



KONINKLIJK MUSEUM VOOR MIDDEN-AFRIKA — TERVUREN, BELGIË
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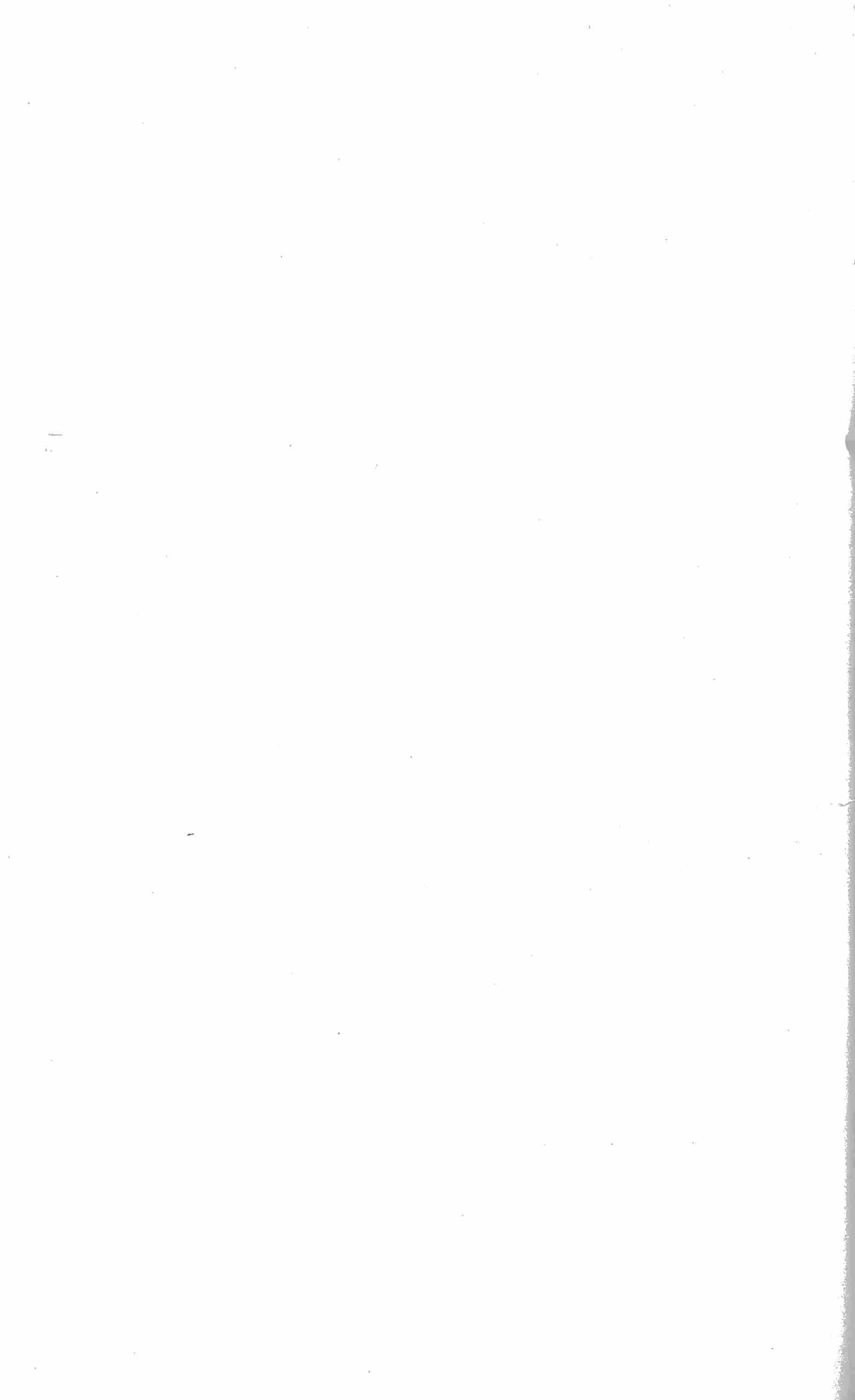
A CONTRIBUTION TO THE
KNOWLEDGE OF THE
GENUS PELUSIOS (WAGLER)

by

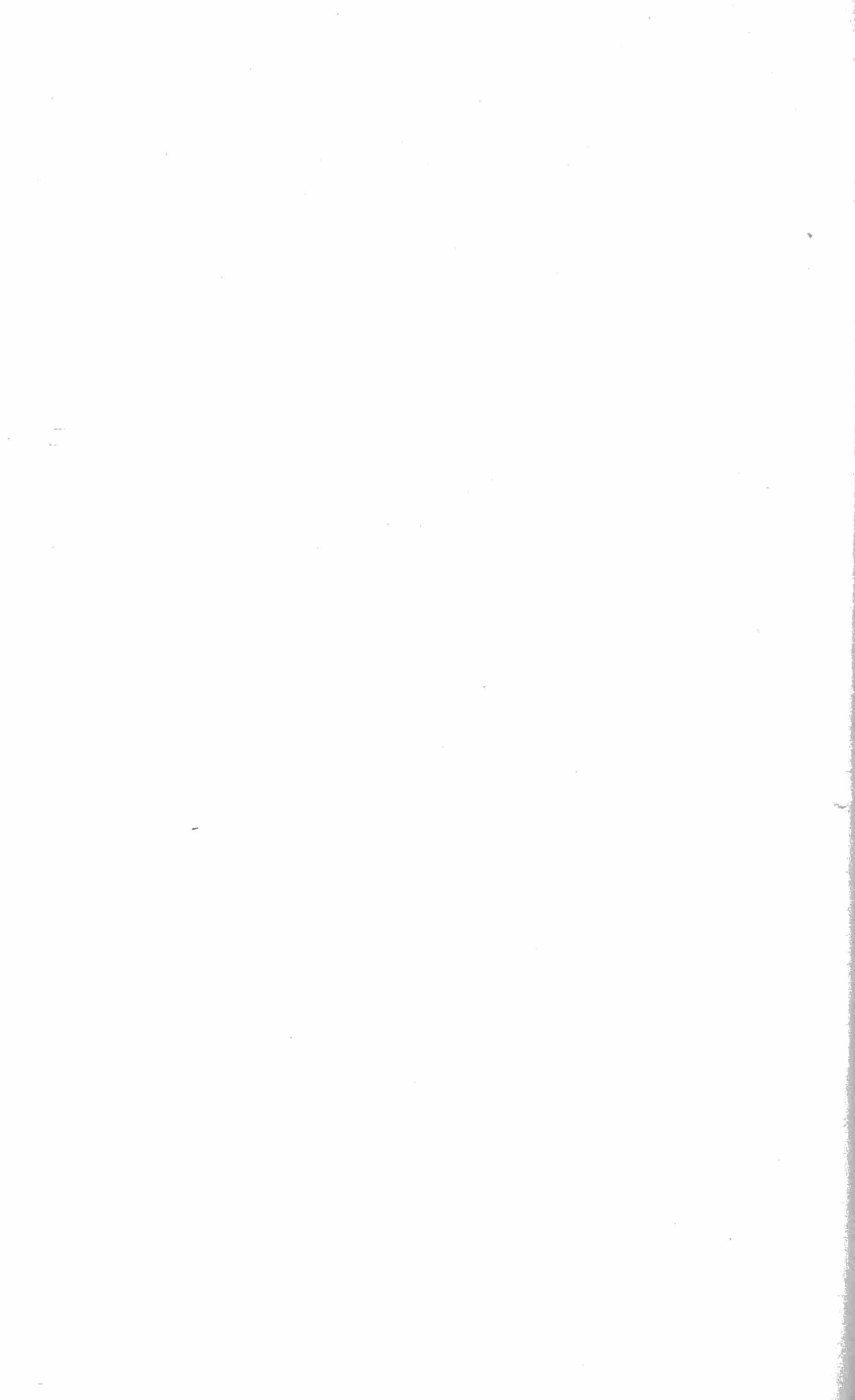
R. F. LAURENT

MUSEE ROYAL DE L'AFRIQUE CENTRALE — TERVUREN, BELGIQUE
ANNALES — SERIE IN-8° — SCIENCES ZOOLOGIQUES — n^o 135, 1965





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OF THE GENUS PELUSIOS (WAGLER)



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R. F. LAURENT
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Sorti de presse en mars 1965.

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INTRODUCTION

In his revision of the family *Pelomedusidae*, LOVERIDGE [1941] reduced the number of species of the genus *Pelusios* to the rather unexpectedly low figure of four, without any geographical races.

The species thus recognized were :

- Pelusios adansonii* (SCHWEIGGER).
- Pelusios gabonensis* (A. DUMÉRIL).
- Pelusios subniger* (LACÉPÈDE).
- Pelusios sinuatus* (A. SMITH).

In 1954, L. MÜLLER and HELLMICH demonstrated that *Pelusios niger* (DUMÉRIL and BIBRON) was a valid species and not a synonym of *P. subniger*. In 1956, studying Congolese and central African material, I revived another species merged with *P. subniger* by LOVERIDGE, *Pelusios castaneus* (SCHWEIGGER) and also described two new species : *Pelusios nanus* and *Pelusios carinatus*. Thus, 15 years after LOVERIDGE's revision, eight species rather than four were firmly established. Unfortunately H. WERMUTH and R. MERTENS in their checklist of 1961 rejected these latter findings without a word of explanation. In 1956 I had also expressed the opinion that *Pelusios bechuanicus* FITZSIMONS might be valid as well; more recently, I have been able to confirm this with a beautiful adult specimen from southern Angola (LAURENT, 1964).

Since the validity of *castaneus*, *nanus* and *carinatus* was not admitted in a major publication on turtles I felt it necessary to present more convincing evidence, if possible. This investigation resulted, as a byproduct, in additional arguments for the validity of *P. niger*, and in clues to the geographical variation of *P. castaneus* of which several subspecies can be profitably recognized, and in fact I discovered eventually that still another overlooked species was hidden in this composite. I take pleasure in dedicating this unexpected novelty to my friend, Dr. Ernest E. WILLIAMS whose work on turtles deserves recognition of this kind.

Material.

For this study, I used primarily the collection of the Museum of Comparative Zoology. Additional measurements have been very kindly provided by several helpful colleagues : Miss A. G. C. GRANDISON (*Pelusios adansonii*), from the British Museum of Natural History, Dr. Jean GUIBÉ (*P. adansonii* and *P. niger*) from the Muséum National d'Histoire Naturelle, Dr. Josef EISELT (*P. adansonii*) from the

Naturhistorisches Museum, Wien and Dr. W. HELLMICH (*P. niger*) from the Staatssammlung, München. Especially noteworthy and deserving gratitude are the numerous measurements taken by Mr. A. OPDENBOSCH of the Musée Royal de l'Afrique Centrale, Tervuren and authorized by Professor Max POLL.

During the summer I gathered similar data in the American Museum of Natural History, the United States National Museum, and the Chicago Natural History Museum. More recently, I have received a large series of *Pelusios* from the Institut Royal des Sciences Naturelles de Belgique, Brussels.

The abbreviations utilized are :

- AMNH, American Museum of Natural History, New York;
- BM, British Museum (Natural History), London;
- CNHM, Chicago Natural History Museum, Chicago;
- IRSNB, Institut Royal des Sciences Naturelles de Belgique, Brussels;
- MRAC, Musée Royal de l'Afrique Centrale, Tervuren;
- MCZ, Museum of Comparative Zoology, Cambridge;
- MHNP, Muséum National d'Histoire Naturelle, Paris;
- SM, Staatssammlung, München;
- USNM, United States National Museum, Washington, D. C.
- VM, Naturhistorisches Museum, Wien.

Procedure.

The method described by me [LAURENT, 1954] has been applied to this investigation.

The following measurements have been taken on specimens in the MCZ collection : Width of the intergular (WIG). Width of the plastron at different levels : lateral ends of gular-humeral sutures (WGH), lateral ends of humero-pectoral sutures (WHP), lateral ends of pectoro-abdominal sutures (WPA), lateral ends of abdomino-femoral sutures (WAF), and lateral ends of femoro-anal sutures (WFA). Distance between the two anal tips (DAT). Border of plastral plates (in fact distance between two successive sutures) : border of the intergular (BIG), border of gular (BG), border of humeral (BH), border of pectoral (BP), border of abdominal (BA), border of femoral (BF), border of anal (= distance between the anterior corner of the plate and the posterior tips) (BAT).

Midventral lengths : Length of the intergular (IG), length of gular (G), length of median sutures, between the humerals (SH), between the pectorals (SP), between the abdominals (SA), between the femorals (SF), between the anals (SAN). Length of vertebrae : first (LV 1), third (LV 3), fifth (LV 5). Width of vertebrae : first (WV 1), third (WV 3), fifth (WV 5).

Head measurements : breadth of head (H), length of orbit (O), diameter of tympanum (T), distance between the eye and the ear (OT), distance between the

nostril and the eye (NO), length of the suture of the supra-oculars (SS), length of parietals (P), width of parietal (WP), length of sublabial plate (SL).

The logarithm of each of these measurements is subtracted from the logarithm of the length of the carapace and the comparison of the corresponding figures obtained in this way shows immediately that some measurements are larger or smaller in some forms than in others. Then the combinations of the measurements that are affected by the largest divergences are likely to provide useful ratios for the identification of species and subspecies. Then these pairs of divergent measurements have to be tested as ratios or as scatter diagrams.

I am very much indebted to Prof. L. CAHEN, director of the "Musée Royal de l'Afrique Centrale, Tervuren" for publishing the present study.

STUDIES ON THE GENUS PELUSIOS

The validity of *Pelusios nanus* LAURENT

When *Pelusios nanus* was described by me as related to *P. adansoni*, I suggested that it might be the southern representative of this species, but did not expect that they could be synonymized, in spite of the fact that I had not made any direct comparison. WERMUTH and MERTENS [1961] regarded the two forms as inseparable, although no East African records were known that could provide any geographical grounds for this opinion.

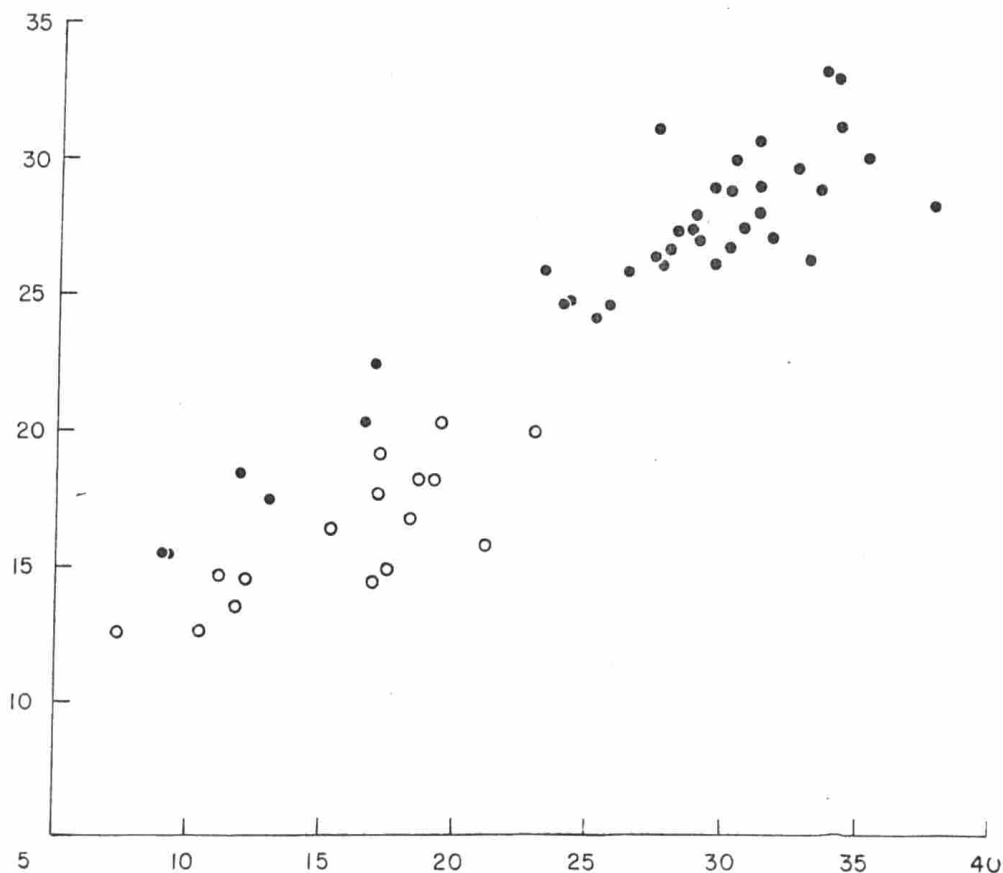


Fig. 1. — Width of the 3d vertebral (ordinates) against length of the same (abscissa).
● *P. adansoni*, ○ *P. nanus* ⁽¹⁾.

