THE WASMANN JOURNAL OF BIOLOGY

VOL. 27, NO. 2 FALL, 1969

Preliminary Analysis of the Reptiles of Arid Central West Africa*

THEODORE J. PAPENFUSS, *Field Associate, Herpetology, California Academy of Sciences, San Francisco, California 94118.*

INTRODUCTION

During December, 1961, and again during December, 1965, the author traveled through the republics of Upper Volta, Mali, and Niger making a collection of reptiles. These specimens, numbering about 275, are deposited in the Museum of Vertebrate Zoology, University of California at Berkeley and at the California Academy of Sciences, San Francisco.

The author found that this collection, although small, was the largest single collection from this herpetologically unstudied part of Africa, and it was decided to write a paper on the material. This paper has been expanded to include not only an account of specimens collected with the description of a new subspecies of gecko, but also a checklist of species known from the area, and a bibliography of the herpetology of the area.

Because of poor communications, bad roads, and general lack of development, few biologists have worked in the "Mali Region." Fernand Angel of the Paris Museum reported on a number of species from this area, and André Villiers of the Institut Francais d'Afrique Noire in Dakar, pioneered in the study of snakes of West Africa, which includes the study area of this paper.

An attempt to document the occurrence of every species of reptile within this area has been made in the checklist. However, this checklist certainly is not complete. Undoubtedly there are species to be discovered, and species from other parts of West Africa should be found here with more intensive collecting.

*Based on a thesis submitted in partial fulfillment of the requirements of the Master of Science degree at the University of San Francisco.

Detailed studies of the distribution of the reptiles in this part of Africa will show that the occurrence of a particular species is often determined by vegetation zones. A few species, such as *Agama agama* and *Hemidactylus brookii,* are found everywhere from the rain forest to the desert. However most species are restricted to one or two similar zones, for example *Chamaeleo africanus,* which is only found in Dry Savanna and Wooded Steppe.

Map 1 shows the vegetation zones of West Africa. Map 2 is an outline of the study area showing localities and regions where reptiles have been collected. Except for a few localities in Algeria, every locality in the checklist or mentioned in the text can be found on map 2. Preceding map 2 there is a locality list giving each locality with its latitude, longitude, and brief description.

ACKNOWLEDGMENTS

The author is indebted to many people whose advice and cooperation made this paper possible.

The staff of the Zoology Department of the University of Ghana, Legon, Ghana, granted me research facilities while I stayed in West Africa. In particular I would like to thank Dr. Jakes Ewer, Chairman of the Zoology Department for his cooperation. Dr. Su-tung Wen gave valuable advice and helped make my stay in Ghana enjoyable. Mr. Barry Hughes helped with the identification of my snake material and sent to me a list of his snake records from northern Ghana, which have been included in this paper.

Mr. John Ralph, Mr. Neal Hamre, and Mr. Rick Lawler traveled with me in Africa during 1965 and helped collect many of the specimens.

Dr. Alan Leviton of the California Academy of Sciences, San Francisco and Dr. Robert C. Stebbins of the Museum of Vertebrate Zoology, University of California at Berkeley, encouraged me to go to West Africa and also helped provide funds for travel.

Dr. Edward Kessel and Dr. Francis Filice of the Biology Department, University of San Francisco, encouraged me in my graduate studies.

Dr. Steven Anderson and Dr. Alan Leviton, both of the California Academy of Sciences, San Francisco, provided me with work space and always answered my questions. Dr. Leviton served as my advisor throughout this research program.

Also I would like to thank my father, Dr. George F. Papenfuss, for reading parts of my thesis and for locating many of the literature references that I needed.

DESCRIPTION OF THE AREA

The area covered in this study (cf. maps 1 and 2) is bounded by five geographic points: Aïoun-el-Atrouss (300 m.), Mauritania in the northwest; Bamako (480 m.), Mali in the southwest; Babile and Gambaga, Ghana in the south; Nguigmi (248 m.), Niger (on the edge of Lake Chad) in the southeast; Tassili N'Ajjer Mountains (1000–2000 m.), Algeria in the north. Reptiles collected within this area occur or are expected to occur in Mali.

The region included in this study ranges from relatively wet wooded savanna in the south to extreme desert in the north. South of the area the wooded savanna gradually merges into rain forest. In the north the Sahara Desert continues nearly to the Mediterranean Sea.

The vegetation zones of West Africa, which depend mainly on the amount of rainfall, run roughly East-West. An attempt to standardize the nomenclature of vegetation types of Africa south of the Tropic of Cancer has been made by Keay and Aubréville (1959). It must be pointed out that map 1 (adapted from Keay and Aubréville) does not give a completely accurate picture of these vegetation zones, because there may be a considerable ecotone between zones. Gallery forests extend along rivers well into the savanna, and in the case of the transition from subdesert to desert the ecotone may be one or two hundred miles wide. Photographs illustrate various habitats. Temperature and rainfall data for each zone are found in the table at the end of this section.

