; Fernie 243IT; Fochville; Galakwyns Stroom 745LR; Garatouw 282KT; Geduld 270IP; Gestoptefontein 349IO; Gezicht 265HO; Gillooly's Farm; Godwan R.; Goede Hoop 490JP; Goedgedacht 152JS; Goedverwacht 152JT; Goedverwachtinge 333JU; Graskop



MAP 55.

Panaspis wahlbergii.
 Recorded distribution in
 the Transvaal, and in
 southern Africa.

Townlands; Groot Denteren 533LR; Groothoek 106KS;
Groothoek 171HT; Gunfontein 71KR; Halfway House;
Hartbeestfontein 297IP; Hartebeestfontein 437IQ;
Hartebeespoort 215JQ; Hartebeestpoortje 451IQ;
Heerenveen 27IT; Hoedspruit 346JS; Houtbosdorp;
Houthaaldoorns 2IP; Humanskraal 346IO; Inhlovudwalile
42IT; Irene; Iron Crown; Ishlelo 441IT; Italie 123HO;
Kaapsche Hoop 483JT; Kalkfontein 615LS; Kameelpan
276HO; Kunana Location 426IP; Kapsteel 81IQ;
Kareelaagte 45JO; Khandizwe; Kindergoed 332JT;
Klaserie; Klein Tshipise; Klipkuil 352JP; Klipnek
199JS; Klipspruit 89HP; Koningstein 625JT; Kraalkop
147IQ; Kromdraai 520JQ; Kromrivier 347JQ; Kuilfontein
324JP; Ledovine 507KT; Leeuwfontein 185HO;
Leeuwfontein 228JS; Leeuwpoort 283JS; Leonard 360IO;
Lot 43 250IO; Mac Mac Pools; Magaliesberg, Pretoria;
Mahlaguza; Makokskraal 203IP; Malemetsa; Malta 65KT;
Mariepskop; Marokane 1HN; Matiwa Lookout, Entabeni
251MT; Meidingen 398LT; Merriekloof 420IT;
Mooifontein 597KR; Mooiplaats 355JR; Morgendal 216KS;
Nasionaal 29KT; Near Vhurivhuri Plantation; Nelspruit;
New Belgium 608LR; Newgate 802MS; Nooitgedacht 131LP;
Nooitgedacht 17JP; Nooitgedacht 392KT; Ohrigstad dam
Nature Reserve; Oostenryk 92KS; Paardedrift 303KR;
Palala River, Waterberg; Palmaryville; Percy Fyfe
Nature Reserve; Pieterman 445LR; Pietersburg; Pipe
Klip Berg 21HU; Pretoria; Pretoria, Brooklyn;
Pretoria, Murryfield; Pretoria, North; Pretoria,
Rosslyn; Pretoria, Clubview East; Pretoria, Lynnwood;
Pretoria, Lynnwood Glen; Pretoria, Florauna; Pretoria,
Fountain's Grove; Pretoria, Rosslyn; Redcliff 426IT;
Rietfontein 179JP; Rietfontein 214JR; Rietfontein
240IO; Rietfontein 255JT; Rietfontein 487JP; Rietkraal
129HP; Rietpan 479JP; Rietspruit 91KQ; Roodekraal
451IQ; Roodepoort 314KR; Roodevlakte 632KR; Roodewal
251JT; Rooipoortje 453IQ; Roosterlaagte 594KR;

Rosehaugh Station; Rust der Winter Nature Reserve;
Rustenburg Nature Reserve; Rustfontein 781LS; S.A.
Lombard Nature Reserve; Sabi Sand Game Reserve;
Schilderkrans 1041LS; Schoonheid 2HN; Schoonoord 326KT;
Schweizer Reinecke Dorp 62HO; Serala 5KT; Soutpansberg
above Louis Trichardt; Springbokfontein 107IQ;
Springbokpan 61IO; Stanley Bush Kop; Strydfontein
477IR; Suikerboschfontein 411JT; Suikerbosrand Nature
Reserve; Swavelpoort, Pretoria District; Syferfontein
13HP; Tambootie Pan 175JR; Tambootierand 366KR; The
Crows Nest, The Downs 34KT; The Downs 34KT; Tienie Louw
Nature Reserve; Toevlugt 269JS; Trehowel 133KR;
Tshenzhelani; Tshidzi Hill; Turbine Waters;
Tweefontein 523JQ; Vaalbank 110IP; Van Tondershoek
10KO; Ventersdorp Dorpsgebied; Venterskroon; Victoria
532LR; Vlakfontein 522KR; Vlakfontein 558IR;
Vlakplaats 112IQ; Vogelfontein 400JP;
Vogelstruisfontein 765LR; Vredeburg 256IO; Vyeboom;
Vygeboom 619JT; Warmbaths; Waterval Boven; Waterval
Onder; Welgedacht 130JR; Welgevonden 312IO;
Welgevonden 36LT; Welgevonden 444LQ; Weltevreden 596LQ;
Wemmershoek 81JT; Wilkenschof 252JT; Witpan 20IP;
Wolvenkraal 13JS; Woodbush; Zeekoefontein 573IQ;
Zusterstroom 447JR; Zwartkrans 172IQ; Zwartrand 123IP;

Literature Records

Sterkfontein, Krugersdorp; Sewefontein, Carolina,
(NMZB).

Habitat and Ecology

A diurnal terrestrial skink mostly found in leaf litter particularly at the base of bushes. It is usually seen while foraging among the leaves or hurriedly moving across an open space between cover. Widespread in the

Transvaal but rare in the Lowveld this species occupies a great diversity of habitats from rocky outcrops to highveld grassland. Has been found in the following veld types 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 19, 20, 48, 50, 57, 61, 62, 63 and 64 at altitudes ranging from 300-2000 m a.s.l. Frequently takes refuge under stones but also curls up inside grass tussocks between the culms. Feeds mostly on spiders, termites, bugs (Homoptera) and Hymenoptera (ants) as well as Coleoptera and Hemiptera which it obtains while actively foraging. The species is oviparous laying 2-6 eggs, 6,9 - 8,0 mm x 3,4 - 3,7 mm during November to January with neonates hatching approximately 36 days later. Neonates measure 15,0 - 17,5 mm SVL, 19,5 - 22,5 mm T. and a mass of 0,1 - 0,15 g.

Conservation Status

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. Widespread, secretive and frequently around rocky outcrops and rocky hillsides, this species is well represented in provincial nature reserves. This species is secure.

Remarks

Fuhn (1970), comments on the variability of the key character in Panaspis wahlbergii namely the single frontoparietal which in some populations in central Africa has fused with the interparietal, while others show intermediate stages in the degree of fusion. Transvaal material shows no variation in this respect and the frontoparietal and interparietal are always present.

Panaspis sp.

Ablepharus wahlbergii (A. Smith): part. FitzSimons 1943, p. 236; Pienaar 1966, p. 69.

Afroablepharus wahlbergii (A. Smith): (part). Pienaar 1978, p. 62; Auerbach 1987, p. 115.

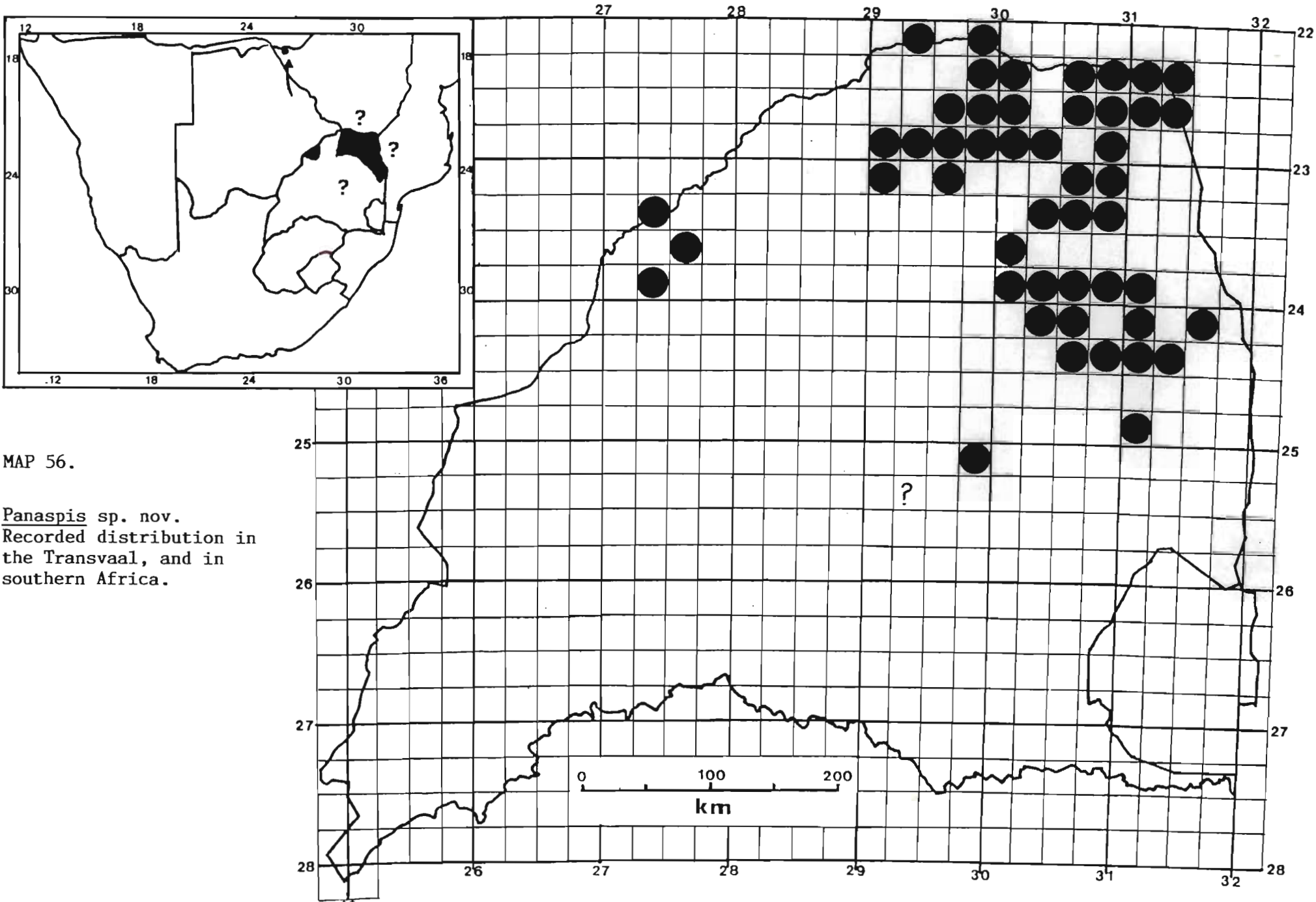
Panaspis wahlbergii (A. Smith) (part). Fuhn 1970, p. 379; Welch 1982, p. 91.

Panaspis (Afroablepharus) wahlbergii (A. Smith): part. Pienaar et al 1983, p. 74, pl.

Description. 101 specimens examined.

Colour: Olive-brown to dark brown above with dorsal scales slightly darker edged. Tail lighter posteriorly. Laterally a dark greyish black band is most pronounced from eye to shoulder whereafter it gradually merges in the grey of the sides, in females. In males a blackish patch extends from midneck to above the shoulder. Scattered white spots occur irregularly in the black. Upper and lower labials spotted with black or grey-black. Ventrally white in females and males during non-breeding season. Males have chin and anterior portion of neck pink to pinkish orange during the spring and summer.

Lepidosis: Small slender lygosomine lizards with reduced limbs pentadactyle and tail longer than SVL. Rostral broader than high, nostril pierced in a single nasal or near the posterior margin narrowly separated from the postnasal; nasals 1 to 2, nasals widely separated, rarely in contact behind rostral; frontonasal wider than long and in contact with anterior loreals and frontal (rarely separated); prefrontals separate (rarely in contact); frontal small almost as broad as long; frontoparietal large and concave posteriorly, in contact with (rarely separated from) frontal; interparietal small, fitting into concavity at rear of frontoparietal;



MAP 56.

Panaspis sp. nov.
 Recorded distribution in
 the Transvaal, and in
 southern Africa.

parietals large and in broad contact behind interparietal; Supraoculars 3; supraciliaries 5-6; loreals 2; preoculars 3; UL 7 (rarely 8); LL 6 (rarely 5 or 7); Mental wider than long, posteriorly straight edged; a large postmental followed by two large chin shields. Dorsal scales smooth and imbricate; midbody scale rows 22-27 (mostly 26). Ventrals smooth and overlapping; digits clawed, a single row of unicarinate lamellae under the toes; palmar tubercles raised and conical. Tail autotomy present with 42/68 (61,76%) of tails regenerated.

Size: Largest male SVL = 38,0 mm (N2347 - Naauwpoort 363LQ); mass = 0,80 g (J6146 - Arthursrust 219KT); Largest female SVL = 43,0 mm (N5643 - Waterval 273KU), mass = 0,95 g (gravid female JN 462 - KaMininginisi); Mean male SVL (30,0 mm) = 34,19 mm \pm 2,21 (1SD) n=24, mass = 0,57 g \pm 0,11 (1SD) n=24; Mean female SVL (30,0 mm) = 36,31 mm \pm 2,29 (1SD) n=30, mass = 0,63 g \pm 0,15 (1SD) n=29.

Distribution

Transvaal, Zimbabwe probably also Botswana and Mozambique.

Distribution in Transvaal (Map 56)

4km S of Tshamavhudzi Peak; 5km W of Lukale Hill; Altyd Mooi 379LT; Arthursrust 219KT; Beauley 260LR; Bloukop 514MS; Bristol 760MS; Calitzdorp 221LS; Dover 44MT; Freya 145MS; Greefswald 37MS; Gwalali; Hans Hoheisen Research Station; Harmony 140KT; Ka Mininginisi; Kent 57KU; Keulen 669LT; Killaloe 235MS; Kromdraai 106MT; Lake Fundudzi; Lisbon 19LQ; Mabofuta Ridge; Mabyeni Hill; Mangombe; Mashatukop; N slopes of Tshamavhudzi Peak; Naauwpoort 363LQ; Nasionaal 29KT; Njelele River; Nuwelust 482MS; Nyandu Bush; Orpen;

Ostend 63MT; Overwinning 713MS; Punda Milia; Riverhead 755LT; Ross 55KU; Scheiding 746LT; Schiettocht 25LU; Shamiriri; Sionwe Mountain; Smithfield 456MS; Sohobebe, Timbavati PNR; Stateland; Steynsdrift 145JS; Tshenzhelani; Tshidzi Hill; Tula Mila; Venice 40KU; Vhuswinzhe; Waterval 273KU; Welgevonden 444LQ; Wintersveld 427MS; York 188KT; Zeekoegat 12KU; Zoutpan 459MS; Between Saselondonga and Pafuri.

Literature Records

Beacons R-S, Eastern Boundary; Bobomone; Kukumazane spruit to Olifants R.; Mahlobyamine Picket; Malonga; Matukwane Ridge; New Tar Road N. of Levubu 10-17 km near Sand Neck.

Habitat and Ecology

A slender terrestrial species occupying a variety of habitats along rocky or stony hillsides to grass covered sandy flats of the Wambiya sandveld. Very similar in habits to P. wahlbergii and occasionally sympatric with it. Also found among vegetation foraging around grass tussocks and leaf litter under bushes. Found mainly in veld types 8, 9, 10, 11 (mostly), 14, 15 (common), 19, and 20 at altitudes of 220-900 m a.s.l. Shelters frequently under stones, rotting logs and other debris especially leaf litter. Forages actively for food. Oviparous the females lay 1-3 (mostly 3) eggs during midsummer. The large ova measured in situ were 7,0-7,5 x 3,3-3,6 mm. Neonates were recorded mostly during January but also occasionally earlier and measured 16,0-18,0 mm SVL with a tail approximately 23,0 mm, a mass of 0,05-0,1 g.

Conservation Status.

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. Although not recorded to date from a provincial nature reserve it will no doubt be found in several with more intensive searching. It does occur widely in the Kruger National Park. This, coupled with its habitat requirements leads to the conclusion that the species is currently secure.

Remarks

Obviously a sibling species of P. wahlbergii it is very difficult to separate it on lepidosis owing to the overlap in all characters. In colour the black patch with white spots in males even in non-breeding colouration is easily distinguished. The lack of white stripes demarcating the darker lateral colouration from both dorsal and ventral colours in P. wahlbergii, can be used to distinguish females of P. sp. nov. The small size of the new species is also a pronounced feature. In assessing its status, note must also be taken of its sympatry with P. wahlbergii at Machayi Pan in the Wambiya sandveld and no doubt other localities along the escarpment zone.

Genus Acontias Cuvier, 1817

Acontias Cuvier, 1817, Regne Anim., 2, p. 60. Type:
Anguis meleagris Linnaeus, 1758.

Palatine bones not meeting along middle line of palate, which is toothless. Teeth conical. Eye small, with a transparent or translucent lower eyelid; upper eyelid absent. Ear-opening hidden. Rostral and mental shields very large, the latter extending to below the eye. Nostril pierced in the large rostral shield, with the posterior border of which it is connected by a long straight horizontal suture or groove. Interparietal narrower than frontal. Supranasals, prefrontals and frontoparietals absent. Body much elongate and cylindrical, covered with smooth imbricate scales; a single large preanal plate present. Limbs absent. Tail very short.

These limbless skinks, possessing only vestiges of the pectoral and pelvic girdles, live a burrowing subterranean life and are viviparous (FitzSimons, 1943). Mostly Southern African limbless skinks with an isolated population in south-eastern Kenya (Broadley & Greer, 1969). Broadley and Greer (1969) made an extensive revision of the genus, elevating several forms to specific level. The species show considerable intraspecific variation, particularly A. percivali occidentalis FitzSimons. One of the key characters of A. plumbeus, that of 2 suboculars, is only apparent in 25/41 (60,98%) of the population, with another two marginal with between 2 or 3. The remaining 16 specimens have 3. Acontias g. gracilicauda Essex has 16-20 scale rows (50% having 18 rows); 33% having 16 rows, 17% have 17 or 20 rows) at midbody. Broadley and Greer (1969) show the tail of gracilicauda as between 13,4-18,7% of total length and

that of g. namaquensis as ranging from 14,2-19,2%. Specimens of the former from the Transvaal collected during this survey ranged from 15,62-19,21% (mostly between 16-18%). Acontias percivali occidentalis shows great variability in tail length ranging from 11,80-16,80% of total length, midbody scale rows 14-16, and subcaudals 24-40 in the Transvaal sample. As Broadley & Greer (1969) mention, polymorphism is especially widespread in the genus Acontias.

Key to the Transvaal species

1. Black throughout, body robust reaching a maximum total length of 490,0 mm.
Subocular usually (61%) 2 occasionally 3 (33%) A. plumbeus
Brown to olive- or grey-brown; body slender not reaching 280,0 mm in total length. Subocular usually 3 rarely 2 or 4 2
2. Snout short and head broadened behind; median subcaudals strongly broadened; adults usually dark spotted ventrum A. breviceps
Snout moderate and head not broadened posteriorly; median subcaudals not strongly broadened; ventrum without spotting 3
3. Tail strongly tapered; midbody scale rows 16-20 (mostly 16 or 18); colour olive- to greyish brown; immaculate ventrally A. g. gracilicauda
Tail moderately tapered; midbody scales 14-16; uniform or mottled brown with some specimens having varying degrees of the ventrum white A. percivali occidentalis

Acontias plumbeus Bianconi, 1849

Acontias plumbea Bianconi 1849, Spec. Zool. Mossamb.
Rept., p. 35, pl. 2. Type locality: Mozambique.

Acontias plumbeus plumbeus Bianconi. FitzSimons 1943, p.
245-246, figs. 115 & 116, pl. 22, fig. 4. Broadley &
Greer 1969, p. 17; Pienaar 1966, p. 70, pl. 21.

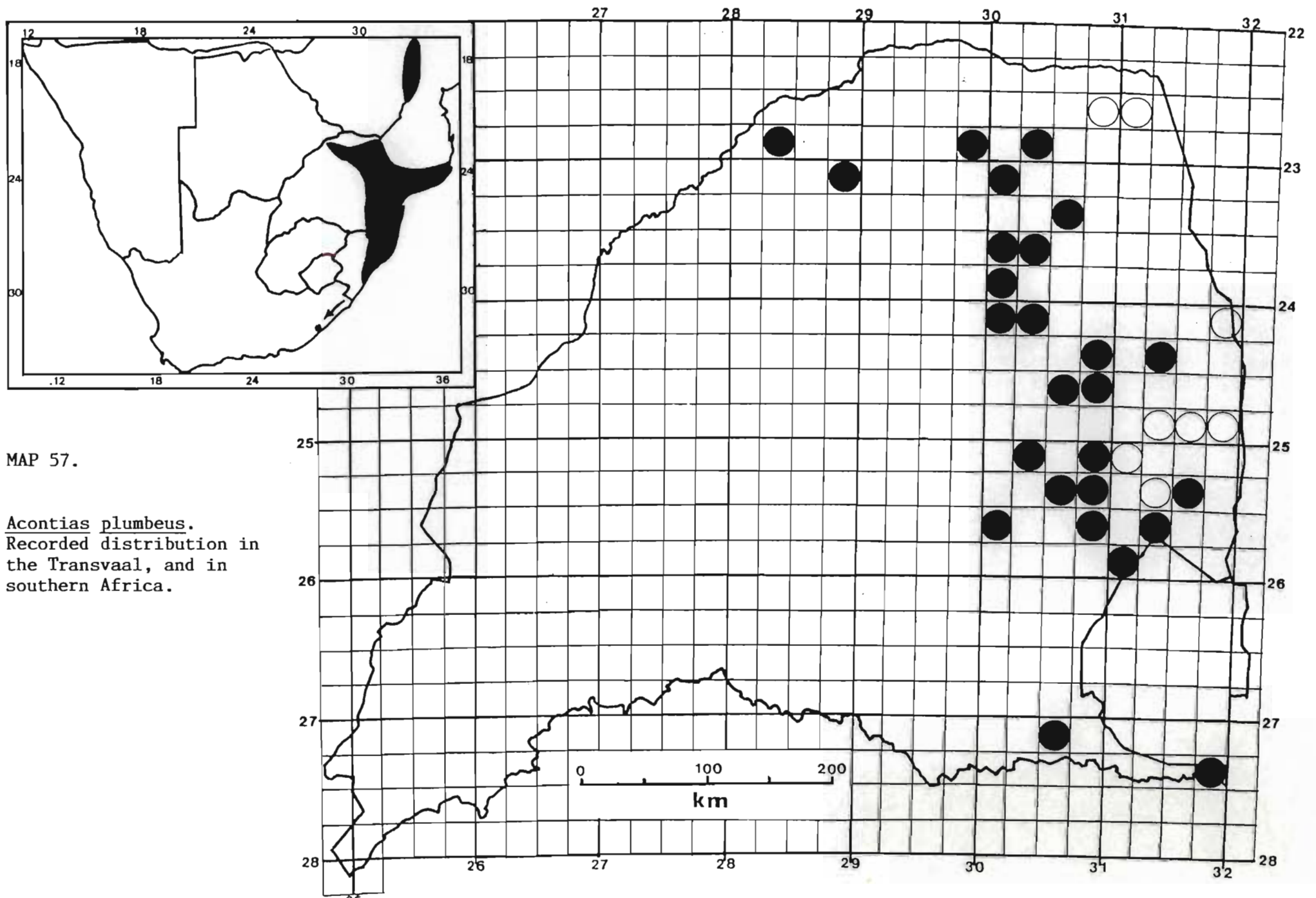
Acontias plumbeus Bianconi. Branch 1981, p. 155, 1988,
p. 115, pl. 44; Pienaar 1978, p. 64, pl. 21; Pienaar et
al 1983, p. 76, pl. 26; Patterson & Bannister 1987, p.
51, fig; Welch 1982, p. 67; Branch 1988b, p. 8.

Description. 41 specimens examined.

Colour: Uniform black throughout with brownish-black
rostral and mental.

Lepidosis: Head somewhat conical, body cylindrical and
stout tapering off posteriorly into a short stumpy tail.
Rostral large covering approximately a third of the head;
nostril pierced into rostral and directed forwards; an
incomplete suture extends from the nostril posteriorly to
the posterior margin of the rostral in line with the eye;
prefrontal broader than long and in contact with loreals
and frontal; frontal hexagonal and large, in contact
with 1st and 2nd supraoculars; interparietal large and
triangular; parietals large elongate and in contact
behind interparietal; supraoculars 2-4, mostly 3;
supraciliaries 4 (rarely 3); suboculars 2 (rarely 2);
one preocular; one postocular; UL 5 (rarely 4); LL 3;
Mental large extending almost to below middle of eye; 3
postmental scales; Dorsal scales smooth slightly
hexagonal and imbricate; midbody scale rows 18-20
(mostly 18); Ventral scales smooth and imbricate. Tail
length varies from 11,96% to 15,09% of total length.

Size: Longest measured 490,0 mm SVL, 70,0 mm T = 560 mm
(NKW 194 - Numbi Gate) Broadley & Greer (1969). Mean SVL
(140,0 mm) = 262,0 mm \pm 105,99 (1SD) n=6, mass = 56,55 g
 \pm 59,46 (1SD) n=6.



MAP 57.

Acontias plumbeus.
Recorded distribution in
the Transvaal, and in
southern Africa.

Distribution

Lowlands of Mozambique and northern Natal into Swaziland, the eastern Transvaal and Zimbabwe. Also a relict population in the Eastern Cape Province (Broadley & Greer, 1969).

Distribution in Transvaal (Map 57)

36 km Nelspruit to Machadodorp (Schoemanskloof);
10 km from Orpan Gate; Alkmaar; Anysspruit 139HT;
Barberton Townlands 369JU; Belfast; Blyde River Nature Reserve; D.R. de Wet Forest Reserve; Entabeni Forest Reserve 251MT; Giyani Bridge, Klein Letaba; Grootplaats 29HN; Hectorspruit 164JU; Hoedspruit 82KU; Kempiana 90KU; Leipsig 264LR; Louws Creek; Lydenburg; Malemetsa; Matlapitsi R.; Meidingen 398LT; Mutshenzheni; Nelspruit; Ofcolaco; Pauls Kop (Hoedspruit); Pongola Nature Reserve; Princes Hill 704MS; Schoemanskloof; Springvalley 200KU; Strydfontein 442KT; The Ranch 66JU; The Rest 454JT; Tzaneen; Umzinto 36MR; Between Ofcolaco and Trichardstdal.

Literature Records

10 km from Skukuza on Doispene Road; Brondal; Blouberg; Hlambamaduba Drift; Main Road near Numbi; Matsewase; Mavukane; Mbyamithi; Mtsamu; Mtshawu Hippo Pools; Munweni; Numbi Gate; Nwanitshaka to Skukuza; Piet Retief; Pumbe Sandveld; Punda Milia; Shiluvane; Shipudze; Skukuza; Skukuza Airfield; Timbitene; Tshokwane; White River, (Broadley 1969). Lower Sabie road; Lower Sabie road 6,4 km from Skukuza; Malituve near Punda Milia, (Pienaar et al 1983). Waterpoort; Wyllies Poort, (NMZB).

Habitat and Ecology

According to Broadley & Greer (1969), forested or formerly forested areas along the eastern escarpment and alluvial sands of the Mozambique plain. This is possibly an oversimplification as the species is widespread in the Lowveld in woodland as well as in grassland on the south-eastern highveld. A fossorial species, it is usually found in the soil under rotting logs and rocks and in moribund termitaria. Also on occasions found above ground in daylight. One specimen thus encountered flattened the area behind the head, mimicking a cobra. Widespread in the Transvaal from Barberton to the Blouberg in the north-west it has been recorded from the following veld types 6, 8, 9, 10, 11, 14, 18, 19, 62 and 63 at altitudes ranging from 150-1400 m a.s.l. Feeds mostly on invertebrates but in captivity the larger specimens will feed on white mice (Mus musculus) indicating a more catholic diet. The species is viviparous.

Conservation Status.

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. An uncommon although widely distributed species its occurrence is expected on a number of provincial nature reserves and it appears to be widespread in the Kruger National Park. Along the escarpment and in the Southern lowveld, bushclearing and afforestation must have a considerable impact in the distribution and status of the species. It is however also found in the lowveld where apart from being confused with snakes by people its fossorial habits should assist its survival. Large scale removal of dead wood will however be to the detriment of the species in the homelands and independant states.

Currently considered secure, a more detailed assessment of abundance and habitat requirements are needed.

Remarks

Like most Acontias species, A. plumbeus shows considerable morphological variation which makes the designing of a key relative and difficult. Transvaal populations on occasion have an additional supraocular, fewer supraciliaries and mostly 18 scales at midbody.

Acontias percivali occidentalis FitzSimons, 1941

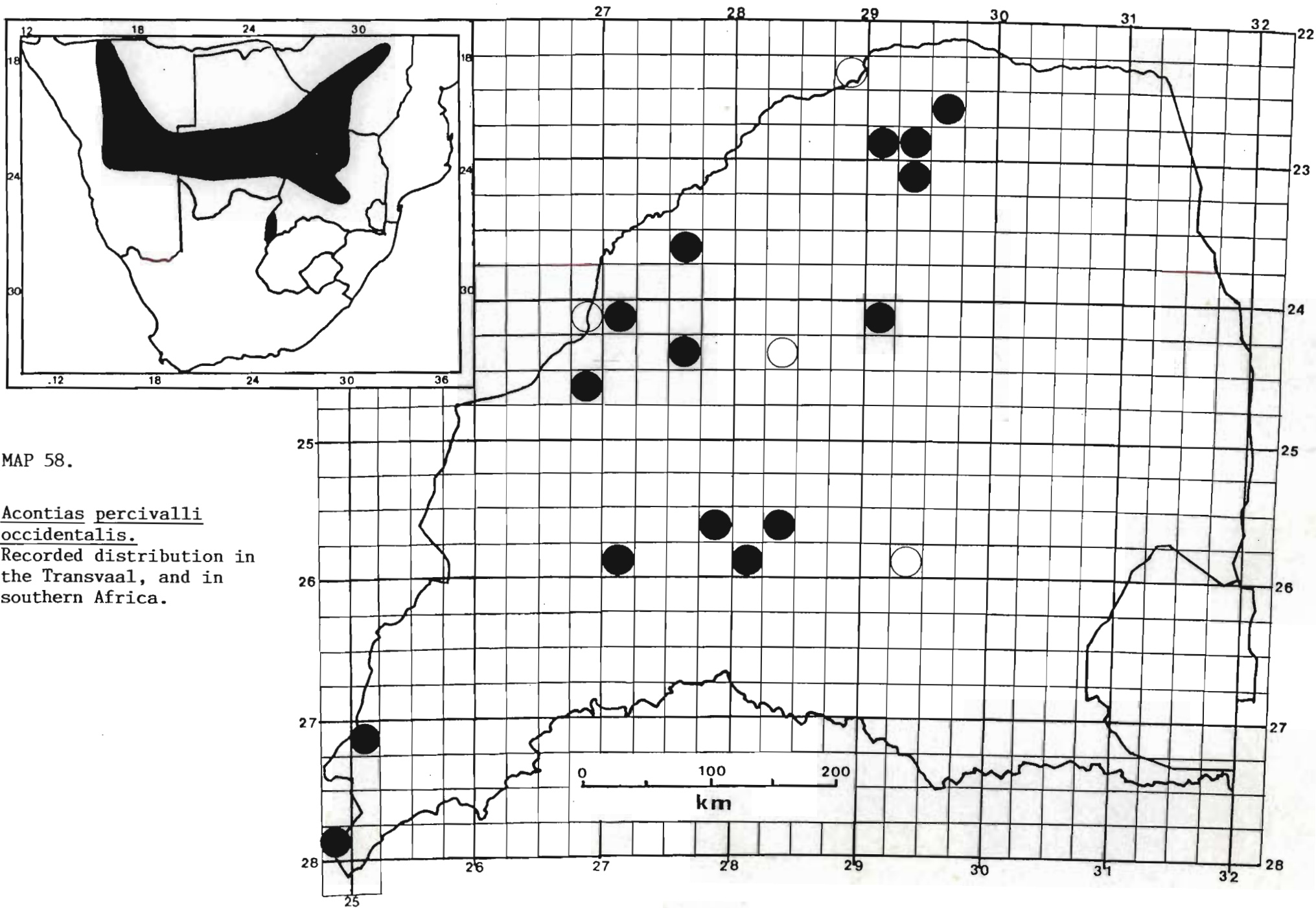
Acontias plumbeus occidentalis FitzSimons 1941, Ann. Tvl. Mus. 20, kp. 275, pl. 3. Type locality: N. Transvaal, Kalahari and Damaraland. FitzSimons 1943, p. 247.

Acontias percivali occidentalis FitzSimons. Broadley & Greer 1969, p. 20, pl. 2, fig. 1; Auerbach 1987, p. 104; Welch 1982, p. 67; Branch 1988a, p. 115, pl. 44, 1988b, p. 8.

Description. 25 Specimens examined.

Colour: Variable, mostly dark purplish brown above and paler below becoming almost white in some specimens. Scales irregularly flecked below. Rostral usually slightly paler than the rest of the body.

Lepidosis: A short head and elongate cylindrical body which tapers moderately to abruptly in a round ended tail. Rostral large but less than a third of the head length; nostril pierced near anterior of rostral and directed laterally to slightly forward; a single suture runs to the posterior margin of rostral on level with the eye. Prefrontal a narrow band behind rostral and in contact with loreals and frontal; frontal broader than long and slightly concave posteriorly, in contact with 1st and 2nd supraoculars; interparietal small and slightly triangular; parietals large and in broad contact behind interparietal; supraoculars 3;



supraciliaries 4; suboculars 3 (rarely 2); preocular 1, no postocular; Mental large and extending to below middle of eye; 3 postmentals, the middle being very small. Dorsal scales, smooth and imbricate; 14-16 (mostly 14) scale rows at midbody; Ventrals smooth and overlapping with 15-40 subcaudals. Tail from 11,8-16,8% of total length, those from the Waterberg ranging from 14,5-16,8% and those from elsewhere 11,8-15,5%.

Size. Largest SVL = 243,0 mm (J1872 - Grootpan 7KQ), mass = 18,2 g; Mean SVL = 170,75 mm \pm 45,95 (1SD) n=10, mass = 7,86 g \pm 6,24 (1SD) n=10.

Distribution

Widespread in southern Africa from southern Angola through northern South West Africa, southern Botswana to the western and northwestern Transvaal extending in a tongue-like projection into central Zimbabwe.

Distribution in Transvaal (Map 58)

26 km S. of Rustenburg; Bergfontein 277KQ; Celine 547MS; De Wildt; Dordrecht 190KP; Ellisras; Groothoek 278KQ; Grootpan 7KQ; Grootplaats 29HN; Irene; Langjan Nature Reserve 370MS; Morakane 1HN; Percy Fyfe Nature Reserve; Philipstown 390MS; Pretoria, Derdepoort; Vivo.

Literature Records

Honingfontein; Junction of Crocodile and Marico R; Junction Limpopo and Magalakwena R; Middelburg; Waterberg, (Broadley 1969).

Habitat and Ecology

A fossorial species usually found under rotting logs and rocks in the soil, sometimes in the company of other

fossorial species such as Zygaspis quadrifrons. In the Transvaal it has been found in veld types 8, 14, 16, 18 and 20 at altitudes ranging from 800-2100 m a.s.l. on the tops of the Waterberg.

According to Broadley & Greer (1969) the species is viviparous with from 1-3 young produced at a time.

Conservation Status

An uncommon species restricted to the western half of the Transvaal excluding the Highveld. It is known to occur on the Langjan nature reserve and will possibly also be found in some of the south-western Transvaal reserves. Appears to be more frequent on top of the Waterberg at high altitudes. Its status is considered indeterminate but probably secure owing to the lack of habitat destruction over much of its range with the exception of the south-western Transvaal.

Remarks

A variable species with atypical white bellied forms cropping up sporadically even at altitudes of 2100 m. FitzSimons (1956) described the subspecies broadleyi with this character, which Broadley & Greer (1969) regarded as being synonymous with "occidentalis". Broadley (in litt.) mentions that some gravid females collected during the construction of Bulawayo Airport contained embryos of both colour phases.

Acontias gracilicauda gracilicauda Essex, 1925

Acontias gracilicauda Essex 1925, Rec. Alb. Mus. 3, p. 334, figs D, E & F. Type locality: Grahamstown. Jacobsen 1977, p. 21.

Acontias plumbeus gracilicauda Essex. FitzSimons 1943, p. 248-249, fig. 117, pl. 22, fig. 5.

Acontias gracilicauda gracilicauda Essex; Broadley & Greer 1969, p. 18, fig. 2, Pl. 1, fig. 3, Branch 1981, p. 155, 1988, p. 114, pl. 44; De Waal 1978, p. 46; Welch 1982, p. 66; Branch 1988b, p. 8.

Description. 24 Specimens examined.

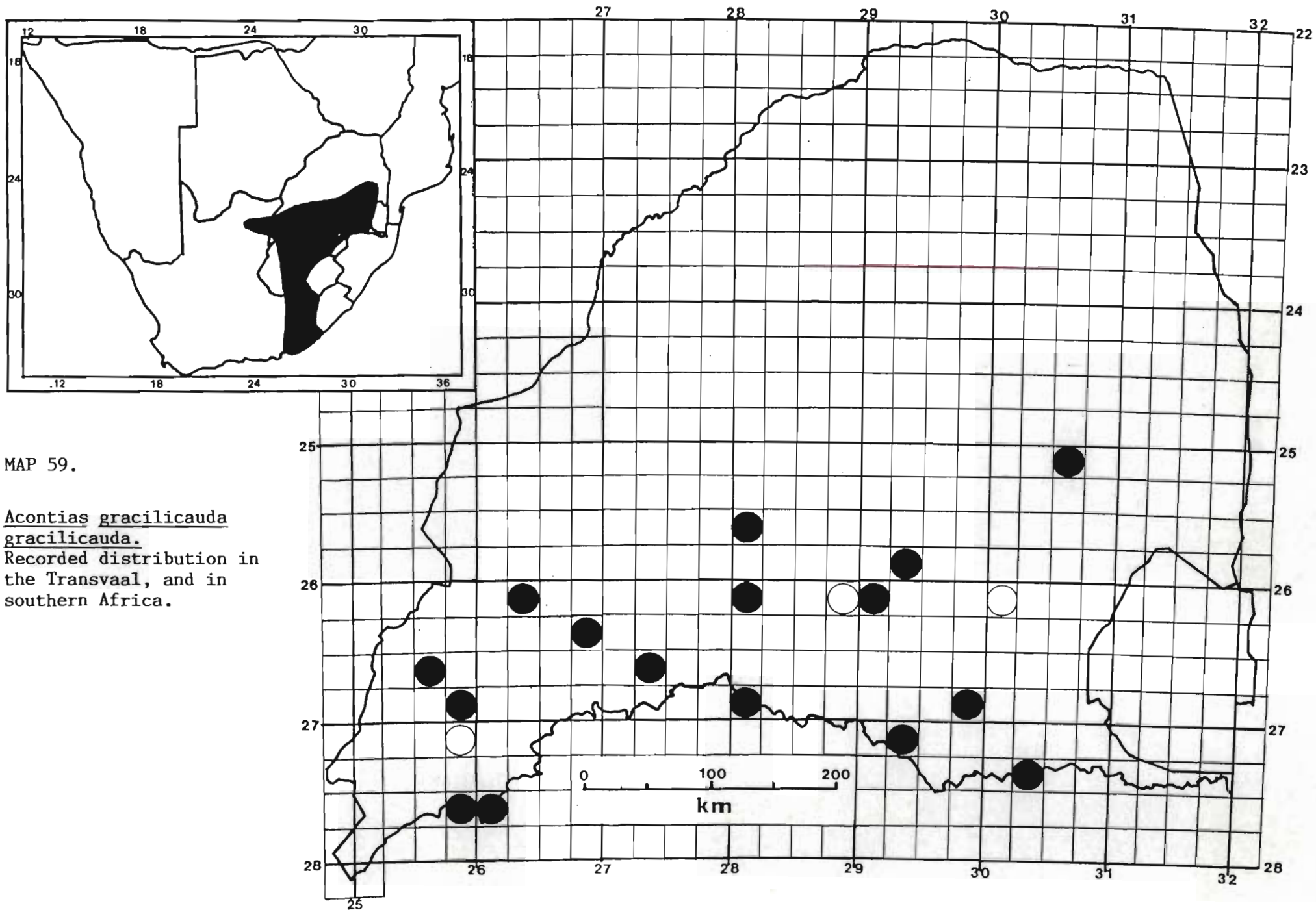
Colour: Olive green to greyish-green above fading to white below. Dorsal scales dark edged posteriorly forming a regular reticulate pattern.

Lepidosis: Moderately elongate head and long cylindrical body tapering to a rounded blunt ended tail. Rostral moderate extending obliquely backwards to the tip almost reaching below anterior margin of eye. Nostril pierced anteriorly with a suture extending to posterior margin of rostral in line with the eye; prefrontal entire and broader than high, in contact with loreals; frontal broad and squat with a linear rear margin abutting onto small triangular interparietal; parietals oblique and blunt ended, in contact behind interparietal; supraoculars 3; supraciliaries 4; suboculars 2-4, mostly 3; one preocular; UL 5, with 2nd UL in contact with eye (37,5%), almost in contact 16,67% and separate from eye (45,83%); Mental large reaching to below middle of eye; 3 chin shields in contact with mental. Dorsal scales smooth and imbricate; Midbody scale rows 16-20 (mostly 18). Ventrals smooth and overlapping. Tail tapered and long from 15,62-19,21% of total length.

Size: Largest SVL = 260,0 mm (AM 3955 - Carolina) (Broadley & Greer 1969); Mean SVL = 134,78 mm \pm 38,47 (1SD) n=14.

Distribution

Eastern Cape Province north to the Orange Free State highveld and the southern Transvaal westwards to the northern Cape Province (Broadley & Greer, 1969).



MAP 59.

Acontias gracilicauda
gracilicauda.
 Recorded distribution in
 the Transvaal, and in
 southern Africa.

Distribution in Transvaal (Map 59)

De Kuilen 205JT; Gruisfontein 401IP; Kareekuul 356IO; Kastrol Nek; Kempton Park; Klipplaatdrift 504IS; Middelburg; Mooiplaas, Delmas; Pretoria; Rustkraal 129HP; Smithfield 441IS; Vaalbank 388HO; Vaaldam; Ventersdorp; Vereeniging; Vlakspruit 42HS; Welgevonden 312IO.

Literature Records

Carolina; Kendal; Wolmaranstad, (FitzSimons 1943). Nylsvley Nature Reserve, (Jacobsen 1977).

Habitat and Ecology

A fossorial species found in moist areas adjacent to streams or drainage lines, under rocks frequently in burrows with the rock as a roof. Also found under other debris and occasionally on the surface moving about. In the Transvaal it is found in veld types 8, 16, 48, 50, 52, 54 and 61 at altitudes of 1300-2300 m a.s.l.

Remarks

Some variation in scalation is evident particularly in the number of scales at midbody. The Nylsvley specimen (Jacobsen, 1977) is far removed from the nearest other localities and until verified must be viewed with caution.

Acontias breviceps Essex, 1925

Acontias breviceps Essex 1925, Rec. Alb. Mus. 3, p. 332, figs A, B & C and fig. on p. 335. Type locality: Hogsback, Amatola mountains, eastern Cape. Broadley &

Greer 1969, p. 18, pl. 1, fig. 2, Branch 1981, p. 155, 1988a, p. 113; Welch 1982, p. 66; Branch 1988b, p. 8. Acontias plumbeus breviceps Essex. FitzSimons 1943, p. 249-250, figs. 118 & 119.

Description: 16 Specimens examined.

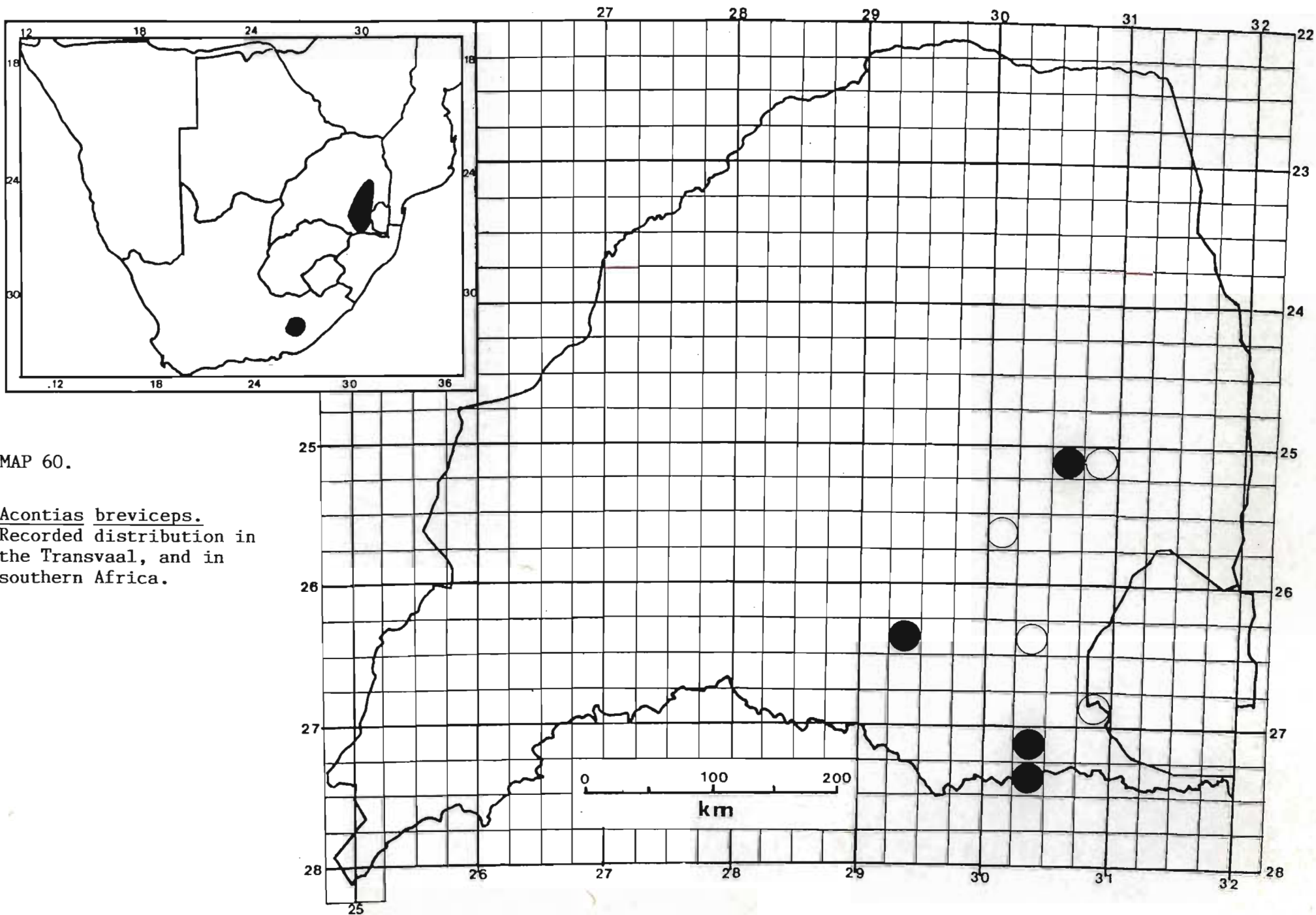
Colour: Olive-green to olive grey dorsally becoming paler ventrally. Both dorsal and ventral scales dark edged forming linear reticulations along the length of the body to the tail tip. Head scales also dark edged. Chin and gular scales without posterior black margins.

Lepidosis: Head moderately tapered, body elongate and cylindrical with the tail tapering to a rounded tip. Rostral large and indented sharply at eye level whereafter the lower portion extends obliquely downwards to the tip below anterior border of eye; nostril pierced in rostral more posteriorly than in gracilicauda, with a suture extending to posterior margin of rostral in line with the eye; prefrontal \pm hexagonal and broader than long, in contact with loreals; frontal broad and squat with a straight posterior margin abutting onto small triangular interparietal; parietals oblique and in contact behind interparietal; Supraoculars mostly 3; Supraciliaries 4; Suboculars 3; one preocular; UL 5, 2nd in contact with eye; LL 3; Mental large, concave posteriorly and extending to below middle of eye; chin shields 3 in contact with mental. Dorsals smooth and imbricate; midbody scale rows 14-16 (mostly 16); Ventrals smooth and overlapping. Tail tapered and from 15,93 - 17,77% of total length.

Size: Largest SVL = 199,0 mm (P11062 - Paardeplaats 101HT). Mean SVL = 147,0 mm \pm 73,54 (1SD) n=2.

Distribution

Two disjunct populations, one in the eastern Cape Province and the other in the eastern and south-eastern Transvaal.



MAP 60.

Acontias breviceps.
 Recorded distribution in
 the Transvaal, and in
 southern Africa.

Distribution in the Transvaal (Map 60)

Bethal; De Kuilen 205JT; Kastrol Nek; Mauchsberg; Mt. Anderson; Paardeplaats 101HT; Tafelkop 26HT.

Literature Records

Belfast; Hunters Retreat; Lothair; Piet Retief; Sabie, (Broadley 1969).

Habitat and Ecology

A fossorial species found in montane and highveld grasslands under rocks on soil. Soil loamy and the species is found in veld types 8, 63 and 64 at altitudes of 1400-2100 m a.s.l. in the Transvaal.

Broadley & Greer (1969) record the species as being viviparous with 2-3 young being produced at a time.

Conservation Status

A rare fossorial lizard restricted to highveld grassland conditions. It has been found in the De Kuilen nature reserve. Elsewhere its habitat has been extensively planted over with pines especially in the Sabie area. Further attempts to afforest large parts of the south-eastern Transvaal from Sabie to Piet Retief and Wakkerstroom will have a detrimental impact on the population. The process of planting seed potatoes on the flanks of Mauchsberg is also detrimental to the species.

Further surveys are needed to establish how abundant it is in the De Kuilen nature reserve. Currently considered vulnerable.

Remarks

A very similar species to A. gracilicauda but can be distinguished readily by the pigmented ventrals and lower midbody scale counts. The shape of the head is unreliable. Is sympatric with A. gracilicauda at De Kuilen.

Genus Acontophiops Sternfeld, 1911

Acontophiops Sternfeld, 1911, Sitzber. Ges. Naturf. Freunde, p. 248. Type: A. lineatus.

A monotypic genus, endemic to the Transvaal. Acontophiops is intermediate between Acontias and Typhlosaurus but appears to be more closely related to the latter representing an advanced typhlosaurid pattern as exemplified by T. cregoi Boulenger (Rieppel, 1982). Rieppel (1982) substantially investigated the taxonomic position of this genus but came to the conclusion that it should be maintained.

Closely related to Typhlosaurus, but with an oval semi-transparent lower eyelid, which is immovable and consists of a single scale with a free unattached upper edge. Palatines not meeting on median line of palate. Teeth conical. Ear-opening hidden. Nostril pierced in the large rostral, with the posterior border of which it is connected by a long straight horizontal groove. No prefrontals nor frontoparietals. Body elongate, vermiform and limbless; scales on body hexagonal to sub-tetragonal. A large preanal plate (FitzSimons, 1943).

Acontophiops lineatus Sternfeld, 1911

Acontophiops lineatus Sternfeld 1911, Sitzb. Ges. Naturf. Freunde, p. 248 & text fig. Type locality: Mphome, Transvaal. FitzSimons 1943, p. 254, figs. 125 & 126, pl. 23, fig. 1. Rieppel 1982, pp. 241, figs. 1-5; Welch 1982, p. 67; Branch 1988a, p. 115, pl. 46, 1988b, p. 8.

Description. 18 Specimens examined.

Colour: Yellowish-white to white with blackish longitudinal stripes extending from behind head to the

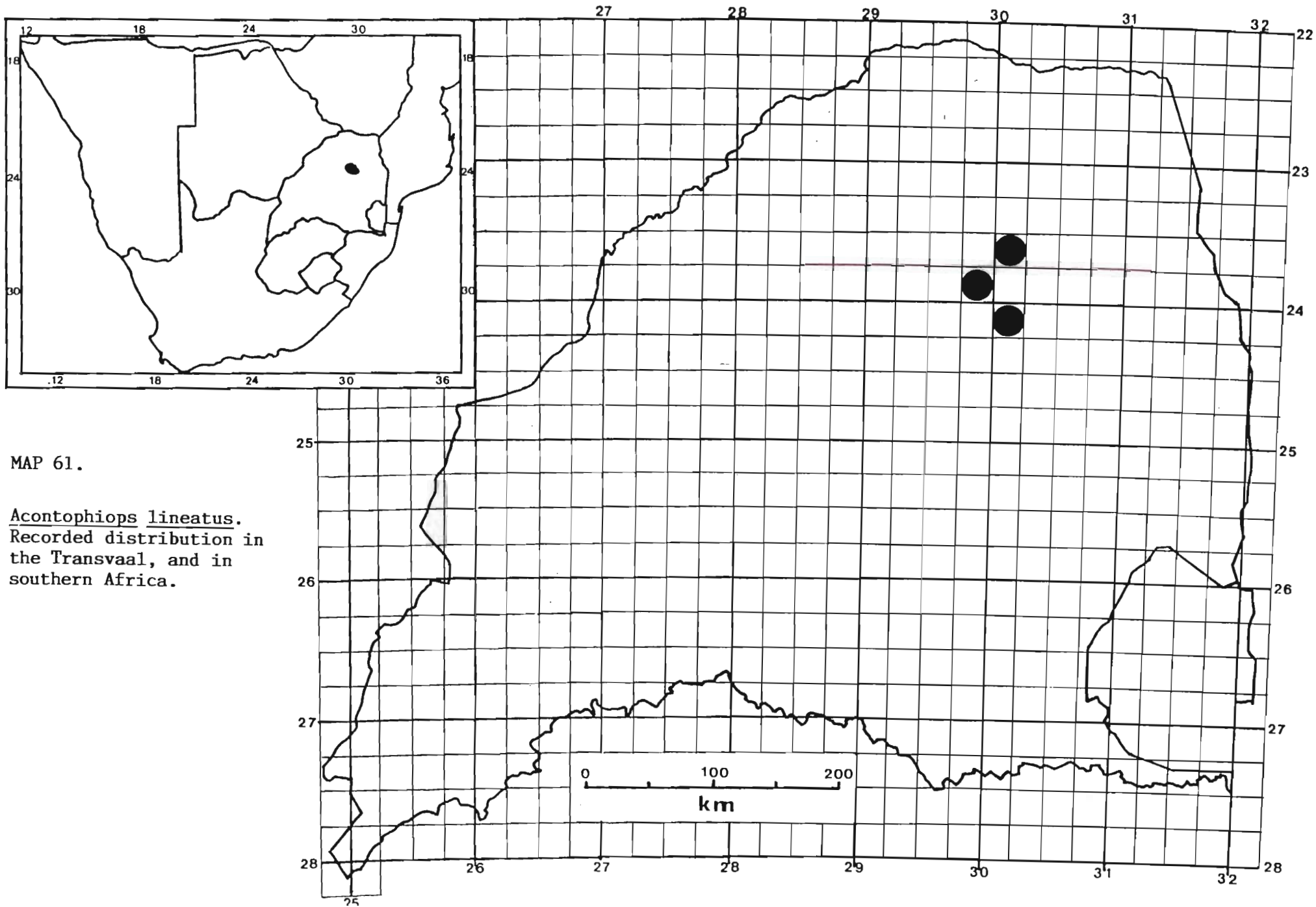
tail tip. Each stripe corresponds with a scale row those ventrally less distinct and partly interrupted. The tail is heavily striped both above and below giving a blackish impression particularly at the distal tip. The head is variegated above while the mental may be pale.

Lepidosis: A limbless, more or less cylindrical bodied lizard. Snout rounded broadening abruptly at posterior margin of rostral. Eyes very small slightly recessed, and covered by an immovable oval scale which has the upper edge free. Tail tip blunt and rounded. Rostral large, rounded and has a pronounced notch on either side on the level of the eyes; nostril pierced anterolaterally, a suture leading to the notch along the posterior margin of the rostral; frontonasal broader than long and in contact with two upper loreals, supraoculars and frontal; frontal much broader than long and may rarely be subdivided, and slightly concave posteriorly; interparietal small and triangular, parietals large and are in broad contact behind interparietal; supraoculars 3; supraciliaries 2, preocular 1, subocular 2; UL 5; LL 3; Mental large, notched posteriorly, in contact with 5 chin shields, dorsal scales oblique and arranged in 17-20 (mostly 18) scale rows at midbody. Anal shield entire; Subcaudals obliquely arranged except for median row which is regular. Caudal autotomy present in one specimen (N9012). Tail between 15,64-17,41% of total length.

Size: Largest SVL = 185,0 mm (N7998 - Serala 5KT), mass = 8,0 g (N 7994 - Acre 2KT).

Distribution

Endemic to the Transvaal.



MAP 61.

Acontophiops lineatus.
 Recorded distribution in
 the Transvaal, and in
 southern Africa.