⁽¹⁾ All measurements in millimeters.

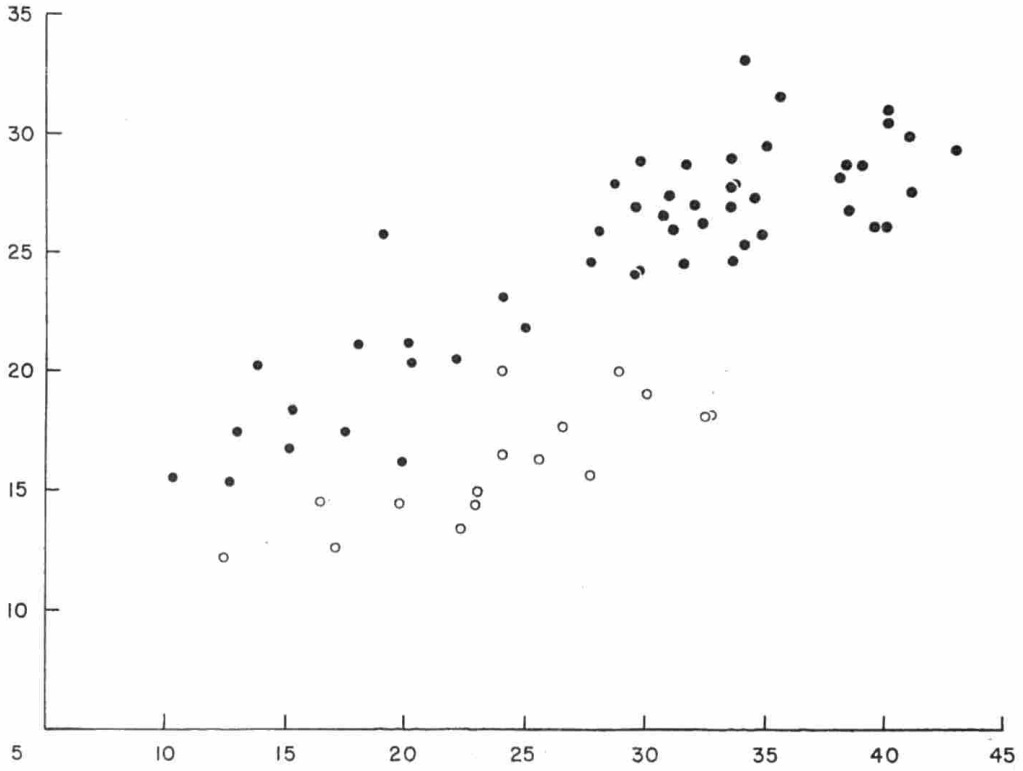


Fig. 2. — Width of the 3d vertebral (ordinates) against width of the 5th vertebral (abscissa).
 ● *P. adansoni*, ○ *P. nanus*.

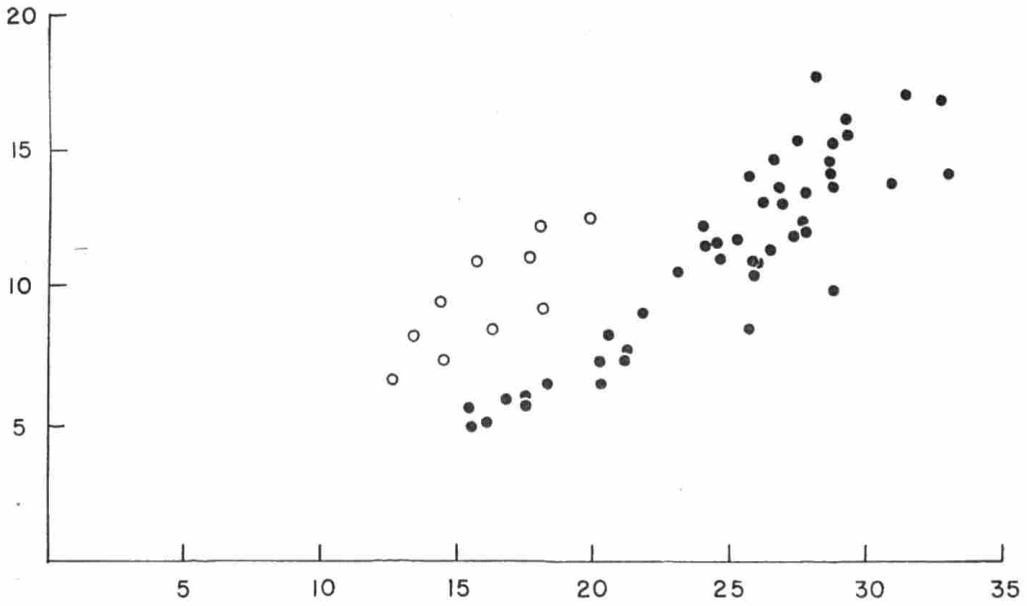


Fig. 3. — Width of the intergular (ordinates) against width of the 3d vertebral (abscissa).
 ● *P. adansoni*, ○ *P. nanus*.

I have now compared *P. adansoni* and *nanus*, and find them very different. Besides the general shape and the color which are quite unlike, the size of *nanus* is definitely smaller (at most 12 cm) than that of *adansoni* (maximum 17 cm). However certain of the characters which I believed to be different in the original description are invalidated by the study of further specimens. The following ratios show such largely overlapping ranges that they are worthless as taxonomic characters distinguishing *nanus* and *adansoni* : length of the intergular plate versus its width, humeral suture versus pectoral suture, humeral borders versus pectoral borders. It still appears to be true that the intergular is generally more than twice as long as a gular in *nanus*, while it is generally less than twice as long in *adansoni*.

Better ratio characters have been disclosed by my methods. The MCZ has only one specimen of each species. Their comparison suggested that the most different measurements would be : the breadth of the intergular, the breadth of the 5th vertebral and the length of the 3d vertebral (all larger in *nanus*), and on the other hand the border of the intergular and the breadth of the 3d vertebral (larger in *adansoni*). It was expected that ratios between any measurements larger in *nanus* and any measurement larger in *adansoni* might provide the best taxonomic characters to tell the two species apart.

The measurements provided by the material preserved in other museums confirmed these expectations, except that the border of the intergular proved too variable to be useful. But the correlation between the breadth of the third vertebral with its length, with the breadth of the fifth vertebral and with the width of the intergular, all have given very clean results (see the scatter-diagrams, figs. 1, 2, 3). The ratios by themselves are not significant since the growth of these plates is strongly allometric. It would seem moreover, that the diameters of the orbit and the tympanum are about equal to the distance between them in *nanus*, but smaller in *adansoni*. But the figures available are too few, especially for *adansoni* (2), so that this difference is only suggested by the data.

**Distinctness of *Pelusios castaneus* (SCHWEIGGER)
from *Pelusios subniger* (LACÉPÈDE)**

The evidence already presented in my 1956 publication was in my opinion, overwhelmingly conclusive, so that it seems hardly necessary to search for additional arguments. However, since this evidence has been ignored, it is necessary to repeat here the main points of the demonstration.

SIEBENROCK [1906] and RENDAHL [1939] have ably emphasized several differences between the two forms, treated as subspecies by Siebenrock, as species by Rendahl. LOVERIDGE [1941] rejected these differences as individual characters, age characters and sex characters. This is at face value illogical : if indeed Rendahl had really separated the sexes as claimed by Loveridge, it would have been very unlikely that by chance the males and the females would be at the opposite poles of four variation

curves, and even more surprising that all males would be older or younger than all the females.

In fact, as I found, after elimination of these specimens referable to *Pelusios gabonensis*, *P. nanus*, *P. sinuatus*, and *P. carinatus*, the remaining material in the collections of the Belgian Museums (MRAC and IRSNB), could be *at first sight* split in two arrays, one corresponding to SIEBENROCK's figure of *Sternothaerus nigricans nigricans* (= *subniger*) the other corresponding to SIEBENROCK's figure of *S. nigricans castaneus*. The first series comprised 17 specimens from Katanga, Northern Rhodesia and Southern Burundi; the second comprised numerous specimens (± 100) from almost all regions of Congo. In both groups, females and males were present as expected. It appeared that since *castaneus* was sympatric with *subniger* in Katanga, the two forms were good species as RENDAHL had already established. The differences between the two species are indeed so clear-cut that they cannot escape recognition when numerous specimens are compared.

The head is vermiculated in *castaneus* (less but still definitely so in old specimens), while it is uniform in *subniger*.

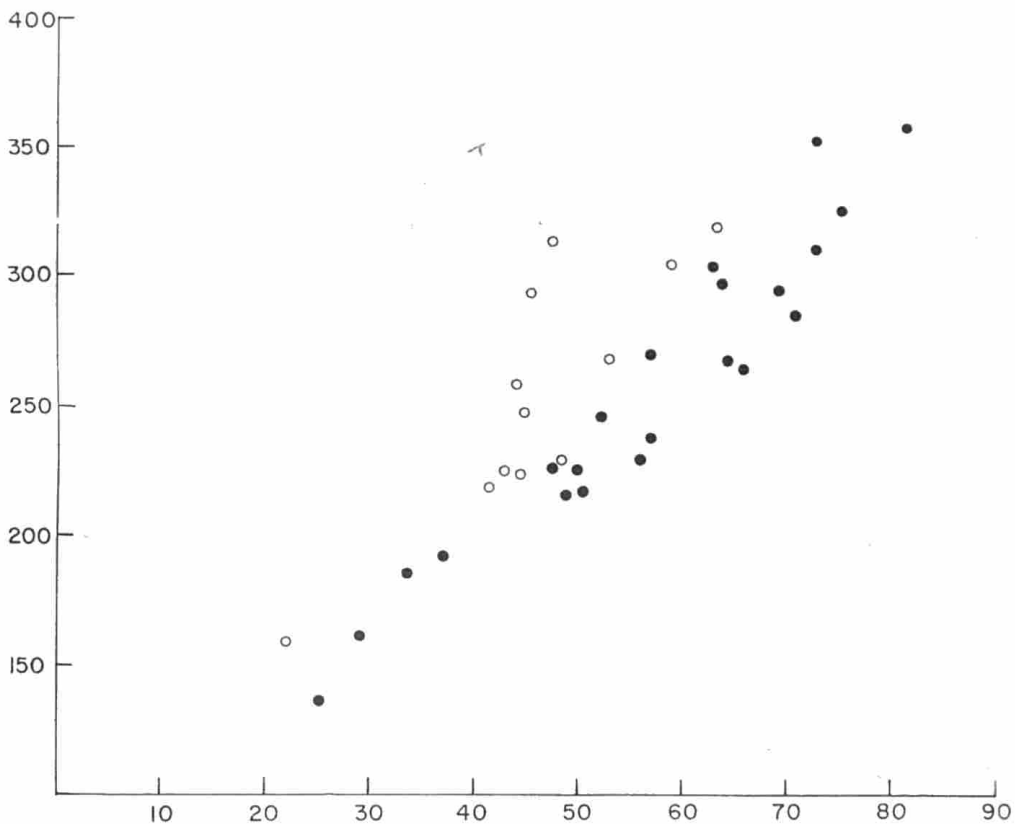


Fig. 4. — Width of the head (ordinates, tenths of millimeters) against breadth of plastron between the abdominal and femoral plates (abscissa, millimeters).

○ *P. subniger*, ● *P. castaneus*.

In *subniger*, the front legs have subequal scales on their anterior face. This is quite different from the *castaneus* condition in which a large series of sickle-shaped scales is separated from two additional series of large but not sickle-shaped scales by smaller ones.

P. subniger is also very easily characterized by its large head, the femoro-abdominal constriction of the plastron and the length of the intergular (see the scatter-diagrams, figs. 4-5).

I have had recently the opportunity to examine living specimens of both species and further noted that the iris is clear in *castaneus*, and blackish in *subniger*. These specimens were used by Dr. Wayne FRAIR for serological studies and the results

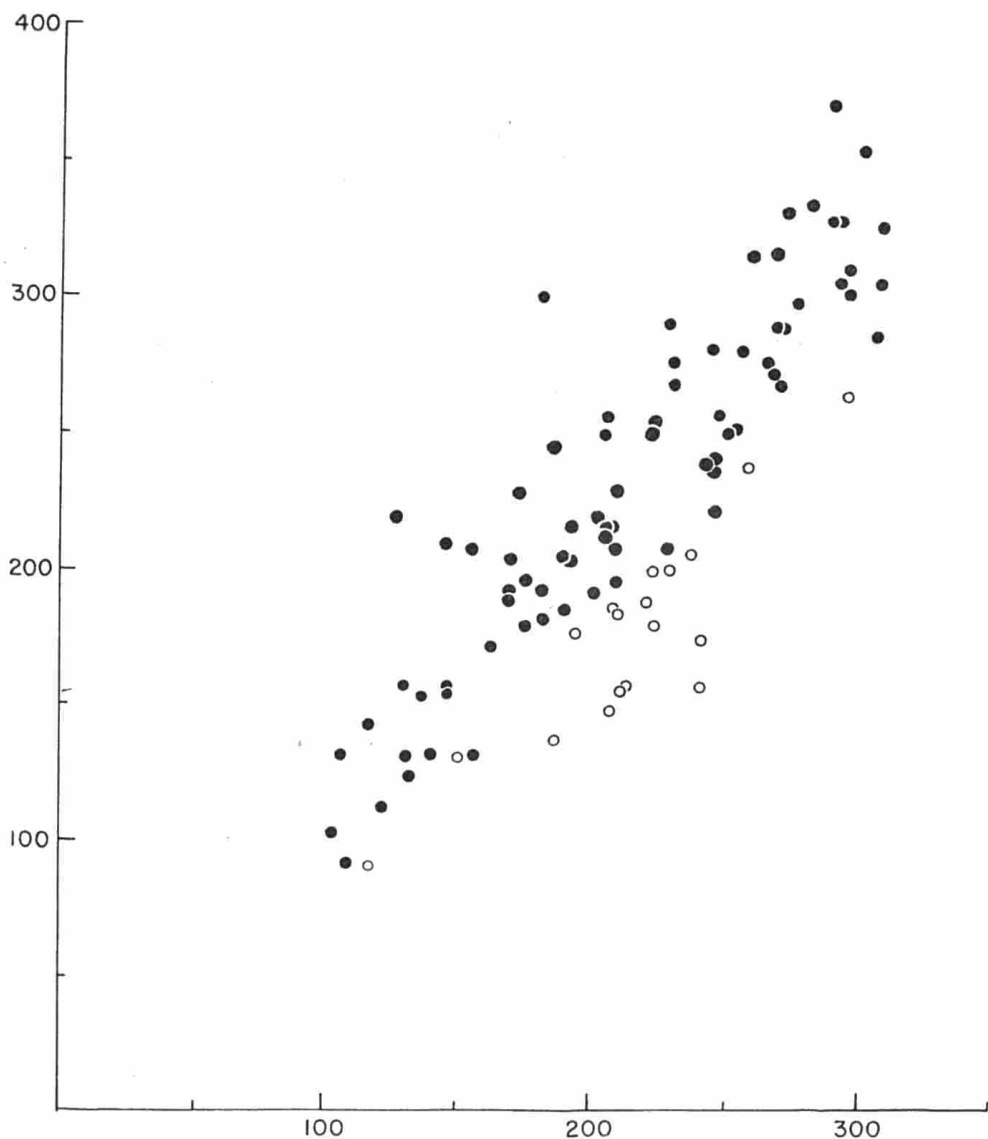


Fig. 5. — Humeral suture + pectoral suture (ordinates, tenths of millimeters) against length of the intergular (abscissa, idem).
○ *P. subniger*, ● *P. castaneus*.

pointed to a definite heterogeneity of the "subniger" sample... a not surprising fact to me since he had actually two species in his material.

