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~~JAMES D. ANDERSON~~

NOTES ON A
HERPETOLOGICAL
COLLECTION
FROM THE SOMALI REPUBLIC

by

Carl GANS, Raymond F. LAURENT
and Hemchandra PANDIT

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I. Introduction and itinerary

by

Carl GANS

INTRODUCTION

The fauna of the Horn of Africa is one of the most interesting, yet among the least documented of African zoogeographic entities. Though it is characterized by a high proportion of endemics, it has been the topic of relatively few studies, notably those of CALABRESI (1915, 1918, and 1927) and SCORTECCI (1929, etc.) and the summary papers of PARKER (1942 and 1949).

Unfortunately part of the Italian material (the basis of SCORTECCI's studies) was destroyed during the war, and other collections became disarranged during the destruction of the museums housing them. PARKER's papers were based mainly on a small survey collection (still in the British Museum) from the formerly British Northern Territory (= Somaliland). United States museums, though possessing adequate representation of the fauna of Ethiopia, Kenya, Uganda and Tanganyika, have lacked any significant quantity of material from the Somali region.

Under the circumstances, it seems useful to call attention to a collection of some 1,300 specimens made in the Somali Republic during July and August, 1961. The trip was initiated with the aim of obtaining examples of and making observations on the three endemic Somali species of amphisbaenids, but examples of many other groups were also collected. Mammals were deposited in the American Museum of Natural History, birds in the Buffalo Museum of Science, molluscs, arthropods, reptiles and amphibians in the Museum of Comparative Zoology, Musée Royal de l'Afrique Centrale, and Carnegie Museum. Materials of various groups were turned over to specialists. It also seems logical to include in the discussion notes on a small but interesting series of specimens collected by Mr. C. F. HEMMING of the Desert Locust Survey, Somali Republic.

We are particularly grateful to Dr. M. POLL and the other authorities of the Musée Royal de l'Afrique Centrale for facilitating our work by the publication of these papers.

PROCEDURE

It is the purpose of these reports to provide and comment on new information regarding biology, ranges and variation of the amphibians and reptiles of the Somali Republic, and to furnish a record of localities for the recipients of collections of

other kinds of animals. Major taxonomic discussions have been avoided as unjustified in regional studies at the present level of our knowledge of most of the African herpetofauna. Much revisionary work is needed before local collections may be determined accurately. It may not be amiss to point out that materials adequate for the solution of many taxonomic problems may well be already available. What is needed is a collation and review of specimens scattered in the museums of three continents.

We have generally listed recent papers dealing with a cited form, as well as the basis of our determination. This should yield a key to our reasoning and permit evaluation of the identifications.

A conservative line has been taken on trinominals. In the case of many wide-ranging African species, the use of trinominals has historically amounted to the naming of the locally available samples from disjunct areas, and there has been little effort to assemble specimens from more than a few museums, in order to approach a continuous representation on the basis of adequate samples. Trinominals have been used in these papers where the characteristics of the materials fall into the range of described races. Material furnishing the basis for recognition of a new race has been pointed out. However, when review of the literature and examination of specimens required the review of much mainly non-Somali material, this has been pointed out and the binominal retained without regard for non-Somali subspecies.

Specimens are listed in order of localities from south to north. In citation the locality name is followed by the collecting date and the museum number(s) in that order. Unless otherwise indicated the specimens were collected by me, and the ecological and life history notes and those on color of living specimens are taken from my field notes.

ACKNOWLEDGEMENTS

The publication of these papers affords me the pleasure of providing an acknowledgement of the manifold hospitality and assistance furnished by Mr. Francis J. SAVAGE of the United States Operations Mission (now U. S. A. I. D.) to the Somali Republic. His invitation made this trip feasible and he spared no effort and assistance in the field. Beyond this, a debt of gratitude is owed to Mrs. SAVAGE, whose broadminded hospitality allowed her to take some extremely odd house guests in her stride, and to Ronald and Corinne SAVAGE, whose "closer-to-the-ground" approach added a number of additional forms to the collection.

It is unfortunately impossible to acknowledge individually the many people who assisted the field work, but at the risk of slighting others, we would like to

mention General Mohammed ABSCIR, Frank M. CARPENTER, Herbert C. GREGORY, Yerris HASSAN, Robert HUESSMAN, Jonathan LEAKEY, Alex, Bernhard and Erna MOCH, William A. REX, James ROBBINS, and Jack WALKER. It is also a distinct pleasure to be able to acknowledge the assistance repeatedly tendered by members of the Somali Republic government and in particular the repeated advice and facilitation furnished by the Head of the Zootechnic Department, Mr. Achmed Nur COSTELLO, and of the Department's wildlife expert, Mr. Andrea BRANCA. Without the wholehearted assistance of these, and many others, it would not have been possible to carry out the assignment.

Financial support for the expedition was furnished by Grant N^o. 469 from the Bache Fund of the National Academy of Sciences and by Grant-in-Aid, N^o. 49 of Sigma Xi-RESA. The entire series of studies owes its support to National Science Foundation Grants NSF G-9,054 and G-21,819 (to GANS), and NSF G-17,144 (to WILLIAMS and LAURENT). The generosity of the granting agencies is very much appreciated.

Thanks are also due to the curators of various museums (referred to throughout by the abbreviations in parentheses) for assistance with materials in their care. Among these are the British Museum (Natural History), London (B. M.); the Carl Gans collection (C. G.); the Carnegie Museum, Pittsburgh, Pa. (C. M.); the Coryndon Memorial Museum, Nairobi, Kenya (C. M. M.); the Istituto e Museo di Zoologia della Università di Torino. (I. M. Z. U. T.); the Museum of Comparative Zoology, Cambridge, Mass. (M. C. Z.); the Muséum National d'Histoire Naturelle, Paris, France (M. H. N. P.); the Museo Civico di Storia Naturale "Giacomo Doria", Genova, Italia (M. S. N. G.); the Museo Civico di Storia Naturale, Milano, Italia (M. S. N. M.); the Museo Zoologico dell'Università di Firenze, Italia (M. Z. U. F.); the Università di Pisa, Italia (P. U. M.); and the Zoologisches Museum der Universität, Berlin, Germany (Z. M. U.).

ITINERARY

General.

The specimens discussed in the following pages were the incidental results of a trip designed to provide materials for a continuing study of *Agamodon anguliceps*, *A. compressus*, and *Ancylocranium somalicus* (cf. GANS, 1960), the three endemic Somali species of amphisbaenids. Frank SAVAGE had indicated that the first species was common in the Mogadiscio area and had proffered assistance for the procurement of specimens and the making of life history observations. The trip was made with only four weeks notice and field equipment had to be restricted to items that could either be shipped by air or procured on the spot.

Tentative arrangements had been made by Mr. SAVAGE for transportation to a number of areas that would have permitted adequate sampling of several faunistic regions. The weather and the unavailability of short-term rental transport ruined these plans completely.

The summer months (starting in mid-June) are normally dry, allowing a reasonable chance for travel by two-wheel drive vehicles along graded but unsurfaced roads. From the moment (in July) that the plane carrying me made its approach run into Mogadiscio Airport, I could note that the average weather picture (GRIFFITHS and HEMMING, 1963) did not apply to 1961. The coastal roads were flooded for considerable sections, the "desert" scrubs were bright green, and low clouds were bringing additional rain from the southeast.

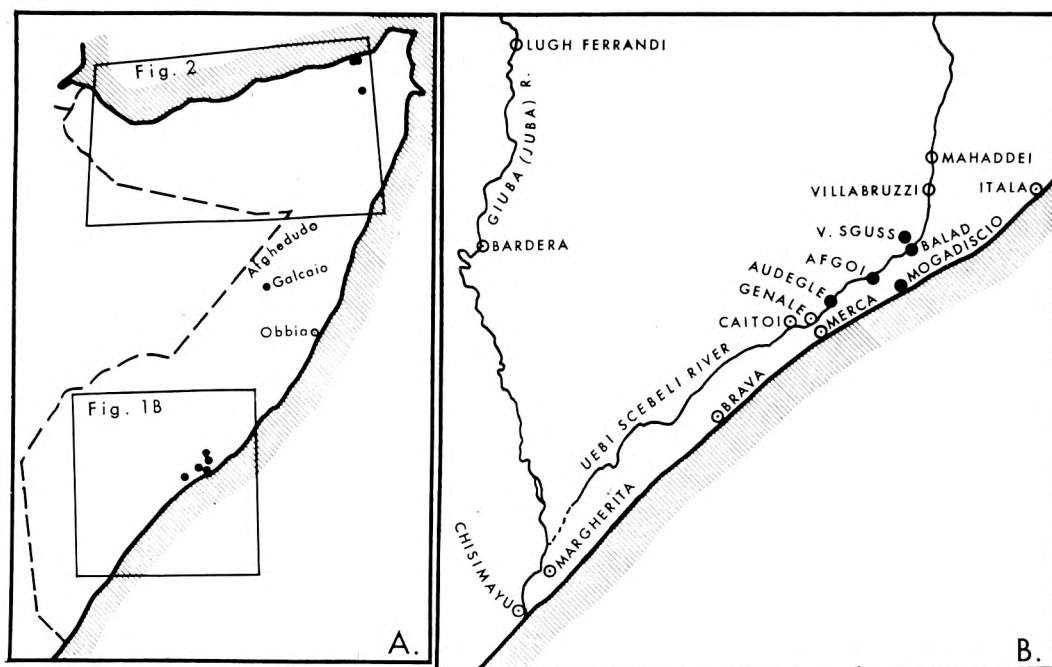


Fig. 1. — A. Map of the Somali Republic showing the relations of the regions and the relative sizes of the two detailed maps (figs. 1 B and 2). Here and in all other maps the solid circles refer to sites represented by specimens in these collections, while open circles refer to sites mentioned in the text. B. Localities in central southern Somali Republic.

The first day's impression was confirmed during the remainder of the stay with only 14 days of the 39 spent in Mogadiscio and vicinity passing without showers or cloudbursts. In consequence many of the unpaved roads became completely impassable and the travel schedule had to be drastically modified. Outlying areas could be visited only in borrowed vehicles or by accompanying one of the infrequent trips scheduled for other purposes. Collecting was then

restricted to a series of more or less accessible localities, scattered in a semi-circle around the coastal site of Mogadiscio (fig. 1), in Benadir Province. Residents of some of these villages were employed as collectors in order to increase the number of specimens and species in the collection. Particular attention was paid to the sand dune areas east from Audegle to Afgoi, the fringes of the Uebi Scebeli river at Afgoi, the city of Mogadiscio, the coastal zone immediately north of Mogadiscio, and Balad and vicinity (including the hamlet Villagio Sguss). The emphasis on these areas could not be planned; it developed directly from the local conditions.

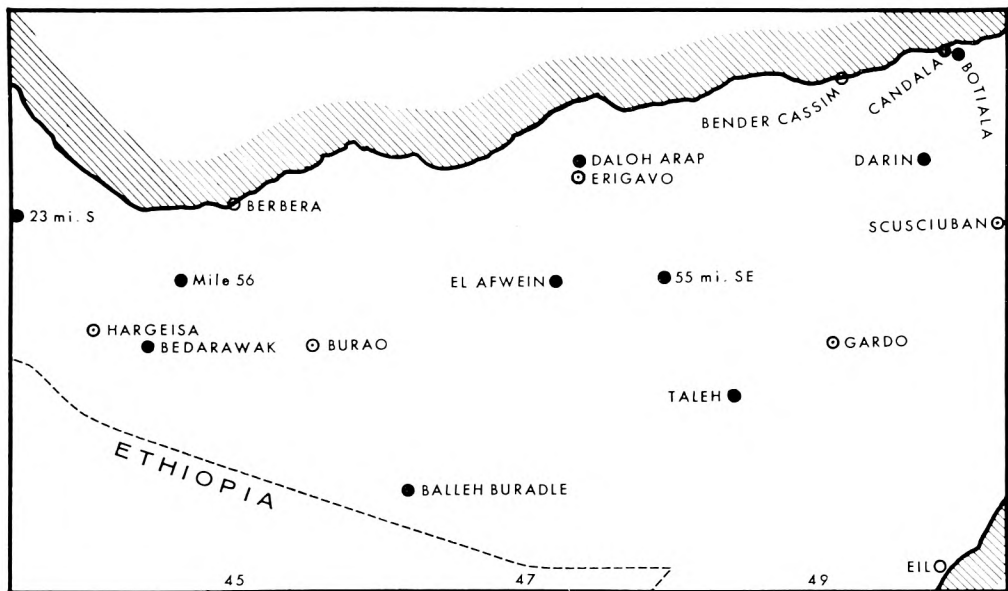


Fig. 2. — Sketch map of localities in Migiurtinia and the Northern Territory. See text for comments.