Distribution in the Transvaal (Map 61)

Acre 2KT; Aden 1KT; Broederstroom, Haenertsburg;
Diepgelegen 945LS; Haenertsburg; Iron Crown; Onderhoek
595LT; Serala 5KT; Woodbush.

Habitat and Ecology

A localised montane grassland species usually associated with rocky outcrops. Specimens found under rocks on or in the soil, or in burrows. May be locally common. A fossorial species it is only found in veld type 8 at altitudes between 1600-2000 m a.s.l. Feeds on termites in captivity.

Viviparous, two young are born at a time during midsummer.

Conservation Status (RDB 1988, Restricted)

A highly localised endemic species which therefore has a high conservation rating. It is found in and protected in the Wolkberg Wilderness Area, a provincial nature reserve. Elsewhere its future is not secure as rocky outcrops which fall into areas planted over with pines may result in the extinction of local populations. It has been found in the vicinity of the type locality at Woodbush but most available habitat is already planted over with pines. Its hold in this area is tenuous and as a result must be considered vulnerable.

Remarks

This species has been the centre of controversy as to its exact phylogenetic position within the scincid subfamily Acontinae. It is generally considered intermediate between Acontias and Typhlosaurus as originally suggested

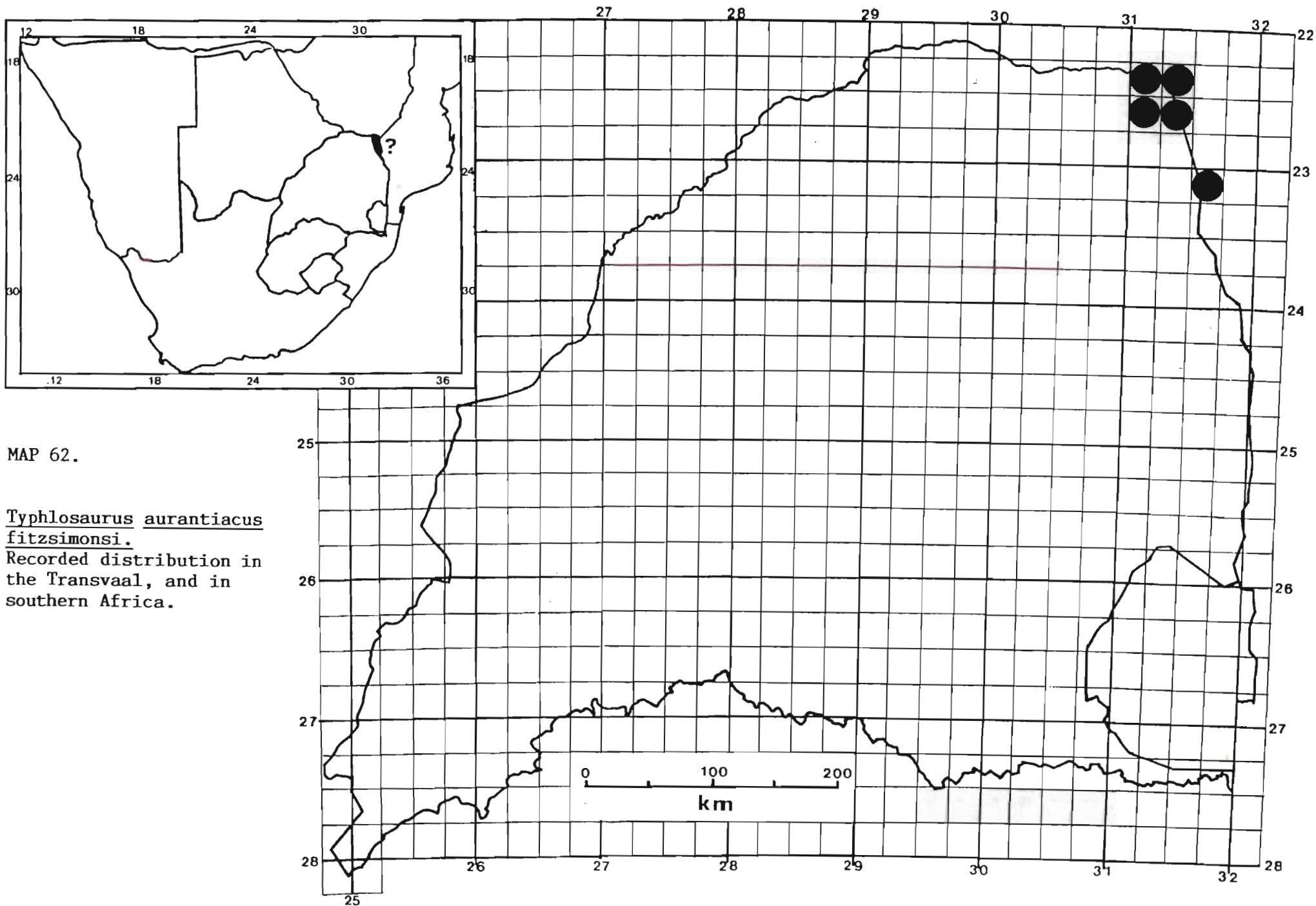
by Broadley (1968d). Rieppel (1982) recently analysed the cranial structure of the species and found that Acontophiops resembled the advanced typhlosaurid condition and therefore was more closely related to it than being a typhlosaurid. He was however loath to incorporate it in the genus Typhlosaurus on the grounds of convergence or parallelism. Retention of the genus Acontophiops currently still rests on the sunken eyes and immovable but free upper edged optic scale. Although considered partially sympatric with Typhlosaurus c. cregoi Boulenger, it is mostly allopatric, occurring in the vicinity of Woodbush at higher altitudes and therefore possibly only a high altitude form closely related to T. cregoi. Whether the morphological differences currently considered on generic level are sufficient argument will only be elucidated once immunological and protein analyses have been undertaken, as stated by Rieppel (1982).

Genus Typhlosaurus Wiegmann, 1834

Typhlosaurus Wiegmann, 1834, Herp. Max., p. 54. Type:
T. cuvieri Wiegmann = T. caecus Cuvier.

The genus Typhlosaurus is endemic to Southern Africa. It shows a great range of trends including fusion of head shields, reduction in midbody scale rows and variable attenuation of the body. Broadley (1968d) revised the genus and presented a theory of phylogeny and evolutionary trends with T. cregoi Boulenger as the most primitive species and T. braini Haacke as the most specialised. Rieppel (1982) pointed out that different structures altered at different rates in different species and that changes in external squamation did not necessarily reflect on concomittant changes in skull structure ("mosaic evolution"). Rieppel (op. cit) further suggested that T. lineatus was the most primitive species. Haacke (1986) described a new typhlosaurus species from the north-western Cape which tends to support Rieppel's theory. Jacobsen (1987a) described a new subspecies of Typhlosaurus lineatus with reduced head shields and relatively small size, trends which tend to support Rieppel (op. cit.) rather than Broadley (op. cit.).

There are four typhlosaur forms in the Transvaal, all of which are endemic to the Transvaal although T. a. fitzsimonsi will no doubt also be found in adjacent Mozambique. Three subspecies exhibit relict populations which reinforce the theory of Broadley (1968d) that the aelion sands of the Kalahari formed a continuous mass linking with the sandy coastal alluvium, allowing the westward migration of some species and an eastward extension of others. Once the intervening sands had been removed by subsequent pluvial(s) isolated populations were left which developed their own characteristics.



MAP 62.

Typhlosaurus aurantiacus
fitzsimonsi.
 Recorded distribution in
 the Transvaal, and in
 southern Africa.

Ventral scales immaculate; 1 supraciliary
and ventrals 160-168 (X = 163,4) T. lineatus
richardi

Typhlosaurus aurantiacus fitzsimonsi Broadley, 1968

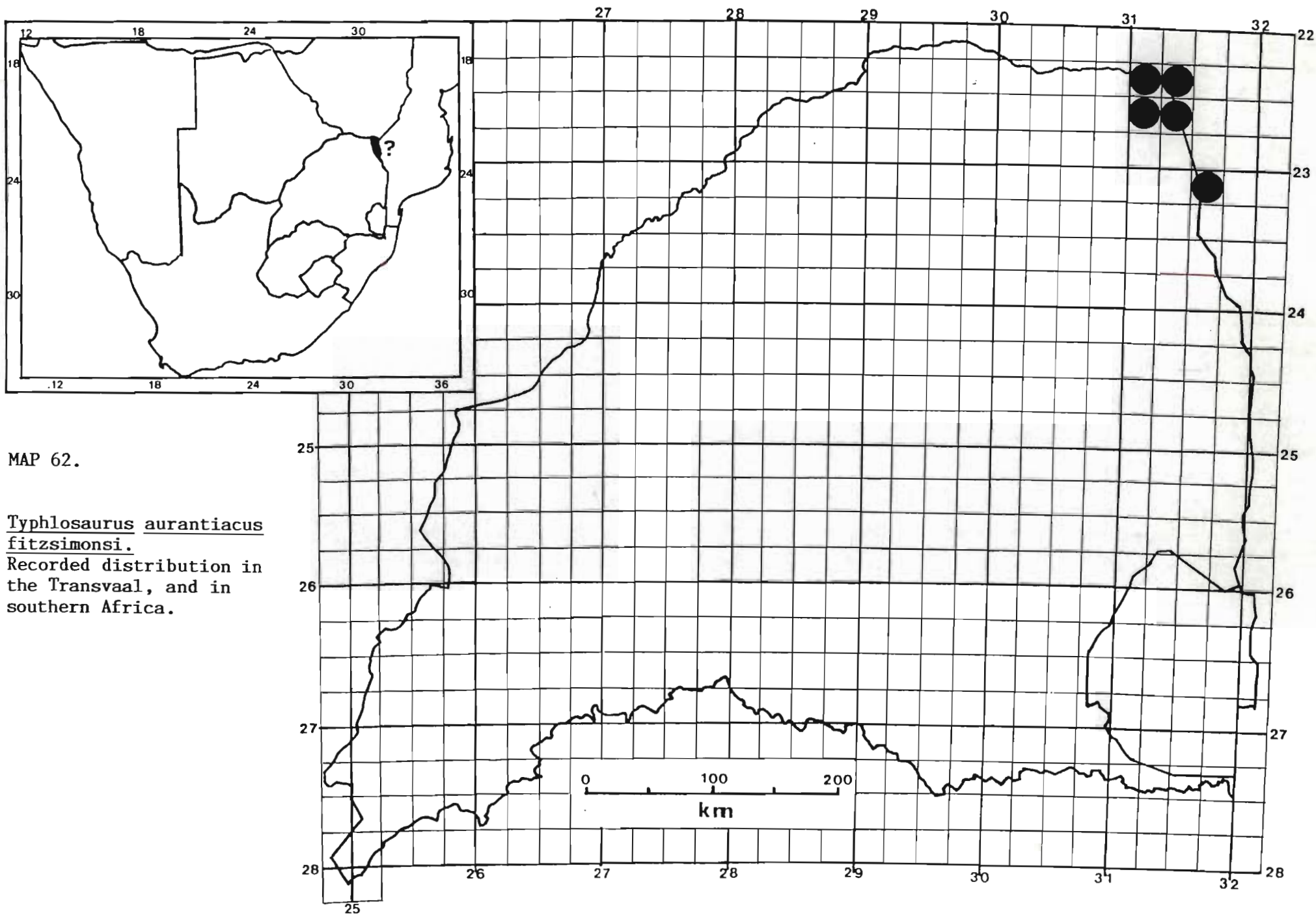
Typhlosaurus aurantiacus fitzsimonsi Broadley, 1968,
Arnoldia (Rhodesia) 3(36), p. 11, fig. 4. Type locality:
Niandu Bush, Wambiya Sandveld, K.N.P. Pienaar 1978, p.
65, pl. 22 & 22A; Pienaar et al 1983, p. 80, pls. 28 &
28A; Welch 1982, p. 67; Branch 1988a, p. 116, pl. 46,
1988b, p. 8.

Typhlosaurus aurantiacus (Peters). Pienaar 1966, p. 72,
pls. 22 & 23.

Description. 41 Specimens examined.

Colour: (After Pienaar et al, 1983). Bright vermillion
to pale orange or orange-yellow above, with transverse
series of small reddish spots on the margins of the
scales; There are 2-6 longitudinal, almost continuous
dark chocolate-brown to blackish spots - those of the
median dorsal rows usually wider and more confluent,
giving a striped appearance. Ventrally, white to
yellowish-white, sometimes with scattered black spots
under the tail. In certain localities melanistic forms
are common and are a uniform dark brown to plumbeus or
black, with scattered pale patches only on the belly and
throat, the rest of the underside being tinged with pink
to purplish.

Lepidosis: Head short, depressed and with a large
rostral shield; Body cylindrical. Tail tapered ending
in a rounded tip. Tail short and between 13,6-16,7% of
total length. Snout rounded, rostral large, rounded,
extending approximately half the length of the head;
Nostril placed antero-laterally on the snout with a long
suture extending posteriorly on a line level with the
eye. Rostral followed posteriorly by two azygous
shields; prefrontal much wider than long in contact with



MAP 62.

Typhlosaurus aurantiacus
fitzsimonsi.
 Recorded distribution in
 the Transvaal, and in
 southern Africa.

frontonasals and anterior supraoculars; Frontal pentagonal, longer than wide; two parietals large and in broad contact behind frontal; nuchals 4; supraocular 1; loreal 1; preocular 1; ocular small; postocular 1; Suboculars 2; UL 4; Mental larger, broader than long and notched posteriorly; bordered by five chin shields (exceptionally 6) LL 3. Body scales smooth, imbricate, in 12 scale rows at midbody; Ventrals range from 151-163; Tail rounded and slightly conical at the tip; Subcaudals range from 26-33.

Size: Largest individual has a SVL = 150,0 mm with a total length of 177,0 mm (Broadley, 1968d).

Distribution

Endemic to the north-eastern Transvaal. Probably also in adjacent Mozambique.

Distribution in Transvaal (Map 62)

Beacons 9 and 10, eastern Boundary; Makuleka; Masbambela Picket, eastern border; Punda Milea; Nyandu sandveld; Sesalondonga spruit to Pafuri; Saselondonga spruit; Crocodile Pool, Shingwedzi; Wambiya to Mahlakuza.

Literature Records

W.N.L.A. quarters, Pafuri; Shalungwa spring; Nyandu sandveld along the eastern boundary between Nwambiya and Saselandonga gorge; sandveld plateau on eastern boundary north of Saselandonga gorge; between Mathlakuza pan and Shimuhene pan in Rhodesian Mahogany forest; Machai windmill area; beacon 7 area (Pienaar et al 1983).

Habitat and Ecology

Subterranean lizards living in deep sandy areas of the north-eastern Kruger National Park, veld types at altitudes of 400 m above sea level. Usually found under stones, rotting logs and more rarely on the surface after rains. Pienaar et al (1983) record them living together with Lygosoma sundevalli and Panaspis sp. in the dry powdery detritus in and under a rotten, termite-eaten log. They are preyed upon by the lined quill-snout Xenocalamus bicolor lineatus Roux.

Conservation Status

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. An endemic species only known to occur in the north-eastern Kruger National Park and therefore adequately protected.

Remarks

A distinct subspecies differing on a number of counts from the nominate race. It is remarkable that this subspecies and Typhlosaurus lineatus richardi Jacobsen have developed in this transition area where pockets of kalahari sand retained remnants of otherwise more widespread species. These two subspecies represent Kalahari and Coastal biogeographic regions. Mabuya homalocephala depressa occurs sympatrically with both species, a link that indicates the original continuity of the sands.

Typhlosaurus cregoi cregoi Boulenger, 1903

Typhlosaurus cregoi Boulenger, 1903, Amer. Mus. Nat. Hist. (7)(12 p. 434. Type locality: Zoutpansberg, N. Tvl.

Typhlosaurus cregoi cregoi Boulenger. FitzSimons 1943, p. 258-260, figs. 131-133, pl. 233, figs. 4 & 5; Broadley, 1968d, p. 9; Pienaar 1966, p. 74, pls. 24 & 25, 1978, p. 67, pls. 23 & 23A; Pienaar et al 1983, p. 78, pls. 27 & 27A; Welch 1982, p. 67; Branch 1988a, p. 117, pl. 46, 1988b, p. 8.

Description. 81 Specimens examined.

Colour: White to off-white, yellowish white or brownish white with dark brown to blackish longitudinal stripes, each striped emphasising a scale row. The stripes extend from behind the head to the tail tip, decreasing in number posterior to the cloaca ventrally. Stripes pronounced dorsally but may become interrupted ventrally. The tail is heavily striped and dark. Melanistic individuals occur in which the stripes are largely hidden by the melanistic pigment in the interstices between the stripes. The dorsum of the head may be spotted.

Lepidosis: Limbless burrowing skinks with a more or less cylindrical body tapering only very gradually in the tail which ends in a rounded tip. Snout rounded and slightly bulbous below. Rostral large, rounded, extending to almost half the length of the head; nostril laterally near the front of the rostral; A suture leads from the nostril posteriorly to end on level with the eye in a pronounced indentation; This is followed dorsally by three azygous shields namely the prefrontal, frontal and interparietal; prefrontal in contact with frontonasals and supraoculars and wider than long; frontal much wider than long and in contact with 1st supraoculars and parietals; Parietals large and in contact behind interparietal; supraoculars 2, supraciliaries 2; preocular present, rarely absent (fused with 1st supraciliary); suboculars 2, postocular 1, UL 5 (rarely 4); LL 3-4; Mental large, slightly concave posteriorly and bordered by 5 chin shields; Body scales smooth and

overlapping, in 14-18 (mostly 16) scale rows at midbody. Tail moderately long and between 7,14-19,02% (mostly between 15,46-17,85) of total length.

Size: Largest SVL = 165,0 mm (J1218 - Vygeboomspruit 286LS), mass = 5,3 g (JN8182 - Beuley 260LR). Mean SVL (100 mm) = 136,79 mm \pm 18,09 (1SD) N33, mass = 2,64 g \pm 1,08 (1SD) n=31.

Distribution

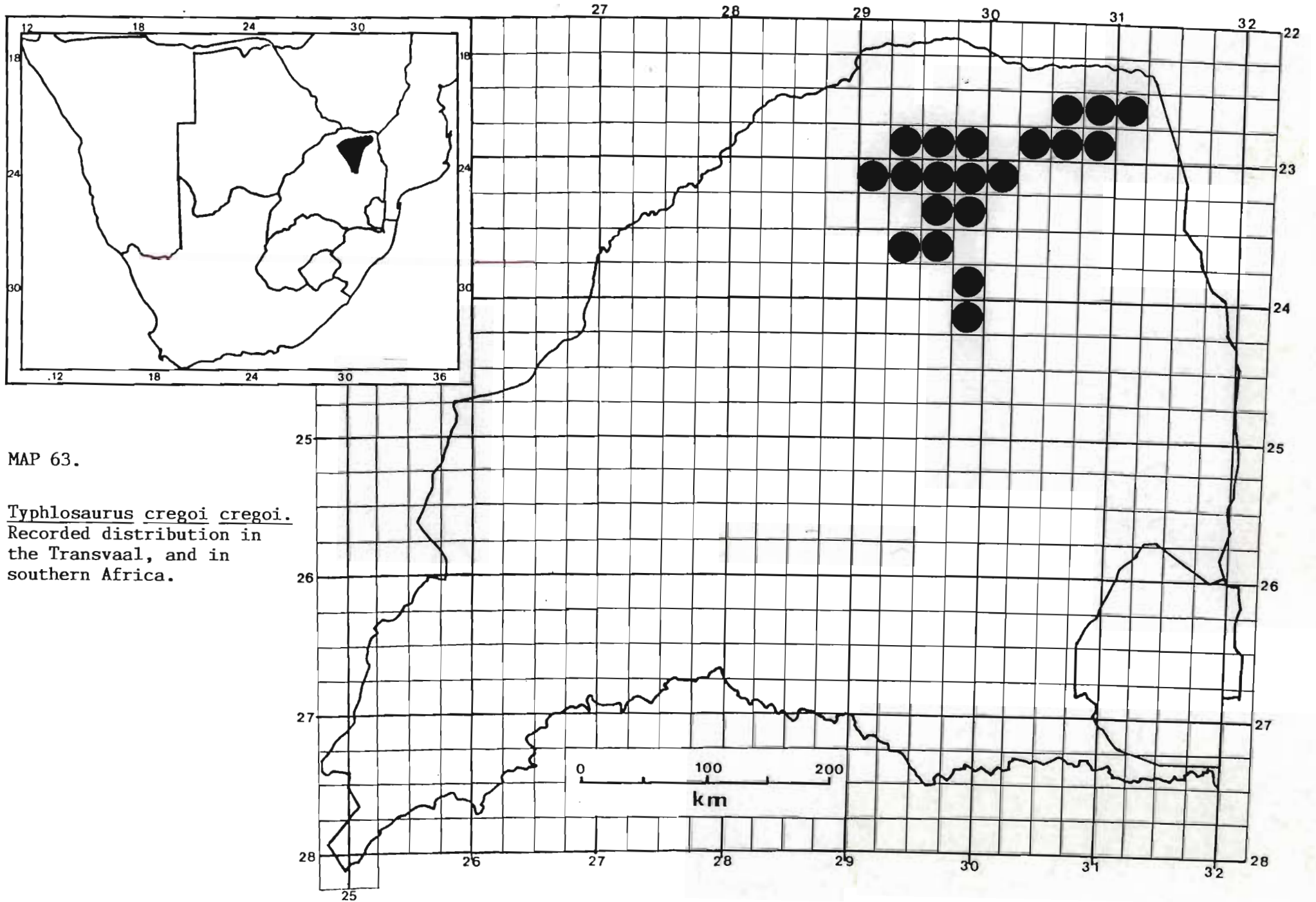
Endemic to the Transvaal with subspecies bicolor occurring in eastern Zimbabwe.

Distribution in Transvaal (Map 63)

16 km W. of Punda Milia; 5 km W. of Lukale Hill; 6 km E. of Thengwe; 23 km from Iron Crown; Bandelierkop 416LS; Beuley 260LR; Bergfontein 32LS; Blouberg Capesthorpe 233LS; Crewe 771MS; De Gladde Klipkop 763LS; Doornhoek 480LS; Enkeldoorn 906LS; Entabeni Forest Reserve 251MT; HaMadzhiga; Harnham 793MS; Highfield 797MS; Houtbosdorp; Humansrust 192KS; Klipbank 406LS; Lake Fundudzi; Mara 38LS; Matangari; Moletsi Location; Mphome 949LS; Paardevlei 201KS; Palmaryville; Perth 242LS; Punda Milia; Schilderkrans 1041LS; The Grange 471LS; Vygeboomspruit 286LS; Woodbush; Zoutpan 459MS.

Literature Records

Dongadziba; Gumbandevu; Louis Trichardt; Smitsdrift 1044LS, (Broadley 1968d). Shipudze ridge, (Pienaar et al 1983). Soutpansberg near Wyllies Poort; (NMZB).



MAP 63.

Typhlosaurus cregoi cregoi.
 Recorded distribution in
 the Transvaal, and in
 southern Africa.

Habitat and Ecology

A fossorial limbless species usually found under rocks on or in tunnels in the soil. Occasionally found in humus adjacent to rocks or under grass tussocks up to 7 cm below the surface but usually shallower. Usually one, rarely two adults are found under the same rock. To date only known from veld types 8, 9, 14, 18, 19, 20, 67 at altitudes ranging from 650-1700 m a.s.l. Viviparous a single neonate, rarely two are born at a time apparently during midsummer. The smallest specimen collected measured 68,0 mm SVL, Tail 12,0 mm and a mass of 0,45 g during January.

Conservation Status.

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. An endemic species, it is known to occur in the north eastern Kruger National Park and the Happy Rest provincial nature reserve as well as in private nature reserves. Its secretive habit and the current land usage makes it secure. In areas where its habitat overlaps with those chosen for afforestation it is likely to decrease.

Remarks

A variable species with frequent head shield aberrations including the fusion and splitting of shields. Broadley (1968d) has drawn attention to this variability and the high number of scales present. He further came to the conclusion that T. cregoi is the most primitive typhlosaur based on the above. This view is not shared by Rieppel (1982) who viewed T. cregoi as the most advanced typhlosaur and argued that the reduction of the squamosal bone in T. cregoi supported this statement. He

also stated that the evolution or evolving of the external squamation does not necessarily reflect the same degree of internal evolution in cranial characteristics. The characters evolve independently of one another and not in concert. Whether a reduction in the number of head scales and other morphological features are more significant phylogenetically than that of bone reductions will only be clarified once all the characters have been taken into account, coupled with immunological data.

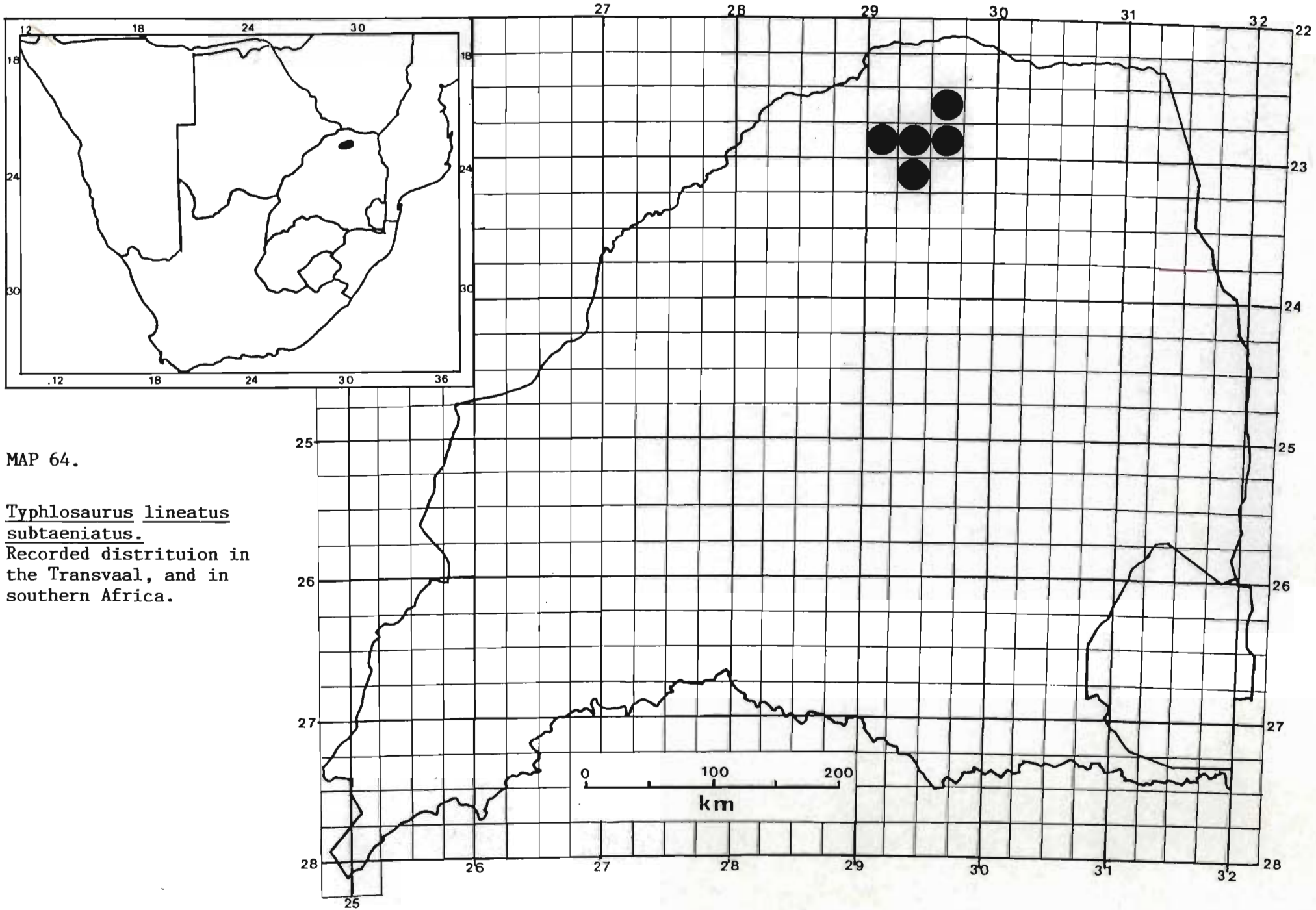
Typhlosaurus lineatus subtaeniatus Broadley, 1968

Typhlosaurus lineatus subtaeniatus Broadley 1968, Arnoldia (Rhodesia) 3(36), p. 12. Jacobsen 1987, p. 318; Welch 1982, p. 68; Branch 1988a, p. 117, pl. 46, 1988b, p. 8.

Description. 38 Specimens examined.

Colour: Yellow with black longitudinal stripes extending from behind the head to the tail tip. The stripes are continuous above but broken and indistinct below, each stripe emphasizing a scale row. Head spotted dorsally. Melanistic forms are also found.

Lepidosis: Head depressed, and snout with a sharply defined upper jaw; Body cylindrical and tail relatively short. Rostral large and acute with a sharp horizontal edge; nostril pierced in rostral anteriolaterally, a distinct suture extending posteriorly in line with the eye; two azygous head shields posterior to rostral; prefrontal much broader than long and in contact with loreal, 1st supraocular and 1st supraciliary; frontal pentagonal; parietals in broad contact behind frontal; supraoculars 2, supraciliaries 2 (rarely 0), subocular; postocular 1; UL 4 (rarely 3), LL 3; Mental large, wider than long with 4 chin shields in contact. Body scales smooth and overlapping and in 14 scale rows at



MAP 64.

Typhlosaurus lineatus
subtaeniatus.
 Recorded distrituion in
 the Transvaal, and in
 southern Africa.

midbody. Ventrals 162-179 (169,7); Subcaudals 26-30 (27,3). Tail autotomy present with 5/33 (15,15%) of tails regenerating. Tail 11,7-14,2% of total length.

Size: Largest SVL = 135,0 mm (TM59075 - Fontainebleau 537MS), mass = 3,0 g (TM59076). Mean SVL (100,0 mm) = 127,83 mm \pm 8,86 (1SD) n=6, mass = 2,25 g \pm 0,62 (1SD) n=5.

Distribution

Endemic to the Transvaal.

Distribution in Transvaal, (Map 64)

15 km E. of Langjan; Fontainebleau 537MS; Kalkheuwel 454MS; Langjan Nature Reserve 370MS; Philipstown 390MS; Rochdale 700MS; Smithfield 456MS; Vivo; Wintersveld 427MS.

Literature Records

Waterpoort; Zoutpan 459MS, (Broadley 1968d).

Habitat and Ecology

A fossorial skink found in areas of Kalahari sand usually buried in the sand under rotting logs or pieces of bark or rocks. On occasions may be as much as 20 cm under the sand surface. Appears to favour areas of deep sand in vegetation types 14, 15, 19 and 20 at altitudes of 650-1000 m a.s.l.

Viviparous with 1-2 young born during summer.

Conservation Status. (RDB 1988, Restricted).

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. The species occurs in the Langjan

provincial nature reserve where it is not uncommon in deep kalahari sand areas. Elsewhere the main land use practice is ranching with cattle, goats and sheep. This is unlikely to seriously affect the species habitat and its status is restricted but secure.

Remarks

A relict population left behind when most of the Kalahari sands were washed away during pluvial periods leaving isolated pockets behind for sufficient periods to allow speciation to take place.

Typhlosaurus lineatus richardi Jacobsen, 1987

Typhlosaurus lineatus richardi Jacobsen 1987, S. Afr. J. Zool. 22(4), p. 318-320, fig. 1. Type locality: 4-5 km N. of Tshamavhudzi peak, Venda, South Africa. Branch 1988a, p. 117, 1988b, p. 9.

Description. 9 Specimens examined.

Colour: Golden yellow above with four distinct longitudinal stripes extending from behind the head to the tail tip. Two lateral stripes, one on each side are indistinct and end near the vent. Ventrally white.

Lepidosis: Head depressed and a rostral with a sharp horizontal edge; body cylindrical terminating in an obtusely pointed tail. Rostral large and depressed; nostril pierced laterally near the tip; a horizontal well defined suture extends posteriorly to the edge of the rostral in line with the eye; two azygous head shields, the prefrontal much broader than long and in contact with the loreals and 1st supraoculars; frontal pentagonal and in contact with the anterior supraocular; the large parietals are in broad contact behind the frontal; Supraoculars 2; supraciliary 1; Subocular 1, preocular 1, postocular 1; UL 4; LL 2; Mental large with 4 (rarely 3) chin shields in contact; Body scales

smooth and overlapping and in 14 rows at midbody; Ventrals 160-168 (163,4); Subcaudals 26-30 (29,1). Sexual dimorphism is present in the number of ventrals with males ranging from 160-164, and females 166-168. Tail autotomy was observed in 2/9 (22,2%) of individuals examined.

Size: Largest male SVL = 133,5 mm (TM 59063 - 5 km N. of Tshamavhudzi Peak), mass = 3,1 (TM 59069 - 5 km N. of Tshamavhudzi peak). Largest female SVL = 131,5 mm (TM 59067 - 5 km N. of Tshamavhudzi Peak), mass = 2,65 (TM 59067); Mean male SVL (100,0 mm) = 123,0 mm \pm 11,05 (1SD) n=5, mass = 2,33 g \pm 0,54 (1SD) n=5; Mean female SVL (100,0 mm) = 127,17 mm \pm 6,25 (1SD) n=3, mass = 2,28 g \pm 0,47 (1SD) n=3.

Distribution

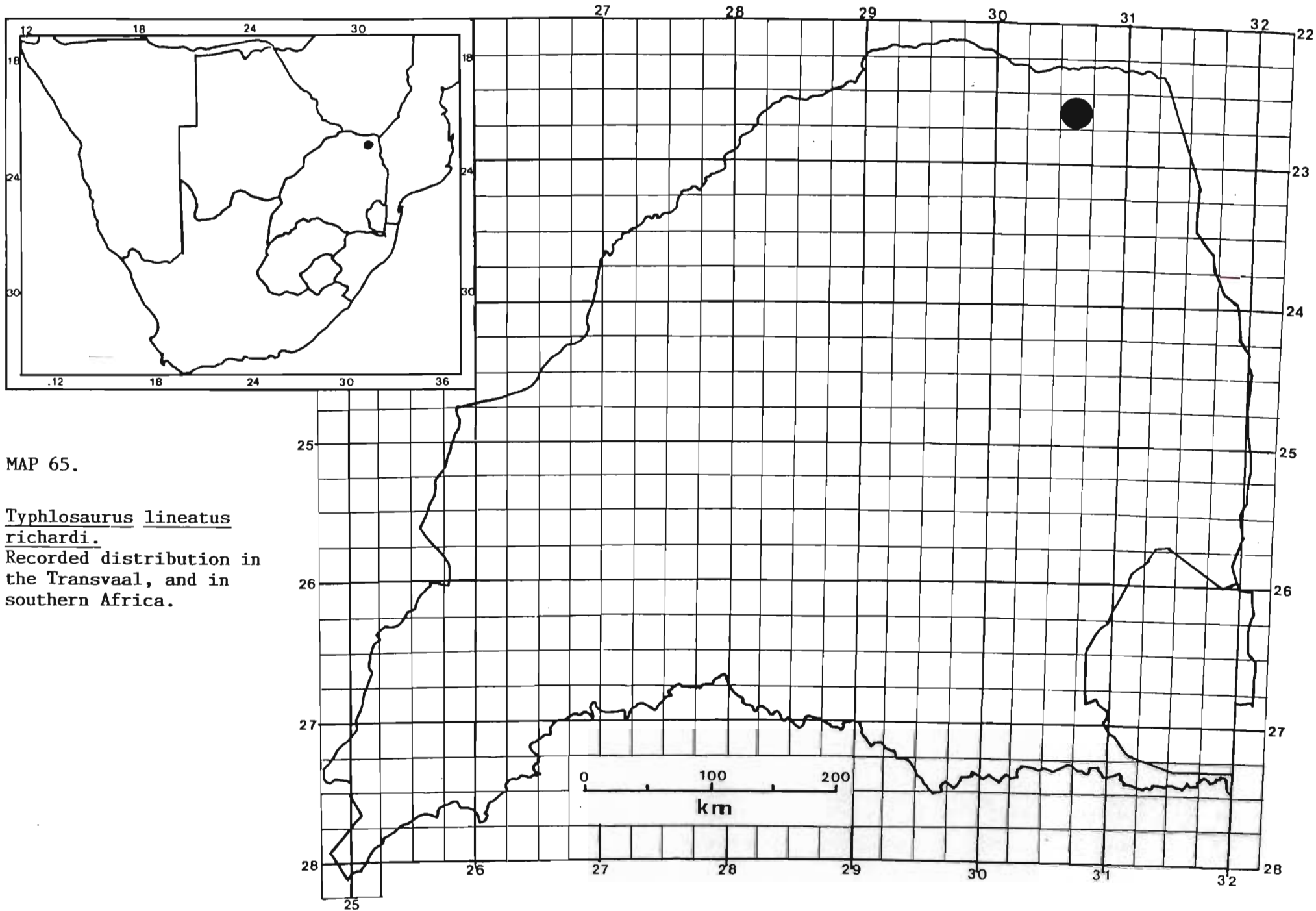
Endemic to the Transvaal.

Distribution in the Transvaal, (Map 65).

4 km N. of Tshamavhudzi Peak; 5 km N. of Tshamavhudzi Peak.

Habitat and Ecology

All the specimens were found under rotting logs in deep aeolian sands along the foothills of the eastern Soutpansberg. Fossorial, specimens were found up to 5 cm deep in the sand. They occur in veld types 18 and 19 at an altitude of about 800 m above sea level. Viviparous, two young are born in summer.



MAP 65.

Typhlosaurus lineatus
richardi.
 Recorded distribution in
 the Transvaal, and in
 southern Africa.

Conservation Status. (RDB 1988, Restricted).

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. A rare relict population occurring in areas of deep sand. Area used for the rearing of livestock. Status appears secure but should be monitored.

Remarks

A species which shows a reduction in the number of head shields and ventral scale counts. This therefore supports Rieppel's (1982) statement that characters evolve independently of each other in a mosaic pattern. In this case we have a reduction in the number of head shields which is according to Broadley (1968) an advanced condition, while the reduced number of ventrals is a primitive character. These opposing conditions could only have evolved independently of one another, in a mosaic fashion.

Family LACERTIDAE
Genus Nucras Gray, 1838

Nucras Gray, 1838, Ann. Mag. nat. Hist., 1, p. 280. Type by monotypy: Lacerta lalandii Milne-Edwards.

Head shields normal; nostril pierced between 2 or 3 nasals and well separated from upper labials. Lower eyelid scaly, opaque. Collar well marked. Dorsal scales small, smooth, juxtaposed. Ventral plates smooth, feebly imbricate. Digits more or less cylindrical, not serrated laterally; subdigital lamellae smooth. Femoral pores present. Tail long and cylindrical.

Terrestrial lizards distributed throughout tropical and southern Africa and represented in South Africa by five species and subspecies.

Broadley (1972) in his revision of the Nucras tesselata group quoted Boulenger (1917), "The distinction of species of this genus has always been a matter of difficulty". This statement is still valid in spite of long series of specimens, as the variability leaves very few diagnostic characters. Broadley (op cit) assessed the variability of a large number of morphological characters including, in his discussion comparisons between the holubi and ornata morphs. He was unable to come to a firm decision regarding these morphs and in fact accepted ornata as a polymorphic subspecies of taeniolata. This study has similarly observed the large degree of overlap between the two phena. There are however differences which cannot be ignored, including consistent colour patterns, sympatry, parapatry, and differing modes of some of the characters (Tables 2 & 3) as well as the difference in adult size. This has led me to accept that two species are involved.

Table 2 Number of plates under the forearm of two Nucras species.

<u>Species</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>
<u>holubi</u>	1	1	5	27	50	47	29	7	6	1	1	0
<u>ornata</u>	0	0	0	3	3	8	12	10	12	7	4	1

N. t. holubi n = 175 X = 6,67
87,4% between 5 - 8,
mode 6/7

N. ornata n = 60 X = 8,88
81,67% between 7 - 11
mode 8-10

Table 3 Number of granules between supraciliaries and supraoculars.

<u>Species</u>	0	1	2	3	4	5	6	7	8	9
<u>holubi</u>	0	0	3	12	17	49	70	22	2	1
<u>ornata</u>	1	1	12	26	13	6	0	0	0	0

N. t. holubi n = 176 X = 5,42; 96,59%
between 3-7; mode 6.

N. ornata n = 59 X = 3,15; 96,61%
between 2-5; mode 3.

Key to the Transvaal species.

1. A series of transversely enlarged plates under the forearm; ventral surfaces unspotted 2
No transversely enlarged plates under the forearm; ventrals faintly to heavily spotted at least ventrolaterally N. lalandii

2. Dorsum with longitudinal pale stripes or broad stripe extending down back 3
Dorsum usually marked with very variable dark edged spots and variegations N. intertexta

3. Dorsum with seven pale longitudinal stripes.
Tail usually pale blue N. caesicaudata
Dorsum in adults with three to five pale stripes, the median and dorsolateral most pronounced.
Sides of body black spotted with white to cream.
Few if any incomplete pale flamelike vertical stripes along side of head and neck. Largest individual 73,0 mm SVL N. t. holubi
Dorsum in adults a uniform to speckled brown sometimes with complete to incomplete narrow white dorsolateral stripes, rarely a pale vertebral stripe. Laterally numerous flamelike vertical white to cream bars frequently black edged. Sides of body speckled.
Largest individual 94,0 mm SVL N. ornata

Nucras lalandii (Milne-Edwards, 1829)

Lacerta lalandii Milne-Edwards 1829, Ann. Sci. Nat. 16, p. 70 & 84, pl. 5, fig. 6. Type locality: Cape of Good Hope.

Nucras delalandii (Milne-Edwards). FitzSimons 1943, p. 312-315, figs 198-200.

Nucras lalandii (Milne-Edwards). Broadley 1972a, p. 1; Branch 1981, p. 152, 1988a, p. 143, pl. 61; De Waal 1978, p. 64, Welch 1982, p. 103; Branch 1988b, p. 8.

Description: 60 Specimens examined.

Colour: Olive-brown to reddish-brown above with irregular rows of black-edged ocellar spots extending from behind the head to the base of the tail. In juveniles the rows are more regular and in some immature individuals the black edges of the ocelli coalesce to form irregular black crossbands which extend from behind the head onto the base of the tail. Tail heavily spotted and speckled with black some of which may have a white speck in the centre. Laterally heavily spotted with black; Ventrals white to olive white with a black spot in each scale forming irregular rows. The white underside extends flamelike laterally in the neck region and on the upper labials. The lower labials may be heavily spotted or blotched with black.

Lepidosis: A small head and elongate cylindrical body with a tail almost twice that of the SVL. Limbs well developed and pentadactyle. Rostral wider than high; nostril pierced at posterior margin of anterior nasal, narrowly separated from postnasal and supranasal. Anterior nasals in contact behind nostral; frontonasal slightly broader than long and in contact with loreals; prefrontals in contact; frontal longer to much longer than broad; frontoparietals in narrow to broad contact; interparietal long and narrow, entire or broken up into a series of 5 scales; parietals large roughly pentagonal and separated by interparietal; supraoculars 4; supraciliaries 5-8; preoculars 1; a row of up to 11 accessory scales extend along the lower eyelid from anterior to behind the eye; UL 8-10; LL 5-7; Mental small almost as wide as long to wider than long; two postmentals in contact behind mental, followed by two large chin shields also in contact; dorsally body

covered in granular scales, smooth and juxtaposed in 34-42 scales at midbody; Ventral plates large, imbricate and in 8 regular longitudinal rows and 32-38 transverse rows from collar to groin; A series of 11-15 (mostly 14) femoral pores on each side of the cloaca is found. Limbs pentadactyle, well developed with 16-22 scales under the 4th toe. No greatly enlarged transverse plates under the forearm. Scales on tail in regular whorls, imbricate and keeled. Caudal autotomy is common with 16/50 (32%) of tails regenerated.

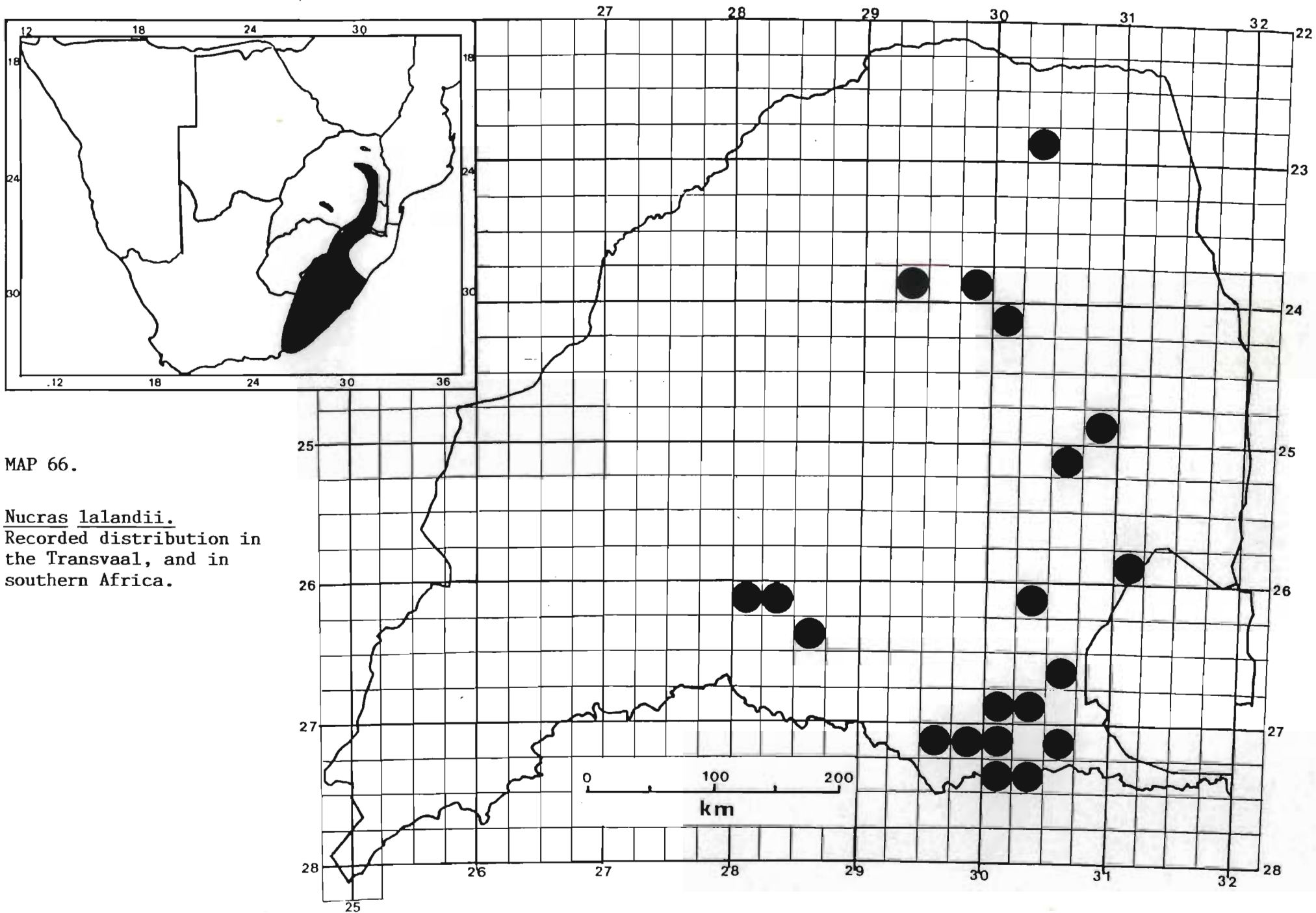
Size: Largest male SVL = 100,0 mm (J1067 - Entabeni), mass = 16,5 g (J1067); Largest female SVL = 110,0 mm (N9459 - Kleinfontein 3HT), mass = 18,0 g (N9459). Mean male SVL (50,0 mm) = 76,33 mm \pm 16,80 (1SD) n = 11; mass = 7,49 g \pm 5,17 (1SD) n = 8; Mean female SVL (50,0 mm) = 85,6 mm \pm 16,67 (1SD) n = 10, mass = 9,95 g \pm 5,69 (1SD) n = 9.

Distribution

Eastern Cape Province northwards to Natal, the south-eastern and north-eastern Orange Free State and the Transvaal.

Distribution in Transvaal (Map 66)

Buitenzorg 114HT; Clearwaters, Haenertsburg;
Daggafontein 125IR; Dorstbult 33IT; Entabeni Forest
Reserve 251MT; Geelhoutboom 342IT; Germiston,
Rosherville; Goedmoed 373IT; Groothoek 171HT;
Grootvlei Mine; Haenertsburg; Iron Crown;
Johannesburg; Johannesburg, Kliprivier Valley;
Josefsdal 382JO; Kastrol Nek; Kleinfontein 3HT;
Lisabon 262JT; Lisbon Falls; Mac Mac Falls; Matiwa
Lookout, Entabeni 251MT; Mooimeisiesfontein 77HS; Mt.



MAP 66.

Nucras lalandii.
 Recorded distribution in
 the Transvaal, and in
 southern Africa.

Anderson; Pietersburg; Pretoria, Groenkloof; Redcliff
426IT; Rietpoort 83HS; Roodekopjes 67HS; Roodewal
102HS; Schoonwater 374JT; Serala 5KT; Stanley Bush
Kop; Tafelkop 26HT; Wakkerstroom; Woodbush.

Literature Records

Duivelskloof (NMZB).

Habitat and Ecology

A large terrestrial highveld to montane grassland species usually found under rocks on soil in a slight depression or may occupy burrows under stones or between stones, but also observed while foraging from grass tussock to tussock. A diurnal lizard, it has been recorded in veld types 8, 48, 52, 54, 57 and 62 at altitudes ranging from 1550-2300 m a.s.l. The torpedo-shaped cylindrical body probably enables this lizard to force its way through thick grass cover, the reduced but still functional limbs assisting it to move rapidly in its quest for food. FitzSimons (1943) records beetles, and orthoptera as well as insect larvae as the main food source. Oviparous, the species lays from 3-9 eggs in mid-summer, these hatching principally in February to March. The ova measure 18,5-21,0x12,0-14,5 mm with a mass of 1,5-1,8 g. The neonates measure 30,0-36,0 mm SVL; tail 50,0-56,0 mm with a mass of 0,4-0,42 g.

Conservation Status.

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. An uncommon lizard restricted to parts of the highveld and along the escarpment it has only been recorded from six provincial nature reserves of which two are marginal. Veld fires and afforestation are

probably the greatest threats. Can tentatively be considered secure but density surveys are urgently needed from provincial nature reserves.

Remarks

Another temperate species which has moved northwards along the mountain chains to the Soutpansberg where a small relict population occurs in an area of high rainfall and montane grassland with rocky outcrops. A record from Pietersburg (TM 2102) is probably erroneous as the arid terrain in this vicinity is totally atypical of the species habitat requirements. The specimen possibly originated from Haenertsburg.

Nucras caesicaudata Broadley, 1972

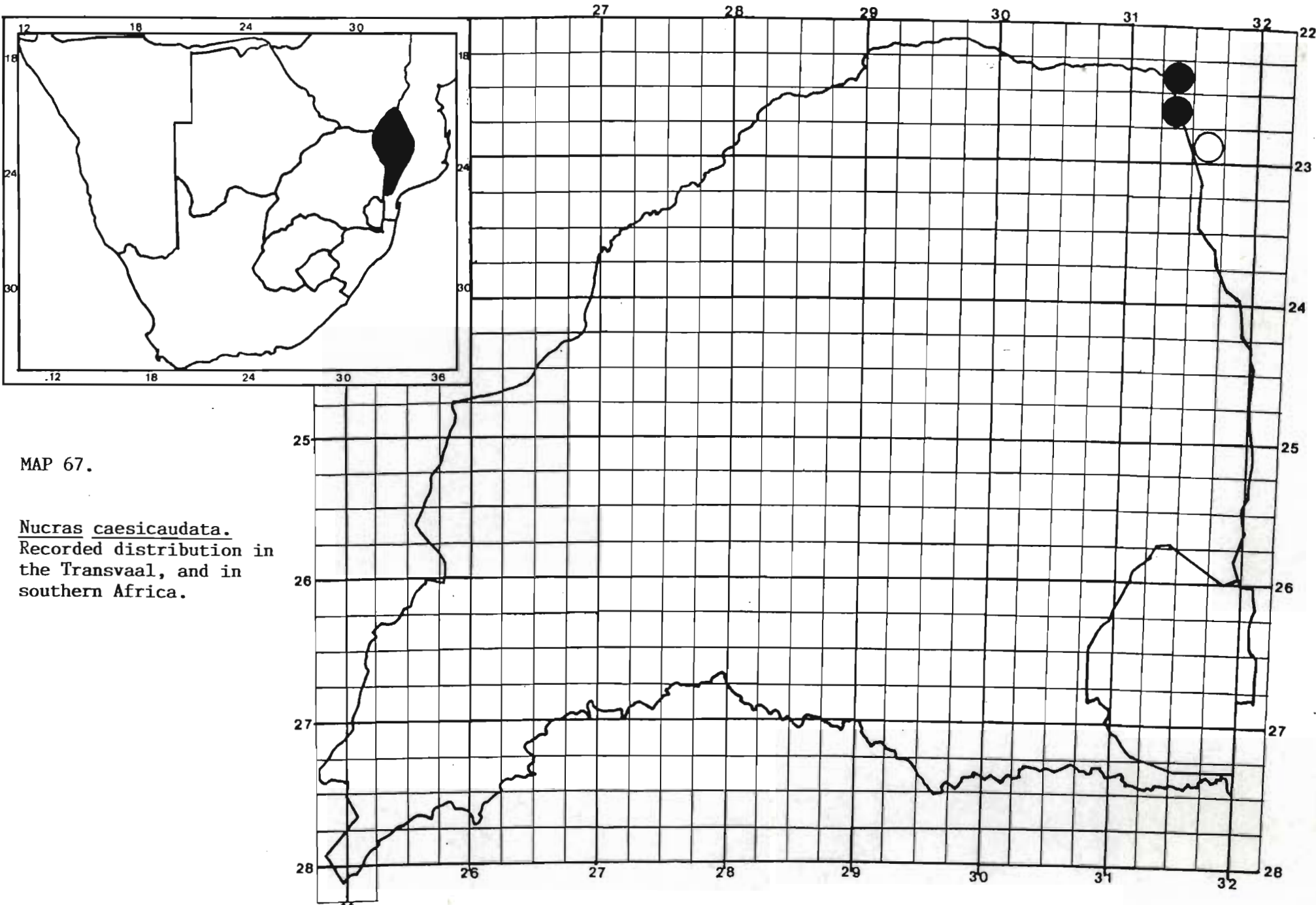
Nucras caesicaudata Broadley 1972, Arnoldia (Rhodesia) 5(20), p. 21-25, pl. 1, fig. 1. Type locality: Sazale Pan, Gonare-Zhou, Zimbabwe. Pienaar 1966, p. 88, pl. 31, 1978, p. 73, pl. 26; Pienaar et al 1983, p. 104, pl. 41; Welch 1982, p. 102; Branch 1988a, p. 142, pl. 61, 1988b, p. 8.

Description: 9 Specimens examined.

Colour: Head brown above, infuscated with cream, cream stippled with brown laterally; temporals brown with two cream vertical bars. Dorsum brown to blackish-brown with seven cream longitudinal stripes, subequal in width to the interspaces, the dorsolateral stripe continuous with a pale stripe on the outer edge of the parietal; upper lateral stripe begins at upper edge of ear opening; lower lateral stripe begins on upper labials, passes through lower portion of ear opening, along the shoulder to above the hind limb. Limbs light brown to reddish-brown with darker markings and cream mottling. Tail blue dorsally, brownish proximally with a dark stripe laterally. Ventrally the lizards are white.

Lepidosis: A small to medium lizard with a distinct head slightly wider than the neck. Limbs short and pentadactyle. Tail extremely long, much longer than SVL and from 71,66 - 71,78% of total length. Rostral much broader than high; Nostril pierced in suture between three nasals, and directed upwards; supranasals in broad contact behind rostral; frontonasal broader than long; prefrontals in broad contact mesially; frontal pentagonal, longer than broad; frontoparietals short, in broad contact and notched posteriorly; interparietal narrow and elongate mostly separating parietals; a small occipital (rarely 2) may (46%) or may not be present; Parietals large and elongate about 1,5 times as long as broad, usually separate (in material examined) or in narrow contact (Broadley 1972); 3-4 supratemporals enlarged, 1st elongate and largest; supraoculars 4; supraciliaries 6 (rarely 7) and a series of 1-4 granules between supraoculars and supraciliaries; loreals 2; anterior much smaller than posterior; lower eyelid opaque with a series of vertically enlarged septa; preocular small; suboculars 4, 2nd largest and in contact with lip; postoculars 2; a row of accessory scales around lower perimeter of eye; LL 4 (rarely 5); Mental much wider than long, 3-5 pairs sublabials, anterior pair in broad contact behind mental; UL 6-7; Body covered in rounded, smooth, juxtaposed granular scales ranging from 40-54 at midbody and 144 from parietals to base of tail; Ventrals smooth, in eight longitudinal and 28-34 transverse rows, the latter between collar and groin. Two transversely enlarged preanal plates; femoral pores 13-20, mostly 14-15 on each thigh. Feet pentadactyl, with 23-31 subdigital lamellae under 4th toe. Scales on tail in regular whorls, elongate and strongly keeled dorsally.