Validity of *Pelusios carinatus* LAURENT

Without any discussion, WERMUTH and MERTENS [1961] synonymized *carinatus*, with *subniger*. It is hardly necessary to stress the differences between *carinatus* and *subniger*, since they are the same as between *castaneus* and *subniger*, but still more obvious : thus in *carinatus* the plastron is wider at the level of the femoro-abdominal limit than behind, while it is, on the contrary, strongly constricted at this same level in *subniger*; *P. carinatus* has the head vermiculated or marbled (young) with yellow and the plastron yellow with a black border in the front lobe; *P. subniger* has the head uniformly brown, and the plastron brownish or sometimes black.

The western specimens of *castaneus* living in the same area as *carinatus*, probably sympatrically, are somewhat more like *carinatus* than other populations of *castaneus* : the color of the plastron is very similar, yellow with a black border.

It may have been this fact that induced WERMUTH and MERTENS to believe that *carinatus* was not separable from *P. castaneus*, which they, of course, did not separate from *subniger* either. However, the black border of the plastron is only present on the front lobe in *carinatus*; whereas it is complete in western *castaneus*; the color pattern of the head is marbled in the young *carinatus*, vermiculated in the young *castaneus* (vermiculated in adults of both forms). The shape of the plastron is also quite different : constricted or straight at the abdomino-femoral level in *castaneus*, it is convex in *carinatus*, so that the width of the femoral plate is greatest in front in *carinatus* but not in *castaneus*. There is a deep indentation between the femoral and anal plates in *castaneus*, only a very slight one in *carinatus*. The shell is serrated behind, very distinctly keeled in *carinatus*, not or feebly keeled in *castaneus*.

If in spite of this evidence, the validity of *P. carinatus* is denied, let us add a few more proofs. Using the previously mentioned biometrical method, I discovered that the following measurements seemed relatively larger in *carinatus* than in specimens of *castaneus* from the Western Congo (almost sympatric with *carinatus*) : pectoral suture, humeral suture, width of the 3d vertebral median suture of the supraorbital plates. On the contrary the following seemed smaller : length and width of the intergular, distance between the eye and the ear. Certain of these measurements used as ratios provide characters fully confirming the validity of *Pelusios carinatus*. Especially good was the length of the intergular over the length of the sum of humeral and pectoral sutures : rarely more than 75 % in *carinatus* except in the young, generally not far from 100 % in *castaneus* except in the young where the intergular is generally distinctly longer than the rest of the anterior lobe of the plastron (fig. 6). The orbit-tympanum distance over the width of the 3d vertebral is also satisfactory (fig. 7), but the scatter-diagram of the same measurement

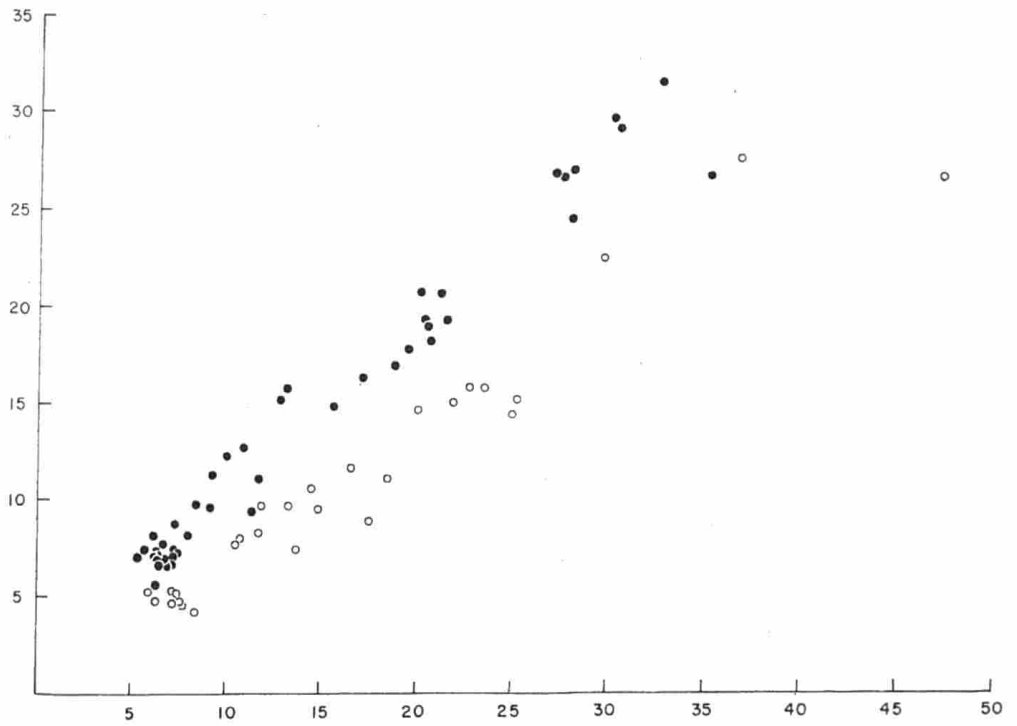


Fig. 6. — Length of the intergular (ordinates, millimeters) against humeral suture + pectoral suture (abscissa, millimeters).

○ *P. carinatus*, ● *P. castaneus* (samples from Western and Lower Congo).

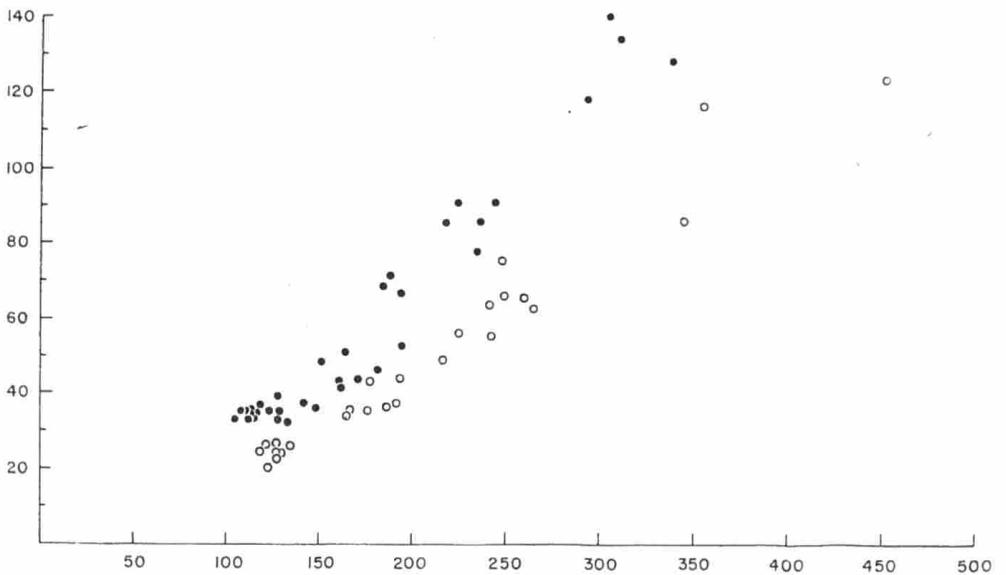


Fig. 7. — Distance between the eye and the tympanum (ordinates, tenths of millimeters) against width of the third vertebral (abscissa, tenths of millimeters).

○ *P. carinatus*, ● *P. castaneus* (samples from Western Congo).

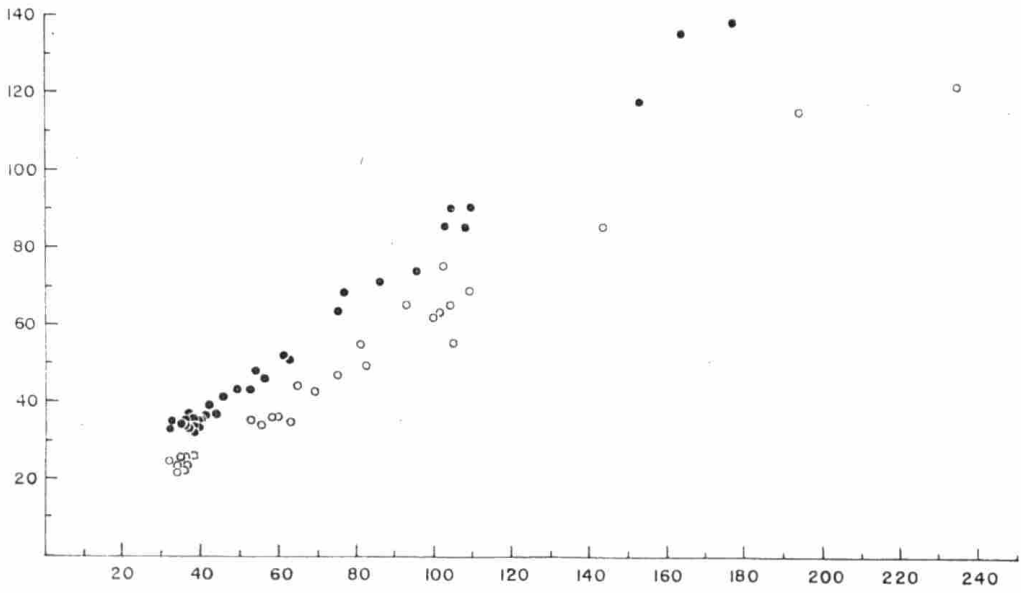


Fig. 8. — Distance between the eye and the ear (ordinates, tenths of millimeters), against length of shell (abscissa, millimeters).
 ○ *P. carinatus*, ● *P. castaneus* (samples of Western and Lower Congo).

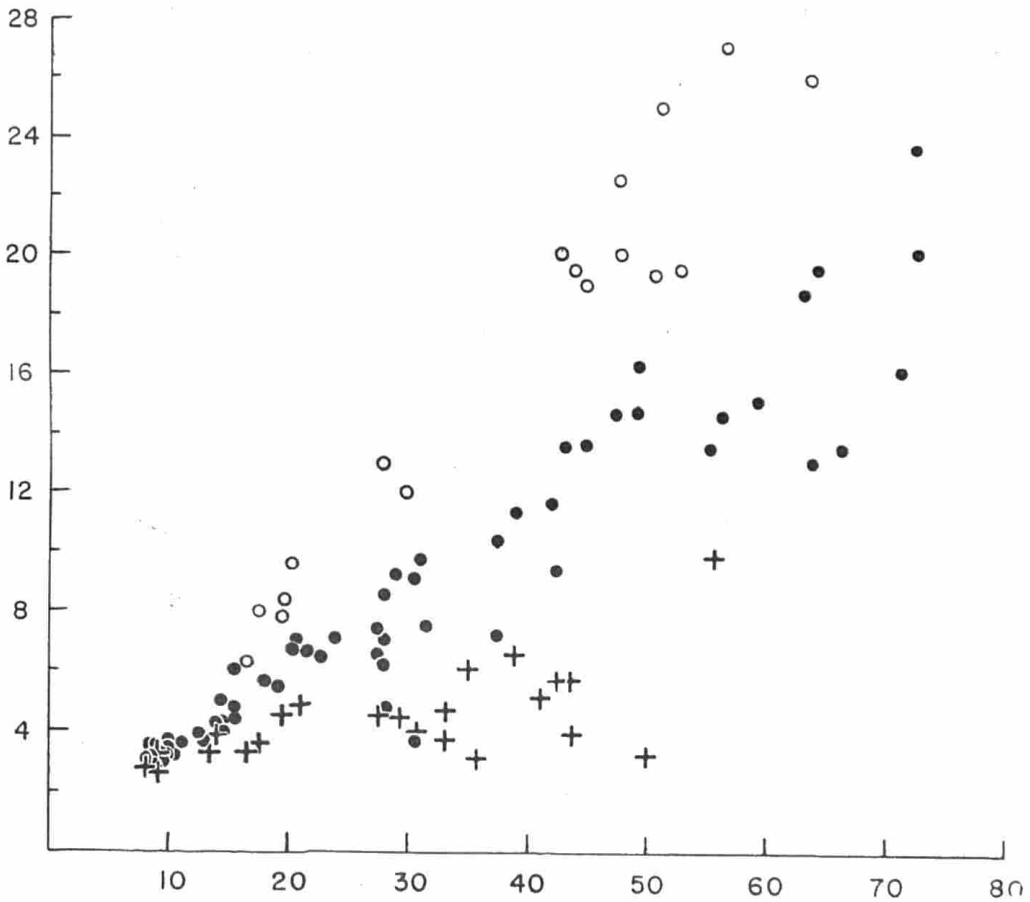


Fig. 9. — Intergular border (ordinates, millimeters), against femoral border (abscissa, millimeters).
 ○ *P. niger*, ● *P. castaneus* sbsp. (samples from Northern Congo, Western Congo and Angola),
 + *P. castaneus derbianus*.

against the length of the carapace seems still better (fig. 8) : more than 8 % in *castaneus*, at most 7.5 % in *carinatus*.

Additional evidence for the validity of *Pelusios niger*

The comparison of *Pelusios niger* with some samples of *Pelusios castaneus* from more or less neighboring regions show that the most characteristic measurements are the length of the border of the intergular, enormously larger in *niger*, and the external border of the femoral plate, distinctly larger in *castaneus* (fig. 9).

A previously overlooked species confused with *P. subniger* and *P. castaneus*

After removal from the *subniger* composite, as understood by LOVERIDGE [1941], of such species as the true *subniger sensu stricto* as well as *niger* and *carinatus*, the residual material does not appear satisfactorily homogeneous. While attempting to make sense out of the diverging features of this assemblage of specimens, I discovered not only a geographical repartition of characters, but also a clear evidence of sympatry in the Lake Albert basin. A new species from the Upper Nile basin had been overlooked and is here described :

Pelusios williamsi sp. n.

- 1911 *Sternothaerus derbianus* : BOULENGER (non GRAY), Ann. Mus. Civ. Stor. nat. Genova, (3) 5 : 162. Bussu (Uganda).
1933 *Pelusios nigricans nigricans* : LOVERIDGE (non DONNDORFF), Bull. Mus. Comp. Zool., 74 : 209. Entebbe (Uganda), Ukerewe, Id. (Tanganyika).
1936 *Pelusios nigricans nigricans* : LOVERIDGE (non DONNDORFF), Bull. Mus. Comp. Zool., 79 : 223. Kaimosi (Kenya).
1941 *Pelusios subniger* : LOVERIDGE (part, non LACÉPÈDE), Bull. Mus. Comp. Zool., 88 : 489.
1961 *Pelusios subniger* : WERMUTH and MERTENS (part, non LACÉPÈDE), Schildkr., Krokod., Brückenechsen : 291.

