

A RE-EXAMINATION OF THE SNAKE GENUS *LYCOPHIDION* DUMÉRIL AND BIBRON

R. F. LAURENT¹

INTRODUCTION

The last attempt at a comprehensive treatment of the genus *Lycophidion* was provided by H. W. Parker in the form of a key (1933). Later, Parker (1936) added a previously overlooked species. Since then, little progress has been made. A. Loveridge (1936-1942) tried to improve the situation by trinomials that were intended to express the geographical variation of *Lycophidion capense*, which was regarded as a common and almost pan-ethiopian species. This use of trinomials, however, has gone too far, as has already been proved in many other instances: some apparent allopatric patterns were the result of insufficient data, and, even when allopatry is real, the sharpness of the differences and the absence of any hybrid or clinal zones disclose that the specific level has actually been reached. The sympatry of *Lycophidion ornatum* with *L. capense jacksoni* in the African Great Lakes region shows conclusively that *L. ornatum* is not a race of *L. capense*, but a good species (Laurent, 1956). I here provide a restudy of the genus.

The material preserved in the important African collections in the United States has been examined with the hope of a better understanding of the genus.

¹ Instituto Miguel Lillo, Miguel Lillo 205, Tucumán, Argentina.

ACKNOWLEDGMENTS

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CHARACTERS UTILIZED

1) *Number of scale rows around the body.* This character has been checked at the three customary levels: the neck, where it has some variability, mid-body, where it is quite constant, and the vent level, where it shows little variation. The species examined here all have 17 mid-body scale rows; the posterior counts are generally 15, except for *irroratum*, *ornatum* and *uzunguense*.

2) *Ventrals.* The number of ventrals, the individual variation of which has been greatly overestimated by previous authors, is the best clue to heterogeneity in any population sample, as can be seen in the

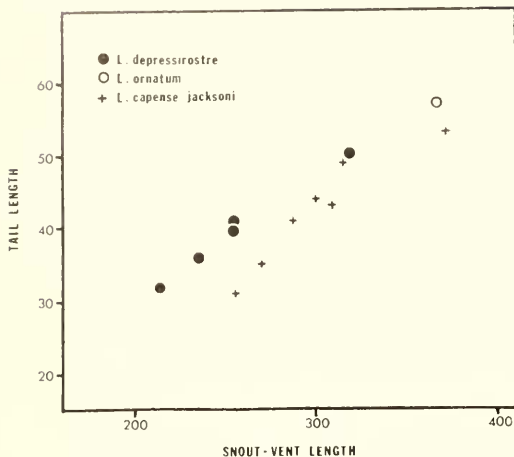


Figure 1. Tail length in relation to snout-vent length in some males of *Lycophidion* from Sudan.

tables as well as in the section dealing with the non-dimensional species.

3) *Subcaudals*. The number of subcaudals is nearly as useful as the number of ventrals, but it must be remembered that the tail is sometimes mutilated and that the count can therefore be misleading if the injury has not been recognized.

4) *Apical pits*. The number of apical pits is a very good character which, however, has the drawback of often being difficult to ascertain or even not determinable on poorly preserved individuals.

5) *Contact between the postnasal and the first labial*. This is a good character rightly emphasized by H. W. Parker when he described *L. ornatum*. It is also present in the western species *semicinatum* and *irroratum*.

6) *Relative length of the tail*. There are some obvious differences in this respect between species and subspecies (cf. scatter diagrams, Figs. 1, 2, 3, 4).

7) *Ratio of the eye diameter to the distance of the eye from the lip*. This ratio, usually used in keys, is a poor character because of the negatively allometric growth of the eye and much intrinsic variability. Some species have definitely larger eyes than others, but this character can hardly be relied upon for identification (cf. Fig. 11).

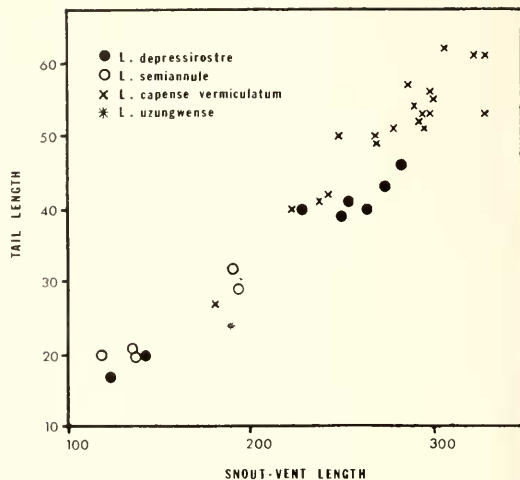


Figure 2. Tail length in relation to snout-vent length in males of *Lycophidion* from southeastern Tanzania.

8) *Length versus width of the frontal plate*. Although this ratio is part of routine descriptions, it is not useful in the genus *Lycophidion*.

9) *Length of the parietals versus length of the snout*. This character, used by Parker (1933) for distinguishing *semicinatum* from other forms, is indeed excellent and is not disturbed by allometry: all other forms differ from *semicinatum* in this feature.

10) *Color pattern of the dorsal scales*. It has been recognized here that two basic patterns are in existence and that, being correlated with other differences, they are taxonomically significant: each dorsal scale is generally white bordered, but some populations also have white dots on each scale.

11) *Color pattern of head*. Some conspicuous features like the broad light band surrounding the snout in some species were already well known. But some other aspects of pattern have been overlooked in some populations. For example, the snout band may be very narrow, and sometimes interrupted, while the top plates (frontal, parietals, etc.) may have no markings whatever; in other populations, the top of the head has light dots or a light marbled pattern.

12) *Color of the belly*. In the popula-

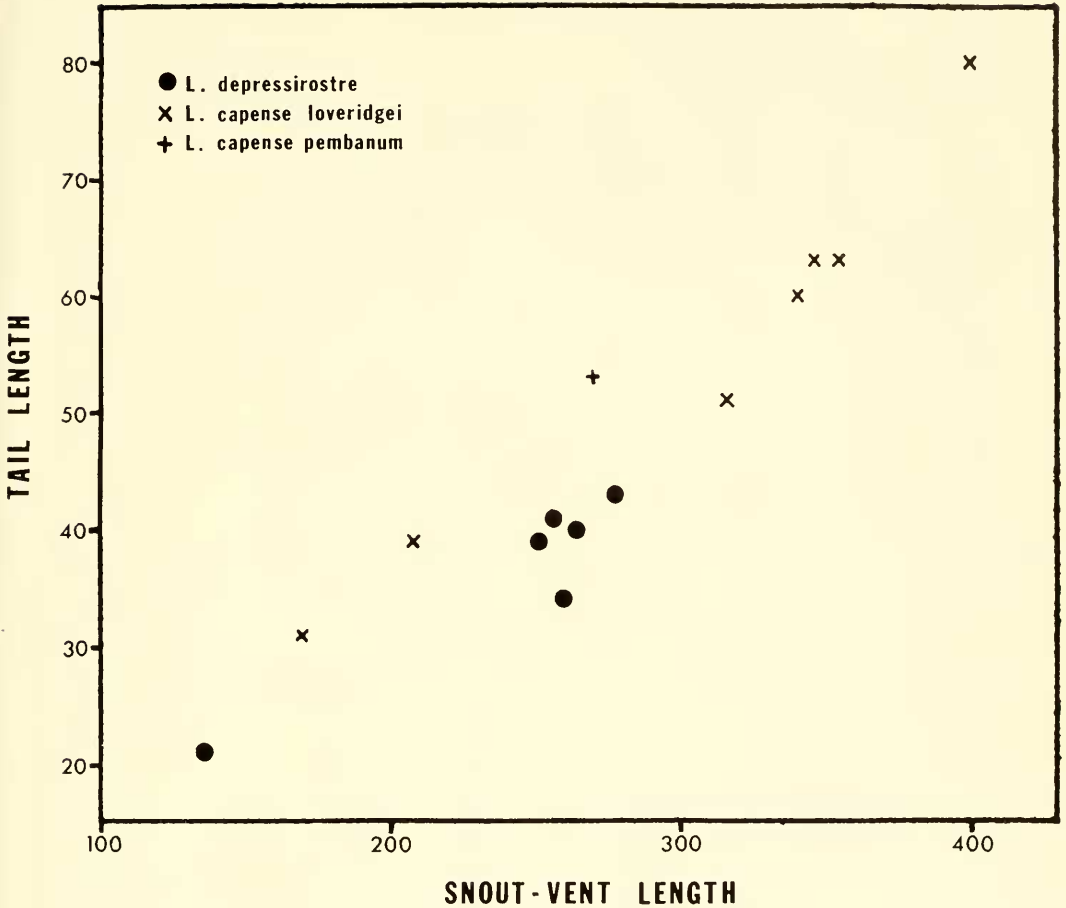


Figure 3. Tail length in relation to snout-vent length in males of *Lycophidion* from coastal East Africa.

tions from South Africa, the belly is light; in the others it is dark.

13) *Color of the throat.* This is light, with or without dark spots, in some forms; dark, with or without light markings, in others.

Such other characters as labials, oculars, and temporals do not appear to have any taxonomically significant variation in this group.

RECOGNITION OF NON-DIMENSIONAL SPECIES

The Region of the Great Lakes

The sympatry of two species—*L. capense*

jacksoni Boulenger and *L. ornatum* Parker—in the Great Lakes region has been abundantly documented by Laurent (1956, 1960).