Size: Largest specimen has a SVL of 65,0 mm from the Kruger National Park.



MAP 67.

Nucras caesicaudata.
Recorded distribution in
the Transvaal, and in
southern Africa.

Distribution

South-eastern Zimbabwe, north-eastern Transvaal and adjacent Mozambique on the Gaza plain.

Distribution in Transvaal (Map 67)

Machayi Pan; Malonga Spring; Nyandu Sandveld; Matlakusa Pan; Beacon 10 area.

Habitat and Ecology (after Pienaar et al, 1983)

Only known in South Africa from the deep sands of the north-eastern Kruger National Park in veld type 15 at an altitude of 300 m above sea level. Has been observed feeding on termite alates emerging after thunderstorms. A visit to the area during the beginning of May 1981 revealed no lizards. Little is known of this interesting species.

Conservation Status (RDB 1988, Peripheral).

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. Only known in South Africa from the north-eastern Kruger National Park and appears to be adequately protected. Knowledge of the ecology of the species is needed.

Remarks

Broadley (1972a) described the species when providing a comparison between the various forms of the Nucras tessellata group.

Nucras intertexta A. Smith, 1838

Nucras intertexta A. Smith 1838, Mag. Nat. Hist (2)2, p. 93. Type locality: country near Latakoo.

Nucras intertexta intertexta (A. Smith). FitzSimons 1943, p. 318-320, figs. 204-206.

Nucras intertexta (A. Smith). Broadley 1972a, p. 25, pl. III). Branch 1981, p. 152, 1988a, p. 142, pl. 60; Jacobsen 1977, p. 23; Pienaar 1966, p. 87, 1978, p. 71, pl. 25; Pienaar et al 1983, p. 106, pl. 42; De Waal 1978, p. 65; Auerbach 1987, p. 127; Welch 1982, p. 102; Branch 1988b, p. 8.

Description: 118 Specimens examined.

Colour: A highly variable species, mainly brown, grey-brown to reddish-brown in ground colour. Rows of white, black edged ocelli occur down the back from behind the head to the base of the tail, these ocelli sometimes coalesce to form interrupted lines and rarely is a vertebral line present. The black of the ocelli also coalesce laterally to form short crossbands mostly dorsolaterally. In some specimens from the south western Transvaal the back may be uniform brown with faint black speckling, the brown marked dorsolaterally by elongate white, black edged spots which fade posteriorly.

Laterally a white stripe extends from the upper labials over the shoulder to the groin. Below this the sides are speckled black, white and brown. Ventrally white. Tail brown to reddish brown and even orange above in juveniles, speckled with black in adults. Ventral half of tail white.

Lepidosis: A short head and elongate cylindrical body with a tail more than twice that of SVL. Rostral pentagonal and almost as high as wide; nostril pierced in suture between the three nasals; anterior nasals in contact behind rostral; fronto-nasal as broad or broader than long, in contact with loreals; prefrontals in broad contact; frontal approximately pentagonal to hexagonal; frontoparietals in contact, also in contact with 3rd and 4th supraocular; interparietal very long and slender but it may be subdivided; parietals large and separated by

interparietal; supraoculars 4 but variable as both 1st and 4th frequently broken up into 2-3 smaller scales; a row of 1-7 (mostly 2-4) granules between supraoculars and supraciliaries; Supraciliaries 6-7 (rarely 8); preoculars two; a series of small scales occur in a semicircle from anterior to the posterior margin of the eye, lower eyelid a series of 4-6 vertically elongated scales; UL 6-8; LL 5-7; Mental broader than long; two small postmentals; followed by two larger chin shields. Dorsal scales granular, rounded and juxtaposed, 41-52 at midbody. Ventral scales broad, slightly imbricate and in 6-8 longitudinal rows and 27-35 transverse rows from collar to groin. Limbs stout; forelimb with 0-12 (mostly 7-9) transversely enlarged plates under the forearm; digits well developed with 20-29 (mostly 22 to 26) lamellae under the fourth toe. Femoral pores range from 11-16 (mostly 13 or 14) per side. Tail autotomy occasional with 26/101 (25,7%) of tails regenerated.

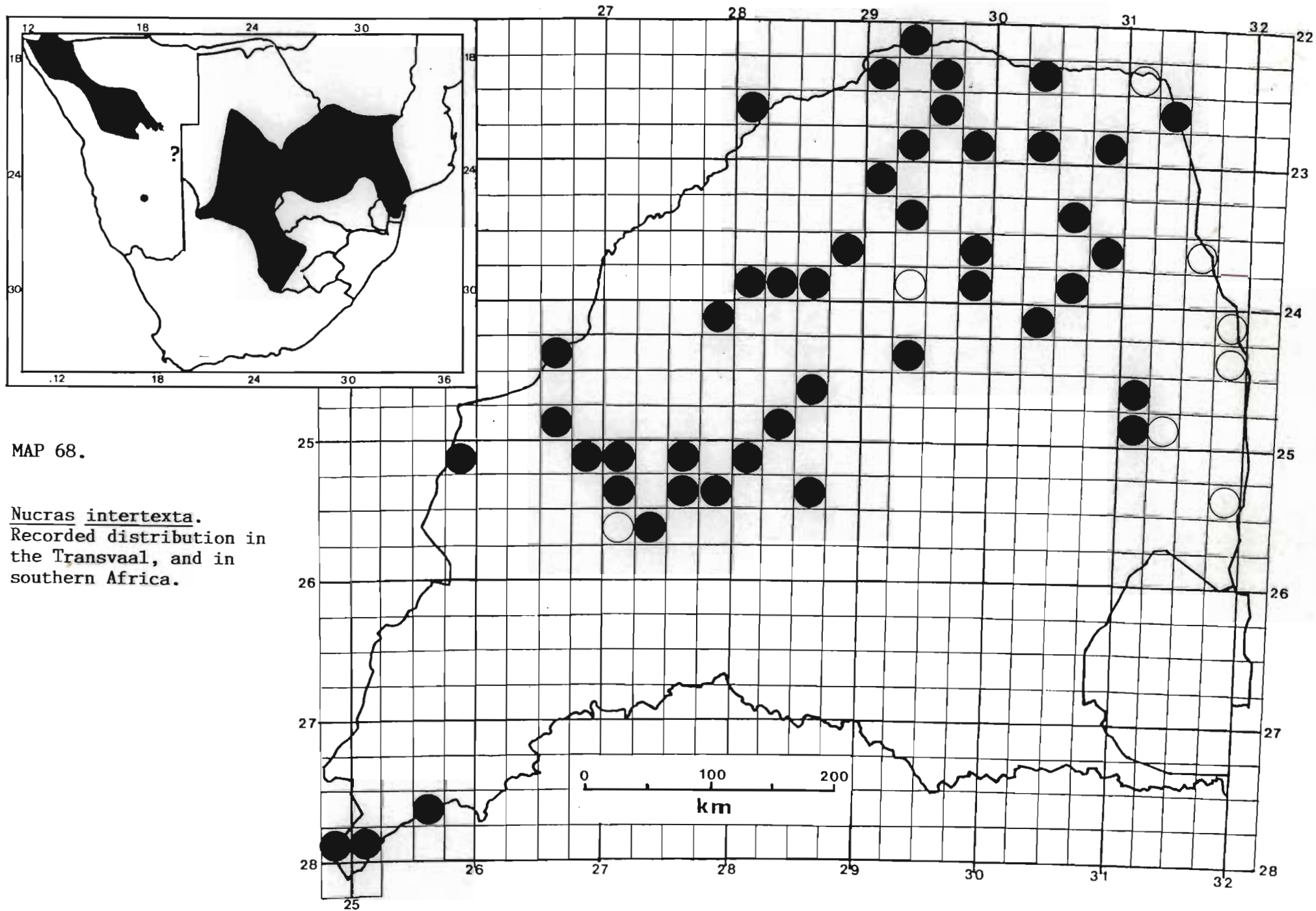
Size: Largest male SVL = 82,0 mm (N11594 - Fontainebleau 537MS), mass = 9,6 g (N2549 - Moerdyk 593LR); Largest female SVL = 93,5 mm (N888 - Hackthorne 30MS), mass = 12,0 g (J6215 - Grootplaats 24HN). Mean male SVL = 62,15 mm \pm 9,13 (1SD) n = 22, mass = 5,15 g \pm 1,87 (1SD) n = 22; Mean female SVL = 67,15 mm \pm 15,88 (1SD) n = 16, mass = 6,23 g \pm 3,82 (1SD) n = 16.

Distribution

South West Africa east through Botswana to the northern Cape Province, south-western Orange Free State to western, northern and eastern Transvaal to south-eastern Zimbabwe and southern Mozambique.

Distribution in Transvaal (Map 68)

5km W. of Lukale Hill; 7 km W. of Lukale Hill; Ameland 11LS; Amsterdam 116LS; Bleskop Siding; Boekenhout;



Dawn 71MT; Essexvale 61MR; Excelsior 266KU;
Fontainbleau 537MS; Galakwyns Stroom 745LR; Griffin
Mine; Groothoek 106KS; Grootplaats 29HN; Hackthorne
30MS; Hartz 233MS; Hermanusdoorns 204KQ; Holbrook
783MS; Houwater 54JQ; Klein Letaba; Kruidfontein 40JQ;
Kwa Seane; Kwarriekraal 148JQ; Lake Funduzi; Mahlaguza
Pan; Masbambela Picket; Moerdyk 593LR; Mooiplaats
65KP; Mutshenzheni; New Belgium 608LR; Nylsvley Nature
Reserve; Prospect 315HO; Ramsgate 543MS;
Rhenosterdrift 172JQ; Rhenosterspruit 59JQ; Rolle
235KU; Roodekuil 183JQ; Ruighoek 169JP; Sandsloot
214JQ; Schoonkloof 273KP; Segops Location 821LS;
Sekororo; Shiluvane; Silwana's Location 719LT;
Turfloop 987LS; Tweerivier 197JQ; Vaalpenskraal 726LR;
Vrouensbrom 80MT; Vygeboompoort 456KR; Waterval 220JQ;
William Porter 90MS; Zoutpan 459MS; near Bloemhof.

Literature Records

Crocodile Bridge; Newington; Nwambiya Sandveld;
Nwanedzi R.; Rustenburg; Turfloop; Pietersburg,
(Broadley 1972). Wolkberg wilderness area, (Snyders
1987). Mathlakuza pan; Klawerpan firebreak; eastern
boundary between Mathlakuza pan and Nwambiya; eastern
boundary between Nchindo and Tabaglovu beacons; Godleni
picket area; Nwanedzi beacon; Pumbe sandveld; Mpemane
windmill; Malonga; sandveld north of Saselandonga
gorge, (Pienaar et al 1983).

Habitat and Ecology

A fast-moving, active terrestrial lacertid usually found
under rocks on soil, in burrows or more frequently
observed during the day foraging among leaf litter and
the edge of or under shrubs. Has been recorded from most
veld types in the northern and eastern Transvaal

including 8, 10, 11, 13, 14, 15, 16, 18, 19, 20 and 50 at altitudes ranging from 300-1400 m a.s.l. An active forager in search of prey, feeding opportunistically on invertebrates including Coleoptera, Orthoptera, Lepidoptera larvae, Myriapoda, Chilopoda and Araneae. The stomach contents of N888 contained the tail of another large lacertid lizard. Oviparous, from 2-8 ova are laid in midsummer. FitzSimons (1943) records measurements ranging from 12,5-12,8 x 7,5-8,3 mm. The smallest specimen collected measured 31,0 mm SVL with a mass of 0,6 g in March indicating hatching date in February.

Conservation Status.

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. A widespread lizard occurring in numerous provincial nature reserves and in the Kruger National Park. Its status can be considered secure although occurring at low frequency over most of its distribution range.

Remarks

A highly variable species, Broadley (1972a) remarked on a clinal shift in colour pattern from east to west. In addition to this broad shift, individual local variations also occur. Colour pattern may overlap between forms of the N. taeniolata (A. Smith) and N. tessellata (A. Smith) complexes. The range of variation in other morphological characters may also prove confusing.

Nucras taeniolata holubi (Steindachner, 1882)

Eremias holubi Steindachner 1882, Sitz. Ak. Wien LXXXVI
1, p. 83, pl. Type locality: Crocodile river,
Transvaal.

Nucras intertexta holubi (Steindachner). FitzSimons
1943, p. 320, (part).

Nucras taeniolata ornata (Gray). Broadley, 1972a, p. 13,
pl. 1 (part); De Waal 1978, p. 66; Welch 1982, p. 102
(part), Branch, 1988a, p. 143 (part), pl. 60, 1988b, p. 8
(part).

Description: 176 Specimens examined.

Colour: Three longitudinal white to brownish white
stripes extend from behind the head merging on the base
of the tail. The stripes are more pronounced in the
juveniles, particularly the vertebral stripe which in
adults tends to broaden and fade posteriorly. The
interstitial areas are brown paravertebrally and blackish
dorsolaterally. Laterally a broad black band extends
from behind the ear opening tapering in the sacral region
and extending onto the tail. The black band has two rows
of white spots or blotches in juveniles, the lower row
becoming more diffuse and contiguous in mature specimens.
Ventrolaterally the off-white stripe adjoins a grey zone
which abutts onto the white or creamy white ventrals.
The head is brown in adults but may be patterned in
juveniles. The tail is brownish-orange in adults to
pinkish orange in juveniles with darker stripes dorsally
and laterally. The ventral half is white.

Lepidosis: A longer head than N. intertexta and body
less lengthened and cylindrical with a tail in excess of
twice SVL. Rostral as high as broad and pentagonal;
nostril pierced at posterior margin of anterior nasal;
nasals 3, anterior nasals in narrow to broad contact
behind rostral; frontonasal longer than broad and in
broad contact with loreals; prefrontals in broad

contact; frontal roughly pentagonal, in contact with 1st and 2nd supraoculars and narrowly with 3rd; fronto-parietals in broad contact with posterior margin notched; interparietal long and may be subdivided, separating parietals; supraoculars 4; supraciliaries 6-8; a row of 2-9 (mostly 3-7) granules between supraoculars and supraciliaries; loreal 1, postoculars 3 with rows of small granular scales extending suboptimally from posterior to anterior corner of eye; lower eyelid with vertically elongated scales; UL 8; LL 6-8; Mental approximately as broad as long; two postmentals followed by two larger chin shields also in broad contact. Dorsals rounded, flattened, granular and 41-65 at midbody; Ventrals in 8 longitudinal rows and 26-34 transverse rows; Limbs well developed, pentadactyle; forelimbs with 4-10 (mostly 5-8) enlarged plates under the forearm; 4th toe with 20-29 (mostly 23-26) lamellae subdigitally. Tail autotomy present with 26/82 (31,71%) of tails regenerated.

Size: Largest male SVL = 66,5 mm (N956 - Kaalkraal 100 MS), mass = 7,1 g (N956); Largest female SVL = 73,0 mm (N3117 - Bochem 145LS), mass = 7,5 g (N3117). Mean male SVL = 56,08 mm \pm 8,03 (1SD) n = 45, mass = 4,03 g, \pm 1,72 (1SD) n = 45; Mean female SVL = 55,05 mm \pm 9,06 (1SD) n = 39, mass = 3,19 g \pm 1,61 (1SD) n = 39.

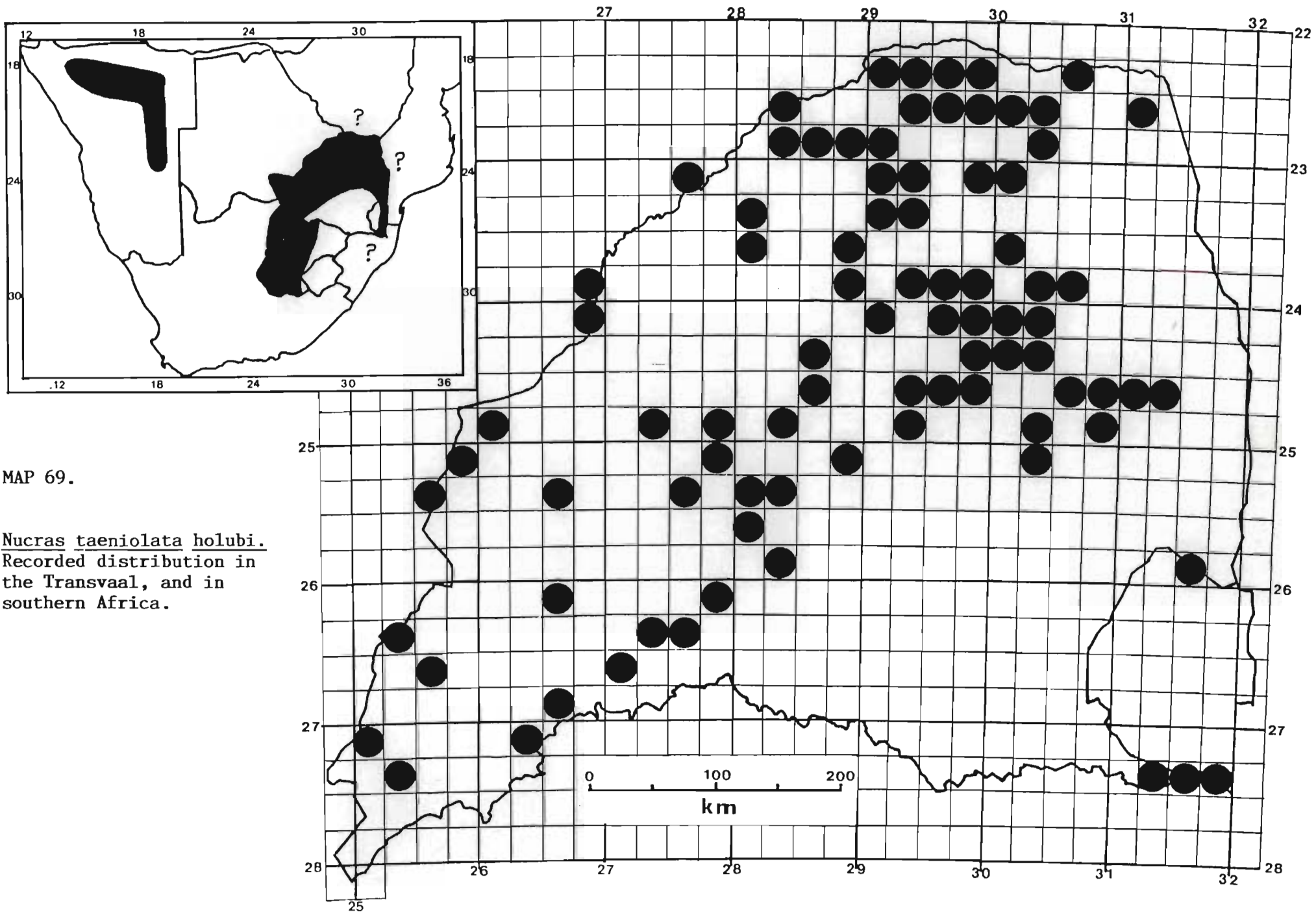
Distribution

From northern South West Africa through Botswana to the northern Cape Province, Orange Free State, Transvaal and Zimbabwe.

Distribution in Transvaal (Map 69)

16 km N. of Roodeplaat Dam; Abe Bailey Nature Reserve; Aden 1KT; Amsterdam 116LS; Barberspan Nature Reserve; Belvedere 184MS; Ben Lavin Nature Reserve; Berg en

Dalen 53MR; Blaauwbloemkloof 428KS; Blouberg;
Boomplaats 24JT; Bochem 145LS; Bordeaux 555MS;
Boschfontein 470JU; Buffelskraal 486LR; Calais 563KS;
Carnethy 113MS; Cato Smuts 113MT; Clearwaters,
Haenerstburg; Cumbrae 144MS; De Bad 396KT; Delet
499MS; Dendron; Dientje 453KT; Doorndraai dam Nature
Reserve; Driefontein Gold Mine; Essexvale 61MR; Flynn
217KS; Galakwyns Stroom 745LR; Godlwayo; Goedehoop
749KS; Gopane Mine; Greenfield 333MS; Griffin Mine;
Grootpoort 123KP; Haakdoornlaagte 167JQ; Holfontein
126KT; Holmwood 315MR; Honingspruit 32HO; Houtkop
152IP; Jamieslust 284MR; Kaal Kraal 100MS; Kgoloko
Location; Killaloe 235MS; Klipspruit 89HP; Koeberg
52MR; Krabbefontein; Krugersdorp; Kunana Location 4IO;
Kwa Seane; Langbaken 342KS; Letsitele; Loretto 264MS;
Lucerne 198MS; Lunsklip 7KS; MalaMala; Malongwa Flats;
Masokane 1HN; Mecklenburg 112KT; Melinda 164LR;
Melkboomfontein 919LS; Messina; Mondplaisier 494MS;
Ntsweletau; Nylsvley Nature Reserve; Orkney Townlands
437IP; Pietersburg; Pilgrim's Rest; Pongola Nature
Reserve; Potchefstroom; Pretoria; Pretoria,
Rietondale; Pretoria, Rosslyn; Pretoria, Pyramids;
Pretoria, Garstfontein; Pretorius 531MS; Pretoriuskop;
Punda Milia; Ramsgate 543MS; Ratomba; Rietfontein
179JP; Rolle 235KU; Sandsloot 214JQ; Sekororo;
Sonskyn Spa; Steamboat 306MR; Sterkspruit 412KT;
Strydfontein 320IP; Strydfontein 442KT; Takane;
Tooyskraal 531KQ; Tshipise; Turfloop 987LS; Uitenpas
2MT; Uitspan 65LQ; Vaalbank 163JR; Vaalkpenskraal
726LR; Van Stadenshoek 12KP; Vivo; Vogelstruisfontein
765LR; Vygeboompoort 456KR; Wemmersvlei 185LR; William
Porter 90MS; Willie 787LT; Wonderboom 532KS; Worcester
5LP; Zaailand 662LS; Zwartkop 369KQ; Between Lake
Funduzi and Entabeni.



MAP 69.

Nucras taeniolata holubi.
 Recorded distribution in
 the Transvaal, and in
 southern Africa.

Habitat and Ecology

A terrestrial agile species with a wide habitat tolerance being found in veld types 6, 8, 9, 10, 12, 14, 15, 16, 18, 19, 20, 48, 50, 61, 63 and 67 at altitudes ranging from 150-1500 m a.s.l. They usually hide under rock on soil or other debris, even bits of tin, as well as holes in the ground. Most frequently found foraging among grass tussocks or at the edges of bushes. Two individuals were observed thermoregulating in a bush about 45 cm above the ground, one actually hanging by its hindfeet. During the heat of the day are always found in the shade of shrubs. When moving about they also wave their fore-feet which may pertain to thermoregulation or simply to cool the feet. They forage actively in leaf litter and around bushes but also out inbetween grass tussocks, moving in short bursts of speed. De Waal (1978), recorded mostly Coleoptera (Fam. Tenebrionidae, Curculionidae and Chrysomelidae as well as Isoptera as prey. The latter was also recorded on the Nylsvley nature reserve, as well as Dictyoptera. The species is oviparous, laying from 1-7 (mostly 4-5) eggs in midsummer. The smallest specimens collected measured 27,0-28,5 mm SVL with a mass of 0,3-0,5 g.

Conservation Status.

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. A widespread species and therefore occurring in several provincial nature reserves (Jacobsen et al, 1986) as well as in the Kruger National Park. Its status is currently secure.

Remarks

Broadley (1972a) discussed at some length the forms holubi and ornata and in fact observed both forms to be

sympatric at Irisvale and Odzi and parapatric at Triangle and Chiredzi in Zimbabwe. In Mozambique the two forms are parapatric or allopatric and all specimens from north of the Zambezi belong to ornata. He came to the conclusion that this was a case of polymorphism with the ornata morph being more adapted to a wetter climate, as opposed to the holubi morph being more temperate adapted. The situation is the same in the Transvaal and the two forms have been found sympatric on the farm De Bad 396KT and on the Pongola Nature Reserve although here the holubi morph occurs on the flats while the ornata morph occurs on the Lebombo mountains. Elsewhere, numerous examples of parapatry and allopatry exist. Although the species are difficult to separate morphologically, the fact is that ornata is much larger than holubi, the juveniles have a different colour pattern as do the adults with very few exceptions. In an analysis of a few features such as the enlarged plates under the forearm, holubi has a mean of 6,67 with a mode of 6 and 87,4% range between 5-8 whereas in ornata there is a mean of 8,88, with a mode of 8 or 10 and 81,67% range between 7-11. Similarly the granules between the supraoculars and supraciliaries are in holubi on average 5,42 with a mode of 6 and 96,59% are between 3-7, whereas in ornata there is a mean of 3,15 with a mode of 3 and 96,61% are between 2-5.

It seems to me that the lack of intergrades in the Transvaal, with one exception from between Pretoria and Krugersdorp, indicates that two distinct taxa are present and in sympatry or parapatry over much of their range. In this assessment a proposal is made to separate the two forms, and because of the high level of sympatry the ornata morph should be given specific rank and holubi retained as a subspecies of N. taeniolata.

Nucras ornata (Gray, 1864)

Teira ornata Gray 1864, Proc. Zool. Soc. Lond., p. 58.
Type locality: South-eastern Africa.

Nucras intertexta holubi (Steindachner). FitzSimons 1943, p. 320; Broadley 1965, p. 18.

Nucras taeniolata ornata (Gray). Broadley 1972a, p. 13, fig. 1a, pl. 1, figs. 4-9; Branch 1981, p. 152, 1988a, p. 143 (part); Jacobsen 1977, p. 21; Pienaar 1978, p. 70, pl. 24; Pienaar et al 1983, p. 103, pl. 40; De Waal 1978, p. 67; Auerbach 1987, p. 126, pl. 12, fig. 5; Welch 1982, p. 103; Branch 1988b, p. 8.

Nucras tessellata ornata (Gray). Pienaar 1966, p. 86, pl. 30.

Description: 67 Specimens examined.

Colour: Juveniles black dorsally and dorso-laterally with a brown snout merging to black on crown; Three narrow white longitudinal stripes are found on the back, one vertebral from occiput onto base of tail; two dorsolateral extending from parietals onto base of tail; interparietal edged with white; Ventrally white, this colour extending laterally in flamelike projections particularly anterior to the shoulders and from upper labials; between forelimbs and groin an irregular row of white spots occur frequently coalescing with the white extending up from the belly. The tail is pinkish-orange. As the juveniles grow the stripes begin to broaden posteriorly particularly the dorsolateral ones and the white flames between fore and hindlimbs disintegrate further to form rows of spots which many coalesce horizontally into a continuous stripe.

The adults are brown dorsally with irregular black spots or blotches; two thin dorsolateral white stripes originate from behind the parietals merging posteriorly with the brown; the white stripes may be flanked by

black which in some specimens is interrupted; tail heavily spotted and speckled with black dorsally; head shields pale edged and spotted or striped with black; dorsolaterally extending laterally the black breaks up, to form white centred ocelli or stripes interspersed with brown; this tiger pattern more pronounced between forelimbs and eye; Laterally grey with black longitudinal markings becoming spotted ventrolaterally on white; ventrally white. Tail white to off-white ventrally; brown dorsally.

Lepidosis: Head small, body cylindrical and moderately elongate. Tail cylindrical and more than twice SVL. Rostral wider than high to as wide as high; nostril pierced in suture between anterior and two posterior nasals; Anterior nasals in narrow contact behind rostral; frontonasal broader than long and in contact with loreals; prefrontals in broad contact; frontal variable from long and narrow to short and broad, in one specimen the suture between the frontoparietals continues forward partially dividing frontal; frontoparietals in broad contact; interparietal long and narrow, single or may form a second small scale posteriorly; supraoculars 4; supraciliaries 6; 0-5 interstitial granules between supraoculars and supraciliaries; loreal twice as high as broad; preoculars 2, one very large and one very small; postoculars 3 continuing subocularly as a row of granular scales to anterior margin of eye; lower eyelid has 5-7 elongated scales; UL 7-9; LL 6-7; mental wider than long to as wide as long; 2 postmentals in total contact followed by two chin shields also in total contact. Dorsals granular, rounded slightly oblique and juxtaposed and number from 39-60 (mostly between 45-57); Ventrals broad and imbricate in 8 longitudinal and 25-32 transverse rows; limbs pentadactyle; forelimbs with 6-12 enlarged plates; 19-27 (mostly 21-25) subdigital lamellae under 4th toe; A series of 12-19 (mostly 13-16)

femoral pores are present on each side. Caudal autotomy is present with 10/48 (20,83%) of tails regenerated.

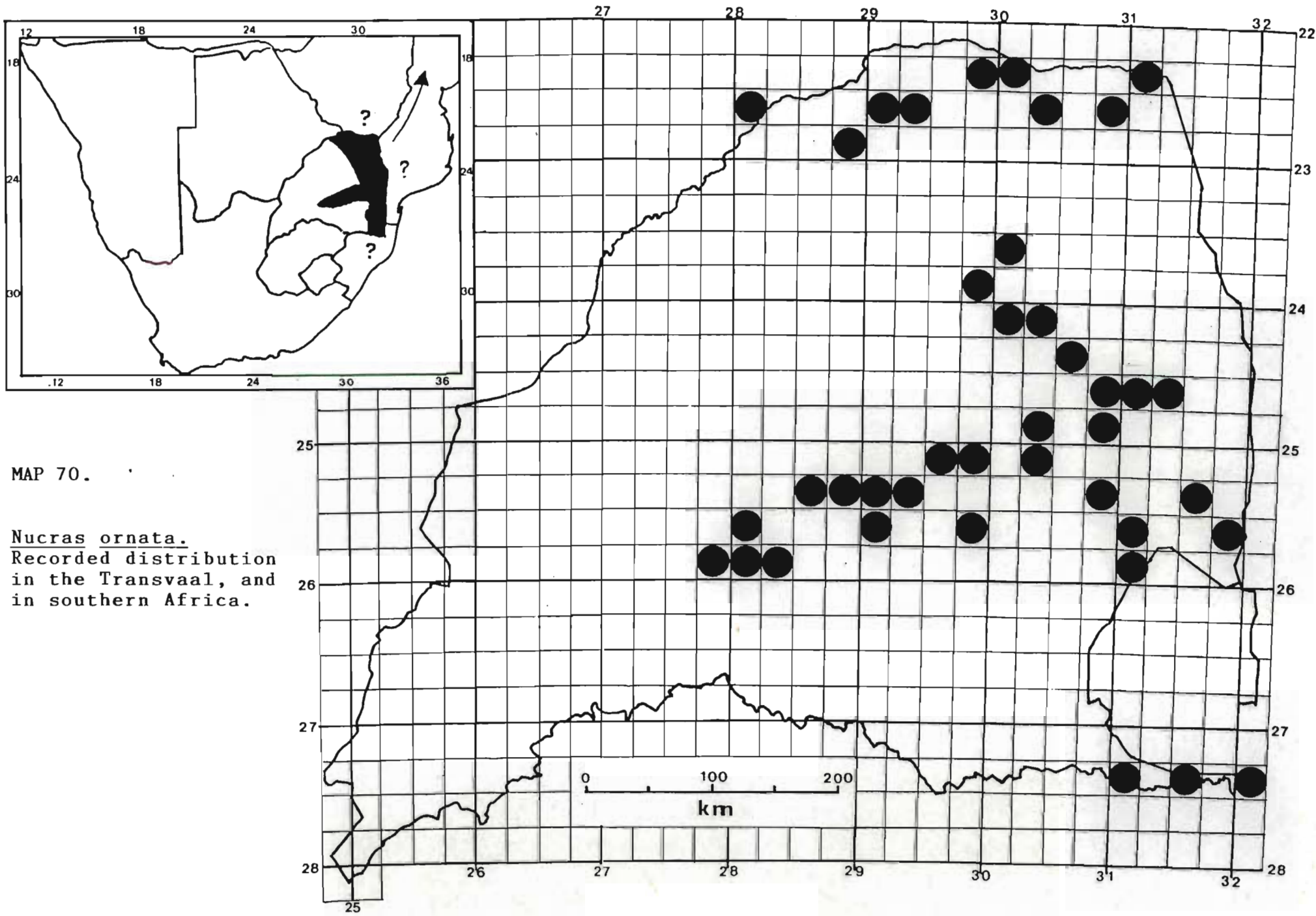
Size: Largest male SVL = 84,0 mm (N8648 - Donkerhoek 365JR), mass 13,0 g (N7729 - Dycedale 368JU); Largest female SVL = 94,0 mm (N9395 - Kameelpoort 202JR), mass = 15,3 g (N9395); Mean male SVL = 69,27 mm \pm 13,09 (1SD) n = 11, mass = 8,05 g \pm 3,36 (1SD) n = 11; Mean female SVL = 67,67 mm \pm 18,36 (1SD) n = 9, mass = 7,73 g \pm 5,14 (1SD) n = 9.

Distribution

From the Rondo Plateau in southeastern Tanzania to southern Zambia and Malawi south to the Transvaal, Swaziland and KwaZulu (Broadley in litt.).

Distribution in Transvaal (Map 70)

26 km between Pretoria and Krugersdorp; 1 km E. of Border Hotel, Barberton; 10 km N. of Levubu near Sandneck on new tar road; Acornhoek; Barberton; Boschjeskop 251JT; Boomplaats 24JT; Clearwaters, Haenertsburg; De Bad 396KT; Dirleton 276MS; Donkerhoek 365JR; Doreen 108MT; Dycedale 368JU; Essexvale 61MR; Eureka City; Goedehoop 152JS; Gulliver 237MS; Hectorspruit; Inkom 305MR; Kameelpoort 202JS; Leeuwfontein 228JS; Leeuwklip 363JS; Loretto 264MS; Loskop Dam; Ludlow 227KU; Mabyeni Hill; Mahlaguza Pan; Mariepskop; Matukwane Ridge; Meidingen 398LT; Near Shidzivane; Nelspruit; Nwanedzi R.; Pafuri Trig. Beacon; Perkeo 223KT; Pongola Nature Reserve; Ponieskrans 543KT; Pretoria, Voortrekkerhoogte; Pretoria, Sinoville; Rietfontein 214JR; Rolle 235KU; Roodewal 251JT; Rosehaugh Station; Sekororo; Steynsdrift 145JS; The Downs 34KT; Trevenna 119MT; Umkaya 428JU; Umkoonyan 42HU; Wilkenschhof 252JT; Zwartkloof 60HU;



Habitat and Ecology

A large, agile terrestrial lizard found during the day foraging among grass tussocks and in the leaf litter taking refuge in holes in the ground. Often found under rocks on soil particularly along rocky hillsides and in montane grassland. Has a peculiar distribution in Transvaal including the dry Limpopo basin and along the Soutpansberg, south along the Lowveld and escarpment zone to Swaziland and KwaZulu (Map 70). A long tongue extends into the Transvaal along the Olifants river catchment as far as Pretoria. This distribution includes veld types 6, 8, 9, 10, 14, 15, 18, 19, 57, 61 and 63 at altitudes ranging from 300-1700 m a.s.l. One specimen was observed consuming a centipede (Chilopoda). Appears to be oviparous with from 5-7 ova being laid in midsummer.

Conservation Status.

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. Occurs in some provincial nature reserves such as Pongola, Loskop dam, Blyde River Canyon and Barberton and those north of the Soutpansberg. Also occurs widely in the Kruger National Park. Status appears secure.

Remarks

Some discussion has been made concerning this species under N. t. holubi and the generic description. It remains here to emphasise the morphological conservativeness of this group as a whole. It is as difficult to sort out some forms of N. intertexta as it is between N. t. holubi and N. ornata, although in appearance they can be separated with 95% accuracy into

their respective species. N. t. holubi in particular is a very stable and consistent species as far as colour pattern goes and even the juveniles are readily separable. It is just very difficult to find quantifiable means. I have no hesitation in considering them two taxa and as there is such a degree of sympatry and parapatry, the larger form is elevated to species rank while holubi is reinstated as the valid name of the western phenon.

Genus Lacerta Linnaeus, 1766

Lacerta part., Linnaeus, 1766, Syst. Nat., 1, p. 359.

Type: L. agilis.

Head shields normal. Nostril pierced between 2-4 nasals and bordered by 1st upper labial or narrowly separated therefrom. Lower eyelid scaly or with a small transparent disc. Collar present and well-marked. Dorsal scales granular or flattened, not or but feebly imbricate, much smaller than caudal scales. Ventral plates smooth, usually juxtaposed, sometimes imbricate, with posterior borders truncate or straight. Digits cylindrical or compressed; subdigital lamellae smooth or tubercular. Femoral pores present. Tail long and cylindrical.

A palearctic - oriental genus represented in South Africa by two species. On account of the great separation between the northern species and those from the subcontinent there seems doubt as to the validity of the genus Lacerta in South Africa (Arnold, 1973; Branch, 1981b). Branch (1981b) mentions that their relationship to that of Tropidosaura Fitzinger is being investigated. Both species are endemic to South Africa but only one, Lacerta rupicola FitzSimons, is found in the Transvaal.

Lacerta rupicola FitzSimons, 1933.

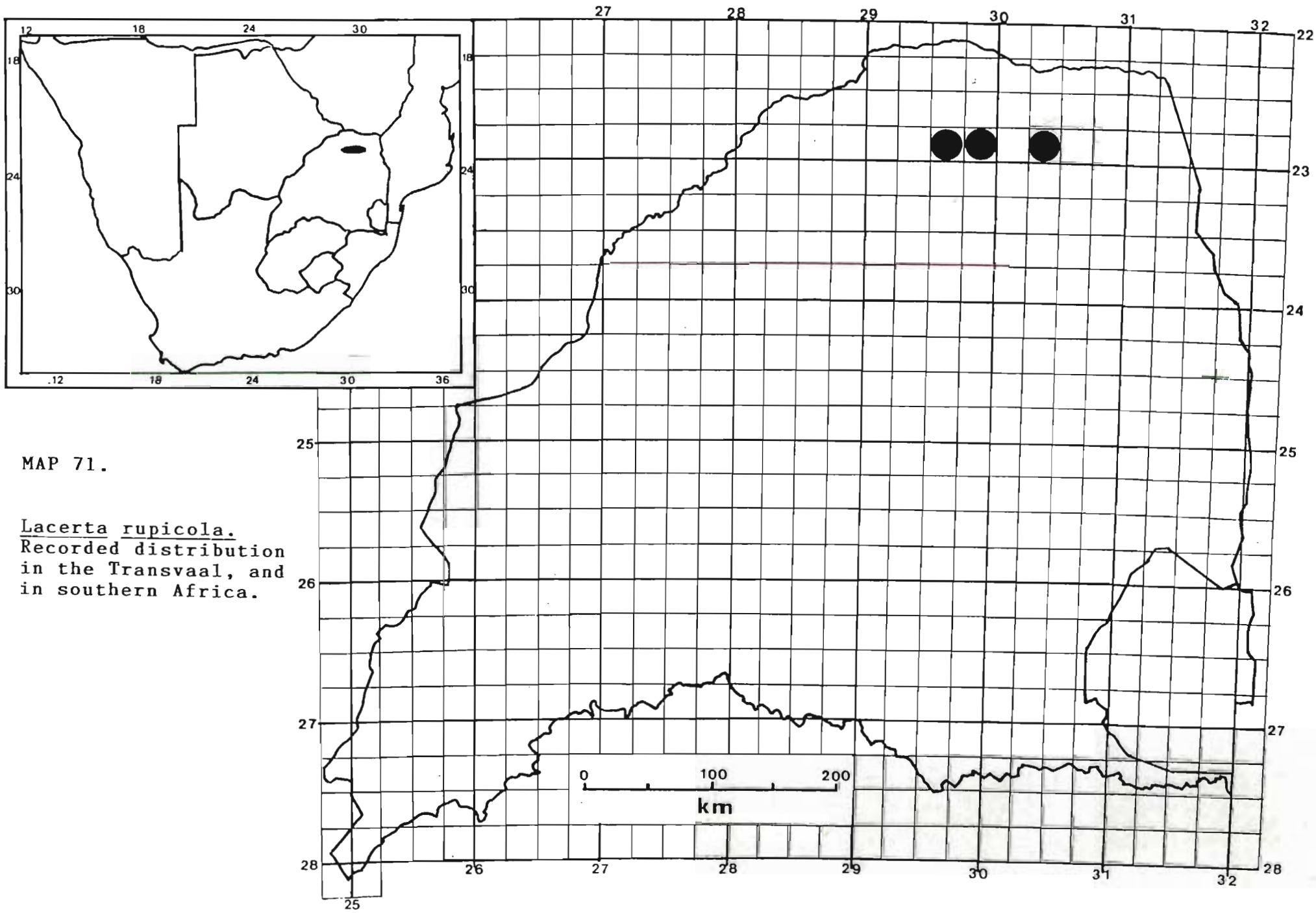
Lacerta rupicola FitzSimons 1933, Ann. Tvl. Mus. 15, p. 278, fig. 6. Type locality: Lake Fundusi, Soutpansberg mountains, N. Transvaal. FitzSimons 1943, p. 325-327, figs. 210 & 211; Welch 1982, p. 98; Branch 1981b, p. 151, 1988a, p. 139, pl. 62, 1988b, p. 8.

Description: 15 Specimens examined.

Colour: Dark brown above with two paler paravertebral

stripes. Two longitudinal white stripes extend from the nostrils along the supraoculars to the base of the tail. Laterally a broad black stripe extends from behind the nostril through the eye along the shoulder to the groin and then tapers off gradually along the side of the tail; Below this and demarcated by white upper labials lies a broken line of white which is interrupted by white centred ocelli. Ventrolaterally dark grey with scattered white centred ocelli from collar to groin. Below grey with black edged scales ventrolaterally. Ventrally a white patch may be found under base of tail but more often grey.

Lepidosis: Head and body slightly depressed as is the base of the tail. Tail longer than SVL. Rostral broader than high; nostril pierced along suture between anterior and two posterior nasals. Anterior nasals in narrow contact behind rostral; frontonasal as broad as long and in contact with loreals; prefrontals in broad contact; frontal longer than broad and variable; frontoparietals in broad contact; interparietal small and narrowed posteriorly, in contact with occipital; parietals large and separated by interparietal and occipital; supraoculars 4; supraciliaries 6 (rarely 5); 8-11 granules between supraoculars and supraciliaries; loreal longer than high; preoculars 2, anterior very large and posterior small and narrow; a row of 3-4 postoculars; lower eyelid covered in granular scales except the centre which has 3-4 large irregularly arranged scales; UL 5 (rarely 6) anterior to subocular; LL 5-6; Mental broader than long and slightly concave posteriorly; two postmentals smaller, than 2 pairs chin shields which are all in broad contact with one another. Dorsals imbricate and slightly keeled, small and 34-40 in number; Ventrals in 8 longitudinal rows, the outer one on either side very much reduced; 24-27 transverse rows; Limbs pentadactyle with 24-26 lamellae under 4th toe: Caudal scales



MAP 71.

Lacerta rupicola.
 Recorded distribution
 in the Transvaal, and
 in southern Africa.

strongly keeled dorsally and laterally becoming smooth ventrally. Caudal autotomy present with 4/6 (66,67%) regenerated.

Size: Largest male SVL = 51,5 mm (N11635 - Peover 772MS); mass = 2,5 g (N11635); Largest female SVL = 44,0 mm (N11605 - Outlook 789MS), mass = 1,7 g (N11605 - without tail). Mean male SVL = 46,62 mm \pm 3,54 (1SD) n = 4, mass = 1,7 g \pm 0,82 (1SD) n = 4; Mean female SVL = 41,5 mm \pm 3,54 (1SD) n = 2, mass = 1,35 g \pm 0,49 (1SD) n = 2.

Distribution

Endemic to the Transvaal.

Distribution in the Transvaal, (Map 71)

Ladismit 761MS; Lake Funduzi; Mutshenzheni; Newgate 802MS; Outlook 789MS; Peover 772MS; Punchbowl Hotel.

Sight Records

Overwinning 713MS.

Habitat and Ecology

An active diurnal lizard exclusively rupicolous, it inhabits rocky outcrops and scree along the Soutpansberg. Occurs in veldtypes 8, 19 and 20 at altitudes ranging from 900-1600 m a.s.l. Forages among and over rocks moving in short bursts of activity followed by periods of inactivity. Can move very fast if pursued but is normally quite docile, allowing a close approach. Oviparous, two eggs are laid during summer.

Conservation Status (RDB 1988, Restricted).

Occurs in the Happy Rest provincial nature reserve. Elsewhere its rocky habitat precludes the large scale exploitation of its habitat. Afforestation appears to be the main threat but as much of its distribution range is in dry areas this is unlikely to affect the survival of the species. Its status is rare but secure.

Remarks

There appears to be some doubt as to its generic status. Coupled with L. australis Hewitt from the southern Cape Province the affinities of these two species are under investigation (Branch, 1981b).

Genus Heliobolus Fitzinger, 1843

Heliobolus Fitzinger, 1843, Syst. Rept. p. 20. Type:
Lacerta lugubris A. Smith.

A genus widespread in Africa including the more arid regions of Southern Africa. The species H. lugubris (A. Smith) appears to be relatively consistent in morphology and ecological requirements throughout its range.

Heliobolus lugubris (A. Smith) 1838

Lacerta lugubris A. Smith 1838, Mag. Nat. Hist. 2, p. 93. Type locality: district immediately beyond the northern frontier of the Colony.

Eremias lugubris (A. Smith). FitzSimons 1943, p. 329-332, figs. 212-214; Nagy et al 1984, p. 588; Pienaar 1966, p. 89, pl. 32, 1978, p. 74, pl. 27; Eremias (Heliobolus) lugubris (A. Smith). Branch 1971, p. 153.

Eremias (Lampreremias) lugubris (A. Smith). Pienaar et al 1983, p. 109, pls. 44 & 44A.

Heliobolus lugubris (A. Smith). Auerbach 1987, p. 127, pl. 12 figs. 6 & 12, fig. 7; Branch 1988a, p. 137, pl. 57, 1988b, p. 8.

Mesalina lugubris (A. Smith). Welch 1982, p. 100.

Description: 196 Specimens examined.

Colour: Juveniles black above with an interrupted white to yellowish vertebral stripe, initiating as two stripes from behind parietals merging and extending posteriorly onto the base of the tail; two dorsolateral stripes (one per side) start below the eye, then above the ear to continue as a series of spots onto the base of the tail; dorsally the head is brown; laterally black with yellow marking; Laterally and ventrally black; Limbs black with yellow spots; Tail reddish brown. In adults black

largely disappears; dorsally brown; white vertebral stripe continuous; dorsolateral stripes thin extending from above ear, fading posteriorly towards the groin; Laterally brown with irregular black markings; a narrow white extends from posterior margin of the ear opening to groin; Ventrolaterally brown to brownish-white with black markings. Ventrally white. Forelimbs brown to redbrown with pale ocelli; hindlimbs paler brown to red-brown merging with colour of sacrum and dorsal surface of the tail; Ventral surface of tail white.

Lepidosis: Head large, body not elongated, tail more than twice SVL; forelimbs much smaller than hindlimbs; hindfeet well developed. Rostral much broader than high; nostril pierced between three nasals; supranasals in narrow to broad contact behind rostral; frontonasal as broad to broader than long, hexagonal and in contact with loreals; prefrontals large and in broad contact; frontal hexagonal; fronto-parietals in very broad contact; interparietal variable, diamond shaped or more rarely absent; parietals in narrow contact behind interparietal or in broad contact when interparietal absent; occasionally a small occipital present; Supraoculars 2; surrounded by a row of scales separating larger head shields from supraoculars; supraciliaries 7; numerous granular scales between supraoculars and supraciliaries; loreal in contact with nasals, 1st and 2nd UL, preocular, frontonasal and prefrontal; preocular 1; UL 5 (rarely 4) anterior to subocular; LL 6-7; Mental as long or slightly longer than broad; 3 prs of chin shields in broad contact behind mental followed by two large shields well separated; dorsal scales granular and keeled, 66-86 at midbody in number; Ventrals broad, overlapping and in 6 longitudinal and 24-26 transverse rows; digits well developed with 25-30 bi-tricarinate lamellae below 4th toe; Scales on tail strongly keeled dorsally becoming smooth ventrally, and arranged in whorls.

Caudal autotomy present, 13/86 (15,12%) have regenerated tails. Tails average 68,36% of SVL in females and 70,81% in males.

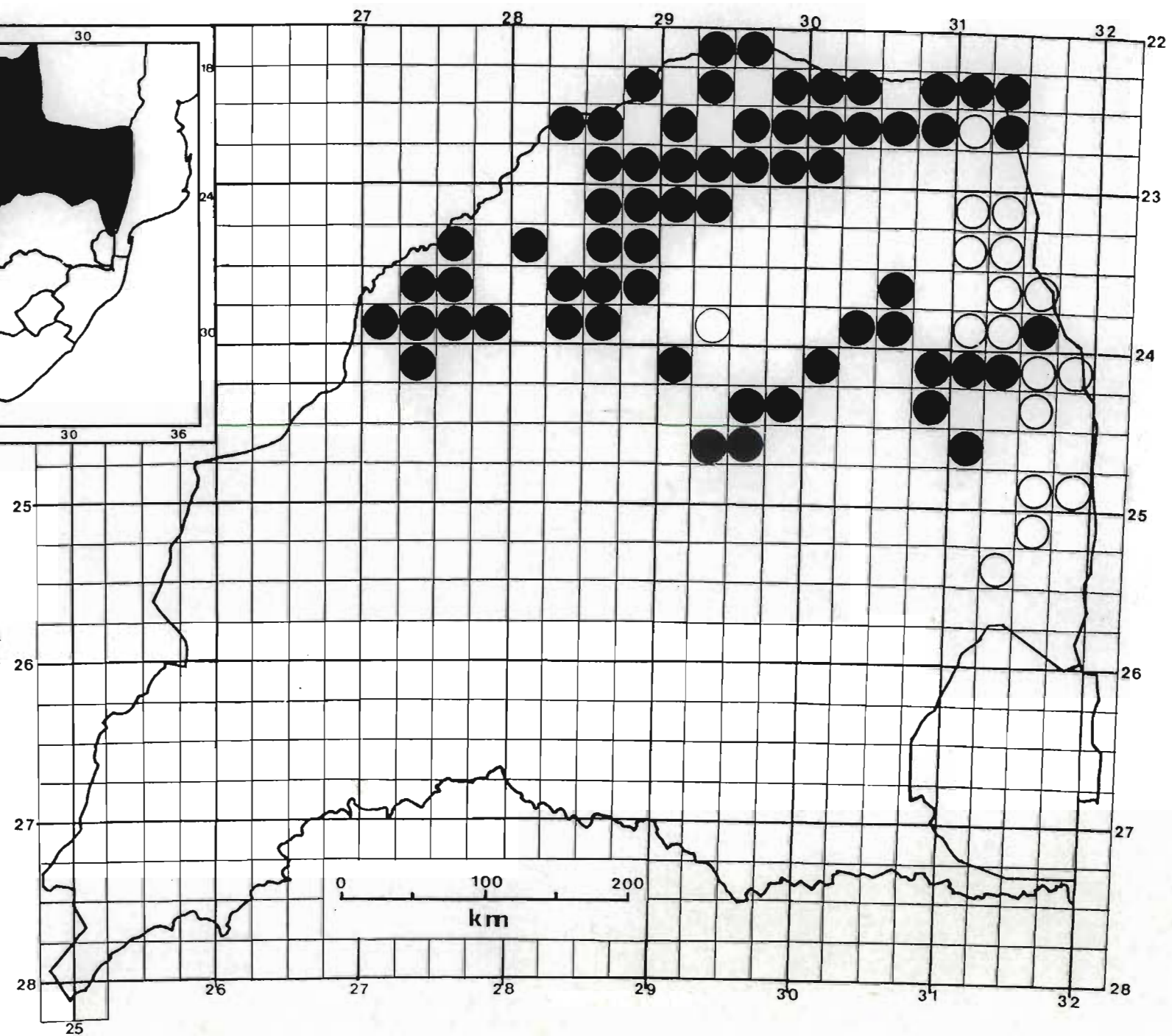
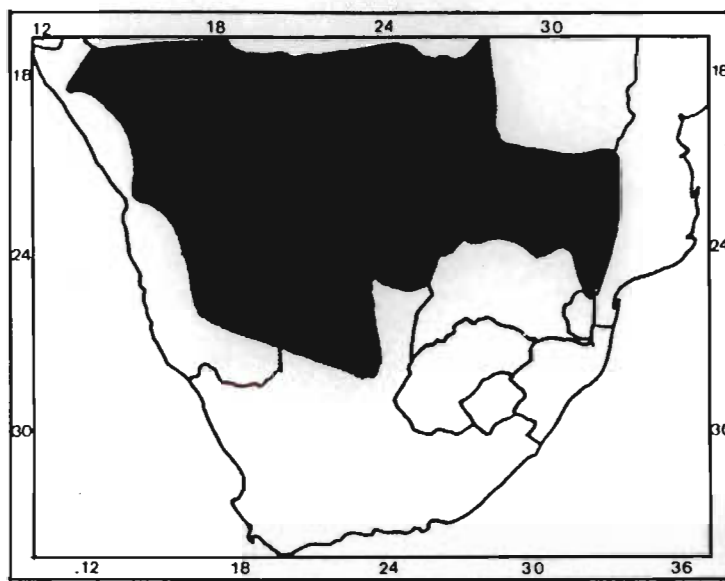
Size: Largest male SVL = 59,0 mm (N11595 - Fontainebleau 537MS) mass = 5,7 g (N11595); Largest female SVL = 64,0 mm (N595 - Dawn 71MT), mass = 7,8 g (N595 - gravid). Mean male SVL = 49,24 mm \pm 7,92 (1SD) n = 38, mass = 3,53 g \pm 1,44 (1SD) n = 39; Mean female SVL = 52,27 mm \pm 7,33 (1SD) n = 29, mass = 4,01 g \pm 1,53 (1SD) n = 29.

Distribution

Northern Cape Province to southern Angola east through Botswana to Zimbabwe, northern and north-eastern Transvaal and Mozambique.

Distribution in Transvaal (Map 72)

35 km SW of Tshipise; 3 km W. of Masisi; 4 km N. of Tshamavhudzi Peak; 4 km S. of Tshamavhudzi Peak; Alldays; Argyle 46KU; Bekaf 650MS; Bievack 14MR; Bismarck 116MS; Blackhill 317LR; Blinkwater 689LR; Calais 563KS; Carnethy 113MS; Cloverleaf Pan; Cookham 186MR; Dawn 71MT; Doreen 108MT; Fontainebleau 537MS; Galakwyns Stroom 745LR; Glen Alpine 304LR; Greefswald 37MS; Griffin Mine; Groot Denteren 533LR; Groothoek 106KS; Grootvley 558LQ; Gumela; Haakdoorn Draai 711LR; Harriet's Wish 393LR; Hoedspruit; Inkerman 10KQ; Jagdlust 418KS; John Marcus 336LQ; Kalkheuvel 454LS; Killaloe 235MS; Klaserie Siding; Klein Denteren 495LR; Klein Tshipise; Kromdraai 106MT; Langjan Nature Reserve 370MS; Leeuwkop 425KS; Letaba Camp; Malonga Fountain; Malta 65KT; Mica Siding; Messina Golf Course; Mondplaisier 494MS; Monte Christo 388LR; Naauwpoort 363LQ; Ngwaribango; Nwanedzi R.; Nzhelele Dam; Nzhelele R.; Oorwinning 713MS; Palmfontein;



MAP 72.

Heliobolus lugubris.
 Recorded distribution
 in the Transvaal, and
 in southern Africa.

Pentonville 216LQ; Pieterman 445LR; Potgietersrus; Sand R. near Mopane; Rochdale 700MS; Sekale; So-ja Mineral Baths; Steamboat 306MR; Steenbokpan 295LQ; Tolwe; Trevenna 119MT; Tshenzhelani; Tshidzi Hill; Tshipise; Umlazi 30MR; Umzumbi 21MR; Urk 10LS; Venice 40KU; Vivo; Vlakplaats 535KS; Weltevreden 596LQ; Wemmersvlei 185LR; Wintersveld 427MS; Wolmunster 108LQ; Wonderboomhoek 550LQ; Zeekoegat 12KU; Zoutpan 459MS.

Literature Records

Klaserie; Messina; Pietersburg. (FitzSimons 1943).
Malonga spring; Nwambu spruit north of windmill; along the Shongololo spruit near Malunzane; Mbyashishe spruit near Matiwotsuka; Matukwane ridge, Punda Maria; Nyandu sandveld at Nwambiya; Letaba camp; Gorge camp; Tshokwane; Malopanyane windmill area; Olifants bridge; Gubyane; Sweni drift on the Pelwane-Ngwenyene road; Zwartkops; Tswiriri dam area; Machai pan; Shipale spring; Shalungwa spring; Tsutsi picket; between Hape and W.N.L.A. quarters, Pafuri; Klawerpan firebreak; Maseya sandveld; Madzaringwe poort; eastern boundary 6,5 km south of Pafuri; eastern boundary between Mathlakuza pan and Saselandonga gorge; Skukuza; Malonga; Shipandane; eastern boundary between beacons 9 and 19; Nhlarulumi drift; near Sentinal hill, (Pienaar et al 1983).