Northern Area Woodland and Grass Savanna
(Keay and Aubréville, 1959, pp. 8–9)

This zone has the greatest rainfall and lushest vegetation

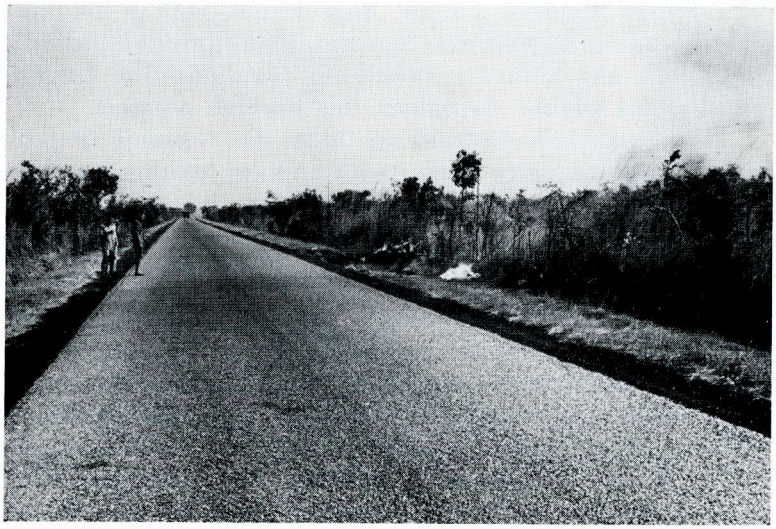


FIGURE 1. Northern area woodland and grass savanna in northern Ghana.

of the zones in the study area. There is moderate rainfall between June and September and a definite dry season from November to May. Trees are abundant, but they do not form a continuous closed canopy. Grass frequently grows to a height of six to ten feet, making it difficult to walk through an area except along paths. Every year from December until the beginning of the rains, raging fires, often started by man for hunting purposes or to clear the ground for crops, burn most of the grass, leaving the fire-resistant trees unharmed. Temperature and rainfall data are given for Bamako.

This zone just enters the study area in a narrow band from Bamako through Bobo-Dioulasso to the vicinity of Dano. It then dips south into northern Ghana, Togo, and Dohomey and extends across Africa to extreme northeastern Uganda.

DRY SAVANNA
(Keay and Aubréville, 1959, p. 9)

There is a gradual transition from Northern Savanna into Dry

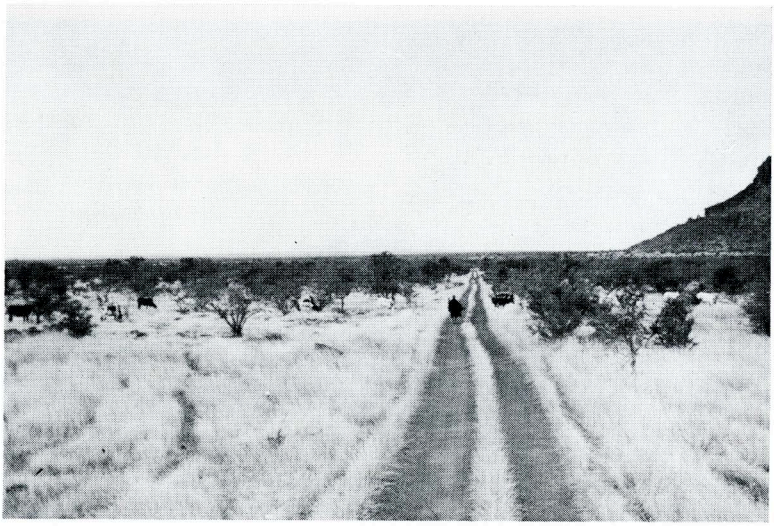


FIGURE 2. Dry savanna near Doentza, Mali.

Savanna as one moves northward. The rainfall decreases, the average annual rainfall in the Northern Savanna at Bamako (1053 mm./yr.) being almost twice as much as at Niamey in the Dry Savanna (585 mm./yr.). Much of this area is densely populated, and cultivation and over grazing have disturbed the land. In undisturbed areas grass grows to a height of three to five feet. Scattered trees are present, but they rarely form clumps. Permanent water is found in rivers and in the flat country in occasional pools that are filled by the summer rains. Much of the grass burns during the dry season.

WOODED STEPPE
(Keay and Aubréville, 1959, p. 10)

In the Wooded Steppe both the length of the rainy season and the amount of rainfall decreases. The average annual rainfall at Tombouctou (285 mm./yr.) is half that of Niamey. Two-thirds of the rain falls during July and August. The dominant trees, which are deciduous, small-leaved, thorny, and usually less than 15 feet tall, are members of the genus *Acacia*. In some

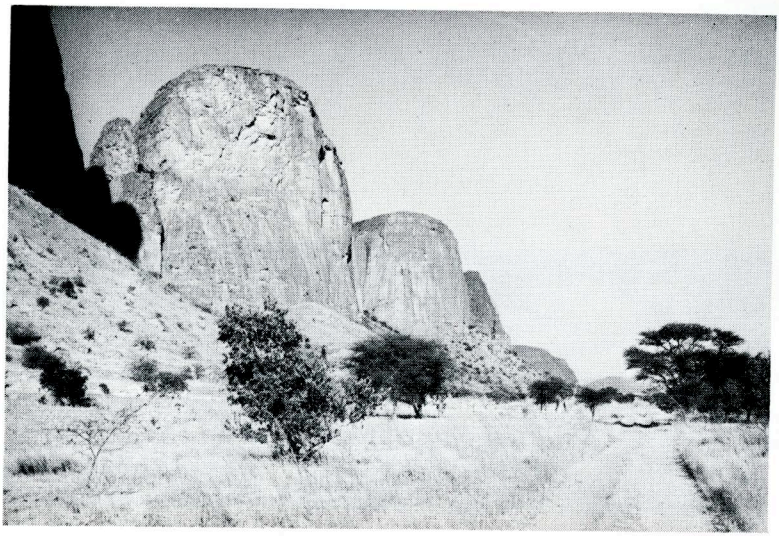


FIGURE 3. Wooded steppe near Hombori, Mali.

FIGURE 4. Wooded steppe near Tombouctou, Mali.