Western Africa

It has long been recognized that three species live side by side in western Africa: *L. laterale* Hallowell, *L. irroratum* Leach, *L. semicinctum* Duméril and Bibron. *L. capense* has also been cited by many authors as occurring there. In addition, some specimens from this region in the Museum of Comparative Zoology have been identified as *L. ornatum*. In reality, setting

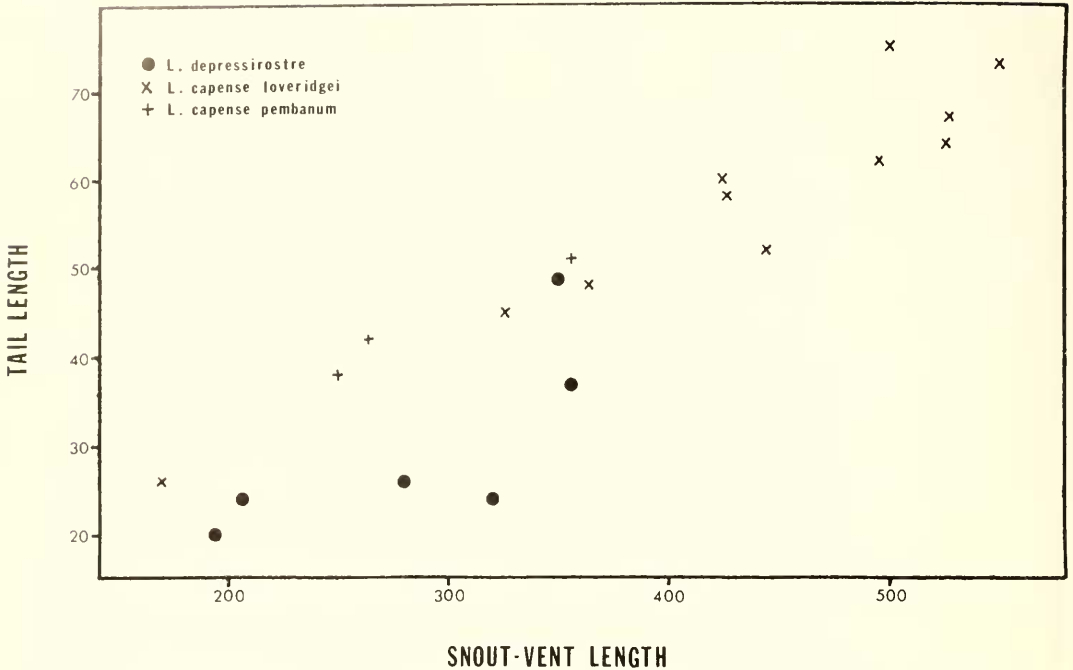


Figure 4. Tail length in relation to snout-vent length in females of *Lycophidian* from coastal East Africa.

aside *L. laterale*, which is easily identified, only two species are present in the collections that I have examined: *irroratum* and *semicinctum*. Since so many specimens have been misidentified as *capense* or *ornatum*, I believe, until proof of the opposite, that all such records are founded on similar misidentifications and that these

species are actually absent from *western* Africa.

The obvious differences between the two western species are as follows.

		<i>irroratum</i>	<i>semicinctum</i>
Apical pits		2	1
Ventrals	♂♂	165-182	183-193
	♀♀	169-184	196-211
Subcaudals	♂♂	37-44	47-58
	♀♀	no difference	

Sudan

The available Sudanese material can be split into three groups.

		A	B	C
Ventrals	♂♂	182-195	163-171	206
	♀♀	188-202	167-178	
Subcaudals	♂♂	34-42	34-39	47
	♀♀	29-33	26-28	
Length of the tail in percentage of the total length	♂♂	10.8-13.5	13-13.9	14.9
(Fig. 1)		(generally less than 13%)	(at least 13%)	
	♀♀	8.3-9.9	8.5-10.2	
			(no difference)	

Labials in contact with the postnasal	1-2	1-2 (only in one specimen)	2
Dorsal scale rows	17-17-15	17-17-15	17-17-17
Color of the dorsal scales	brown with a broad light border at the apex but without white dots	brown with or without a narrow light border and generally with white dots near the apex	like B
Color patterns of head	light markings limited to the rostral, the nasals, anterior labials and sometimes a narrow line around the snout	light markings: a large white zone covering not only the rostral and the anterior labials but also invading almost completely the loreal and partly the inter-nasals, prefrontals, preoculars and the borders of postoculars (Fig. 9)	like B, but a still larger white snout band
Size of the eye	small	larger	still larger

The forms A and C are not separable from the two species which are also sympatric in the Great Lakes region—namely, *L. capense jacksoni* and *L. ornatum*—but the form B does not appear to have been described. A and B have been merged under the name of *Lycophidion capense capense* by Loveridge, 1957.

Southeastern Tanzania

Again three distinct species are sympatric in the Liwale region.

		D	E	F
Ventrals	♂ ♂ ♀ ♀	182-195 192-203	155-165 161-174	148
Subcaudals	♂ ♂ ♀ ♀	43-52 33-41	34-36 22-31	31
Relative length of the tail in percentage of the body length	♂ ♂ ♀ ♀	generally more than 16.5%	generally less than 16⅓% no significant difference	less than 16⅔% (Fig. 2)
Dorsal scales		brown with a light border but no light dots	a light border and white dots	a light border, no light dots
Head		generally light dots or vermiculations all over the head	generally no light dots or vermiculations but some plates are light bordered, especially between the eye and the nostril	no light dots but a white band surrounding the snout
Throat		generally light with dark markings	rather dark with light markings	uniform greyish
Eye		large (negative allometry)	smaller (growth seems isometric)	smaller (Fig. 3)

Loveridge has cited D as *L. capense capense* and E as "intermediates between *capense* and *acutirostre*." F is a specimen of *L. semiannule* in the Field Museum of Natural History.

Coastal Kenya and Tanzania plus Usambara and Uluguru Mountains

Although there is not here a single case of precise sympatry in the narrowest sense of the term (*i.e.* no locality from which we see specimens of two species), the distributions of two very distinct species are so interdigitated that there is little doubt that the fact reflects some ecological segregation.

		G	H
Ventrals	♂ ♂ ♀ ♀	195-211 205-219	155-165 167-176
Subcaudals	♂ ♂ ♀ ♀	47-58 40-44	31-37 23-29
Length of the tail in percentage of the snout-vent length	♂ ♂ ♀ ♀	generally > 16.5% (except one individual out of six: 16.2%) > 12%	< 16.5% < 12% (except 1 out of 6: 14%)
Eye		larger (diameter > 170% of the distance between the eye and the lip, in 11 specimens out of 16, the exception being among the larger individuals)	smaller (diameter < 170% of the distance between the eye and the lip in 9 specimens out of 13, the exception being among the smallest individuals)
Dorsal scales		a light border, no light dots	a light border and light dots
Head plates		with light dots or vermiculations	generally without white dots on the top of the head except in specimens from Kenya: rostral and nasal light colored; sometimes a white band around the snout
Throat		light	dark

Again Loveridge has cited one form as *L. capense capense*, the other as "intermediates between *capense* and *acutirostre*."

Somali Region

I have already (1956) stressed the improbability that Parker's material (Parker, 1949) of *Lycophidion capense* would really involve only one species, since the range of variation for ventrals is unusually wide. However, there is no gap in this variation large enough to prove unequivocally the coexistence of two sympatric species. With the hope of finding other distinguishing characters, I asked for the loan of material from Miss A. G. C. Grandison of the British Museum who sent it with her customary kindness. The differences are admittedly not so clear cut as those which are obvious in other regions (Sudan or East Africa), but in my opinion they are sufficient to strongly suggest the existence of two sympatric sibling species.

		I	J
Ventrals	♂ ♂ ♀ ♀	174-166 181-180	157 165, 170
Subcaudals	♂ ♂ ♀ ♀	35-34 30-32	33 26, 27
Dorsal scales		one or several subapical white spots	no white subapical spots, a light border in one specimen

Head	lateral white markings narrow, sometimes with vermiculations or spots on the crown	rostral and nasal light colored with some light dots on the crown; white lateral markings narrow in one specimen
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ALLOPATRIC RELATIONSHIPS

1) South African Populations

In South Africa only one species can be recognized. It is, of course, *Lycophidion capense*. What are its relationships with populations from neighboring areas?

		<i>capense</i> from S. Africa	Southwest Africa	<i>multimaculatum</i> Rhodesia and Angola	<i>semiannule</i> Mozambique
Ventrals	♂ ♂	180-188	167-177	173-177	134-148
	♀ ♀	188-190	177-187	172-183	144-146
Subcaudals	♂ ♂	36-40	31-37	31-42	27-31
	♀ ♀	30-39(?)	26-30	24-35	25-30
Belly		light	generally light	generally dark	dark

These data suggest that the populations from South Africa, Southwest Africa, Rhodesia and Angola belong to a single species, *Lycophidion capense*, and that *L. semiannule*, with considerably lower ventral counts and also color differences, is indeed another species. The populations from Southwest Africa differ from typical *capense* in lower ventral and subcaudal counts. From *multimaculatum* they differ only in the lighter belly, and this difference is so likely to be clinal that no racial discrimination appears necessary. Within the *multimaculatum* populations from Rhodesia, the color of the belly, which is dark in northern populations, seems to become lighter in southern populations; this variation is likely to be clinal; the difference in ventral and subcaudal counts is supposed not to be clinal and the validity of the name *multimaculatum* rests on this assumption, which needs confirmation.

In Southwest Africa, Mertens (1955) reported a male *Lycophidion* with 197 ventrals, which is quite outside the range of variation of the *capense* populations from this region. It must belong to another species, and I suggested (Laurent, 1964) that it probably is *L. hellmichi*, a species that I described from Moçamedes, Angola.

2) Central African Populations

The material available for study is in-

adequate, but previous data (Laurent 1956, 1960) show a definite step-cline in the ventral and subcaudal counts between Fizi and Lubondja, southern Kivu, Congo.

