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ON THE DISTRIBUTION, HABITAT AND IDENTIFICATION OF *KINIXYS NATALENSIS* HEWITT, 1935 (CRYPTODIRA: TESTUDINIDAE) IN SOUTHERN AFRICA

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SUMMARY

Boycott, R.C. & Jacobsen, N.H.G. 1988. On the distribution, habitat and identification of *Kinixys natalensis* Hewitt, 1935 (Cryptodira: Testudinidae) in southern Africa. *Durban Mus. Novit.* 14:93-101. New distribution records for *Kinixys natalensis* indicate that the species is more widespread than previously believed. Attention is drawn to an erroneous record of *K. belliana spekii* from Weenen Nature Reserve. We describe the habitat of *K. natalensis*, and characteristics that distinguish *K. natalensis* from *K.b. spekii.*

INTRODUCTION

Kinixys natalensis was described from the Tugela River valley in the Natal Midlands by Hewitt (1935). Loveridge & Williams (1957) recognised three species of *Kinixys* in Africa, *K. belliana, K. erosa* and *K. homeana.* They recognised two subspecies of *K. belliana – K.b. belliana* and *K.b. nogueyi* and placed *K. natalensis* in the synonymy of *K.b. belliana* as did Wermuth & Mertens (1961). After reviewing the populations of *Kinixys* in south-eastern Africa, Broadley (1981) reinstated *natalensis* as a full species and identified two well defined subspecies of *K. belliana* in the region, namely *b. belliana* and *b. spekii.*

During the course of the Transvaal Nature Conservation Division's survey of reptiles and amphibians in the Transvaal, some *K. natalensis* were collected. These represent new distribution records and, in some cases, considerable range extensions for the species. In addition, two specimens in the Transvaal Museum (TM) collection were mislabelled which led to the formulation of erroneous distributional data for *K. natalensis* and *K.b. spekii* (Broadley 1981).

Both taxa resemble one another closely and individuals, particularly old specimens, may be misidentified. Some useful diagnostic characteristics are described.

IDENTIFICATION

In describing *K. natalensis*, Hewitt (1935) drew attention to the peculiar character of the frequent division of the supracaudal shield. He also mentioned the "great breadth" of the gular region, the nuchal shield which is always "long and very narrow or moderately narrow", and the "moderately developed" hinge in adults. The colour-pattern was described as "essentially of a concentric type" and it was noted that the abdominal shields are characteristically marked with "complete blackish rings". According to Hewitt (1935), compared to other *Kinixys*, *K. natalensis* was distinctive in the elevation of the carapacial shields and in the prevalence of the divided supracaudal shield. It is nonetheless surprising that no mention was made of the tricuspid beak (Fig. 1) which serves to separate this species from other members of the genus in southern Africa (Broadley 1981). This could be explained by the fact that Hewitt's (1935) *natalensis* material included specimens (from Manaba and Ntambanana) actually referable to *belliana belliana* (i.e. Hewitt's *b. zuluensis*), which does not have a tricuspid beak.

The colour-pattern of *K. natalensis* is usually diagnostic, being of a concentric type with each shield having alternating dark and light rings, except in old specimens where the pattern loses its contrast and becomes more uniform. This intensity of the carapacial colour-pattern varies between the sexes and is normally more vivid in females than males. Boycott & Bourquin (1988) illustrate the variation in colour-pattern in this species. The plastron in adults, with the exception of old specimens, has light yellow or pale brown bands along the central and transverse seams between the plastral shields, like a tree with laterally extending branches. A characteristic black ring is present on each abdominal shield and is usually more vivid in females (Fig. 2).