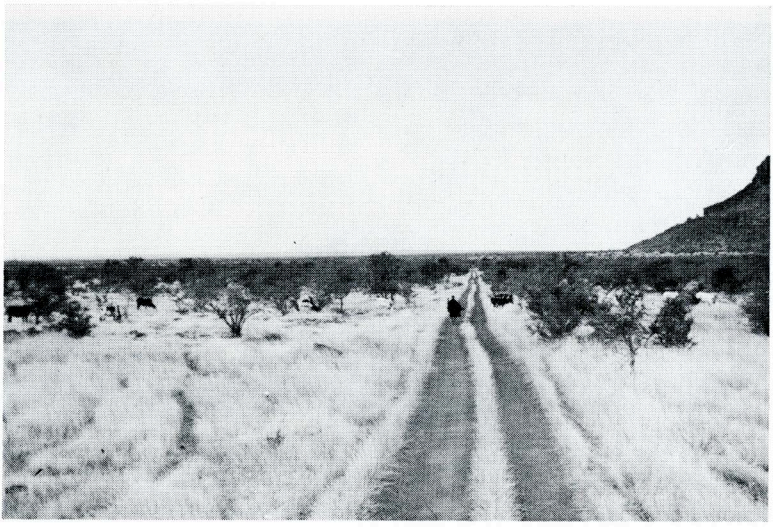


FIGURE 2. Dry savanna near Doentza, Mali.

Savanna as one moves northward. The rainfall decreases, the average annual rainfall in the Northern Savanna at Bamako (1053 mm./yr.) being almost twice as much as at Niamey in the Dry Savanna (585 mm./yr.). Much of this area is densely populated, and cultivation and over grazing have disturbed the land. In undisturbed areas grass grows to a height of three to five feet. Scattered trees are present, but they rarely form clumps. Permanent water is found in rivers and in the flat country in occasional pools that are filled by the summer rains. Much of the grass burns during the dry season.

WOODED STEPPE
(Keay and Aubréville, 1959, p. 10)

In the Wooded Steppe both the length of the rainy season and the amount of rainfall decreases. The average annual rainfall at Tombouctou (285 mm./yr.) is half that of Niamey. Two-thirds of the rain falls during July and August. The dominant trees, which are deciduous, small-leaved, thorny, and usually less than 15 feet tall, are members of the genus *Acacia*. In some

areas the trees form thickets, but more often they are widely scattered. Herbaceous plants and grass less than three feet high grow between the trees, but since there is not a continuous carpet, there are not extensive fires during the dry season. Much of the ground, especially in the northern part of the wooded steppe, is sandy. Low fixed sand dunes are present. The great Niger River, often one to two miles wide, flows through this zone. Between Mopti and Tombouctou the Niger breaks into an inland delta of lakes and marshes. Along the Niger and within the inland delta, several species of forest and moist savanna reptiles such as *Varanus niloticus, Causus rhombeatus,* and *Natriciteres olivaceus* have been collected.

Subdesert Steppe

(Keay and Aubréville, 1959, p. 10)

In West Africa there is a Subdesert Steppe between the Wooded Steppe and the Sahara Desert. Especially in the northern part of this zone, rain does not always fall every year, except in the two mountainous regions; the Adrar des Iforas of Mali and the Aïr of Niger. The entire rainfall of a given year may take place during one or two heavy afternoon showers. The average annual rainfall at Agadez (126 mm./yr.) on the edge of the Aïr Mountains is less than half that of the Wooded Steppe at Tombouctou (285 mm./yr.). Thorny trees of the Wooded Steppe occur locally, especially along the edges of wadis. Low grass grows in tufts separated from one another by large bare sandy spaces. Low dunes both fixed and wind-blown are present, often separated by barren pebble-covered flats.

In the Hoggar Mountains of the Algerian Sahara there is an extensive area of Subdesert Steppe above 3000 feet elevation.

Desert

(Keay and Aubréville, 1959, p. 10)

The portion of the Sahara Desert within the study area is without regular rainfall. At Djanet the average annual rainfall is 18 mm./yr. The record, made over a period of 15 years, includes years when no rain fell. In the southern Sahara the

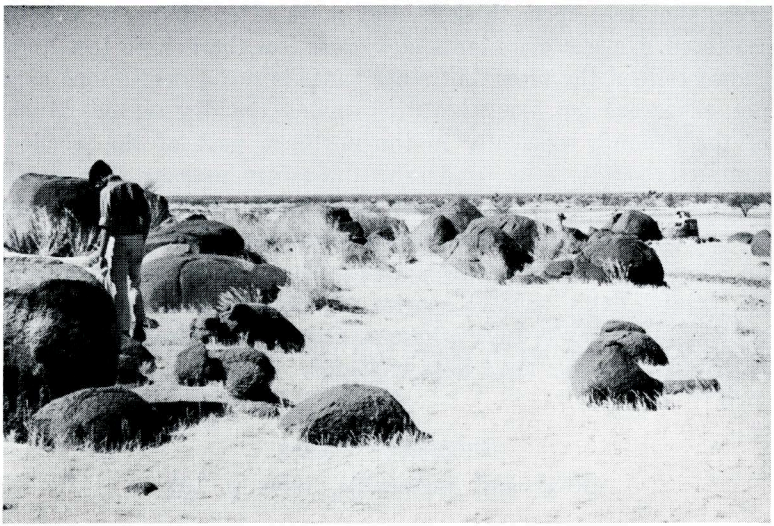


FIGURE 5. Subdesert steppe near Kidal, Mali.