The southern populations belong to the *capense* subspecies *multimaculatum*. The northern populations have been referred to the *capense* subspecies *jacksoni* Boulenger, which appears to have a rather large range extending to Lake Rukwa, to Kilimanjaro, to Ethiopia (syn. *abyssinicum* Boulenger), and to the Sudan (= form A in Sudan population analysis). Indeed, I am unable to find any reason for taxonomic discrimination between the northern and southern Central African populations, which are remarkably alike. The geographic variation within *multimaculatum* is considerable as far as color is concerned, since not only is there a cline in belly color from south to north, but the light punctations or vermiculations of the head plates, so conspicuous in Rhodesian samples, disappear in northern populations from Lunda Province in Angola and Katanga. In this regard these northern populations are similar to *jacksoni*, in which light markings of the head are reduced to a narrow line on the sides of the snout or are altogether absent. Here are the squamation differences between *jacksoni* and *multimaculatum*:

		<i>jacksoni</i> (Northeastern Congo, Sudan, Uganda, Rwanda, Burundi, Tanzania)	<i>multimaculatum</i> (Southern Congo, Zambia, Angola)
Ventrals	♂ ♂	176-192	167-180
	♀ ♀	180-202	165-183
Subcaudals	♂ ♂	34-45	31-42
	♀ ♀	28-38	24-35

3) East African Populations

Three non-dimensional species (species D, E, and F above) are distinct in southeastern Tanzania; two (species G and H above) are distinct in the coastal region adjacent to the East African islands. What are the interrelationships of these five populations?

The third form (F) from southeastern Tanzania is obviously *L. semiannule*, previously recorded only from Mozambique and Zululand. The forms E and H are the same and have been cited as intermediates between *L. capense* and *acutirostre* (Loveridge 1933, 1936b, 1942). The Sudanese populations (B) are hardly different except in their size. They can safely be considered as conspecific, and the different size, owing to a large distributional gap in western Kenya, northwestern Tanzania and Uganda, cannot be treated as a clear-cut justification for even subspecific recognition.

The relationships of E, F and B with allopatric forms have now to be investigated. They have much in common with *semiannule*, as indeed Loveridge (1933) noticed when he considered the samples as "intermediates" between *capense* and *acutirostre*; the latter is a synonym of *semiannule*. However, they are sympatric with *semiannule* in southeastern Tanzania so that, if they perhaps were geographic races in the past, the boundary being the Rovuma River, they are not so now. Another possible subspecific relationship is with western *L. irroratum*, but the distributional and morphological gaps are such that any taxonomic decision in this direction would be gratuitous.

The forms D and G are similar in their coloration: head plates vermiculated, no

light dots on the dorsal scales, dark belly but light throat. They are also similar in the relative dimension of the eye and the relative length of the tail. They differ in their ventral and subcaudal counts, and the available data suggest a rather abrupt difference near the Uluguru Mountains rather than a cline. It therefore seems logical to treat D and G as subspecies of one species.

Then, the question arises: Which species? Have these two races other subspecific relationships with other allopatric forms? We reject *L. ornatum*, the main characters of which (snout with light band, postnasal not in contact with the first labial, 17 scale rows in front of the anus) are not shared by D and G. *L. capense jacksoni* occurs not very far from the northern form G in the Kilimanjaro region and also on the shores of Lake Rukwa. (G is also present at the northern tip of Lake Nyasa.) In spite of this proximity, the differences between G and *jacksoni* are very clear cut: G has much higher ventral and subcaudal counts, and a head with light vermiculations. Therefore, although we have no data on the populations from central Tanzania it seems rather doubtful that any genetic continuity exists between these two groups of populations. However, if the head vermiculations are missing in *jacksoni*, they exist in southern populations of *multimaculatum* and in *capense* itself; moreover, the coloration of the individual dorsal scales, generally without light punctation, is almost constantly observed from the Cape to the Sudan; finally, the throat is also generally clear in the same populations.

For these reasons, it seems advisable to treat these two East African forms as races of *L. capense*.

4) The Populations from the East African Islands (Pemba and Zanzibar)

The specimens supposed to come from Zanzibar must be treated with suspicion, especially those in the old collections. It has been repeatedly shown that the origin of specimens alleged to have come from Zanzibar was quite different. This was apparently the case for the cotypes of *L. acutirostre* Günther, presumably collected in Mozambique. A specimen in the MCZ collection (MCZ 5992) poses such a problem. It is a male with 169 ventrals, 42 subcaudals, 17 scale rows in front of the anus, and 2 apical pits. Although the alleged locality is Zanzibar, the specimen

is obviously *L. irroratum*. More recently collected specimens from Zanzibar have all the characters of the coastal populations of *L. capense* except that the white dots on the head are rather indistinct.

Specimens from Pemba Island, however, have a very distinct color pattern: the head is light colored with dark spots (Fig. 13), a pattern somewhat recalling that of *Miodon collaris*. This population is obviously worthy of recognition, but can it be included in one of the two species existing in coastal East Africa? It has much more in common with G than with H, but still more with the southeastern Tanzania D, as can be seen on the following chart.

		D	G	H	Pemba
Ventrals	♂ ♂	182-195	195-211	155-165	172
	♀ ♀	192-203	205-219	167-176	179-180
Subcaudals	♂ ♂	43-52	47-58	31-37	46
	♀ ♀	33-41	40-44	23-29	37-40
Relative length of the tail (% of snout-vent length)	♂ ♂	generally > 16.5%	generally > 16.5%	< 16.5%	19.8%
	♀ ♀	generally > 12%	> 12%	< 12%	14.4-16.3%
Dorsal scales		a light border	a light border	white dots	a light border
Head		vermiculations	vermiculations	no vermiculations	light background with dark spots
Throat		light	light	dark	light

Thus, it appears that this new form from Pemba Island is a subspecies of *L. capense*.

Bull. Mus. Comp. Zool., 74: 234, Zanzibar (in error).¹

SYSTEMATIC ACCOUNT

Lycophidium irroratum (Leach)

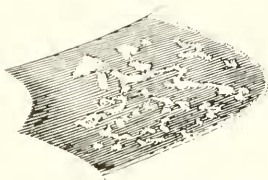
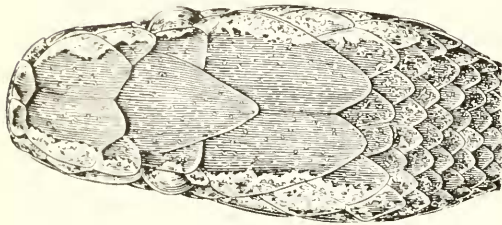
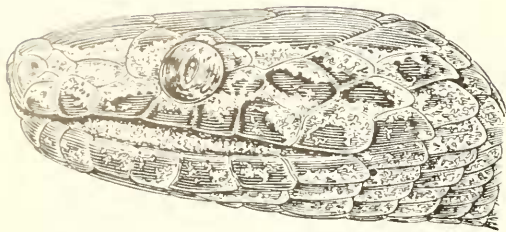
Coluber irroratus Leach, 1819, in Bowdich, T. E., Mission from Cape Coast Castle to Ashantee: 494.

Lycophidium irroratum Angel, 1933, Bull. Com. Etud. Hist. Scient. AOF, 15: 704; Villiers, 1950, Initiations II, Serp. Ouest Afr. IFAN: 74, fig. 84; Manacas, 1957, An. Junta Invest. Ultramar, 10 (4, F.1): 14; Marques Mano, Ponta de Machado (Portuguese Guinea).

Lycophidium intermediates between *Lycophidium capense* and *acutirostre* Loveridge (part), 1933,

Diagnosis. Two or three apical pits. Snout shorter than parietals. Postnasal in contact with 2nd labial, seldom with 1st as well. Scale rows 17-17-17 (rarely 15) in front of the anus. Ventrals: 165-187 (♂ ♂), 164-189 (♀ ♀). Subcaudals: 37-53 (♂ ♂), 30-44 (♀ ♀). Color brownish, finely

¹ Citations of *L. capense* by many authors, i.e. Boeage, Sjöstedt, Chabanaud, Angel, Leeson, Braestrup, Villiers, Monard, Cozens and Marchant, actually refer to *irroratum* and *semicinctum*, but this problem cannot be solved without an actual examination of the specimens.



JBC

Figure 5. Lateral and dorsal views of head, and dorsal scale of *L. ornatum*.

light stippled, a white band around the snout. Alternating dark spots in juveniles.

Maximum size observed (in mm). 325 (tail 41) in males; 410 (tail 50) in females.

Specimens examined. *Sierra Leone*: (FMNH 121979-80); *Liberia*: Monrovia (MCZ 916); Peatach, St. Paul's River (MCZ 22610); Mullenberg Mission (USNM 22829). *Ghana*: Achimota School (MCZ 53641); Legon Hill near Achimota School (MCZ 53678); Kumasi (MCZ 49606, 49733); Oda (FMNH 4418, 53638); near Somanya (MCZ 55361). *Togo*: Warawara (MCZ 55360). *No locality*. (Zanzibar, in error) (MCZ 39921).

Lycophidion semicinctum Duméril and Bibron

Lycophidion semicinctum Duméril and Bibron, 1854, *Herpet. Gen.* 7: 414 (locality?). Angel, 1933, *Bull. Com. Etud. Hist. Scient. AOF*, 15: 705, fig. 32; Villiers, 1950, *Initiations II, Serp. Ouest Afr. IFAN*: 74, fig. 85; Manacas, 1957, *An. Junta Invest. Ultramar*, 10 (4, F.1): 15, Bissalanea, Marques Mano, Bissau (Portuguese Guinea).²

Diagnosis. Only one apical pit. Snout about as long as or longer than parietals. Postnasal in contact with 2nd labial, seldom with 1st as well. Scale rows 17-17-15. Ventrals: 183-193 (♂♂), 196-211 (♀♀). Subcaudals: 47-58 (♂♂), 36-46 (♀♀). (Exceptionally, 177 ventrals and 42 subcaudals in a male from northern Ghana—a fact which suggests a northern subspecies or a cline.) Color pattern with transverse bands or alternating spots, becoming indistinct in the largest specimens³ without white stippling.

Maximum size (in mm): 478 (tail 88) in males; 788 (tail 88) in females.

Specimens examined. *Portuguese Guinea*: Bissau (MCZ 18192). *Ghana*: without locality (FMNH 74832); vicinity of Achimota School (MCZ 55365-71); near hospital, Achimota School (MCZ 53679-80); Achimota (MCZ 53677); Legon Hill near Achimota School (MCZ 55361, FMNH 74823-24); Lawra (MCZ 49560); near Somanya (MCZ 55362-63). *Cameroon*: Poli (MCZ 44130).