Habitat and Ecology

A swift actively foraging terrestrial lizard usually observed moving about in search of food. Its habit of waving the forefeet while lying on its belly in the sun may possibly involve thermoregulation but this is as yet not proven. The juveniles are alleged to mimic Tiger beetles (Anthus sp) both in colour as well as in the

manner in which they periodically pause and arch the back (Huey & Pianka 1977). These lizards are extremely agile and if disturbed will rapidly shelter under shrubs or grass tussocks, no doubt the increased heat from fast running increases the heat load, already absorbed from the sun. This causes the lizards to go under cover as well as being a simple escape mechanism. These lizards may be found foraging even at noon when most other species lie up in the shade to cool off. If pursued extensively will take refuge in holes in the ground. Occurs in veld types 11, 12, 14, 15, 18, 19 and 20 on sandy soils at altitudes between 300-1000 m a.s.l. Oviparous, the eggs are laid in early to midsummer usually October. The eggs measure 9,0-12,0 x 5,7-7,0 mm similar to that recorded by FitzSimons (1943). Neonates have been recorded in January, February and March measuring 25,5 mm SVL, tail 49,5 and a mass of 0,19 g.

Conservation Status.

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. Occurs in the Kruger National Park and in several provincial nature reserves. Its status is secure.

Genus Pedioplanis Fitzinger, 1843

Pedioplanis Fitzinger, 1843, Syst. Rept. p. 21. Type: Eremias burchellii Duméril & Bibron.

A widespread genus in South Africa but with only two species and one subspecies represented in the Transvaal. There appears to be another species, but until typical P. lineocellata has been delimited the phenon which occurs on the highveld and mountains of the central Transvaal cannot be assessed. This is another example of the paucity of morphological characters which can be assessed and the similarity between forms.

The occurrence of P. l. pulchella Gray in the Transvaal is a range extension of several hundred kilometres and the specimens are atypical in that the dorsal scales are strongly keeled in contrast to smooth or feebly keeled in the typical form.

The P. lineocellata complex is in need of revision. On account of the morphological similarity between forms, there is a need to incorporate habitat and other ecological parameters to assist in the taxonomy of the species.

Key to the Transvaal species.

1. Lower eyelid opaque P. burchellii
Lower eyelid with a transparent vertically
divided brille 2

2. Head shields rugose; scales on back as
large or nearly as large as scales on
tibia P. l. lineocellata
Head shields relatively smooth; Scales
on lower back much smaller than scales on
tibia. Habitat: stony or gravelly
hillsides P. l. pulchella

Pedioplanis lineocellata lineo-ocellata (Duméril & Bibron, 1839)

Eremias lineo-ocellata Duméril & Bibron 1839, Erp. Gen. 5, p. 314. Type locality: South Africa. Nagy et al 1984, p. 588.

Eremias lineo-ocellata Dumeril & Bibron. FitzSimons 1943, p. 338-341.

Eremias lineoocellata lineoocellata. De Waal 1978, p. 69.

Eremias (Mesalina) lineoocellata lineo ocellata (Duméril & Bibron). Branch 1981, p. 153.

Pedioplanis lineoocellata lineoocellata (Duméril & Bibron). Auerbach 1987, p. 129, pl. 13, fig. 1; Branch 1988a, p. 145, pl. 59, 1988b, p. 8.

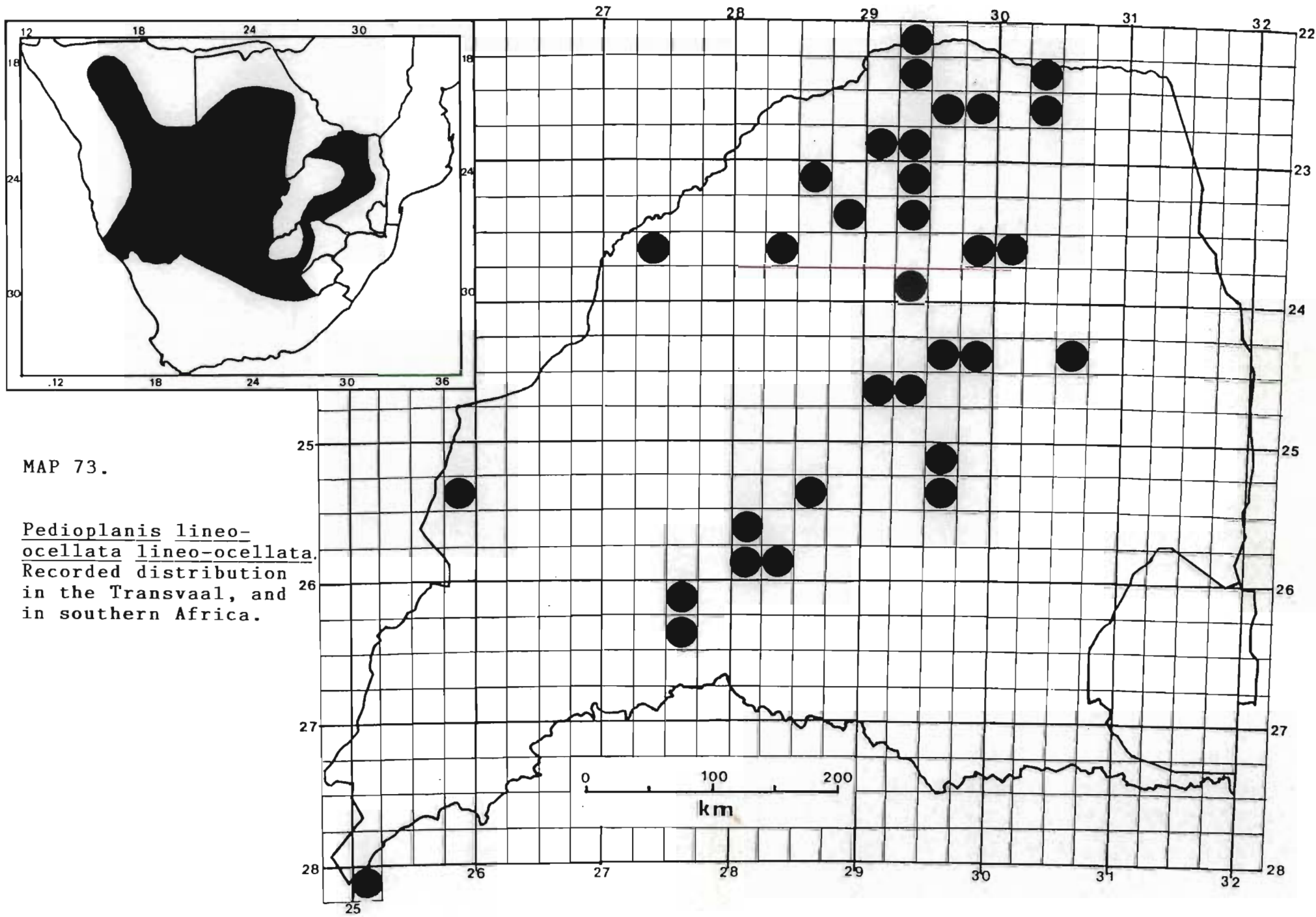
Mesalina lineoocellata lineocellata (Duméril & Bibron). Welch 1982, p. 100.

Description: 198 Specimens examined.

Colour: Juveniles and subadults brown dorsally, flanked paravertebrally by a black stripe extending from behind the eyes along the margins of the parietals to the base of the tail; Adjacent and dorsolateral is a white to off-white stripe extending from posterior to the eye to the base of the tail. This is flanked below by a dark brown to black stripe extending from the posterior margin of the ear to the groin. This is bordered below by a white stripe from behind the ear to the groin. Ventrally a diffuse blackish stripe occurs flanking the white to cream ventrals. Limbs pale brown to reddish brown with black spots. Tail reddish-brown with pale ocelli forming rows along the dorsolateral curve of the tail. Median dorsal row of irregular black spots present. Adults more variable but brown to dark-brown with a pale diffuse vertebral stripe. Dorsolaterally a pale brown stripe extends from behind the eye onto the base of the tail. The pale stripe may have dark edged spots at intervals. Dorsally in line with the abovementioned spots a row of black bars extend adjacent

to the pale stripe. The interstitial space between these vertebral and dorsolateral stripes is variegated anteriorly but a series of dark edged greenish white ocelli extend from the neck to sacral region. Laterally variable dark blackish grey with scattered black edged ocelli and pale spots. Ventrally white to cream. Limbs and tail pale brown to reddish-brown with pale spots on the limbs while the tail has a dorsolateral row of pale spots. Dorsally tail marked with paired black spots. Ventrally tail white.

Lepidosis: Head large, cephalic shields rugose and elevated at the margins; Body robust, limbs well developed particularly the hindlimbs; Tail long and tapering ranging from 62,25-68,57% of total length. Rostral much broader than high; nasals bulbous, nostril pierced in centre of three nasals and directed upwards; anterior nasals in broad contact behind rostral; frontonasal longer than broad and in contact with loreal; prefrontals in contact behind frontonasal or more often separated by a small scale; prefrontals elongated anteriorly to make contact with loreal; frontal elongate, tapering posteriorly; frontoparietals in contact for half to two-thirds their length; interparietal forms posterior wedge between frontoparietals; parietals large rounded and separated by interparietal and variably sized occipital; supraoculars 2 surrounded by small keeled granular scales; supraciliaries 6-8; preoculars 2, anterior largest; subocular reaches lip; lower eyelid with divided brille; UL 4-5 anterior to subocular; LL 5-9 mostly 6 or 7; Mental broader than long; first pair of chin shields in contact, 2nd pair in contact or separate, third pair separate, 4th pair largest; dorsal scales imbricate, except in the nape where juxtaposed, keeled and rhombic numbering 55-71 at midbody; Ventrals large, square and overlapping, in 10-12 longitudinal and 32-34



transverse angular rows; Limbs pentadactyle, digits well developed, with 24-28 subdigital lamellae proximally distally bicarinate; 12-18 (mostly 13 or 14) femoral pores; tail strongly keeled dorsally fading ventrolaterally and ventrally. Caudal autotomy present, with 11/65 (16,92%) of tails regenerated.

Size: Largest male SVL = 62,0 mm (N882 - Hackthorne 30MS), mass = 6,09 g (N8857); Largest female SVL = 58,0 mm (N5171 - Wonderboom 532KS), mass = 5,1 g (N5171); Mean male SVL = 52,75 mm \pm 8,23 (1SD) n = 17, mass = 3,86 g \pm 1,64 (1SD) n = 17; Mean female SVL = 47,85 mm \pm 7,99 (1SD) n = 10, mass = 2,84 g \pm 1,58 (1SD) n = 10.

Distribution

Northern and north-western Transvaal, Orange Free State, northern Cape Province, Botswana and South West Africa.

Distribution in Transvaal (Map 73)

4 km SW of Dinokana; 4 km W. of Dinokana; Amsterdam 116LS; Bordeaux 555MS; Calais 563KS; Driefontein Gold Mine; Gewenscht 562KS; Glen Alpine 304LR; Goedehoop 152JS; Goedgedacht 152JS; Hackthorne 30MS; Harriet's Wish 393LR; Irene; Jagdlust 418KS; Kleinfontein 203JS; Krabbefontein; Langjan Nature Reserve; Marken 457LR; Mooiplaats 355JR; Munnik; Onrust 332HO; Pentonville 216LQ; Perkeo 223KT; Pietersburg; Pretorius 531MS; Pretoria; Pretoria, Rosslyn; Pretoria, Voortrekkerhoogte; Pretoria, Garstfontein; Rietfontein 214JR; Schroda 46MS; Smithfield 456MS; Steenbokpan 295LQ; Suzette 32MT; Trevenna 119MT; Vivo Area; Wonderboom 532KS; Zeekoegat 421KS; Zoutpan 459MS; Zwartkrans 172IQ.

Habitat and Ecology

Found in both calcrete and sandy substrates this terrestrial lizard occurs in open scrub areas as well as more wooded sandveld. They have been recorded from veld types 12, 14, 15, 16, 18, 19, 20 and 57 at altitudes 600-1800 m a.s.l. Diurnal, they may be observed throughout the day; even at midday they move about, foraging. FitzSimons (1943) records the diet as consisting of diurnal termites, ants, small beetles and grasshoppers while De Waal (1978) recorded tenebrionid beetles and Isoptera. Oviparous, from 6-9 eggs are laid in midsummer.

Conservation Status.

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. Occurs in several provincial nature reserves but as the bulk of its distribution falls in areas mostly used for ranching purposes the species can be considered secure. On the highveld and the western Transvaal, agricultural development has influenced its distribution leaving isolated populations. These are under pressure and further surveys are needed to establish to what extent this is so. (See also Remarks).

Remarks

Pedioplanis l. lineocellata is a variable species under the current concept. It would appear on a fairly superficial analysis that there may be justification in splitting off those forms occurring in the southern half of the Transvaal. This form extends onto the Magaliesberg, and the escarpment above Loskopdam. This however needs further research. Most morphological characters measured exhibit extensive overlap.

Pedioplanis lineocellata pulchella (Gray, 1845)

Eremias pulchella Gray 1845, Cat. Liz. p. 42. Type locality: Angra Pequena: Aus: Keetmanshoop.

Eremias lineocellatus pulchella Gray. FitzSimons, 1943, p. 341-343.

Eremias (Mesalina) lineocellata puchella Gray. Branch 1981, p. 153.

Eremias lineocellata lineocellata (not Duméril & Bibron). Jacobsen 1977, p. 23; De Waal 1978, p. 69.

Mesalina lineocellata pulchella (Gray). Welch 1982, p. 100.

Pedioplanis lineocellata pulchella (Gray). Branch 1988a, p. 146, pl. 59, 1988b, p. 8.

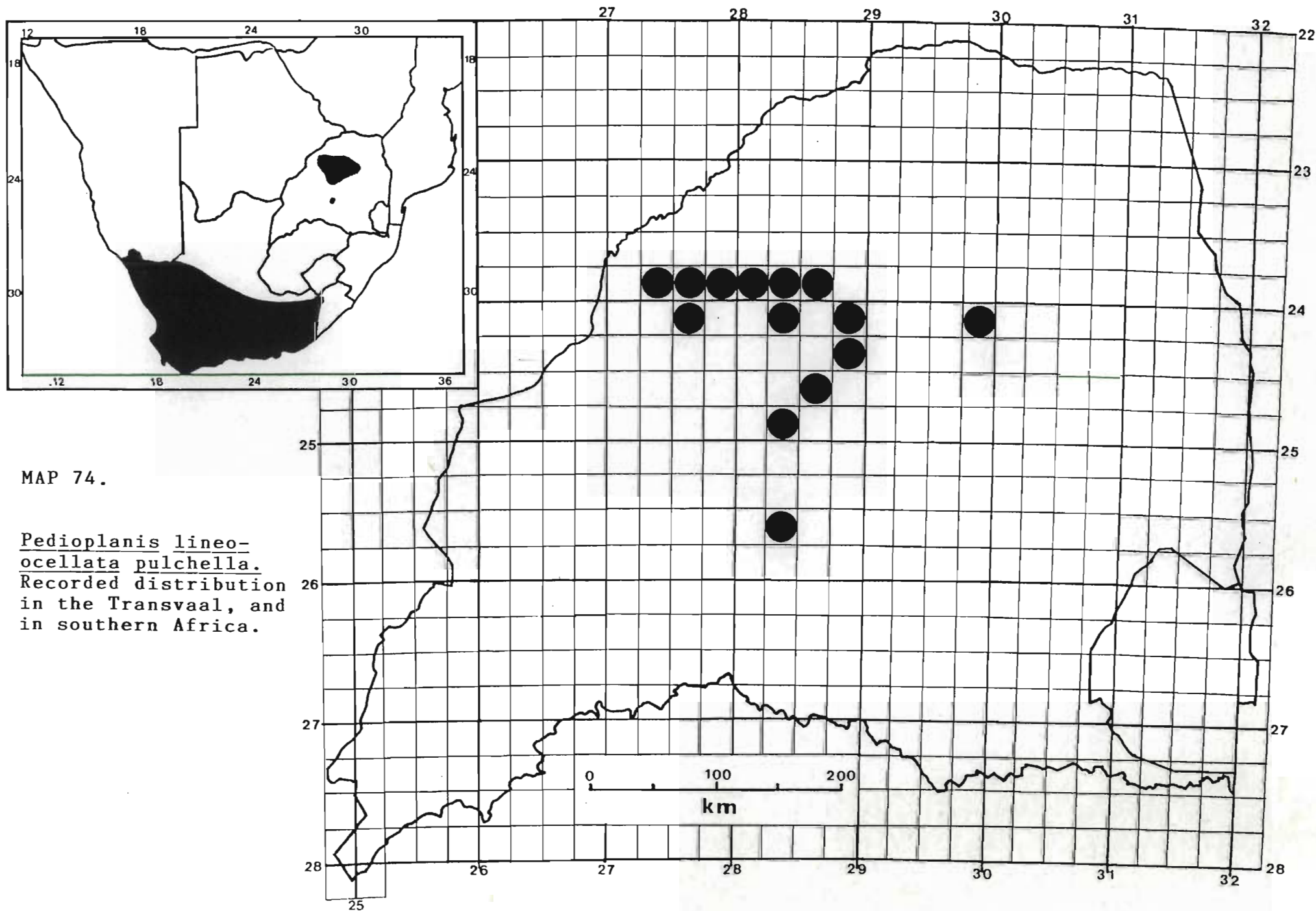
Description: 32 Specimens examined.

Colour: Brown to greyish brown above with rows of ill-defined pale spots particularly flanking the black dorsolateral stripe which extends from the neck above the posterior margin of the ear to the sacral region. This black stripe is bordered below by a white to off-white stripe. Below this and laterally is a narrow variegated brown to greyish-brown stripe extending from behind the ear to the groin. Interspersed in this zone is a row of 4-6 large greenish centred ocelli which are more pronounced in males. This area is bordered below by a pale off-white stripe extending from the lower margin of the ear opening to the groin. Below this and almost ventrolateral is a dark stripe ranging from anterior to the shoulder, over the shoulder to the groin. Ventrolaterally and ventrally, white to cream.

Lepidosis: Head well developed, body and limbs well developed. Digits of hindfeet well developed. Tail elongate from 1,5 to more than twice SVL or between 63,51-70,05% of total length. Head shields mostly smooth rarely somewhat rugose. Rostral narrow, much broader

than high; nostral pierced in suture between supranasal and nasal; nasals 3, supranasal in narrow contact behind rostril; nasals raised and nostrils pointed somewhat upwards and forwards; frontonasal wider than long to as wide as long, in contact with loreal; prefrontals longer than broad and in broad contact behind frontonasal; inter prefrontal scale present in 20/31 specimens (64,52%). Frontal wide anteriorly, narrowing strongly posteriorly; frontal in contact with anterior supraocular and narrowly separated from posterior supraocular rarely in contact; frontoparietals in contact for half their length but widely separated posteriorly. Interparietal broad and pentagonal and together with the small occipital keeps the broad rounded parietals separate; supraoculars 2; supraciliaries 8-10; numerous small granular scales separate supraoculars and supraciliaries; lower eyelid has a divided brille; accessory scales extend in rows from anterior of eye to the posterior margin. Loreal 1; preocular 1, subocular reaches lip; UL 4-6 (mostly 4 or 5); LL 5-8 (mostly 6 or 7); Mental large, broader than long; 4 prs chin shields, 2 prs in contact. Dorsal scales small, granular, keeled and subimbricate numbering 58-75 (mostly between 60-70) at midbody; Ventrals in 10-14 (mostly 12) longitudinal and 32-34 transverse rows. Limbs well developed, digits strongly clawed with 26-27 bicarinate subdigital lamellae under the fourth toe. Caudal scales strongly keeled both dorsally and ventrally. Caudal autotomy present with 3/21 (14,28%) of tails regenerated.

Size: Largest male SVL = 59,0 mm (N2547 - Moerdyk 593LR), mass = 4,9 g (N2547); Largest female SVL = 57,0 mm (N2362 - Naauwpoort 363LQ), mass = 4,4 g (N2362). Mean male SVL = 55,4 mm \pm 3,36 (1SD) n = 5, mass = 4,09 g \pm 0,71 (1SD) n = 5; Mean female SVL = 50,64 mm \pm 6,64 (1SD) n = 7, mass = 2,99 g \pm 1,10 (1SD) n = 7.



MAP 74.

Pedioplanis lineo-ocellata pulchella.
 Recorded distribution
 in the Transvaal, and
 in southern Africa.

Distribution

Great Namaqualand through Little Namaqualand to the western Cape Province, east across the central and southern Karroid areas to the eastern Cape Province (FitzSimons, 1943). Also the Transvaal and probably the Orange Free State (see De Waal, 1978).

Distribution in Transvaal (Map 74)

Buisfontein 451KR; Doorndraaidam Nature Reserve;
Doornhoek 284KR; Galakwyns Stroom 745LR;
Malmaniesrivier 236KQ; Moerdyk 593LR; Morgendal 216KS;
Naauwpoort 363LQ; New Belgium 608LR; Nylsvley Nature
Reserve; Roodeplaat 293JR; Tafelkop 46KR;
Tambotiekloof 607LQ; Vygeboompoort 456KR; Weltevreden
596LQ.

Habitat and Ecology

Usually found on stony hillsides particularly those with gravelly or pebbly soil. Occurs in open wooded savanna in the Waterberg and Wolkberg in veld types 8, 18 and 20 at altitudes ranging from 850-1600 m a.s.l. Usually associated with Waterberg sandstone and conglomerates, it also occurs on Rooiberg felsites and Transvaal dolomites. Fast moving and agile, it takes refuge under small stones and even in crevices between rocks when pursued. Forages actively for food searching in leaf litter, under shrubs and among rocks including sheets of bedrock.

The species is oviparous laying 3-4 eggs during midsummer, the smallest juvenile was collected during January and had a SVL of 27,0 mm and a mass of 0,5 g indicating hatching date early in January.

Conservation Status.

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. Occurs in Doorndraai and Nylsvley nature reserves. Elsewhere its habitat precludes most uses with the exception of livestock and its status is secure. Fires are likely to have an effect on the species but is unlikely to seriously affect its survival.

Remarks

This subspecies forms part of a complex of forms which currently have been lumped under a single species P. lineocellata. De Waal (1978) mentions in his discussion of P. lineocellata that he was unable to separate the species morphologically and concluded that pulchella was synonymous with lineocellata. It is however interesting that under "Habitat" this author records sandy areas or rocky flats with scattered rocks and scant vegetation. The latter habitat very similar to that of the species in the Transvaal. He also did not notice that the head shields of pulchella are largely smooth as opposed to notably rugose in typical lineocellata. The P. lineocellata complex is in need of a thorough revision to clarify the position of the various forms.

Map 74 shows the distribution of the species in the Transvaal. The record from Roodeplaat near Pretoria needs to be verified. It appears also to be somewhat atypical. The existence of the species in the western Wolkberg is puzzling and these specimens are darker in colour possibly as a result of the dark soil resulting from the weathering of the dolomite.

Pedioplanis burchellii (Duméril & Bibron, 1839)

Eremias burchellii Duméril & Bibron 1839, Erp. Gen. 5, p. 303. Type locality: South Africa. FitzSimons 1943, p. 346-349, figs. 226-228.

Eremias (Mesalina) burchellii Duméril & Bibron. Branch 1981, p. 153; De Waal 1978, p. 71.

Mesalina burchellii (Duméril & Bibron). Welch 1982, p. 100.

Pedioplanis burchellii (Duméril & Bibron). Branch 1988a, p. 144, pl. 59, 1988b, p. 8.

Description: 29 Specimens examined.

Colour: Juveniles black with 6-7 narrow white stripes. The median vertebral stripe is short, bifurcating over the parietals, while the two paravertebral stripes join on the base of the tail; Laterally a black stripe extends from behind the posterior margin of the ear to the groin. The limbs are heavily spotted with white; Ventrally white except for tail which is orange. Adults brown to grey above with irregular black markings and numerous rows of white spots extending laterally to junction with ventrals. Ventrolaterally black spots on ventrals, ventrally white; Tail orange to orange-pink below and also on limbs. Thighs spotted with white above, totally white below.

Lepidosis: Head and body moderately depressed, limbs well developed. Tail long and slightly depressed basally. Tail longer than head and body ranging from 57,25-67,58% of total length. Rostral broader than high; nasals 3, nostril pierced in suture between supranasal and nasal; supranasals in contact (rarely separate) behind rostral; frontonasal broader than to as broad as long, in contact with loreal; prefrontals in moderate contact, rarely separated by a square scale; frontal

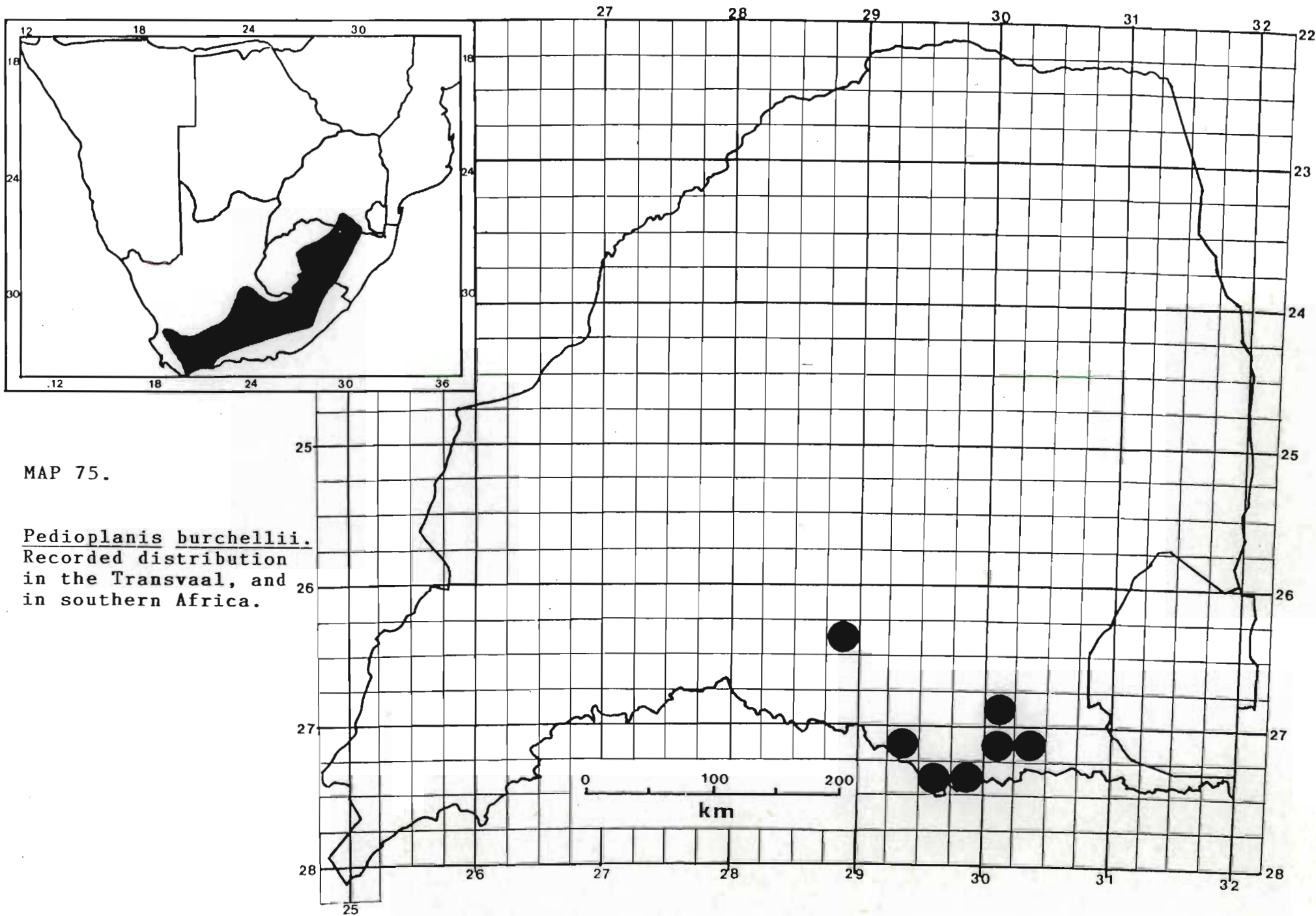
pentagonal, broad anteriorly, narrow posteriorly and in contact with both supraoculars; frontoparietals small and widely separated posteriorly; large interparietal and small occipital separate large parietals; supraocular 2, supraciliaries 6-9 (mostly 7 or 8), supraoculars separated by granular scales from supraciliaries; preocular 1, eye surrounded by granular scales; lower eyelid opaque and covered in 8-25 (mostly 9-17) scales; UL 3-7 (mostly 4 or 5) anterior to subocular; LL 6-8 (mostly 7); Mental broader than long; 4-5 (mostly 4) prs. of chin shields; Dorsal scales round, granular, juxtaposed and number 58-81 (mostly 66-77) scales at midbody; Ventral scales in 12-17 (mostly 13 or 14) longitudinal rows.

Limbs well developed and pentadactyle; subdigital lamellae bi- and tricarinate and 25-29 under 4th toe. Caudal scales strongly keeled dorsally, smooth ventrally; Femoral pores in both sexes 10-16 mostly 13-14. Caudal autotomy is very evident with 14/27 (51,85%) of tails regenerated.

Size: Largest male SVL = 70,0 mm (J1256 - Paardeplaats 101HT), mass = 8,1 g (J1256); Largest female SVL = 71,0 mm (J1266 - Paardeplaats 101HT), mass = 4,2 g (N8093 - Schuilhoek 139HS); Mean male SVL = 56,21 mm \pm 9,80 (1SD) n = 12, mass = 3,5 g \pm 2,28 (1SD) n = 12; Mean female SVL = 57,27 mm \pm 7,05 (1SD) n = 11, mass = 3,51 g \pm 0,63 (1SD) n = 10.

Distribution

South-western to eastern and north-eastern Cape Province, north- and south-eastern Orange Free State and Lesotho (FitzSimons, 1943) also the south-eastern Transvaal.



MAP 75.

Pedioplanis burchellii.
 Recorded distribution
 in the Transvaal, and
 in southern Africa.

Distribution in Transvaal (Map 75).

Goedemoed 373IT; Kafferskraal 47HS; Kleinfontein 3HT;
Paardeplaats 101HT; Rietfontein 313IR; Schuilhoek
139HS; Waterval 128HS; Zandkraal 99HT;
Zoetendalsvallei 125HS.

Habitat and Ecology

With the exception of one population the species occurs on the slopes and summits of mountains where they frequent patches of bedrock covered with loose scattered boulders. Mostly found in open montane grassland in veld types 52, 53, 54, 57 and 63. Mostly rupicolous and slightly flattened dorsoventrally these lizards take refuge in crevices under exfoliating rock or under rock on rock and rock on soil at altitudes ranging from 1700-2300 m a.s.l. De Waal (1978) recorded mostly beetles of the families Scarabaeidae, Tenebrionidae and Curculionidae as well as Lepidoptera larvae in their diet. De Waal (1978) recorded females laying from 2-6 ova measuring 15x10 mm. A female from Wakkerstroom laid 3 ova which although somewhat dehydrated measured 11,0-12,0 x 6,0-7,0 mm. The ova are laid under rocks during midsummer and hatch during February. De Waal (op. cit) measured one hatchling with a SVL of 25,0 mm. Juveniles measuring 29,0-32,0 mm with a mass of 0,45-0,65 g were captured during April.

Conservation Status.

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. The species is peripheral in the Transvaal and exhibits a very restricted range. They are not found on any provincial nature reserves in the

Transvaal. However their habitat is largely safe although the bi-annual fires must influence their abundance. Details of density are needed. However the species is considered secure.

Remarks

The range extension is not entirely unexpected considering the distribution of the species in the Orange Free State (De Waal, 1978). The relict population on the farm Rietfontein 313IR to the north-west of the main distribution is of interest and should be monitored.

Genus Ichnotropis Peters, 1854

Ichnotropis Peters, 1854, Monatsb. Akad. Wiss. Berl., p. 617. Type by subsequent designation (fide Loveridge 1957): I. macrolepidota Peters = Algyra capensis A. Smith.

Head shields normal, but occipital sometimes absent. Nostril pierced between three nasals. Lower eyelid scaly. Collar absent. A short fold in front of arm. Dorsal scales large, rhombic or lanceolate, strongly keeled and imbricate; ventral plates smooth and imbricate. Digits feebly compressed; subdigital lamellae sharply keeled and spinulose. Femoral pores present. Tail long and cylindrical.

The genus is represented in Transvaal by two species namely I. squamulosa Peters and I. capensis A. Smith. Both species are terrestrial and could be termed annual lizards on account of the brief life cycle, few adults reach 14 months of age, most dying between 9-11 months. There appears to be a staggering of life cycles when the two species are sympatric, resulting in only juveniles of the one and only adults of the other species being present at any one time.

Although discussed under capensis it is perhaps pertinent to point out that the Zululand population appears to be disjunct from that of the Transvaal. A cursory examination indicates small deviations which justify a more detailed examination.

Key to the Transvaal species.

1. Frontonasal single; subocular bordering lip;
midbody scales 33-39 I. capensis
Frontonasal divided; subocular excluded from
lip; midbody scales 45-62 I. squamulosa

Ichnotropis squamulosa Peters, 1854

Ichnotropis squamulosa Peters 1854, Monatsb. Akad. Wiss. Berlin p. 617 and 1855, Arch. Naturg. 1, p. 46.
Type locality: Tete, Mozambique. FitzSimons 1943, p. 350-352, figs. 229-231; Branch 1981b, p. 154, 1988a, p. 139, pl. 61; Jacobsen 1977, p. 23; Broadley 1967b, p. 1; Pienaar 1966, p. 91, pl. 33, 1978, p. 76, pl. 28; Pienaar et al 1983, p. 107, pl. 43; De Waal 1978, p. 72; Auerbach 1987, p. 130 pl. 13, fig. 2; Welch 1982, p. 97; Branch 1988b, p. 8.

Description: 217 Specimens examined.

Colour: (After FitzSimons, 1943). Above, slate, greyish-brown, usually with 4 longitudinal series of bluish- to greyish-white, dark-edged elongate spots on back, the two median rows of spots close together and smaller than outer, which run from supraciliary ridge to tail; between inner and outer rows of pale spots on either side there is usually a series of squarish dark brown to black spots; one or two series of pale dark-edged spots on sides, the upper usually arising as a pale streak on subocular, passing thence through ear to shoulder and thereafter broken up into a series of spots to groin. Pale, dark-edged spots on limbs. Below, yellowish- to greyish-white or dark slate. In adult males lower labials and chin shields dark greyish-brown to blackish; in breeding season throat and chest often bright orange to orange-red. In juveniles there is a pale bluish- to greyish-white vertebral stripe, which later breaks up to form the two median rows of spots in adults; a well marked yellowish-white, dark-edged dorsolateral stripe (corresponding to dorsolateral row of pale spots in adult) from supraciliary ridge to basal part of tail; a white, dark-edged lateral stripe from below eye, through ear to groin; tail and hindlimbs pale buff above. Lower surfaces creamy white, tinged with pink posteriorly and under tail.

Lepidosis: Head well developed, rugose; body stout and cylindrical; limbs well developed for rapid movement; tail long and tapering, from 63,43-70,43% of total length. Rostral broader than high but almost triangular with apex projecting far posteriorly; nasals 3, nostril pierced along suture between supranasal and nasal; small postnasal fits into notch adjacent to nostril; supranasals in contact behind rostral; line formed by nasals is concave posteriorly; frontonasal with raised edges and irregularly shaped, divided (rarely entire), wider than long, lateral projections in contact with loreal; prefrontals strongly keeled and in broad contact; frontal narrow and elongate with two raised ridges along the length; frontoparietals in broad contact forming broad notch posteriorly; interparietal short and squat fitting into notch of frontoparietals; parietals in narrow contact or more frequently separated forming a straight edge posteriorly; a small occipital is usually present, in contact with interparietal, sometimes totally absent; supraoculars 2 with large accessory keeled scales both anteriorly and posteriorly; supraciliaries 4 (rarely 3 or 5); preoculars 2; loreal 1; subocular excluded from lip; a series of granular scale rows extended around the eye becoming large anteriorly; lower eyelid opaque and covered in small scales; UL 7-9; LL 6-8; Mental pentagonal with attenuated processes posteriorly; chin shields 5 prs, usually 2 prs in contact; Dorsal scales imbricate, small and strongly keeled and 45-62 scales at midbody; Ventral scales smooth imbricate and in 10-12 longitudinal and 28-34 transverse rows; limbs pentadactyle with well developed digits; subdigital lamellae multicarinate and 16-23 under 4th toe. Caudal scales imbricate and strongly keeled dorsally, this fading laterally and ventrally on the proximal section of the tail but well developed distally. Tail regeneration is of low incidence with 7/90 (7,78%) being regenerated.

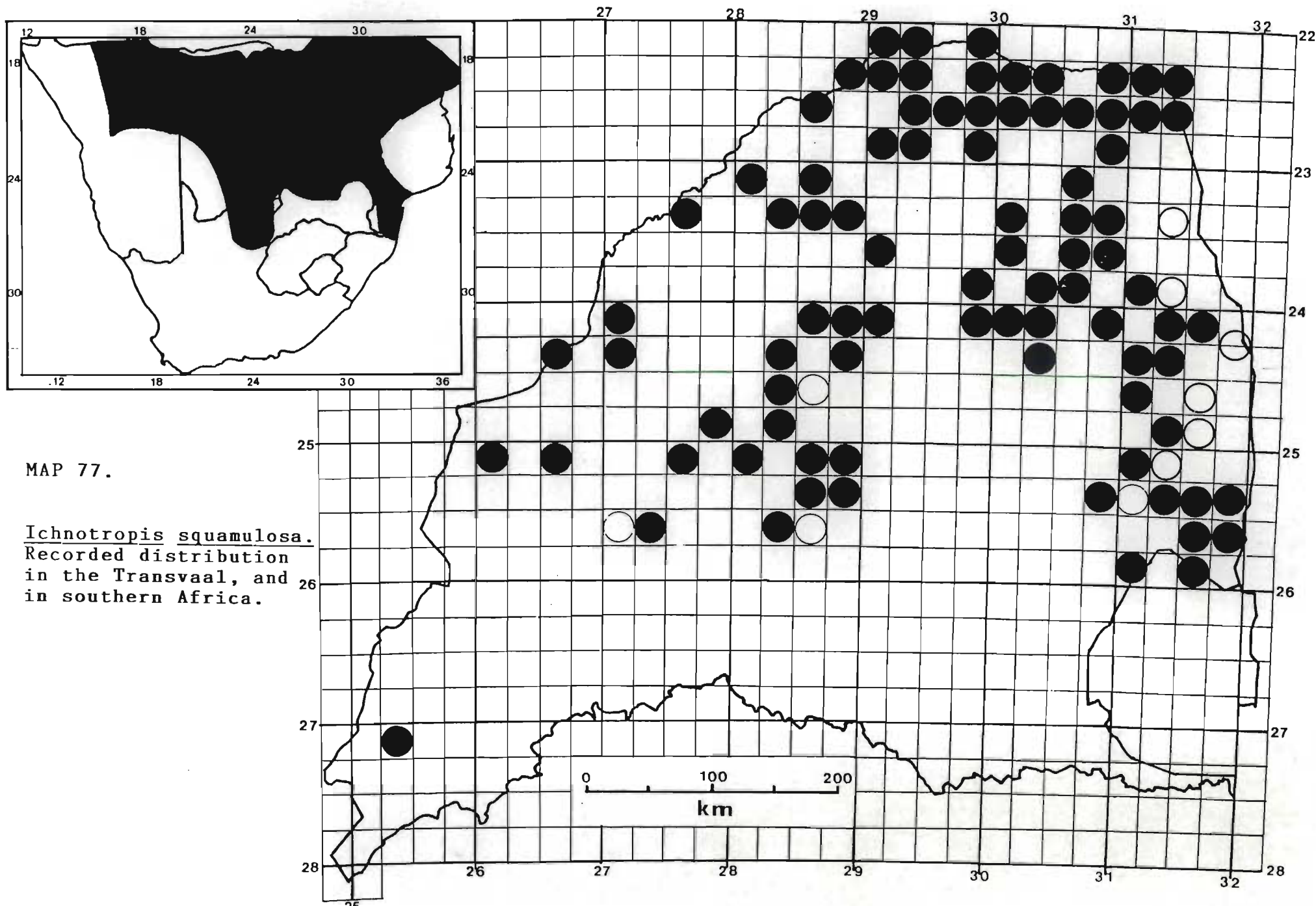
Size: Largest male SVL = 71,0 mm (N900 - Schroda 46MS), mass = 10,2 g (N900); Largest female SVL = 77,0 mm (J10506 - Moonlight 111LR), mass = 11,5 g (J1506); Mean male SVL (40,0 mm) = 61,38 mm \pm 5,74 (1SD) n = 41, mass = 6,36 g \pm 1,70 (1SD) n = 41; Mean female SVL (40,0 mm) = 65,03 mm \pm 8,31 (1SD) n = 34, mass = 7,39 g \pm 2,55 (1SD) n = 34.

Distribution

From Tanzania south to Zululand, west through Malawi, Zambia, Zimbabwe, Transvaal to Botswana, South West Africa and southern Angola, south to the extreme western Orange Free State and probably the northern Cape Province.

Distribution in the Transvaal (Map 77)

15 km N. of Waterpoort; E. of Punda Milia; 10 km W. of Punda Milia; 3 km W. of Masisi; 4 km N. of Tshamavhudzi Peak; 5 km N. of Tshamavhudzi Peak; Acornhoek; Argyle 46KU; Badimong River; Barberton; Bekaf 650MS; Bleskop Siding; Boekenhoutskloofdrift 286JR; Bordeaux 555MS; Busizi Hills; Ceres 599LS; Cookham 186MR; Dawn 71MT; Delet 499MS; Doorndraaidam Nature Reserve; Doornhoek 284KR; Doreen 108MT; Drakenstein 77LQ; Fontainebleau 537MS; Geelhoutkop; Glen Alpine 304LR; Goedgelegen 194LR; Griffin Mine; Guernsey 81KU; Hackthorne 30MS; Hanover 181KQ; Harriet's Wish 393LR; Hectorspruit; Helena 400JU; Honeymoon 80KQ; Hull 59KU; Ka Khayi; Kaal Kraal 100MS; Kalkfontein 1JP; Kameelpoort 202JR; Kameelspruit 29KQ; Kempiana 90KU; Killaloe 235MS; Klaserie; Komatipoort; Krabbefontein; Kromdraai 106MT; Kwarriekraal 148JQ; Langjan Nature Reserve; Leeufontein 188JR; Letaba Camp; Liamule Hill; Lillie 148KT; Luphisi; Machabezane; Maiepo; Malta 65KT;



MAP 77.

Ichnotropis squamulosa.
 Recorded distribution
 in the Transvaal, and
 in southern Africa.

Mokeetsi; Monte Christo 388LR; Mooiplaats 65KP; Moonlight 111LR; Mutalepoort; Newington 255KU; Nsikasi area; Nylstroom; Nzulase; Nwanedzi R.; Olifants Camp; Phalaborwa; Platjan 198MR; Potgietersrus; Pretoria; Ratho 1MS; Rhenosterdrift 172JQ; Rietfontein 214JR; Rietspruit 412KR; River 141MS; Rolle 235KU; Roodeplaat 293JR; Ross 55KU; S.A. Bantu Trust; Saltpan near Blackhills; Sandylands 708MS; Schelem 32KT; Schroda 46MS; Schweizer Reneke; Scrutton 23MT; Shamiriri; Shiluwane; Sterkriviernedersetting 253KR; Stolznek; Swanepoelsdrift 166MR; Tamboetipan 176JR; Tooskraal 531KQ; Tshitangenzhe; Turfloop 987LS; Uitenpas 2MT; Uitlanderskraal 125JP; Uitspan 65LQ; Vygeboom; Wambiya Sandveld; William Porter 90MS; Wintersveld 427MS; Woodbush; Zoetfontein 137LT; Zoutpan 459MS; Between Saselondonga and Pafuri.

Literature Records

Blackhills; Premier Mine, Cullinan; Rustenburg; White River, (FitzSimons 1943). Klipfontein 53KR, (NMZB). Skukuza; Dzungwenne hill area; Nwambu spruit north of Nwambu windmill; Matukwane near Punda Maria; Luvuvhu-Limpopo junction, Pafuri; Pumbe picket area; Shibyantsangela (Lebombo); Dongadziba; Nyandu firebreak; eastern boundary between Saselandonga gorge and Mathlakuza pan; Majekejekene pan area; Letaba restcamp; Mala-mala picket area; Malonga; new tarred road north of Luvuvhu river, 10 km; Stolznek rangers quarters; Kambane plots; Shabin; Nwashitsaka plots; Stungwane; Mbyamiti plots; Mutale gorge; near Shabaku; Machai pan, (Pienaar et al 1983).

Habitat and Ecology

Widespread in the Transvaal in sandy habitats. Usually observed foraging among grass tussocks or at the fringe

of bushes. Very quick to run off when disturbed, dashing from cover to cover in short bursts of speed. Found largely in veld types 9, 10, 11, 12, 13, 14, 15, 18, 19 and 20 at altitudes ranging from 250-1400 m a.s.l. where it lives in holes in the ground.

According to FitzSimons (1943) and Broadley (1966, 1969) the species feeds largely on termites and grasshoppers, which it obtains by actively searching for prey in leaf litter or among the grass tussocks.

Oviparous, the species lays from 4-12 (mostly 8-12) eggs during late summer the eggs overwintering buried in the soil. FitzSimons (1943) records the eggs as measuring 10,0-12,0 x 7,0 mm. The largest ova measured in situ ranged from 10,0 - 11,0 x 5,5 - 6,8 mm (Jacobsen, 1987).

Hatchlings of I. squamulosa were mainly recorded for November rarely October in Zimbabwe, Zambia and Botswana, whereas in the Transvaal numerous hatchlings were recorded during October. Hatchlings measure 24,0-35,0 mm SVL with a mean mass of 0,39 g (range 0,35-0,5).

This is a short-lived species living less than a year after hatching. After breeding the adults die, the species surviving in the eggs over winter.

Conservation Status

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. The widespread occurrence of the species in Transvaal and its presence in 13 provincial nature reserves and the Kruger National Park renders its status secure.

Remarks

A stable species, it appears to show little geographic variation. Broadley (1966c, 1967b, 1979a) discusses the

staggered life cycles of I. squamulosa and I. capensis, attributing these to avoidance of competition. Jacobsen (1987) attempted to show that there is still insufficient evidence to support this theory. Not until a detailed food study from a specific overlap site is undertaken will it be possible to establish to what degree actual competition takes place.

Ichnotropis capensis (A. Smith, 1838)

Algyra capensis A. Smith 1838, Mag. Nat. Hist. 2. p. 94. Type locality: sandy deserts around Latakoo ie. Kuruman. Ichnotropis capensis capensis (A. Smith). FitzSimons 1943, p. 352-354.

Ichnotropis capensis (A. Smith). Jacobsen 1977, p. 24; Broadley 1967b, p. 1; Auerbach 1987, p. 131; Welch 1982, p. 97; Branch 1988a, p. 138, pl. 61, 1988b, p. 8.

Description: 76 Specimens examined.

Colour: Above olive, olive grey, greyish-brown, to reddish-brown. An interrupted series of dark spots or continuous stripe occurs on either side of the back, fringed below by a pale white to greyish stripe extending from behind eye onto the base of the tail where it coalesces; Below this is a dark brown to black band from the nostril through the eye along the sides and onto the tail; From the upper labials through the ear, to the shoulder and posteriorly onto the sides of the tail a white stripe is found.

White to cream below including the bottom half of the tail. The limbs are spotted above and white below.

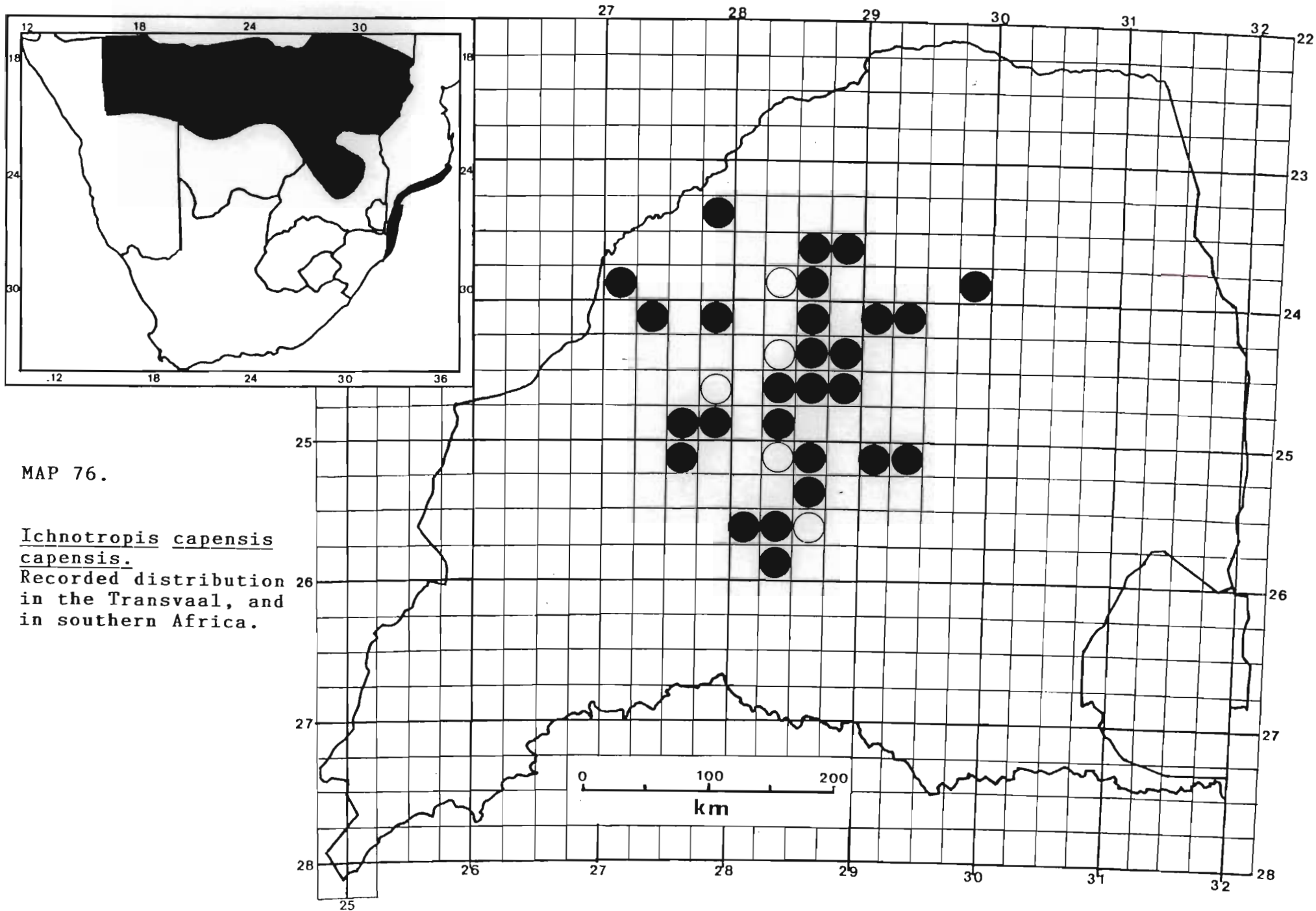
Lepidosis: Head and body slender with well developed limbs and a tail approximately twice SVL or between 64,26 - 70,06% of total length. Head shields rugose; rostral broader than high but apex reaches back; nasals 3; nostril pierced in suture between supranasal and nasal;

posterior nasal between two nasals adjacent to nostril; supranasals in broad contact behind rostral; frontonasal entire, broader than long, and in contact with loreal; prefrontals large, elongate and variously keeled; frontal variable rounded to elongate tapering posteriorly; fronto-parietals in broad contact for half their length, opening posteriorly, where the interparietal fits in; parietals separated; occipital present, usually in contact with the interparietal. supraoculars 2, supraciliaries 4 (rarely 5); enlarged keeled granules anterior and posterior to eye; preoculars 2 (one large one small); a series of small scales and granules surrounding the eye; lower eyelid with a series of enlarged median scales; subocular reaches the lip; UL 3-5 anterior to the lip; LL 6-7; Mental large; 5 prs. chin shields; dorsal scales small, overlapping, acuminate and strongly keeled; ventrals smooth and imbricate. Midbody scales number 33-39; Limbs pentadactyle, digits well developed; Subdigital lamellae 19-26 under fourth toe; Caudal scales overlapping, pointed and keeled, strongly above less marked below, proximally, strongly distally; femoral pores 8-12 (mostly 9-11) per side. Tail autotomy present but of low incidence with 9/53 (16,98%) of tails regenerated.

Size: Largest male SVL = 53,5 mm (J3016 - Hanover 181KQ), mass = 4,7 g (J3016); Largest female SVL = 60,0 mm (J1910 - Klipfontein 11KQ), mass = 5,15 g (J1910); Mean male SVL (30,0 mm) = 45,39 mm \pm 5,82 (1SD) n = 14, mass = 2,34 g \pm 1,09 (1SD) n = 14; Mean female SVL (30,0 mm) = 51,44 mm \pm 6,76 (1SD) n = 9, mass 3,26 g \pm 1,03 (1SD) n = 9.

Distribution

Widespread from southern Angola, Zaire, Zambia, Malawi, northern South West Africa, Botswana, Zimbabwe, north-



western and central Transvaal; southern Mozambique and northern Zululand (Broadley, 1966c).

Distribution in Transvaal (Map 76).

Buffelspoort 421KR; Cyferfontein 457KR; Donkerhoek 365JR; Galakwyns Stroom 745LR; Goedehoop 31KS; Hanover 181KQ; Kalkfontein 589KR; Klipfontein 11KQ; Klipplaatdrift 193JR; Loskop Noord 12JS; Nooitgedacht 333JR; Nylsvley Nature Reserve; Percy Fyfe Nature Reserve; Pretoria; Pretoria, Wonderboom; Pretoria, North; Pretoria, Mayville; Pretoria, Bavianspoort; Rietfontein 214JR; Roodekuil 183JQ; Roodepoort 314KR; Rooibokbult 330LQ; Rooykrans 538KQ; Sterkrieviernedersetting 253KR; Tamboetipan 176JR; Vaalpenskraal 726LR; Vygeboom; Vygeboompoort 456KR; Waterval 561KQ; Woodbush; Zeekoegat 673LR.

Literature Records

Honingfontein; Pienaars River; Premier mine; Pietersburg; Rankins Pass, (FitzSimons 1943). Arbeidsgenot, Waterberg, Klipfontein 53KR, (NMZB).

Habitat and Ecology

They have a peculiar distribution in the Transvaal (Map 77) occurring in veld types 14, 18, 19, 20, 61 and 67 at altitudes ranging from 850-1700 m a.s.l.

Exclusive to sandy habitats in the bushveld, most individuals are observed foraging among grass tussocks running from shelter to shelter. They forage actively particularly in leaf litter where their main prey is found. Able to move very rapidly in short bursts they soon disappear from sight if pursued. They feed mostly on Isoptera (Termitidae), Araneae, Coleoptera and Orthoptera (Jacobsen, 1982).

Oviparous the species lays 3-9 eggs measuring 9,0-9,5 x 6,0-7,0 mm during November/December in a hole approximately 10 cm deep. The neonates hatch during January/February although some may be as late as March or even May (Jacobsen, 1982). Neonates measure 19,0 - 21,0 mm SVL with a mass of 0,15 g.

Conservation Status

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. Occurs in four provincial nature reserves and is mostly restricted to ranching areas. Although fires no doubt decimate the populations, it appears that the weather influences hatching success. Currently considered secure, population fluctuations occur on an annual basis.

Remarks

This species appears to consist of several disjunct populations. The Transvaal population is widely separated from those of southern Mozambique and northern Zululand, which is also separate from the Zimbabwe population. Broadley (1966c) questioned the validity of the subspecies longipes Boulenger and placed it in the synonymy of I. capensis. A more detailed look at the species throughout its distribution with a sufficiently large specimen base may prove fruitful.

Family VARANIDAE
Genus Varanus Merrem, 1820

Varanus Merrem, 1820, Tent. Syst. Amph., pp. 13, 58.

Type by subsequent designation (Mertens, 1942): Lacerta varia Shaw.

Only four Varanus species occur in Africa of which two are widespread reaching South Africa.

The widespread distribution has led to the formation of several subspecies, most of which are ill defined. Varanus n. niloticus Linnaeus is the southern race of the Nile monitor and V. exanthematicus albigularis (Daudin) was regarded as the southern race of the Veld monitor. However Böhme (1988) concluded on the basis of hemipenal morphology that albigularis should be elevated to specific status. This approach is herewith adopted in accordance with Broadley (in litt.) and Branch (in litt.).