Holotype (MCZ 40021) : Kakamega, Kaimosi, Kenya, 1934, coll. LOVERIDGE. Paratypes : same origin (MCZ 40022-45, MRAC 11185, 11196) ; "Kenya" (CMNH 35289) ; Ukerewe, Id., Lake Victoria, Tanganyika (MCZ 30016-17) ; Entebbe, Lake Victoria, Uganda (MCZ 30018-19).

Diagnosis.

A large species with a black and yellow plastron whose anterior lobe is of moderate length (longer than an abdominal suture, but shorter than twice this length),

differing from *P. castaneus* by its larger head, its larger intergular, narrower 3d vertebral and shorter femoral border.

Description of the holotype.

Head broad, snout short; a pair of supraorbital shields followed by a large frontal, flanked by a pair of temporals. A group of small shields wedged between and behind frontal and temporal, much shorter than the suture between these two plates. Narrowest interorbital width almost as long as the longitudinal suture between the supraorbital shields. Upper jaw angularly rounded; chin with a pair of small barbels. Disposition of the scales on anterior aspect of fore limb essentially as in *castaneus*.

Carapace moderately depressed, its height included 2.75 times in its length, its posterior margin rounded. Vertebral shields 5, more or less obtusely keeled, as long or longer than broad (broader in young as in every species); costal 4 pairs; marginals 22 forming a prominent rim on the sides of the shell; supracaudals 2; plastron somewhat smaller than the opening of the carapace. Anterior lobe rounded; posterior lobe notched between the anals; intergular 3.80 times as long as a gular, about 1 1/2 times as long as broad, pyriform; humeral suture 2.13 times as long as pectoral suture; outer border of a humeral slightly (1.03 times) longer than that of a pectoral; pectorals excluded from bridge by abdominals; width of bridge contained 1.90 time in the maximum width of plastron; suture of abdominals contained 1.50 time in the length of the anterior lobe of the plastron. Plastron is somewhat narrowed at level of the suture between the abdominal and femoral plates, the border of which is generally convex.

Carapace, plastron and upper part of the head blackish, with some yellow on the external part of the pectoral and abdominal plates, on the ventral part of 5th and 6th marginals. Lower parts of the head and limbs brownish.

Remarks.

The coloration is somewhat variable; many paratypes have more yellow on the plastron and the marginals, sometimes even the black is reduced to mere traces.

Discussion.

This species was discovered when I studied a scatter diagram intended to show the validity of *Pelusios carinatus* by the relation between the width of the intergular and the width of the 3d vertebral. To my great surprise, while *carinatus* was very poorly distinguished by this ratio, all the alleged *castaneus* from the Lake Victoria and the Lake Edward shores, as well as the majority of the Lake Albert specimens stood out very clearly. I had [LAURENT, 1956] previously noticed that the specimens coming from Lake Edward and many from the Lake Albert had a yellow plastron, while other individuals from the north-eastern Congo (Lake Albert included) and all

the specimens from Rwanda had a black plastron. The dorsal part of the carapace is also distinctly lighter in the specimens with a yellow plastron. It now turned out that conspicuous differences of measurements existed also, so that two sympatric forms (in the Lake Albert region) were obviously involved. The unavoidable conclusion is that a new species had been thus far overlooked and I take pleasure in naming it after my friend Ernest E. Williams, with whose help I got the opportunity of pursuing in the United States a career that proved impossible or at least difficult in the Congo or in Belgium.

This new species is very much alike *P. castaneus* but the larger head and the frequent constriction of the plastron at the abdomino-femoral level recall *P. subniger*, though these characters are not so marked as in that species. The scalation on the front legs is definitely different from *subniger* and similar to that of *castaneus*. The most prominent features distinguishing *williamsi* from *castaneus* are the following measurements : the intergular is larger (longer and wider) in *williamsi* while the femoral outer border (more precisely the distance between the outer ends of the femoro-abdominal suture and the femoro-anal suture) is shorter and the 3d vertebral narrower. Two scatter-diagrams demonstrate those differences (figs. 10-11).

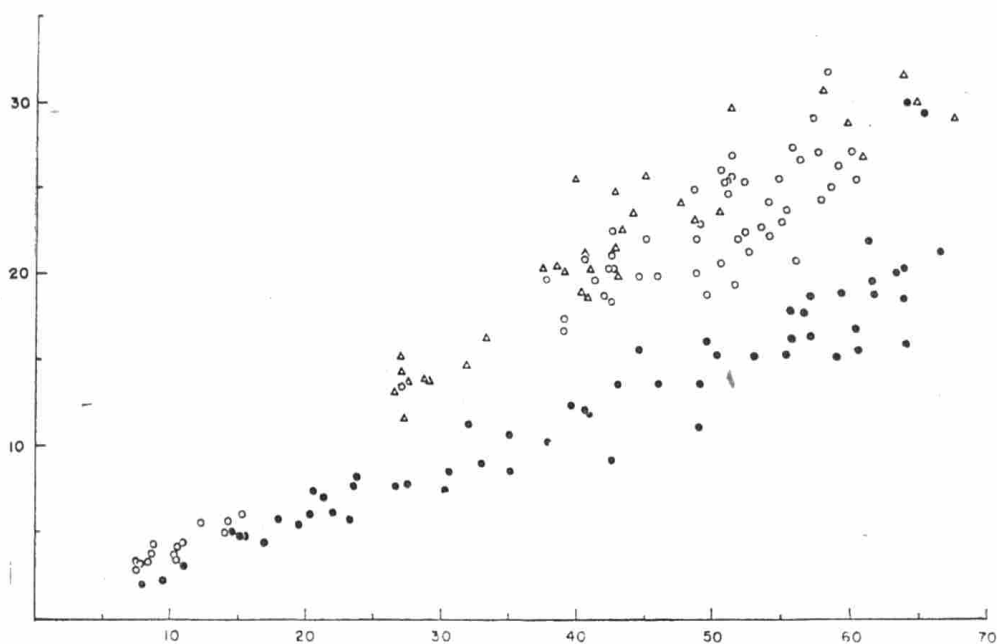


Fig. 10. — Length of intergular (ordinates, millimeters) against femoral border (abscissa, millimeters).

- *P. castaneus* (samples from Congo and East Africa).
- △ *P. williamsi williamsi*.
- *P. williamsi lutescens*.

Range.

Pelusios williamsi is definitely a nilotic species. It does not seem to exist in the upper part of the Nile basin in Rwanda and Burundi where it is replaced by *P. casta-*

neus; if it shares the sudanese part of the basin with *P. adansoni* is not known. So far the range is thus divided in two parts : the eastern part is the Lake Victoria region, the western part comprises the Lake Albert, the Semliki river, the Lake Edward and their affluents. The eastern typical populations have the plastron at least partly blackish while the western specimens have the plastron yellow . The latter are recognizable as a distinct subspecies which may be called :

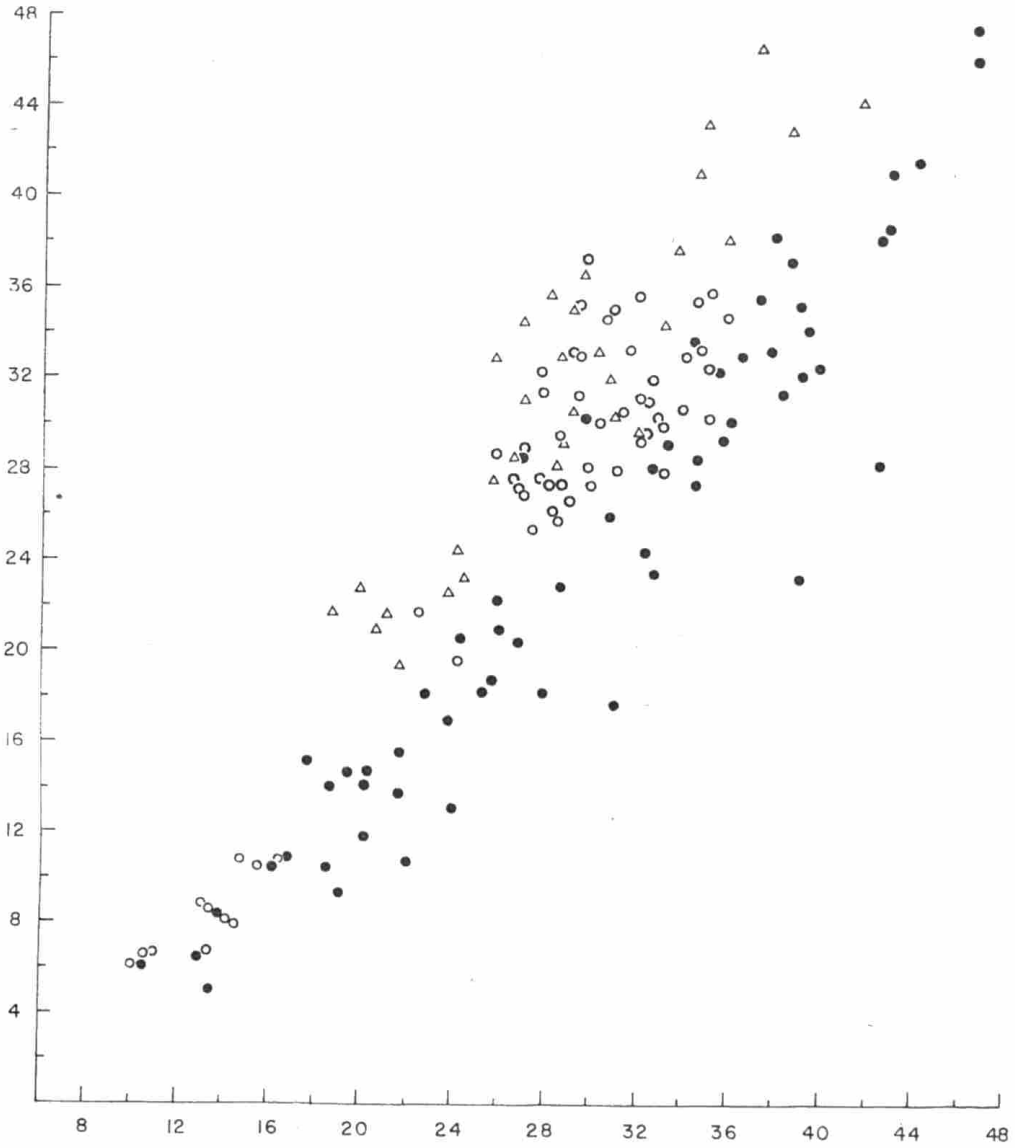


Fig. 11. — Width of intergular (ordinates, millimeters) against width of 3d vertebral (abscissa, millimeters).

- *P. castaneus* (samples from Congo and East Africa).
- △ *P. williamsi williamsi*.
- *P. williamsi lutescens*.

Pelusios williamsi lutescens sbsp. n.

- 1912 *Sternothaerus sinuatus* : STERNFELD (part, non SMITH), Wiss. Ergebn. Deutsche Zentr. Afrika Exped. 1907-08, **4** : 200. Lake Albert (north-eastern Congo).
1916 *Sternothaerus nigricans* : SIEBENROCK (non DONNDORFF), Ann. Naturh. Hofmus. Wien, **30** : 6. Lake Albert (north-eastern Congo).
1941 *Pelusios nigricans nigricans* (non DONNDORFF) : WITTE, Explor. Parc Nat. Albert, **33** : 107; pl. XI, fig. 5, pl. XII, fig. 1c. Kamande, Rwindi, Bitshumbi, Riv. Ishasha, Katanda, May-ya-moto, Riv. Molindi, Kiago, Bugazia (Kivu, Congo); Kazinga-Channel (Uganda).
1941 *Pelusios subniger* : LOVERIDGE (part, non LACÉPÈDE), Bull. Mus. Comp. Zool. **88** : 489.
1942 *Pelusios subniger* : LOVERIDGE (non LACÉPÈDE), Bull. Mus. Comp. Zool., **91** : 249. Butiaba, Uganda.
1961 *Pelusios subniger* : WERMUTH and MERTENS (part, non LACÉPÈDE), Schildkr., Krokod., Brückenechsen : 291.

Holotype : Semliki River, 1 km below the Lake Edward, 28-III-1953 (coll. de Witte) (IRSNB 6822).

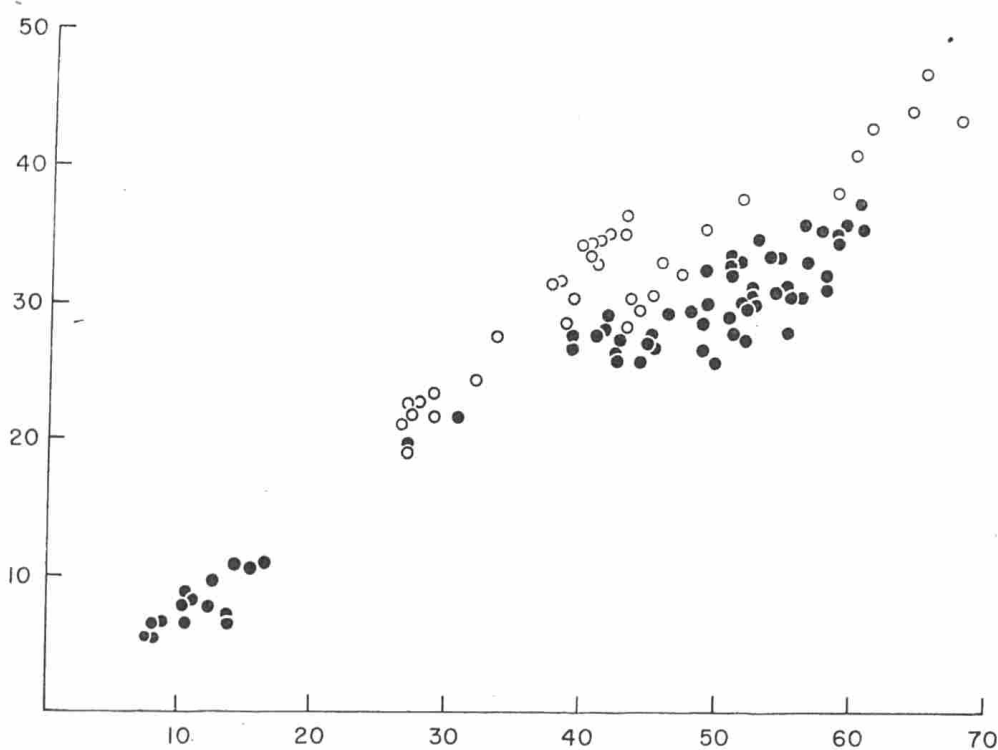


Fig. 12. — Length of intergular (ordinates, millimeters) against femoral border (abscissa millimeters).

○ *P. williamsi williamsi*.

● *P. williamsi lutescens*.

Paratypes : same origin (IRSNB 6820-21, 6823-31), Semliki River, 1 km below the Copile ferry (IRSNB 6834). Lake Albert : Mahagi-Port (MRAC 10391, 20634), Butiaba (MCZ 48013), Kasenyi (IRSNB 6838-43, MRAC 11970-11971 A). Between Lake Albert and Lake Edward (Semliki) : S.W. Lake Albert (MRAC 12326), Muke-Semliki Junction (IRSNB 5309), Mutsora (IRSNB 5306), May-ya-Moto, N.E. of Lake Edward (IRSNB 1802); Lake Edward : Lake Edward (MCZ 19769), Ishango (IRSNB 5310-12, 6815, 6832-33), Kanyatsi (IRSNB 5331), Kiavinonge fishery (IRSNB 5313-14), Kasinga Channel (IRSNB 1803), Riv. Ishasha (IRSNB 1797), Kabare (IRSNB 6835), Kamande (IRSNB 1793, MRAC 12364, 16579-80), Kiango (MRAC 12369), Katanda (MRAC 12367), Bugazia (MRAC 12370), Vitshumbi (IRSNB 1798, 6812-14, 6816-19, 6836, MRAC 12366), River Rwindi (IRSNB 1796); Rwindi Plain : Rwindi Camp (MRAC 12365); Riv. Molindi (MRAC 12368).