Under the circumstances I welcomed the opportunity to spend a week at Candala (Migiurtinia Province) on the Gulf of Aden (fig. 2), a locality already visited by SCORTECCI (1958, 1959). During the trip, the plane was refueled at a temporary petroleum exploration site south of Galcaio and at Darin (and touched down at Bender Cassim = Bosaso). Both stops resulted in specimens, but collecting proved impossible during the stopovers of the Somali Airlines plane that returned me from Candala via Alula, Scusciuban, Gardo, Eil, and Obbia. Collections were made around Candala and Botiala.

Discussion of localities.

The sand dune road : The road from Mogadiscio to Brava leaves the paved Mogadiscio-Afgoi highway some four kilometers before the latter town, as two separate, graded, but yet unpaved tracks. One, the newer and inland passage, was

still under construction. Straight and fairly wide, it passed through several poorly drained areas that accumulated large pools during each rainfall and made the road impassable. The other, the sand dune road, was a roughly parallel trace that ran approximately one kilometer to the east along a series of overgrown sandy hills of dune origin. The better drainage and nature of the substratum made this road passable throughout the rainy weather. The area was overgrown with various thorn bushes, ranging between two to four meters in height, and there was a scattering of five to seven meters high umbrella acacias. The termite hills were generally on the downhill side of the road. The ground cover was kept low by fairly intensive grazing of cattle and camels. Tracks and observations indicated that small packs of baboons (*Papio cynocephalus*) and wart hogs (*Phacochoerus aethiopicus*) were responsible for much digging of holes, turning of rocks and small logs, and rooting about. None of the larger mammals were seen in this area.

Collecting had to be restricted to the daylight hours. Much effort was spent digging up various areas to look for animals one to two feet below the surface of the ground. A certain number of skinks and larger arthropods were taken in the root stocks of grasses in relatively open areas. The frequency of recovery was not increased significantly by digging beneath the ordinary piles of brush. The best localities were soon proved to be sites where a thorn bush had decayed and the ground was covered by a ten centimeter layer of interlocking multiradiate thorns, hard and sharp enough to penetrate the soles of my boots. Here and below very heavy logs (moved by towing with a truck) we took species of *Mochlus* and *Typhlops*, two species of amphisbaenids, and many scorpions, centipedes, and similar forms. (The second species of amphisbaenid is reported on in a separate paper, cf. GANS and KOCHVA, 1965.)

Uebi Scebeli at Afgoi : Afgoi is located on the Uebi Scebeli river near the crossing of the Mogadiscio-Lugh Ferrandi road. From here to Audegle the river is fringed by tall trees which grade into areas of brush and grassy country into which the hippopotamus (*Hippopotamus amphibius*) range nightly, and where various planting areas are located. No crocodiles were ever seen. We passed the stretch repeatedly during the day collecting molluscs in the intermittently flooded margining fields, shooting birds and diurnal lizards.

The rains transformed many open areas into temporary marshes and several evenings were spent catching frogs in these. On two evenings we collected along the edge of a large overflow area directly on the river downstream from Afgoi. Six species contributed to the deafening breeding choruses. Some 77 specimens were taken during one 90-minute period in spite of precautions forced by the nature of the water.

Mogadiscio : The city is located on a coastal zone on poorly conglomerated sandstone and dunes. The streets rise gradually to a sandy ridge less than 60 meters high and then descend inland. Patches of grass and shrubs to three

meters high survive in many areas within the city, even though the demand for fuel has left few trees in the vicinity.

The quantity and diversity of reptiles within the city limits were truly astonishing. Two species of *Hemidactylus* and two of *Mabuya* were common surface and tree dwelling forms that were often found on and around walls and buildings (fig. 3). Daily excavations during the two hour period just after sunrise turned up numbers of *Mochlus a. afer*, and *Chalcides o. ocellatus*, of two species of *Agamodon* and three of *Typhlops* at various depths. Most of these were hoed up from the roots of shrubs and grasses; others were dug up during building construction. Two other species of lizards and three other species of snakes were taken within the city limits.

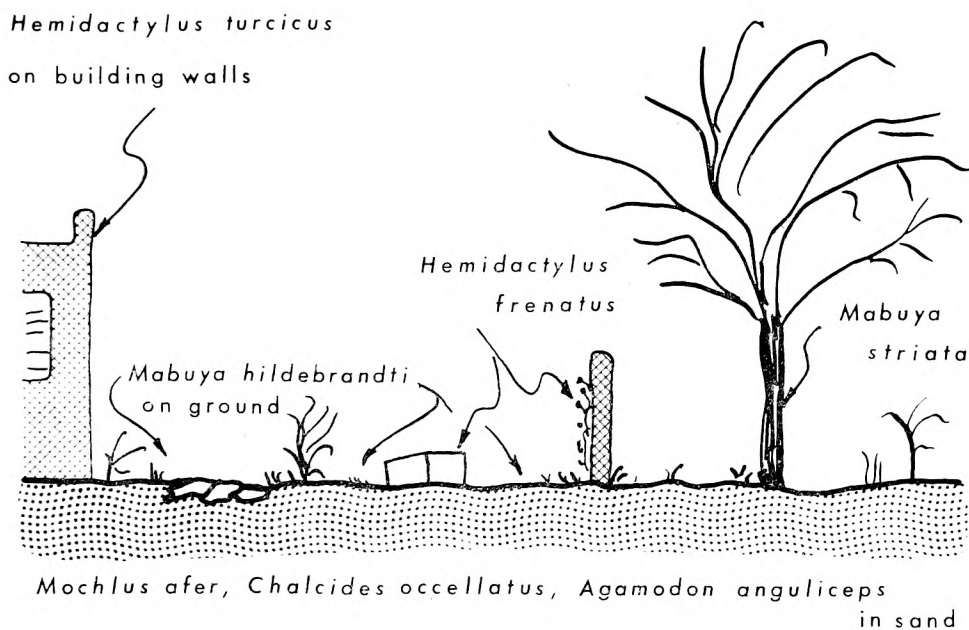


Fig. 3. — Sketch of typical courtyard area in the city of Mogadiscio showing the various sites at which the several species could be observed with some degree of probability. Other species also shared the several habitats in more open areas along the outskirts of the town.

While the concentration of effort in a propitious season undoubtedly accounts for some fraction of the results, I believe that other factors are involved. Obvious is the abundance of food animals and the increase in microhabitat areas for some of the species. Most important, particularly for subterranean forms, may well be the absence of the larger mammalian predators. I feel that the concentration of "sand dune road" burrowers in areas covered with mats of thorns is suggestive here. The thorn mat is certainly ineffective against ophidian and small mammalian predators (that may themselves be subject to control by larger mammals and

predatory birds). It should in contrast be very effective in deterring baboons and possibly warthogs as well. The former have long been known to be omnivorous, their carnivorous tendencies limited by opportunity and availability of animal food (cf. CURRY-LINDAHL, 1961, p. 74). While the warthog is supposed to feed exclusively on plant material it may well share the dietary inclinations of other members of the family.

Mogadiscio coastal zone : The reef fringing the shore north of the city is interrupted in some areas and in others joins the shore. There is a tidal zone of varied width, sandy in spots but generally rocky, with a jagged formation of solution pockets in the spray zone. Here amid the brackish and salt water pools *Ablepharus boutoni africanus* was common (fig. 4). It shared the zone with various intertidal invertebrates and was never seen to move more than a couple of meters from the sharp-edged black rocks on which it blended well into the back-

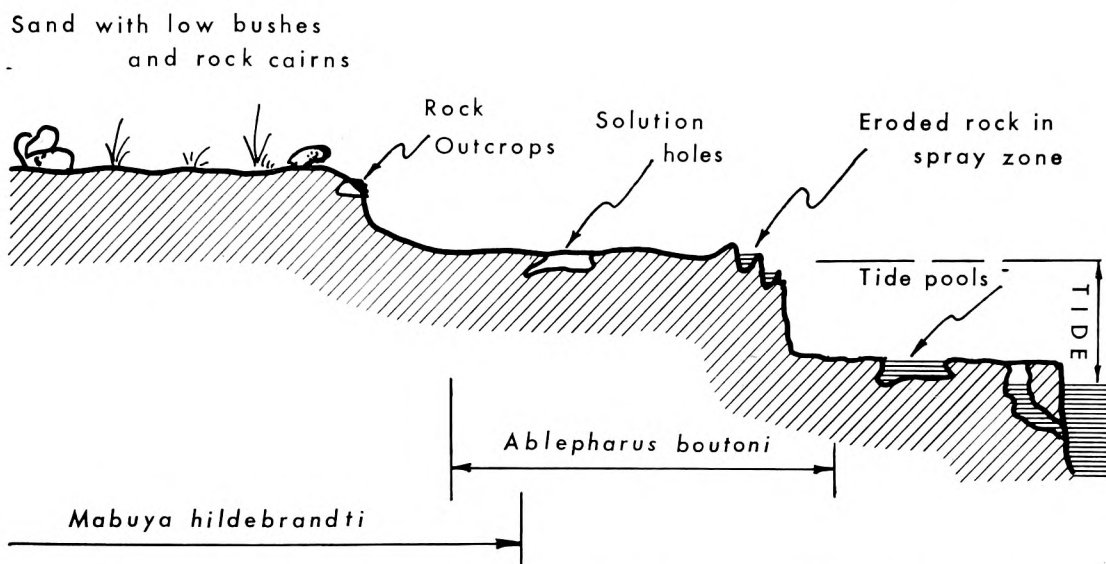


Fig. 4. — Transect of coastal region north of Mogadiscio showing general features, vegetation and preferred activity zones of the two common lizards.

ground. Slightly inland, at a distance depending upon the height of the cliff which ranged between two and ten meters, began a sand covered zone grading inland into an area of sparsely overgrown dunes and rock slopes. The premium on building materials produced by the development of the city of Mogadiscio was reflected by cairns of rocks, excavated and piled for drying by villagers and waiting transport into the city. The entire zone, down to the edge of the exposed coastal rock, was inhabited by *Mabuya hildebrandti*, the common species of these open areas. *Eremias brenneri* and *Hemidactylus laevis* were also taken here, as were *Boaedon lineatus* (which feeds on *Mabuya*), the egg-eating snake *Dasypeltis scabra*, and *Eryx somalicus*, the ground boa. The rare and scattered copses of brush

seem to shelter a different fauna that was probably insufficiently sampled, as indicated by the discovery of a two meter *Varanus* immediately behind the bone dump of the local slaughter house.

Balad and vicinity : Balad is located approximately one kilometer beyond the crossing of the Uebi Scebeli river by the Mogadiscio-Villabruzzi (Villagio Duca degli Abruzzi) road. The river which passes roughly parallel to the coast is here as at Afgoi fringed with a low gallery forest that opens into park-like grassy areas with patches of brush, thorn bush and trees. The fields are quite scattered and much of the agriculture is pastoral. Several species of antelope were seen as were warthog, baboons, the tracks of lion (*Panthera leo somalicus*), and hippopotamus.

Both at Balad and at the neighboring settlement of Villagio Sguss (8 km to the north) I received excellent cooperation from the villagers. They permitted me to collect within their huts and in a private pond, and many local people collected for me. Particularly useful were a series of concrete silos slightly more than a meter in diameter and almost twice as tall. Those that were half buried in the ground served as effective animal traps and a number of species were taken from them.