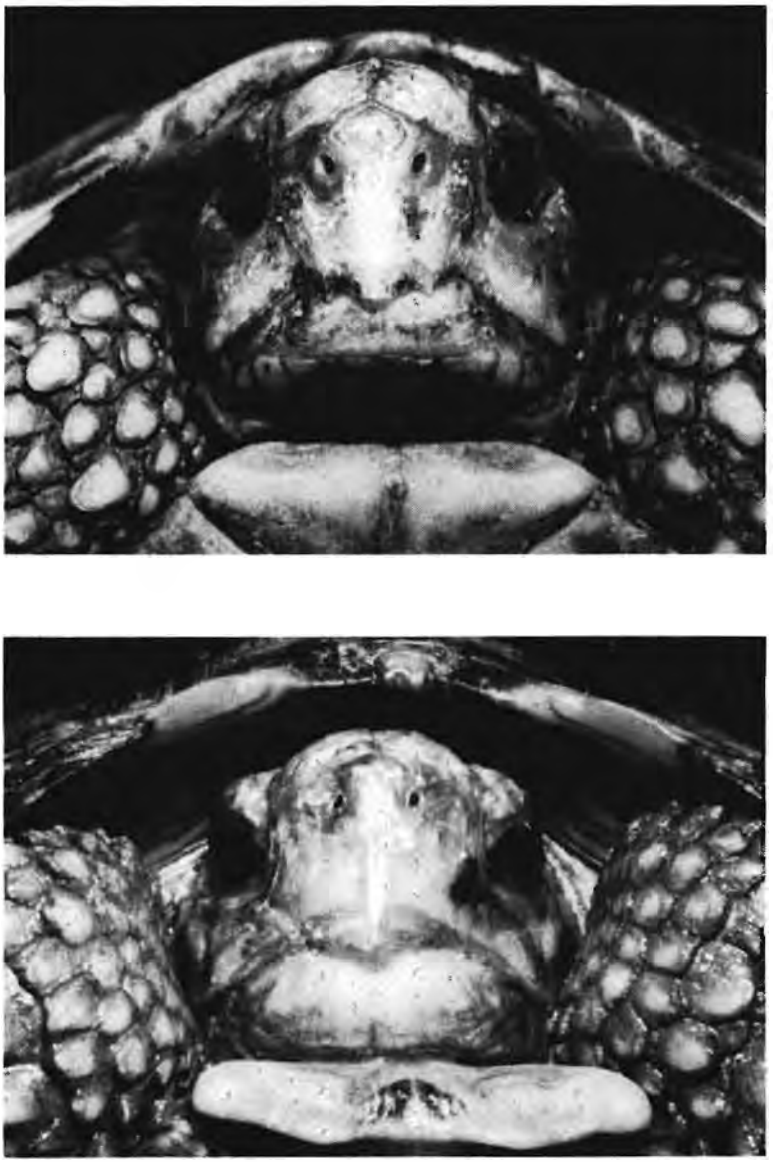

Fig. 1. *Kinixys natalensis* (top) showing tricuspid beak and *K.b. spekii* (bottom) showing unicuspid beak.