Key to the Transvaal species.

1. Nostril oval, slightly nearer eye than end of snout, build slender; semi-aquatic V. n. niloticus
Nostril an oblique slit, much nearer eye than end of snout, body stout; terrestrial V. albigularis

Varanus albigularis (Daudin, 1802)

Tupinambis albigularis Daudin, 1802, Hist. Nat. Rept. 3, p. 72, pl. 32. Type locality: Afrique u de l'Inde'.

Varanus albigularis albigularis (Daudin). FitzSimons 1943, p. 403-405.

Varanus exanthematicus albigularis (Daudin). Branch 1981, p. 149, 1988a, p. 172, pl. 63; Jacobsen 1977, p. 24; Pienaar 1966, p. 115, pls. 46 & 46A, 1978, p. 101, pls. 40 & 40A; Pienaar et al, 1983, p. 113, pls. 46 & 46A; De Waal 1978, p. 74; Auerbach 1987, p. 135, pl. 13 fig. 4; Patterson & Bannister 1987, p. 59, figs; Welch 1982, p. 119; Branch 1988b, p. 7.

Varanus albigularis (Daudin). Böhme 1988, p. 162.

Description. 69 Specimens examined.

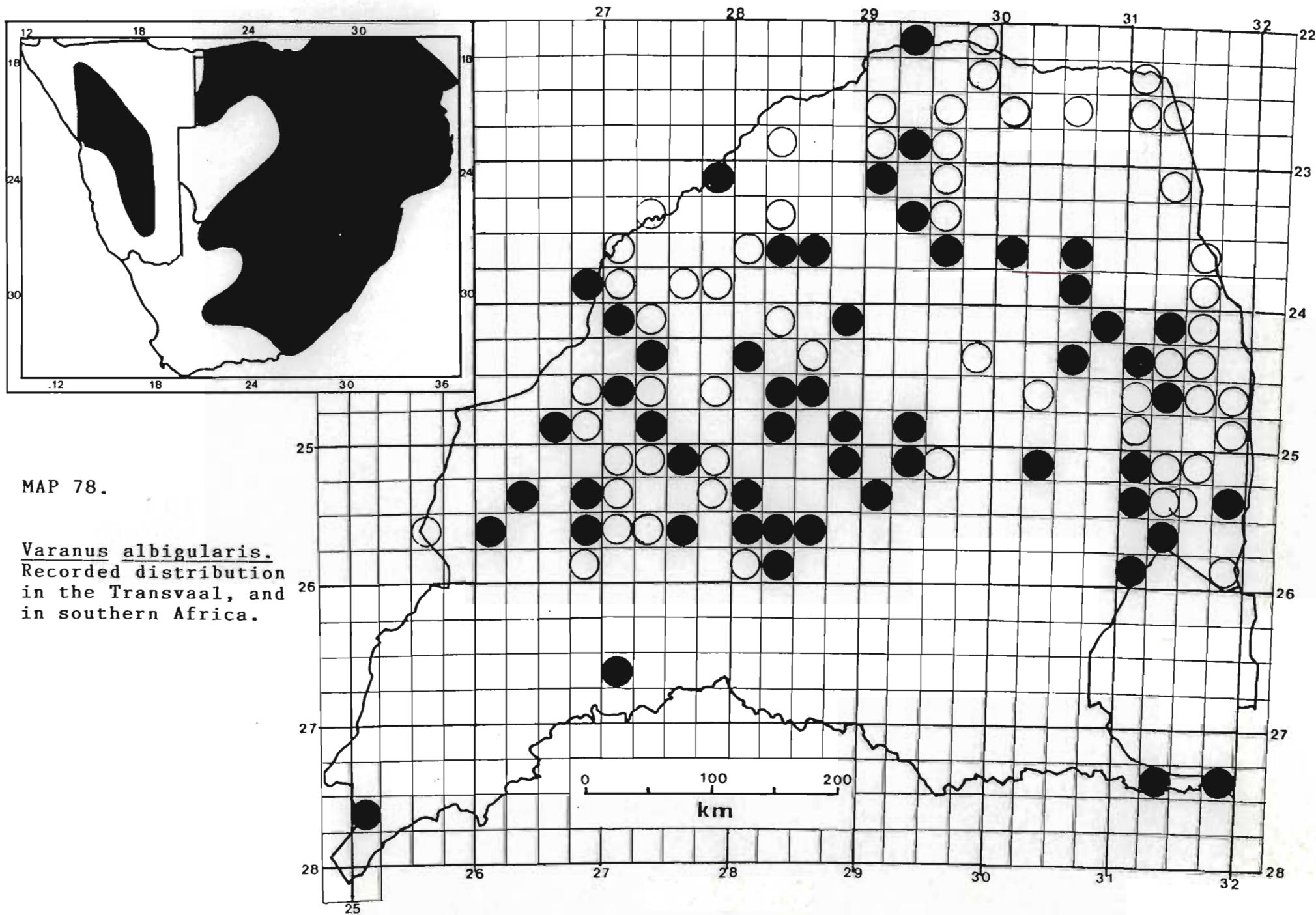
Colour: (after FitzSimons, 1943). Above greyish- to olive-brown with large rounded greyish-white, brown to yellowish black-edged spots and blotches are arranged in 5 or 6 transverse series on the back; a dark temporal streak from posterior margin of eye along the side of the neck to just above or slightly beyond the shoulder; Limbs spotted with off-white or yellowish white. Tail banded alternately with dark brown and greyish to yellowish white. Ventrally greyish to yellowish white usually with scattered greyish-brown spots. Throat often heavily suffused with grey to greyish brown. Juveniles of ten have a dark blackish patch under the throat otherwise more brightly and clearly marked than adults.

Lepidosis: Head large and little depressed; Body squat and heavy; limbs short but stout; digits well developed and armed with strong claws; well developed and muscular tail tapering to a thin hard tip, is present. Nuchal scales subequal to equal or slightly larger than those on occiput but smaller or equal to dorsal scales; midbody scale rows 119-161 mostly between 130-154. A few tails are truncated, 4/44 (9,09%).

Size: Largest SVL = 353,0 mm (J1947 - Leeubosch 129KQ), mass = 812,0 g (J1947). The size which these lizards reach precludes their inclusion in wet collections. Measurements made on the Nylsvley nature reserve (Jacobsen 1982) of 20 individuals gave a mean SVL of 318,85 mm (range 118,0 - 560,0 mm) with a mean mass of 1053,13 g (range 20,85 - 4550,00). These lizards reach even in excess of this.

Distribution

Widespread in southern and eastern Africa excluding the coastal districts of the Cape Province (FitzSimons, 1943).



MAP 78.

Varanus albigularis.
 Recorded distribution
 in the Transvaal, and
 in southern Africa.

Distribution in Transvaal (Map 78)

4 km W. of Boekenhout; Amsterdam 116LS; Argyle 46KU;
Barberton Townlands 369JU; Boekenhout 706KR;
Boekenhoutskloof 187KR; Casketts 65KU; Cleadon 90LS;
Die Bron; Dorstbult 387LT; Duma 201JU; Elandsfontein
335KQ; Goevernements Plaats 417KQ; Griffin Mine,
Leydsdorp; Groenfontein 227KR; Hackthorne 30MS; Hans
Merensky Nature Reserve; Kaalplaas, Onderstepoort;
Kalkfontein 49JS; Kalkheuvel 454MS; Kameelpan 276HO;
Killaloe 235MS; Klipfontein 429JR; Kloppersdam 187JR;
Komatipoort; Leeuwbosch 129KQ; Lekkergoed 160KT;
Limpopo River, N. of Beauty; Marble Hall; Marico
Bosvelddam; Marmerkop Siding; Naudes Rust 272JU;
Nylstroom; Nylsvley Nature Reserve; Othawa 242KU;
Perkeo 223KT; Pongola 61HU; Pongola Nature Reserve;
Potchefstroom Townlands; Pretoria Annlin; Pretoria
Arcadia; Pretoria, Eerste Fabrieke; Pretoria,
Onderstepoort; Pretoria, District; Roosterlaagte 594KR;
Schoonkloof 273KP; Syferfontein 178JP; Vaalkop 19IQ;
Vogelstruisfontein 32KQ; Vygeboompoort 456KR; Waterval
793LS; Wonderboomhoek 550LQ; Woodstock 397JP;
Worcester 5LP; Zeekoegat 673LR; Zeerust Townlands;
Zoutpan 104JR; near Marken.

Literature Records

Acornhoek, (FitzSimons 1943). Ngotsa firebreak; lower
leg of Hutomi loop road near Munweni drift; Skukuza;
Shingwedzi river near camp; Crocodile bridge camp;
Hartebeesfontein camp; Mareyo windmill; Olifants camp;
Letaba camp; on main road between Mareyo and Kumane;
Nahpe road 4,8 km west of Skukuza; near Mtjulu drift;
between Rockvale and Machuluane drift; Nkawu spruit;
Malelane section; Tshokwane; Malelane road 12,8 km from
Skukuza; Mathlakuza pan; just south of Kumane dam;

Sweni drift on main road; Nwarivake firebreak near Talamati; Punda Maria; 3 km east of Nyamundwa dam; Mabyeni hill.

Sight Records

Rhenosterpoort 283 KQ; Leeupoort 373KR; Syferfontein 76JP; Praktiseer 275KT; Zeekoegat 421KS; Guernsey 81KU; Kameelpan 276HO; Mabyeni Hill; River 141MS; Bristol 760MS; Calitzdorp 221LS; Mananga Hill; Goedekhoop 749KS; Diepkloof 44JS; Rhenosterspruit 595JQ; Magazynskraal 3JQ; Vygeboomspruit 29JQ; Waterval 220JQ; Bultfontein 178JQ; Bordeaux 555MS; Witrand 457JP; Syferfontein 178JP; Kraaihoek 269JQ; August Mokgatles Lokasie; Diepkloof 44JS; Nachtwacht 492LR; Pongola Nature Reserve; Groenfontein 227KR; Kalkfontein 49JS; Excelsior 266KU; Irene; 1 km from Hazyview; 4 km N. of Tshamavhudzi Peak; Doreen 108MT; Nuwelust 482MS; Killaloe 235MS; Mokone Hill, Alldays 295MS; Greenfield 333MS; Zwaggadraai 137LR; Morgenrood 354LT; Klipfontein 11KQ; Zoetfontein 154MR; Witkop 287LQ; Boompan 239LQ; Richmond 4LQ; St. Agnesfontein 347LQ; Weltevreden 596LQ; Waterfal 601LQ; Doornvlei 426LS; Verpoort 161KP; Mooiwater Estates 145KR; Tafelkop 46KR; Buffelsdoorn 315KR; Vlakfontein 522KR; Groeneboom 236KP; Jagersfontein 55JO; Sweet Home 322KQ.

Habitat and Ecology

Terrestrial, arboreal and rupicolous, this slow-moving lizard occurs widely in southern Africa, inhabiting holes in the ground, in trees, piles of brush and most frequently rocky outcrops where it takes refuge in large crevices. It appears to have a home range, as marked individuals on the Nylsvley nature reserve were usually found in the same vicinities. No details are however

available on the size of the area. They forage by moving around at a slow pace flicking the forked tongue constantly in their search for food. They climb trees with ease and if disturbed or pursued they will even leap off, limbs outstretched, to land with a belly flop only to scuttle off as fast as their stumpy limbs will permit. They can achieve a fair turn of speed but usually go to the nearest shelter. If they are unable to escape they raise themselves on stilted limbs, arch the neck, and unflate the body and gular at the same time hissing loudly and lashing out with the tail. The rounded cusped teeth can inflict a painful bite, as they bite harder when one attempts to remove one's hand. It appears best to allow the animal to hang free in order to induce it to release its hold. The strong hindlimbs armed with claws may also be brought to play and rake at the attacker. However, should these tactics not succeed in allowing it to escape it will roll over and play dead allowing it to be molested without retaliating. Once things have quietened down it will roll over and ever so slowly move off until it feels it can make a dash for safety.

They are opportunistic in diet but subsist mostly on tenebrionid beetles and millipedes (Iulidae) of which they consume large quantities. They will however feed on eggs, the young of birds, scorpions and even the young of tortoises (De Waal, 1978) as well as small mammals and arthropods. They are usually associated with depredations on poultry but these are isolated occurrences.

They are widespread in Transvaal, being found in bushveld and rocky terrain in veld types 6, 9, 10, 11, 12, 13, 14, 15, 18, 19, 20, 50 and 61 at altitudes ranging from 250-1700 m. They are able to withstand the extreme cold in parts of their range by going into well-sheltered crevices and holes where the extremes of climate are ameliorated.

Oviparous the species breeds in the Transvaal during October to December. From 12-40 eggs may be laid depending on the size of the female. De Waal (1978) recorded females containing ova measuring 55,0-57,0 x 30,0-34,0 mm. A female laid 28 eggs measuring 58,0 - 61,0 x 35,0 - 38,0 mm on the farm Rietfontein 214 JR, while FitzSimons (1943) records the eggs measuring on average 60,0 x 35,0 mm. The eggs are laid in the ground approximately 30 cm below the surface and the nest is closed over, tamped down and camouflaged. Incubation appears to be lengthy, possibly as much as 10 months. The smallest specimens measured range from 106,0 - 128,0 mm SVL with a mass of 20,0-27,8 g.

Conservation Status

Partially protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. The widespread occurrence of the species in the Transvaal ensures that it occurs in at least 18 provincial nature reserves and the Kruger National Park. Elsewhere its habits of living in rocky areas brings additional security. However it is ruthlessly killed by many farmers and also while crossing roads. Its status is currently secure but an ecological study of the species is long overdue, incorporating aspects of home range and density.

Remarks

Branch (in. litt.) and Broadley (in. litt. to Branch, 5/7/89) have indicated their preparedness to accept the findings of Böhme (1988) with regard to the elevation of albigularis to specific status. While there has not been a formal statement in any publication to this effect yet, including in Böhme (1988), I have decided to follow the views held by the previously mentioned herpetologists, and which appears to be justified.

Varanus niloticus niloticus (Linnaeus, 1762)

Lacerta nilotica Linnaeus 1762, in Hasselquist, Reise n. Palast. p. 361 and 1766, Syst. Nat. Ed. 12, 1, p. 369.
Type locality: Egypt.

Varanus niloticus (Linnaeus). FitzSimons 1943, p. 405-407; Pienaar 1966, p. 119, pl. 47 & 47A; Auerbach 1987, p. 136, fig. 5, pl. 14; Patterson & Bannister 1987, p. 58, figs; Welch 1982, p. 120.

Varanus niloticus niloticus (Linnaeus). Branch 1981b, p. 149; 1988a, p. 173; pl. 63; Jacobsen 1977, p. 25; Pienaar 1978, p. 104, pls. 41 & 41A; Pienaar et al 1983, p. 111, pl. 45; De Waal 1978, p. 73; Branch 1988b, p. 7.

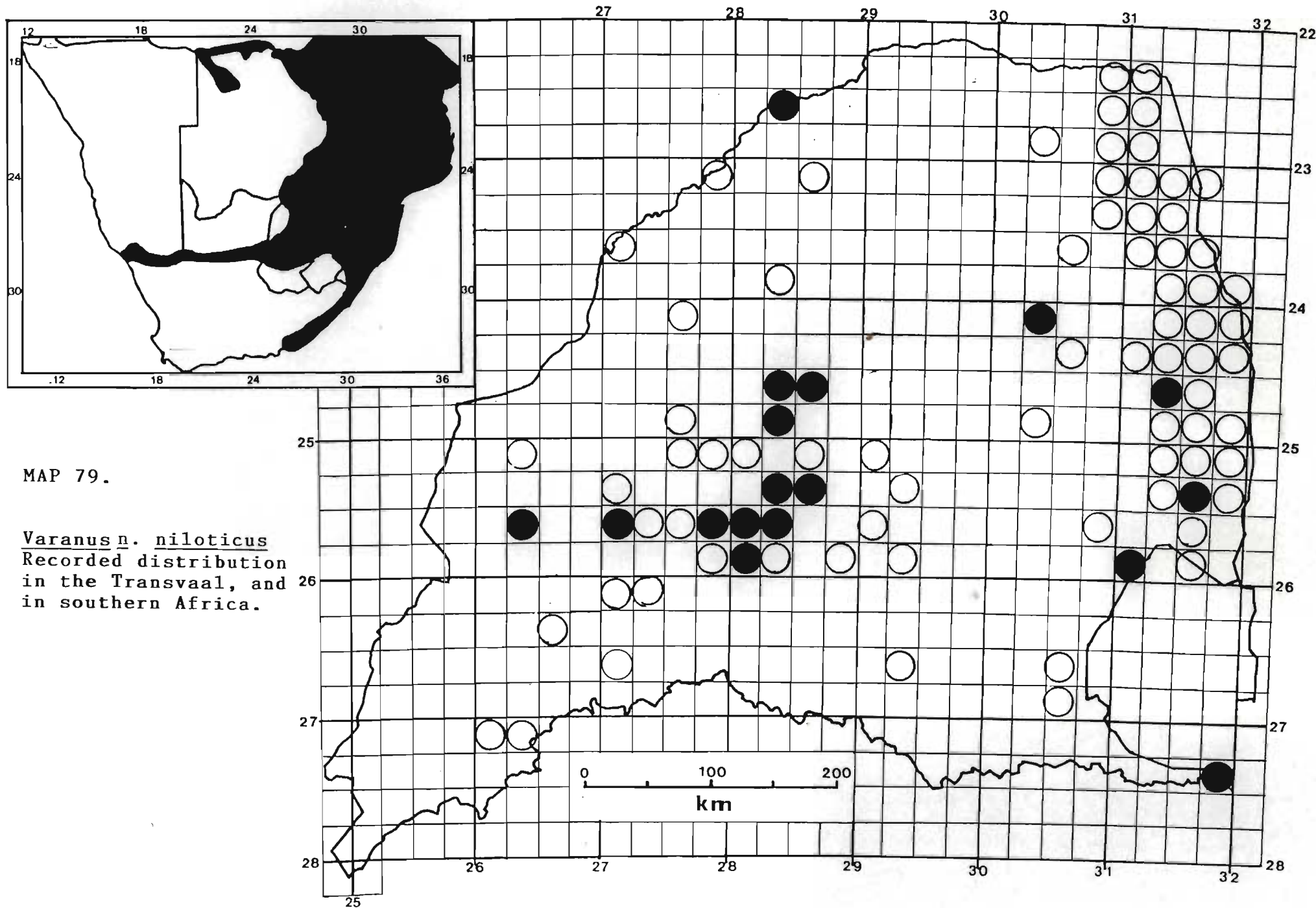
Description. 22 Specimens examined.

Colour: (After FitzSimons, 1943). Juveniles are black above, with transverse series of yellow spots or ocelli on back, transverse yellow stripes on head and posteriorly directed chevron-shaped stripes on nape; upper surface of limbs black, with round yellow spots; lips banded alternately with black and yellow; tail black, with yellow barring; lower surfaces yellow, with transverse barring of black. Adults are greyish-brown to dark olive brown above, with darker reticulation and scattered yellow ocelli or interrupted greenish-yellow transverse bands on head, back and limbs; lower surfaces yellowish, with more or less distinct dark greyish to greyish-black crossbands; tail barred with yellow.

Lepidosis: Snout obtusely pointed, depressed at tip: distance from end of snout to anterior corner of eye about equal to distance from latter point to anterior border of ear-opening; latter large, rounded-oval and

exposed. Head flattened above and usually at least twice as long as broad. Canthus rostralis sharply marked. Nostril round and placed a little nearer the eye than to end of snout, directed outwards. Rostral and mental small, but larger than adjoining upper labials, which are for the most part very small and indistinguishable from adjacent scales. Gular scales somewhat elongate and polygonal anteriorly (very small mesially), more rounded and convex posteriorly towards the well marked collar fold at base of throat (just anterior to forelimbs). Teeth in young are all more or less acutely pointed, but in adults only the anterior teeth remain pointed, while the remainder become massive, with rounded off smooth surfaces. Scales on head (including supraoculars) moderate, juxtaposed, polygonal and more or less subequal, distinctly larger than the rounded temporals. Scales on upper surface of body and limbs small, oval and tectiform. Abdominal scales larger, elongate, rectangular, smooth and arranged in 75-100 more or less regular transverse rows from collar to thighs. Scales on tail above, are similar basally to dorsals, but distally become more or less rectangular, flattened and keeled; subcaudals flat and smooth basally, keeled distally. Tail strongly compressed distally, with a very low toothed dorsal crest, formed of a double row of scales. Digits moderately elongate and strongly clawed.

Size: Owing to the difficulty of preserving large specimens, these collected represent only juveniles. Broadley (1966) records a skin measuring 1880 mm but skins stretch by more than a third of the length. De Waal (1978) records the largest specimen he measured to be a male with SVL = 740,0 mm and tail = 114,0 mm; Total length = 1880 mm.



MAP 79.

Varanus n. niloticus
 Recorded distribution
 in the Transvaal, and
 in southern Africa.

Distribution

Throughout the Savanna areas of Africa. Absent from the arid south-west and also from the western rain forest, where it is replaced by V. n. ornatus (Daudin) (Broadley, 1966c).

Distribution in the Transvaal (Map 79)

20 km NE of Nylstroom; Barberton Townlands 369JU; De Kroon 444JQ; Hammanskraal; Hectorspruit 164JU; Knopjeslaagte 385JR; Manyeleti Game Reserve; Nylstroom; Pongola Nature Reserve; Pretoria; Pretoria, Rietondale; Rietfontein 214JR; Rondavelskraal 290JP; Shiluvane; Shylock 256JQ; Umzinto 36MR; Vygeboompoort 456KR.

Literature Records

Olifants Camp; Potchefstroom. (FitzSimons 1943). Nylsvley nature reserve, (Jacobsen 1977). Wolkberg wilderness area, (Snyders 1987). Pafuri; Letaba causeway; Olifants river at Tseri picket; Orpen dam; Sabie river at Skukuza; Sand river causeway; Mbangari waterhole in the Timbavati; Timbavati-Shisakashangondzo confluence; Shisakashangondzo dam; Timbavati-Hlangene spruit confluence; Ngwenyene dam; Mbyamiti dam; Mbyamiti causeway; waterholes e.g. Ngwenyene in the Mbyamiti; Orami dam; Crocodile river at Malelane; Ntente waterhole, Mlondozi spruit; Munweni waterholes, eastern boundary; Shibotwane waterhole, Nwanedzi; Nwaswitsontso at Shingedzene; W.N.L.A. dam and Nwanedzi dam; Gudzane dam; waterholes in the Bangu spruit and gorge; Gobene waterhole, Ngwenyene spruit; Tambuti waterhole, Makadze spruit; Tsende river at Shipandane, Mabohlelene and confluence with Shongololo spruit; Nyavutsi waterhole; Shingwedzi river at causeway,

Mahlambangwenya, Joao, Red rocks, Dipene, Nkayeni and Shangoni; Bubube dam at Pondo hills; Zari waterhole, Phugwane; Phugwane dam; Mphongolo at Ngongo, Dzundula, Mbomene and Ngwendu; Shisha at Mavatsane and Muwawi; Luvuvhu at Dongadziba, Shidzivane, Magovane and Madzaringwe mouth; Hape pan, Pafuri; Lompopo-Luvuvhu junction; Mashikiri poort; Godleni waterhole, Lebombos; Sabie river at Phaben and Lubyelubyel; Nhlalarumi drift; Bumi waterhole; Mtandanyati waterhole, Nhlowe spruit; Mhlanganzwane dam; Nsosweni waterhole, Orami spruit; Luvuvhu at Shipale; Letaba at Mahlangene; Matiwotsuka waterhole, Mbyashishe; Spokonyolo; Makwatsi pan, (Pienaar et al, 1983).

Sight Records

Ka Mininginisi; Shilowane; Entabeni Forest; Matiwa Lookout; Glen Alpine 304LR; Klipbarkfontein 44LQ; (Rawinde Shop); nr Nsama R. on road to Busizi Hills; Nsama R. nr Mashatu; Malmaniesriver 236KQ; Boompan 239LQ; Groot Denteren 533LR; Nylsvley 560KR; Kalkfontein 589KR; Weihoek 540KQ; Buffelspoort 421KR; Zelikaatskop 16JP; The Oaks 198KT; Lodwich's Lust 163JU; Lomati 466JU; S.A. Bantu Trust; Rietfontein 219IP; De Bad 396KT; Pongola Nature Reserve; Bellevue C 518JT; Broederstroom 481JQ; Waaikraal 396JQ; Redcliff 246IT; 1 km from Hans Merensky Nature Reserve gate; Casketts 65KU; Zwartkoppies 364JR; Rietfontein 214JR; Mdzabi Vlei; Vrieskraal 4JS; Houwater 54JQ; Kwarriekraal 148JQ; Klipvoor 159JQ; Buffelsdrift 51JR; Rust der Winter Nature Reserve; Heys Hope 501IT; Vlakfontein 37HP; Koedoesdraai 49HP; Blesbokspruit 305IS; August Mokgatles Lokasie; Boschpoort 284JQ; Bovenste Oog van Mooiriver 68IQ; De Pan 51IQ; Vygeboom 619JT; Witbank Municipal Area; Loskop Dam Nature Reserve; Klipfontein 256JS; Spitskop 502JR.

Habitat and Ecology

Mainly restricted to rivers, streams and dams, having benefitted by the construction of impoundments, where permanent water is available. They therefore do not show a preference for any specific vegetation provided there is permanent water and shelter in the form of rocky outcrops, cliffs or large trees. Will also shelter in holes in the river banks. Although semi-aquatic, the Nile monitor is adept at climbing up trees and cliffs. If disturbed will leap from great heights into the water and disappear under the surface frequently appearing some distance away when it considers itself out of danger. The tail with its flattened dorsal ridge is used as an oar and with limbs adpressed to the sides, can propel the animal at considerable speed through the water.

When a waterbody is in the process of drying up this species will also venture great distances overland and is able to move at a considerable pace if disturbed. It also forages widely away from water at times. If cornered it will, like the veld monitor, put up a tremendous show of resistance, stand on stilted legs, with body and throat inflated and a lashing tail while the head points downwards. If approached it may leap forward with mouth agape in an attempt to bite. The round cusped teeth have only a crushing power but the strong claws on the hind feet are used with great effect. If the defence strategy does not work it will also roll over on its back and play dead.

It is omnivorous and opportunistic in its choice of food feeding largely on crabs but will eat amphibians, birds particularly fledgelings, eggs (including, and especially in some areas those of crocodiles) mice, millipedes, snails and mussels.

The Nile monitor is oviparous laying from 16-34 (mean =

23,8) (Cowles, 1930) ova during late winter to midsummer. The eggs measure on average 61,5 x 34,5 mm (range 55,0 - 64,0 x 30,0 - 37,0 mm) with a mass of 40,0 - 45,0 g (Cowles 1930). Branch and Erasmus (1982) measured 13 eggs out of a clutch of 33 ova, ranging from 52,0 - 58,0 x 38,0 - 45,0 mm (Mean 55,5 x 40,8 mm). The eggs are deposited in a living termitarium, the female digging a hole in the mound which is subsequently sealed by the termites. Cowles (1930) records an estimated incubation period of 9-10 months in the wild. However Branch and Erasmus (1982) recorded an incubation time of 129 days at a constant temperature of 30°C. It is likely that in the wild, with a fluctuating temperature regime the ova would take longer to incubate. The time of laying whether in late winter or midsummer would also have a bearing on the degree of overwintering necessary with associated low temperatures.

Conservation Status

Partially protected. Schedule 5, Transvaal Nature Conservation Ordinance 12 of 1983. Widespread in the Transvaal it is found in at least 18 provincial nature reserves (Jacobsen et al, 1986) as well as the Kruger National Park. It is less susceptible to being killed on roads, with the exception of bridges or other river and stream crossings. It is persecuted by man when seen, but appears to remain more obscure than the veld monitor. Its status is considered secure.

Family CORDYLIDAE

Genus Tetradactylus Merrem, 1820

Tetradactylus Merrem, 1820, Vers. Syst. Amph., pp. 13, 75. Type by tautonymy: Chalcides tetradactylus Daudin. Tongue almost entirely covered with oblique plicae converging anteriorly towards the median line, scale-like papillae being confined to the tip or anterior quarter. Nostril pierced between first upper labial and two (rarely three) nasals, or between two or three nasals only; prefrontals absent; frontoparietals present; lower eyelid scaly.

General form elongate or serpentiform; a strong lateral epidermal fold; scales above and below in regular longitudinal and transverse rows; limbs short, rudimentary or forelimbs absent; digits when present, smooth below; femoral pores present or absent.

A gerrhosaurine genus in which the species exhibit a considerable range in limb reduction and length of tail. There are five species endemic to South Africa of which two occur in the Transvaal. Tetradactylus eastwoodae Methuen & Hewitt has not been recorded again since its description in 1913; it is possibly extinct as its habitat has been destroyed by pine plantations. Tetradactylus breyeri Roux was originally described from the Transvaal without a precise locality. It was rediscovered in the Transvaal during this survey and its situation appears precarious.

Key to the Transvaal species

- 1. Forelimb tridactyle; hindlimb didactyle;
 - 2 supraoculars in contact with frontal;
 - 3 femoral pores T. eastwoodae
- Forelimb didactyle; hindlimb monodactyle;
 - 3 supraoculars in contact with frontal;
 - 2 femoral pores T. breyeri

Tetradactylus eastwoodae Methuen & Hewitt, 1913

Tetradactylus eastwoodae Methuen & Hewitt 1913, Trans. Roy. Soc. S. Afr. p. 109. Type locality: Woodbush, Transvaal. FitzSimons 1943, p. 294, figs: 175 & 176; Welch 1982, p. 109; Branch 1988a, p. 154, 1988b, p. 11.

Description. One specimen examined. (Type)

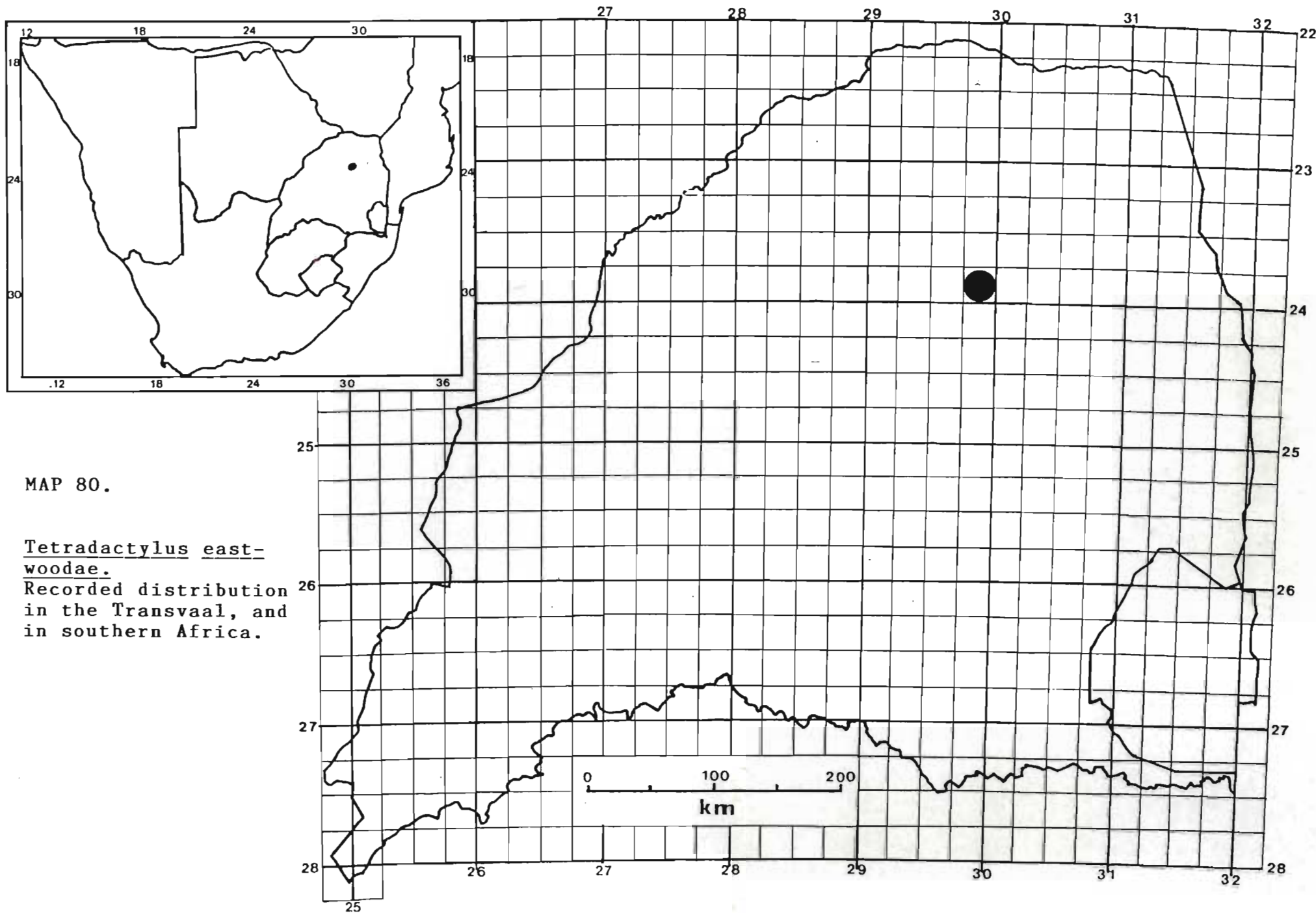
Colour: (After FitzSimons, 1943). Olive brown above, uniform over back and tail or with indistinctly-marked, darker, longitudinal lines or series of spots; head dark spotted above. Below paler than above, usually greyish-brown.

Lepidosis: Serpentineform. Limbs very small, digits clawed; forelimb tridactyle, middle finger longest, inner longer than outer, which is minute; hindlimb a little longer than forelimb, didactyle; inner toe minute. Nostril pierced between two nasals and separated from 1st upper labial. 2-3 Upper labials anterior to subocular. Frontal about $1\frac{1}{2}$ times as long as broad. Frontoparietals reduced in size and more or less bandlike. Interparietal elongate and separating frontoparietals. Parietals distinctly longer than broad. Four supraoculars first three in contact with frontal. Two upper labials anterior to subocular, which is strongly elongate. Dorsal scales striated and strongly keeled (striated only on nape), in 12 longitudinal and 67-70 transverse rows. Ventral plates in 6-8 longitudinal and about 50 transverse series. Three enlarged preanal scales; 3 femoral pores on each side.

Size: SVL = 64,0 mm (Type TM 1496), Tail = 126,0 mm.

Distribution

Endemic to Transvaal.



MAP 80.

Tetradactylus east-
woodae.

Recorded distribution
in the Transvaal, and
in southern Africa.

Distribution in Transvaal (Map 80)

Known only from the type locality i.e. Woodbush (FitzSimons 1943).

Habitat and Ecology

Unknown, possibly a montane grassland species, found at an altitude of 1700 m. Terrestrial and diurnal.

Conservation Status (RDB 1988, Extinct?)

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. Its extant status is in doubt. Despite several searches in and around the type locality and in the Wolkberg no traces of this lizard have been found. The area of the type locality has been extensively planted over with pines, while firebreaks are burned annually over the remaining grassland. This is the first South African reptile to be classified as extinct in the Red Data Book as it has not been observed in 75 years. More intensive surveys needed and the species is a conservation priority species.

Tetradactylus breyeri Roux, 1907

Tetradactylus breyeri Roux 1907, Zool. Jahrb. 25, p. 430, pl. 14, fig. 6. Type locality: Transvaal. FitzSimons 1943, p. 294-296, figs. 177-180; De Waal 1978, p. 49; Branch 1988a, p. 154, pl. 51, 1988b, p. 11.

Description. Two specimens examined.

Colour: Olive brown above with slightly darker longitudinal paravertebral stripes; a clearly marked darker brown dorsolateral stripe on each side from nape to base of tail; a dark brown stripe extends on either

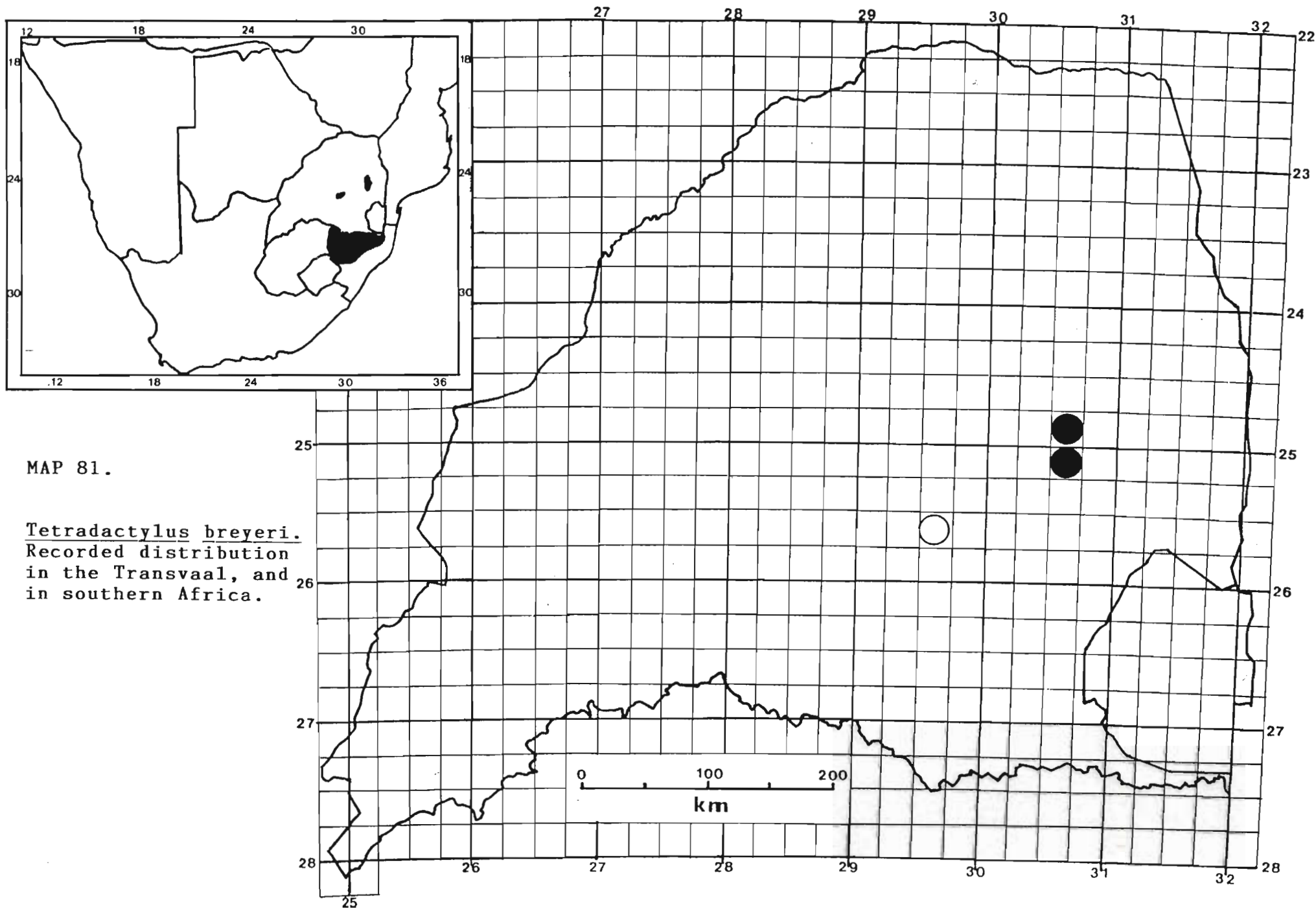
side from temple to forelimb, where it narrows considerably and is continued along the side of the body as a dark stripe; fading out anterior to the groin. The head may be spotted with dark brown above, while a series of short dark brown to black vertical bars on the side of the neck. Ventrally pale olive-yellow to olive or greyish green (FitzSimons, 1943).

Lepidosis: (FitzSimons, 1943). Similar to T. africanus, but distinguishable on the following: Serpentine; limbs minute; forelimb slender, didactyle, digits clawed, inner digit less than half length of outer, in TM 56692 the digits are missing, hindlimb monodactyle, stout, slightly longer than forelimb. Upper head shields feebly ribbed longitudinally. Nostril pierced between two nasals and well separated from 1st upper labial. Four supraoculars, first three in contact with frontal. Interparietal somewhat elongate, separating frontoparietals. Parietals much longer than broad. 2 Upper labials anterior to subocular, which is narrow and elongate. Dorsal scales striated and strongly keeled (striated but not keeled on nape), in 12 to 14 longitudinal and 70-73 transverse rows. Ventral plates in 8 longitudinal and about 54 transverse series. 22 Scales at midbody. 3 Enlarged preanal scales, median subtriangular and larger than laterals. 2 Femoral pores on each side. Caudal autotomy in evidence with $\frac{1}{2}$ (50%) of tails regenerated.

Size: FitzSimons (1943) records a specimen from Weenen, Natal measuring 64,0 mm SVL with a regenerating tail; De Waal (1978) recorded an atypical specimen measuring 72,0 mm SVL with a tail measuring 135,0 mm or 65,22% of total length.

Distribution

Eastern Transvaal, Natal and north-eastern Orange Free State (De Waal, 1978).



MAP 81.

Tetradactylus breyeri.
 Recorded distribution
 in the Transvaal, and
 in southern Africa.

Distribution in Transvaal (Map 81)

Mt Sheba, Grootfontein 562KT; The Staircase, Long Tom Pass, Mauchsberg.

Literature Records

Transvaal (Type locality), (FitzSimons 1943).

Sight Records

Hoedspruit 346JS.

Habitat and Ecology

Inhabits montane and highveld grasslands. One specimen which escaped was located at the perimeter of a moriband termitarium in heavily grazed grassland with scattered tussocks of taller unpalatable grasses. The specimens from the escarpment were located under rocks on soil. The species is terrestrial and diurnal. Occurs in veld types at altitudes ranging from 1700-2000 m a.s.l.

Conservation Status (RDB 1988, Rare).

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. Does not occur in a provincial nature reserve or national park in the Transvaal. It is very rare and until recently the only record from Transvaal was the type specimen described in 1907. The large scale agricultural activities taking place over much of its range, coupled with the regularity of veld fires and afforestation have no doubt had an extensive effect on the distribution of the species. Currently considered "Rare" in the Red Data Book, further surveys are urgently needed to establish whether the species

should not be incorporated in the vulnerable or even endangered categories. This is a conservation priority species.

Remarks

De Waal (1978) reported on a possible new subspecies in the north-eastern Orange Free State. The extensive variations pointed out appear to warrant this.

Genus Gerrhosaurus Wiegmann, 1828

Gerrhosaurus Wiegmann, 1828, Isis, p. 378.

Type: G. flavigularis Wiegmann.

Tongue almost entirely covered with imbricate scale-like papillae, oblique plicae confined to posterior lobes. Nostril pierced between 1st upper labial and two nasals. Both prefrontal and frontoparietal shields present. Lower eyelid scaly. Dorsal and ventral scales in regular straight longitudinal and transverse series. A strong lateral fold. Body elongate. Limbs well developed; subdigital lamellae smooth and tubercular. Femoral pores present. The plated lizarids of the genus Gerrhosaurus mostly have a wide distribution. Five species are found in South Africa of which four occur in the Transvaal. Most populations exhibit some clinal variation. Broadley (1987a) analysed the variation within the G. major Duméril complex and established the presence of only two valid subspecies, with the nominate race being found in the Transvaal. Most species exhibit fairly uniform colour patterns with the exception of G. flavigularis, which has a different colour pattern in the north-eastern Transvaal and possibly the south-western Transvaal. Whether this indicates taxonomic significance is not clear at present but should be investigated as the species is very uniform over the rest of its range.

Key to the Transvaal species.

1. Ventrals in 14-20 longitudinal rows G. v. validus
Ventrals in 8-10 longitudinal rows 2
2. Ventrals in 8 longitudinal series 3
Ventrals in 10 longitudinal series G. m. major

3. 4 Supraciliaries; scales on feet keeled
and spinose G. nigrolineatus
5 Supraciliaries; scales on feet smooth
and tubercular G. flavigularis

Gerrhosaurus validus validus A. Smith, 1849.

Gerrhosaurus vallidus A. Smith 1849, Illus. Zool. S. Afr. Rept. App. p. 9. Type locality: Interior of southern Africa towards the sources of the Garrep (i.e. Gariep or Orange river).

Gerrhosaurus validus validus A. Smith. FitzSimons 1943, p. 269-271, figs. 148-150, pl. 24, fig. 1; Jacobsen 1977, p. 25; Pienaar 1966, p. 76, pls. 26 & 26A, 1978, p. 92, pls. 36 & 36A; Pienaar et al 1983, p. 82, pls. 29, 29A & 29B; Auerbach 1987, p. 118, pl. 11 fig. 3; Patterson & Banister 1987, p. 53, fig; Welch 1982, p. 108, Branch 1988a, p. 153, pl. 64, 1988b, p. 11.

Description. 114 Specimens examined.

Colour: Blackish-brown to black dorsally, the inner margin of each scale with an elongate yellowish spot forming interrupted lines from behind the head to the base of the tail where the middorsal stripes merge. The spots on the tail are larger and therefore more pronounced. The head is dorsally speckled and variegated with yellow.

Laterally the body is dark brown to brownish-black with irregular white to off-white vertical bars extending from behind the ear to the groin becoming less defined and more widespaced along the tail. The limbs are dark-brown to blackish with scattered paler spots. Ventrally the chin, gular and upper chest pale greyish-brown to whitish brown merging to dark-brown and blackish-brown posteriorly to the cloaca. Underside of limbs pale, tail dark-brown below.

Lepidosis: A large depressed lizard with a tapered head, short but well developed limbs and a thick tapered tail which is between 54,25 - 63,6% of the total length. Rostral wider than high and pentagonal; nostril pierced between 2 nasals and 1st upper labial. Supranasals in contact (rarely separate) behind rostral; frontonasal broader than long and in contact with loreals; prefrontals in broad contact and also with preocular; frontal slightly longer than broad and roughly hexagonal; frontoparietals short and squat and in total contact along the length. Interparietal very small, in contact with frontoparietals but completely surrounded by parietals; parietals in broad contact, forming a straight edge posteriorly. Supraoculars 4; supraciliaries 4-6 (usually 5); a small loreal; preoculars 2, anterior very large; subocular excluded from lip and in contact with 4-8, supralabials; around the eye a row of accessory scales occur, the posterior one largest; supralabials 7-11 (mostly 8 or 9); infralabials 4-9 (mostly 6 or 7); Mental twice as broad as deep; two large postmentals followed by 3-4 chin shields. Dorsals square and multicarinate in regular rows of laterally overlapping scales, in 30-34 longitudinal rows at midbody and 49-56 transverse rows from collar to groin; Ventrals large rectangular and subimbricate, in 14-20 longitudinal rows at midbody and 38-45 transverse rows from collar to groin. Digits short and well developed with 17-22 subdigital lamellae under 4th toe. Femoral pores range from 15-24 (mostly 18-22). Tail robust and caudal autotomy of low incidence. Only 7/48 (14,58%) of tails were regenerated.

Size: Largest male SVL = 252,0 mm (N2083 - Boschdraai 340MR), mass = 463,0 g (N3180 - Segops Location 821LS); Largest female SVL = 258,0 mm (JN8190 - Beuley 260LR), mass = 498,0 g (JN8190); Mean male SVL (100,0 mm) = 221,81 mm \pm 27,69 (1SD) n = 21, Mass = 318,44 g \pm 121,27

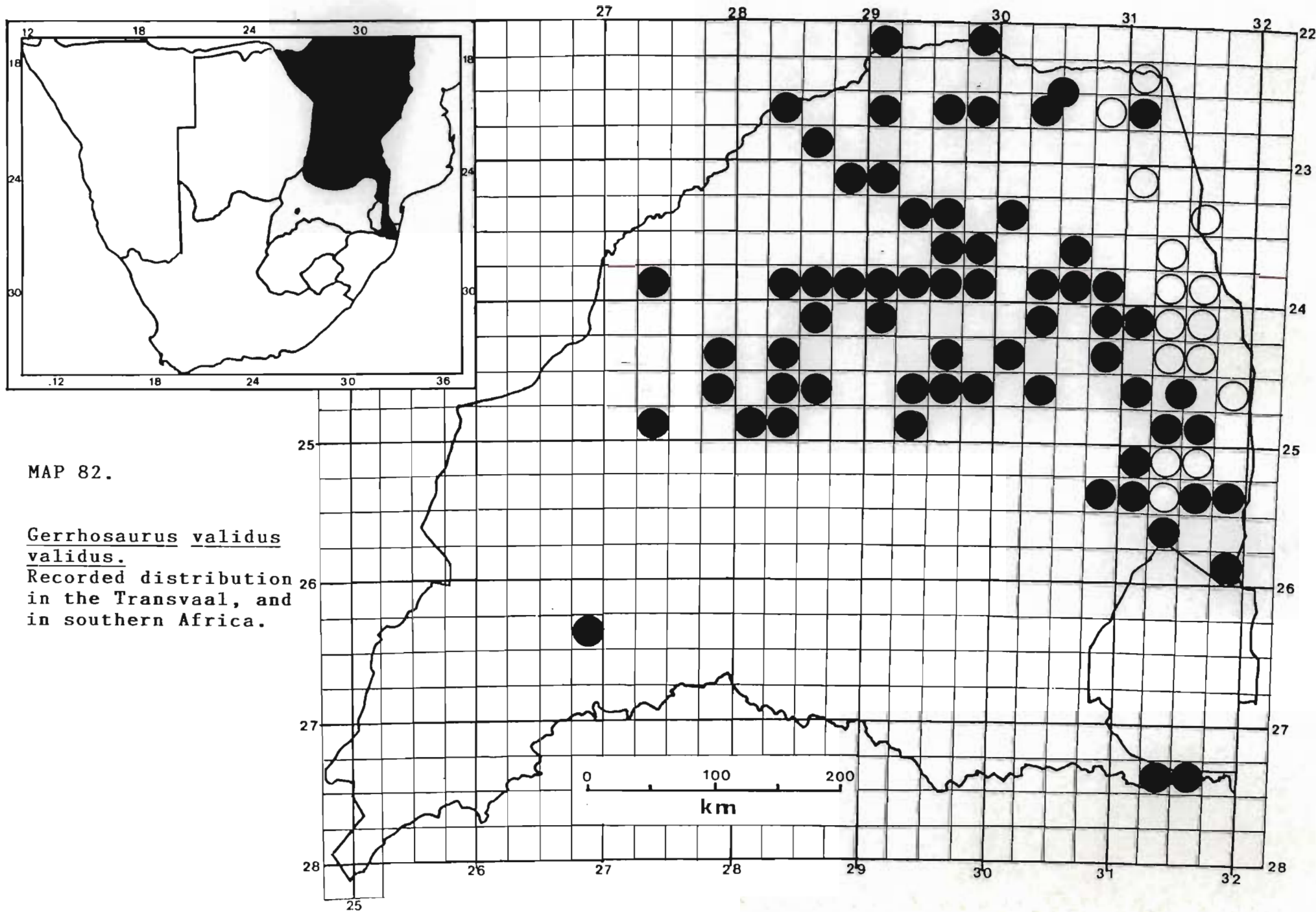
(1SD) n = 20; Mean female SVL (100,0 mm) = 221,4 mm \pm 34,87 (1SD) n = 15, Mass = 314,14 g \pm 111,54 (1SD) n = 15.

Distribution

Northern KwaZulu and Mozambique westwards through the northern Transvaal and Zimbabwe to eastern Botswana.

Distribution in Transvaal (Map 82)

Acornhoek; Barend 523MS; Bastardspad 790LR; Bealey 260LR; Blackhill 317LR; Blydschap Nature Reserve; Beletlwa; Boschdraai 340MR; Broedershoek 129JU; Buisfontein 451KR; Copenhagen 58KU; Cyferfontein 434KR; De Beer 448KS; Dendron; De Oude Stad van Sekwati 765KS; Deelkraal 561KR; Den Staat 27MS; Elandsfontein 290KQ; Excelsior 211JU; Ga-Chweni; Geelhoutkop; Godlwayo; Goedehoop 749KS; Groningen 779LR; Groothoek 129LS; Gunfontein 71KR; Hectorspruit; Isipingo 37MR; Jutland 536MS; Klaserie Siding; Klipspruit 255KR; Komatipoort; Letsitele; Liamule Hill; Lillie 148KT; Machabezane; Malamala 359KU; Mananga; Manyeleti Game Reserve; Masogoro Hill; Matalas Location 591LS; Mecklenburg 112KT; Melkboomfontein 919LS; Moerdyk 593LR; Naauwpoort 363LQ; Nwanedzi R; Percy Fyfe Nature Reserve; Pietersburg; Praktiseer 275KT; Rhenosterpoort 283KQ; Rietspruit 412KR; Roodewal 251JT; Rooiboschfontein 576KS; Sabie Sand Nature Reserve; Saltpan near Blackhills; Sandringham Private Nature Reserve; Scheiding 746LT; Schilderkrans 1041LS; Segops Location 821LS; Skukuza; Shiluvane; Skukuza; The Grange 471LS; Trevenna 119MT; Tula Mila; Venice 40KU; Ventersdorp; Vygeboom; Vygeboompoort 456KR; Wildeboschdrift 599LR; Woodbush; York 188KT; Zandrivierspoot 851LS; Zeekoegat 12KU; Zoetfontein



137LT; Zondagfontein 300MR; Zwartkloof 60HU; Zwartkop 369KQ; near Bridgewater.

Literature Records

Mopane; Nylstroom; Potgietersrus, (FitzSimons 1943). Nylsvley nature reserve, (Jacobsen 1977). Klipfontein 53KR, (NMZB). Kingfisherspruit; Nwaswitsontso drift, Tshokwane; Skukuza; Nahpe koppies; Shilowa cave; Tlapa-la-Mokwena; Tsange; Tswiriri dam area; Nwanitsana dam area; Shingedzene ridge, Lebombos; Nwamuriwa; Matukwane ridge, Punda Maria; Shidzivane kop, Luvuvhu; Numbi kop; Pelwane koppies; Dongadziba; Mashikiri poort; rocky outcrops along Olifants River at Ndsio and Mikotweni; Mbulweni sandstone reef; Ship mountain; sandstone koppie between Klopperfontein and Mashikiri; Matikiti koppie; Mbyamiti experimental plot No. 7; in the broken country along the lower reaches of the Mulalane spruit; Hlangene-Timbavati confluence; Nwaswitsontso koppie, western boundary; Tsende experimental plots (basalt reef); koppie along Sweni firebreak west of Ngumula pan; Nwarivake firebreak south of Majekejekene; Pafuri rangers quarters; Tree Aloe gorge, Kandizwe; Stolznek; Boesmanklip dam site; near Shinokweni spring, (Pienaar et al 1983).

Habitat and Ecology

An exclusively rupicolous species restricted to rocky outcrops throughout their distribution range. They inhabit crevices between and under rocks frequently enlarging the retreat if the rocks are on soil. From these outcrops they forage widely, occasionally wandering several hundred metres from their retreat in search of food. They normally live in family groups with numerous juvenile and immature individuals at any one outcrop.

The osteoderms in the skin serve to assist these lizards to resist the pressure of moving rocks and allow them to fully utilise the crevices large enough to house them.

The lizards are widespread in the Transvaal (Map 32) particularly in the northern half and eastern parts of the province in veld types 6, 9, 10, 11, 12, 13, 14, 15, 18, 19, 20, 63 and 67 at altitudes ranging from 300-1400 m a.s.l.

They feed mostly on invertebrates particularly slow moving prey such as beetles but also consume vegetable matter, one specimen having fed on the fruits of Grewia monticola. Rowe-Rowe (1968) records observing these lizards feeding on Convolvulus sp. flowers and Grewia berries.

Oviparous, these lizards lay 4-5 eggs in midsummer. FitzSimons (1943) records them as being large and oval, measuring on average 46,0 x 24,5 mm. A female collected during October had eggs in the oviducts measuring 32,0-35,0 x 21,5-23,5 mm. The smallest individuals measured 71,0-89,0 mm with a mass of 10,5-17,5 g were collected during March to May. Larger individuals were collected during June, July and October indicating a relatively slow growth rate.

Conservation Status

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. Its widespread occurrence is responsible for its presence in 10 provincial nature reserves and the Kruger National Park. Although some populations are very small as the one on the Nylsvley nature reserve, the majority are large and selfperpetuating. Its status is secure.

Remarks

The records of two specimens from Ventersdorp 2626 BD, which is far south of the nearest other populations, should be confirmed; it is possibly the result of translocation. The subspecies G. v. maltzahni de Grys is an isolated western population differing in several counts from that of the nominate race (FitzSimons, 1943).