Lycophidion ornatum Parker

Lycophidion ornatum Parker, 1936, *Novit. Zool.*, 40: 122, Congulu (Angola) and numerous localities in Congo, Tanzania, Burundi, Rwanda and Uganda; Witte, 1941, *Explor. Parc Nat. Albert*, 33: 179, numerous localities of Kivu (Congo) and Rwanda; Laurent, 1956, *Ann. Mus. Roy. Congo Belge, Zool.*, Ser. 8', 48: 116, pl. XII, fig. 4, numerous localities in eastern Congo, Rwanda and Burundi.

Lycophidion capense capense (non A. Smith) Loveridge (part) 1936a, *Field Mus. Nat. Hist.*, 22: 23, Ruchurn (Congo); Loveridge (part) 1936b, *Bull. Mus. Comp. Zool.*, 79: 241, Kigezi Distr., Sipi (Uganda), Kaimosi (Kenya).

² See footnote under *L. irroratum*.

³ These have been misidentified as *L. capense* or *L. ornatum*.

Lycophidion capense unzugwensis (non Loveridge) Witte (part) 1941, Explor. Parc Nat. Albert, 33: 178, Kiniha (Congo).

Lycophidion capense ornatum Loveridge, 1942, Bull. Mus. Comp. Zool., 91: 266, Bugoye, Nyakabande, Mushongere (Uganda), Idjwi Island (Congo), Ujiji (Tanzania).

Diagnosis. Only one apical pit. Snout shorter than the parietals. Postnasal in contact with 2nd labial, seldom with 1st as well. Scale rows 17-17-17. Ventrals: 183-206 (♂♂), 188-212 (♀♀). Subcaudals: 41-53 (♂♂), 36-46 (♀♀).

Brownish, each individual scale white stippled. A light band not only around the snout, but behind the eyes in the temporal region as well.

Maximum size observed (in mm): 443 (tail 66) in males, 558 (tail 63) in females.

Specimens examined. *Sudan*: Gilo (FMNH 62307). *Congo*, Kivu: Ruchuru (FMNH 12842); Lulenga (MCZ 24741-42); *Rwanda*: Upper Mulinga, Idjwi Island (MCZ 48193-249, FMNH 35308). *Uganda*: Muko, Lake Bunyoni (MCZ 42686, paratype, collected by C. R. S. Pitman); Nyakabande (MCZ 48303); Kigezi District (MCZ 39966); Bugoye (MCZ 48191); Gulu, Acholi (MCZ 47827); Sipi, Mt. Elgon (MCZ 40468-70). *Kenya*: Kakamega (MCZ 40471-73). *Tanzania*: Ujiji (MCZ 48250). *Uganda*: Lake Mutanda (MCZ 48192).

***Lycophidion uzungwense* Loveridge**

Lycophidion capense unzugwensis Loveridge, 1932, Bull. Mus. Comp. Zool., 72: 375, Dabaga, Kigogo (Tanzania); Loveridge, 1933, Bull. Mus. Comp. Zool., 74: 235.

Diagnosis. Only one apical pit. Snout shorter than the parietals. Postnasal in contact with both 1st and 2nd labials. Scale rows 17-17-17. Ventrals: 180 (♂), 194 (♀). Subcaudals: 31 (♂), 23 (♀).

Brownish, each individual scale with a large white apical spot; a very broad white band around the snout and on the temporal region.

Size (in mm): 214 (tail 24) male (holotype); 272 (tail 23) female (paratype).

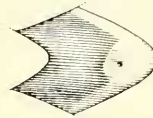
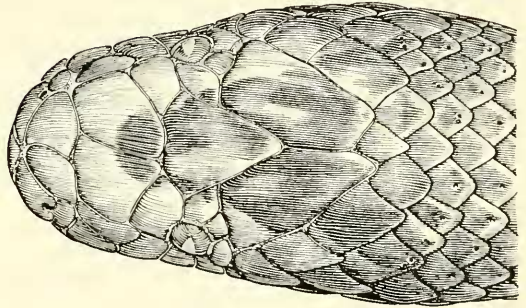
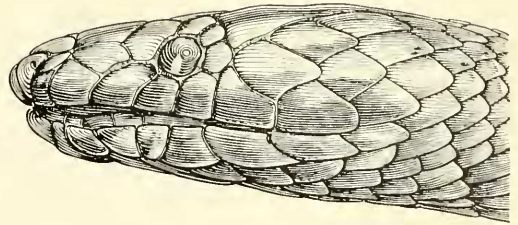


Figure 6. Lateral and dorsal views of head, and dorsal scale of *L. unzugwense*.

Specimens examined. *Tanzania*: Dabaga (MCZ 30117, holotype, collected by A. Loveridge 1.i.30); Kigogo (MCZ 30118, paratype, collected by A. Loveridge 22.i.30).

***Lycophidion semiannule* (Peters)**

Lycophidium semiannulis Peters, 1854, Monatsber. Akad. Wiss. Berlin: 622, Tete (Mozambique).

Lycophidium acutirostre Günther, 1868, Ann. Mag. Nat. Hist., (4) 1: 427, pl. XIX, fig. D, Zanzibar (in error).

Lycophidion semiannule Laurent, 1964, Publ. Cult. Diamang, Mus. Dumdo, 67: 97, Porto Amelia (Mozambique).

Diagnosis. Only one apical pit. Snout shorter than the parietals. Postnasal in contact with both 1st and 2nd labials.

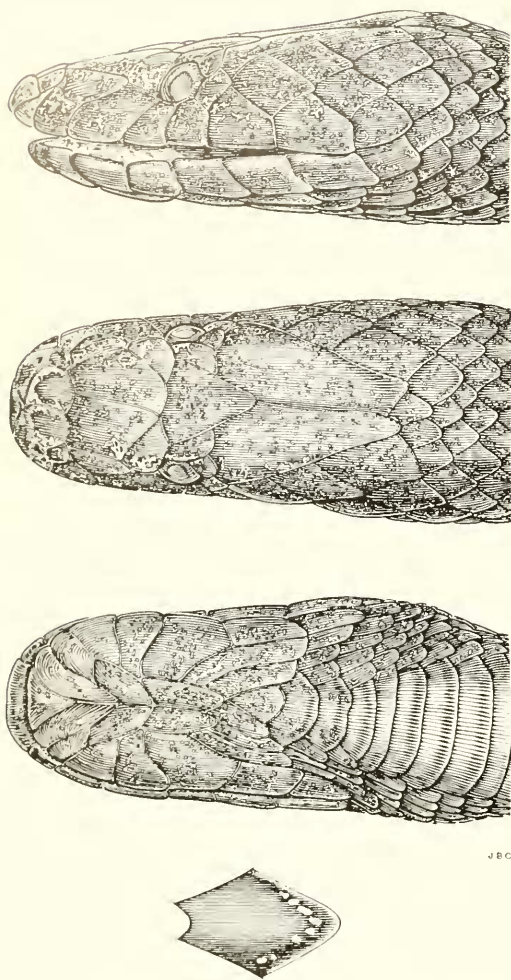


Figure 7. Lateral and dorsal views of head, and dorsal scale of *L. depressirostre*.

Scale rows 17-17-15. Ventrals: 134-148 (♂♂), 144-168 (♀♀). Subcaudals: 27-31 (♂♂), 18-30 (♀♀).

Brownish, the individual scales generally white stippled or white bordered. A broad white band with sinuous border around the head. Belly and throat dark.

Maximum size observed (in mm): 253 (tail 44) in males, 243 (tail 29) in females.

Specimens examined. *Tanzania*: Liwale (FMNH 81084). *Mozambique*: Lumbo (MCZ 18188-89; AMNH 16850; USNM 62900). No locality ("Zanzibar" in error);

(BM 68-2-29-126, probably one of the syntypes of *L. acutirostre*). *Zambia*: Barotse-land: Siholi Mission (FMNH 134259). *Rhodesia*: Bulawayo: (FMNH 121816).

Remarks. The specimen from Zambia differs from the others in its color pattern (transverse dark spots, light belly) and its high number of ventrals (168 instead of 144 in the only other female here considered). While it probably belongs to the species, it proves at least a geographical variation, but we have no clue to decide if a cline or a subspecies is involved.

Lycophidium depressirostre sp. n.

Lycophidium jacksoni Boulenger (part), 1893, Cat. Snakes Brit. Mus., 1: 340, Lamu Island (Kenya).

Lycophidium acutirostre (non Günther), Sternfeld 1912, Wiss. Ergebn. Deutsch Zentral Afrika Exp., 4: 268, Kenya; Boettger, 1913, in Voeltzkow, Reise in Ostafrika, 3, pt. 4: 363, Mavene (Tanzania).

Lycophidium capense capense (non A. Smith) Loveridge (part), 1933, Bull. Mus. Comp. Zool., 74: 233, Kampala (Uganda); Loveridge (part), 1951, Bull. Mus. Comp. Zool., 106: 188, Mgulani (Tanzania); Loveridge (part), 1956, Sudan Notes and Records, 36: 7, Torit (Sudan).

Lycophidium intermediates between *capense* and *acutirostre*, Loveridge (part), 1933, Bull. Mus. Comp. Zool., 74: 234, Bagamoyo, Kilosa, Morogoro (Tanzania).

Lycophidium capense >> *acutirostre* Loveridge, 1936, Bull. Mus. Comp. Zool., 79: 242, Kibwezi, Mt. Mhololo, Malindi, Changamwe (Kenya); Loveridge, 1942, Bull. Mus. Comp. Zool., 91: 269, Ugano, Mbanja (Tanzania).

Lycophidium capense uzungwense (non Loveridge) Bogert, 1941, Bull. Amer. Mus. Nat. Hist., 77: 31, Sankuri (Kenya).

? *Lycophidium capense* (non A. Smith) Parker (part), 1949, Zool. Verhand., 6: 54, Haud (Somali Rep.).

Holotype: MCZ 53348, Torit, Sudan, collected by John Owen 20.v.50.