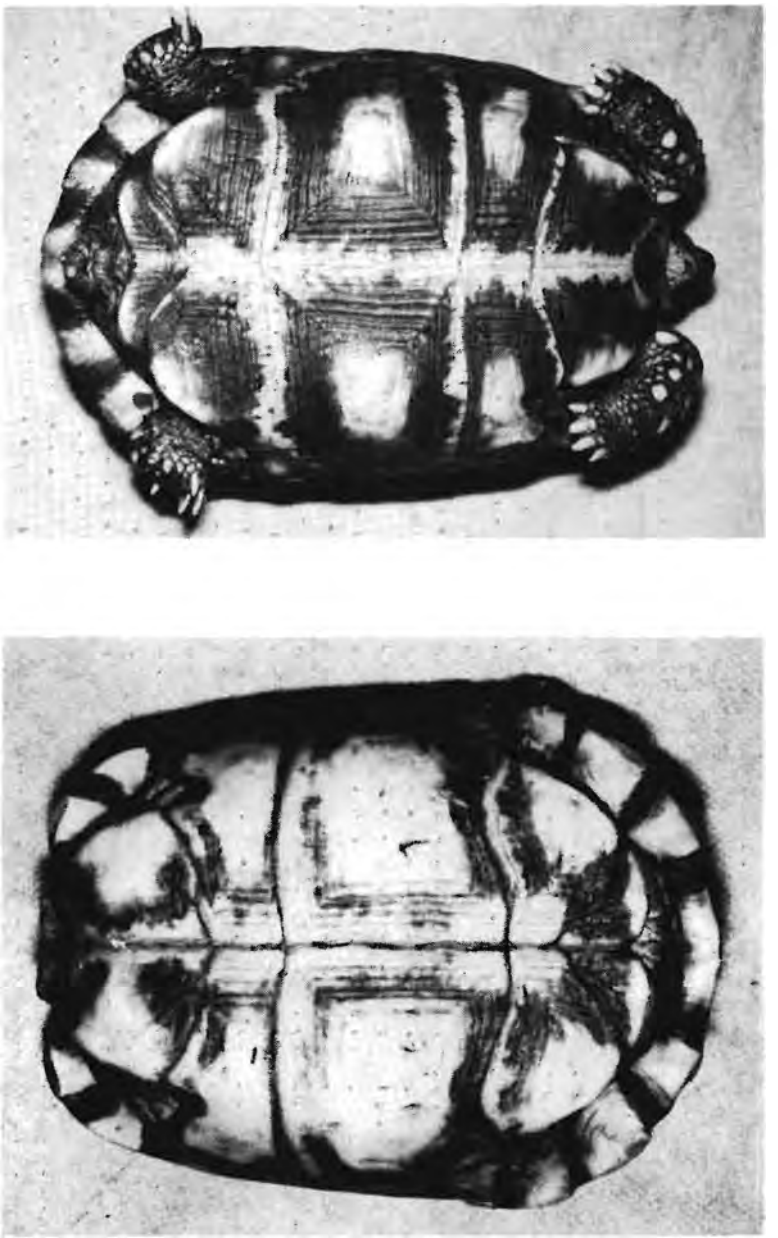

Fig. 2. *Kinixys natalensis* showing the plastral pattern which is generally more vivid in females (top) than males. Note the black ring on each abdominal shield.

Although *K. natalensis* is intermediate between *K.b. belliana* and *K.b. spekii* in respect of some characteristics such as the ratio of shell length to shell height (Broadley 1981), it is easily identified by the tricuspid beak, the partial or total division of the supracaudal shield (in some cases), the size of the gular shields (Fig. 2) (which together are usually twice as wide as long) and the plastral colour-pattern. The poorly developed carapacial hinge, usually only noticeable between marginal shields seven and eight, also facilitates identification (Fig. 3). As is the tendency in other adult *Kinixys*, the carapacial hinge is more obvious in males than females.

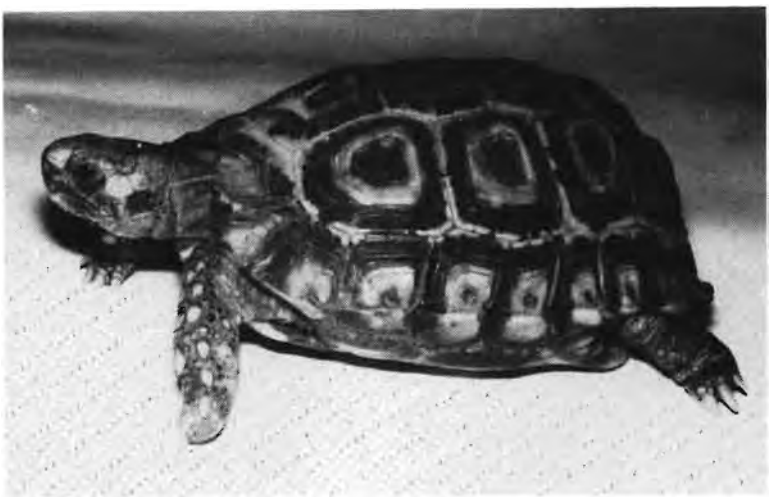

Fig. 3. *Kinixys natalensis* showing the concentric carapacial pattern and poorly developed carapacial hinge.

To reduce the chances of misidentification it is advisable to consider all *natalensis* characteristics and not to place too much emphasis on any single character when attempting to identify individuals. The divided or partially divided supracaudal shield is an unreliable character, as it may even be present in some *spekii*. Incorporating data from Broadley (1981), it was found that of all *natalensis* specimens examined (n=36), 75% had divided or partially divided supracaudals. It is suggested that one looks first to the beak, then at the gular shields, the supracaudal shield, the plastral pattern, the carapacial pattern and lastly the carapacial hinge. If a specimen lacks a divided supracaudal shield, for example, it does not follow that it is not a *natalensis*. Distribution may also be considered; but sympatry between *natalensis* and *spekii* has been recorded at some localities (see DISTRIBUTION).

ADDITIONAL MATERIAL

Since Broadley's (1981) publication nine additional *K. natalensis* specimens have been collected and lodged in the Transvaal and Port Elizabeth Museums. Seven of these represent new distribution records, extending the known range of the species north-westwards by approximately 160 km; the other two confirm earlier records or sightings. Three more individuals, one in the wild and two in captivity, were examined and photographed. While the origin of the captive pair is not known, the locality of the wild specimen represents a new distribution record, albeit a sight record (see locality records).