Diagnosis.

Race of *Pelusios williamsi* differing from the typical form by its lighter coloration, the plastron being yellow often with greyish or brownish spots, rarely with some

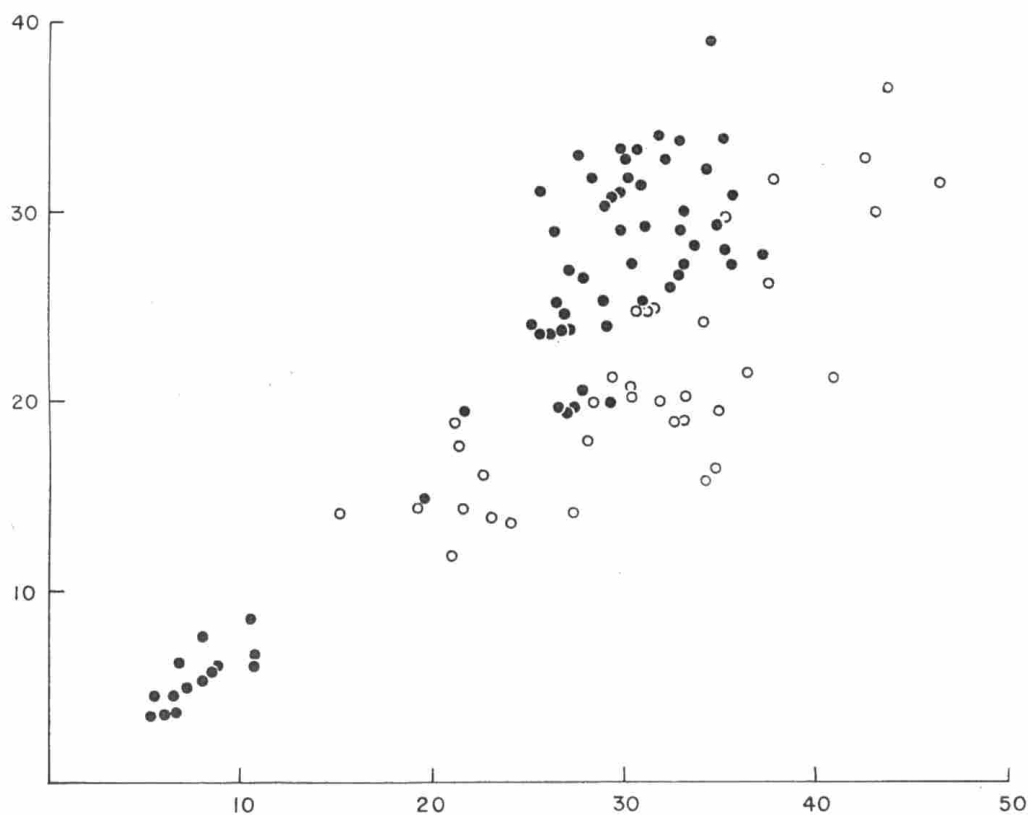


Fig. 13. — Humeral suture (ordinates, millimeters) against length of intergular (abscissa, millimeters).

- *P. williamsi williamsi*.
- *P. williamsi lutescens*.

black on the intergular or the anals, but never with predominant black coloration as in the Lake Victoria populations. The marginal rim is scarcely distinct. The length of the intergular, larger in typical *P. williamsi* than in *P. castaneus*, is intermediate in *lutescens*. The length of the femoral border shorter in *P. williamsi* than in *P. castaneus* is likewise less so in *lutescens*; the scatter-diagram of these two measurements shows an obviously significant difference (fig. 12). Another significant difference appears when the length of the intergular is compared with the length of the humeral suture (fig. 13).

Range.

The two races appear very different in the present state of our knowledge; it is however possible that they merge below the Lake Albert, but as no hints of intergradation is apparent in specimens coming from the northern part of Lake Albert, it can be speculated that the Murchison Falls or the Ripon Falls on the Victoria Nile mark the limit between the two subspecies.

The geographic variation of *Pelusios castaneus* SCHWEIGER

If from the heterogeneous assemblage that LOVERIDGE called *Pelusios subniger*, we take out the true *subniger*, as well as *nanus*, *carinatus*, *niger*, *williamsi* and *lutescens*, we are still left with an almost panethiopian set of specimens or populations which does not appear homogeneous either. We have distinct western populations (Guinea region) with variable coloration, but with a long femoral border and intergular strongly narrowed in front (fig. 9); these western populations are separated from the Congolese "*castaneus*" populations by a such large distributional gap, that their assignment to *P. castaneus* at the species level seems questionable.

However that may be, the validity of this western form, for which *derbianus* GRAY is available, is still indicated by the shortness of the pectoral median suture especially if compared with the length of the humeral suture (fig. 14), and the length of the third vertebral (fig. 15). The scatter-diagrams for these ratios show reverse relations in the most eastern specimens from coastal East Africa, Seychelles Islands and Madagascar revealing a west-east cline in the allometric growth pattern of these plates. It must be added that the anterior border of the intergular is also definitely larger and the third vertebral shorter in these eastern populations than in the vast majority of the Central African specimens (fig. 15).

Moreover, the eastern specimens are rather light in coloration; brown, yellowish brown, chesnut brown (Madagascar) even with a yellow plastron (East African Coast), while the central African specimens are blackish sometimes with light patches on the plastron, but often completely black. SIEBENROCK [1906] believed that this eastern array of populations could be divided in *castaneus* (African mainland and Mada-

gascar) and *seychellensis* (Seychelles Islands). My data are too scanty for answering this question. I don't see any remarkable morphological differences between specimens from the three regions; and on this basis, I should favor the synonymy of *seychellensis* with *castaneus*. On the other hand, the MCZ specimen from Madagascar is strikingly chestnut colored, which fits the name and the original description of *castaneus*, whereas the African specimens have almost pure yellow plastron and the Seychelle individuals are intermediate. Consequently, we cannot rule out the possibility that the three groups of populations are subspecifically distinct. In this case, it seems that *castaneus* might be restricted to Malagasian populations, and

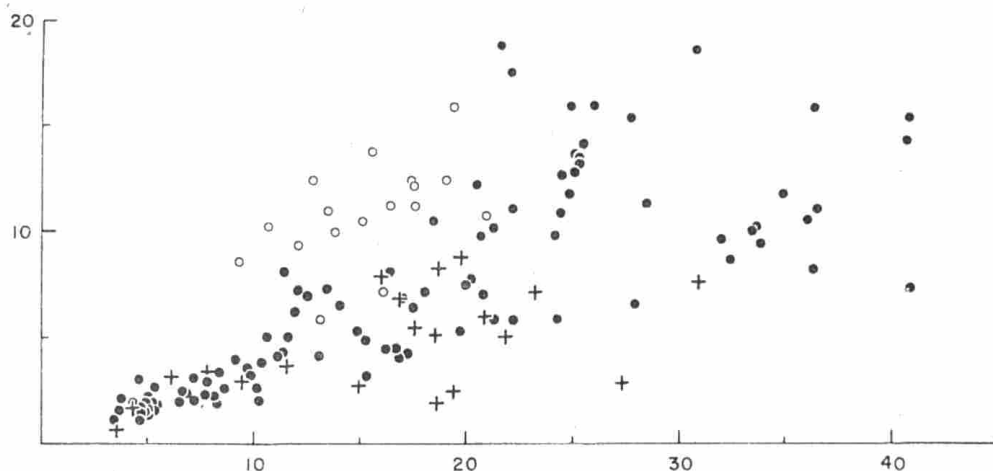


Fig. 14. — Pectoral suture (ordinates, millimeters) against humeral suture (abscissa, millimeters).
 ○ *P. castaneus castaneus* (East Africa, Seychelles, Madagascar).
 ● *P. castaneus rhodesianus* and *P. castaneus chapini* (Central Africa).
 + *P. castaneus derbianus* (West Africa).

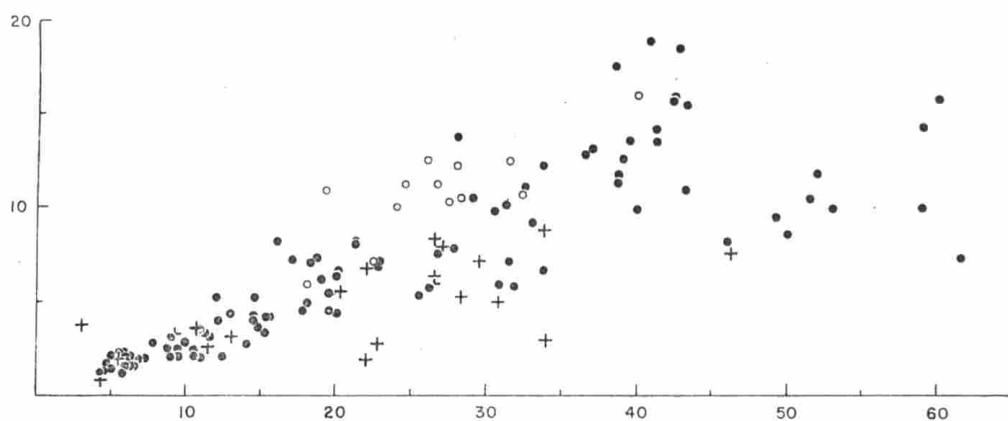


Fig. 15. — Pectoral suture (ordinates, millimeters) against width of 3d vertebral (abscissa, millimeters).
 ○ *P. castaneus castaneus* (East Africa, Seychelles, Madagascar).
 ● *P. castaneus rhodesianus* and *P. castaneus chapini* (Central Africa).
 + *P. castaneus derbianus* (West Africa).

possibly that *castanoides* HEWITT could be applied to the populations from the East African coast. HEWITT [1927] emphasizes the point that the abdominal external border is longer than the femoral border in the type of *castanoides*; however, this character is common in the very large specimens from northern Congo, suggesting an effect of age and allometric growth.

The populations from Central Africa are obviously different from the western *derbianus*, as well as from the eastern *castaneus* complex. Are they connected by a cline? We already know that this is very unlikely for *derbianus* since the Ghana-Nigeria region seems a broad gap where the species appears to be replaced by *P. niger*. The Eastern populations are probably connected to Angolan and Lower Congo populations through Rhodesia and Katanga; the populations from Rwanda, Burundi and southern Kivu belong to the same continuum. The southern Congolese populations are however different from the eastern coastal populations and could be considered as subspecifically recognizable. Some differences have been disclosed in the measurements received from the Musée Royal de l'Afrique Centrale, between the Lower Congo, the Katanga and the Kivu populations (namely fig. 14 and fig. 15). However, because these populations are not isolated from each other, it does not appear advisable to propose any taxonomic distinction between them, at least for the present. A name is available for this large group of central African populations: *rhodesianus* HEWITT.

Let us consider now a last group: the North Congolese populations. These are cut off from *derbianus* as we said previously; they are also cut off from the Lower Congo population by the large rain forest area where the species appear to be replaced by *P. gabonensis* and *P. carinatus*. They are cut off from the eastern subspecies and from the Rwanda-Kivu populations by *P. williamsi* with which they are partly sympatric, namely in the Lake Albert region. So in the northern Congo, *P. castaneus* is isolated from all sides. More interesting is the fact that the size becomes considerably larger in these populations, so that, as recorded by Lang (SCHMIDT, 1919), some individuals approach the huge dimensions of *P. sinuatus*: 380 mm.

Thus, among 13 individuals examined, six are above 250 mm and three above 300 mm.

The largest sizes in other populations are as follows:

West Africa (<i>derbianus</i>): about	210 mm (21 specimens).
Lower Congo and Angola:	221 mm (49 specimens).
Katanga, Rhodesia, Nyasaland:	227 mm (31 specimens).
Eastern Congo, Rwanda and Burundi:	234 mm (7 specimens).
East African Coast:	180 mm (3 specimens).
Seychelles:	168 mm (8 specimens).

Certain allometric relations are also different in the northern Congo population. For instance the length of the border of the intergular hardly increases during the life in the southern Congolese populations of *castaneus*, especially in the Katanga; in other words, its growth is quite negatively allometric. This negative allometry

is very much less pronounced in the northern Congo sample. The difference appears striking when compared with the breadth of the 3d vertebral (fig. 16). A similar difference comes out if we study the border of the gular in relation to pectoral suture, the growth of this suture being negatively allometric in the northern Congo, roughly isometric in the Katanga (fig. 17).

If we consider now the abdominal and the femoral borders we see that the second is generally longer than the first in *P. castaneus*, but on the contrary becomes shorter in the largest individuals belonging to the Uele and Ituri populations (fig. 18); this difference does not seem a mere result of the fact that the size becomes larger, since the trend appears to be opposite in the southern populations.

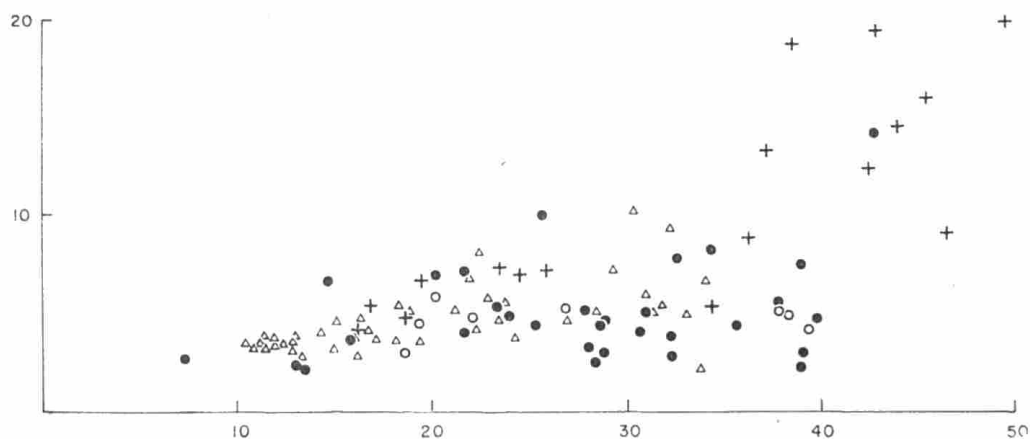


Fig. 16. — Width of intergular (ordinates, millimeters) against width of 3d vertebral (abscissa, millimeters).

- *P. castaneus rhodesianus* (Katanga sample).
- *P. castaneus rhodesianus* (Kivu-Rwanda sample).
- △ *P. castaneus rhodesianus* (Lower Congo sample).
- + *P. castaneus chapini* (Northern Congo).

In all these characters the divergence is the most conspicuous between the northern sample and the Katanga sample, the Lower Congo series more or less bridging the gap.

In conclusion, it appears that the population from the northern Congo deserve taxonomic recognition as follows :

Pelusios castaneus chapini sbsp. n.

1919 *Pelusios nigricans* : SCHMIDT (non DONNDORFF), Bull. Amer. Mus. Nat. Hist., 49 : 411, 460; fig. 1, pl. XI, fig. 3. Faradje, northern Congo.

1933 *Sternothaerus derbianus* (non GRAY) : WITTE (part), Ann. Mus. Congo, Zool. (1) 3 : 67. Mauda, Dika, Mahagi-Nierambe (northern Congo).