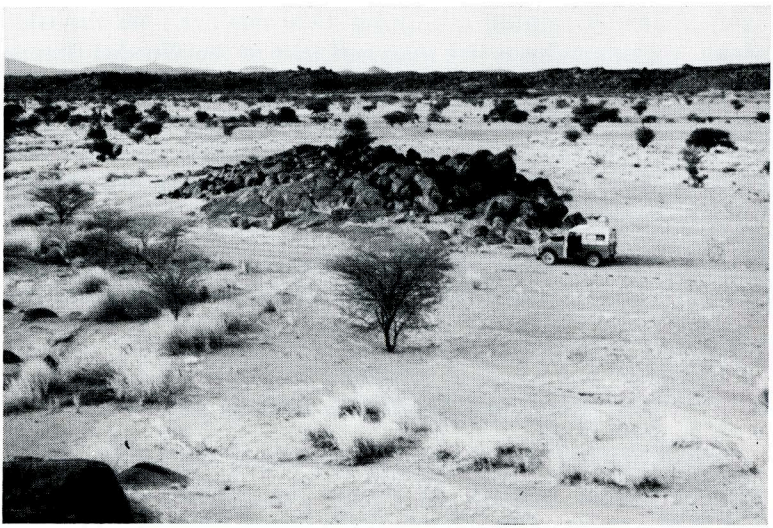


FIGURE 6. Subdesert steppe near Kidal, Mali.

FIGURE 7. Subdesert steppe between Bourem and Tombouctou, Mali.

occasional rains occur during the summer from tropical storms moving north. In the northern Sahara the rain comes from winter Mediterranean storms. Central areas, such as the Hoggar Mountains, may have occasional rains during both the summer and winter. In many areas there is a very scattered permanent vegetation of low bushes and even small trees along wadis. During the years when a rain falls, a low covering of grass and herbs grows. This covering, known as "acheb," passes through its life history in a few weeks, and is then scorched by the sun and scattered by the wind, leaving no trace.

Sandy soil and wind-blown dunes known as "ergs" may alternate with barren gravel "regs." The mountain masses of the Hoggar, Teffedest, and Tassili N'Ajjer are found in the northeast part of the study area. Volcanic peaks in the Hoggar are from 7000 to 9000 feet above sea level. Permanent water is found in some of the canyons in these mountain masses. *Bufo viridis* is found here and *Crocodylus niloticus* has been reported from the Tassili N'Ajjer.

TABLE 1. *Temperature and rainfall data for the study area.*

BAMAKO

(Northern Savanna. Elev. 335 m. Rainfall record: 28 yrs. 1053 mm./yr.)

	J	F	M	A	M	J	J	A	S	O	N	D
Max.	33	36	39	39	39	35	31	30	32	34	35	33
Min.	17	20	24	26	26	27	23	23	22	22	19	18
Rain	—	—	6	20	60	110	210	300	200	60	10	—

NIAMEY

(Dry Savanna. Elev. 223 m. Rainfall record: 33 yrs. 585 mm./yr.)

Max.	34	36	39	41	41	38	34	32	34	36	37	34
Min.	16	18	22	26	27	25	24	22	23	23	19	15
Rain	—	—	2	8	35	85	130	180	95	20	—	—

TOMBOUCTOU

(Wooded Steppe. Elev. 250 m. Rainfall record: not given. 285 mm./yr.)

Max.	31	34	38	41	43	42	38	34	38	40	38	32
Min.	13	15	19	22	26	27	25	24	24	24	18	14
Rain	—	—	2	—	8	40	90	95	40	5	—	—

AGADEZ

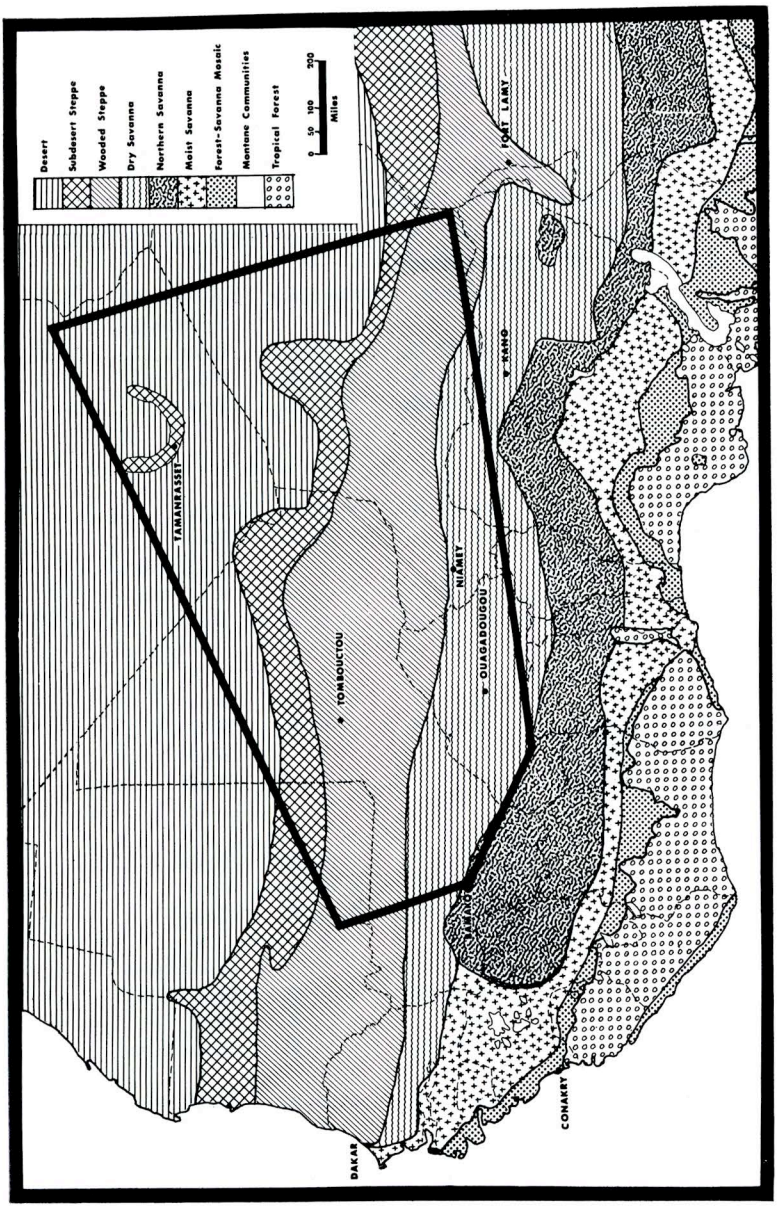
(Subdesert Steppe. Elev. 520. Rainfall record: not given. 126 mm./yr.)