Gerrhosaurus flavigularis Wiegmann, 1828

Gerrhosaurus flavigularis Wiegmann 1828, Isis 21, p. 379. Type locality: "Africa meridionale" = South Africa. Pienaar 1978, p. 96, pl. 38 & 38A; Pienaar et al 1983, p. 88, pls. 32 & 32A; Auerbach 1987, p. 120, pl. 11 fig. 7; Patterson & Bannister 1987, p. 53, fig.; Welch, 1982, p. 108.

Gerrhosaurus flavigularis flavigularis Wiegmann. FitzSimons 1943, p. 272-275, figs. 152-154; Branch 1981b, p. 162, 1988a, p. 151, pl. 65, 1988b, p. 11.

Description. 351 Specimens examined.

Colour: Two colour phases occur in males. Dorsally brown; head grey-brown; a white dorsolateral stripe flanked above and below by dark-brown to black stripes extends from the posterior margins of the supraoculars longitudinally along the body and onto the tail becoming gradually less distinct distally. Laterally half grey-brown, variously and irregularly spotted with dark-brown from behind the eye onto the tail. Below this, it is off-white in colour merging to the white of the ventrals. Occasional brown flecking may be present on the tail. Below white. Limbs grey-brown to brown with dark brown spotting. In males from the north-eastern Transvaal the ventrolateral sides may be coloured with brick red and the gular region, chin and sides of the head blue-grey; Males of the normal form do not show red sides and the

gular, chin and sides of head range from yellow to orange red.

Lepidosis: Head pointed and merging into the stout cylindrical bodies with a ventrolateral skin fold; limbs reduced but stout; tail thick and very elongate ranging from 64,95 - 69,32% of total length. Rostral much broader than high; nasals 2, nostril pierced near anterior margin of suture in contact with 1st upper labial; supranasals in narrow contact behind rostral; frontonasal broader than long; narrow to broad contact with loreal; prefrontals in contact or narrowly separated by projection of frontonasal; frontal approximately hexagonal, squat, longer than wide; frontoparietals in long contact forming a notch posteriorly; interparietal small, fitting anteriorly onto notch; parietals in narrow to broad contact behind interparietal; posterior margin of parietals straight; Supraoculars 4; supraciliaries 4-6, mostly 5; loreal 1; preoculars 2, anterior very large; postocular part of a series of accessory scales extending from posterior corner to anterior corner of eye; lower eyelid scaly and opaque; UL 6; LL 4; Mental broader than deep, 2 prs of enlarged chin shields posterior to mental; Dorsals square, strongly keeled and striated and in 20-24 longitudinal and 57-65 transverse rows; Ventrals in 8 longitudinal rows; digits well developed with 16-21 subdigital lamellae under 4th toe; femoral pores 10-18 (mostly 12-16); caudal scales strongly imbricate keeled dorsally becoming less pronounced laterally; ventrally smooth and overlapping. Tail autotomy frequent with 38/95 (40,0%) of tails regenerated.

Size: Largest male SVL = 142,0 mm (N666 - Doreen 108MT), mass = 67,0 g (N666); Largest female SVL = 134,0 mm (N5557 - Ross 55 KU), mass = 58,2 g (N5357). Mean male SVL (60,0 mm) = 91,96 mm \pm 11,38 (1SD) n = 51, mass =

19,64 g \pm 7,34 (1SD) n = 52; Mean female SVL (60,0 mm)
= 106,78 mm \pm 15,84 (1SD), n = 51, mass = 30,23 g \pm 13,26
(1SD) n = 51.

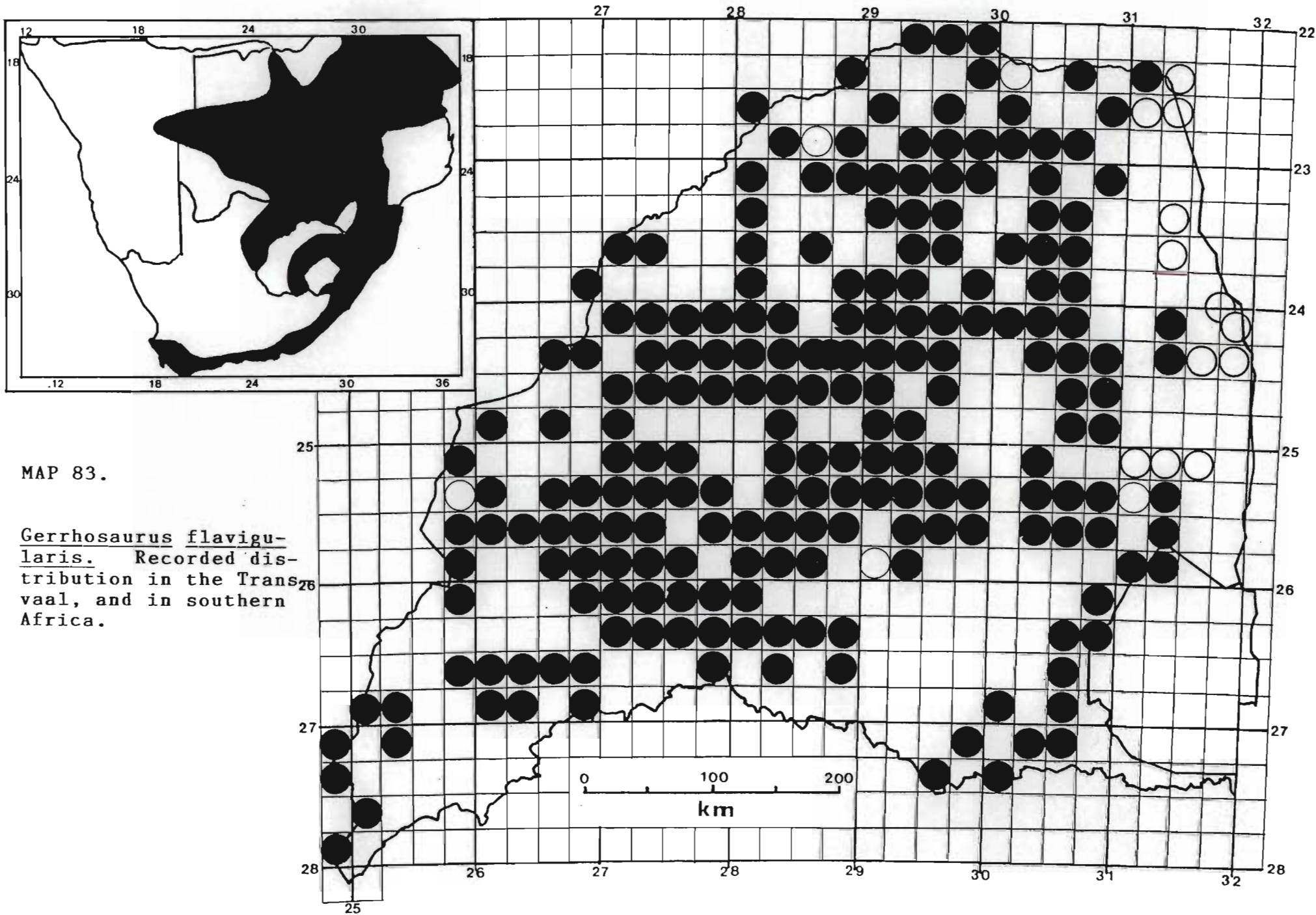
Distribution

East Africa from Sudan and Ethiopia south through eastern Zambia, Zimbabwe, Malawi, Mozambique to the Transvaal and Botswana. Also Natal, Orange Free State and the Cape Province. A relict population is found at Gobabis, eastern South West Africa (Broadley, 1966c).

Distribution in Transvaal (Map 83)

10 km N. of Amsterdam; 4 km S. of Tshamavhudzi Peak; Abjaterskop 107KP; Alldays 295MS; Alten 222LT; Altyd Mooi 379LT; Ameland 11LS; Argyle 46KU; Arthursrust 219KT; Athole 392IT; Barberton; Ben Lavin Nature Reserve; Bergfontein 277KQ; Berlyn 670LT; Bievack 14MR; Blauwkrans 80KS; Blouberg; Bluegumspoort 779MS; Blyde River Nature Reserve; Boekenhoutskloof 187KR; Boekenhoutskloofdrift 286JR; Border 136MS; Boschpoort 284JQ; Bristol 760MS; Bronkhorstspuit; Buffelshoek 277KR; Buffelskraal 486LR; Buffelspoort 459KQ; Buisdorp 37LS; California 228KT; Chuniespoort; Dambale Hills; De Beer 448KS; De Kroon; De Loskop 205LS; Die Hoekie; Dientje 453KT; Donderhoek 312JQ; Donkerhoek 365JR; Doorndraai 282KR; Doorndraai dam Nature Reserve; Doornfontein 345IP; Doornkop 356JS; Doornplaat 106JO; Doornplaat 177IP; Doornpoort 262IP; Doreen 108MT; Driefontein 387KR; Droogespruit 416IP; Dwarsvlei 503JQ; Dycedale 368JU; Elandsfontein 335KQ; Elandsfontein 471JT; Fernie 243IT; Gedult 270IP; Geelhoutkop; Gestoptefontein 349IQ; Gewenscht 562KS; Gillooly's Farm; Giyani; Glen Alpine 304LR; Goedehoop 152JS; Gravelotte; Greylingstad; Griffin Mine; Grootdoorn

292LQ; Groot Marico; Groote Zwart Bult 290LQ;
Grootfontein 352KQ; Grootpan 7KQ; Grootplaats 29HN;
Grootpoort 123KP; Gunfontein 71KR; Ha Madzhiga;
Haffenden Heights 35KT; Halfway House; Hanover 181KQ;
Hartebeestpoort E. 215JQ; Hartshoogte 17HN; Hekpoort
504JQ; Houtbosdorp; Houtkop 43IQ; Houwater 54JQ;
Inkom 305MR; Irene; Ishlelo 441IT; Jackalskraal 45KP;
Johannesburg; Kaapsche Hoop 483JT; Kaffirskraal 43JQ;
Kalkgat 554LS; Kalkoenkrans 366IT; Kameelpoort 202JR;
Kareeboomput 286HO; Klipfontein 11KQ; Klipgat 18IQ;
Klipnek 199JS; Klipplaat 108JO; Klipplaatdrift 193JR;
Koppieskraal 157IR; Koppieskraal 484KQ; Korannafontein
350IO; Kosterfontein 460JP; Kromrivier 347JQ;
Krugerskraal 583KR; Kwa Seane; Kwaggafontein 548IQ
Lapdoorns; Kwarriefontein 280JP; Kwarriekraal 148JQ;
Lake Funduzi; Langalanga 141KT; Leeuwbosch 129KQ;
Leeuwfontein 188JR; Leeuwfontein 750KS; Leeuwfontein
363JS; Leeuwkop 299IR; Lindleyspoort 220JP; Lisbon
State Forest; Lochleven 233IT; Loskop dam Nature
Reserve; Lot 43 250IO; Mabelikwa; Makwens; Malemetsa;
Maleshwane; Malmaniesrivier 236KQ; Malta 65KT;
Mampaskloof; Manyaningwe; Mapochsgronde 500JS;
Masogoro Hill; Matangari; Matiwa Lookout, Entabeni
251MT; Matlabas Location; Matlepitsi R.; Meanderthal
188LS; Melinda 164LR; Meidingen 398JT; Mezeg 77JP;
Middlesex 205KT; Modjadjes Location 424LT; Moilwas
Location; Mokeetsi; Mooifontein 285JS; Mooiplaats
242JS; Moorddrift 289KR; Morgendal 216KS; Muiskraal
127IQ; Naudes Rust 272JU; New Belgium 608LR;
Nooitgedacht 87JS; Nooitgedacht 345JS; Nuwelust 482MS;
Nylsvley Nature Reserve; Ohrigstad dam Nature Reserve;
Oostenryk 92KS; Paardeplaats 101HT; Paardeplaats 177IQ;
Pankoppen 36JR; Percy Fyfe Nature Reserve; Ponieskrans
543KT; Pretoria; Pretoria, Valhalla; Pretoria,
Hornsnek; Pretoria, Fountains; Pretoria, Clubview East;
Pretoria, Sunnyside; Pretoria, Wonderboom; Pretoria,



Wonderboom South; Pretoria, Lynnwood; Pretoria, Derdepoort; Pretoria, Bon Accord Quarry; Pretoria, Lyttelton; Pretoria, Zwartkop; Pretoria, Qwaggas Poort; Pylkop 26JQ; Rainpan 60KQ; Rhenosterpoort 283KQ; Rhenosterpoort 402KR; Rhenosterspruit 326IP; Rietfontein 179JP; Rietfontein 214JR; Rietfontein 255JT; Rietfontein 487JP; Rietpoort 193IR; Rietpoort 83HS; Rietspruit 83JQ; Rietvley 276LS; Roodeplaat; Roodepoort 302IQ; Roodewal 322JQ; Ross 55KU; Ruigdraai 809LS; Rust de Winter Nature Reserve; Rustenburg; Rustenburg Nature Reserve; Schelem 32KT; Schilderkrans 1041LS; Schoonheid 2HN; Schoonkloof 273KP; Schroda 46MS; Schweizer Reinecke Dorp 62H0; Shamiriri; Shiyalongubo; Sionwe Mountain; Smaldeel 36KP; Smitsdrift 1044LS; Spaarwater 171IR; Springbokpan 61IO; Sterkfontein 282KQ; Sterkstroom 411JP; Streatham 100KT; Suikerbosrand Nature Reserve; Syferfontein 178JP; Tafelkop 46KR; Tata 7LR; Tati 59MR; The Downs 34KT; Theespruit 156IT; The Grange 471LS; The Oaks 198KT; The Willows 197KT; Tovey 154MS; Urk 10LS; Venice 40KU; Vhurivhuri Plantation; Vivo area; Vlakfontein 720KS; Vlakplaats 354JR; Vogelfontein 400JP; Vogelstruisfontein 765LR; Vogelstruiskraal 397KQ; Vooruitzicht 374JU; Vredeburg 256IO; Vygeboompoort 456KR; Waerkum 302LS; Wakkerstroom; Waterpan 292IQ; Waterval 128HS; Waterval 220JQ; Weipe 47MS; Welbekend 117JQ; Welgedacht 130JR; Wemmershoek 81JT; Witrandfontein 348IP; Wolvenkraal 13JS; Wonderfontein 103IQ; Wonderfontein 258JP; Woodbush; Worcester 5LP; Zandspruit 287KR; Zebediela Estates 101KS; Zeekoegat 673LR; Zoetfontein 154MR; Zoutpan 459MS; Zusterstroom 447JR; Zwartkrans 172IQ; near Mpefu on Nzhelele R.; south of Tonkwani, Magaliesberg.

Literature Records

Linokana; Messina; near Witbank; Nylstroom; Ottoshoop; White River; Zeerust; Zondagfontein 300MR; Zwagershoek, (FitzSimons 1943). Outlook 789MS, Klipfontein 53KR, (NMZB). Nahpe road near koppies; Ngirivane tourist road; Tshokwane; along Tsende river at Mabohlelene and near its junction with Shongololo spruit; Mavumbye; Skukuza; Nwashitsaka experimental plots; Tsende experimental plots; near Nwanedzi drift (main road); near Nsemane windmill; Satara quarters; Olifants River cataracts east of the camp; Malelane camp; Doispane road near Masahalane drift; eastern boundary just north of Saselandonga gorge; Bangu gorge; Pumbe sandveld; Eastern boundary between beacons 1-3 and 9-10; Malonga; Pafuri rangers quarters; new tarred road north of Luvuvhu river 10 km, 12-17 km; Daniël picket; Kingfisherspruit; near Shabaku, (Pienaar et al 1983).

Habitat and Ecology

A very widespread species inhabiting a great variety of habitats from bushveld and lowveld to the grasslands of the highveld, living along rocky or stony hillsides as well as sandy flats. Lives in burrows in the soil and under rocks where they lie half buried in the soil, particularly in winter. Most frequently found foraging among grass tussocks and in leaf litter at the base of bushes. When disturbed it runs off swiftly crashing through grass and bush, a process facilitated by the torpedo-like shape of the animal. It is quick to go into cover, ultimately moving into or under more protective shelter. When in burrows, it may escape via tunnels which are thinly covered with soil and leaf litter. Whether it digs its own burrows is not known.

They feed on a variety of prey commensurate with their active foraging mode. FitzSimons (1943) records their diet to be mostly grasshoppers, beetles, crickets and cockroaches although other insects, ants and myriapods as well as vegetable matter are also taken. This is supported by Broadley (1966) and Jacobsen (1982) but Araneae, Isoptera and Chilopoda are also included. Oviparous, from 2-7 eggs are laid from October to December in holes in the ground or under a rock on soil. The eggs measure 19,2 - 21,6 mm x 12,6 - 13,7 mm with a mass ranging from 1,8 - 2,1 g (n = 9). The incubation period is variable depending on temperature ranging from 74 - 86 days. Hatchlings measure 39,0 - 42,0 mm SVL with a tail 68,0 - 77,0 mm and a mass of 1,1 - 1,4 g.

Conservation Status

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. Its almost pan - Transvaal distribution ensures its occurrence in 41 provincial nature reserves as well as the Kruger National Park. Its status is secure.

Remarks

Broadley (1966c) remarks on populations of these lizards from Mozambique and adjacent Zimbabwe which have vermilion flanks like G. nigrolineatus. This corresponds to lizards from the north-eastern Transvaal in the Tzaneen, Duiwelskloof and Venda districts. It was mentioned under "Colour" that the males display a blue grey chin, throat and sides of the head. A similar occurrence appears to take place in the south-western Transvaal. Owing to the morphological similarity of these forms to the typical form, they have been provisionally incorporated here pending a more intensive examination.

Unfortunately male sexual colours tend to disappear when specimens are preserved. A photo of the blue throated form can be seen in Pienaar et al (1983), p. 89.

Gerrhosaurus nigrolineatus Hallowell, 1857

Gerrhosaurus nigrolineatus Hallowell 1857, Proc. Acad. Nat. Sci. Philad. p. 49. Type locality: Gaboon. FitzSimons 1943, p. 277-278 figs. 157 & 158; Pienaar 1966, p. 83, pls. 29 & 29A; 1978, p. 99, pls. 39 & 39A; Pienaar et al 1983, p. 85, pl. 31; Auerbach 1987, p. 119, pl. 11 fig. 6; Welch 1982; p. 108; Branch 1988a, p. 152, pl. 65, 1988b, p. 11.

Description. 26 Specimens examined.

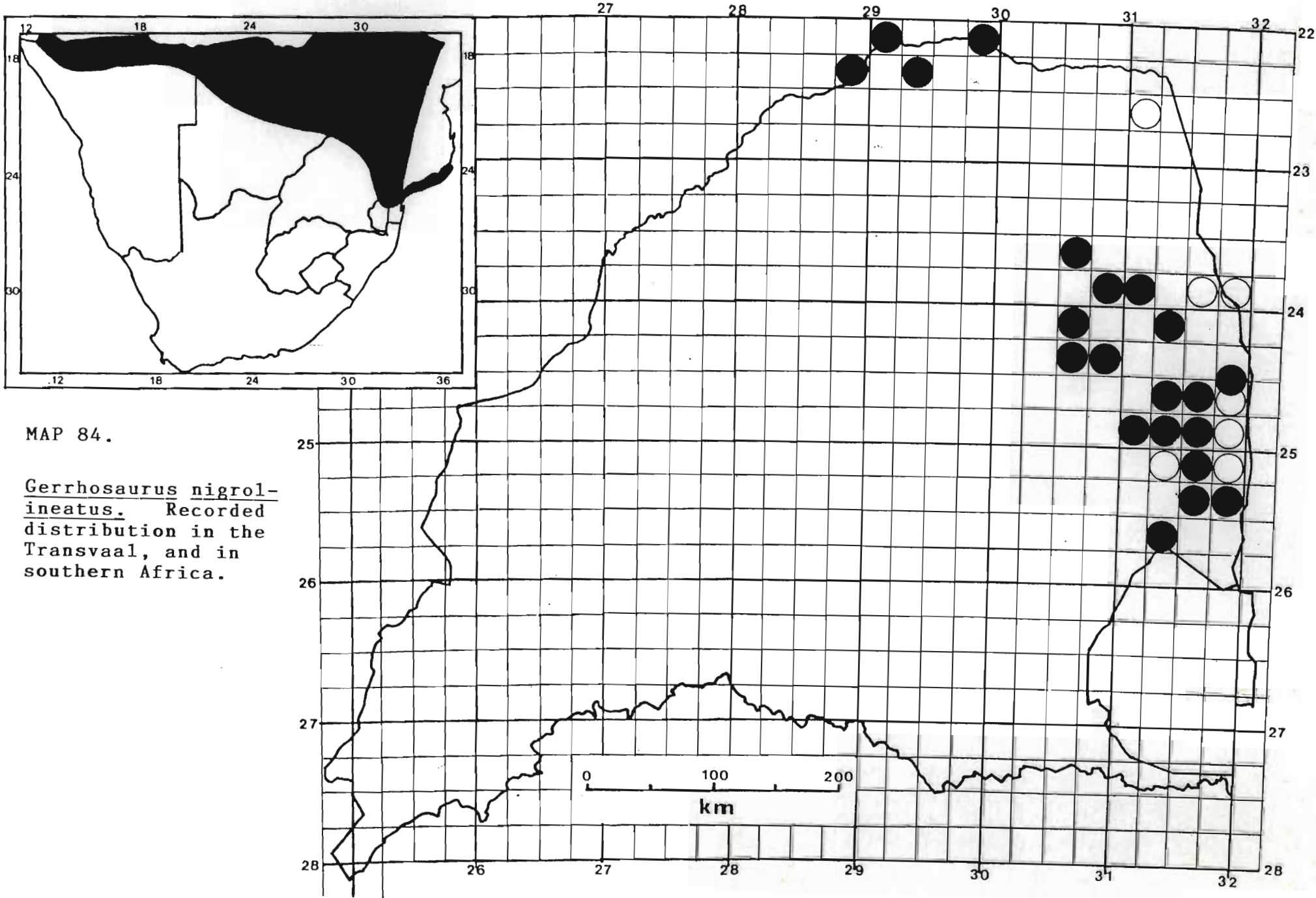
Colour: Brown to reddish-brown dorsally, each scale irregularly spotted with dark-brown forming roughly longitudinal interrupted lines from behind the parietals to the proximal half of the tail. Thereafter the spotting fades rapidly. Two dorsolateral white black edged stripes extend from the posterior supraoculars along the body and onto the tail. In juveniles and also occasionally in adults a vertebral row of ocellate spots extend from the between the shoulders to the base of the tail. Laterally red-brown becoming paler ventrolaterally with scattered white spots and short bars of ocellate spots from behind the ear to the groin. Limbs brown above spotted with white. Below white.

Lepidosis: A large lizard with a rounded snout and a wedge-shaped head. Body stout and cylindrical, forelimbs short, hindlimbs well developed and stout; tail very long being 67,68 - 71,97% of total length. Rostral wider than high; nostril pierced doing suture between nasals, in contact with 1st upper labial; supranasals in broad contact behind rostral; supranasals rarely subdivided; frontonasal broader to as broad as long, in contact with

loreal; prefrontals in very broad contact behind frontonasal, in contact with loreal and preocular; frontal hexagonal very slightly tapered posteriorly; fronto-parietals in broad contact forming a small notch posteriorly; interparietal very small, diamond shaped; parietals large surrounding interparietal posteriorly, forming a straight edge; supraoculars 4; supraciliaries 4, rarely 5; loreal; large preocular; subocular borders lip; postoculars part of series of accessory scales extending around perimeter of eye; another smaller row of granular scales is found adjacent to eye; UL 3-4 anterior to subocular; LL 3-4; Mental broader than deep; 2 prs large chin shields in broad contact. Dorsal scales strongly keeled, less strongly laterally and in 20-24 (mostly 22 or 23) longitudinal and 54-58 transverse rows; Ventrals smooth, twice as broad as deep and in 8 longitudinal rows; Limbs well developed with 15-17 subdigital lamellae under the 4th toe; femoral pores in both sexes ranging from 15-20 (mostly 18-20); tail covered with strongly keeled scales dorsally becoming less pronounced laterally and ventrally. Caudal autotomy present with 6/22 (27,27%) of tails regenerated. Size: Largest male SVL = 175,0 mm (J4834 - Arundal 788LT); mass = 135,0 g (J4834); Largest female SVL = 157,0 mm (J4672 - Silonque 23LU), mass = 98,0 g (J4672). Mean SVL (80,0 mm) = 137,71 mm \pm 30,61 (1SD) n = 12, mass = 72,77 g \pm 39,84 (1SD) n = 12.

Distribution

Zaire south to northern South West Africa, east of Zambia, northern Botswana to Kenya, Tanzania, Malawi, western Mozambique, Zimbabwe to the northern and eastern Transvaal, (Broadley, 1966c.



MAP 84.

Gerrhosaurus nigrolineatus. Recorded distribution in the Transvaal, and in southern Africa.

Distribution in Transvaal (Map 84).

10 km Sabie to Skukuza; Badimong River; Bedford 419KT; Bievack 14MR; Blyde R. Valley; Bushbuck Ridge; Freya 145MS; Hectorspruit; Hlaralumi; Kaapmuiden; Kasteel 766LT; Komatipoot; Louws Creek; Ludlow 227KU; Malamala 359KU; Manyeleti Game Reserve; Newington 255KU; Oriental 60MS; Ratho 1MS; Selati; Silonque 23LU; The Oaks 198KT.

Literature Records

Leydsdorp; Palala R. Waterberg, (FitzSimons 1943). Tlapa-la-mokwena; Nwashitsaka drift, Skukuza; Nahpe road 12,8 km from Skukuza; Nahpe road, 24 km from Skukuza; Lower Sabie road near Lubyelubyel; near Letaba camp; Phalaborwa; Mareyo experimental plots; between Nwatindlopfu drift and Kruger Memorial koppies; Lower Sabie road between Nwatimhiri and Lubyelubyel; Malelane road between Shirimantanga and Mhulu; near Mbyamiti causeway and junction with Jock road; Mala-mala picket area; Klopperfontein, (Pienaar et al 1983).

Habitat and Ecology

Restricted to the far northern Transvaal and the lowveld in veld types 10, 11 and 15 at altitudes ranging from 300-700 m a.s.l. Usually observed while foraging among grass tussocks and in leaf litter at the base of trees or under bushes. Terrestrial and diurnal, it lives in rodent burrows. The whereabouts of these burrows are well established as the lizards locate them without hesitation if pursued, bulldozing through the vegetation. Broadley (1966c) mentions that the food consists primarily of grasshoppers but also beetles, lepidopteran larvae, wasps, termites, plant bugs, mantids, millipedes and

solifugids. It seems therefore that they are catholic in their choice of food and probably opportunistic.

Conservation Status

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. An uncommon, sparsely distributed lizard which has been recorded in four provincial nature reserves as well as the Kruger National Park. Its distribution also largely encompasses areas which are used for ranching which is beneficial to these lizards. Its status is secure.

Gerrhosaurus major major Duméril, 1851

Gerrhosaurus Major A. Duméril 1851, Cat. méthod. Coll. Rept. Mus. Paris. p. 139. Type locality: Zanzibar

Gerrhosaurus major grandis Boulenger. FitzSimons 1943, p. 280, figs. 162-164; Pienaar 1966, p. 79, pl. 27 & 27A; Rowe-Rowe 1968, p. 32, pl.; Welch 1982, p. 108.

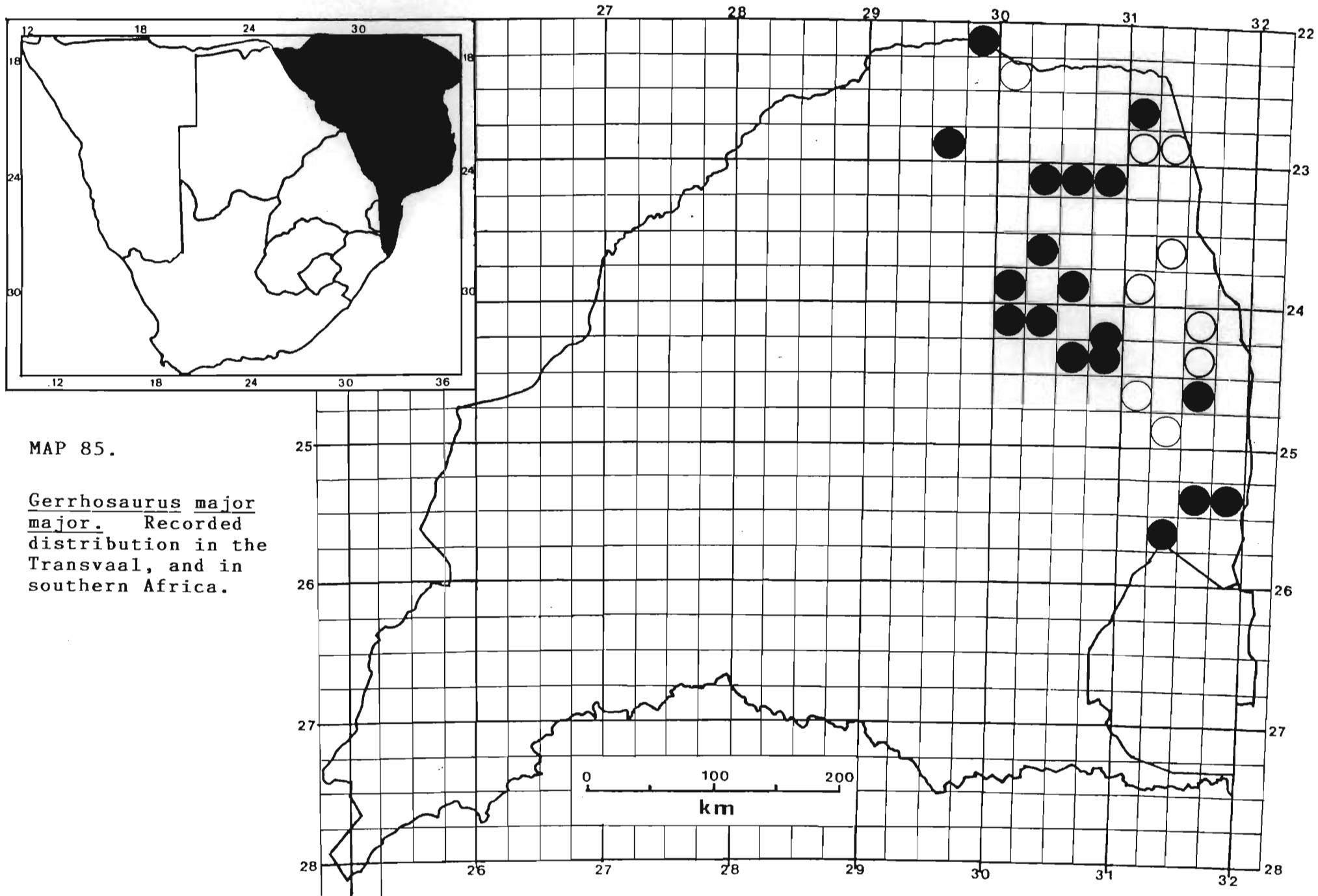
Gerrhosaurus major major Duméril. Pienaar 1978, p. 94, pl. 37 & 37A; Pienaar et al 1983, p. 85, pl. 30 & 30A; Broadley 1987a, p. 194, fig. 1; Auerbach 1987, p. 118, pl. 12 fig. 4; Patterson & Bannister 1987, p. 54, fig; Branch 1988a, p. 151, pl. 64, 1988b, p. 11.

Description. 22 Specimens examined.

Colour: Pale Brown to yellow-brown above with each scale variably marked with black which may form irregular longitudinal lines. The tail may be brown or black, if the former then black edges to scales continue to form lines. If black, then yellowish blotches at intervals along the tail. The head is pale brown to yellow brown above. Dorsolaterally a pale yellowish stripe extends longitudinally behind supraocular along the body, fading posteriorly, occasionally extending onto the tail.

Laterally scales black leaving brown spots or blotches sometimes even forming semi continuous lines extending from posterior margin of ear and continue onto the tail. Skin fold blackish. Ventrally chin, gular and throat anterior to forelimbs yellowish white; Chest, abdomen and underside of tail blackish with paler margins to the scales forming stripes from behind forelimbs to inguinal region. Limbs black above, spotted with pale yellow to yellow; below pale straw-coloured.

Lepidosis: Head large but not very distinct from neck; body solid, cylindrical. Limbs short but stout with well developed digits. Tail broad at base tapering to a tip, slightly longer than SVL ranging from 52,34 - 58,51% of total length (n = 6). Rostral pentagonal, almost as high to higher than wide; nostril pierced along suture between two nasals and adjacent to first upper labial; supranasals narrowly separated by rostral; frontonasal as broad to broader than long, entire and in contact with loreals; prefrontals in narrow to broad contact, elongate, narrowly in contact with or separated from posterior nasals; frontal variable large and squat to longer than broad; frontoparietals in broad contact, notched posteriorly to fit small interparietal; parietals large and in contact behind interparietal; posterior margin slightly convexly curved; supraoculars 4; supraciliaries 5 (rarely 4); preocular 1; postocular largest of row of accessory scales around ventral perimeter of eye; subocular borders lip; loreal ventrally rectangular; UL 3 or 4 anterior to subocular; LL 4. Mental broader than long; 2 prs. enlarged chin shields in broad contact behind mental. Dorsals strongly keeled particularly on the tail, striated, rugose and in 16-19 longitudinal and 31-33 transverse rows; Ventrals large, particularly the gulars; those on chest and abdomen rectangular and in 10 longitudinal and 28-33



transverse rows; digits well developed with 11-14 subdigital lamellae under 4th toe. Femoral pores from 8-14 (mostly 10 or 11). Tail smooth ventrally and caudal autotomy present with 4/14 (28,57%) of tails regenerated. Size: Largest male SVL = 210,0 mm (N822 - Freya 145MS), mass = 308,0 g (J1754 - Meadowbank 429LT); Largest female SVL = 219,0 mm (JN 2837 - Ledzee 559LT), mass = 320,0 g (JN 2837). Mean male SVL = 166,5 mm \pm 49,31 (1SD) n = 7, mass = 159,18 g \pm 121,76 (1SD) n = 6; Mean female SVL = 200,5 mm \pm 26,16 (1SD) n = 2, mass = 281,0 g \pm 55,15 (1SD) n = 2.

Distribution

Kenya to Zululand and inland to south-east Zambia, Zimbabwe and northern and eastern Transvaal.

Distribution in the Transvaal (Map 85)

Epsom 189KT; Freya 145MS; Griffin Mine; Ha Madzhiga; Halfkroonspruit; Hectorspruit; Kaapmuiden; Ka Mininginisi; Klaserie; Ledzee 559LT; Leydsdorp; Liamule Hill; Malelane; Malta 65KT; Manyeleti Game Reserve; Meadowbank 429LT; Middlesex 205KT; Schelem 32KT; Sekororo; Shingwidzi Agricultural Stn.; The Willows 197KT; Tula Mila.

Literature Records

Fletcher Siding; Messina; Newington; Waterpoort (FitzSimons 1943). Shantangalane sandstone koppies; along Mphongolo near Phugwane junction; Mafayeni spring; Ngirivane sandstone reef; Shaluka ridge, Pafuri; Mahulule kop; Skukuza; Masoweni koppie; Mahlangene section (Pienaar et al, 1983).

Habitat and Ecology

Essentially a terrestrial species although frequently using small rocky outcrops, living under rocks, frequently forming chambers under such boulders. However they also utilise man-made debris and frequently also large termitaria as well as burrows of other animals. Appear to be solitary or in very small family groups in contrast to G. validus. A much rarer species than validus it is shy, quickly retiring into shelter if surprised or disturbed. Found mostly in the lowveld and less commonly north of the Soutpansberg, it occurs in veld types 9, 10, 11, 15 and 20 at altitudes ranging from 300-900 m a.s.l. Broadley (1966c) in agreement with FitzSimons (1943) records the diet as consisting of beetles, grasshoppers, millipedes and lepidopteran larvae while one specimen had consumed a gravid Agama kirkii. Captive animals will also consume fruit. The species is oviparous laying two eggs at a time in midsummer. FitzSimons (1943) records the size as measuring 43,5 - 47,5 x 24,0 - 26,5 mm while Broadley (1966c) gave measurements ranging from 50,0 - 58,0 x 23,0 - 26,0 mm from Mozambique.

Conservation Status

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. A rare, dispersed lizard it occurs on three provincial nature reserves and also the Kruger National Park. Its status is rare and the species is in need of monitoring and extensive survey activities. A detailed ecological study of this species is needed.

Remarks

Broadley (1987a) most recently reviewed all forms of Gerrhosauris major and came to the conclusion that only

two forms are recognisable, namely G. m. major extending down the eastern part of Africa and G. m. bottegoid Del Prato, which is restricted to west and north-eastern Africa.

Genus Chamaesaura Schneider, 1799

Chamaesaura part., Schneider, 1799, Hist. Amph., p. 204.

Type: C. anguina.

Body serpentiform; tail very long and slender; limbs rudimentary. Head shields regular; nostril pierced in the nasal; ear-opening moderate. Scales on body and tail uniform, lanceolate, strongly keeled and imbricate, forming more or less regular longitudinal and transverse rows; median dorsals a little larger than others.

Three species occur in South Africa, and all of them are present in the Transvaal. They are characterised by the great degree of limb and digit reduction exhibited by the various species and the long attenuated tail. Limb reduction in this genus and in the gerrhosaurines is the result of an adaptation to moving through thick vegetation particularly grass where limbs could be a hindrance rather than an aid. The long tail is an aid in propelling the animals through the vegetation. In addition the tail, which is easily shed, is important as an antipredator device. Of the three species found in South Africa two have subspecies in East and Central Africa.

Key to the Transvaal species

1. Both pairs of limbs present 2
Forelimbs absent; hindlimbs styliform,
monodactyle C. m. macrolepis
2. Limbs pentadactyle C. aenea
Limbs mono- or didactyle C. a. anguina

Chamaesaura aenea (Wiegmann, 1843)

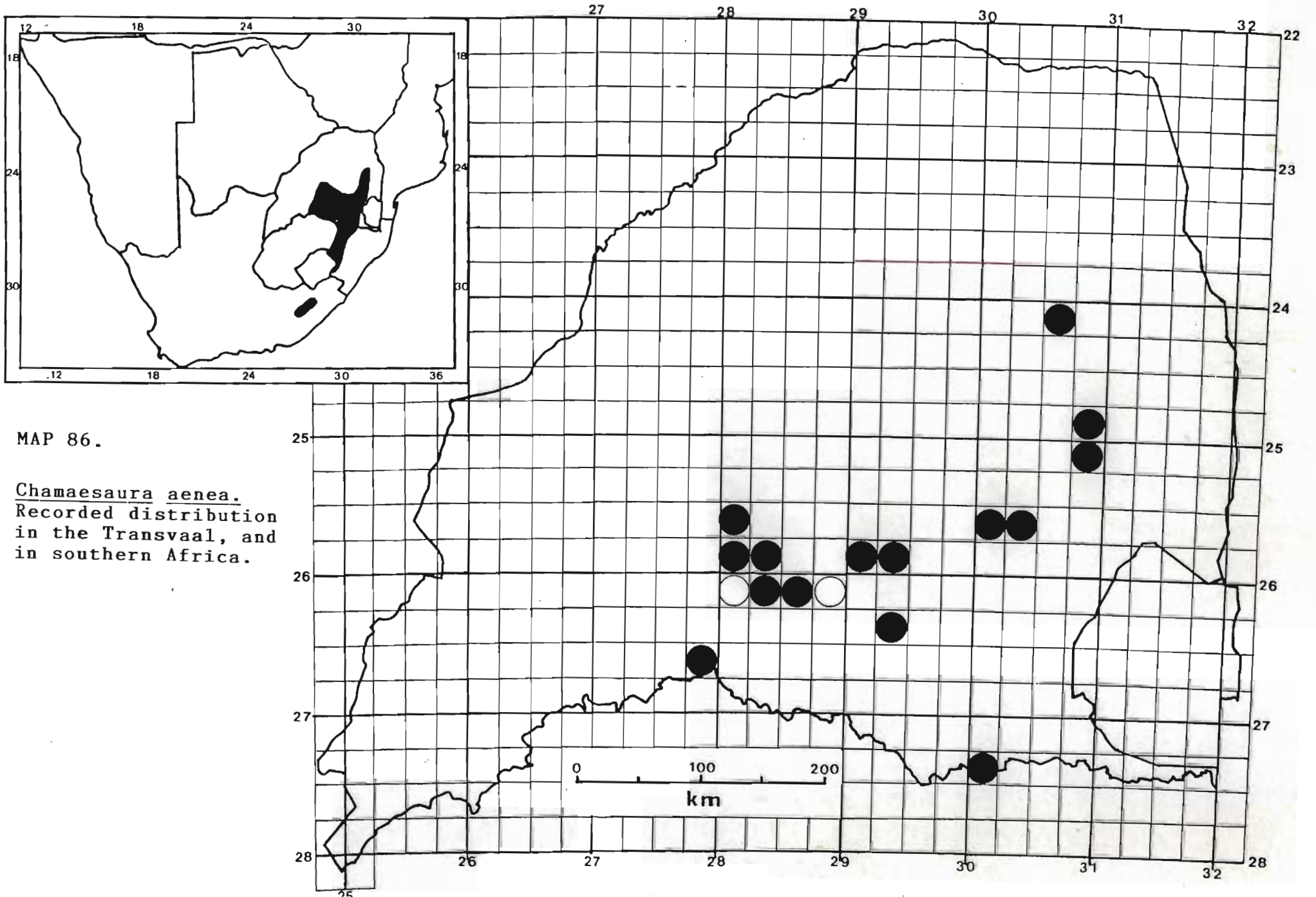
Cricochalcis aenea (Wiegmann) Fitzinger 1843, Syst. Rept. p. 21. Type locality: South Africa.

Chamaesaura aenea (Wiegmann). FitzSimons 1943, p. 409-411, figs. 303-305; Branch 1981b, p. 159; 1985, p. 10, 1988a, p. 157, pl. 50; Patterson & Bannister 1987, p. 55, fig; Welch 1982, p. 111; Branch 1988b, p. 10.

Description. 20 Specimens examined.

Colour: Dark brown above with a white to greyish-white or yellow vertebral stripe extending from behind head to the tail tip (original tail). Dorsolaterally a pale yellowish stripe extends on either side from behind the head, along the body and onto the tail tip. Laterally greyish-brown to green or reddish-brown. Ventrally pale greenish white becoming yellowish white posteriorly. Head pale brown.

Lepidosis: A medium sized head merging with the neck; Body elongate but wider than head or neck; Limbs very much reduced and pentadactyle; Tail very long, more than twice SVL. Rostral broad forming a narrow band, slightly raised anteriorly; nostril pierced laterally in lower part of nasal; nasals separated by frontonasal, which is entire or divided into a small anterior scale and a larger posterior one; frontonasal large and adjacent to nasals on either side; prefrontals in broad contact; frontal approximately hexagonal, sometimes almost rounded posteriorly; frontoparietals in contact; interparietal roughly pentagonal and longer than broad; an occipital scale present, in contact with interparietal and separating parietals; 4 parietals, two on either side. Parietal eye in interparietal prominent; supraoculars 3; supraciliaries 3; one postnasal; preoculars 2; subocular borders lip; postoculars 2; lower eyelid opaque and scaly; UL 3-4; LL 3-4; Mental larg,



MAP 86.

Chamaesaura aenea.
Recorded distribution
in the Transvaal, and
in southern Africa.

broader than long, recurved posteriorly; 4 prs. chin shields, 1st pr in broad contact; 2nd pair in contact or separated by a scale. Dorsals lanceolate, strongly keeled and imbricate as are the ventrals. Scales in 28-32 longitudinal and 44-50 transverse rows. Caudal scales lanceolate, mucronate and imbricate.

Size: FitzSimons (1943) records a female with SVL = 134,0 mm (TM166 - Selati). Only two specimens were found during the survey, one D.O.R. and the other dead after a fire. The latter had a SVL = 117,0 mm with a mass of 12,0 g.

Distribution

FitzSimons (1943) records the distribution as extending from the Transvaal Drakensberg and highveld through the Natal Drakensberg to the eastern Cape Province.

Distribution in Transvaal (Map 86)

Belfast, Belgrano/Syferbult Boven; Benoni; Blyde River Nature Reserve; Delmas; Elandsfontein 147IS; Irene; Lakenvlei 355JT; Lydenburg district; Middelburg; Pretoria, Garstfontein; Pretoria, Rietvlei Dam; Sabie; Schoonwater; Selati; Wakkerstroom; Witbank; Pretoria, Wonderboompoort.

Literature Records

Kendal; Modderfontein (FitzSimons, 1943). Serala 5KT (Snyders, 1987).

Habitat and Ecology

A terrestrial grassland species restricted to the highveld and Drakensberg escarpment. Adapted for a life

in thick grass cover, the reduced limbs allow unrestricted passage between grass culms. The long tail probably assists this process, similar to that of snakes.

Chamaesaura anguina anguina (Linnaeus, 1758)

Lacerta anguina Linnaeus 1758, Syst. Nat. Ed. 10, 1, p. 210 and 1766, Ed. 12, 1. p. 371. Type locality: Cape of Good Hope.

Chamaesaura anguina (Linnaeus). FitzSimons 1943, p. 411-412, fig. 306.

Chamaesaura anguina anguina (Linnaeus): Branch 1981b, p. 159, 1985, p. 10, 1988a, p. 156, pl. 50; Welch 1982, p. 111; Branch 1988b, p. 10.

Description. 31 Specimens examined.

Colour: Uniform yellow to olive brown or grey-brown above; rarely a beige vertebral stripe present extending from posterior margin of the head longitudinally down the back and onto the tail. Dorsolaterally a broad white to cream stripe on either side extends from the posterior margin of the supraoculars along the body to the tail tip. Both dorsolateral stripes are bordered above with a continuous or interrupted black line, and sometimes below as well. Laterally grey brown to brown, transitional or sharply demarcated from the white to buffy underparts.

Lepidosis: Head narrow, as wide as neck; Body larger than head or neck; Limbs very much reduced and tail more than twice SVL ranging from 71,32 - 79,33% of total length. Rostral a narrow band across the tip of the snout, with raised anterior edge; nostril pierced in nasal and directed posteriorly; nasals in contact behind rostral; frontonasal pentagonal, longer than broad and in broad contact with frontal; prefrontals widely separated; frontal elongate, narrowing slightly posteriorly; anteriorly slightly concave to fit

frontonasal; frontoparietals in broad contact, notched sharply posteriorly; interparietal pentagonal with pointed apex fitting into posterior of frontoparietals; Occipital present; parietals two on either side separated by frontoparietals and occipitals; supraoculars 4; supraciliaries 3, loreal 1; preocular 1; subocular borders lip; postoculars 2; lower eyelid opaque and scaly; UL 3; anterior to subocular; LL 4; Mental large extending umbrella-like posteriorly with 5 pointed projections; 4 pairs sublabials, only 1st pair in contact; 2nd pair separated by a large gular; Dorsal scales lanceolate, mucronate, imbricate and strongly keeled. Ventrally similar to dorsals but less strongly keeled. Limbs very rudimentary with forelimbs monodactyle with one to two claws and hindlimbs monodactyle; tail elongate and scales strongly keeled less marked ventrally than dorsally and imbricate. Caudal autotomy present with 6/24 (25,0%) of tails regenerating.

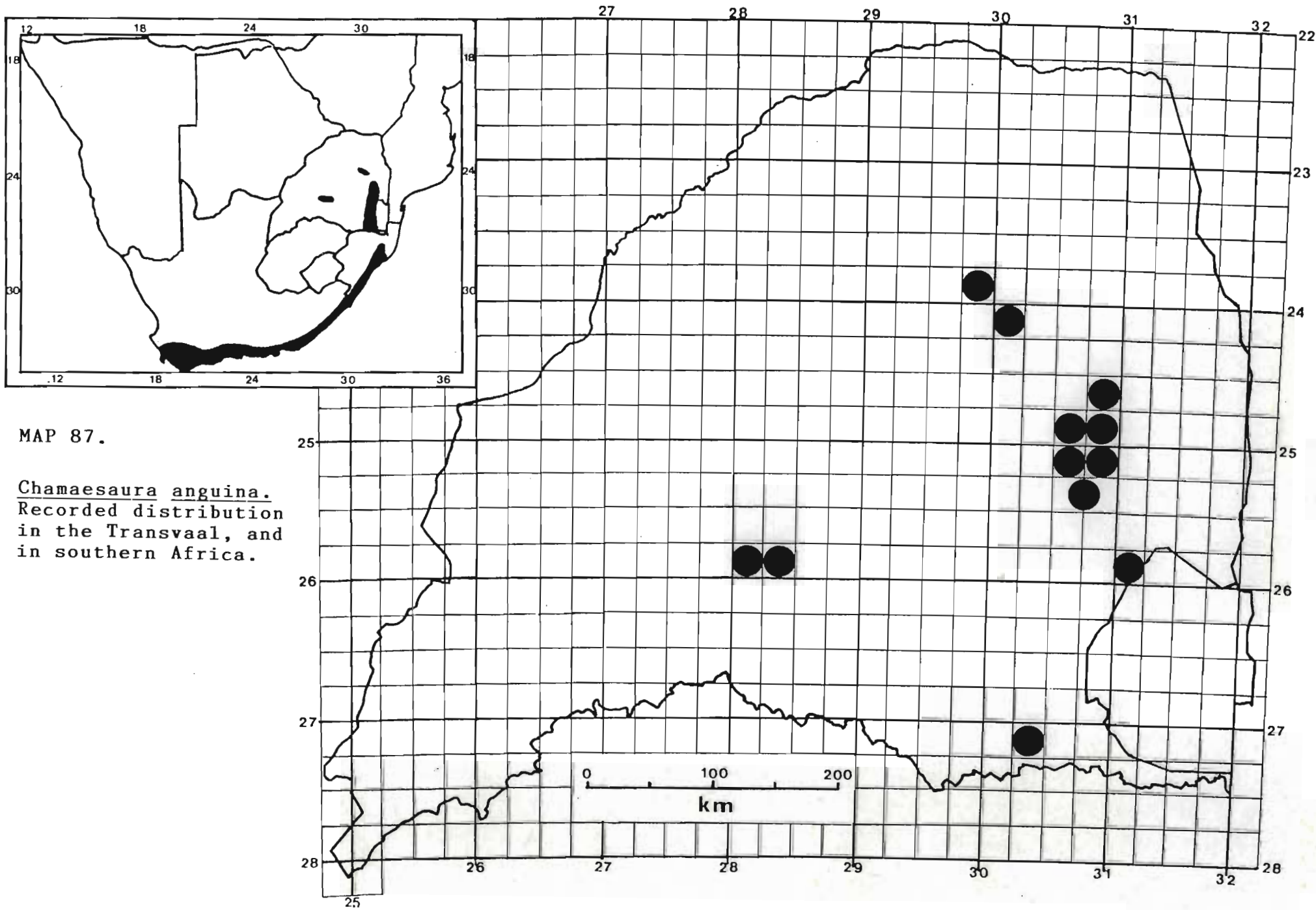
Size: Largest female SVL = 140,0 mm (11258 - Blyde River nature reserve).

Distribution

From the southern Cape Province northwards to Natal and Zululand and thence over Swaziland to the eastern Transvaal (FitzSimons, 1943). Disjunct populations occur in Angola, eastern Zaire, Uganda, Kenya and Tanzania (Welch, 1982).

Distribution in Transvaal (Map 87)

Acre 2KT; Barberton; Blyde River Nature Reserve; Bourke's Luck; Broederstroom, Haenertsburg; De Kuilen 205JT; Dycedale 368JU; Elandsfontein 36HT; Graskop; Irene; New Agatha Forest Reserve; Ohrigstad



MAP 87.

Chamaesaura anguina.
Recorded distribution
in the Transvaal, and
in southern Africa.

Dam Nature Reserve; Paradise camp near God's Window; Pilgrims Rest; Pretoria, Garstfontein; Rietfontein 255JT; Sabie; Whisky spruit, Mauchsberg; 2 km N. of Diepgezet Mine, Barberton.

Literature Records

The Downs 34KT.

Habitat and Ecology

Similar to the preceding species, anguina occurs in montane grassland, also a relict population in highveld grassland near Pretoria. Terrestrial, fast moving, they are occasionally seen basking on flat rocks or grass tussocks. They rapidly seek shelter if disturbed and disappear in the thick grass. As with the previous species the tail breaks off very easily. Normally found on rocky hillsides in veld types 8, 9, 61, 62 and 63 at altitudes ranging from 1400-1550 m above sea level.

FitzSimons (1943) records this species as feeding largely on grasshoppers.

Viviparous, from 3-7 young are born during early to midsummer measuring 38,0 - 39,0 mm SVL. Tail 97,0 - 102,0 mm.

Conservation Status

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. The more common of the three Chamaesaura species. On account of its cryptic habits it is not often seen except during veld fires when they flee in front of the fire. The species occurs in only three provincial nature reserves. Much of the available habitat of the species has been planted over with pines. The remaining habitat may be burnt on an annual basis with

detrimental effects to these animals. Several specimens have been found dead after veld fires, while others are killed while crossing roads. Details on population densities are required. The species appears currently secure but should be monitored.

Chamaesaura macrolepis (Cope, 1862)

Mancus macrolepis Cope 1862, Proc. Acad. Nat. Sci. Philad. p. 339. Type locality: Natal.

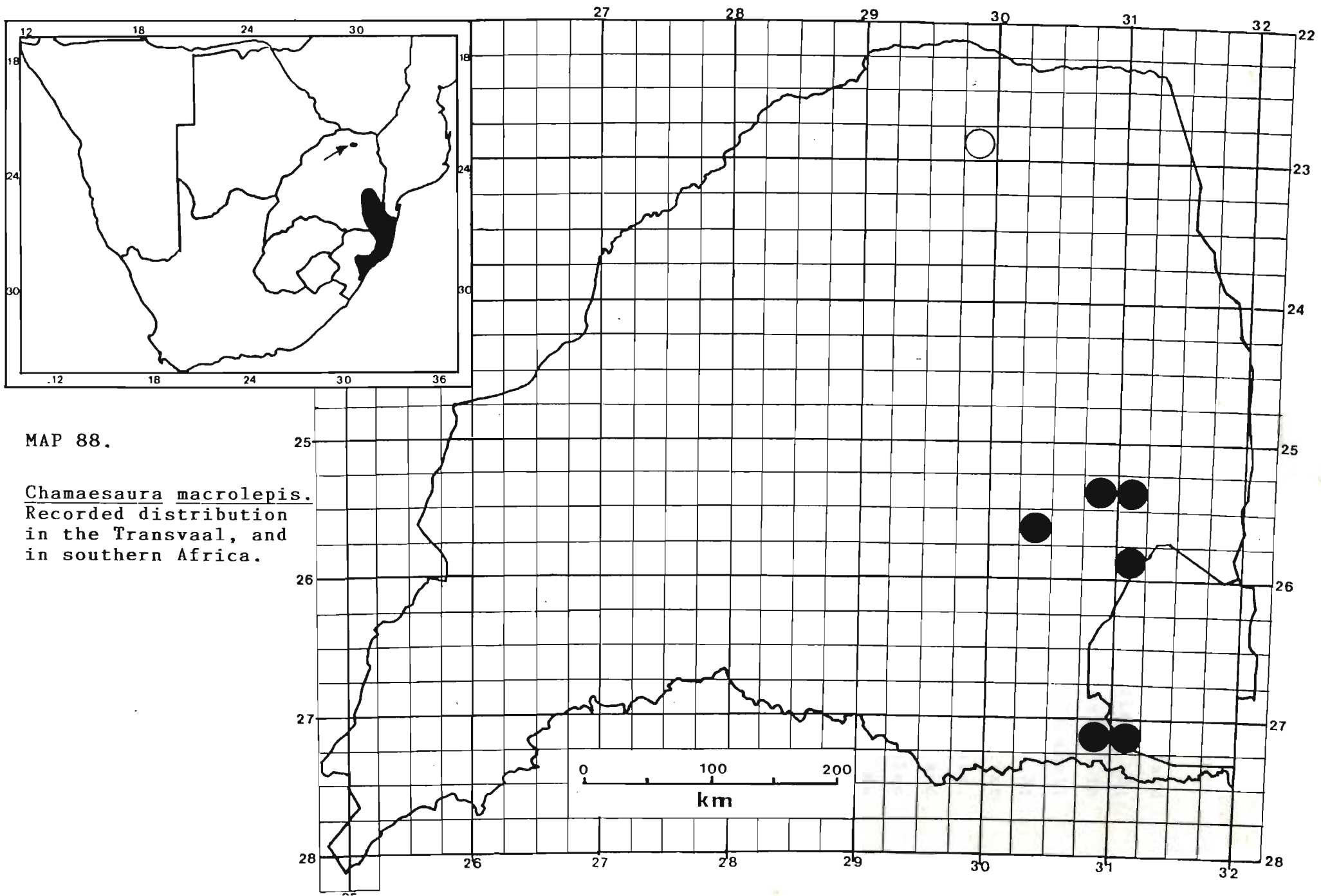
Chamaesaura macrolepis (Cope). FitzSimons 1943, p. 412-413.

Chamaesaura macrolepis macrolepis (Cope). Welch 1982, p. 111; Branch 1988a, p. 156, pl. 50, 1988b, p. 10.