Geochelone pardalis babcocki was common here and numbers of specimens near 70 centimeters in length had to be left. Five species of *Hemidactylus*, one of *Lygodactylus*, *Chamaeleo gracilis*, three species of *Mabuya*, the interesting *Riopa mabuiiformis*, one species of amphisbaenid and six species of snakes were obtained in this area, as were five species of frogs all taken at Afgoi as well.

Galcaio : The petroleum survey camp was on a rocky plain at 47°12' E × 6° 26' N at an elevation of approximately 300 meters. The rock surface was widely exposed in patches and covered with a thorny scrub, the bushes to three meters high at three to five meter intervals. Daytime temperatures ran near 100 °F (38 °C) with 15% relative humidity, and dropped to 60 °F (16 °C) at night.

Darin : This station is located at an elevation below 500 meters in a valley just north of and within sight of the Ahl Mascat plateau, which rises to over 2,000 meters from the Gulf of Aden between Candala and Bender Cassim. Midday temperature was near 100 °F (38 °C). A specimen of *Coluber brevis* had been killed in the open at the edge of the landing strip just prior to our arrival.

Candala : This village is located on the narrow coastal plain at the foot of the Ahl Mascat (cf. SCORTECCI, 1958, 1959). Inland and to the west runs a series of dunes, limited by an 80 meter rock escarpment. Four kilometers to the east a narrow inlet runs another five kilometers to end in a gorge below the settlement of Botiala. The gorge forms the resting place for flocks of flamingos and pelicans. The settlement of Botiala sits on a hill in a gravel-filled wadi, the gravel holding a lens of fresh water that had only a single surface appearance at a distance of two kilometers and of fifteen square meter area. The water was of the consistency of heavy cream and packed with fishes and fresh-water shrimp.

Only an occasional bush or tree could be seen on the escarpment, but the gravels of Botiala supported several stands of date palms.

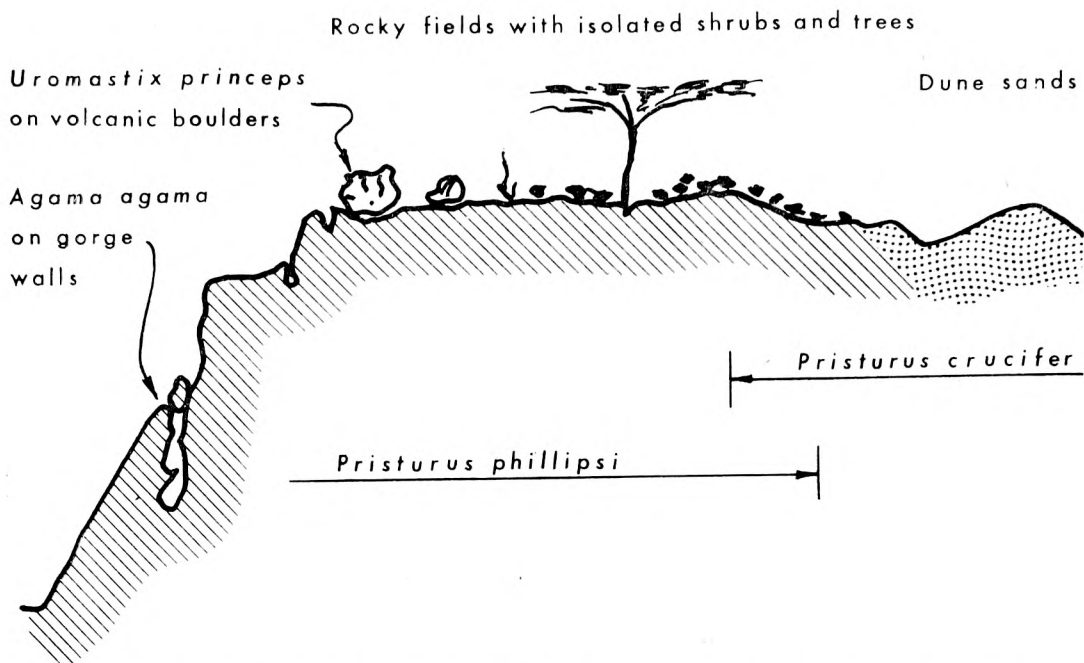


Fig. 5. — Idealized diagram of the habitats in the vicinity of Candala indicating the lizards that were commonly found on each.

Besides four species of *Hemidactylus*, and specimens of *Chalcides*, I obtained good series of *Pristurus crucifer*, as well as a new *Eremias* on the coastal dunes. *Pristurus phillipsi* was taken in more rocky situations, while the interesting species *Uromastix princeps* was common in the completely rocky areas, and *Agama agama spinosa* was seen on cliff faces (fig. 5). Only a single snake was obtained, but the collection of marine molluscs proved to contain a number of forms new to U. S. collections.

Localities of the Hemming collection (cf. fig. 2).

Taleh: 09° 09' N × 48° 25' E. Approximate elevation 3,000 feet. Estimated rainfall 100 mm. This site is in the Nogal, the gypseous part of the country. The frogs were taken in some of the numerous natural solution holes and wells, each generally indicated by the presence of fig trees and small bushes.

55 miles southeast of Erigavo: Approximate elevation 5,000 feet. Estimated rainfall 500 mm. The site was on a very extensive open gypsum plain, but the *Tomopterna* were collected in a "Doho" or drainage area which receives the runoff from quite a large area. Here was a patch of *Acacia tortilis* woodland.

Daloh Arap : Elevation 6,900 feet. Rainfall 750 mm. This is a forest station approximately 12 miles north of Erigavo. There is a forest of *Juniperus procera* in which mists are common.

Tug Watale plain : Elevation 5,000 feet. Estimated rainfall 500 mm. An extensive clay plain covered with mixed grasses. The *Tomopterna* were collected in a pit 11 feet deep.

El Afwein, 5 miles north of : Elevation 3,700 feet. Estimated rainfall 150 mm. The *Xenagama batilliferra* were on a series of large gypsum stones on the surface of a gentle slope of highly gypseous soil. The sparse vegetation is overgrazed and there is considerable erosion.

Balleh Buradle : 08° 32' N × 46° 12' E. Estimated rainfall 175 mm. This Balleh (shallow depression that forms a pond in the rainy season) is ringed by *Acacia tortilis* trees with an inner ring of the smaller *Acacia stuhlmanni* at the high water mark. The central area is occupied by mesophytic grasses, while the zones that are the first to dry out have stands of *Indigofera tinctoria*.

The southern area of the Northern territory and the adjacent Ogaden (Ethiopia) are covered with red, sandy soils that absorb most of the rainfall so that the vegetation, consisting of open acacia — commiphora bush, is quite rich. Many species of plants occur in the lower layers, i.e. below 1.5 meters.

Mile 56 on Hargeisa-Berbera road : 44° 35' E × 9° 52' N. Elevation 3,100 feet. Estimated rainfall 500 mm. The *Eremias smithi* was collected on a flat area of coarse sandy soils derived from the basement complex. The whole area is heavily overgrazed so that the perennial grasses have been replaced by such plants as *Aloe rigens*, *Sansevieria ehrenbergii* and *Cissus* sp. There are occasional low bushes of *Acacia edgeworthii* and *Grewia tenax* and a few well-spaced low trees of *Delonia elata*, *Acacia tortilis* and *Balanites glabra*.

Bedawarak, 6 miles south of : 44° 25' E × 9° 30' N.

Garire, 23 miles south of : 43° 30' E × 10° 20' N.



II. Frogs and turtles

by

Raymond F. LAURENT

The most interesting items of this portion of the Gans collection are a new frog of the genus *Ptychadena*, a genus still confused with *Rana* by most authors, and a *Kassina* and a *Phrynomerus* not collected since their description by SCORTECCI.

FROGS

***Bufo regularis regularis* REUSS**

Audegle, 5-viii-61, M. C. Z. 36281-93. Audegle, 2 km south of, 25-vii-61, C. M. 38574(2). Afgoi, 20 km southeast of, 25-vii-51, C. M. 38569. Afgoi, 3 km southeast of, 6-viii-61, C. M. 38575(8); 10-viii-61, C. M. 38576; 15-viii-61, C. M. 38578. Uebi Scebeli, near Afgoi, flooded banks, 8-viii-61, M. C. Z. 36294-325. Afgoi, 10-viii-61, C. M. 38577. Balad, 28-vii-61, C. M. 38570-73; 2-viii-61, M. C. Z. 36260-80. Villagio Sguss, 8-viii-61, M. C. Z. 36760-66.

Field Notes : This is the common toad of the southern region. Recently metamorphosed specimens (C. M. 38574) were taken along irrigation ditches. A small individual (C. M. 38569) was dug up from a depth of 30 cm under a stump in sandy country.

The males have a powerful, protracted whining call, which was heard only at night. Pairs in amplexus (4) were found amid the enormous choruses along the flooded shores of the Uebi Scebeli on rainy nights. The patches on the postfemoral and anterior tibial surfaces are scarlet in life.

***Bufo dodsoni* BOULENGER**

Taleh, 24-x-61, M. C. Z. 36336 (C. F. HEMMING).

***Bufo taitanus taitanus* PETERS**

Uebi Scebeli, near Afgoi, flooded banks, 10-viii-61, M. C. Z. 36326.

***Tomopterna delalandei delalandei* DUMÉRIL**

Audegle, near, 1-viii-61, M. C. Z. 36119. Uebi Scebeli, near Agoi, flooded banks, 6-viii-61, M. C. Z. 36120-30. Tug Watale, 5-xi-61, M. C. Z. 36328-32 (C. F. HEMMING). Daloh Arap, 27-x-61, M. C. Z. 36333-34 (C. F. HEMMING). Erigavo, 55 miles southeast of, 26-x-61, M. C. Z. 36335 (C. F. HEMMING).

Field Notes : The Audegle specimen was taken during the day in a roadside puddle, while the Uebi Scebeli series formed part of an enormous mixed breeding chorus. The three females of the latter series were being clasped when taken.

***Pyxicephalus adpersus edulis* (PETERS)**

Afgoi, 5 km south of (sand dune road), 25-vii-61, M. C. Z. 36131-32. Afgoi, 1.5 km north of, 10-viii-61, M. C. Z. 36133.

Field Notes : The first specimen was found calling at night from a floating position at the edge of a small pool. The form sinks backward when disturbed and seems quite wary. The two other specimens were taken from under a log at the edge of a rain puddle in sandy soil. Their container fell off the truck unnoticed and broke, but the specimens were recaptured three hours later at the edge of a small, shallow, unshaded puddle in the middle of the road.

***Ptychadena abyssinica* (PETERS)**

Afgoi, 3 km southeast of, 14-viii-61, C. M. 38584(4). Uebi Scebeli, near Afgoi, flooded banks, 6-viii-61, M. C. Z. 36245-59. Afgoi, 10-viii-61, C. M. 38589. Afgoi, 1.5 km north of, 10-viii-61, C. M. 38581-82. Villagio Sguss, 9-viii-61, C. M. 38580.

Remarks : GUIBÉ and LAMOTTE (1960) have shown that LOVERIDGE (1957) appears to have confused this valid species with *P. oxyrhynchus*.

***Ptychadena gansi* new species**

Holotype : M. C. Z. 36327, a male collected by Carl GANS, 13-viii-61, 2 km north of Afgoi, Benadir Province, Somali Republic.

Paratypes : M. C. Z. 36159 collected with the holotype; M. C. Z. 36157-58, same locality, 10-viii-61; M. C. Z. 36153-54, Villagio Sguss, 8 km north of Balad, 2-viii-61; C. M. 38696, same locality on 16-viii-61; M. C. Z. 36155, Balad, 2-viii-61. All Benadir Province, Somali Republic.