Max.	29	33	38	41	44	43	41	38	40	39	35	32
Min.	10	13	17	21	25	24	24	23	23	20	15	12
Rain	—	—	—	—	1	5	35	75	5	—	—	—

DJANET

(Desert. Elev. 1100 m. Rainfall record: 15 yrs. 18 mm./yr.)

Max.	19	22	26	31	35	38	37	36	35	31	26	20
Min.	6	9	13	18	23	25	25	25	23	19	13	8
Rain	6	4	—	2	4	—	—	—	—	—	—	2



MAP 1. Vegetation zones of West Africa.

LOCALITIES

ALGERIA

Localities in Algeria are taken from the *Times Gazetteer of the World* and from World Aeronautical Charts of the area. A number of localities in the mountain regions of the Hoggar, Teffedest, and Tassili N'Ajjer were not located. Geographic coordinates are given when available.

Name	*Latitude*	*Longitude*	*Description*
Adrar in Gechika	?	?	Mountain
Amguid	26 26 N.	5 20 E.	Town
Amsel	22 38 N.	5 26 E.	Well
Arak	25 20 N.	3 46 E.	Fort
Ararne (Teffedest)	?	?	?
Assakao	?	?	?
Azaka Emiré	?	?	?
Djanet	24 41 N.	9 25 E.	Town
Erg d'Admer	24 20 N.	9 20 E.	Dune
Hamada de Tim Gechika	?	?	Rocky desert
Hoggar	23 20 N.	6 00 E.	Mountains
Imarera	23 22 N.	5 43 E.	Well
In Ameri (Hoggar)	?	?	?
In Baragen (Teffedest)	?	?	?
Issalane	22 34 N.	7 55 E.	Well
Mont Ilaman (Hoggar)	23 14 N.	5 30 E.	Mountain
Oued Ahetes (Teffedest)	?	?	Wadi
Oued Edjeoui (Hoggar)	?	?	Wadi
Oued Ilezi	?	?	?
Oued Rofat	?	?	?
Silet	22 40 N.	4 34 E.	Town
Tahifet	22 56 N.	6 00 E.	Well
Tamanrasset	22 47 N.	5 32 E.	Town
Tamrit	?	?	?
Tassili de Timissao	?	?	Mountains
Tassili N'Ajjer	24 40 N.	9 40 E.	Mountains
Tazerouk	23 25 N.	6 16 E.	Well
Teffedest	24 30 N.	5 30 E.	Mountains
Tékébrine	?	?	?
Tigen Daouo (Hoggar)	23 05 N.	5 35 E.	Well
Tigharghart (Hoggar)	?	?	?
Tiror (Tassili)	?	?	?
Todock	?	?	?
Woudi	?	?	?

Ghana

Only the extreme northern part of Ghana is included in the area of study. All the localities are found in the *United States Board on Geographic Names. Official Standard Names Gazetteer No. 102: Ghana, 1967.*

Name	*Latitude*	*Longitude*	*Description*
Babile	10 31 N.	2 50 W.	Populated place
Bawku	11 03 N.	0 15 W.	Populated place
Binduri	10 59 N.	0 18 W.	Populated place
Bolgatanga	10 47 N.	0 51 W.	Populated place
Gambaga	10 32 N.	0 26 W.	Populated place
Lawra	10 39 N.	2 52 W.	Populated place
Navrongo	10 54 N.	1 06 W.	Populated place
Pusiga	11 05 N.	0 07 W.	Populated place
Tumu	10 52 N.	1 59 W.	Populated place
Wiaga	10 39 N.	1 16 W.	Populated place
Zorsi (see Zwase)			
Zwase	11 03 N.	0 18 W.	Populated place
Zuarungu	10 47 N.	0 48 W.	Populated place

Mali

All the localities are found in the *United States Board on Geographic Names, Official Standard Names Gazetteer No. 93: Mali, 1965.*

Name	*Latitude*	*Longitude*	*Description*
Anefis I-N-Darane	18 03 N.	0 36 E.	Populated place
Ansongo	15 40 N.	0 30 E.	Populated place
Asler	18 53 N.	1 16 E.	Waterhole
Bamako	22 39 N.	8 00 W.	City
Bandiagara	14 21 N.	3 37 W.	Populated place
Baoulé	12 53 N.	8 37 W.	Populated place
Bourem	16 57 N.	0 21 W.	Populated place
Diafarabé	14 09 N.	5 01 W.	Populated place
Djénné	13 54 N.	4 33 W.	Populated place
Dogo	15 10 N.	4 26 W.	Populated place
Douentza	15 00 N.	2 57 W.	Populated place
El Ouit	19 23 N.	0 39 E.	Locality
Gao	16 16 N.	0 03 W.	Populated place
Goundam	16 25 N.	3 40 W.	Populated place
Gourao	15 19 N.	4 02 W.	Populated place
Hombori	15 17 N.	1 42 W.	Populated place
Kati	12 44 N.	8 04 W.	Populated place
Katibougou	12 30 N.	8 05 W.	Populated place
Kayo	13 53 N.	5 37 W.	Populated place