Description. 7 Specimens examined.

Colour: Light brown with two longitudinal brown to dark brown bands extending from posterior margin of head to the dorsal surface of the tail; these bands may be broken up into a series of blackish spots (FitzSimons, 1943); Laterally brown to yellow-brown; Ventrally whitish becoming yellowish under the tail.

Lepidosis: Head larger than neck, body elongate; limbs vestigial; forelimbs absent, hindlimbs monodactyle; tail very elongate ranging from 71,57 - 80,52% of total length. Rostral narrow and band-like with a slightly raised posterior edge; nostril pierced in lower portion of nasal, almost in contact with 1st upper labial, nostril directed posteriorly; nasals in broad contact behind rostral; frontonasal pentagonal in broad contact with frontal; prefrontals widely separated; frontal roughly heptagonal although posterior portion somewhat curved; frontoparietals in long contact notched posteriorly; interparietal elongate fitting into notch, more than twice as long as broad; parietal eye spot easily visible; occipital single or divided; parietals



MAP 88.

Chamaesaura macrolepis.
Recorded distribution
in the Transvaal, and
in southern Africa.

4 (two a side) separated by interparietal and occiptal(s). Supraoculars 3; supraciliaries 3; postnasal 1; loreal 1; preocular 1; subocular in contact with lip; postoculars 1, preceded by three small accessory scales; lower eyelid opaque and scaly; UL 3; LL 4; Mental large; four pairs of sublabials, first pair in contact, 2nd pair separated by large gular scale. Dorsal scales lanceolate, strongly keeled, pointed and imbricate; Ventral scales as for dorsals; Caudal scales elongate, overlapping, strongly keeled and pointed. No caudal autotomy observed.

Size: FitzSimons (1943) records a specimen from Ubombo (TM 13651) as having a SVL of 166,0 mm.

Distribution

Natal, Zululand, Swaziland and the south-eastern Transvaal with a relict population on the Chimanimani mountains, Zimbabwe.

Distribution in Transvaal (Map 88)

Barberton; Brondal Siding; Normandie 178HT; Schoonwater 374JT; White River; 35 km W. of Pongola.

Literature Records

Nelspruit, (FitzSimons, 1943). Outlook 789MS, (NMZB).

Habitat and Ecology

Very little is known of the ecology of the species. It is found in similar habitats to that of the previous species, namely rocky hillsides covered with grass. It is sympatric with C. anguina on the farm Schoonwater 374JT and probably elsewhere. A terrestrial diurnal

species, the only specimen found during this survey was collected in a hollow under a rock on soil.

Specimens from Zimbabwe fed on grasshoppers (Broadley, 1966). FitzSimons (1943) mentions that females collected during December contained 6-7 well developed young measuring from 140-150 mm in total length.

Conservation Status

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. This is the rarest of the Chamaesaura species and it is not known to occur in any provincial nature reserve with the possible exception of Barberton. Much of its habitat has been afforested while the remainder is burnt on an annual to bi-annual basis which is very detrimental to the establishment of populations. Fire is probably responsible for the paucity of the species and the presence of snake lizards mostly in areas on rocky hillsides where protection is offered. This species is rare and could be endangered. Needs monitoring and survey actions.

Remarks

The occurrence of the subspecies C. m. miopropus Boulenger from Malawi and Zambia to southern Tanzania, southern Zaire and Angola is puzzling as it indicates a northern origin of the species. This species together with C. anguina have very extensive tropical distributions. Such distributions suggest adaptations to moderate to warm climates which is borne out, with the possible exception of the Transvaal, by the distribution of the genus in South Africa. Two species (macrolepis, anguina) have wide climatic tolerances while the third (aenea) is more stenothermal. The latter however,

C. aenea on account of least limb and digital reduction appears to be the most primitive species, followed by C. anguina and C. macrolepis in that order. This in turn leads to a theory of southern origin with expansion occurring in more favourable climates to the north. Which of these attributes are more important? Both climatic and morphological adaptations may evolve with time and exposure to selective forces. However it is not possible to ascribe comparative values of importance to two non linked characteristics. A more in depth analysis of interspecific relationships is likely to point to the source of origin of the genus.

Genus Cordylus Laurenti, 1768

Cordylus Laurenti, 1768, Syn. Rept., p. 51

Type by tautonomy: C. verus Laurenti = Lacerta cordylus Linnaeus.

Head and body more or less depressed, digits slightly keeled below. Head shields regular; nostril pierced in a nasal shield; ear-opening large; eyelids well developed. Dorsal scales large, underlain with bony plates, usually in regular transverse and longitudinal series. Ventrals large, square, quadrangular or subtriangular, juxtaposed or imbricate, in regular longitudinal and transverse series; no collar fold present. Tail spinose. Femoral pores present.

A large genus of African lizards, with 20 species and many subspecies. Their greatest diversity and probable origin is south of the Zambesi river although a few species extend into central and East Africa. Branch (1988) mentions that the taxonomy of some species is confused, this is particularly so of the races of C. warreni. However the status of many species of the genus is uncertain and the group as a whole needs extensive revision. Both FitzSimons (1943) and Loveridge (1944) revised the cordylids giving different interpretations of relationships within species. Recently the cordylus complex has received some interest and a new species was described, C. mclachlani (Mouton, 1986). The great number of forms of the C. warreni complex appear to be the result of fragmentation and isolation by the kalahari sands. Most populations are allopatric which has given rise to local forms. However at one locality two forms

are sympatric indicating that two species are involved. These include C. w. breyeri van Dam and C. vandami (FitzSimons). During the course of this investigation it was evident that two subspecies C. w. laevigatus (FitzSimons) and C. w. perkoensis (FitzSimons) could not be justified as they fell within the range of variation of other species and subspecies, which have nomenclatural priority.

Key to the Transvaal Cordylus species.

1. Rostral and frontonasal in contact,
separating nasals; occipitals usually
spinose 2
Rostral and frontonasal usually separated
by the supranasals; occipitals usually
non-spinose 7
2. A transverse series of 4 (rarely 2, 3, 5 or 6)
occipitals present 3
A transverse series of 6-8 (rarely 4 or 5)
occipitals present 4
3. Occipitals large, with well developed
elongate spines; dorsal scales strongly
spinose, in 22-25 transverse and 10-12
longitudinal series C. giganteus
Occipitals moderate to small, spines
short; dorsal scales not strongly
spinose, in 26-29 transverse and 18-20
longitudinal series C. vandami

4. Femoral pores in males 16-24, dorsal scales in 24-34 transverse rows; gulars between posterior sublabials 18-28 (mostly 22-24), range -
Soutpansberg C. warreni depressus
Femoral pores in males 7-14;
dorsal scales in 25-37 transverse rows;
gulars between posterior sublabials
16-24 5
5. Head shields noticeably rugose;
Dorsals in 14-20 (mostly 16-20) longitudinal rows; femoral pores in males 10-14 (mostly 11-13); range -
Waterberg C. w. breyeri
Head shields not noticeably rugose although striated; Dorsals in 18-24 longitudinal rows; femoral pores in males 9 - 13 6
6. Dorsals in 30-37 (mostly 31-37) transverse and 19-24 (mostly 21-24) longitudinal rows; range -
Lebombo mountains C. w. warreni
Dorsals in 27-33 (mostly 29-32) transverse and 18-24 (mostly 18-21) longitudinal rows; range -
S.E. Transvaal excluding the Lebombo mountains C. w. barbertonensis
7. Two nasals present, comprising a large supranasal and a small inferior nasal pierced by the nostril;
Femoral pores in males 10-19 per side C. polyzonus

A single large nasal present;
Femoral pores in males only or in
males and females 5-9 per side 8

8. Head not depressed; nuchal scales
not noticeably enlarged; Dorsals
in 19-24 transverse rows; femoral
pores in males 5-7 per side C. tropidosternum
jonesii

Head depressed; nuchal scales
noticeably enlarged, first row up
to twice as long as second row;
femoral pores in males and
females 6-9 per side C. vittifer vittifer

Cordylus giganteus A. Smith, 1844

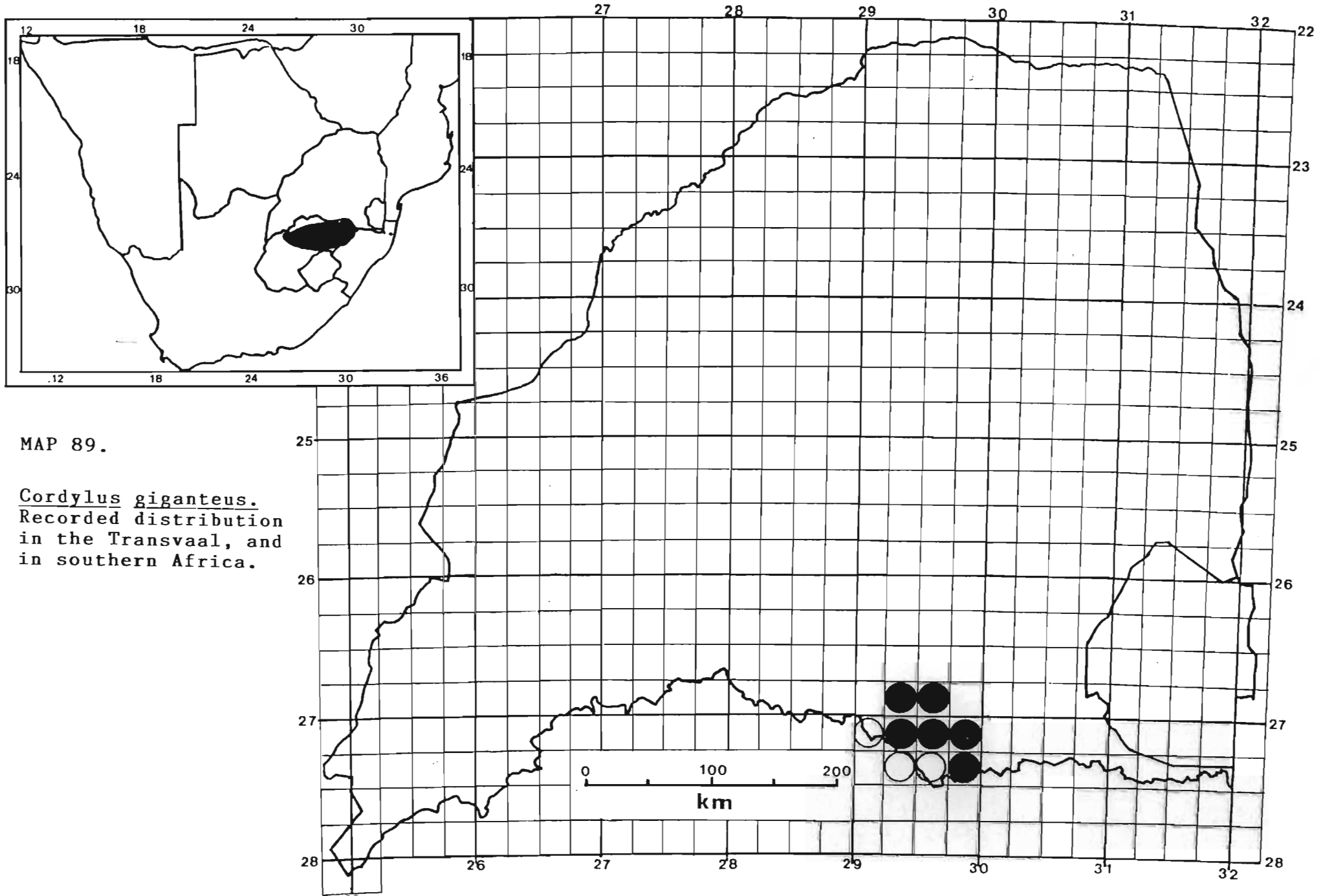
Cordylus giganteus A. Smith 1844, Illus. Zool. S. Afr. Rept. pls. 35 & 36. Type locality: Interior districts of Southern Africa, on pinnacles of the Quathlamba mountains. FitzSimons 1943, p. 418-420, figs 307-309, pl. 24, fig. 5; Loveridge 1944, p. 16; Branch & Patterson 1975, p. 364; De Waal 1978, p. 51; Marais 1984, p. 30; Petersen et al 1985, p. 26; Green 1983, p. 91; Adolphs & Tröger, 1987, p. 28, figs; Patterson & Bannister 1987, p. 56, fig; Welch 1982, p. 112; Branch 1988a, p. 159, pl. 65, 1988b, p. 10.

Description. 20 Specimens examined.

Colour: Yellow-brown to dark blackish-brown above, uniform or with lighter regular bars extending up from the laterals. Head dark brown to blackish dorsally. Laterally upper and lower labials pale yellow. The sides are irregularly barred with yellow and brown to blackish brown. Ventrally yellow frequently spotted and streaked

with blackish brown. Ventrolateral caudal spines pale tipped, dorsally dark-brown. Limbs brown, variously marked with yellow-brown and dark-brown. Juveniles very much barred and blotched with yellow to orange interspersed with blackish brown to black. This pattern extends onto the tail. Vertical barring laterally with yellow and black. Ventrally yellow. Tail with orange or yellow and brick-red markings. Head yellowish brown anteriorly, dark-brown posteriorly.

Lepidosis: A large lizard with a triangular head, distinct from the neck, a stout slightly depressed body and well developed limbs and feet. Tail thick and strong, equal to or shorter than SVL being 47,73 - 51,48% of total length. Rostral slightly pentagonal, broader than high; nostril in lower part of nasal; Supranasals separate (rarely in contact) behind rostral; frontonasal longer than broad, a forward projection mostly in contact with rostral, posterior margin convex; prefrontals in very broad contact, and in contact with loreal and preocular; frontal roughly hexagonal longer than wide; frontoparietals in contact and notched posteriorly for interparietal; interparietal small almost surrounded by anterior parietals; posterior parietals large and rectangular. Occipitals 4 (rarely 5) very large and spiny; two straight edged temporals on either side of head forming sharply defined margin; Supraoculars 4; Supraciliaries 3; A small granular postnasal which has separated from the 1st upper labial may be present; loreal 1; preocular large; suboculars 3; postoculars 2; UL 4-6 anterior to median subocular; LL 4 rarely 5; A row of enlarged spinose scales on either side of head anterior to the earopening; Mental large with 4 concave faces; sublabials 5 prs, 1st pair in broad contact, 2nd pair separated by large chin shield. Dorsal scales keeled and laterally very spinose, in 20-23 transverse and 18-22 longitudinal rows. Ventrals imbricate



MAP 89.

Cordylus giganteus.
Recorded distribution
in the Transvaal, and
in southern Africa.

posteriorly pointed and smooth, in 23-27 transverse and 8-12 (mostly 10) longitudinal rows; Feet small but toes thick not well developed for running, with 10 or 11 subdigital lamellae under 4th toe. Femoral pores in both sexes ranging from 10-14 per side. Although caudal autotomy is evident this is mainly restricted to the tip of the tail which is less spinose than the heavily armoured proximal sections.

Size: Largest male SVL = 198,0 mm (10977 - Roodekopjes 83HS), mass = 236,0 g (P10942 - Leeuwkraal 50HS); Largest female SVL = 188,0 mm (N8080 - Rietpoort 83HS), mass = 273,0 g (N8133 - Paardekop 76HS). Mean male SVL = 170,67 mm \pm 20,66 (1SD) n=6, mass = 165,8 g \pm 66,74 (1SD) n = 4; Mean female SVL = 165,20 mm \pm 22,36 (1SD) n = 10, mass = 181,40 g \pm 74,81 (1SD) n = 10.

Distribution

Endemic to South Africa occurring in the north-eastern Orange Free State, south-eastern Transvaal and a small area in adjacent Natal.

Distribution in Transvaal (Map 89)

Groenvlei 37HS; Leeuwkraal 50HS; Paardekop 76HS;
Rietpoort 83HS; Roodekopjes 67HS; Smalkloof 122HS;
Welgedacht 82HS.

Literature Records

Skaapplaats, Vereeniging dist. (FitzSimons 1943).
Zandspruit 94HS (Marais 1984).

Sight Records

2629CD, Diepspruit 414IS; Kaalspruit 518IS; Kareebosch 413IS; Kromdraai 12IS; Langspruit 13IS; Springbokspruit 419IS; Vogelstruisfontein 417IS. 2629DC, Brakfontein 522IS; Kaalspruit 518IS; Kafferskraal 520IS; Weltevreden 521IS. 2729AA, Sterkfontein 34HS. 2729AB, Cyrus 23HS; Darling 11HS; Goedgedacht 38HS; Kafferskraal 47HS; Katdoornkraal 22HS; Klipplaatdrift 43HS; Kromdraai 12HS; Langspruit 13HS; Leeuwfontein 15HS; Leeuwspruit 21HS; Platrand 18HS; Rietfontein 40HS; Sterkfontein 34HS; Vlakrand 14HS; Vlakspruit 42HS; Zwartkop 103HS. 2729AD, Goedverwacht 48HS. 2729BA, Driepoort 98HS; Elandspoort 99HS; Grootvley 61HS; Holfontein 80HS; Holvlei 52HS; Kopje Alleen 75HS; Leeuwfontein 15HS; Mezig 79HS; Potfontein 55HS; Roodewal 102HS; Slangfontein 69HS; Strydkraal 53HS; Tweefontein 97HS; Wolwespruit 71HS; Wolwespruit 72HS; Zandfontein 74HS; Zwartkop 103HS. 2729BB, Bergvliet 65HS; Elandspoort 85HS; Holfontein 80HS; Oudehoutkloof 86HS; Palmietfontein 64HS; Palmietspruit 68HS; Poortje 96HS; Rietfontein 66HS; Tweefontein 97HS; Witkoppies 81HS. 2729BC, Boterfontein 101HS; Burgershoop 107HS; Dassiesklip 109HS; Driepoort 98HS; Honingvallei 104HS; Roodewal 102HS; Streepfontein 105HS; Waterval 138HS; Weltevreden 106HS; 2729BD, Dassiesklip 109HS; Driefontein 123 HS; Droefheid op Noten 140HS; Oppermanskraal 110HS; Rietfontein 112HS; Rooipoort 113HS; Sand Spruit 95HS; Skuilhoek 139HS.

Habitat and Ecology

A terrestrial, diurnal grassland lizard usually observed sitting erect at the entrance to its burrow. The burrows normally face north-east to south-west and may be up to

three metres in length and up to 70 cm below the surface. From one to seven animals may occupy a burrow. The lizards appear to move between burrows but adult males may actively defend a burrow. The lizards use the burrows as a retreat from predation as well as for hibernation as the highveld winters can be severe. The lizards are usually found head first at the ends of their burrows. Here they will use the large occipital spines to hook into the soil of the burrow roof. At the same time the tails are flexed, which, armed with large caudal spines are sufficient deterrent to any but the most persistent predator. These lizards occur in veld types 52 and 54, at densities of up to 6,5/ha at altitudes of 1 600 m a.s.l.

The Giant girdled lizard feeds mostly on invertebrates Coleoptera, Lepidoptera larvae, Orthoptera, Myriapoda, and Hymenoptera. Even plant material may be consumed. These lizards are relatively slow moving and appear to adopt a "wait and see" foraging strategy.

Viviparous, normally one to two (rarely 3) young are born per season during late summer. Neonates range from 114,0 - 142,0 mm in total length.

Conservation Status (RDB 1988, Vulnerable)

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. This species does not occur in a provincial nature reserve. The small reserve established by Escom at the Majuba Power Station is insufficient to maintain a viable population. Despite an estimated 50 000 lizards in the south-eastern Transvaal the status of this species is vulnerable. Most of its habitat occurs in areas suitable for the cultivation of maize and livestock production. Most of the area is also underlain by coalbeds. The lizards appear not to recolonise fallow lands. Therefore if an escalation of farming or mining

should take place, it will have a detrimental effect on the species, as it must have had in the past. Commercial exploitation is currently limited and contained. However, development is likely to continue and it may become increasingly difficult to find rehabilitation sites. It may therefore be considered possible to market these animals and thereby make them available to reptile breeders. This would increase our knowledge of the reproductive potential of the species in captivity, knowledge which is currently somewhat fragmented. Monitoring of habitat changes and of fallow lands is urgently needed.

Remarks

An examination of the Transvaal population and details of the Orange Free State population indicates that they are not contiguous. It also appears (Stoltz & Blom, 1981), that Orange Free State animals may be considerably larger than those of the Transvaal. There may be other differences, which can only be resolved by an investigation of the species as a whole. The isolated record from Skaapplaats, Vereeniging dist. is well removed from the nearest other locality and must be viewed with restraint.

Cordylus vandami (FitzSimons, 1930)

Zonurus vandami FitzSimons 1930, Ann. Tvl. Mus. 14, p. 25, figs. 6 & 7. Type locality: Gravelotte, E. Transvaal.

Cordylus vandami vandami (FitzSimons). Loveridge 1944, p. 23; FitzSimons 1943, p. 420-422, figs. 310 & 311; Pienaar 1966, p. 101, pl. 38 & 38A.

Cordylus vandami perkoensis (FitzSimons). FitzSimons 1943, p. 422-423, fig. 312 & 313.

Cordylus warreni vandami (FitzSimons). Loveridge 1944, p. 23; Pienaar 1978, p. 79, pl. 29 & 29A; Pienaar et al 1983, p. 94, pl. 35, Welch 1982, p. 114; Branch 1988a, p. 164, pl. 70, 1988b, p. 10.

Cordylus warreni perkoensis (FitzSimons). Loveridge 1944, p. 21; Welch 1982, p. 113; Branch 1988a, p. 164, pl. 70, 1988b, p. 10.

Description. 113 Specimens examined.

Colour: Dark reddish-brown dorsally with an irregular series of fragmented yellow cross bars extending from behind the head onto the tail. Head uniform blackish-brown, head shields sometimes pale edged. Laterally brown to grey-brown with yellow, irregular bars. Limbs brown, spotted with yellow. Ventrally dirty yellow to brown with irregular blotches, spots and barring of brown or yellow. Gular usually yellowish with forward directed interrupted brown stripes. Tail banded yellow and dark-brown.

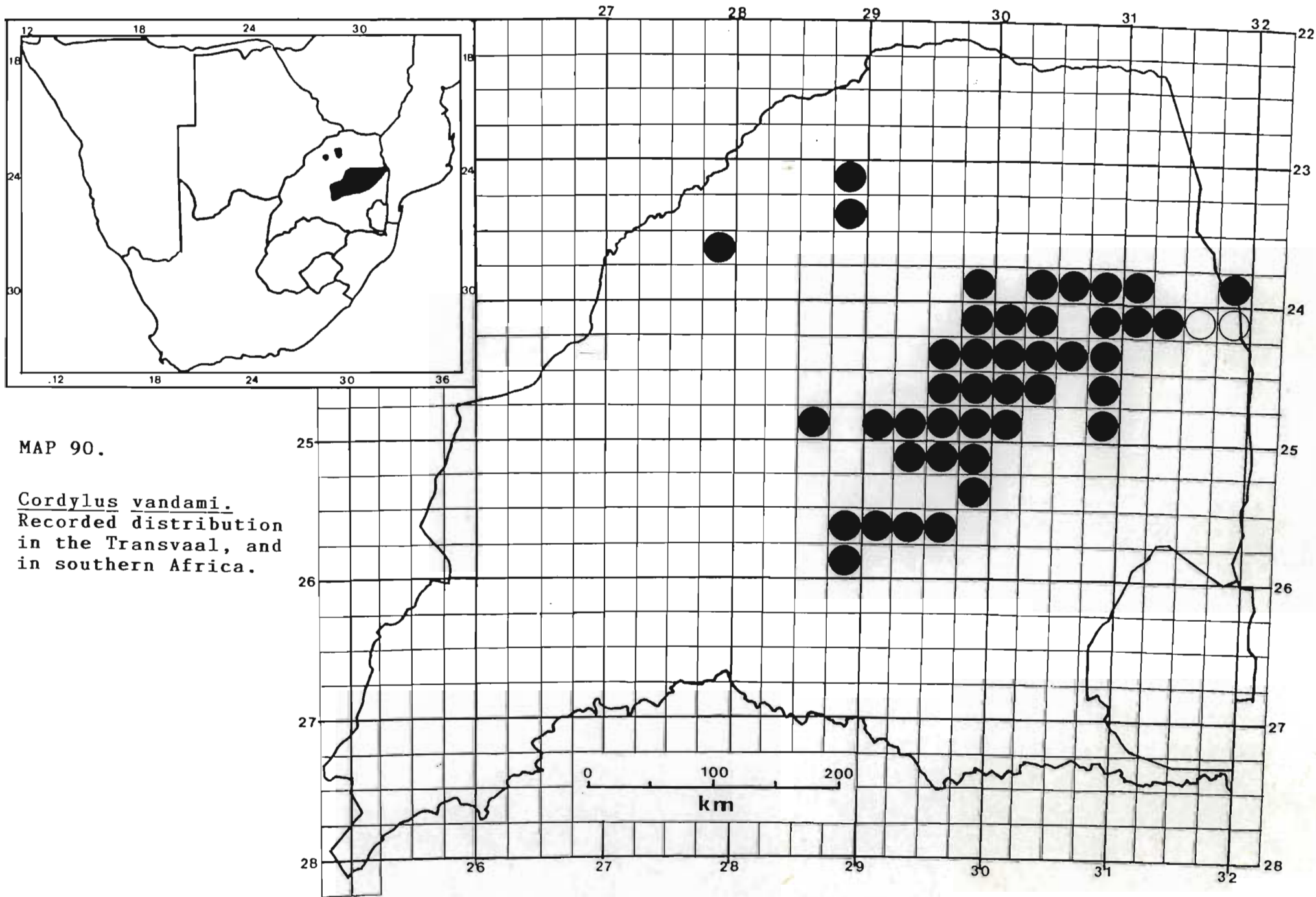
Lepidosis: Head depressed triangular, distinct from neck. Body depressed and broad. Limbs well developed and pentadactyle; Tail long and tapered between 51,92 - 61,80% of total length. The Lowveld specimens appear to have longer tails. Rostral broad and narrow forming a band across the front of the snout; nostril pierced along posterior margin of nasal in contact with 1st upper labial; nasals separated behind the rostral; frontonasal longer than broad in contact with loreal/postnasal; prefrontals in long contact. Frontal small as long as or slightly longer than broad; frontoparietals in broad contact; anterior parietals in broad contact and notched posteriorly, to fit small diamond shaped interparietal; posterior parietals notched anteriorly and usually abutt onto 4 (range 2-6) occipital spinose scales, which may be medianly separated

by from 1-4 small undeveloped granules or scales; temporals (2 on each side) forming ridge on either side of parietals. Supraoculars 3-5 (usually 4); supraciliaries 3-5 (mostly 4); loreal/postnasal 0-2 (usually 1); preocular 1; suboculars 3 - rarely 4, median borders lip; supralabials 4 rarely 5 anterior to median subocular; Mental wider than deep and straight edged posteriorly. Infralabials 6 (rarely 5 or 7); sublabials 5, 1st pair in broad contact; gulars between posterior sublabials 16-24 (mostly 20-22); Scales at anterior margin of ear enlarged and flared outwards. Dorsals keeled, largest dorsolateral, smallest paravertebral in 25-31 (mostly 27-29) transverse and 14-22 (mostly 18-20) longitudinal rows; Ventrals smooth, subimbricate and in 23-30 (mostly 26-28) transverse and 12-14 (mostly 14) longitudinal scale rows at midbody; Feet well developed, 4th toe elongate with 14-18 (mostly 16-18) subdigital lamellae. Femoral pores in males 10-17 (usually 12-14) per side. Tail spinose, scales arranged in whorls with 20-33 scales per whorl. Caudal autotomy evident with 42/78 (53,85%) of tails regenerated.

Size: Largest male SVL = 132,0 mm (N9956 - Blackhill 317LR), mass = 63,0 g (P10836 - Spitskop 502JR); Largest female SVL = 145,0 mm (N9960 - Blackhill 317LR), mass = 90,0 g (N9960). Mean male SVL = 114,06 mm \pm 14,91 (1SD) n = 46, mass = 43,66 g \pm 14,77 (1SD) n = 46; Mean female SVL = 119,26 mm \pm 16,56 (1SD) n = 44, mass = 49,04 g \pm 18,23 (1SD) n = 44.

Distribution

Endemic to the Transvaal but likely to occur in Mozambique where the Olifants river cuts through the Lebombo mountains.



Distribution in Transvaal (Map 90)

Bangu Gorge; Blackhill 317LR; Blyde River Nature Reserve; Buffelshoek 91IS; Dal Josaphat 461KS; De Beer 448KS; De Oude Stad van Sekwati 765KS; Dientje 453KT; Diepkloof 44JS; Garatouw 282KT; Gravelotte; Hermansburg; Holfontein 126KT; Houtbosdorp; Humansrust 192KS; Kalkfontein 367KT; Kasteel 766LT; Ketting 368LR; Kgoloko Location; Klipdraai 3KT; Klipdraai Forest Station; Leeuwfontein 228JS; Leeuwfontein 750KS; Letsitele; Lillie 148KT; Maandagshoek 254KT; Malta 65KT; Mapochsgronde 500JS; Middlesex 205KT; Mooiplaats 242JS; Morgendal 216KS; New York 490LQ; Nooitgedacht 345JS; Normandy 312LR; Perkeo 223KT; Potosenyane; Praktiseer 275KT; Riverhead 755LT; Schelem 32KT; Schiettocht 25LU; Schilderkrans 1041LS; Sekororo; Shlaralumi River, KNP Boundary; Spitskop 502JR; Steynsdrift 145JS; Tivoli 98KT; Venice 40KU; Vergelegen 819KS; Vlakfontein 723KS; Weltevreden 822KS; Wonderboom 532KS; Zusterstroom 447JR.

Literature Records

Eastern tributary of the Bangu spruit, Lebombos; Bangu spruit at entrance of Gorge; Timbavati picnic site; north bank of Olifants river south of Bulweni; Nhlarulumi drift; Rhyolite reef east of Mshatu mouth, (Pienaar et al 1983). Wolkberg wilderness area, (Snyders 1987). Abel Erasmus Pass; Makalali 167KT, (NMZB).

Habitat and Ecology

An exclusively rupicolous species inhabiting rocky outcrops in the lowveld, on the slopes of mountains and hills. Normally only found in crevices between or under rock on rock. Solitary or in pairs, these shy lizards

may be observed on rocks near their retreat basking in the sun but quickly retire into their retreat if disturbed. In the crevice they wedge themselves as deep into the crack as they can and inflate themselves, at the same time arching the head so that the occipital spines wedge into concavities in the rock and resist all attempts at removal, even should this result in injury or death.

They are slow moving lizards adopting a "wait and see" foraging strategy taking anything that walks past. They are awkward on the ground and except for short distances do not travel extensively away from a retreat. They have been recorded from Veld types 8, 11, 15, 18, 19, 57 and 61, at altitudes ranging from 230-1600 m. a.s.l.

Live-bearing, gravid females were recorded during October to January. Pienaar et al (1983) recorded up to 6 young but is mostly 2 to 4.

Conservation Status

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. This species is widespread in the Transvaal and is found in 6 provincial nature reserves and in the Kruger National Park. Although sparsely distributed, its rupicolous habit renders it safe from most threats except collecting for commercial purposes. Such activities should be monitored and prevented. Trade in this species is also to a degree controlled by CITES where it is listed in Appendix II of the Convention. Its current status is secure.

Remarks

This subspecies forms part of a complex of forms occurring allopatrically over the northern Transvaal. However C. w. vandami has been found sympatric with C. w. breyeri

(Van Dam) on the farm New York 490LQ, indicating that this taxon might warrant specific status as originally described by FitzSimons, 1930. The race C. w. perkoensis (FitzSimons) is not tenable due to the great degree of variation in morphological characters including colour and lepidosis. The isolated populations of C. w. vandami along the fringe of the Waterberg and on the Makgabeng, although appearing larger, have not differentiated significantly from the populations in the main distribution range.

Cordylus warreni depressus (FitzSimons, 1930)

Zonurus barbertonensis depressus FitzSimons, 1930, Ann. Tvl. Mus. 14, p. 24. Type locality: Farm Newgate near Louis Trichardt, Soutpansberg, N. Transvaal.

Cordylus laevigatus (FitzSimons). FitzSimons 1943, p. 423-424, figs: 314 & 315; Pienaar 1966, p. 103, pl. 39 & 39A.

Cordylus warreni depressus (FitzSimons). FitzSimons 1943, p. 427-428, figs. 321 & 322; Loveridge 1944, p. 24; Pienaar 1966, p. 104, pl. 40 & 40A. Pienaar 1978, p. 80, pls. 30 & 30A, Pienaar et al 1983, p. 91, pls. 34 & 34A; Welch 1982, p. 113; Branch 1988a, p. 164, pl. 70, 1988b, p. 10.

Cordylus warreni laevigatus (FitzSimons). Loveridge 1944, p. 26; Pienaar 1978, p. 82, pl. 31 & 31A; Pienaar et al 1983, p. 91, pl. 33; Welch 1982, p. 113; Branch 1988a, p. 164, 1966b, p. 10.

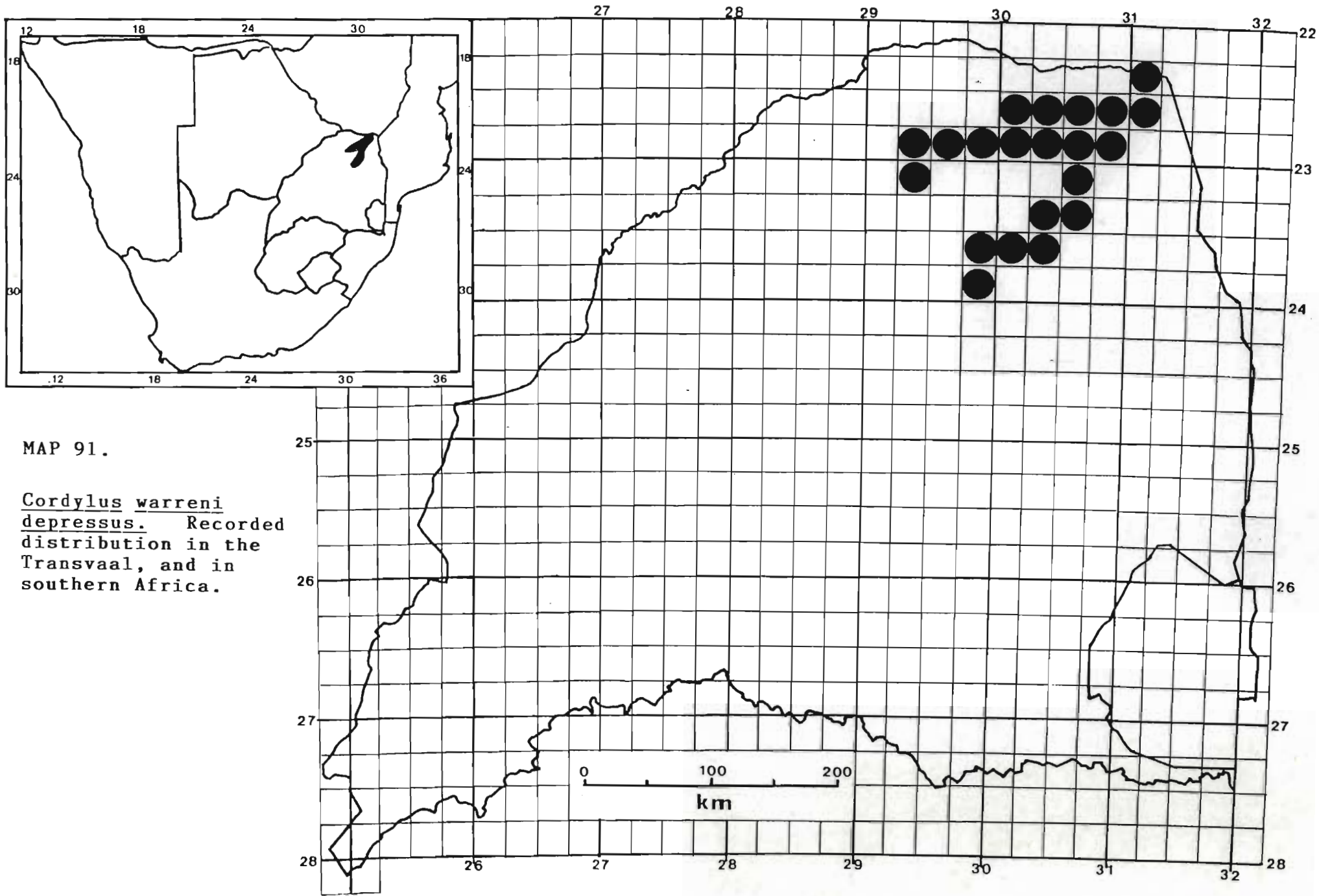
Description. 96 Specimens examined.

Colour: Dark-brown to black above, almost uniform to brightly blotched and striped with bright yellow.

Head uniform dark-brown to blackish to brightly marked with streaks and spots of yellow. Laterally dark-brown to blackish-brown with paler brown to yellow intermittent

barring or spotting. Ventrally brown almost uniform in some with paler infuscations or in others pale yellowish barring and spotting. Gular yellowish with varying degrees of blackish-brown stripes and spotting. Limbs dark brown to black uniform or spotted in varying degrees with yellow. Tail moderately long and tapered uniform dark-brown to black or spotted with yellow dorsally, paler ventrally with irregular paler barring.

Lepidosis: Head triangular and depressed much broader than neck; Body depressed and broadest at midbody; Limbs stout and pentadactyle. Tail tapering and spinose laterally, ranging from 51,53 - 58,76% (usually 54,0 - 58,0%) of total length. Rostral narrow, forming a band along the tip of the snout; nostril pierced near posterior margin of nasal in contact with 1st upper labial; nasals widely separated behind rostral by forward projecting frontonasal which is longer than wide and in contact with loreals; prefrontals in broad contact; frontal almost rectangular, slightly longer than broad; frontoparietals in long contact; interparietal small diamond shaped in very narrow contact with frontoparietals; anterior parietals in narrow separation on either side of the interparietal; posterior parietals large, squarish and in broad contact behind interparietal but notched anteriorly. Occipital scales 6, moderately enlarged, with southern populations ranging from 5-8. Two large temporals on either side sharply demarcating head; supraoculars 4; supraciliaries 4; loreal 1; suboculars 3 (rarely 2) becoming 4 (rarely 2 or 3) in the southern populations, median subocular in contact with lip; preocular 1; postoculars 2-3. Lower eyelid opaque, with vertically enlarged scales; enlarged spinose scales at anterior margin of ear opening; UL 4 (rarely 3 or 5) anterior to subocular; LL 5 or 6 rarely 7; Mental large, almost as



deep as wide; sublabials 5 rarely 6, 1st pair in broad contact, 2nd pair separated by 2-3 chin scales; gulars between posterior sublabials 18-28 (mostly 22-24); Dorsals variably keeled, least paravertebrally, most, laterally and in 24-34 transverse and 13-21 longitudinal rows; Ventrals smooth non-overlapping and in 25-32 transverse and 12-18 longitudinal rows. Limbs spinose, digits moderately developed with 15-19 (mostly 16-18) subdigital lamellae under 4th toe. Tail spinose, but less so dorsally than laterally. Femoral pores in males 16-24 (mostly 18-22).

Size: Largest male SVL = 138,5 mm (J1371 - Buysdorp 37LS), mass = 73,2 g (J1371); Largest female SVL = 140,0 mm (TM 27249 - 16 km E. of Duiwelskloof), mass = 67,3 g (J1404 - Smithfield 456MS). Mean male SVL (75,0 mm) = 108,81 mm \pm 14,29 (1SD) n = 44, mass = 38,35 g \pm 14,75 (1SD) n = 33; Mean female SVL (75,0 mm) = 109,94 mm \pm 14,44 (1SD) n = 39, mass = 34,43 g \pm 15,49 (1SD) n = 22.

Distribution

Endemic to the Transvaal.

Distribution in Transvaal (Map 91)

16 km E. of Duiwelskloof; 10 km W. of Punda Milia; 5 km W. of Lukale Hill; Altyd Mooi 379LT; Bluegumspoort 779MS; Bristol 760MS; Buisdorp 37LS; Crimea 747MS; Delamere 731MS; Entabeni Forest Reserve 251MT; Gumbandevu Ridge; Gumela; Houtbosdorp; Lake Funduzi; Lavhengwa Hills; Lavhalisa; Levubu road W. of Punda Milia; Matangari; Madziringwe Poort; Modjadji Location; Mpefu Location 202MT; Mutshonzheni; NE slopes of Tshamavhudzi Peak; Newgate 802MS; Parkfield 725MS; Punda Milia; Rochdale 700MS: Ridge behind Punda

Milia; Sandbach 787MS; Segops Location; Sibasa Forest Station; Sionwe hill; Shamiriri; Shipudza; Shipudze Spruit, W. of Punda Milia; Smithfield 456MS; Thonondo Peak; Vhurivhuri Plantation; Vreedzaam 822LS; Wyliespoort 725MS.

Literature Records

Matukwane ridge; Dongadziba, (Pienaar et al 1983). Mokeetsi; Outlook 789MS, (NMZB).

Habitat and Ecology

An exclusively rupicolous lizard occurring on rocky outcrops on hillsides and summit of the Soutpansberg and smaller ridges between Woodbush and the Soutpansberg. Normally found in crevices between or under rock on rock, these shy and retiring lizards are rarely seen basking on top of boulders surrounding their retreat. In habits similar to that of vandami and also occur singly or more rarely in pairs. Are found in veld types 8, 9, 11, 15, 18, 19 and 20 at altitudes of 450-1500 m a.s.l., frequently in the company of other lizards such as Pachydactylus bibronii, Mabuya quinquetaeniata margaritifera, Homopholis wahlbergii and at Entabeni with Cordylus vittifer Reichnow.

Live bearing, Pienaar et al (1983) record from 2-5 young being born in the latter half of summer. Data collected during this survey are in agreement with this. Neonates measure 46,0 - 48,0 mm SVL, Tail 54,0 - 57,0 mm and a mass of 2,2 - 2,4 g.

Conservation Status

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. Although restricted in

distribution, this species occurs in one provincial nature reserve and is marginal in the Kruger National Park, this species is in no danger as it inhabits overgrown rocky outcrops throughout the length of the Soutpansberg where suitable habitat is available. In the past the species was subjected to commercial exploitation but this has been curtailed. However the situation should be monitored. This species is also included in Appendix II of CITES.

Remarks

FitzSimons (1930, 1933) described depressus and laevigatus on specimens collected only 40 km apart. In a study of specimens collected during this survey and the material in the Transvaal Museum it was evident that a colour gradient occurred from east to west and also from south to north, in each case leading to more brightly marked individuals. The overlap in morphological characters and the cline in colour makes retention of two subspecies in the Soutpansberg untenable. As depressus is the older name it is proposed that laevigatus be regarded as a synonym.

Those specimens originating from south of the Soutpansberg but north of Duiwelskloof, tend to have more well developed occipital scales ranging from 5-8 as well as having 4 (rarely 3 or 2) suboculars, indicating that speciation may well be taking place. However there is still extensive overlap in all the other morphological measurements made as well as colour. It is therefore considered that these be incorporated in C. w. depressus.

Cordylus warreni warreni (Boulenger, 1908)

Zonurus warreni Boulenger 1908, Ann. Natal Mus. 1, p. 232, pl. 25. Type locality: Ubombo, Zululand.

Cordylus warreni warreni (Boulenger). FitzSimons 1943, 424-426, figs. 316-318; Loveridge 1944, p. 19; Jacobsen & Pienaar 1983, p. 137, fig. 3; Welch 1982, p. 113; Branch 1988a, p. 164, pl. 70, 1988b, p. 10.

Description. 21 Specimens examined.

Colour: Light brown to brown or red brown above with irregular incomplete black crossbands and blotches with white centres from behind the head along the body and onto the tail. Head blackish-brown to black; dorsally scattered yellow spots and stripes on the head shields. Laterally neck black above. From the shoulder to above the thigh a brown to dark brown streak is found. Below this the sides are off-white merging to white ventrally. Some specimens have a median dark spot on each ventral forming linear rows of stripes on the ventrals. Chin, gular to upper chest white with or without irregular dark brown to black spots and variegations. Limbs dark brown to blackish brown with pale crossbands and spots. Tail regularly banded with narrow bands of black and off-white.

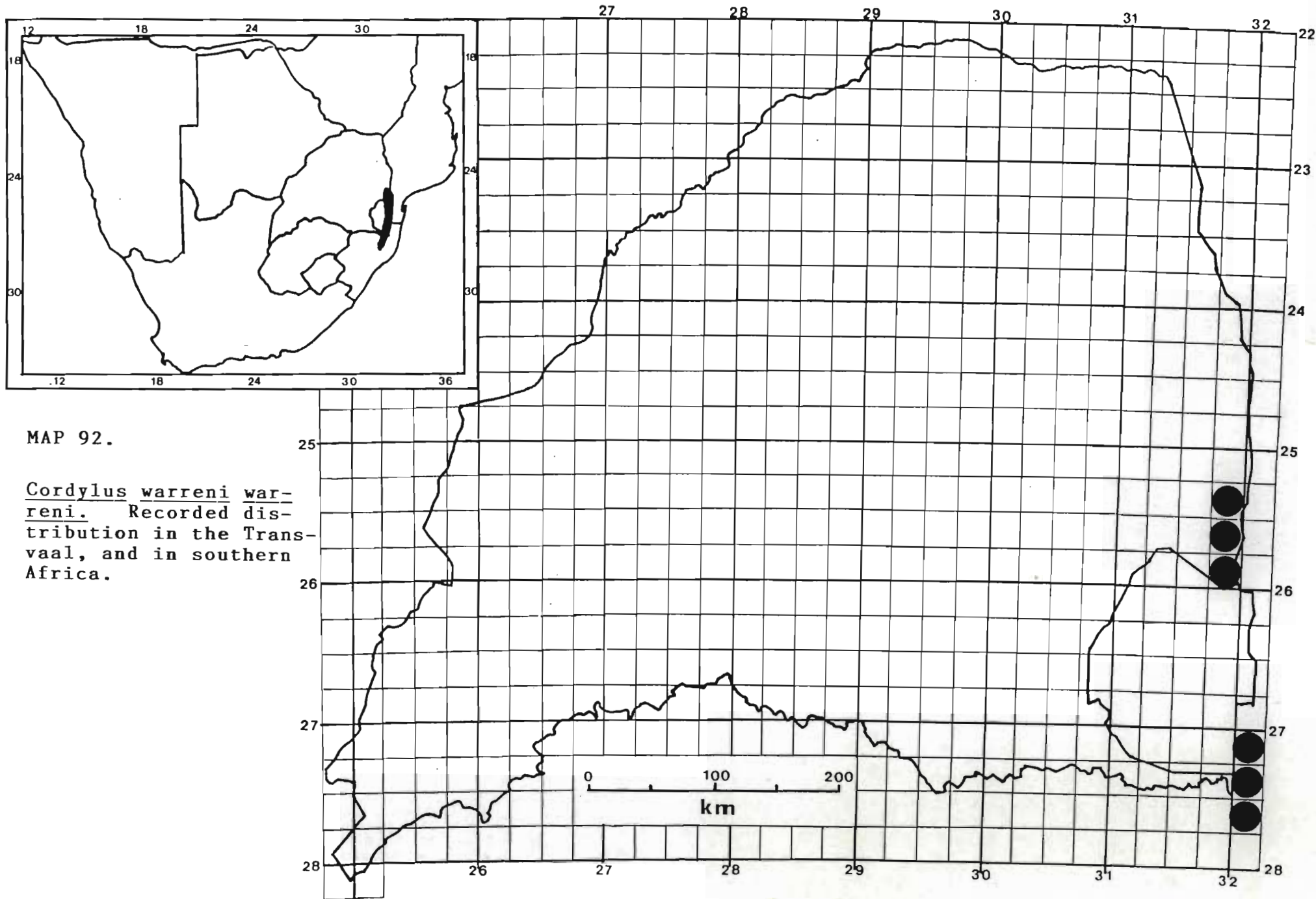
Lepidosis: Head triangular, well demarcated from the neck, slightly depressed. Body moderately depressed dorsoventrally and broadest posterior to midbody. Limbs strong and well developed, pentadactyle. Tail tapered, longer than SVL and between 57,60 to 59,63% of total length. Rostral band-like across front of snout; nostril pierced at posterior margin of nasal and directed backwards; nostril in contact with 1st upper labial and loreal/postnasal; nasals separated behind rostral by forward projection of frontonasal shield; frontonasal longer than broad and in contact with loreals/postnasal;

prefrontals in narrow contact separated posteriorly by a forward projecting portion of frontal; frontal small, longer than broad approximately hexagonal; frontoparietals in broad contact, posterior margin linear; anterior parietals in narrow contact or narrowly separated by forward projection of small interparietal; posterior parietals in broad contact behind interparietal. Occipitals small, hardly spinose and 6 in number; two enlarged strongly keeled temporals on either side; supraoculars 4; supraciliaries 4 rarely 5; postnasal/loreal 1 (rarely 0); preocular 1; suboculars 3, median in contact with lip; postoculars 2 (rarely 3); lower eyelid with vertically elongated scales; UL 4 anterior to subocular; LL 5-7 (mostly 6). Mental large; sublabials 5 prs, 1st pair in broad contact; 2nd pair widely separated; gulars between posterior sublabials 17-23 (mostly 19-22). Dorsals small, flattened becoming keeled dorsolaterally and spinose laterally, in 30-37 transverse and 19-24 longitudinal rows. Ventrals smooth, rectangular non-overlapping, in 25-31 transverse and 12-14 longitudinal rows; limbs spinose and digits well developed with 14-18 (mostly 16-18) subdigital lamellae under the 4th toe; Femoral pores in males range from 7-13 (mostly 10-12) per side; Tail laterally spinose and scales in whorls ranging from 29-35. Caudal autotomy present with 8/15 (53,33%) of tails regenerated.

Size: Largest male SVL = 131,0 mm (J6449 - Mananga), mass = 66,5 g (J6449); Largest female SVL = 131,0 mm (J6452 - Mananga), mass = 68,0 g (J56542). Mean male SVL = 115,93 mm \pm 14,39 (1SD), n = 7; mass = 45,2 g \pm 15,45 (1SD) n = 7; Mean female SVL = 117,93 mm \pm 9,92 (1SD), n = 7, mass = 45,37 g \pm 13,65 (1SD), n = 7.

Distribution

Restricted to the Lebombo mountains from Zululand through Swaziland to the Transvaal.



MAP 92.

Cordylus warreni warreni. Recorded distribution in the Transvaal, and in southern Africa.

Distribution in Transvaal (Map 92)

Duikerhoek 489JU; Halfkroonspruit KNP; Jozini Dam; Mananga; The Hippos 192JU.

Habitat and Ecology

A diurnal rupicolous species found in crevices between or under rocks on rocky outcrops scattered along the Lebombo mountains. The vegetation is mixed, the lizards occur in veld types 6 and 10 at altitudes of 300-800 m a.s.l. Like all girdled lizards they quickly retire into their retreat if disturbed and will wedge themselves as deep as possible if an attempt is made to remove them.

Viviparous, FitzSimons (1943) records that the females give birth to 4-5 young during late summer. Specimens collected during late May had 3-4 well developed ova while others only had ovarian follicles.

Conservation Status

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. Very restricted in distribution and in the Transvaal is only found protected in the Kruger National Park. Its habitat is however secure and provided that no large scale commercial harvesting of the species takes place its situation should remain secure. A population survey of the species in the K.N.P. should be undertaken to determine how large the population is.

Remarks

Specimens of C. w. depressus from the Madziringwe gorge in the Kruger National Park have ocellated markings indicating a link with C. w. warrenii, which no doubt in the past occurred all along the Lebombo mountains probably linking up with the eastern Soutpansberg.

Subsequently the northern Lebombos were strongly eroded away and covered by the alluvial sands of the Mozambique plain. Why this population should retain vestiges of the nominate colour pattern which has disappeared over the rest of the species' distribution range is not known. C. w. warreni has therefore a colour pattern very distinct from that of the other subspecies. Further surveys are needed along the Lebombos in the KNP to determine how far the nominate race extends and whether it comes in contact with C. vandami which, as seen previously, occurs in the Lebombos at Bangu gorge and no doubt elsewhere.

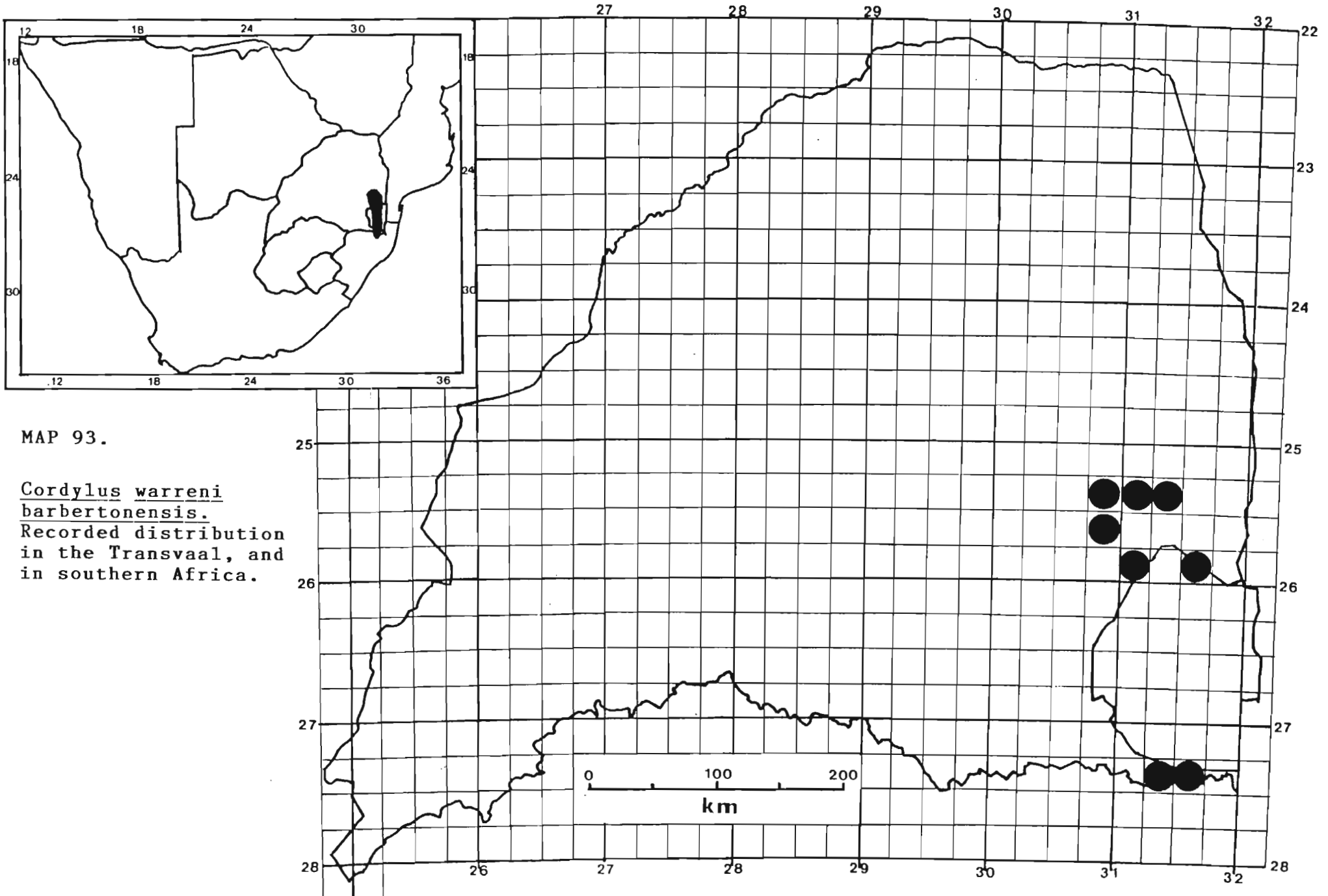
Cordylus warreni barbertonensis (Van Dam, 1921)

Zonurus barbertonensis G. van Dam 1921, Ann. Tvl. Mus. 7, p. 240, pl. 3. Type locality: Barberton, E. Transvaal. Cordylus warreni barbertonensis (Van Dam). FitzSimons 1943, p. 426-427, figs. 319 & 320; Loveridge 1944, p. 20; Jacobsen & Pienaar 1983, p. 141, fig. 6; Welch 1982, p. 113; Branch 1988a, p. 164, pl. 70, 1988b, p. 10.

Description. 24 Specimens examined.