Diagnosis : A species related to *P. porosissima* (STEINDACHNER) (cf. SCHMIDT and INGER, 1959, p. 96), but distinguished by smaller size, shorter hind limbs, the interorbital space generally broader than the upper eyelid (never narrower in the specimens examined), no spines on chest in the males, less contrasted coloration, no light line on the upper part of the thigh, light striping instead of round spots and irregular marbling on the posterior face of the thigh.

Description : (Holotype). Head longer (14.5 mm) than broad (11.8 mm). Snout obtusely pointed, projecting, longer (7 mm) than the eye (4.1 mm). Canthus rostralis indistinct, lores concave. Nostril distinctly closer to tip of snout (2.9 mm) than to eye (3.7 mm). Internasal distance (5.7 mm) larger than

interorbital distance (2.9 mm), which is equal to the width of an upper eyelid (2.9 mm). Tympanum (3.2 mm) smaller than the eye, considerably larger than its distance from the eye.

Fingers not pointed, the first as long as the second, which is a little shorter than the fourth, the third (5.2 mm) shorter than the snout. Subarticular tubercles well developed. Three metatarsal tubercles (1st, 3rd, 4th). Tibio-tarsal articulation reaching between eye and nostril. Tibia (20.9 mm) 3.61 times longer than broad, contained 1.9 times in the snout vent length (39.9 mm), 1.05 times as long as the foot (20 mm). Toes obtusely pointed, about two-thirds webbed. Phalanges free of web: 1-3/4 (1st), 2-1/3 and 1 (2nd internal and external sides), 2-4/5 and 1-1/3 (3rd), 3 (4th, both sides) and 1 (5th). Subarticular tubercle distinct. Internal metatarsal tubercle (1.6 mm) measuring less than half the length of the first toe without this tubercle (3.9 mm). External metatarsal tubercle conspicuous. A diagonal tarsal fold. No other tubercles below the metatarsals.

Back with 8 distinct folds. Median pair separated by a broad vertebral zone, beginning in the scapular region, replaced at the sacral level by more close-set folds reaching the anal region. A second fold beginning behind the upper eyelid and ending at groin (discontinuous to the right side), a fragmented and short dorso-lateral fold from the scapular level to the groin; an external fold, light colored, begins above tympanum and reaches the groin with a subterminal break. Upper jaw continued by a glandular ridge below the tympanum as far as the upper border of axilla (with a subterminal break).

Skin smooth between the central folds, finely granulate on the laterodorsal region (between the folds), more coarsely granulated on the sides (below the folds); similarly granulate on the posterior part of the belly and in the posteroventral region of the thigh; the remainder of ventral surface perfectly smooth.

Color: Chocolate brown in life. Greyish in alcohol. A broad light mediodorsal band with a scarcely distinct, still lighter median (vertebral) line. Some alternating squarish darker blotches in the laterodorsal region. Upper part of thighs with 3 or 4 transverse bands in front (not very distinct) and a dark posterior area with stripe-like light markings. On the tibia, a light longitudinal line, two complete bars and two incomplete bars, one proximal and the other distal. Two incomplete bars on the tarsus. Vocal pouches blackish.

Variation: (N = 9: 8 ♂♂, 1 ♀). The folds may be sharper, less fragmented and especially the median ones may reach the posterior level of the orbits (but do not extend between them). The dorsal dark spots are often more conspicuous, definitely darker than the bars on the legs, which are rarely well marked. In only one case there is an exception to the number and disposition of the bars on the tibia: 3 complete and 3 incomplete, one of the latter between two completes. The tarsal bars are complete in 3 specimens. The tibial light line is absent in one individual. The phalanges free of web are 1-3/4 to 2 on the

1st toe, 2 to 2-1/3 on the 2nd (internal side), 1 to 1-1/2 on the 2nd (external side), respectively 2-2/3 to 3 and 1-1/5 to 1-3/5 on the 3rd, 3 and 2-1/2 to 3 on the 4th, 1 on the 5th (1-1/5 in a single case).

Ratio between the distance from snout to vent and the length of the tibia : 1.81 — 1.98, m = 1.87.

Breadth of the tibia in its length : 3.14 — 3.92, m = 3.48.

Length of the foot in the length of the tibia : 1.01 — 1.08, m = 1.05.

Interorbital distance in the width of an upper eyelid : 0.84 — 1.00, m = 0.912.

Internarial distance in the distance from the nostril to the eye : 0.97 — 1.08, m = 1.04.

Relationships : This form obviously belongs to the *porosissima* group (LAURENT, 1956, p. 29). The color pattern of *gansi* is conspicuously different from that of *bibroni* HALLOWELL, *chrysogaster* LAURENT and *guibei* LAURENT, but very like that of *upembae* SCHMIDT and INGER, and of *porosissima* STEINDACHNER. Since it has the light line on the tibia, absent in *upembae*, *P. gansi* is most similar to *P. porosissima* and may prove eventually to be only a race of this species, differing from it by the characters cited in the diagnosis. Indeed, *gansi* is allopatric to *porosissima* and my chief reason for allowing it specific rank for the present is that *upembae*, which is sympatric with *porosissima*, differs no more from it than does *gansi*.

Remarks : This form has been described and figured, from Villagio Duca degli Abruzzi, by SCORTECCI (1933a, p. 7, pl. 2, fig. 2) under the name of *Rana* sp. The dark spots and bars are generally not so conspicuous as in his figure (see pl. IV).

Field Notes : The specimens from the vicinity of Afgoi were collected while they were calling in flooded fields. No females were taken here. At Villagio Sguss, specimens were trapped in the bottom of empty corn silos.

***Ptychadena floweri* (BOULENGER)**

Afgoi, 3 km southeast of, 6-viii-61, C. M. 38585. Uebi Scebeli, near Afgoi, flooded banks, 8-viii-61, M. C. Z. 36160-72. Afgoi, 1.5 km north of, 10-viii-61, M. C. Z. 36173-79. Villagio Sguss, 9 and 11-viii-61, C. M. 38586-91; 16-viii-61, M. C. Z. 36180-240.

Remarks : Since this species appears to be very common in the Somali Republic, where *P. mascareniensis* has not been collected, I would suggest that SCORTECCI's (1933a, p. 7) records of *mascareniensis* are actually referable to *floweri*.

Chiromantis petersi kelleri (BOETTGER)

Afgoi, 3 km southeast of, 6-viii-61, C. M. 38600-01. Afgoi, 2 km southeast of, 10-viii-61, M. C. Z. 36142-44. Balad, 2-viii-61, M. C. Z. 36134-38; 4-viii-61, M. C. Z. 36147-52. Villagio Sguss, 4-viii-61, C. M. 38598-99; 9-viii-61, M. C. Z. 36139-41; 16-viii-61, M. C. Z. 36145-46. Benadir Province, 1962, M. C. Z. 38806 (F. J. SAVAGE).

Field Notes : The specimens from Villagio Sguss and Balad were mostly taken from the corners of and from near the water jars of the pole huts used in the villages. The Afgoi specimens were calling from low (1 m) bushes around a rain pool.

Specimens show very light and dark grey patterns so distinct that at first individuals were tentatively identified as belonging to two different species.

Kassina senegalensis somalica SCORTECCI

Uebi Scebeli, near Afgoi, flooded banks, 8-viii-61, M. C. Z. 36113-15.

Field Notes : These specimens were collected amid an enormous chorus along the banks of the river. The female was being clasped. The call is a whistle.

Remarks : These three specimens are remarkable for the reduction of the dorsal spots, which are smaller and less numerous than in the other *Kassina* populations. In this as in general morphology and provenance they correspond to *K. somalica* SCORTECCI (1932, p. 4; 1933a, p. 45) which appears to be a valid subspecies of *K. senegalensis*.

Misled by "topotypes" of *K. senegalensis* kindly sent by Dr. J. GUIBÉ, I erroneously concluded (LAURENT, 1957) that *K. senegalensis* was a western species only, with irregular or fundamentally paired spotting (as figured in LAMMOTTE and ZUBER-VÖGELI, 1956, fig. 18). Consequently, I claimed that the eastern and southern populations belonged to another species whose oldest available name was *argyreivittis* PETERS (1854). This, however, is incorrect. Instead of two vicarious species, two sympatric species exist in West Africa : one has three series of spots or three dark longitudinal bands and a large range from Sénégal to Southern Africa. This fits the original description of *K. senegalensis*. The other is *K. maculosa* (STERNFELD), with the names *maculata* PARKER, *decorata* (ANGEL) and *cochranae* (LOVERIDGE) as synonyms, unless some of these apply to valid subspecies.

The geographical variation of *K. senegalensis* is still largely unstudied. The following races are considered valid until there is evidence to the contrary : *argyreivittis* PETERS, from East Africa; *angeli* WITTE, from Katanga (Congo), Northern Rhodesia, and northeastern Angola; *ruandae* LAURENT, from Kivu (Congo) and Rwanda-Burundi; *sudanica* LAURENT, from Ituri (Congo); *uelensis* LAURENT, from Uele (Congo); *somalica* SCORTECCI, from the Somali Republic.

It will still be necessary to check whether these populations are clinally connected (this seems unlikely between *angeli* and *ruandae*) and also to examine the characters of many other populations.

If my key is used (LAURENT, 1957, p. 278), *somalica* will go to the couplet which distinguishes *sudanica*, *angeli* and *ruandae* from *uelensis*. However, *somalica* will be found to overlap with *uelensis* in one regard: the disk of the 4th toe can be more than 72% of the internal metatarsal tubercle 55-76% ($\delta \delta$) and 73% (♀).

In the next dichotomy *somalica* is quite unlike *sudanica*, but the comparison with *ruandae* and *angeli* requires elaboration: Tibia longer than in both races (males only): 34-36% of the snout-vent length instead of 29.5-32.5% in *angeli* and 32.5-34% in *ruandae*. 3rd finger: 12-14% of the snout-vent length (as in *angeli*), instead of 14-16% in *ruandae*. Distance from nostril to eye: 90-102% of the horizontal diameter of eye, which is intermediate between *ruandae* (80-93%) and *angeli* (94.5-112%) but nearer *angeli*.

In the color pattern *somalica* resembles *ruandae* more than *angeli*, but differs from both in the reduction of spots. I have some unpublished data on *argyreivittis* PETERS; this form agrees with *angeli* in proportions but with *ruandae* in the color pattern; it is consequently quite different from *somalica*.

?*Hyperolius viridiflavus* subsp.

Audegle, 4 km south (downstream) of, along Uebi Scebeli, 1-viii-61, M. C. Z. 36112.

Field Notes: This specimen was found in a truck after this had been driven through the high grass fringing the riverside shrub and forest. The inside of the thighs was a reddish pink in life.

Remarks: This specimen belongs to the *marmoratus* complex. The coloration is uniformly whitish grey, without distinct markings. This is a juvenile coloration, and it is impossible to say whether the specimen is referable to *marmoratus* or *viridiflavus* since the characteristic adult pattern is not apparent. (To such specimens the name of *cinctiventris* COPE has commonly but erroneously been given.) I assume that this specimen is *viridiflavus* on purely zoogeographical grounds: *viridiflavus* has been described from Ethiopia. However, the most northerly described race of *H. marmoratus* (*glandicolor*) lives in Kenya, which is not far away and we know nothing of the Somali populations of this group. I am consequently compelled to put a question mark on the species identification until we have specimens with both juvenile and adult colorations.

Phrynomerus bifasciatus somalicus (SCORTECCI)

Afgoi, 3 km southeast of, 13-viii-61, M. C. Z. 3617-18. Mogadiscio, 3-viii-61, M. C. Z. 36116.

Field Notes : The first specimen wandered into a house during torrential rains. The other two were caught while giving their high, whining call on a flooded grassy area. The species seems to be quite secretive as all local people were surprised at seeing it. The bright red patches were a striking scarlet when the specimens were kept in the dark, but faded notably in daylight.