1937 *Pelusios nigricans nigricans* : LOVERIDGE (non DONNDORFF), Proc. Acad. Nat. Sci. Philadelphia, **89** : 269. Saidi's Village (north-eastern Congo).

1941 *Pelusios subniger* : LOVERIDGE (part, non LACÉPÈDE), Bull. Mus. Comp. Zool., **88** : 489.

1956 *Pelusios castaneus* : LAURENT (part, non LACÉPÈDE), Ann. Mus. Congo, Zool., **48** : 34.

1961 *Pelusios subniger* : WERMUTH and MERTENS (part, non LACÉPÈDE), Schildkr., Krokod, Brückenechsen : 291.

Holotype : Kasenyi, Lake Albert, Bunia Terr., Ituri, Congo, IX-1955 (coll. Laurent) (MRAC 20937).

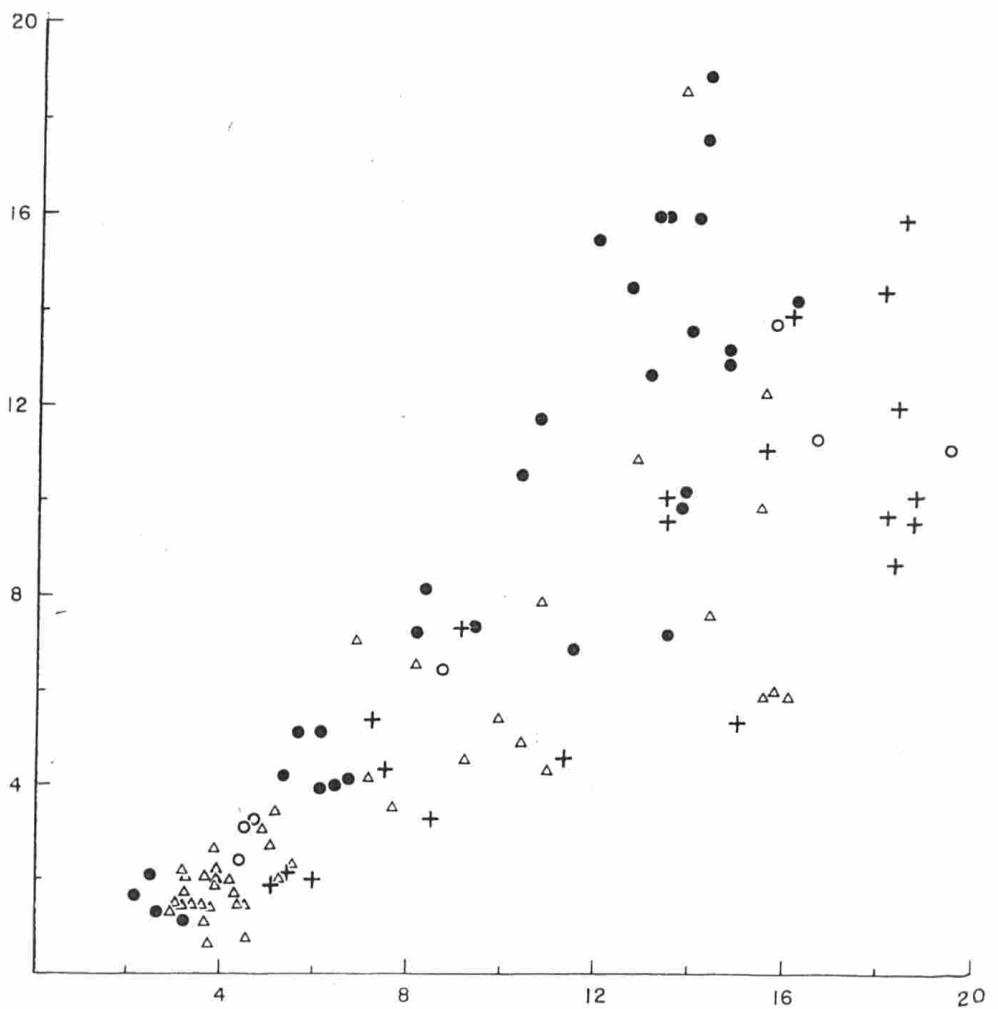


Fig. 17. -- Pectoral suture (ordinates, millimeters) against gular border (abscissa, millimeters).

- *P. castaneus rhodesianus* (Katanga sample).
- *P. castaneus rhodesianus* (Kivu-Rwanda sample).
- △ *P. castaneus rhodesianus* (Lower Congo sample).
- + *P. castaneus chapini* (Northern Congo).

Paratypes : Same locality (IRSNB 6837, 6844-45); Mahagi-Nierambe, Lake Albert, Ituri, Congo (MRAC 4425); Mahagi-Port, Lake Albert, Ituri, Congo (MRAC 10390, 10392-93); Faradje, Ituri, Congo (AMNH 10061-62, 10064-65); Dungu River, Uele, Congo (AMNH 10094); Medje, Uele, Congo (AMNH 10063); Mauda, Uele, Congo (MRAC 3760-61) ; Dika, Uele, Congo (MRAC 4049); Bam-besa, Uele, Congo (MRAC 9645); "Congo", without precise locality (MRAC 2768, 5390).

Diagnosis.

A race of *Pelusios castaneus* differing from all the other population of this species by its large size, reaching 38 cm instead of about 24 cm maximum. The following measurements also tend to be larger : intergular border, gular border and abdominal

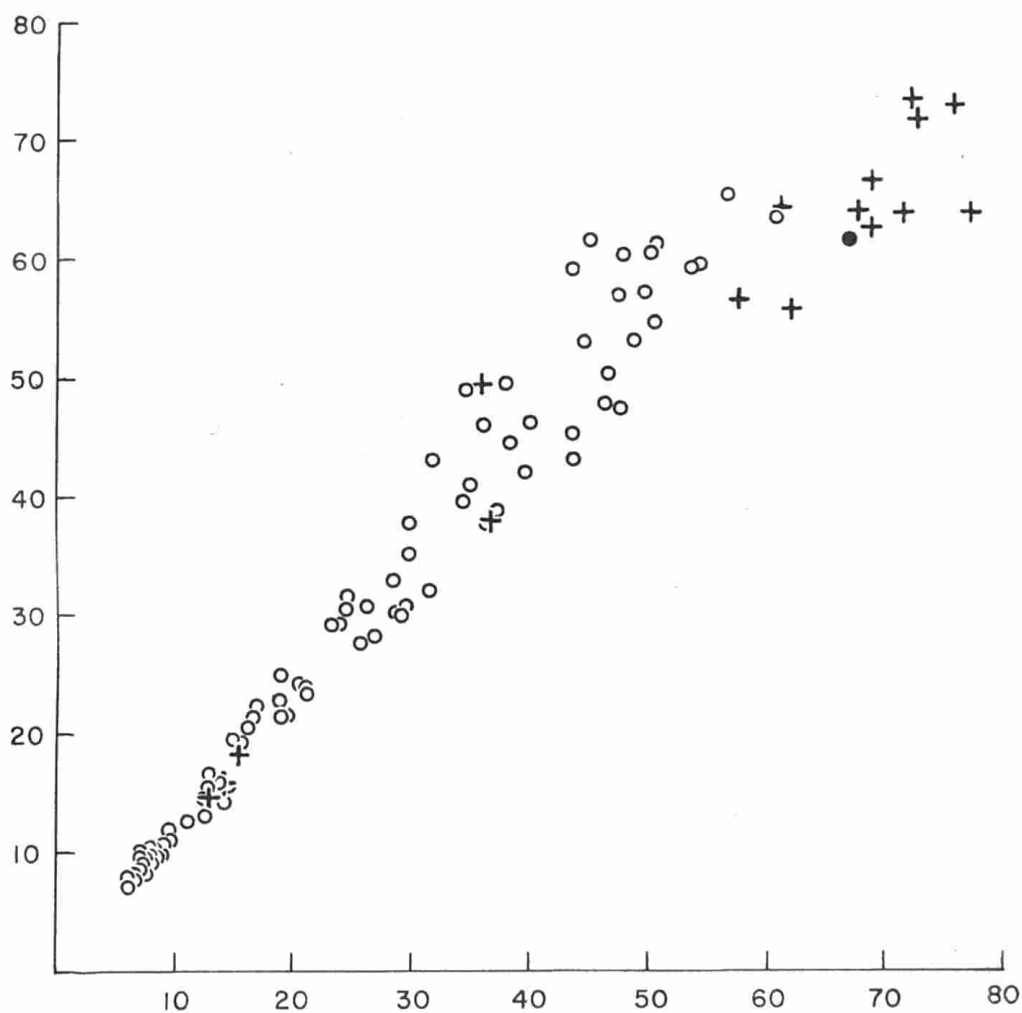


Fig. 18. — Femoral border (ordinates, millimeters) against abdominal border (abscissa, millimeters).
 ○ *P. castaneus rhodesianus* (Central Africa).
 ● *P. castaneus castanoides* (Holotype Zululand).
 + *P. castaneus chapini* (Northern Congo).

border. Others tend to be smaller : width of the third vertebral, pectoral suture and femoral border. In the large specimens (shell measuring at least 20 cm) the femoral border is shorter than the abdominal border (9 specimens out of 11), while it is almost always the reverse in the other *castaneus* populations.

Coloration.

It was previously believed that the coloration was very variable in *Pelusios castaneus* but this belief was based on a confusion of this species with others,

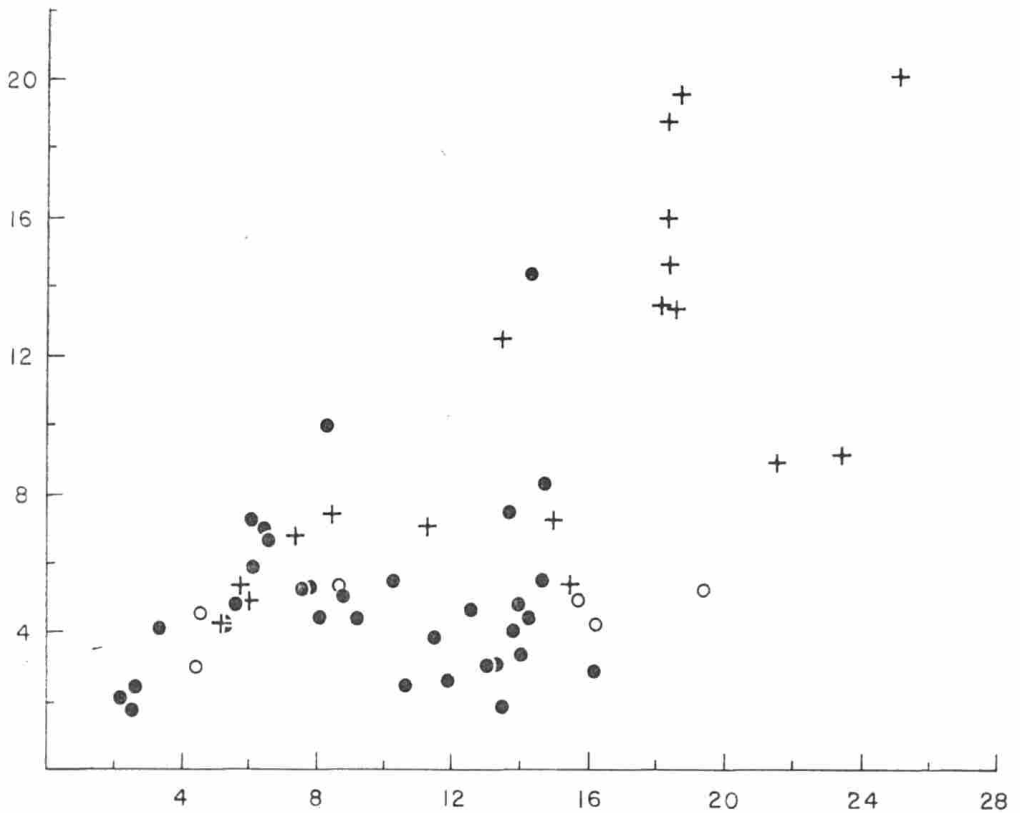


Fig. 19. — Intergular border (ordinates, millimeters) against gular border (abscissa, millimeters).
 ● *P. castaneus rhodesianus* (Katanga).
 ○ *P. castaneus rhodesianus* (Kivu-Rwanda).
 + *P. castaneus chapini* (Northern Congo).

namely *subniger* and *williamsi*. When we consider only the true *castaneus* it appears that the carapace is generally blackish in central Africa, brownish or yellowish in the oriental regions (typical populations) and very variable in this respect in Western Africa (*derbianus*). The plastral coloration shows a similar variation, though some yellowish or brownish patches are frequent in Central Africa. From this point of view, no striking difference has been detected between *chapini* and *rhodesianus*.

An interesting case of character displacement can be mentioned here. The typical form of *P. williamsi* is darker than *lutescens*; the plastron, for instance is generally partly blackish, while it is always purely yellow in *lutescens*. Now, as far as we know, *williamsi* is alone in the Lake Victoria basin. On the contrary, at least in the Lake Albert, the yellowish *lutescens* is sympatric with the blackish *chapini*.

Dimorphism of the intergular plate.

The measurements that I received from the Musée Royal de l'Afrique Centrale disclose an apparently discontinuous variation in the width of the intergular border. In other words, there are specimens with a broad intergular and specimens with a narrow intergular. This difference which appears only in the grown up individuals has been observed within the Lower Congo and the Katanga samples (*rhodesianus*), as well as in the northern Congo material (*chapini*), but not in the Kivu-Rwanda series which is small (fig. 19). It is correlated with nothing else, except with the place of origin for the Katanga sample : all the individuals with a long intergular border come from the Lualaba river (one specimen from Nyonga, one from Bukama, one from Mayidi, three from Kikondja).

Since I have not myself seen the specimens, it does not seem desirable to make any definite statement about the significance of this apparent difference. — Sexual dimorphism is the most likely explanation, but cannot be demonstrated.

LIST OF THE SPECIES AND SPECIMENS UTILISED

Only three species of the genus have not been treated in this work : *P. gabonensis* (A. DUMÉRIL) and *P. sinuatus* (SMITH) have been adequately described by A. LOVERIDGE in his revision, so that no further data were needed. *P. bechuanicus* FITZSIMONS has been recently revived by me, but no specimens were available for further substantiation of its validity.

The new species and subspecies are not repeated here since their synonymy and the specimens referred to them have already been mentioned as usual before their description.

***Pelusios adansonii* (SCHWEIGGER)**

1814 *Emys adansonii* : SCHWEIGGER, Prodrromi mon. Chelon : 39, "Nigritis" i.e. Cape Verde, Senegal [cf. DUMÉRIL and BIBRON, 1835].

1941 *Pelusios adansonii* : LOVERIDGE, Bull. Mus. Comp. Zool., **88** : 483.

1961 *Pelusios adansonii* : WERMUTH and MERTENS (part), Schildkr., Krokod., Brückenechsen. Jena : 286, fig. 202.

Specimens utilized.

Cape Verde Islands (MHNP 7992); West Africa (BM without number, 1863-10-14-4-5, 1864-6-291, 1864-8-8-14); Senegambia (VM 16819), Bakel, Senegal (BM 1920-1-20-71); Dagama, Senegal (VM 16818); Timbuktu, Mali (BM 1933-11-17-64-66); Ansongo, Mali (VM 15662); Obuasi, Nigeria (BM 1917-4-13-1); Famiso, Nigeria (BM 1933-11-17-63); Ibadan, Nigeria (BM 1948-1-8-38); Gouffei, south of Lake Tchad, Tchad (MCZ 27072); Chari, Tchad (MHNP 04-133-34); White Nile region, Sudan (MHNP 8951-53); Bahr-el-Gazal (BM 1900-9-22-4-7); Upper Nile, Sudan (BM 1865-11-15-15); Khor Atthar, Sudan (VM 1808); Gondokoro, Sudan (VM 16820 : 1-2); Tonga, White Nile, Sudan (VM 1260-68, VM 16820 : 3); Sennar, Blue Nile, Sudan (VM 1259); Sudan (VM 1285, 1288, 1292); Shombe, Sudan (USNM 75094-107); 6 miles south of Mongalle (USNM 75108).