Paratypes: Torit, Sudan (MCZ 53347, 53350, 53352, 53354-57; FMNH 58414, 62338-40), collected by John Owen 30.iv.50, 29.vi.59, vii. 50, 14.vi.48, 28.iii.50 and 22.iv.50. Yei, Sudan (FMNH 58321), collected by R. Alison 29.iv.48.

Diagnosis. Only one apical pit. Snout shorter than the parietals. Postnasal in

contact with *both* 1st and 2nd labials. Scale rows 17-17-15. Ventrals: 155-174 ($\delta\delta$), 161-178 ($\text{♀}\text{♀}$). Subcaudals: 32-39 ($\delta\delta$), 22-31 ($\text{♀}\text{♀}$).

Brownish, each individual scale with a light subapical spot generally *divided* in minute dots. No markings on the top plates of the head, but a broad, conspicuous light band with sinuous border around the snout. Belly and throat pigmented.

Maximum size observed (in mm). (a) In Sudanese populations: 362 (tail 50) in males, 492 (tail 42) in females. (b) Kampala specimen (δ): 362 (tail 52). (c) East African populations: 329 (tail 46) in males, 399 (tail 49) in females.

Other specimens examined. *Uganda*: Kampala (MCZ 30115). *Kenya*: Mtoto Andei (USNM 48590); Mt. Mbololo (MCZ 40480); Malindi (MCZ 40481); Kibwezi (MCZ 40478); Sankuri (AMNH 50792); Killibasi (AMNH 61661); Shaffa Dikka (AMNH 61644); Kaimosi (USNM 49388). *Tanzania*: Morogoro (MCZ 18495; AMNH 16881, 16883); Mgulani (MCZ 50289); Ugano (MCZ 44112); Bagamoyo (MCZ 30104-06); Kilosa (MCZ 18191); Mbanja (MCZ 48271); Liwale (MCZ 52641, 59178; FMNH 81089, 81695); Tunduru (MCZ 52642); Nachinzwea (FMNH 78207, 78209, 78214-15). *Somali Republic*: (BM 1949-2-1-80-82).

Geographical variation. Although the species is here described as monotypic, it is far from devoid of geographical variation. We already saw that the size is considerably smaller in the eastern populations.

In the Kampala specimen, the snout band is less wide and interrupted; the dorsal scales have a single apical spot. In the Kenya specimens, there are tiny black dots and vermiculations within the light band, the top head plates may have light dots, and the dorsal scales have many small subapical white dots. The Tanzania specimens are very similar, but the spots on the dorsal scales are more numerous and farther inside the scale.

The Somali individual has the white snout

band still more reduced and no light dots on the dorsal scales.

Generally, the median plates of the head (internasals, prefrontals, frontal, supraoculars, parietals) are uniform; only seldom do they have a few light dots.

For the present, these variations are not considered worthy of any taxonomic recognition.

Lycophidion capense A. Smith

See synonymy and references under subspecies.

Species diagnosis. Only one apical pit. Snout shorter than parietals. Postnasal in contact with *both* 1st and 2nd labials. Scale rows 17-17-15. Ventrals: 166-211 ($\delta\delta$), 173-219 ($\text{♀}\text{♀}$). Subcaudals: 31-58 ($\delta\delta$), 24-44 ($\text{♀}\text{♀}$). Brownish in general, with each individual scale showing a single large subapical white spot. Head plates with or without light vermiculations. Belly dark or light but throat generally light.

Lycophidion capense capense Smith

Lycodon capense A. Smith, 1831, S. African Quart. Jour., (1) 5: 18, Kurrichane, i.e. Rustenberg Distr. (Transvaal).

Lycodon horstoki Schlegel, 1837, Essai Phys. Serp., 2: III, pl. IV, figs. 10-11, Cape of Good Hope. *Lycophidion capense capense* Bogert (part), 1940, Bull. Amer. Mus. Nat. Hist., 77: 30, Merebank (Natal); FitzSimons, 1962, The Snakes of Southern Africa: 124, many localities listed.

Diagnosis: Ventrals: 180-188 ($\delta\delta$), 188-190 ($\text{♀}\text{♀}$). Subcaudals: 36-41 ($\delta\delta$), 30-39 ($\text{♀}\text{♀}$). Brownish above, each individual scale showing a single large subapical white spot (which can be irregular in shape) or several smaller dots or a white apical border. Head plates with light vermiculations. Belly and throat entirely light colored.

Maximum size observed (in mm). 325 (tail 45) in only 3 males available.

Specimens examined. *Transvaal*: Pretoria (MCZ 14193). *Natal*: Ottawa (AMNH 5903); Merebank (AMNH 60109). *Cape Colony*: Grahamstown (MCZ 21482).

Remarks. The number of specimens examined is admittedly too few. Therefore, the diagnosis and the range of the typical form of the species must be considered as very tentatively outlined here.

Range. South Africa, surely from Cape Colony to Natal and Transvaal, but the northern limits (Zambeze or Limpopo²), if not arbitrary, are still not known.

Lycophidion capense multimaculatum
Boettger

Lycophidium capense, *mut. multimaculata* Boettger, 1888, Ber. Senckenb. Naturf. Ges., 67, Povo Nemlao, Povo Netomma (Lower Congo).

Lycophidium capense Bocage, 1895, Herp. Angola: 81, Caconda, Galanga, Mossamedes, "Angola" (Angola).

Lycophidium capense capense (non A. Smith) Schmidt, 1933, Ann. Carnegie Mus., 22: 13, Chitan, Ganca (Angola); Bogert (part), 1940, Bull. Amer. Mus. Nat. Hist., 77: 30, "Angola"; Mertens (part), 1955, Abhandl. Senckenb. Naturf. Ges., 190: 92, Gammans, Okahandja, Grootfontein (Southwest Africa).

Lycophidium capense multimaculatum Laurent, 1956, Ann. Mus. Roy. Congo, in 8°, Zool., 48: 115, Penemende, sources of the Lofoi, Niemba-Lukuga confluent (southeastern Congo); Laurent, 1961, Publ. Cult. Diamang, Mus. Dundo, 67: 94, Dundo, Alto Cuilo, Cazombo, Macondo, Calonda (Angola).

Diagnosis. Ventrals: 167–180 (♂♂), 173–184 (♀♀). Subcaudals: 31–42 (♂♂), 24–37 (♀♀). Brownish above, each individual scale bearing a single subapical light spot, sometimes irregular or divided, sometimes replaced by scattered light spots. Head plates with light vermiculations in southern populations, becoming uniform or with only a line around the snout in northern populations. Belly light in southern populations, dark in northern populations, partly pigmented in intermediate populations. Throat always light.

Maximum size observed (in mm). 358 (tail 45) in males, 527 (tail 54) in females.

Specimens examined. *Southwest Africa:* Okamandja (FMNH 57653, 62780, 64482, 65870, 51618); Luderitz Bay (MCZ 22050). *Bechuanaland:* Maun (FMNH 17722). *Rhodesia:* Bembezi (USNM 142081); Bulawayo (MCZ 12620, 56349, 58188–90);

Chirinda (MCZ 29177–78). *Zambia:* Kalichero (MCZ 69048); Msuro (MCZ 69049); Abercorn (MCZ 54657–59). *Angola:* no precise locality (AMNH 50511); Chitan (FMNH 18524); Lumdo (MCZ 74128).

Range. From Southwest Africa and Rhodesia to southern Congo.

Remarks. The populations united under this trinomen are obviously very diverse. It has been assumed that this variation is clinal but this remains to be confirmed, as does the non-clinal nature of the transition with the typical form. The southern populations of *multimaculatum* have lower ventral counts than *L. capense capense*, but they keep their characteristic color pattern, namely the light belly. It seems that this character evolves clinally in a northern direction. The head reticulations disappear in northern populations (northern Angola and southern Congo). The specimens from Abercorn have white stippled dorsal scales, as are common in *L. depressirostre*; the others have the single spot which appears characteristic of the species in Central Africa. The relationships of the *multimaculatum* populations with forms to the east are unclear. My investigations in the eastern Congo have definitely shown that no smooth transition exists between *multimaculatum* and *jacksoni*.

A last point must be mentioned here: the specimen from Angola (AMNH 50511) has the striking color pattern of *L. hellmichi*, but the scale counts of *multimaculatum*. It appears that more samples from southern Angola are badly needed for a proper evaluation of the situation.

Lycophidion capense jacksoni Boulenger

Lycophidium jacksoni Boulenger (part), 1893, Cat. Snakes, Brit. Mus., 1: 340, pl. XXI, fig. 3, Kilimanjaro (Tanganyika = Tanzania).

Lycophidium abyssinicum Boulenger, 1893, Cat. Snakes, Brit. Mus., 1: 342, pl. XXII, fig. 1, southern Abyssinia.

Lycophidium irroratum (non Leach) Schmidt, 1923, Bull. Amer. Mus. Nat. Hist., 23: 68, Dingu, Garamba (northeastern Congo).

Lycophidium capense capense (non A. Smith) Loveridge (part), 1933, Bull. Mus. Comp. Zool.,

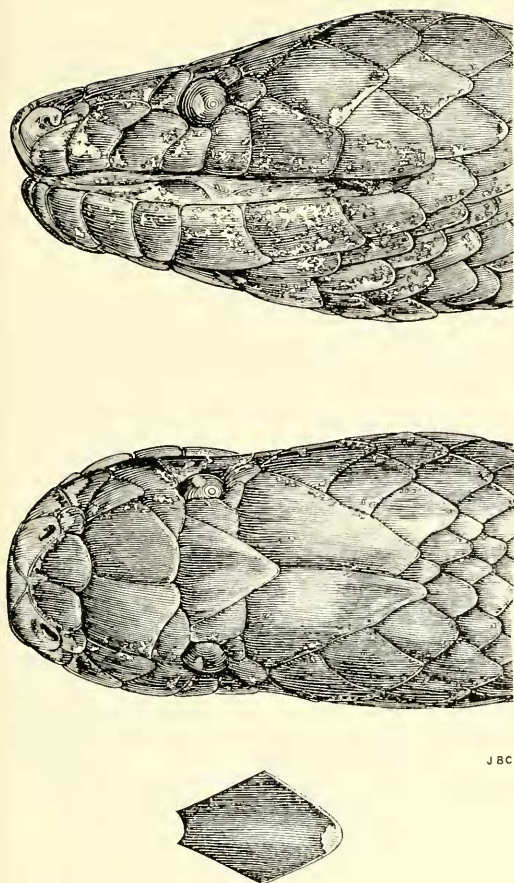


Figure 8. Lateral and dorsal views of head, and dorsal scale of *L. capense jacksoni*.