Remarks : SCORTECCI (1941, p. 177, pl. 5, figs. 1-5) failed to compare his *Fichteria somalica*, described from the environs of Villagio Duca degli Abruzzi, with *Phrynomerus* because the latter had been excluded from the Microhylidae by PARKER (1934, p. 9); otherwise he might never have described this genus. Furthermore, it seems not even a valid species; morphologically I see no significant differences between it and *Phrynomerus bifasciatus*. However, the color pattern is distinct : In the type the two latero-dorsal red bands were widely interrupted about at mid-body. Since the character is seen also in the three specimens collected by Dr. GANS, we may assume that *somalicus* SCORTECCI is a valid north-eastern subspecies of *Phrynomerus bifasciatus*.

TURTLES

Geochelone pardalis babcocki (LOVERIDGE)

Balad, 26-vii-61, M. C. Z. 68806-07; 28-vii-61, M. C. Z. 68808-12; 2-viii-61, M. C. Z. 68804; 9-viii-61, M. C. Z. 68805; 27-viii-61, C. M. 38567-68.

Field Notes : The species was very common at Balad and the series represents mostly smaller individuals, as preserving and shipping problems kept me from accepting larger specimens. Large ticks were attached to the soft parts and the shell sutures of more than half of the specimens. Many individuals also bore fire scars.

Kinixys belliana belliana GRAY

Mogadiscio, 40 km north of, on road to Balad, 2-viii-61, M. C. Z. 69215. Balad, 4-viii-61, M. C. Z. 69214.

Field Notes : The second specimen was moving across the open road at midday.

Remarks : These two specimens have not the slightest tendency to approach the *mertensi* (LAURENT, 1956, p. 27) condition of a short pectoral suture, and a long abdominal one.

III. Lizards

by

Raymond F. LAURENT and Carl GANS

Identifications have been generally based on PARKER's work (1942); for geckos, LOVERIDGE's revision (1947) was also used. In some cases other keys or discussions have been used and the reference is then cited. Comparative material at the M. C. Z. was consulted whenever available.

The most interesting items of the collection are a large series of the new species *Eremias savagei* from the Gulf of Aden, and a new *Mabuza* from inland in the northern territory. There is a first record for *Riopa mabuiiformis* from the Somali Republic, as well as some minor range extensions and sizeable samples of previously uncommon species.

GEKKONIDAE

Pristurus crucifer (VALENCIENNES)

Candala, 20-viii-61, M. C. Z. 71898-99; 21-viii-61, C. M. 38788-89, M. C. Z. 71920-36; 22-viii-61, M. C. Z. 71937-86; 23-viii-61, M. C. Z. 71987-72036(+91). El Afwein, 5 miles north of, 30-x-61, M. C. Z. 71919 (C. F. HEMMING).

Field Notes : Specimens were seen and collected on the coastal dunes amid the scattered 10 to 40 cm high shrubs. They were active even during midday.

Remarks : The juvenile specimen from the El Afwein region is doubtfully attributed to *crucifer*; it has short claws like *phillipsi* and *somalicus*, but its color pattern, quite unlike that of the latter two species, is identical with that of *crucifer*. It is possible that the claws are shorter in juveniles. The other specimens agree perfectly with LOVERIDGE's keys and description (1947) : rostral excluded from the nostril, snout not beak-like; generally 5 upper labials from the level of the pupil to the rostral (rarely 4 and always a little supplementary labial behind the level of the pupil), ventral scales larger than the dorsal granules, claws much longer than their unguis scales. It is interesting to find this species near sea level.

Pristurus phillipsi BOULENGER

Candala, 20-viii-61, M. C. Z. 71900-02; 21-viii-61, M. C. Z. 71903-04; 22-viii-61, C. M. 38763-66; 23-viii-61, M. C. Z. 71905-918. Galcaio (Rocca Littorio), 30 miles east-southeast of, 18-viii-61, M. C. Z. 70684. Taleh, 24-x-61, M. C. Z. 70605 (C. F. HEMMING).

Field Notes : This species does not appear to occupy the same sites as the

preceding one, since specimens were seen only along the rocky edges of canyons and amid rocky fields.

The specimen from east-southeast of Galcaio was also shot on a rocky surface. All taken by the junior author were active during the day.

Remarks: The specimens accord with LOVERIDGE's definition of *P. crucifer*: rostral excluded from the nostril, snout not beak-like, generally 5 upper labials (sometimes 6) between the level of the pupil and the rostral. They differ from *crucifer* by their ventral scales hardly larger than the dorsal granules, by the short claws, and very strikingly in their color-pattern which is considerably less contrasted, except for one large and two or three small black spots on the sides of the neck.

?Hemidactylus barodanus BOULENGER

Candala, 21-viii-61, M. C. Z. 70440.

Remarks: The specimen is doubtfully referred to *barodanus*. The back is covered with granules and about 14 rows of enlarged keeled tubercles. The snout is short. The tail, without any basal constriction, is depressed (cf. PARKER, 1942, p. 66) but the outermost row of caudal tubercles does not form a real crest. There are 6 scensors on the first toe, and 10 on the fourth toe, and 8 precloacal pores. The snout-vent length is 57 mm.

Hemidactylus citernii BOULENGER

Candala, 22-viii-61, M. C. Z. 70441-42.

Remarks: A species with small dorsal granules intermixed with keeled tubercles, a short snout, a non-constricted tail, and very short distal joints of digits.

Hemidactylus frenatus DUMÉRIL and BIBRON

Audegle, 5-viii-61, M. C. Z. 70443. Mogadiscio, 24-vii-61, M. C. Z. 70520 (R. SAVAGE); 27-vii-61, M. C. Z. 70519; 12-viii-61, M. C. Z. 70518 (R. SAVAGE). Balad, 28-vii-61, M. C. Z. 70444-46; 2-viii-61, M. C. Z. 70447-70; 4-viii-61, M. C. Z. 70471-517. Villagio Sguss, 2-viii-61, C. M. 38767-69; 4-viii-61, M. C. Z. 70521-24. Benadir Province, 1962, M. C. Z. 74254-60 (F. J. SAVAGE).

Field Notes: These nocturnal geckos were collected only in settlements. They were common on building walls and in the pole huts of the local villages.

Remarks: This very common species is easy to recognize by its almost homogenous scalation (the tubercles are rare, smooth and feebly enlarged) and the reduced inner toe.

Hemidactylus laevis BOULENGER

Mogadiscio, 3 km north of, 26-viii-61, M. C. Z. 70526. Mogadiscio, 5 km north of, 27-viii-61, M. C. Z. 70525.

Field Notes : Both specimens were taken in very open country, lacking any significant plant shade, within 500 meters of the ocean. The first was hiding in a mollusk shell; the second was taken in a small rock cairn.

Remarks : The specimens agree with *H. laevis* BOULENGER in having 8-9 ventral scales in length of the eye, in the number of scansors, and in having the chin shields not in contact behind the symphysial shield. They have respectively 1 and 3 preloacal pores and no femoral pores. It is thus clear that these individuals, although from a locality which is remote from the typical locality, cannot be assigned to *H. fragilis* CALABRESI, described from Bur Meldac, as suggested by PARKER (1942, p. 31) for other records of this species. However, the scansors of these specimens do not accord with the original description of *H. laevis* (BOULENGER, 1901, p. 7, fig. 1c), in that they are not abruptly differentiated from the granules of the soles.

Hemidactylus mabouia (MOREAU DE JONNES)

Audegle, 1 km north of, 1-viii-61, M. C. Z. 70527. Uebi Scebeli, edge, near bridge of Mogadiscio-Villabruzzi road, 26-vii-61, M. C. Z. 70529-35; 9-viii-61, M. C. Z. 70542-51. Balad, 28-vii-61, M. C. Z. 70528; 4-viii-61, C. M. 38773-74. Balad, 2 km north of, 28-vii-61, M. C. Z. 70536-41. Villagio Sguss, 4-viii-61, M. C. Z. 70552-54.

Field Notes : These relatively large diurnal geckos were almost all taken from the trunks of large trees that afforded them considerable shade even during the mid-day. The exceptions were shot from walls of a building and a bridge abutment within stands of trees. They were observed to heights of over 10 meters, but seemed to be restricted to the trunks and did not venture out upon the smaller branches. Some of the trees were also inhabited by *Mabuya s. striata* and *M. planifrons*, while one contained a large *Varanus* sp. (presumably *V. exanthematicus microstictus* that was shot, but could not be recovered from the crown).

Hemidactylus macropholis BOULENGER

Balad, 4-viii-61, M. C. Z. 70555-57. Candala, 22-viii-61, M. C. Z. 70558. Taleh, 24-x-61, M. C. Z. 70559-60 (C. F. HEMMING).

Remarks : *H. macropholis* is widely sympatric with *turcicus*. LOVERIDGE (1947, p. 148) was, therefore, in error when he considered this form as a race of *turcicus*. He referred *sinaitus* to the synonymy of *turcicus*, but here again PARKER's opinion seems a better approximation to the facts. On PARKER's figures (1942, figs. 5-6) it appears that *sinaitus* can be characterized also by the small number of divided scansors below the toes.

Hemidactylus ruspolii BOULENGER

Afgoi, 7 km east of, on sand dune road, 25-vii-61, M. C. Z. 70564.

Field Notes: This very distinctive species was hiding under one end of a log. When the log was turned, ants that had a colony under the other end, swarmed out and attacked the lizard. It reacted by snapping at them, and autotomized the tail when it was flicked out of the colony.

In life, the color was jet black with some lighter areas. The tips of the tubercles, scattered over the body and ringing the tail, were a bright orange-red.

Remarks: This species is strikingly different from the other Somali geckos in the swollen constricted tail, the dark coloration, the numerous large and strongly keeled dorsal tubercles, and the few scansors (5 on the first toe, 7 on the fourth toe). On the head the tubercles are juxtaposed; the snout-vent length is 54 mm.

Hemidactylus smithi BOULENGER

Balleh-Buradle, 19-x-61, M. C. Z. 70565 (C. F. HEMMING).

Remarks: The back is covered with granules among which are scattered smooth conical tubercles. The tail is conical and lacks a basal constriction. The scansors extend onto the sole of the foot (6-7 on the first toe, 12 on the fourth toe). There are 14 + 13 (= 27) femoro-precloacal pores.

Hemidactylus tropidolepis tropidolepis MOCQUARD

Villagio Sguss, 2-viii-61, M. C. Z. 70566.

Field Notes: This specimen was found inside a covered silo.

Remarks: The individual has strongly imbricating keeled dorsal scales, some small and some considerably larger; these are larger than the interspaces between them. There are seven precloacal pores and the tail has been regenerated.

Hemidactylus turcicus (LINNÉ)

Mogadiscio, 27-vii-61, M. C. Z. 70575-77; 29-vii-61, M. C. Z. 70574; 12-viii-61, C. M. 38782-83. Balad, 2-viii-61, M. C. Z. 70567. Benadir Province, 1962, M. C. Z. 74261-62 (F. J. SAVAGE). Candala, 19-viii-61, M. C. Z. 70568-72; 20-viii-61, M. C. Z. 70573.

Field Notes: The Mogadiscio specimens were taken at night on the walls of the I. C. A. Compound buildings on which they were the common form. At Candala, they were collected on cannery walls and in the rock walled gorges.

Remarks: The specimens are very pale, and have small dorsal granules intermixed with keeled tubercles, a short snout, a non-constricted tail, the distal

joints of digits longer than in *citernii*, and 5 to 8 scansors under the first toe, and 8 to 11 under the fourth. Their snout-vent length is always less than 60 mm.

The concept of this species is far from clear and the *turcicus* group is badly in need of revision.

Lygodactylus picturatus scortecii PASTEUR

Uebi Scebeli, edge of, near bridge of Mogadiscio-Villabruzzi road, 2-viii-61, M. C. Z. 68847. Balad, 2-viii-61, M. C. Z. 68815; 4-viii-61, M. C. Z. 68817-46.

Field Notes : This small diurnal gecko was commonly found on the branches of small trees in open situations. Two or three specimens might inhabit a single 2-3 m tall tree. The form was never seen within the village or on the walls of huts.