***Pelusios nanus* LAURENT**

1933 *Pelusios derbianus* (non GRAY) : SCHMIDT (part), Ann. Carnegie Mus., **22** : 3. Chitau, Angola.

- 1941 *Pelusios subniger* : LOVERIDGE (part, non LACÉPÈDE), Bull. Mus. Comp. Zool., **88** : 489.
- 1952 *Pelusios subniger* (non LACÉPÈDE) : WITTE (part), Explor. hydrob. Lac Tanganika, **3**, n° 3 : 12. Katibili, Tanganyika (Katanga, Congo).
- 1953 *Pelusios subniger* : WITTE (part, non LACÉPÈDE), Explor. Parc Nat. Upemba, **6** : 19. Dilolo, Kanzenze, Elisabethville (Katanga, Congo).
- 1956 *Pelusios nanus* : LAURENT, Ann. Mus. Congo, Zool., **48** : 31, pl. IV, figs. 2-4. Dilolo, Kanzenze (Katanga, Congo), Katibili (Tanganyika, Congo), Lulua-bourg (Kasai, Congo).
- 1958 *Pelusios nanus* : LAURENT, Rev. Zool. Bot. Afr., **58** : 117. Lula, Kasai, Congo.
- 1961 *Pelusios adansonii*: WERMUTH and MERTENS (part, non SCHWEIGGER), Schildkr., Krokod., Brückenechsen : 286.
- 1964 *Pelusios nanus* : LAURENT, Publ. Cult. Comp. Diam. Angola, **67** : 25.

Specimens utilized.

Dilolo, Katanga, Congo (MRAC 7833-36 : holotype and paratypes) ; Lula, Kasai (MRAC 20061, MCZ 57453); Luluabourg (MRAC 3182, AMNH 29341-42, 29345); Chitau, Angola (AMNH 50755-58, 50760); Lunda, Angola (MCZ 74132).

***Pelusios carinatus* LAURENT**

- 1933 *Sternothaerus derbianus* (non GRAY) : WITTE (part), Ann. Mus. Congo, Zool., (1) **3** : 67. Eala (Equateur, Congo).
- 1941 *Pelusios subniger* : LOVERIDGE (part, non LACÉPÈDE), Bull. Mus. Comp. Zool., **88** : 489.
- 1956 *Pelusios carinatus* : LAURENT, Ann. Mus. Congo, Zool., **48** : 39, pl. VI, figs. 1-3. Eala, Bokuma, Bamania, Botanankasa (Equateur, Congo).
- 1961 *Pelusios subniger* : WERMUTH and MERTENS (part, non LACÉPÈDE), Schildkr., Krokod., Brückenechsen : 291.

Specimens utilized.

Congo : Lake Léopold II District : Botanankasa (MRAC 16518); Tshuapa District : Eala (MRAC 2515-16, 2581, 2821, 2832, 2940, 3145, 6273, 10284, 10512-18, 10875, MCZ 57452); Bamania (MRAC 10124-27, 19894); Bokuma (MRAC 15393, 16300); "Congo", without any precise locality (MCZ 55531).

***Pelusios niger* (DUMÉRIL and BIBRON)**

- 1835 *Sternotherus niger* : DUMÉRIL and BIBRON, Erpétol. Gén., **2** : 397. " Madagascar " (in errore).
- 1897 *Sternothaerus oxyrhinus* : BOULENGER, Proc. Zool. Soc. London, **1897** : 919, pl. 53. No locality.

- 1924 *Sternothaerus heinrothi* : KANBERG, Zool. Anz., **60** : 195, fig. Cameroon.
 1941 *Pelusios subniger* : LOVERIDGE (part, non LACÉPÈDE), Bull. Mus. Comp. Zool.,
88 : 489.
 1961 *Pelusios niger* : WERMUTH and MERTENS, Schildkr., Krokod., Brückenechsen :
 288, fig. 204.

Specimens utilized.

No locality (type MHNP 8954); Assinie, Ivory Coast (MHNP 83-432); Lagos, Nigeria (MCZ : 54109-10) (SM 13/1951, 12/1954) ; Nigeria (SM 26/1957) ; Cameroons (CHNM 59009, SM 5/1939); Sanaga Riv., near Edea, Cameroons (SM 203/1908, 205-07/1908); Bata, Gaboon (MHNP 90-358).

***Pelusios subniger* (LACÉPÈDE)**

- 1788 *Testudo subnigra* : LACÉPÈDE, Hist. nat. Quadrup. ovip., **1** : Synops. method :
 175, fig. 13. No locality.
 1798 *Testudo nigricans* : DONNDORFF, Zool. Beitr., **3** : 34. No locality.
 1895 *Sternothaerus leachianus* : BELL, Zool. Journ. London, **2** : 306, pl. 15. No
 locality.
 1906 *Sternothaerus nigricans nigricans* : SIEBENROCK, in VOELTZKOW, Reise Ost-
 Afrika, **2** : 35, pl. V, fig. 19.
 1933 *Sternothaerus derbianus* (non GRAY) : WITTE (part), Ann. Mus. Congo, Zool.,
 (1) **3** : 47. Kikondja, Kando (Katanga, South-eastern Congo).
 1939 *Sternothaerus nigricans* : RENDAHL, Zool. Jahrb. Abt. f. Syst., **72** : 304-322,
 figs. 11-12.
 1941 *Pelusios subniger* : LOVERIDGE (part), Bull. Mus. Comp. Zool., **88** : 489.
 1953 *Pelusios subniger* : WITTE (part), Explor. Parc Nat. Upemba, **6** : 19.
 1956 *Pelusios subniger* : LAURENT, Ann. Mus. Congo, Zool., **48** : 37, pl. V, figs. 2 et 4.
 1961 *Pelusios subniger* : WERMUTH and MERTENS (part), Schildkr., Krokod.,
 Brückenechsen ; 291.

Specimens utilized.

Seychelles (USNM 10989, 19802-04); Mauritius Island (MCZ 4487); Madagascar (MCZ 7869); Pretoria, Transvaal (MCZ 41943); Dodoma, Tanganyika (MCZ 23026-28, MRAC 11186) ; Abyssinia (MCZ 5985); Epulu, eastern Congo (USNM 141755-56). This last locality is certainly an error; few countries in the world have been so intensively prospected as the eastern Congo, and this species has never been collected while several other species have been ; Putnam who lived at Epulu and died there a few years ago sent these turtles to the U.S. National Zoo, but he

probably collected them in East Africa or in Katanga, or received them from a traveller coming from these regions.

***Pelusios castaneus castaneus* (SCHWEIGGER)**

- 1814 *Emys castanea* : SCHWEIGGER, Prodrömi mon. Chelon. : 45. No locality.
1906 *Sternothaerus nigricans castaneus* : SIEBENROCK, in VOELTZKOW, Reise Ost-Afrika, 2 : 35, pl. V, fig. 18.
1906 *Sternothaerus nigricans seychellensis* : SIEBENROCK, in VOELTZKOW. Reise Ost-Afrika, 2 : 38. Gloriosa Island, Seychelles.
1910 *Sternothaerus castaneus* : VAILLANT and GRANDIDIER, Hist. Nat. Rept. Prem. Part., in Hist. phys. nat. pol. Madagascar, 17 : 26, 58, pls. XVIII-XIX.
1939 *Sternothaerus castaneus seychellensis* : RENDAHL, Zool. Jahrb. Abt. f. Syst., 72 : 308, 322, figs. 13-14.
1941 *Pelusios subniger* : LOVERIDGE (part, non LACÉPÈDE), Bull. Mus. Comp. Zool., 88 : 489.
1961 *Pelusios subniger* : WERMUTH and MERTENS (part, non LACÉPÈDE), Schildkr., Krokod., Brückenechsen : 291.

I lump the coastal East African populations with those from Seychelles and Madagascar, because I have not enough comparison material from these regions. But I don't consider unlikely that *seychellensis* will eventually prove to be valid, or that Malagasy populations are taxonomically separable from African or Seychelles ones.

Specimens utilized.

Seychelles (MCZ 45506-45515, MCZ 11722); Namoralla, Madagascar (AMNH 63582, 45588); Zanzibar (MCZ 3466); Pemba Island (MCZ 18165).

***Pelusios castaneus derbianus* (GRAY)**

- 1844 *Sternothaerus derbianus* : GRAY, Cat. Tortoises Brit. Mus. : 37. Gambia.
1855 *Sternothaerus derbianus* : GRAY, Cat. Shield Rept. Brit. Mus. : 52, pl. XXII.
1941 *Pelusios subniger* : LOVERIDGE (part, non LACÉPÈDE), Bull. Mus. Comp. Zool., 88 : 489.
1961 *Pelusios subniger* : WERMUTH and MERTENS (part, non LACÉPÈDE), Schildkr., Krokod., Brückenechsen : 291, fig. 206.

Specimens utilized.

Gambia (type : BM 1841.12.25.1, BM 1947.3.5.77) ; Mac Carthy Island (MCZ 43828); Gambia Riv. (MCZ 7864); Bolama, Portuguese Guinea (BM 1906.3.30.2-3); Sierra Leone (USNM 16052); Messi Krim, Sierra Leone (MCZ 51439, 51442); Long Chiefdom, Sierra Leone (MCZ 51443); Sherbro Id., Sierra Leone (MCZ 51440); Freetown (MCZ 51441); Kwarko, Sierra Leone (BM 1950.1.1.22, BM 1953.1.2.53-54); near Newton, Sierra Leone (BM 1953.1.2.55); near Waterloo, Sierra Leone (BM 1953.1.2.56); Subu, Sierra Leone (BM 1957.1.4.41); Niut Island, Sierra Leone (BM 1950.1.1.23); Liberia (USNM 55618) (BM 1908.7.24.1); Gweh, Liberia (USNM 103919).

***Pelusios castaneus rhodesianus* HEWITT**

- 1912 *Sternothaerus nigricans* : STERNFELD (non DONNDORFF), Wiss. Ergebn. Deutsche Zentr. Afrika Exped. 1907-08, 4 : 201. Usumbura, Burundi.
- 1927 *Pelusios nigricans rhodesianus* : HEWITT, Rec. Albany Mus., 3 : 375, figs. 1a, 1c, pl. XXVI, figs. 2-3. Mpika district, North Rhodesia.
- 1933 *Sternothaerus nigricans* (non DONNDORFF) : WITTE (part), Ann. Mus. Congo, Zool., (1) 3 : 67. Nyonga, Tembwe (Katanga, Congo).
- 1933 *Sternothaerus derbianus* (non GRAY) : WITTE (part), Ann. Mus. Congo, Zool., (1) 3 : 67. Nyongo (=Nyonga), Kwamouth, Kikondja, Lukafu (Southern Congo).
- 1933 *Pelusios derbianus* (non GRAY) : SCHMIDT (part), Ann. Carnegie Mus., 22 : 3. Chitau, Angola.
- 1933 *Pelusios nigricans rhodesianus* : LOVERIDGE, 1933, Bull. Mus. Comp. Zool., 74 : 210. Mwaya (Tanganyika), Nyamkolo (North Rhodesia).
- 1941 *Pelusios subniger* : LOVERIDGE (part, non LACÉPÈDE), Bull. Mus. Comp. Zool., 88 : 489.
- 1953 *Pelusios subniger* (non LACÉPÈDE) : WITTE (part), Explor. Parc Nat. Upemba, 6 : 19. Mpala, lake Tanganyika (Katanga, Congo).
- 1956 *Pelusios castaneus* (non SCHWEIGGER) : LAURENT (part), Ann. Mus. Congo, Zool., 48 : 34, pl. V, figs. 1-3. Lake Mohasi, Riv. Mugezera, Astrida (Rwanda); Mulemera (Burundi); Uvira (Kivu, eastern Congo); Riv. Lofoi (Katanga, south-eastern Congo).
- 1961 *Pelusios subniger* : WERMUTH and MERTENS (part, non LACÉPÈDE), Schildkr., Krokod., Brückenechsen : 291.

Distribution.

Southern part of the Congo, from Lower Congo to southern Kivu, Rwanda and Burundi, Angola, North Rhodesia, Nysaland; southern and eastern limits unknown.

Specimens utilized.

Nyasaland : Mwaya (MCZ 30014); North Rhodesia : Nyamkolo (MCZ 30015); Angola : no locality (CNHM 74366), Chitau (AMNH 50751-54, 50759); Congo : no locality (MRAC 1069A-B); Lower Congo : no precise locality (MRAC 11700-03), Moanda (MRAC 6924 A-B), Zambi (MRAC 167, 445, 2151), Boma (MRAC 4437, 11627), Tumba (MRAC 1207), Luali (MRAC 11629), Matadi (MRAC 9631, 9634, 15462), Lufu (MRAC 6051), Moerbeke (MRAC 11974), Léopoldville (MRAC 217, 1279, 10253), Gabwa (MRAC 16261-62), Limete (MRAC 16325, 16358-60); South-western Congo (Lake Leopold II and Kwango districts) : no precise locality (MRAC 10723-24), Kwamouth (MRAC 1418, 3052), Riv. Gamkama (MRAC 14919), Lake Leopold II (MRAC 643), Kunungu (MRAC 6881, 11486, 11831, 11831, 11854-56), Lukolela (MRAC 4660), Nkombo (MRAC 16530), Riv. Kwango (MRAC 10721-22); Congo, Katanga Province : Ste Walburge, Lomami (MRAC 11540), Nyonga (MRAC 5157), Kikondja (MRAC 5160, 11459-60), Bukama (MRAC 11951), Mayidi (MRAC 14691), Kibombo (MRAC 8421), Kando (MRAC 16962-66), Lukafu (MRAC 7281-84, 8424), Riv. Lofoi (MRAC 603, 605), Upper Lofoi (MRAC 19117-19), Pweto (MRAC 2001), Kasenga (MRAC 7445), Lukonzolwa (MRAC 7227-28, 8488), Lac Tanganyika (MRAC 440); Eastern Congo (Kivu) : Uvira (MRAC 19116, 19124); Burundi : Mulemera (MRAC 19115); Rwanda : Lake Mohasi (MRAC 19112, 19123), Riv. Mugesera (MRAC 19113), Astrida (MRAC 19114).