Name	*Latitude*	*Longitude*	*Description*
Ké Macina	13 58 N.	5 22 W.	Populated place
Kidal	18 26 N.	1 24 W.	Populated place
Koulikoro	12 53 N.	7 33 W.	Populated place
Iforas, Adrar Des	20 00 N.	3 58 W.	Massif
Mbouna	16 41 N.	3 58 W.	Populated place
Ménaka	15 55 N.	2 24 E.	Populated place
Mopti	14 30 N.	4 12 W.	Populated place
Nioro Du Sahel	15 14 N.	9 35 W.	Populated place
San	13 18 N.	4 54 W.	Populated place
Sanga	14 28 N.	3 19 W.	Populated place
Saré Malé	14 05 N.	4 26 W.	Populated place
Ségou	13 27 N.	6 16 W.	Populated place
Sikasso	11 19 N.	5 40 W.	Populated place
Taga Diabozo	14 18 N.	4 57 W.	Populated place
Tanezrouft	24 00 N.	0 45 W.	Desert
Tessounfat	20 53 N.	0 32 E.	Well
Tilembaya	14 09 N.	4 59 W.	Populated place
Tilemsi, Vallée du	16 15 N.	0 02 E.	Wadi
Timétrine	19 20 N.	0 42 W.	Region
Ti-N-Zaouàtene	19 56 N.	2 58 E.	Populated place
Tisserlitine	21 00 N.	0 17 E.	Wadi
Tombouctou	16 46 N.	3 01 W.	Populated place
Wana Boubou	14 01 N.	4 58 W.	Populated place

MAURITANIA

Only a single locality is found in the eastern part of Mauritania included in the study area. Aïoun-el-Atrouss (16 40 N., 9 37 W.) is a major town.

NIGER

All of the localities listed, except some in the Aïr Mountains, are found in the *United States Board on Geographic Names, Official Standard Names Gazetteer No. 99: Niger, 1966.* Localities in the Aïr Mountains are found on maps in the following publication: Mémoires de l'Institut d'Afrique noire, No. 10, 1950.

Name	*Latitude*	*Longitude*	*Description*
Agadez	16 58 N.	7 59 E.	Populated place
Aïr	18 00 N.	8 30 E.	Massif
Assaouas	16 52 N.	7 27 E.	Well
Azzel	17 00 N.	7 58 E.	Wadi
Bilma (out of area)	18 41 N.	12 56 E.	Populated place
Birni Nkonni	13 48 N.	5 15 E.	Populated place

Name	*Latitude*	*Longitude*	*Description*
Dabaga (Aïr)	?	?	Camp
Dungas	13 04 N.	9 20 E.	Populated place
Goufat, Oued	17 03 N.	7 49 E.	Wadi
Iferouâne	19 04 N.	8 24 E.	Populated place
I-N-Abanrherit	17 54 N.	6 03 E.	Well
I-N-Gall	16 47 N.	6 56 E.	Populated place
Irabellaben (Aïr)	?	?	Wadi
Jadal	18 37 N.	5 00 E.	Region
Nguigmi	14 15 N.	13 07 E.	Populated place
Niamey	13 31 N.	2 07 E.	Populated place
Matnakari	13 46 N.	4 01 E.	Populated place
Sederer	17 59 N.	4 46 E.	Well
Tabello (Aïr)	?	?	Camp
Tafersit	16 30 N.	5 56 E.	Well
Tahoua	14 54 N.	5 16 E.	Populated place
Tamao	12 45 N.	2 11 E.	Populated place
Tapoa	12 29 N.	2 25 E.	Populated place
Tassessat	17 38 N.	8 47 E.	Populated place
Tazerzaït, Mont	18 30 N.	4 46 E.	Mountain
Teouar	?	?	Camp
Zinder	13 48 N.	8 59 E.	Populated place

Nigeria

Localities in Nigeria are taken from G. T. Dunger's publications on the lizards and snakes of Nigeria (see bibliography). Only the Northwestern Nigeria is included in the study area.