Remarks : This material was loaned to Dr. G. PASTEUR, who is engaged in revisionary studies on the genus, and who furnished the identification. Since the type (PASTEUR, 1959, p. 105) was collected by RÉVOIL and labelled only "Somalie", these specimens furnish a better definition of the range.

AGAMIDAE

Agama agama spinosa GRAY

Botiala, gorge north of, 20-viii-61, M. C. Z. 70599-602.

Field Notes : The species was observed in cracks along the rock walls of the gorge. The male (M. C. Z. 70602) had a brilliantly blue body and a yellowish head in life.

Remarks : This species is easily recognized by its nuchal crest.

Xenagama batillifera (VAILLANT)

El Afwein, 5 miles north of, 30-x-61, M. C. Z. 70632 (C. F. HEMMING).

Remarks : The characters of the subgenus *Xenagama* are sufficiently well marked to justify considering it as a full genus. We do not know the adaptive significance of the very peculiar shape of the tail, but do not think this is relevant to the question of generic rank.

Uromastix princeps O'SHAUGHNESSY

Candala, 20-viii-61, M. C. Z. 70606-07; 21-viii-61, M. C. Z. 70619-31; 22-viii-61, M. C. Z. 66452-53; M. C. Z. 70608-18; 21-22-viii-61, A. M. N. H. 89264-65, B. M. (2), C. M. 38790-91, C. M. M. (2), C. G. 1987-89, 2026, 2322-24.

Field Notes : This beautiful species was quite common in the inland rock-strewn plateau areas, with each specimen seemingly having a definite perching point on which it could be observed. When disturbed the animals would hide in cracks and blow-holes of the volcanic rocks, often resting within a foot of the surface, with the spiny tail plugging the aperture. They were flooded out easily.

In life the back of adult specimens is pinkish brown, with small black and larger brown dots. The legs, sides of the body and tail are distinctly greenish (see GANS, 1961a, for photograph).

Remarks : The species has been identified by its characteristic short tail and the lack of preanal pores (see the key recently provided by PASTEUR and BONS, 1960, p. 45; these authors give reasons for not using the trinomial proposed by CHERCHI, 1958).

CHAMAELEONTIDAE

Chamaeleo gracilis HALLOWELL

Balad, in fields, 9-viii-61, 1 ♂, M. C. Z. 70218; Villagio Sguss, 9-viii-61, 1 ♀ juv., M. C. Z. 70219; 11-viii-61, 1 ♂ 1 ♀, M. C. Z. 70221-22.

Remarks : The description agrees with BOULENGER (1887) : a dorsal and a ventral crest of enlarged granules, whitish on the belly; homogeneous scaling; a casque, feebly raised posteriorly, without parietal crest; and faintly indicated, immobile occipital lobes.

Rhampholeon kersteni subsp.

Mogadiscio, outskirts of, 15-viii-61, M. C. Z. 70220 (R. SAVAGE).

Remarks : The specimen, which was taken on the surface of the ground, is a male, with a *moderate* supraciliary process. Moreover, the claws of the hand have very distinct secondary cusps. These characters fit with the diagnosis of the typical form and not at all with that of *robecchii*, which is the Somali Republic subspecies according to PARKER (1932) and LOVERIDGE (1957).

We are following PARKER's (1942) opinion regarding the generic status of *Rhampholeon* and *Brookesia*.

SCINCIDAE

Mabuya brevicollis (WIEGMANN)

Uebi Scebeli River, west edge of, near bridge of the Mogadiscio-Villabruzzi road, 4-viii-61, M. C. Z. 70603.

Field Notes : This individual was shot on the floor of a shed near the river.

Remarks : A very large *Mabuya* (135 mm from snout to vent), with 12 transverse rows of 2 to 10 light spots on the back. Subocular reaching the lip, not narrowed inferiorly; scales of the soles smooth, some with one or two terminal spines; subdigital lamellae keeled; 32 rows of scales before and behind a large wound located at midbody; dorsal scales very feebly tricarinate or bicarinate.

Mabuya hemmingi new species

Holotype : M. C. Z. 73116, a female, collected at Taleh, Northern Territory, Somali Republic, on 24-x-61, by C. F. HEMMING.

Diagnosis : A middle sized, stocky species, with smooth scales on the soles and smooth subdigital lamellae; short limbs and toes, subocular not narrowed, and 32 smooth scales around the body; differing from *M. brevicollis*, its closest relative, especially in the smooth scales of the soles and the smooth subdigital lamellae.

Description : General appearance stocky; limbs rather short, head rather small and pointed. Lower eyelid with a transparent disk. Nostril latero-dorsal, behind the rostral labial suture. Supranasals in contact behind the rostral. Post-nasal present, in contact with the 2d labial. Frontonasal broader (3.5 mm) than long (2.8 mm), touching the frontal in a point. Frontal slightly longer (4.7 mm) than the frontoparietals and the interparietal together (4.2 mm), in long contact (2.8 mm) with the 2d supraocular, in short contact (0.2-0.3 mm) with the 3d supraocular, touching the right first supraocular in a point. 4 supraoculars, the 2d the longest; 4 supraciliaries corresponding to the supraoculars, the 2d the longest. Fronto-parietals (2.5 mm) shorter than the interparietal (3.2 mm). Parietals entirely separated. A pair of perfectly smooth nuchals. Subocular long, not narrowed inferiorly, between the fourth labial and the fifth labial which is the last. Ear opening with one or two very short lobules on its anterior border. (Note details from fig. 6.)

Dorsal scales smooth, with a very faint trace of keels (three on each scale) on the hind part of the back. 32 scales around the body. The hind limb reaches between the wrist and the elbow of the adpressed forelimb. Scales on the soles tubercular, rounded; subdigital lamellae smooth, some with a very blunt keel, 13-14 below the 4th toe.

Light brown above, with 6 longitudinal series of darker dots. Other concentrations of pigment cells above the ear, between the ear opening and the eye, along the limits of the lower labials. Lower surfaces whitish.

Measurements : Head and body : 81 mm. Tail broken at the base. Head (from rear border of ear opening) : 15 mm. Width of head : 13 mm. Length of forelimb : 22 mm. Length of hind limb : 28 mm.

Discussion : It is indeed unfortunate in 1964 to describe a new species on a single individual without a tail. However, it is not possible to refer this specimen

to any known species. *M. hildebrandti* and *M. striata* are common species of the northern territory of the Somali Republic, but they have a narrowed subocular and spinose scales on the soles, while *M. planifrons* and *M. quinquetaeniata* have

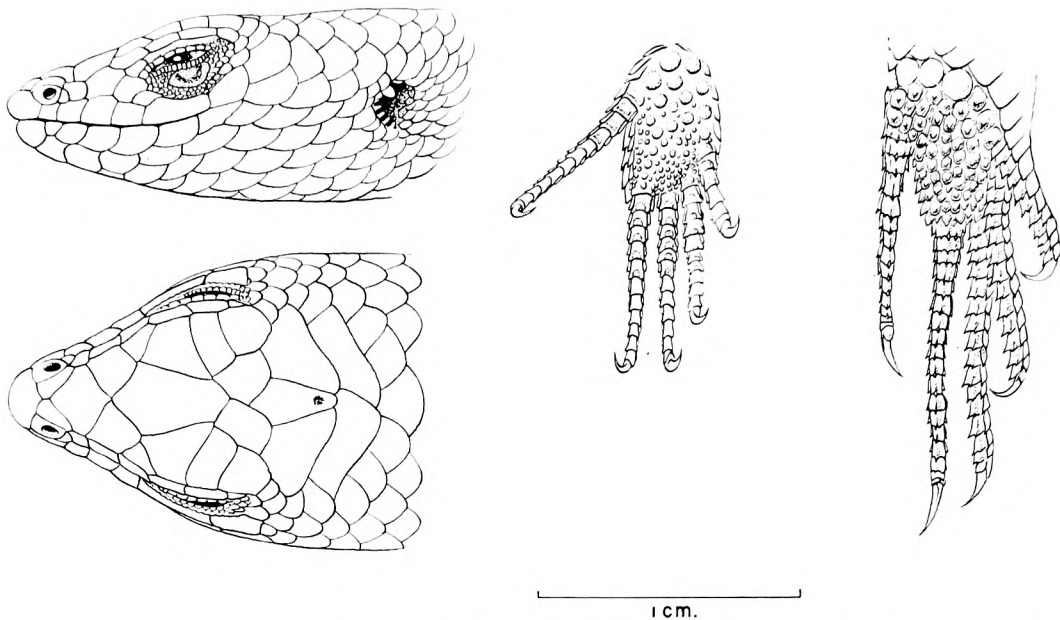


Fig. 6. — *Mabuya hemmingi*. (Left) Lateral and dorsal view of the head and (middle) sole of the foot of the holotype, M. C. Z. 73116. (Right) Sole of the foot of *brevicollis* WIEGMANN (M. C. Z. 41304, Tsavo, Kenya). Drawn by Mr. N. STREKALOWSKI.

distinctly keeled scales. The superficially closest form of north-eastern Africa is *M. brevicollis*; and our first impression was that our specimen could belong to this species. However, after comparison, it seemed hardly possible that so many anomalies (table 1) could accumulate on a single individual.

TABLE 1
COMPARISON OF CHARACTERS.

	<i>M. hemmingi</i>	<i>M. brevicollis</i>
Keels of dorsal scales . . .	Absent or hardly distinct	Weak, but distinct
Scales of soles	Less numerous, smooth	More numerous, spinous (except when worn out in very large individuals)
Subdigital lamellae	13-14, smooth	17-20, keeled (same remark)
Supraciliaries	4	5-6 (very rarely 4)

The specimen described thus seems too different from *brevicollis* to be an abnormal individual of this species. While we assume that it is a new species, we recognize that further material is needed for any understanding of its true taxonomic status.

Mabuya hildebrandti (PETERS)

Mogadiscio, 24-vii-61, M. C. Z. 70267-71; 5-viii-61, M. C. Z. 70272; 10-viii-61, M. C. Z. 70273-74; 12-viii-61, C. M. 38784-85; 16-viii-61, M. C. Z. 70275-76 (R. SAVAGE); 27-viii-61, M. C. Z. 70266. Mogadiscio, north end of, 27-viii-61, M. C. Z. 70277-84 (R. SAVAGE). Mogadiscio, 3 km north of, 13-viii-61, M. C. Z. 70257-59. Mogadiscio, 4 km north of, 26-viii-61, M. C. Z. 70260-65. Mogadiscio, 5 km north of, 27-viii-61, M. C. Z. 70239-56. Benadir Province, 1962, M. C. Z. 74274-304 (F. J. SAVAGE). El Afwein, 5 miles north of, 30-x-61, M. C. Z. 74305 (C. F. HEMMING).

Field Notes: This was the common lizard of the coastal region along the ocean. It did not seem to range more than a few miles inland from the beach, where it was taken on the ground in the open and from under the rock cairns. One specimen (M. C. Z. 70266) was regurgitated by a *Boaedon lineatus* (M. C. Z. 71849).

Remarks: This species seems perfectly valid, notwithstanding LOVERIDGE's opinion (1957, p. 212f) that it is a synonym of *M. varia*. The subocular is narrower than it is usually in *varia* and the color pattern, consisting of the medio-dorsal stripe and the three large dark spots located behind the ear, is also different. Moreover, PARKER (1942) pointed out that *hildebrandti* is a coastal form, while *varia* is a montane species in the Somali region.

Mabuya planifrons (PETERS)

Uebi Scebeli River, west banks of, near bridge on Mogadiscio-Villabruzzi road, 28-vii-61, M. C. Z. 70236-38. Villagio Sguss, 2-viii-61, M. C. Z. 70231; 4-viii-61, M. C. Z. 70232-35.

Field Notes: One specimen taken in silo; the others were on the trunks of tall trees, up to a height of eight meters.