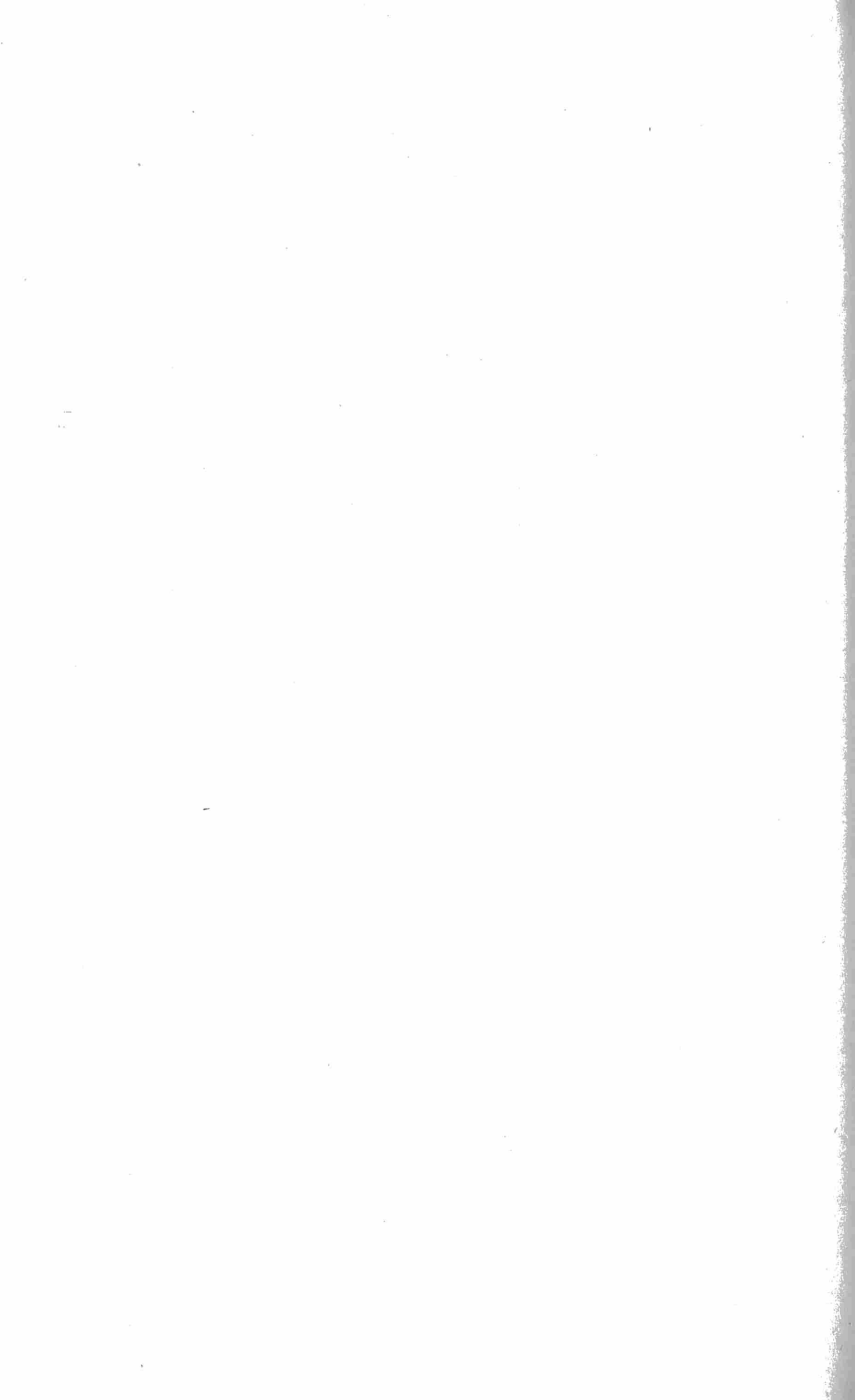
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PLATES

PLATE I

Pelusios williamsi williamsi sp. n.

Holotype (MCZ 40021), Kaimosi, Kenya.

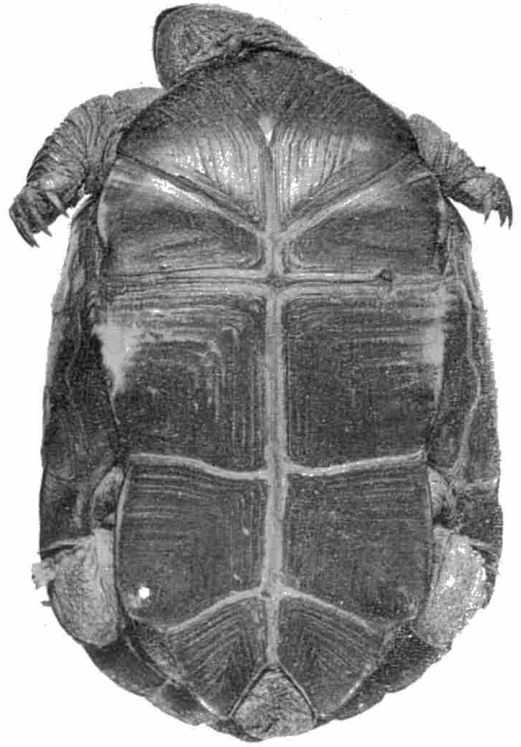
Fig. 1. — Dorsal view.

Fig. 2. — Ventral view.

Fig. 3. — Sickle-shaped scales on front leg.



1



2



3

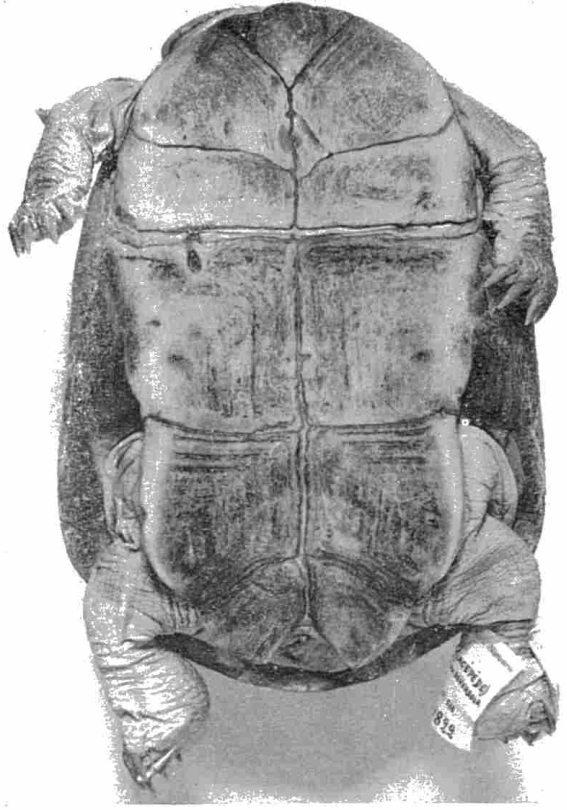
PLATE II

Pelusios williamsi lutescens sbsp. n.

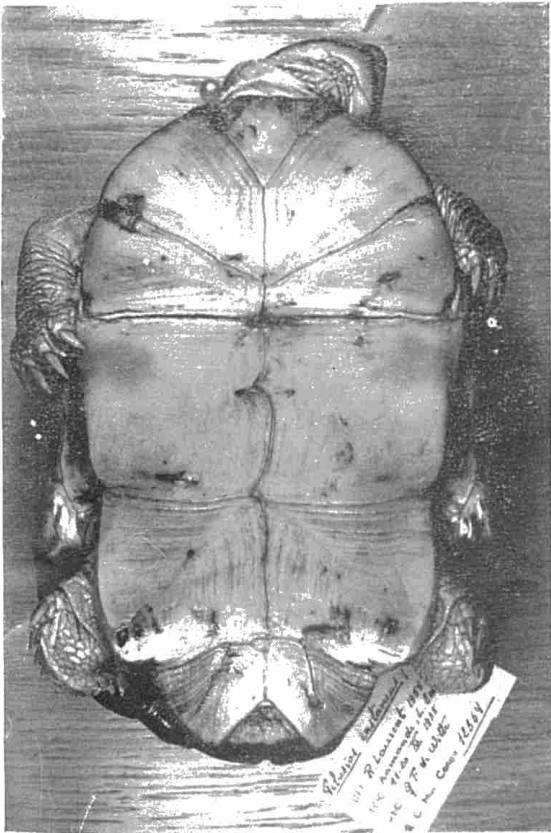
- Fig. 1. — Holotype (IRSNB 6822), Semliki, Kivu, 1 km downstream from Lake Edward —
Dorsal view.
- Fig. 2. — The same — Ventral view.
- Fig. 3. — Paratype (MRAC 12364), Kamande — Ventral view.
- Fig. 4. — Paratypes, both from Mahagi, Lake Albert — Ventral view : adult (MRAC 10391);
juvenile (MRAC 20634).



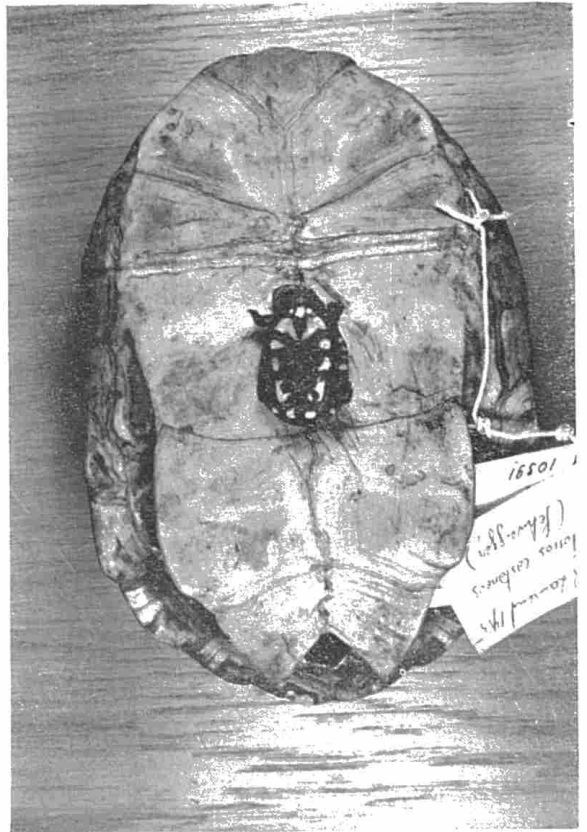
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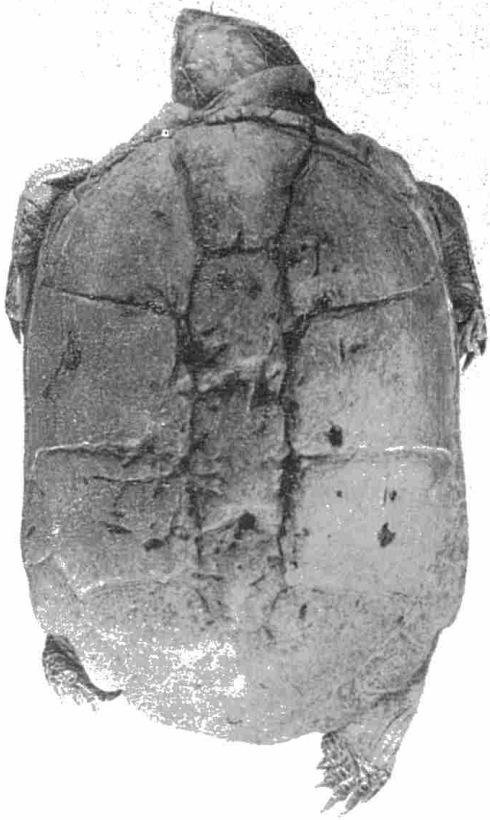


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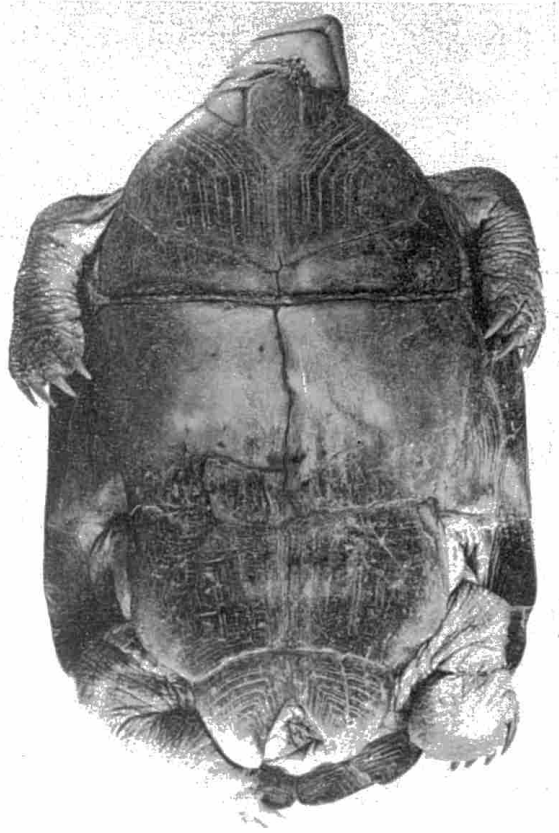
PLATE III

Pelusios castaneus chapini sbsp. n.

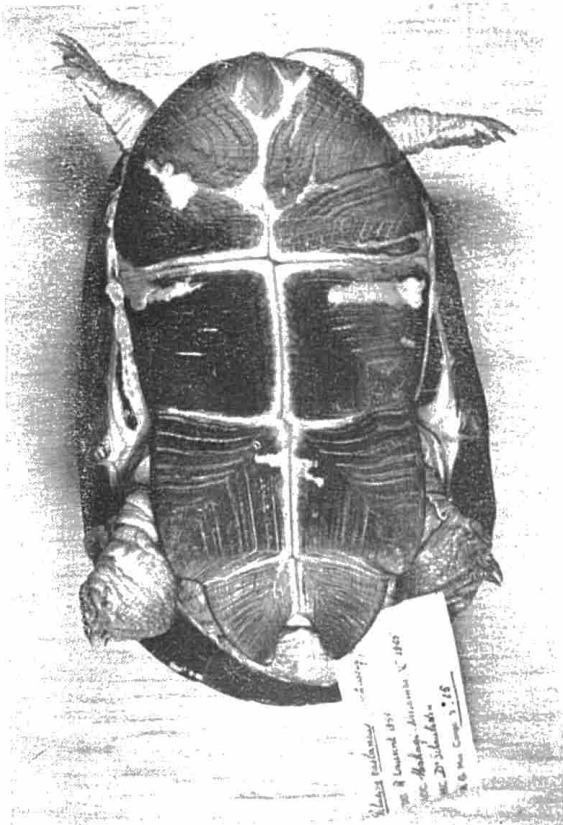
- Fig. 1, 2. — Holotype (MRAC 20937), Kasenyi, Lake Albert — Dorsal and ventral views.
Fig. 3. — Paratype (MRAC 4425), Mahagi-Nierambe — Ventral view.
Fig. 4. — Paratype (MRAC 3760), Mauda, Uele, Northern Congo — Ventral view of a juvenile.



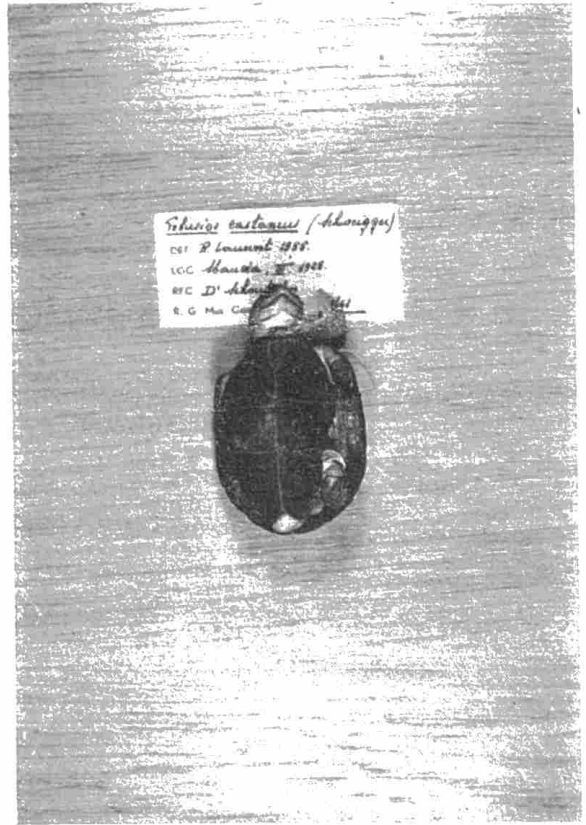
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