Lycophidion capense jacksoni Laurent, 1956, Ann. Mus. Roy. Congo, in 8°, Zool., 48: 109, pl. XII, fig. 3, numerous localities of eastern Congo, Rwanda and Burundi; Skelton-Bourgeois, 1961, Rev. Zool. Bot. Afr., 63: 333, Ngorongore, Hanang, Marangu (Tanzania).

Diagnosis. Ventrals: 178–192 (♂♂), 184–206 (♀♀). Subcaudals: 34–45 (♂♂), 28–38 (♀♀). Brownish above, each individual scale with a single subapical light spot or a light border. Head plates almost always without light markings on the top, generally with only a slender white line around the snout. Belly dark, but throat light.

Maximum size observed in specimens cited (in mm). 424 (tail 53) in males, 535 (tail mutilated 30) in females (see also Laurent, 1956 and 1960).

Specimens examined. *Tanzania:* Tumba, Lake Rukwa (MCZ 54654–56); Kibondo (MCZ 51626); Igala, Kigoma (MCZ 54817); Ujiji (MCZ 30113, 48252–53); Ukerewe Id., Lake Victoria (MCZ 30114). *Kenya:* without locality (USNM 42049); Maima Springs (FMNH 79146); Kijabe (FMNH 2430); Parklands (MCZ 18190); Lat. 0°, Long. 39°E (MCZ 11485); Nairobi (USNM 40966–67); Wambugu (USNM 40885); between Mt. Kenya and Fort Hall (USNM 41133); Lake Sirgoit (USNM 42023); between *Abyssinia and Kenya* (USNM 66928). *Uganda:* Buddu Coast (AMNH 5259, 24284); Nyenga (AMNH 63770–72); Jinja (MCZ 30116); Sebei, Mt. Elgon (MCZ 40467); Butiaba Swamp, Lake Albert (MCZ 48251). *Congo:* without locality (FMNH 4027); Bunia (MCZ 25149); Garamba (AMNH 12035); Dungu (AMNH 12041). *Sudan:* Gila, Imatong Mountains (MCZ 53342); Imurok (MCZ 53343); Juba (FMNH 58500, 58510); Katire (FMNH 62308); Latome (MCZ 53344); Nimule (MCZ 53345); Terangore (MCZ 53346); Torit (MCZ 53349, 53351, 53353); Yei (FMNH 58322). *Ethiopia:* Harrar (FMNH 4026).

Range. Sudan and western Ethiopia to southern Kivu and western Tanzania through Uganda, western Kenya, Rwanda and Burundi.

74: 233, Ujiji (Tanzania), Ukerewe Island (Lake Victoria), Jinja (Uganda); Loveridge (part), 1936, Field Mus. Nat. Hist., Zool., 22: 23, Nairobi (Kenya), Harar (Ethiopia), "Belgian Congo"; Loveridge (part), 1936, Bull. Mus. Comp. Zool., 79: 241, Sabei (Uganda); Uthmüller, 1937, Temminckia, 2: 107, Gomberi, Sanya (Tanzania); Uthmüller, 1941, Zool. Anz., 135: 233, Gomberi, Hanang, Momella, Mto-wa-mbu, Sanya, Yaida; Witte, 1941, Explor. Parc Nat. Albert, 33: 178, Kalinga, Mabenga (eastern Congo), Nyakatare (Rwanda); Loveridge (part), 1942, Bull. Mus. Comp. Zool., 91: 268, Butiaba (Uganda); Ujiji (Tanzania); Loveridge (part), 1956, Sudan Notes and Records, 36: 7, Gilo Imurok, Latome, Nimule, Tarangole, Yegiyegi (Sudan).

Lycophidion capense uzungweensis (non Loveridge) Witte (part), 1941, Explor. Parc Nat. Albert, 33: 178, Kanyabayongo (eastern Congo),

Remarks: It has been established beyond any reasonable doubt that *jacksoni* does not merge into *multimaculatum* in the Congo, the Fizi escarpment being the very sharp limit between the two races. That a clinal transition does not exist at the eastern side of Lake Tanganyika cannot be proved with the available data; there is, on the contrary, a clinal suggestion in the relatively low ventral counts of the Lake Rukwa specimens. The range of this subspecies is large since specimens from Sudan and even from Abyssinia are not separable from it. The type of *abyssinicum* proves to be a synonym of *jacksoni*.

Lycophidion capense subsp.

Lycophidion capense (non A. Smith) Parker (part), 1949, Zool. Verhandl., 6: 54, Borama Distr., Haud (Somalia), Waramalka (Ethiopia).

Diagnosis. Ventrals: 166–175 (♂♂), 177–188 (♀♀). Subcaudals: 34–35 (♂♂), 26–32 (♀♀). Brownish, each dorsal scale with a subapical light spot or with scattered small subapical dots. Head markings as in *jacksoni*, sometimes (2 specimens) with light punctation and vermiculations on the crown plates. Belly dark and throat generally dark also. A white collar in some specimens.

Maximum size observed in specimens examined (in mm). 309 (tail 34) in males, 463 (tail 48) in females.

Specimens examined. Ethiopia: Ouaramalka (BM 1916–6–24–4–5). Somali Republic: Haud (BM 1949–2–1–72, 1949–2–1–78–79, 1949–2–1–83); Borama (1955–11–33).

Range: Northern Somali Republic and adjacent parts of Ethiopia.

Remarks. The eastern Ethiopian and Somali populations appear to represent an undescribed subspecies. The ventral and subcaudals differ somewhat from the *jacksoni* counts and are not very much higher than the *multimaculatum* counts. These populations differ from *multimaculatum* by their generally dark throat, and from both *jacksoni* and *multimaculatum* by

the presence of a white collar in some specimens. However, we do not name this suspected subspecies, because the apparent variability of this small sample is such that we are not quite sure that it is really homogeneous. Furthermore, the data are too scant to suggest unequivocally the absence of a clinal transition with *jacksoni*.

Lycophidion capense loveridgei subsp. n.

Lycophidion capense Barbour and Loveridge, 1928, Mem. Mus. Comp. Zool., 50: 113, Bagilo, Nyange, Vituri, Ulurungu Mountains: Amani, Bumbuli, Usambara Mountains.

Lycophidion capense capense (non A. Smith) Loveridge (part), 1933, Bull. Mus. Comp. Zool., 74: 233, Mwaya, Lake Nyasa (Tanzania); Loveridge (part), 1936, Bull. Mus. Comp. Zool., 79: 241, Mkonumbi, Ngatana (Kenya); Loveridge (part), 1942, Bull. Mus. Comp. Zool., 91: 268, Amboni Estate (Tanzania), Kilindini (Kenya).

Holotype: 1 ♀ (MCZ 23196), Amani, Usambara Mountains, Tanzania, collected by A. Loveridge 29.xi.26.

Paratypes: 1♂, 1♀ (MCZ 23197–98), Amani, Usambara Mountains, Tanzania, collected by A. Loveridge 29.xi.26.

Diagnosis. Ventrals: 193–211 (♂♂), 205–219 (♀♀). Subcaudals: 47–58 (♂♂), 38–44 (♀♀). Brownish on the back, each individual scale with a subapical white spot or a white border. Head plates with many light dots or vermiculations. Belly dark, with a light throat.

Maximum size observed (in mm). 480 (tail 80) in males, 623 (tail 73) in females.

Other specimens examined. Kenya: Mkonumbi 1♀ (MCZ 40474); Ngatana, 1♀ (MCZ 40475); Likoni, mainland opposite Kilindini, 1♂ (MCZ 48266). Tanzania: Amboni Estate, 2♂♂ (MCZ 48264–65); Usambara Mountains, Bumbuli, 1♂ (MCZ 23200); Ulunguru Mountains, Bagilo, 1♀ (MCZ 23189). Nyange, 1♂, 3♀♀ (MCZ 23190–93); Vituri, 1 juv. (MCZ 23195); Mwaya, Lake Nyasa, 1♂, 1♀ (MCZ 30109–10). Zanzibar: 1♀ (BM 1950–1–5–35).

Range and comments. This subspecies appears to live within a narrow band going from coastal Kenya in a southwest direc-

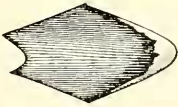
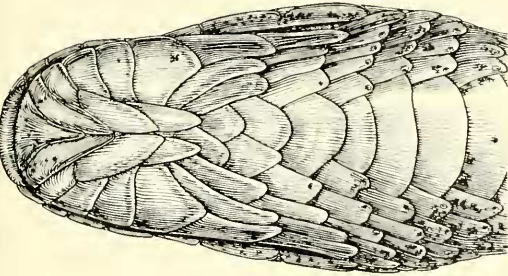
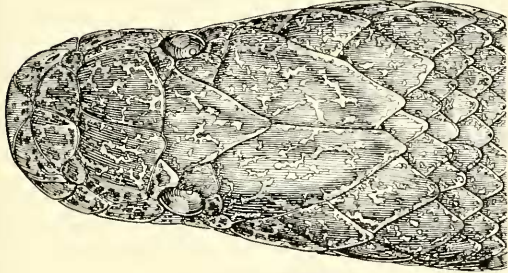
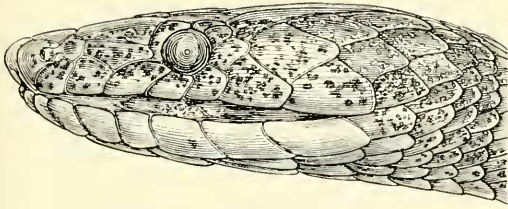


Figure 9. Lateral and dorsal views of head, and dorsal scale of *L. capense vermiculatum*.

ganyika region towards the coast. Unfortunately, there is a very large blank in central Tanzania: we simply don't know what species of *Lycophidion* are living there.