A juvenile (TM 59178) collected at Bergplaats (2731AA), ± 50 km south-east of Piet Retief in May 1981, represents a new distribution record. An adult female (TM 59179), also collected during May 1981 near Othobothini (2732AC) in the Lebombo range near Jozini Dam, confirms the TM 19346 juvenile recorded from this locality by Broadley (1981). The shell of an adult male (TM 56755) found in February 1983 at Uitkyk (2731CD) in the Vryheid district of Natal represents a new distribution record. During March 1983 an adult female (TM 59180) was collected on the granite massif, Mananga Kop (2531DD), ± 60 km due south of Komatipoort in the eastern Transvaal and represents a new distribution record. A subadult female (TM 57520) collected in December 1983 from near Esihute, in Itala Game Reserve (2731CB), northern Natal, confirms O. Bourquin's photographic record from this locality (see Broadley 1981). The shell of a subadult female (TM 63950) received in July 1985 from Weenen Nature Reserve (2829DD) confirms the earlier record of this species occurring at this reserve based on the hatchling (TM 50682) listed by Broadley (1981). The hatchling originated from the eastern portion of the Reserve (2830CC), while the new specimen (TM 63950) comes from the western portion (2829DD), representing a new distribution record and the westernmost locality for the species (Fig. 4). An adult male (PEM R 4478) collected in March 1986 ± 30 km south of Kranskop (2930BB) represents a new distribution record. A hatchling (TM 64809) collected during April 1986 at Manyeleti Game Reserve (2431CB), near Acornhoek, represents a substantial range extension for the species. Subsequently, an adult male (TM 65799) collected near Hoedspruit (2430BD) removed all doubt of the species occurring in this region.

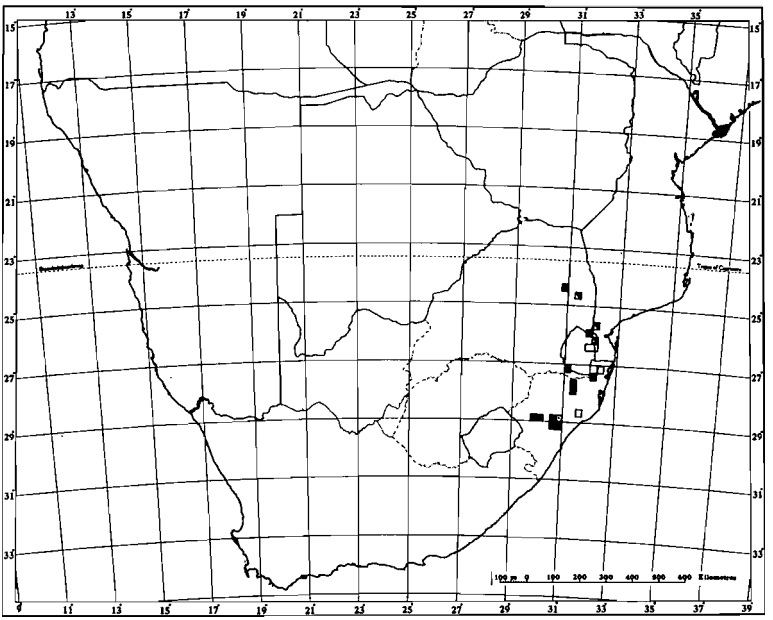

Fig. 4. ■ Distribution of *Kinixys natalensis* Hewitt. ⊡ type locality of *K. natalensis*. ◥ indicates sympatry between *K. natalensis* and *K.b. spekii*. Open symbols denote sight records and literature records.

An additional sight record (O. Bourquin pers. comm.), that of a photograph of a shell found in November 1984 on Magdalena Game Ranch in northern Natal, represents a second record from 2731CD. Although unsubstantiated at this stage and unlikely, considering the recognised distribution range of the species, we mention the confiscation of a live juvenile from a roadside seller "near Standerton", in the Transvaal, in September 1985 (O. Bourquin pers. comm.). The species is commonly found in private collections, particularly in Natal, so locality data from urban areas should be carefully considered.

Two Transvaal Museum specimens (TM 52217, TM 52219) were mislabelled and the locality data attached to these specimens has led to the formulation of erroneous distributional data. During November 1978 the Transvaal Museum received three *Kinixys* specimens, one from the Natal Parks Board and two from the Transvaal Nature Conservation Division. These were entered consecutively in the TM catalogue. The accession number TM 52217 was allocated to a *K. natalensis* supposedly from Jerome (2230DC), in the north-eastern Transvaal while TM 52219 was allocated to a *K.b. spekii* supposedly from Weenen Nature Reserve (2830CC), in Natal. Thorough investigation established beyond doubt that the *K.b. spekii*, distinguished by a truncated plastron, (now allocated TM 52217), originated from Jerome and the *K. natalensis* (now TM 52219) from Weenen Nature Reserve. Unfortunately Broadley (1981) listed Weenen Nature Reserve as a locality for *K.b. spekii*, based on the mislabelled TM specimen, giving

the false impression that *spekii* and *natalensis* were sympatric at this locality.