Colour: Dark brown to blackish dorsally with indistinct black crossbands which have yellow blotches and bars inside them. Head dark brown to blackish with or without yellow spots, blotches or streaks. Laterally labials variegated pale yellow and blackish, this pale line continuing posteriorly demarcating the dorsolateral blackish from the ventral yellow. Sides blotched or barred with yellow this extending onto the tail. Limbs black barred with yellow. Ventrally brown, variously blotched, barred or spotted with pale yellow to yellowish white. The gular, throat and upper chest extensively streaked and blotched with yellow, very strongly marked. Lepidosis: Head depressed, triangular and well set out

from neck. Body depressed, widest posteriorly; limbs well developed and pentadactyle. Tail long, slender and tapering, from 56,13 - 59,24% of total length. Rostral wider than high; nostril pierced at posterior margin of nasals and directed posteriorly; Nasals separated by forward extending process of the frontonasal which is in contact with the rostral. Frontonasal longer than wide and in contact with loreal/postnasal; prefrontals in broad contact, notched posteriorly to fit frontal process; frontal small, longer than broad; frontoparietals in long contact forming straight posterior margin; anterior parietals in broad to narrow contact or separated by forward projecting interparietal; posterior parietals in very broad contact, notched anteriorly for interparietal. Temporals 2 on each side, strongly keeled. Occipitals 6 rarely 7; supraoculars 4; supraciliaries 4 (rarely 3 or 5); loreal/postnasal 1; preocular 1; suboculars 3 or 4, median in contact with lip; postoculars 2-4; scales anterior to ear opening poorly enlarged and slightly flared; UL 4 rarely 5 anterior to the subocular; LL 5-7 (mostly 6); Mental moderately large; sublabials 5 prs, 1st pair in broad contact, 2nd pair totally separated. Gulars between posterior sublabials 18-24. Median dorsal scales small and keeled becoming larger and more keeled and spinose dorsolaterally and strongly spinose laterally. Dorsals in 27-33 (mostly 29-32) transverse and 18-24 (mostly 20-22) longitudinal rows at midbody; Ventrals smooth almost square and non-overlapping, in 25-30 (mostly 26-28) transverse and 12-16 (mostly 14) longitudinal rows at midbody. Limbs spinose dorsally, smooth ventrally; digits well developed with 17-19 subdigital lamellae under the 4th toe. Femoral pores in males ranging from 9-12 per side. Tail spinose laterally, some keeling and spinosity dorsally. Caudal autotomy occurs with 10/22 (45,45%) of tails showing regeneration.



MAP 93.

Cordylus warreni
barbertonensis.
 Recorded distribution
 in the Transvaal, and
 in southern Africa.

Size: Largest male SVL = 133,0 mm (N7265 - Zwartkloof 60HU), mass = 63,5 g (N7770 - Broedershoek 129JU); Largest female SVL = 142,0 mm (N8884 - Nzulase), mass = 80,7 g (N8884). Mean male SVL = 121,83 mm \pm 13,96 (1SD) n = 6, mass = 52,25 g \pm 15,12 (1SD) n = 6; Mean female SVL = 128,14 mm \pm 10,16 (1SD) n = 7, mass = 57,81 g \pm 13,74 (1SD) n = 7.

Distribution

Very limited, extending from the eastern Transvaal through Swaziland to northern Natal.

Distribution in Transvaal (Map 93)

5 km S. of Nelspruit; Barberton Townlands 369JU; Broedershoek 129JU; Friedenheim 282JT; Godlwayo; Karino to White River; Khandizwe; Nelspruit; Nzulase; Zwartkloof 60HU.

Habitat and Ecology

Similar to that of the other Cordylus warreni subspecies, it inhabits rocky outcrops on hillsides usually in the partial shade of trees. Inhabits crevices between rocks, usually singly, occasionally in pairs. Rarely observed basking, as it slips into its retreat at the first sign of danger. Both east and westfacing slopes were inhabited in veld types 9, 10 and 63 at altitudes ranging from 600-900 m a.s.l.

FitzSimons (1943) recorded that this subspecies is livebearing, with 5 young being normally born in late summer. Gravid females with developing ova and well developed embryos were recorded during September, while gravid females with developing ova and ovarian follicles were collected during March and May, indicating an earlier parturition period.

Conservation Status

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. Restricted in the Transvaal to the eastern Transvaal Lowveld and apart from being found in the Barberton provincial nature reserve also occurs on Khandizwe mountain in the south western K.N.P. (Jacobsen and Pienaar, 1986). As is typical for most rupicolous species provided the habitat is not threatened and the lizards are not captured for commercial exploitation they are secure. Their shy habits make them difficult to see and therefore are not exposed to man's vandalism. Status currently secure.

Remarks

Specimens in alcohol show up a basal colour pattern which is very similar to that of C. w. warreni. It is likely that this subspecies is very closely related to C. w. barbertonensis differing only in the larger size of the latter, darker colour and lower number of transverse rows of dorsal scales, although extensive overlaps occur. In its distribution it resembles the patterns of Platysaurus intermedius wilhelmi, Hewitt, P. i. "Lebombo" and P. i. natalensis FitzSimons.

Cordylus warreni breyeri (Van Dam, 1921)

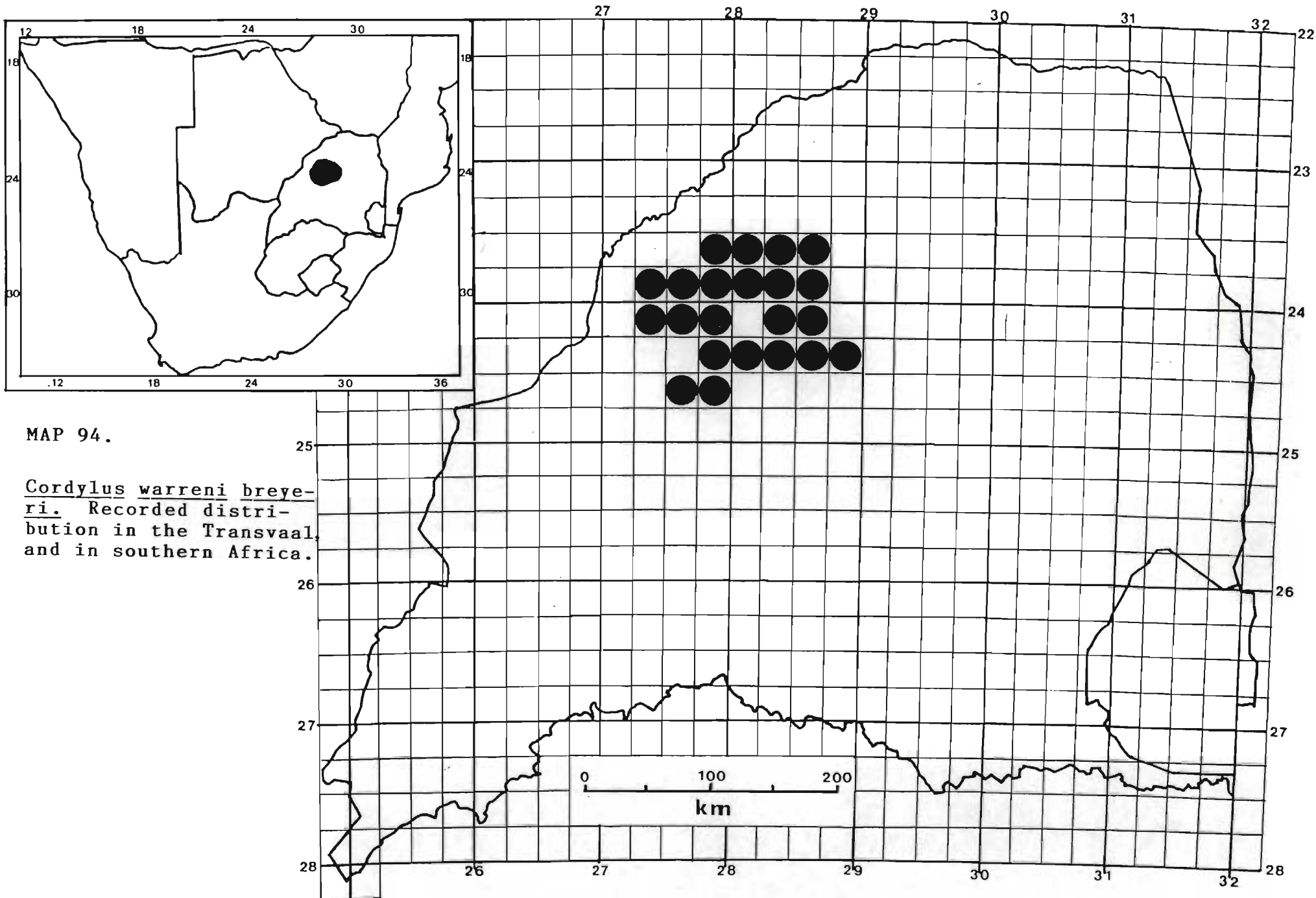
Zonurus breyeri G. van Dam, 1921, Ann. Tvl. Mus. VII, p. 239, pls. I & II. Type locality. Farm Geelhoutkop, Waterberg district, Transvaal.

Cordylus warreni breyeri (Van Dam). FitzSimons 1943, p. 428, figs. 323-25; Loveridge 1944, p. 27; Branch 1988a, p. 164; Welch 1982, p. 113; Branch 1988b, p. 10.

Description. 61 Specimens examined.

Colour: Brown, yellow-brown to greyish brown dorsally with irregular off-white to yellowish barring and dark infusions. Head dark brown to blackish with the sutures between the head shields paler. Laterally the labials are pale white the body is brown to pale greyish-brown. Ventrally brown to dark brown with or without regular pale ventrolateral bars. The glandular femoral patch in males white and pronounced. Gular pale brown or even off-white with brown reticulations. Limbs dark-brown with dark-brown and pale brown marking. Tail brown to greyish-brown with scattered dark and light spines.

Lepidosis: Head triangular, distinct from neck; Head and body depressed; body broadest posteriorly, limbs well developed and spiny feet pentadactyle. Tail about as long as SVL (51,25 - 56,89 mostly 54,47 - 56,89% of total length) and strongly spinose laterally, less pronounced dorsally. Rostral band-like across front of snout; nostril large, pierced at posterior margin of nasal adjacent to 1st upper labial and postnasal/loreal; nasals separated by frontonasal; frontonasal large, slightly longer than broad and in narrow contact with rostral and loreal/postnasal; prefrontals large, oblique, occasionally subdivided; frontal small slightly longer than broad; frontoparietals in median broad contact; anterior parietals in narrow to broad contact (rarely separate) anteriorly. Interparietal small diamond shaped separated from frontoparietals, rarely in very narrow contact; posterior parietals large, square, notched anteriorly. Temporals 2 on each side, large, strongly keeled; occipitals usually 3-4 developed and 0-3 small, little developed occipitals. Supraoculars 4; supraciliaries 4 rarely 5; loreal/postnasal 1; preocular large; suboculars 4 rarely 3 or 5 (median enters lip); postoculars 0-3, frequently granular; UL 4 or 5 anterior to subocular; a row of 2-3 enlarged scales



at anterior margin of ear; LL 6 rarely 7; Mental small; sublabials 5 prs, 1st pair in broad contact behind mental; 2nd pair separated by a pair of large chin shields. Gulars number 16-24 (mostly 18-22) between posterior sublabials. Dorsals equal in size, keeled becoming spinose dorsolaterally to laterally, in 25-29 transverse and 14-20 (mostly 16-20) longitudinal rows. Ventrals smooth, rectangular and subimbricate and in 23-29 transverse and in 12 or 14 (rarely 13) longitudinal rows; feet moderately sized with 13-17, mostly 14-16 subdigital lamellae under 4th toe. Femoral pores 10-14 (mostly 11-13) per side. Tail strongly spinose laterally with proximal spines almost recurved; dorsally scales keeled becoming spinose distally. Ventrally scales strongly keeled. Scales on tail arranged in whorls of 20-32 scales (in one specimen N3453 - Moorddrift 289KR, 15). Tail regeneration evident with 20/32 (62,5%) of tails showing signs thereof.

Size: Largest male SVL = 127,0 mm (N2651 - Schrikfontein 715LR), mass = 57,8 g (N3457 - Waterval 297KR); Largest female SVL = 135,0 mm (N2560 - Buffelskraal 486LR), mass = 73,0 g (N2560). Mean male SVL = 108,83 mm \pm 11,06 (1SD) n = 27, mass = 39,36 g \pm 11,67 (1SD) n = 29; Mean female SVL = 114,94 mm \pm 11,09 (1SD) n = 35, mass 44,63 g \pm 14,27 (1SD) n = 35.

Distribution

Endemic to the Transvaal.

Distribution in Transvaal (Map 94)

Buffelshoek 446KQ; Buffelskraal 486LR; Doorndraaidam
Nature Reserve; Elandsfontein 296KQ; Fourieskloof
557LQ; Galakwyns Stroom 745LR; Geelhoutkop;

Haakdoornboom 223KQ; Hanover 181KQ; Houtbosch R., 32 km. from Naboomspruit; Huwi Nature Reserve; Klipfontein 11KQ; Macouwkuil 45KR; Moerdyk 593LR; Mooiwater Estates 145KR; Moorddrift 289KR; Naauwpoort 363LQ; New Belgium 608LR; Palala R, 43 km. NW of Naboomspruit; Rhenosterpoort 283KQ; Sterkriviernedersetting 253KR; Varkfontein 141KQ; Weltevreden 596LQ; Wolwefontein 149KR.

Literature Records

Klipfontein 53KR, (NMZB).

Habitat and Ecology

A rupicolous lizard inhabiting rocky outcrops on hillsides and mountain tops of the Waterberg and environs. Usually found deep inside crevices between rocks or under rock on rock. The head is usually jammed in deepest, the tail being used to cover the soft sides of the lizard. When molested will inhale, filling themselves up with air, and jam the occipital spines against the rock face. Removal frequently results in injury to the animal. The rocky outcrops are in partial shade often on S, SE and SW facing slopes in veld types 14, 18 and 20 at altitudes of 700-1700 m above sea level. Like all the other rupicolous Cordylus species, this species forages out from the crevices, rarely venturing any distance. They adopt a "await and see" foraging mode.

Live bearing, FitzSimons (1943) records a female with 6 young almost due to be born in January. Developing ovarian ova and embryos ranging from 2-4 in number were observed during September and October indicating a midsummer birth. One female (N2450) gave birth to three neonates on the 15 November 1979 which measured 46,0 -

46,5 mm SVL, Tail 57,0 - 64,0 with masses ranging from 2,45 - 2,85 g.

Remarks

Although easily recognisable in its typical form some individuals resemble C. vandami and in fact in one or two sites the two are sympatric. The poorly developed central occipital spines and the frequency of 4 occipital spines indicates a close relationship between these two species.

Cordylus polyzonus polyzonus A. Smith, 1838.

Cordylus polyzonus A. Smith 1838, Mag. Nat. Hist. (2) 2, p. 34. Type locality: South Africa. FitzSimons 1943, p. 430-433, figs. 326-328.

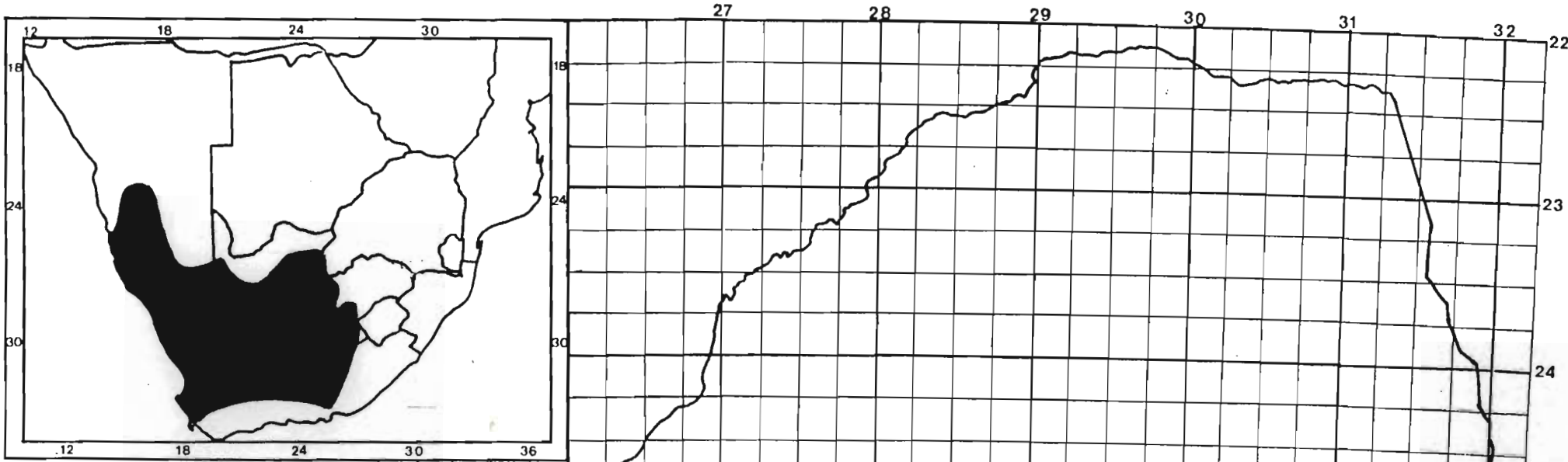
Cordylus polyzonus polyzonus A. Smith. Loveridge 1944, p. 60; Branch 1981, p. 162, De Waal 1978, p. 53; Welch 1982, p. 113; Branch 1988a, p. 161, pl. 69, 1988b, p. 10.

Description. 21 Specimens examined.

Colour: Brown to greyish-brown above. A black streak extends from the posterior margin of the ear to just above the shoulder. Upper labials and ventrally, pale to brownish or even reddish. Dark indistinct streaks also occur from behind the eye along the cheek and a smaller one along the temporals. In juveniles scattered blackish spots occur in the nuchal region.

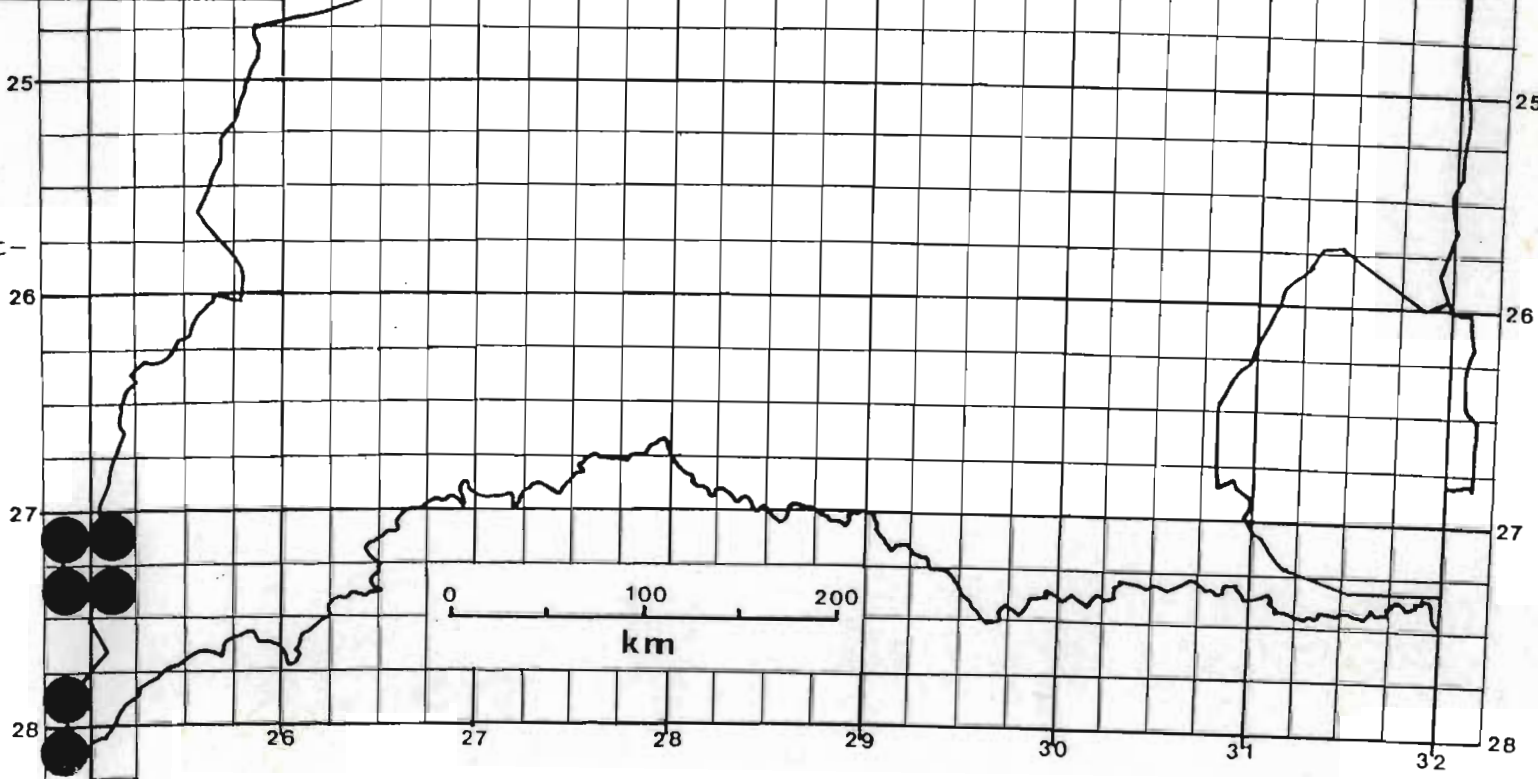
Lepidosis: Head and body dorsoventrally depressed. Head triangular but only moderately distinct from the neck which is broad. Body broadest about 1/3 anterior to the hind limbs. Tail moderately spiny, slightly longer than SVL and tapering ranging from 52,17 - 58,35% of the total length. Rostral narrow band-like across the front of the

snout; nostrils pierced near posterior margin of bulbous nasal; nasals 3, supranasals in broad contact behind rostral, postnasal small and triangular between nasal, loreal and 1st upper labial; frontonasal entire (rarely split), broader than long and in contact with loreals; prefrontals in narrow to broad contact, occasionally one is subdivided. Frontal small, longer than broad with anterior margin occasionally tridentate, in contact with 1st and 2nd supraoculars; frontoparietals small in broad contact and bluntly triangular; anterior parietals broader than long and notched posteriorly; interparietal small diamond-shaped; posterior parietals large squarish, slightly notched anteriorly for interparietal; a row 4-8 (mostly 6) feebly enlarged occipital scales present. Temporals 3, posterior triangular. Supraoculars 4; supraciliaries 3; loreal 0-1; preocular 1 occasionally incorporating loreal; Suboculars 3-4, second, rarely the first in contact with the lip; a single large scale at anterior margin of ear opening; UL 3-5 (usually 4) anterior to subocular; LL 6; mental large; 6 prs. sublabials, anterior pair in median contact. Dorsal scales smooth becoming keeled laterally, in regular non-imbricate scale rows with between 38-46 transverse and 31-36 longitudinal rows. Ventrals smooth, approximately rectangular and subimbricate and in 33-36 transverse and 18-21 longitudinal rows; Limbs covered in keeled, slightly spinose scales, digits short with 13-16 subdigital lamellae under the 4th toe. Femoral pores in males only, ranging from 11-15 per side. Tail laterally spinose, dorsally keeled, scales smallest and slightly spinose. Ventrally scales bluntly keeled becoming more spinose distally. Caudals arranged in whorls of 12-14 scales. Caudal autotomy is evident, particularly of the tail tip, with 8/19 (42,10%) of tails regenerating.



MAP 95.

Cordylus polyzonus polyzonus. Recorded distribution in the Transvaal, and in southern Africa.



Size: Largest male SVL = 94,0 mm (J6289 - Hartzhoogte 17HN), mass = 23,3 g (J6268 - Italie 123HO); Largest female SVL = 104,0 mm (N5229 - Schoonheid 2HN), mass = 34,5 g (N5266 - Marokane 1HN). Mean male SVL = 83,62 mm \pm 11,08 (1SD) n = 8, mass = 16,93 g \pm 6,07 (1SD) n = 8; Mean female SVL = 89,84 mm \pm 15,36 (1SD) n = 13, mass = 22,15 g \pm 10,27 (1SD) n = 13.

Distribution

Western and central Cape Province, southern South West Africa and the southern half of the Orange Free State to the south-western Transvaal.

Distribution in Transvaal (Map 95)

Geluk 42HN; Grootplaats 29HN; Hartshoogte 17HN; Italie 123HO; Marokane 1HN; Paardefontein 35HO; Schoonheid 2HN.

Habitat and Ecology

Usually found in low lying rocky outcrops in the Transvaal, inhabiting vertical fissures and crevices at ground level. The distribution is peripheral and the species has been found in veld type 16 at altitudes of 1300-1400 m a.s.l. The species is diurnal like its congeners, basking on the rocks surrounding its retreat, quickly entering the crevice if disturbed.

The species is insectivorous. De Waal (1978) recorded mostly Coleoptera, Hemiptera, Orthoptera and Isoptera in their diet. Live bearing, 2-4 (mostly 3) young are born in mid- to late summer. Usually 2 embryos in the right oviduct and one in the left oviduct. De Waal (1978) recorded one to three well developed embryos in January

and February. Neonate SVL 42,0 - 45,0 mm with a mass of 2,3 - 2,5 g.

Conservation Status

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. Peripheral in Transvaal it is not found on any provincial nature reserve. Its distribution occurs in areas of the Transvaal which are used primarily for livestock raising, and this is unlikely to change in the future. Its status is secure provided no commercial exploitation takes place.

Remarks

Obviously a variable species in colour and in scalation, the race jordani (Parker) from central South West Africa is controversial and may be a valid species (Haacke pers. comm.) De Waal (1978) records two nasals for Orange Free State specimens while those from the Transvaal have three as has also the specimen depicted in FitzSimons (1943) p. 431. Fusion and splitting of head shields appear to be regular features of the species. However De Waal (op. cit) records larger ranges of dorsal and ventral scales than those recorded in the Transvaal.

Cordylus tropidosternum jonesii (Boulenger, 1891)

Zonurus jonesii Boulenger 1891, Amer. Mus. Nat. Hist. (6) 7, p. 417. Type locality: Murchison range, Transvaal.

Cordylus jonesii (Boulenger). FitzSimons 1943, p. 452; Pienaar 1966, p. 106, pl. 41 & 41A;

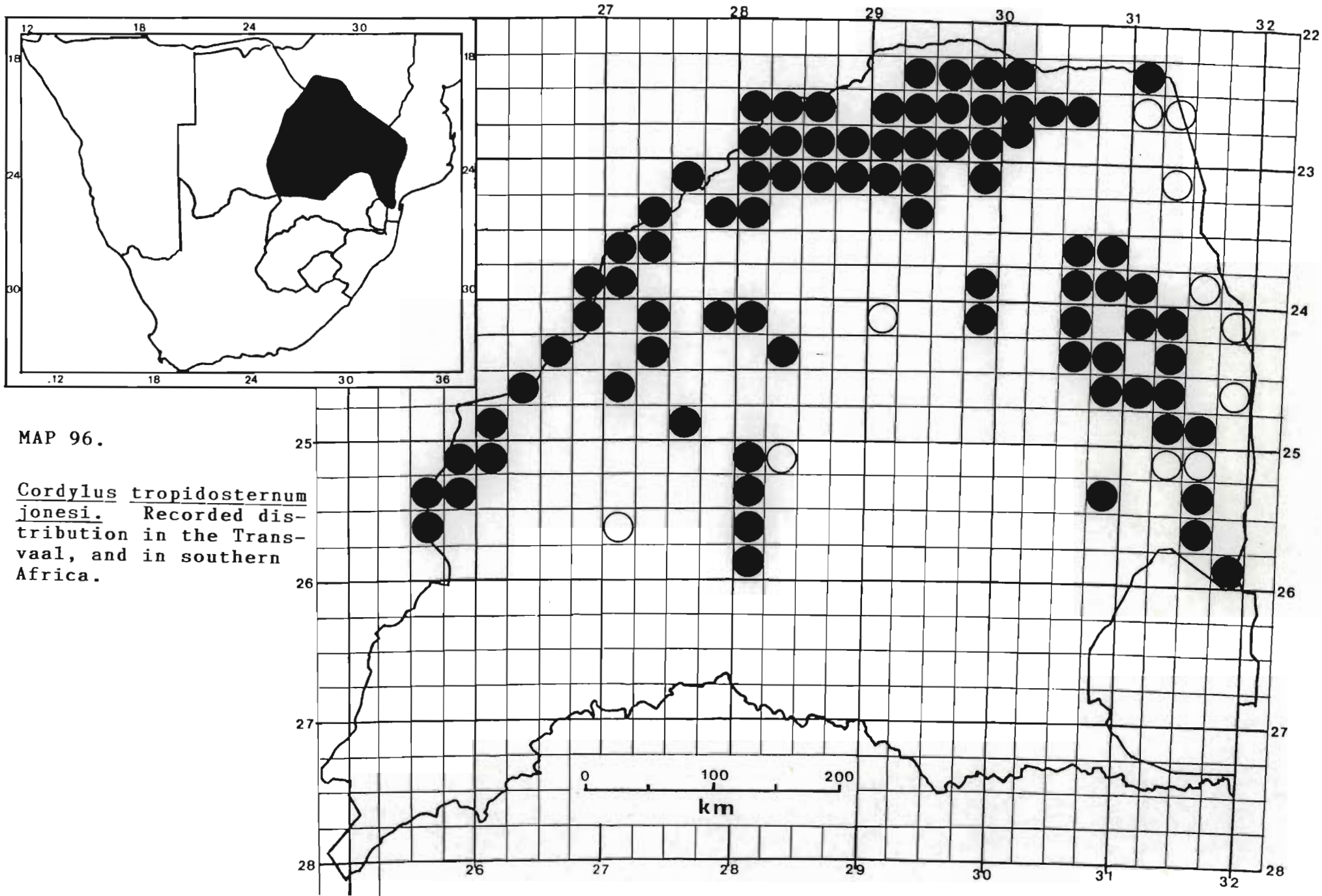
Cordylus tropidosternum jonesii (Boulenger). Broadley 1971c, p. 20; Auerbach 1987, p. 121, pl. 11 fig. 8; Branch 1988a, p. 163, pl. 66, 1988b, p. 10.

Cordylus cordylus jonesii (Boulenger). Loveridge 1944, p. 36; Welch 1982, p. 112.

Description. 208 Specimens examined.

Colour: Variable brown to greyish-brown and grey with irregular paravertebral brownish-black to blackish spots which sometimes coalesce into a reticulate pattern; Interspersed are patches of light grey to brownish grey; head uniform grey-brown to highly variegated with white or pale grey. Laterally a broad black band extends from the posterior margin of the ear to the groin; Ventrally upper and lower labials brownish white to white.

Lepidosis: A small rotund cordylid with head not well differentiated from the neck. Body broadest anterior to hindlimbs. Limbs short and pentadactyle. Tail shorter than SVL ranging from 41,17 - 48,63% of total length. Rostral narrow, bandlike across front of snout, nostril pierced near posterior margin of nasal with a suture leading to the posterior edge; nasals in narrow contact (rarely separated) behind rostral; frontonasal longer than broad and excluded by prefrontals from loreals; prefrontals roughly rectangular, longer than broad, in contact with loreals and preoculars. Frontal roughly hexagonal, longer than broad; frontoparietals in broad median contact; anterior parietals squarish, in broad contact but deeply notched posteriorly; interparietal diamond-shaped tapered slightly anteriorly; posterior parietals square totally surrounding interparietal which fits into notch along suture between the parietals; 6, rarely 5 or 7 poorly developed occipital scales present adjoining posterior parietals; temporals 3; supraoculars 4; supraciliaries 3 exceptionally 4; loreal 1; preocular 1; suboculars 2 excluded from lip; UL 5-7. Mental large, broader than deep; LL 5-7; sublabials 5 prs, 1st in median contact behind mental. Dorsals keeled, more pronounced laterally, equal-sized above and in 19-24 regular transverse and 18-24 (mostly 18-22) longitudinal rows; Ventrals smooth with 0-3 ventrolateral scale rows feebly keeled, rectangular and



subimbricate, in 23-28 transverse and 11-16 (mostly 12) longitudinal rows. Limbs stumpy, digits well developed with 13-15 subdigital lamellae under the 4th toe. Femoral pores 5-7 per side. Tail keeled dorsally becoming less strongly keeled ventrally; scales long and spinose arranged in regular whorls. Caudal autotomy common with 39/76 (51,31%) of tails showing signs of regeneration.

Size: Largest male SVL = 78,0 mm (N2051 - Swanepoelsdrift 166MR), mass = 15,7 g (N3091 - De Loskop 205LS); Largest female SVL = 88,0 mm (N741 - Delet 499 MS); mass = 19,2 g (N741). Mean male SVL (50,0 mm) = 68,51 mm \pm 7,23 (1SD) n = 38, mass = 9,74 g \pm 3,28 (1SD) n = 38; Mean female SVL (50,0 mm) = 74,46 mm \pm 6,59 (1SD) n = 48, mass = 12,93 g \pm 3,19 (1SD) n = 44.

Distribution

Eastern Botswana, south-western Zimbabwe, northern Transvaal and southern Mozambique (Broadley, 1966).

Distribution in Transvaal (Map 96)

5 km N. of Tshamavhudzi Peak; 13 km SE of Messina; 25 km N. of Thabazimbi; 72 km E. of Gravelotte; Alldays 295MS; Amsterdam 116LS; Blyde River Nature Reserve; Boompan 237LQ; Boschfontein 470JU; Boschjeskop 250JT; Bridgewater 307KQ; Bronkhorstfontein 42LR; Celine 547MS; Clearwaters, Haenertsburg; Crimea 747MS; De Loskop 205LS; Delet 499MS; Du Plessis 18MR; Dublin Mine 218KT; Dzumeri; Geelhoutkop; Glen Alpine 304LR; Goodenough 266MS; Greenfield 333MS; Griffin Mine, Leydsdorp; Grootpoort 123KP; Gunfontein 71KR; Gwaai 62MR; Hanover 181KQ; Hans Merensky Nature Reserve; Hartebeesfontein; Hartz 233MS; Hectorspruit 164JU;

Hoedspruit 82KU; Holdrift 94MR; Jagersfontein 55JO;
John Marcus 336LQ; Kasteel 766LT; Kempiana 90KU;
Killaloe 235MS; Klaserie; Klein Tshipise; Klipfontein
11KQ; Knoppieskraal 537KQ; Koeberg 52MR; Kromdraai
106MT; Laaste Poort van Marico 86KP; Langjan Nature
Reserve 370MS; Leipsig 264LR; Lisbon 19LQ; Loretto
264MS; Louis Trichardt; Lukin 643MS; Lydenburg;
Maiepo, Letaba Drift 727LT; Makhutswi River, Leydsdorp;
Malamala 359KU; Manyeleti Game Reserve; Martins Drift;
Matabula; Middlesex 205KT; Mogomane Hill; Moilwas
Location; Mondplaisier 494MS; Mooiplaats 65KP;
Moonlight 111LR; Morgendal 216KS; Motswedi; NE slopes
of Tshamavhudzi Peak; Newington 255KU; Njelele Dam;
Nooitgedacht 253MR; Oatlands 151MR; Olivenbosch 506KQ;
Oriental 60MS; Paarl 102LQ; Paradise 724MS; Patagonia
349MS; Pieterman 445LR; Pongola River; Pretoria;
Pretoria, Daspoort; Pretoria, Gezina; Pretoria,
Salvokop; Pretoria, Hornsnek; Rhenosterdrift 172JQ;
Rochdale 700MS; Rubbervale 784LT; Ruhrord 324MS;
Scheiding 746LT; Schiettocht 25LU; Selati Ranch 143KT;
Sentinal Hill; Silwana's Location 719LT; Smithfield
456MS; Sohobele, Timbavati PNR; Sonskyn Spa, Messina;
Soutpan; Steamboat 306MR; Swanepoelsdrift 166MR;
Takane; Thabajwane Camp, Ben Lavin NR; Thornhill Farm
171JU; Trevenna 119MT; Tshipise 105MT; Uitspan 65LQ;
Urk 10LS; Van Stadenshoek 12KP; Venice 40KU; Vergulde
Helm 316LQ; Virginia 6LQ; Vivo; Vlakkult 450JU;
Waterpoort 694MS; Wemmersvlei 185LR; Wilhanshohe 78LS;
Windhorn, Pretoria District; Wonderboom 98KP; Worcester
5LP; Zeekoegat 12KU; Zondagfontein 300MR; Zoutpan
104JR; Zoutpan 459MS; Zwartfontein 34JP.

Literature Records

Gravelotte; Linokana; Newington; Pienaars River;
Potgietersrus; Rustenburg, (FitzSimons 1943). Skukuza

Mbadze picket; Nahpe experimental plots; Nyandu sandveld near Nwambiya; Olifants camp; south of Sentinal hill; Shinokweni spring, 15 km loop on road to Malelane; Dzundwene hill; Malonga spring; eastern boundary between Mathlakuza pan and Nwambiya; near Shimuhene pan; Nyandu sandveld; Pumbe sandveld; Shingwedzi; south of Sentinal hill (Pienaar et al 1983).

Habitat and Ecology

An arboreal, diurnal lizard well adapted to inhabiting holes in trees, under loose bark and especially in rotting logs. A clumsy slow-moving lizard it does not travel extensively from its retreat. Occasionally found inhabiting crevices between rocks. Has been found in veld types 6, 8, 9, 10, 11, 13, 14, 15, 18, 19 and 20 at altitudes ranging from 300-1500 m a.s.l. Broadley (1966c) and FitzSimons (1943) recorded their preference to termite alates which they consume to the exclusion of all other prey. They do however feed on other invertebrates. Viviparous, the species gives birth to from one to three (usually 2) neonates during early to midsummer. The females appear to have developing oviducal ova from March onwards. The smallest juvenile collected measured 36,0 mm SVL with a 30,0 mm tail and a mass of 1,0 g. FitzSimons (1943) records neonates as measuring 42,0 mm in total length.

Conservation Status

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. Its widespread distribution is responsible for its occurrence on nine provincial nature

reserves as well as the Kruger National Park. Its status appears therefore to be secure. Unfortunately over much of its distribution in Gazankulu and in other homelands, the dead wood has been removed for firewood which has led to a notable paucity of these lizards. This practice will eventually lead to mass extinction of the species over a large part of its range.

Remarks

Broadley (1966c p. 221) mentions that he was unable to determine the difference between the nominate form and "jonesii" with the exception of the formers' larger size (reaching 90,0 mm SVL) and the 3-4 rows of keeled ventral scales. An examination of specimens collected in the Transvaal reveals that females regularly exceed 80,0 mm SVL, the largest measured reaching 88,0 mm. The Transvaal material also exhibits feeble keeling on the outer 1-3 ventral scales, in some specimens from various localities. This is more marked in juveniles, with adults progressively less discernible according to size. Most however are smooth. This does indicate a transitional cline from north to south and possibly does not warrant subspecific status for jonesii.

Cordylus vittifer vittifer (Reichenow, 1887)

Zonurus vittifer Reichenow 1887, Zool. Anz. p. 372.

Type locality: Transvaal.

Cordylus vittifer (Reichenow): FitzSimons 1943, pp. 461-462, figs. 368-370; Loveridge 1944, p. 30; Jacobsen & Pienaar 1983, p. 138, figs. 4a & 46.

Cordylus vittifer vittifer (Reichenow). De Waal 1978, p. 55; Auerbach 1987, p. 122, pl. 12 fig. 1; Broadley 1971c, p. 20; Welch 1982, p. 113; Branch 1988a, p. 163, pl. 67, 1988b, p. 10.

Description. 472 Specimens examined.

Colour: Variable, three colour phases being recognisable

(a) Brown to orange brown dorsally with or without a dark-brown to black dorsolateral stripe extending from just anterior to the shoulder to the sacrum. The back is spotted, blotched or infused with dark-brown to black, these occasionally coalescing to form crossbars down the back. The head is uniform or may be heavily spotted or mottled with black. Laterally reddish to orange-brown including dorsal parts of the limbs. Ventrally orange-brown to whitish.

(b) Variably coloured with black, yellowish-white, pink and orange-brown forming a mosaic of bars, spots or blotches and in some cases almost uniform blackish above without a vertebral stripe. Tail pale straw-coloured with or without scattered dark blotches. Laterally an indistinct dark stripe extends from behind the head to the groin while in others a pale dorsolateral stripe also extends from behind the head to above the femur merging into the tail. Ventrally brownish-white to white.

(c) Variable above black, dark-brown to yellow with scattered pinkish to orange brown, black to yellowish spots, blotches and crossbars extending down the back. An interrupted to entire white or off-white vertebral stripe extends from the occipitals to the sacrum and occasionally also the base of the tail. Tail brown red-brown, blackish to pale straw coloured. Laterally straw-coloured, brown, grey-brown, red-brown. Limbs usually paler than dorsum. Head plain dark-brown to blackish to variegated with yellow or yellowish-white. Ventrally brownish-white to white.

Lepidosis: The species is dorsoventrally depressed and the head moderately broad to broad, relatively distinct from the neck. Body broadest just after midbody; Limbs short and pentadactyle. Tail slightly longer than SVL ranging from 50,0 - 56,79% of total length.

Rostral narrow, bandlike across the tip of the snout; nostril pierced near posterior margin of nasal; nasals in broad contact behind rostral. Frontonasal diamond-shaped situated in notch in posterior margin of nasals and prefrontals; prefrontals in narrow to moderate contact or separated by an accessory scale; frontal small, longer than broad, roughly hexagonal; frontoparietals in broad median contact; in narrow contact or separated from interparietal; anterior parietals separate or in narrow contact; posterior parietals in broad contact behind interparietal; Temporals 3; occipitals 6; supraoculars 4; supraciliaries 3; loreal 1; preocular 1; subocular 2-3 - excluded from lip by labials; ear opening obscured by large scales at anterior margin; UL 6; LL 5; Mental broader than deep; 5 pairs sublabials, anteriormost in broad contact behind mental. Dorsals keeled, subimbricate and in 24-26 transverse and 18-25 longitudinal rows. Ventrals smooth, subimbricate in 22-26 transverse and 14-18 longitudinal rows; feet pentadactyle with 14 subdigital lamellae under 4th toe; femoral pores present in males and females ranging from 6-9, glandular scales on thighs variable but range from 12-28; tail tapering and caudal scales elongated, keeled, spinose and arranged in whorls. Caudal autotomy apparent, 42/79 (53,16%) of tails are regenerating.

Size: Largest male SVL = 90,0 mm (N8266 - Maloney's Eye 169IQ), mass = 25,7 g (N8266). Largest female SVL = 95,0 mm (P10850 - Schoonoord 326KT), mass = 28,0 g (P10850). (a) Mean male SVL = (50,0 mm) = 78,30 mm \pm 6,88 (1SD) n = 50, mass = 16,85 g \pm 4,13 (1SD) n = 50. Mean female SVL (50,0 mm) = 79,41 mm \pm 10,10 (1SD) n = 50, mass = 17,31 g \pm 5,94 (1SD) n = 49. (b) + (c) Largest male SVL = 86,0 mm (J6669 - Nooitgedacht 392KT), mass = 22,0 g (N7330 - Warmbad 18HU); Largest female SVL = 90,0 mm

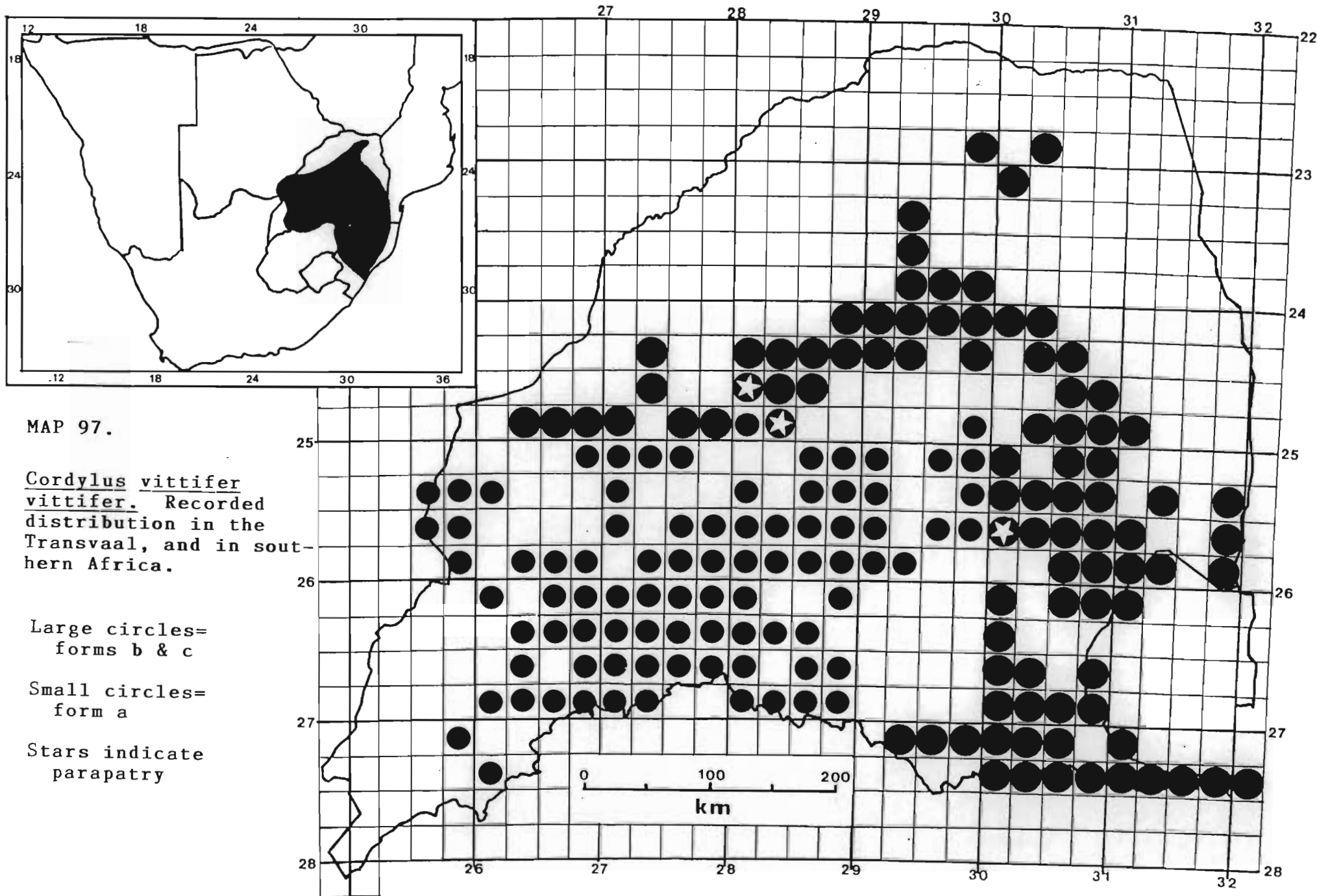
(J8625 - Elandsfontein 322JT), mass = 24,8 g (J8625). Mean male SVL (50,0 mm) = 71,13 mm \pm 6,69 (1SD) n = 50, mass = 12,49 g \pm 3,48 (1SD) n = 50; Mean female SVL (50,0 mm) = 74,40 mm \pm 7,66 (1SD) n = 50, mass = 13,15 g \pm 4,09 (1SD) n = 48.

Distribution

Transvaal, northern and eastern Orange Free State and Natal. The subspecies machadoi has been recorded from Angola and northern South West Africa (Haacke pers. comm.).

Distribution in Transvaal (Map 97)

40 km NW of Warmbaths; 4 km W. of Dinokana; Barberton; Bendor 211HT; Bezuidenhoutskraal 64HP; Blesboklaagte 181IR; Boekenhoutskloof 187KR; Bokfontein 488JQ; Boovenste Oog 68IQ; Boschkop 482IR; Boschrand 158HO; Brosdoornhoek 433KQ; Buffelsfontein 443IP; Buffelshoek 471IQ; Buffelspoort 421KR; Buffelspruit 443KR; Buisfontein 451KR; Buiskop 255IP; Bultfontein 92JO; California 228KT; Clearwaters, Haenertsburg; Confidence 17HU; De Berg 71JT; De Goedverwachting 57IT; De Loskop 205LS; De Putten 56JO; Dientje 453KT; Diepgelegen 945LS; Diepgezet 388JU; Donkerhoek 365JR; Donkerkloof 436JQ; Doorndraai dam Nature Reserve; Doornhoek 545KT; Doornhoek 577IR; Doornkop 356LS; Doornplaat 177IP; Duikerhoek 489JU; Duurstede 361JU; Dycedale 368JU; Elandsfontein 322JT; Entabeni Forest Reserve 251MT; Geduld 270IP; Geelhoutkloof 195KR; Gillooly's Farm; Gods Window, Blyde River Nature Reserve; Goedehoop 31KS; Goedehoop 622JT; Goedemoed 373IT; Goedgeacht 152JS; Goedgevonden 134HT; Goedvertrouwd 499JR; Groeneboom 236KP; Groenkloof; Grootfontein 352KQ; Groothoek 171HT; Haarlem 443IT; Haenertsburg; Halfkroonspruit;



Harlem 443IT; Harnham 793MS; Hartbeestfontein 297IP;
Hartebeestfontein 437IQ; Hartebeestvlakte 163JT;
Hexrivier 634IR; Highfield 797MS; Holland 237KP;
Houtbosdorp; Houtkop 152IP; Houtkop 43IQ; Houwater
54JQ; Iron Crown; Ishlelo 441IT; Jericho 304IT;
Jericho Dam; Johannesburg; Johannesburg, Orange Grove;
Johannesburg, Trufoots Hill; Kaalberg; Kaapsche Hoop
483JT; Kafferskraal 47HS; Kaffir Creek; Kaffirskraal
43JQ; Kalkfontein 1001LS; Kalkfontein 615LS;
Kameelpoort 202JR; Kareelaagte 45JO; Kastrol Nek;
Khandizwe; Kleinfontein 3HT; Klerksdorp Townlands;
Klipfontein 256JS; Klipplaatdrift 193JR; Klipplaatdrift
343JS; Knapdaar 92JT; Koningstein 625JT; Koster;
Kraalkop 147IQ; Kromdraai 263IR; Kromdraai 520JQ;
Kromrivier 347JQ; Kuilfontein 324JP; Kwaggafontein
548IQ, Lapdoorns; Kwarriekraal 148JQ; Langbaken 342KS;
Langzeekoegat 325IR; Leeuwbosch 129KQ; Leeuwfontein
188JR; Leeuwfontein 61JP; Leeuwklip 363JS; Leeuwkop
283JS; Leiden 340IT; Lisbon State Forest; Lochiel
192IT; Long Tom Pass; Loopfontein 298JT; Lotteringskop
115KP; Magaliesberg, Pretoria; Magoebaskloof Forest;
Makapans Caves 39KS; Makwens; Maloney's Eye 169IQ;
Mananga; Mapochsgronde 500JS; Mariepskop; Matiwa
Lookout, Entabeni 251MT; Matlapitsi R.; Mayo Estates
266JT; Middelburg; Moilwas Location; Mooifontein
285JS; Mooimeisiesfontein 77HS; Mooiplaas Quarry, 26 km
Pretoria to Krugersdorp; Moorddrift 289KR; Morgendal
216KS; Mount Anderson; Nederhorst Station; Nieuwpoort
516KQ; Nooitgedacht 333JR; Nooitgedacht 392KT;
Nooitgedacht 471JQ; Ohrigstad dam Nature Reserve;
Oostenryk 92KS; Ostend 104KT; Paardeplaats 101HT;
Paardeplaats 125JT; Palmietfontein 24KS; Percy Fyfe
Nature Reserve; Pietersburg; Perkeo 223KT; Pilgrims
Pass; Pinedene; Pittville 197IT; Pongola Nature
Reserve; Potchefstroom Townlands; Potgietersrus;

Pretoria; Pretoria, Wierda Park; Pretoria,
Voortrekkerhoogte; Pretoria, Zoological Gardens;
Pretoria, Derdepoort; Pretoria, Koedoespoort; Pretoria,
Daspoort Range; Randfontein; Redcliff 426IT;
Rhenosterfontein 560IQ; Rhenosterkop 452JR;
Rhenosterpoort, 25 km NE of Bronkhorstspruit;
Rhenosterpoort 325IR; Rhenosterpoort 402KR;
Rietfontein 214JR; Rietfontein 255JT; Rietfontein
487JP; Rietgat 105JR; Rietvallei 130IQ; Rietvlei
375JT; Ringhoek 169JP; Roodekraal 454IQ; Roodeplaat;
Roodeplaat 293JR; Roodepoort 302IQ; Rooiberg;
Rooibokkraal 112KS; Rooykrans 538KQ; Rust der Winter
Nature Reserve; Rustenburg Kloof; Rustenburg Nature
Reserve; Schelem 32KT; Schilderkrans 1041LS;
Schoonkloof 273KP; Schoonoord 326KT; Selati; Sheba
219JT; Shiluvane; Shylock 256JQ; Silverbank 611IR;
Somerkomst; Spaarwater 171IR; Spitskop 276IS; Stanley
Bush Kop; Steynsdrift 145JS; Streatham 100KT;
Strydfontein 477IR; Tambootierand 366KR; Thabazimbi;
The Downs 34KT; Tweefontein 523JQ; Turfloop 987LS;
Vaalbank 110IP; Van Oudtshoorn Stroom 261IT; Veraskop;
Verkyk 88HS; Vlakfontein 213IP; Vlakfontein 522KR;
Vlakfontein 558IR; Vlakplaats 317JT; Vlakplaats 354JR;
Vogelstruiskraal 397KQ; Wakkerstroom Townlands 121HT;
Wanhooop 78JT; Warmbad 18HU; Warmbaths; Waterpan 292IQ;
Waterval 273KU; Welgelegen 107IT; Wildfontein 201IP;
Witfontein 306IP; Witfontein 521JR; Witpoort 216JS;
Wolkberg; Woodbush; Zandfontein; Zandspruit 287KR;
Zeekoegat; Zonkolol 473JR; Zuurfontein; Zwartkloof
60HU; Between Lake Funduzi and Entabeni; near
Dennilton.

Literature Records

8 km SE of Barberton; 16 km NE of Carolina, (NMZB).
Arnhemburg; Belfast; Botschabelo; Carolina;
Frederikstad; Krugersdorp; Linokana; Mphome;
Waterberg; Witwatersrand, (Loveridge, 1944).

Habitat and Ecology

The most widespread cordylid in the Transvaal being found wherever rocky outcrops are found. The species is totally rupicolous living in crevices between rocks at ground or extending below ground level. Also observed under rock on rock and under rock on soil. Rocky outcrops on mountain tops as well as in the flats are equally occupied although form "A" is mostly found in flat country while form "B" occurs mostly along the mountains of the eastern Transvaal (Map 97). The lizards occur in veld types 6, 8, 9, 10, 13, 18, 19, 20, 48, 50, 52, 53, 54, 57, 61, 62, 63, 64 and 67 at altitudes ranging from 360-2300 m above sea level. They are mostly solitary, rarely two together and then usually an adult and a juvenile, in the same crevice. This species is usually parapatric or allopatric to other Cordylus and Pseudocordylus species occurring lower down the slope in smaller less suitable outcrops. Only on one occasion was C. vittifer observed in the same crevice as another cordylid, namely C. w. depressus. They emerge from their crevices during the day and lie basking on the rocks, retreating back into the crevices to cool off or to avoid predators. Normally shy they enter their retreats at the first sign of danger. While basking they keep a sharp lookout for predators and prey which they capture with a short rush, returning rapidly to the safety of their retreat. De Waal (1978) records Coleoptera, Hemiptera

and Orthoptera in their diet while Jacobsen (1972) observed them to also feed on Myriapoda in captivity. Live bearing, from one to four (usually two) young are born during November/December. These measure 34,0 - 37,0 mm SVL with a tail ranging from 33,0 - 37,0 mm. The neonates have a mass of 1,0 - 1,5 g. Jacobsen (1972) recorded a gap in parturition of 7 days between the appearance of the first and second neonates.

Conservation Status

Protected. Schedule 2, Transvaal Nature Conservation Ordinance 12 of 1983. This widespread species occurs in 18 provincial nature reserves as well as the Kruger National Park. Its status is secure.

Remarks

De Waal (1978) separated the Orange Free State populations into three discrete allopatric forms. He also examined some Transvaal and Natal material some of which he could ascribe to two of his forms, the third form being restricted to the Orange Free State. In accordance with De Waal (op cit) the Transvaal material were subdivided in forms "A" and "B" and analysed. Overlaps were established in all characters which in the Orange Free State delineated each form. Form "A" has ventrals in 12-18 (mostly 16-18 (90,58%) longitudinal rows while form "B" has 13-20 (mostly 14-16 (81,59%). Similarly the anterior parietals in "A" are 68,62% separate while in "B" they are 70,0% in contact. An examination of the number of glandular femoral scales in males reveals that "A" ranges from 12-28 with 77,59%, 18 or more while in "B" they range from 8-24 but are in 82,61% 17 or less. The loreal/postnasal in "A" is in 91,80% of specimens in contact with the nostril whereas

in "B", 70,59% have the postnasal/loreal separated from the nostril. Contrary to De Waal (1978) femoral pores in females were absent or feebly developed in both forms and were not diagnostic. Colour appears to be relatively consistent with "A" being mostly brown while "B" is highly variable but usually darker, with or without a vertebral stripe and a colourful dorsum of yellow, red-brown, white and blackish. Only in the south-eastern Transvaal was there some overlap in colour. Geographically however "A" and "B" only meet in Sekukhuneland and around the Waterberg (Map 97).