Lycophidion capense vermiculatum subsp. n.

Lycophidion capense capense (non A. Smith) Bogert (part), 1940, Bull. Amer. Mus. Nat. Hist., 77: 30, Mlanje (Malawi); Loveridge (part), 1942, Bull. Mus. Comp. Zool., 91: 268, Mikindani, Mbanja, Nehingidi (Tanzania); Loveridge (part), 1951, Bull. Mus. Comp. Zool., 106: 188, Liwale (Tanzania); Loveridge (part), 1953, Bull. Mus. Comp. Zool., 110: 258, Kotakota, Cholo Mountains (Malawi); Manaças, 1959, Mem. Junta Invest. Ultramar, 8: 139, Vila Paiva de Andrada (Mozambique).

Holotype: 1 ♂ (MCZ 48225), Mbanja, near Lindi, Tanzania, collected by A. Loveridge 26–30.iv.29.

Paratypes: 1 ♂, 1 ♀ (MCZ 48256–57), Mbanja, near Lindi, Tanzania, collected by A. Loveridge 26–30.iv.29.

Diagnosis. Ventrals: 182–195 (♂♂), 192–203 (♀♀). Subcaudals: 43–52 (♂♂), 33–41 (♀♀). Color pattern as in *loveridgei*.

Maximum size observed (in mm). 385 (tail 61) in males, 521 (tail 57) in females.

Other specimens examined. *Tanzania*: Morogoro, 1 ♂, 1 ♀ (AMNH 16882, 16884); Mikindani, 1 ♂ (MCZ 48254); Nachingidi, Rondo Plateau, 3 ♂♂, 1 ♀ (MCZ 48260–63); Ruponda, 1 ♀ (MCZ 52640); Liwale, 7 ♂♂, 3 ♀♀ (MCZ 50249, 52639; FMNH 81083, 81085–88, 81693–94, 81696); Nachinzwea, 7 ♂♂, 3 ♀♀ (FMNH 78204–06, 78208, 78210–13, 78216, 81208). *Malawi*: Kotakota, 1 ♀ (AMNH 67793); Mlanje, 1 ♀ (AMNH 44308); Cholo Mountains; 1 ♀ (MCZ 51095).

Range. Southeastern Tanzania, Malawi and presumably northern Mozambique.

Comments. The difference in ventral counts between *vermiculatum* and *loveridgei* is clear cut enough to almost certainly preclude any clinal possibility. The lateral relationships with *multimaculatum* in North Rhodesia and with *capense* through southern Mozambique are unknown.

tion to the northern shore of Lake Nyasa, through coastal northern Tanzania, Usambara and Uluguru Mountains. Nowhere do the *loveridgei* populations come near the known *jacksoni* localities, but even if the intervening space (between Kilimanjaro and the coast or between Lake Rukwa and Lake Nyasa) should be occupied by intermediary populations, the vastness of the *jacksoni* range hardly allows us to suppose that the race here described might be part of a smooth cline going from the Lake Victoria and Lake Tan-

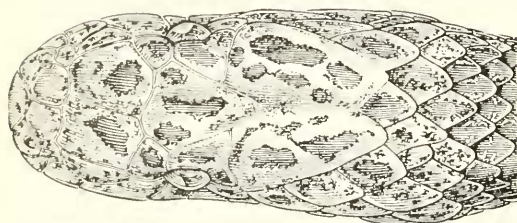


Figure 10. Lateral and dorsal views of head of *L. capense pembanum*.

Lycophidion capense pembanum subsp. n.

Lycophidion capense capense Moreau and Pakenham, 1941, Proc. Zool. Soc. London, Ser. A, 110 (parts 3 and 4): 108.

Holotype: 1♂ (BM 1940-1-18-74), Pemba Island.

Paratypes: 2♀♀ (BM 1940-1-18-75-76), Pemba Island; 1♀ (MCZ 46133), Wete, Pemba Island.

Diagnosis. Ventrals: 172 (♂ Holotype), 179-180 (♀♀). Subcaudals: 46 (♂), 37-40 (♀♀). Brownish on the back, each individual scale light bordered and/or with a subapical light spot. Head light colored with dark spots. Belly brown, throat light colored.

Size (in mm). Holotype (male): 267 (tail 53). The longest female (MCZ 46133) measured 106 mm (tail 51 mm).

Range. Pemba Island (Tanzania).

Comments. This insular subspecies is highly characteristic. No other *Lycophidion* has this very peculiar color pattern on the head, which is very similar to that of *Miodon collaris*. The ventral counts are definitely lower than in the neighboring

mainland populations (*vermiculatum* and *loveridgei*) but similar to those of *multimaculatum* or of the Somalian populations. The subcaudal counts are as in *vermiculatum* but somewhat lower than in *loveridgei*. The sharpness of the characters, as well as the geographical isolation, demonstrate that any clinal connection with other subspecies is out the question.

KEY TO THE RECOGNIZABLE SPECIES AND SUBSPECIES IN THE GENUS *LYCOPHIDIUM*

- Some species which in the past have been referred to *Lycophidion* are now attributed to other genera like *Oophilositum*, *Chamaelycus* (with which *Oophilositum* has been recently synonymized by de Witte, 1963), and *Dendrolycus*. They are, of course, not in this key, which is modified from that of Parker (1933).
1. Apical pits double or more. Scale rows 17, only rarely reduced in number before the vent 2
Apical pits single 3
 2. Apical pits 2 to 6, usually 4. Two labials only entering the eye. Rain Forest (West Africa to eastern Congo) *L. laterale* Hallowell
Apical pits 2, sometimes 3. Three labials entering the eye. West Africa
..... *L. irroratum* (Leach)¹
 3. Maximum number of scale rows 19. Two labials entering the eye. Congo forest
..... *L. polylepis* Boulenger
Maximum number of scale rows 15 or 17. Three labials entering the eye 4
 4. Maximum number of scale rows 15. From Angola to Tanzania
..... *L. melcagre* Boulenger
Maximum number of scale rows 17 5
 5. Scale rows generally not reduced in front of the vent. A broad \cap -shaped light band around the snout, still very wide and conspicuous in the temporal region 6
Scale rows generally reduced in front of the vent. When present, light snout band narrow or, if broad, is disintegrating in the temporal region 7
 6. Postnasal generally not in contact with the first labial. Subcaudals: 41-53 (♂♂), 36-46 (♀♀). Dorsal scales light stippled. Snout band less broad. Highlands of Central Africa, Sudan to Angola through eastern and southern

¹A western and an eastern subspecies are perhaps recognizable on the basis of ventral and subcaudal counts in the males.

- Congo, Uganda, Rwanda, Burundi and western Tanzania — *L. ornatum* Parker
 Postnasal in contact with the first labial.
 Subcaudals: 31 (♂), 23 (♀). Dorsal scales with a single large white apical spot. Snout band broader than in any other form. Uzungwe Mountains
 — *L. uzungwense* Loveridge
7. Snout about as long or longer than parietals. Postnasal seldom in contact with first labial. West Africa
 — *L. semicinctum* Duméril and Bibron
 Snout shorter than parietals. Postnasal generally in contact with first labials 8
8. Fewer ventrals and subcaudals. Ventrals: 134–174 (♂♂), 144–178 (♀♀). Subcaudals: 27–39 (♂♂), 18–31 (♀♀). Throat dark as the belly. A broad light band around the snout; generally no other head markings, except sometimes very inconspicuous light stippling on the top plates. Dorsal scales generally light stippled in the apical region, rarely with a single light spot or border 9
 More ventrals and subcaudals. Ventrals: 166–211 (♂♂), 173–219 (♀♀). Subcaudals 31–58 (♂♂), 24–44 (♀♀). Throat light colored (except in some Ethiopian populations). Light band around the snout narrow or absent; when it is absent, light vermiculations generally present on top head plates; when it is present, the head plates are generally uniform. Dorsal scales generally with a single apical white spot or white border, rarely with light dots or vermiculations 10
9. Fewer ventrals and subcaudals (in males only). Ventrals: 134–148 (♂♂), 144–156 (♀♀), but 168 in one specimen with black annuli from Rhodesia (presumably a different subspecies). Subcaudals: 27–31 (♂♂), 18–30 (♀♀). Maximum size ± 25 cm. Southeastern Tanzania, Mozambique, Zambia
 — *L. semiannule* Peters
 More ventrals and subcaudals (in males only). Ventrals: 155–174 (♂♂), 161–178 (♀♀). Subcaudals: 32–39 (♂♂), 22–31 (♀♀). Maximum size 36 cm (♂♂), 50 cm (♀♀). Sudan to southeastern Tanzania through Uganda and Kenya
 — *L. depressirostre* Laurent
10. Sides of the body (ventrals and 2 or 3 rows of dorsal scales) and sides of the head light colored; vertebral and paravertebral scales sometimes also light colored. More ventrals than the sympatric populations of *L. capense*: 197 (♂), 206–214 (♀♀). Southwestern Angola and southwest Africa
 — *L. hellmichi* Laurent
 Sides of the body dark like the back; no light vertebral band. Fewer ventrals in South Africa, Angola, Rhodesia and Zambia: 167–188 (♂♂), 173–190 (♀♀) — *L. capense* 11
11. Generally no light band around the snout, but light vermiculations or small dots on the top head plates (prefrontals, frontal, parietals)⁵ 12
 Generally a narrow light band around the snout, but no light vermiculations or dots on the head plates 16
12. Fewer subcaudals, the difference being diagnostic in males: 31–42 (♂♂), 24–39 (♀♀). Belly generally light colored. Dorsal scales sometimes light stippled, although more generally with only a single spot or border of irregular outline 13
 More subcaudals: 43–58 (♂♂), 33–44 (♀♀). Belly dark colored. Dorsal scales never light stippled, always with a single spot or border 14
13. More ventrals: 180–188 (♂♂), 188–190 (♀♀). More subcaudals in females: 30–39. Belly always light. Never a light line around the snout. South Africa — *L. capense capense* Smith
 Fewer ventrals: 167–180 (♂♂), 173–184 (♀♀). Fewer subcaudals in females: 24–37. Belly sometimes dark and sometimes a light line around the snout without head vermiculations in northern populations. From southwest Africa to southern Congo through Angola, Bechuanaland, Rhodesia and Zambia
 — *L. capense multimaculatum* Boettger
14. Top of the head dark with light dots and vermiculations. More ventrals: 182–211 (♂♂), 192–219 (♀♀). Continental East Africa and Zanzibar 15
 Top of the head light with dark spots. Fewer ventrals: 172 (♂), 179–180 (♀♀). Pemba Island
 — *L. capense pembanum* Laurent
15. Fewer ventrals: 182–195 (♂♂), 192–203 (♀♀). Fewer subcaudals: 43–52 (♂♂), 33–41 (♀♀). Southeastern Tanganyika to southern Malawi
 — *L. capense vermiculatum* Laurent
 More ventrals: 193–211 (♂♂), 205–219 (♀♀). More subcaudals: 47–58 (♂♂), 38–44 (♀♀). Coastal Kenya to northern shore of Lake Nyasa through