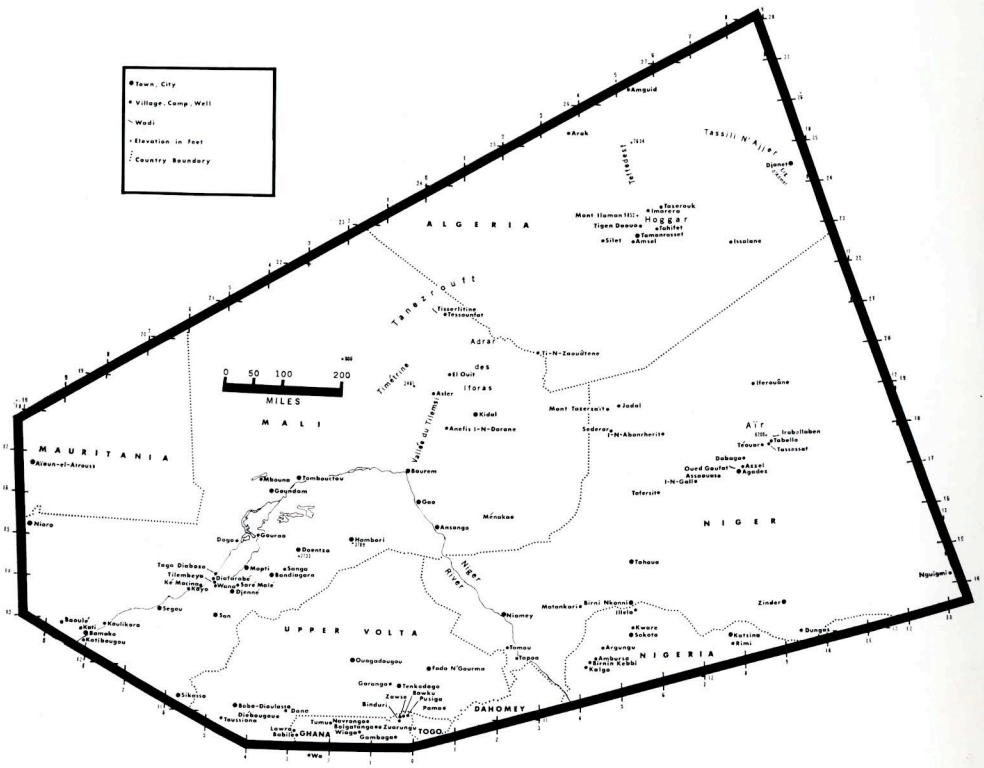
Name	*Latitude*	*Longitude*	*Description*
Ambursa	12 30 N.	4 20 E.	Populated place
Argungu	12 45 N.	4 32 E.	Populated place
Birnin Kebbi	12 25 N.	4 12 E.	Populated place
Illela	13 39 N.	5 18 E.	Populated place
Kalgo	12 19 N.	4 09 E.	Populated place
Katsina	13 00 N.	7 37 E.	Populated place
Kware	13 11 N.	5 16 E.	Populated place
Rimi	12 51 N.	7 42 E.	Populated place
Sokoto	13 03 N.	5 15 E.	Populated place

Upper Volta

Localities in Upper Volta are found in the *United States Board on Geographic Names, Official Standard Names Gazetteer No. 87: Upper Volta, 1965.*

Name	*Latitude*	*Longitude*	*Description*
Bobo Dioulasso	12 40 N.	0 21 E.	Populated place
Dano	11 09 N.	3 04 W.	Populated place

Name	*Latitude*	*Longitude*	*Description*
Diébougou	10 58 N.	3 15 W.	Populated place
Fada Ngourma	12 04 N.	0 21 E.	Populated place
Garango	11 48 N.	0 34 W.	Populated place
Ouagadougou	12 22 N.	1 31 W.	Populated place
Pama	11 15 N.	0 42 E.	Populated place
Tenkodogo	11 47 N.	0 22 W.	Populated place
Toussiana	10 50 N.	4 37 W.	Populated place



MAP 2. LOCALITIES

SPECIES ACCOUNTS

Hemidactylus brookii angulatus (Hallowell).

MATERIAL. (2) MALI: CAS 103236–37; Hombori, December 13, 1965.

REMARKS. Both specimens, the only two seen, were collected at night among rocks.

Ptyodactylus hasselquistii (Donndorff).

MATERIAL. (26) MALI:CAS 103239–44; Kidal Road, 40 miles NE. of Anefis, December 17, 1965; MVZ 75475; Bandiagara, December 13, 1961; CAS 103235; Hombori, December 13, 1965; MVZ 75477; Hombori, December 17, 1961; CAS 103258–62; 2 miles S. of Airport, Mopti, December 10, 1965; MVZ 75476; Sangha (Sanga), December 13, 1961; CAS 103268–71; Sangha (Sanga), December 6, 1965. UPPER VOLTA: MVZ 75481–84; Fada N'Gourma, December 24, 1961.

REMARKS. At Fada N'Gourma the lizards were collected on the walls inside a shed. At the other localities they were always found among rocks. Near Mopti they were abundant in the same crevices as *Tarentola annularis*. Northeast of Anefis, in the rocky Adrar des Iforas, these geckos were actively running about large boulders in the late afternoon and could be seen on the shaded side of boulders during midday. Shortly after dark they were no longer active, probably because of the cold nights in the desert during December. A single specimen, MVZ 75482 from Fada N'Gourma, contained two developed eggs.

Stenodactylus petrii Anderson.

MATERIAL. (1) MALI: CAS 103272; 42 miles N. of Bourem, December 15, 1965.

REMARKS. CAS 103272 differs from three specimens examined from Libya in toe structure. The former has 38 lamellae on the fourth toe where as the latter specimens have 28, 28, and 29 lamellae. In addition, the Mali specimen has two scale rows on each side of the central row of digital lamellae while the Libya specimens have only one row. In these two characters the Mali

gecko is similar to the type of *Stenodactylus elimensis* Barbour (1914, pp. 79–80) from Wadi Gharandel, Sinai, Egypt. The type, MCZ 9631, synonymized by Loveridge (1947, p. 42) with *S. petrii,* has 39 fourth toe lamellae and on the hind feet only, a partial second scale row on each side of the central row of digital lamellae.

Stenodaclylus petrii is found from Algeria to Israel. In West Africa it occurs south at least to the bend of the Niger River (Bourem) and in the Aïr Mountains of Niger Republic.

The specimen was found about an hour after dark as it ran across a low sand dune.

Stenodactylus sthenodactylus (Lichtenstein).

MATERIAL. (3) MALI: CAS 84210–212; Elequit (El Ouit), November 22, 1948.

REMARKS. The three specimens agree with the description of *S. sthenodactylus sthenodactylus* given by Loveridge (1947, pp. 44–47) rather than with the description of *S. sthenodactylus mauritanicus* (1947, pp. 47–50). The former subspecies has been collected some 500 miles to the southeast of Elequit at Agadez (Angel, 1950, p. 331), whereas the latter is known from Mauritania to the west, Tanezrouft to the north, and the Hoggar Mountains to the northeast.