Remarks: A beautiful species with a dorso-lateral light stripe and a lateral band, which is very dark on the head and the neck, becoming less dark on the trunk, and has the dark areas intermixed with light and darker spots. The subocular borders the lip, and is not narrow. The scales on the soles are granular and the subdigital lamellae are not keeled. The scales lie in 26-30 rows at midbody and the dorsals are quinquecarinate (some tri- or quadricarinate).

Mabuya striata subsp.

Audegle, 5-viii-61, M. C. Z. 70291. Audegle, 1 km north of, 1-viii-61, M. C. Z. 70292. Mogadiscio, north end of, 14-viii-61, M. C. Z. 70285-87; 27-viii-61, M. C. Z. 70288(2) (R. SAVAGE). Uebi Scebeli River, west banks of, off bridge on Mogadiscio-Villabruzzi road, 28-vii-61, M. C. Z. 10289-90. Balad, 4-viii-61, M. C. Z. 70294. Villagio Sguss, 2-viii-61, M. C. Z. 74472-74, 70293; 4-viii-61, C. M. 38775-76, M. C. Z. 70401-15. Benadir Province, 1962, M. C. Z. 74267-73 (F. J. SAVAGE).

Field Notes: These lizards were common on trunks of various sized trees up to heights of more than 10 meters, on walls, and in silos (M. C. Z. 74472-74 were dead on the bottom of an empty silo).

Remarks: The specimens have the subocular excluded from the lip; the soles spinose; the subdigital lamellae keeled; the ear lobules short; the first supra-ocular separated from the frontal; a pair of broad latero-dorsal light stripes but no median dorsal; a dark lateral band from the eye to the groin. Dorsal scales 3 to 7 carinate.

The geographical variation of this species has never been adequately studied. As pointed out by one of us (LAURENT, 1964) the Katangese populations of *M. striata* have 36 to 45 scales around the body (cf. WITTE, 1953) while the South African populations have 32 to 36 (cf. FITZSIMONS, 1943), but this obvious difference has never been taxonomically used.

Riopa mabuiiformis LOVERIDGE

Villagio Sguss, 16-viii-61, M. C. Z. 72041.

Field Notes: This long-tailed, surface-dwelling, diurnal lizard was often seen under the protection and shade of several kinds of thorn bushes, whose branches drooped to form an enclosure several meters across. Even though the lizards seemed to move slowly, it proved impossible to noose them in these sites and my only specimen was brought in by one of the local collectors.

Remarks: This species was previously only known from the type locality (Ngatana, Tana River, Kenya) (LOVERIDGE, 1935, p. 12). The range extension is thus considerable. The specimen has been compared and found to agree closely with the type series. The lizard has a snout-vent length of 223 mm and a tail length of 140 mm, as well as 5 fingers and 5 toes. A pair of supranasals separate the rostral from the fronto-nasal, and there are 28 rows of scales. Two dark stripes pass down the middle of the back and a pair of similar stripes pass down the sides.

Mochlus afer afer (PETERS)

Audegle, 5-viii-61, M. C. Z. 71879. Afgoi, 40 km south of [Mogadiscio, 70 km south of], (sand dune road), 5-viii-61, M. C. Z. 71886. Afgoi, 10 km south of [Mogadiscio, 40 km south of], (sand dune road), 25-vii-61, M. C. Z. 71878. Mogadiscio, 24-vii-61, M. C. Z. 70384; 2-viii-61, M. C. Z. 71880; 3-viii-61, M. C. Z. 71881; 4-viii-61, M. C. Z. 71882; 5-viii-61, M. C. Z. 70395-98; 6-viii-61, C. M. 38777-81; 16-viii-61, M. C. Z. 70386-94; 27-viii-61, M. C. Z. 71883-85. Benadir Province, 1962, M. C. Z. 74245-53 (F. J. SAVAGE).

Field Notes: These specimens were dug up in sandy country from a variety of shallow sites, from under logs, and the root stocks of grasses.

Remarks: The snout of these specimens is wedge-shaped; the rostral is separated from the fronto-nasal; the nostril falls between three shields; there are two superposed preoculars.

BROADLEY (1962, p. 804) recently pointed out that his discovery of intergrading populations between *Riopa modesta* and *R. sundevalli* in the Kalahari and in Southern Rhodesia proved that PARKER's (1932, p. 358) concept of these as two distinct species is not correct. However, the presence of two sympatric species in East Africa is unquestionable. The smaller of these, *R. modesta*, is indeed a subspecies of *R. sundevalli*. The larger East African form is distinct, although it agrees in nasal arrangement with the smaller and southern nominal race of *R. sundevalli*. It seems that the name *afer* PETERS (1954, p. 119), described as *Eumeces afer* from material collected on Mozambique island, Boror, Inhambane and Mossimbuá, Mozambique is available. We here use this name for the form called *Riopa sundevalli* by PARKER (1942, p. 88) and *Riopa s. sundevalli* by LOVERIDGE (1957, p. 152).

We are well aware that MITTLEMAN's generic arrangement (1952) has been criticized by LOVERIDGE (1957), but the latter failed to give any argument justifying his criticisms, except that "subdivision has been carried by MITTLEMAN to a quite unacceptable degree". This value judgment may yet be confirmed; however, the mean number of forms per genus (about 16) is not so low as to suggest actually excessive splitting. In any case MITTLEMAN's work should not be set aside without discussion and we follow his nomenclature for the present.

Mochlus laeviceps (PETERS)

Afgoi, 40 km south of [Mogadiscio, 70 km south of], (sand dune road), 15-viii-61, M. C. Z. 71887. Afgoi, 10 km south of [Mogadiscio, 40 km south of], (sand dune road), 25-vii-61, M. C. Z. 71888-91. Benadir Province, 1962, M. C. Z. 74244-53 (F. J. SAVAGE).

Field Notes: This species was collected in essentially the same type of

locality and habitat as *M. vinciguerrae*, except that *M. laeviceps* seemed closer to the surface and more often in discrete tunnels; some individuals were in stumps.

Remarks: The snout of this species is depressed and wedge-shaped, the rostral is separated from the fronto-nasal, and the nostril lies between two shields. There are two superposed preoculars, four labials anterior to the subocular, the frontal is very narrow posteriorly, and the dorsal scales are tricarinate.

***Mochlus sundevalli somalicus* (PARKER)**

Afgoi, 10 km south of [Mogadiscio, 40 km south of], (sand dune road), 25-vii-61, M. C. Z. 71892.

Field Notes: Dug up from depth of 50 cm from under thorn bush debris, in sandy country.

Remarks: The specimen has the snout wedge-shaped, the rostral separated from the fronto-nasal, the nostril between two shields, two superposed preoculars, three labials anterior to the subocular, frontal moderately broad, and the dorsal scales smooth.

PARKER (1942, p. 90) described this race as *Riopa modesta somalica*. If, as BROADLEY (1962, p. 804) has suggested, *Riopa modesta* is a race of *sundevalli*, then *somalica* must be too.

***Mochlus vinciguerrae* (PARKER)**

Afgoi, 10 km south of [Mogadiscio, 40 km south of], (sand dune road), 22-vii-61, M. C. Z. 71893-94; 25-vii-61, M. C. Z. 71895-96. Afgoi, 40 km south of [Mogadiscio, 70 km south of], (sand dune road), 5-viii-61, M. C. Z. 71897.

Field Notes: Dug up from depth of 30 to 80 cm from under thorn bush debris, in sandy country.

A female (M. C. Z. 71895) gave birth to a living young (M. C. Z. 71896). On dissection the same female was found to contain two other young. The first two had a snoutvent length of 21 mm, while the third was a little smaller (20 mm) and still enclosed in the chorionic layer and adherent to the yolk.

Remarks: The specimens have a wedge-shaped snout; the rostral is separated from the fronto-nasal; the nostril lies in a nasal; there is a single preocular; and specimens have two narrow dorsal and two wider lateral dark stripes.

***Ablepharus boutoni africanus* STERNFELD**

Mogadiscio, 3 km north of, 10-viii-61, M. C. Z. 70578-93; 13-viii-61, C. M. 38792-93, M. C. Z. 70594-98.

Field Notes : These small, dark, metallic brown lizards were collected on the eroded coastal rocks, in the spray zone immediately above the high tide level. They were extremely active during the day, even in cool weather.

Remarks : The species is easy to recognize thanks to its dark coloration, with two not very distinct lighter latero-dorsal stripes, and the spectacled eye.

***Chalcides ocellatus ocellatus* (FORSKÄL)**

Mogadiscio, 3-viii-61, C. M. 38770; 4-viii-61, C.M. 38773-74; 6-viii-61, M. C. Z. 70385; 16-viii-61, C. M. 38771-72, M. C. Z. 71853; 27-viii-61, M. C. Z. 71854-60. Candala, 20-viii-61, M. C. Z. 71852(2).

Field Notes : The Mogadiscio specimens were all dug up from among the root stocks of shrubs and grasses growing in sandy soil.

Remarks : The genus is easy to recognize due to the location of the nostril in the rostral in contact with a small nasal; the snout is conical and the ear aperture is large.

No attempt has been made to solve the vexing problem of the systematics of *Chalcides ocellatus*, but recent publications (LANZA, 1957; PASTEUR and BONS, 1960) suggest a sibling species pattern, the clarification of which will demand many specimens and elaborate field investigations.

LACERTIDAE

***Eremias brenneri* PETERS**

Mogadiscio, outskirts of town, 26-viii-61, M. C. Z. 70399. Benadir Province, 1962, M. C. Z. 74263-66 (F. J. SAVAGE).

Remarks : Head scales striated; snout long; toes unicarinate; four nasals; subocular excluded from the lip; 5 dark longitudinal stripes with white spots (except the median).

***Eremias savagei* new species**

Holotype : M. C. Z. 71844, a female, collected 2 km inland of Candala, on sand dunes dotted with small (30 cm) bushes, on 20-viii-61, by Carl GANS.

Paratypes : Same origin, M. C. Z. 71845-46; Candala, 2 km east of, on coastal dunes, 20-21-viii-61, M. C. Z. 70416-39, 70295-96. Candala, 22-viii-61, M. C. Z. 70297-357; 23-viii-61, C. M. 38794-803, M. C. Z. 70358-83.

Diagnosis : An *Eremias* of the *Pseuderemias* subgenus, with four nasals, ventral plates in 10 straight longitudinal series, compressed toes, unicarinate la-

mellae inferiorly, frontal separated from the supraoculars by small granules, upper head shields smooth, subocular reaching the lip, 55-72 smooth dorsal scales across the body, upper caudals strongly keeled, posterior subcaudals smooth, five longitudinal but often broken out dark dorsal stripes.

Description of Holotype: Head and body strongly depressed. Head about $1 \frac{2}{3}$ times as long (12.9 mm) as broad (8 mm), its length 3.87 times in length to vent (50 mm), its depth (4.9 mm) smaller than the distance between the center of the eye and the tympanum (6.2 mm). Snout acutely pointed, longer (5.7 mm) than the postocular part of the head (4.5 mm); nasals slightly swollen; canthus sharp; lores feebly concave; a well-marked concavity on the upper surface of the snout, extending along the frontal shield (fig. 7).

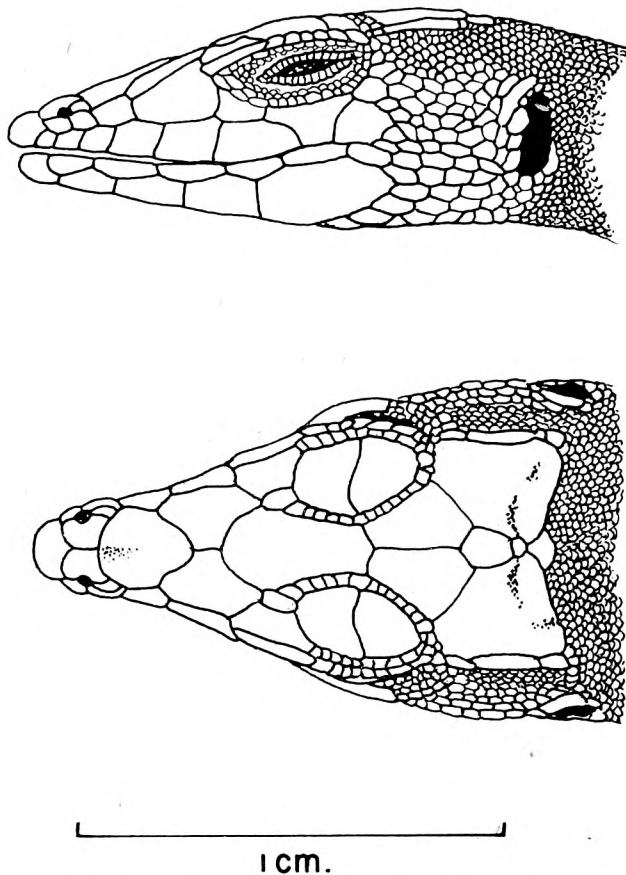


Fig. 7. — *Eremias savagei*. Lateral and dorsal view of the holotype, M. C. Z. 71844. Drawn by Mr. N. STREKALOWSKI.