⁵ Exceptions make it useful to try both alternatives when the origin of the specimens is unknown or doubtful.

Tanzania highlands

L. capense loveridgei Laurent

16. Fewer ventrals: 166-180 (♂♂), 173-188 (♀♀). Somewhat fewer subcaudals: 31-42 (♂♂), 24-37 (♀♀). Sometimes top head vermiculations present, as well as a light stippling on dorsal scales

17

More ventrals: 178-192 (♂♂), 184-206 (♀♀). Somewhat more subcaudals: 34-45 (♂♂), 28-38 (♀♀). Top head vermiculations very rarely, and light stippling on dorsal scales never present. Throat always light and belly always dark. From northwestern Tanzania to Sudan and western Ethiopia through northeastern Congo, Burundi, Rwanda, western Kenya and Uganda

L. capense jacksoni Boulenger

17. Throat light (belly light also in southern populations). Snout light line generally absent, top head plates generally with light vermiculations. Southern Congo, Angola and Zambia. Northern populations of *L. capense multimaculatum* Boettger. Throat dark as well as the belly. Snout light line generally present; light vermiculations sometimes present on the top head plates. Somalia and eastern Ethiopia

L. capense subsp.

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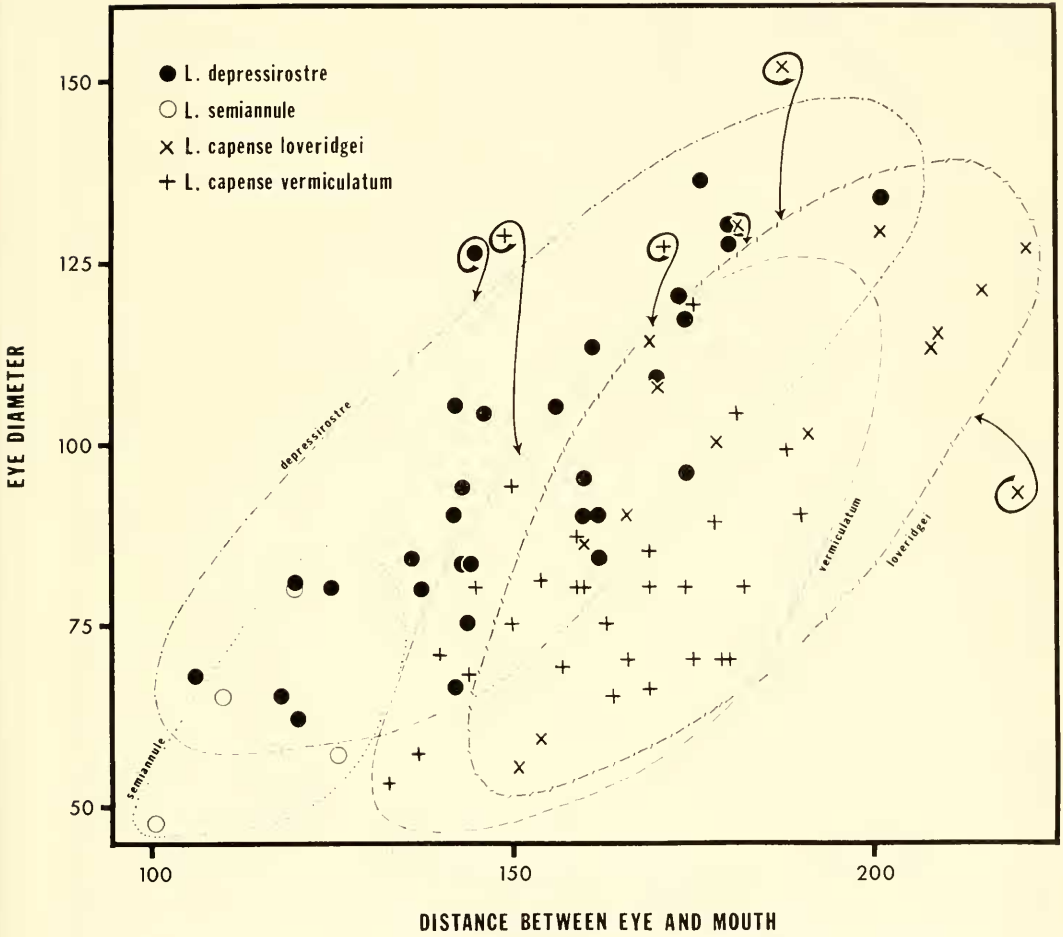


Figure 11. Eye diameter in relation to its distance from the mouth, in East African species of *Lycophiidion*. This once allegedly key character is actually very poor.

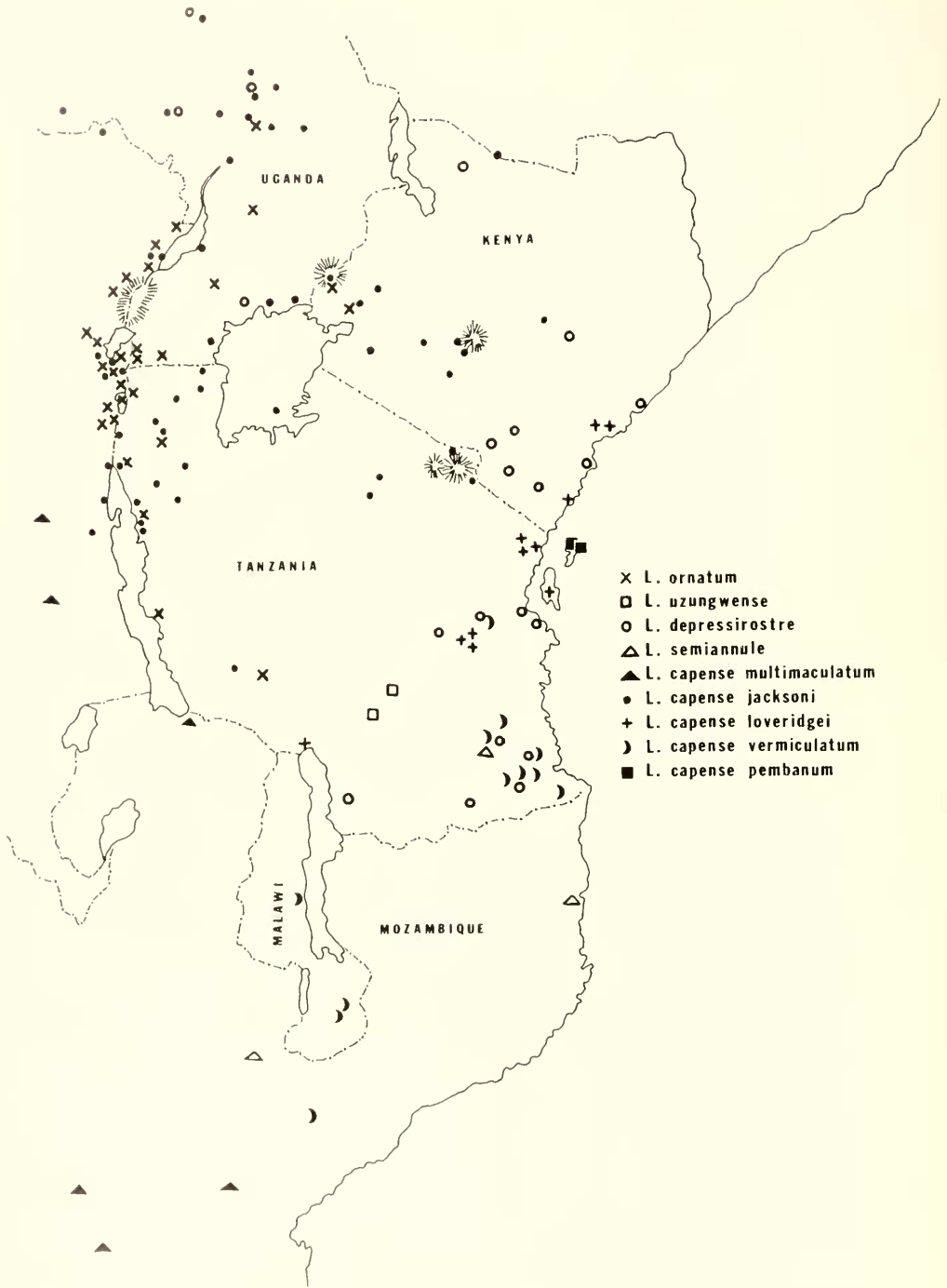


Figure 12. Range of the East African species and subspecies of the genus *Lymphocryptus*.