DISTRIBUTION AND HABITAT

K. natalensis was founded on a series of sixteen specimens from the Tugela River valley of which the type male was from Jameson Drift and the type female from Dimane Stream (Hewitt 1935). Other localities given by Hewitt were Greytown, Impanza, Ntambanana and Manaba, but specimens from the last two localities have not been traced. The distribution of *K. natalensis* was given by Broadley (1981) as the mountainous terrain of the Natal Midlands and Zululand and the Lebombo range along the Swaziland/Mozambique border.

Although the additional material listed above indicates a wider distribution, *K. natalensis* remains a southern African endemic. The species also occurs in the extreme south-eastern Transvaal in the vicinity of Piet Retief and in the eastern Transvaal from the Komatipoort district northwards to Manyeleti and Hoedspruit (Fig. 4).

K. natalensis is shown as occurring sympatrically with *K.b. belliana* at Manaba and Otobotini (=Othobothini), and with *K.b. spekii* near Ressano Garcia (Mozambique) and in Weenen Nature Reserve (Broadley 1981). Their alleged sympatry at Weenen Nature Reserve has now been shown to be invalid. However, *natalensis* occurs sympatrically with *spekii* further south than Ressano Garcia in the Lebombo range at Mbuluzi Game Reserve and Mlawula Nature Reserve (2632AA), Swaziland (J. Culverwell pers. comm.). *K.b. spekii* has been collected at Nzulase (2531DC) which is located close to the Mananga Kop locality for *natalensis*, and they are sympatric at Manyeleti Game Reserve (2431CB).

K. natalensis is absent from the coastal plain and lowveld regions of Natal and Zululand and prefers the more rocky, inland regions up to 1 000 m a.s.l. Further north, in the Transvaal, it is found in association with granitic outcrops and ridges. While some specimens have been found in the open or crossing roads (J. Culverwell pers. comm.), we have found them sheltering under rocks. Habitat includes valley bushveld in the south, mountain bushveld and mountain thornveld in northern Natal, as well as arid bushveld and arid lowveld (Acocks 1975) in the extreme north of its range.

Locality records

The following represent substantiated localities (Fig. 4): Near Hoedspruit, TM 65799 (2430BD); Manyeleti Game Reserve, TM 64809 (2431CB); Mananga Kop, TM 59180 (2531DD); 10 km SSE of Ressano Garcia, Broadley 1981 (2532CA); Groenpan (sight record), Broadley 1981 (2631BD); Mbuluzi Game Reserve (sight record), personal observation (2632AA); Ndzindza (sight record), Broadley 1981 (2632AC); Bergplaats, TM 59178 (2731AA); Itala Game Reserve, TM 57520 and (sight record), Broadley 1981 (2731CB); Uitkyk, TM 56755 (2731CD); Magdalena Game Ranch (sight record), O. Bour-

quin personal communication (2731CD); Manaba (literature record) Broadley 1981 (2732AB); Othobothini, TM 59179 and Broadley 1981 (2732AC); Weenen Nature Reserve (east), Broadley 1981 (2830CC); Weenen Nature Reserve (west), TM 63950 (2829DD); Impanza, Broadley 1981 (2830DC); Jameson Drift and Dimane Stream, Broadley (1981) (2830DD); Ntambanana (literature record) Broadley 1981 – listed but plotted in error as 2831CA (2831DA); Greytown, Broadley 1981 (2930BA); 30 km due south of Kranskop, PEM R4478 (2930BB).

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REFERENCES

ACOCKS, J.P.H. 1975. Veld types of South Africa. *Mem. bot. Surv. S. Afr.* 40: 1-128.

BOYCOTT, R.C. & BOURQUIN, O. 1988. *The South African Tortoise Book* – A guide to South African tortoises, terrapins and turtles. Southern Book Publishers, Johannesburg. 160pp.

BROADLEY, D.G. 1981. A review of the populations of *Kinixys* (Testudinidae) occurring in south-eastern Africa. *Ann. Cape Prov. Mus. (nat. Hist.).* 13: 195-216.

HEWITT, J. 1935. Some new forms of Batrachians and Reptiles from South Africa. *Rec. Albany Mus.*4: 283-357.

LOVERIDGE, A. & WILLIAMS, E.E. 1957. Revision of the African tortoises and turtles of the suborder Cryptodira. *Bull. Mus. comp. Zool. Harv.* 115: 161-557.

WERMUTH, H. & MERTENS, R. 1961. *Schildkröten, Krokodile, Brückenechsen.*

VEB Gustaf Fischer Verlag, Jena. 422pp.