Neck as broad as head. Hind limb reaching the eye. Foot 1.45 times as long (18.7 mm) as the head; toes slender, strongly compressed. Tail 2.3 times as long (115 mm) as head and body.

Upper head shields, smooth on the snout, somewhat pitted in the posterior part of the head. Nasals in contact behind the rostral, the suture between them (0,72 mm) about 1/3 the length of the fronto-nasal (2.33 mm) which is a little

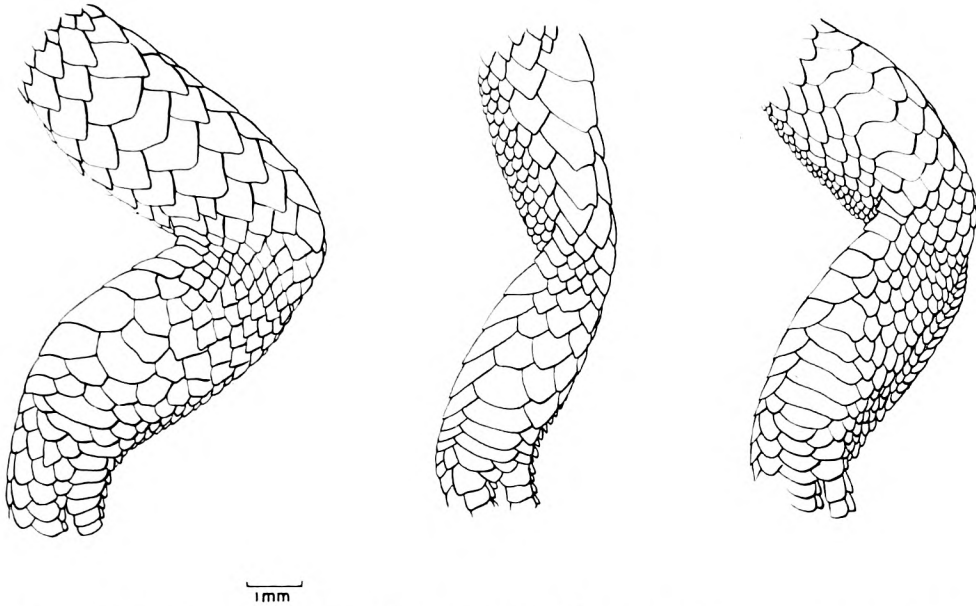


Fig. 8. — Front view of the front limbs, in (from left to right) *Eremias savagei* (holotype, M. C. Z. 71844), *E. mucronata* (M. C. Z. 51622, Hargeisa, Somali Republic) and *E. smithi* (M. C. Z. 49125, Borama District, Somali Republic). Drawn by Mr. N. STREKALOWSKI.

longer than broad (2 mm); prefrontals longer (2.5 mm) than broad (1.46 mm), forming a suture in the middle; frontal shorter (3.5 mm) than its distance from the end of the snout (4.6 mm), 2.06 times as long as broad (1.70 mm), narrow behind, separated from the supraoculars by a series of small scales; parietals a little broader (2.9 mm) than long (2.5 mm), hardly longer than fronto-parietals (2.4 mm); interparietal small, separated from the small occipital by one shield. Three supraoculars in contact with each other, first a little longer (1.80 mm) than the second (1.62 mm); 7 supraciliaries, first longest, separated from the second and third supraoculars by one series of small scales. Four nasals, two upper and two lower; anterior loreal longer (1.17 mm) than deep (0.81 mm), much shorter than the second (2.18 mm). 6 upper labials anterior to subocular, the three first in contact with the lower nasals; subocular keeled below the eye, bordering the mouth. A long and narrow upper temporal, followed by 1 or 2 (left side) small shields; temporal scales smooth, granular; a narrow tympanic shield; no auricular denticulation. Lower eyelid somewhat translucent, but not transparent, covered with small scales.

4 pairs of chin shields, the 2 anterior in contact in the middle; 32 gular scales

in a straight line between the symphysis of the chin shields and the median collar plate; a gular fold. Collar not very distinct, composed of 9 scales.

Dorsal scales granular, juxtaposed, smooth, 59 across the middle of the body. Ventral plates in 10 longitudinal series, the lateral series being reduced; and in 28 transversal series (between the axillar level and the preanal pores). Two enlarged preanal plates surrounded by other scales decreasing in size.

Upper surface of fore limb with moderately enlarged (larger than in *smithi*, smaller than in *mucronata*) hexagonal plates; two series of enlarged plates under the forearm. Upper surface of tibia with rhombic keeled scales, the size of them regularly decreasing toward the sides, all larger than dorsals, lower surface with one row of very large and one of small plates. 16-17 femoral pores. 23 unicate lamellae under the fourth toe.

Upper caudal scales oblique, truncate behind, strongly and diagonally keeled; lower caudal scales smooth; 20 scales in the fifth whorl.

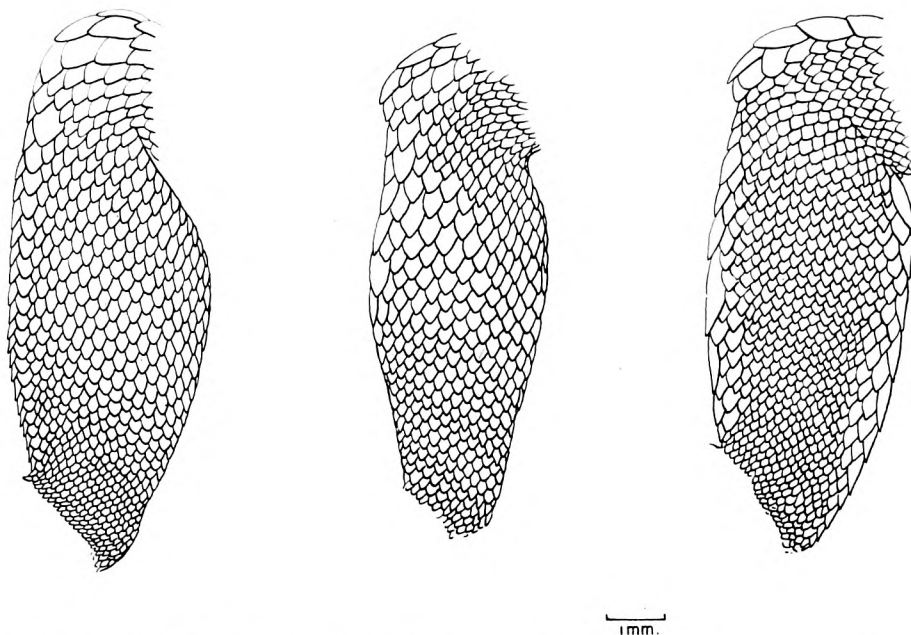


Fig. 9. — Upper face of the tibia, in (from left to right *Eremias savagei* (holotype, M.C.Z. 71844), *E. mucronata* (M. C. Z. 51622, Hargeisa, Somali Republic) and *E. smithi* (M. C. Z. 49125, Borama District, Somali Republic). Drawn by Mr. N. STREKALOWSKI.

Greyish beige, the head lighter, the back sprinkled with dark dots; a discontinuous grey stripe in the middle of the back, forming the axis of a middorsal, a lighter zone bordered by two light lines. Then, on each side, a rather brownish band containing roundish lighter spots, next a pale area and lastly a latero-dorsal grey zone with rather indistinct light spots. Upper parts of hind limbs grey with distinct round lighter spots. Under parts and sides of the head whitish.

TABLE 2
TABLE OF DATA FOR SAMPLE OF *EREMIAS SAVAGEI*.

	<i>Males (N = 29)</i>	<i>Females (N = 27)</i>
Size (snout-vent length) . . .	33-48 mm (m = 41.9)	35-50 (m = 40.9)
Length of head in snout-vent length	3.17-3.95 (m = 3.50)	3.30-3.87 (m = 3.62)
Length of head in length of foot	1.35-1.75 (m = 1.53)	1.40-1.79 (m = 1.56)
Snout-vent length in length of tail (when this is presumed intact)	1.74-2.90 (m = 2.38) (N = 28)	1.68-2.73 (m = 2.22) (N = 23)
Dorsal scales	55-67 (m = 60.6)	58-72 (m = 63.5)
Longitudinal series of ventrals	Constantly 10	Constantly 10
Transversal series of ventrals .	23-28 (m = 25.17)	25-28 (m = 26.59)
Femoral pores	15-21 (m = 18.24)	16-22 (m = 18.45)
Lamellae under the 4th toe	22-28 (m = 25.08)	23-28 (m = 25.26)
Supraciliaries	5-7	6-7
Labials anterior to subocular .	5-7	5-7
Subocular	Constantly reaching the lip	Constantly reaching the lip

TABLE 3
COMPARISON OF CHARACTERS FOR SOME SPECIES OF *EREMIAS*.

	<i>savagei</i>	<i>mucronata</i>	<i>smithi</i>	<i>septem-striata</i>	<i>erythro-sticta</i>
Pattern	5 stripes (when distinct)	5 stripes	5 stripes	7 stripes	Irregular
Dorsal scales	Smooth	Smooth	Smooth	Smooth or keeled	Keeled
Dorsal scales (number)	55-72	65-80	68-82	54-68	53-60
Ventral longitudinal series	10	6-8	8-10	8	8
Subocular reaching (+) or not reaching (-) the lip	+	±	—	+	—
Posterior subcaudals	Smooth	Smooth	Keeled	Smooth or keeled	Keeled
Upper caudals keeled	Strongly	Strongly	Strongly	Strongly	Feebly

Variation : The variation of the morphological characters has been examined on one intact series of 26 females and 29 males among the paratypes (table 2; figs. 8, 9).

The color pattern is also variable. Some specimens, generally the largest, are almost uniform. Others, often the small individuals, have the dark longitudinal zones more sharply outlined; the median is usually very thin, without or with only few light spots; the four others are wider with many light spots. The blackish dots observed in the holotype can be lacking, and they also can be superimposed on the striped pattern (pl. V).

Taxonomy : Comparison of the characters of this good series of specimens with BOULENGER'S data (1921) plus data for the later described *E. septemstriata* of PARKER (1942) leads to the conclusion that *E. savagei* is most similar to *E. mucronata*, *smithi* and *erythrostickta*. The key characters are summarized in table 3. It is easy to see that *savagei* is equally similar to *mucronata*, *smithi* and *septemstriata*, while *erythrostickta* falls outside of the group. We cannot discard the possibility that *savagei* could be a race of one of these species, but as we have no clue whatever to choose one rather than another, we propose to treat *savagei* as a full species.

Eremias smithi BOULENGER

Hargeisa, 56 miles from, on Berbera road, xii-61, M. C. Z. 70400 (C. F. HEMMING).

Remarks : The specimen has the upper head scales and the dorsal scales smooth; a ring of granules around the supraocular, four nasals, and the subocular excluded from the lip. The posterior subcaudals are keeled and the ventrals are arranged in eight longitudinal series. The color pattern consists of five longitudinal dark stripes of which the lateral are broken up.