Tarentola annularis (Geoffroy).

MATERIAL. (26) MALI: MVZ 75455–56; Timbuctu (Tombouctou), December 20, 1961; MVZ 75453; Gao, December 18, 1961; MVZ 75448–52; Bandiagara, December 13, 1961; MVZ 81417–18; Bandiagara, December 6, 1965; CAS 103198–204; Bandiagara, December 6, 1965; MVZ 81400; 2 miles S. of airport, Mopti, December 10 1965; CAS 103263–67; 2 miles S. of airport, Mopti, December 10, 1965; CAS 84213–14; Elequit (El Ouit), November 22, 1948.

Tarentola ephippiata (O'Shaughnessy).

MATERIAL. (4) MALI: MVZ 75454; Gao, December 17, 1961; MVZ 75447; Hombori, December 17, 1961; MVZ 75830, CAS 103273; Timbuctu (Tombouctou), December 20, 1961.

Comparison of *T. annularis* and *T. ephippiata.* Grandison (1961) has pointed out that *T. annularis* and *T. ephippiata* are valid species, sympatric throughout much of their range. The above cited 30 specimens from Mali can be separated into *T. annularis* (26 of 30) and *T. ephippiata* (4 of 30) using Grandison's characters and others mentioned below.

(1) Number of rows of dorsal tubercles.
T. annularis: range 12–14 (X = 13.1, N = 26).
T. ephippiata: range 16 (X = 16, N = 4).
(2) Number of scales under fifth toe.
T. annularis: range 22–28 (X = 25.5, N = 26).
T. ephippiata: range 16–20 (X = 18.5, N = 4).

Both Grandison and Loveridge (1947) have used scale counts of the first and fourth toe in their discussions of *Tarentola.* However, these counts may overlap in the two species. The fifth toe count, which includes both scansors and scales to the base of the toe, shows a mean difference of 7.0 between the two species in the specimens examined. Grandison's other characters hold for the present series; however, tooth counts were not made.

The most striking difference between the two species, which seems to have been overlooked by both Grandison and Loveridge, is the number of midbody scale rows. These counts were made between the enlarged granules.

T. annularis: range 154–194 (X = 172.8, N = 26).
T. ephippiata: range 90–98 (X = 93.8, N = 4).

As seen in table 2, four specimens of *T. annularis* from Chad, Sudan, and Egypt fit into the range of the Mali material. Two specimens of *T. neglecta* were also examined; LACM 25288, reported on by Wake and Kluge (1961), can not be separated from *T. ephippiata,* and MCZ 21949, Tunisia: "Erlanger leg. Received from Berlin Mus.", is probably *T. ephippiata.* Only slight differences are apparent. The most lateral five rows of enlarged tubercles on each side are more regularly arranged than the Mali *T. ephippiata,* and the scansors under the fifth toe are larger and fewer in number. Grandison has pointed out that *T. panousei* from Morocco is a synonym of *T. ephippiata* and that *T. delalandii hoggarensis* from the Hoggar Mountains of southern Algeria is probably also a synonym of *T. ephippiata. It*

seems reasonable that populations of "*ephippiata*"-like *Tarentola* occurring in southern Algeria, Tunisia, and Libya, which have been called *T. neglecta*, are at most only subspecifically distinct from populations of *T. ephippiata* found to the south and west.

Habitat. *T. ephippiata* was less common than *T. annularis*. Only at Tombouctou did they seem to be equally abundant. Here both species were taken at night on walls. *Tarentola annularis* was found on walls of the hotel, while *T. ephippiata* was seen only on the walls of a deserted courtyard. At Gao both species were found on the walls of a hotel. A single specimen of *T. ephippiata* was collected at Hombori; however, only one day was spent there. At Bandiagara, on the Bandiagara Plateau, and near Mopti, 40 miles away at the base of the Bandiagara Plateau, only *T. annularis* was found. At both localities it was very common in rock crevices, often occurring together in the same crevices with the equally common *Ptyodactylus hasselquistii*.

Table 2. *Tarentolas from Mali.*

Mus. No.	*Locality*	*Dorsal Tubercles Rows*	*Scales Under Fifth Toe*	*Midbody Scale Rows*
Tarentola annularis				
MVZ 75455	Tombouctou	12	22	170
MVZ 75456	Tombouctou	12	26	174
MVZ 75453	Gao	14	24	162
MVZ 75664	Gao	12	24	162
MVZ 75449	Bandiagara	14	24	173
MVZ 75451	Bandiagara	14	24	154
MVZ 75450	Bandiagara	14	26	177
MVZ 75448	Bandiagara	12	26	155
MVZ 75452	Bandiagara	12	26	167
MVZ 81417	Bandiagara	14	28	183
MVZ 81418	Bandiagara	14	26	170
CAS 103198	Bandiagara	12	24	176
CAS 103199	Bandiagara	14	26	174
CAS 103200	Bandiagara	12	26	174
CAS 103201	Bandiagara	14	26	179
CAS 103202	Bandiagara	14	24	176
CAS 103203	Bandiagara	14	27	192
CAS 103204	Bandiagara	14	27	168
MVZ 81400	Mopti	12	26	178
CAS 103263	Mopti	14	26	188
CAS 103264	Mopti	12	24	179

Mus. No.	*Locality*	*Dorsal Tubercles Rows*	*Scales Under Fifth Toe*	*Midbody Scale Rows*
CAS 103265	Mopti	14	26	179
CAS 103266	Mopti	12	26	168
CAS 103267	Mopti	12	28	194
CAS 84213	Elequit	14	26	158
CAS 84214	Elequit	12	25	173
Tarentola ephippiata				
CAS 103273	Tombouctou	16	20	98
MVZ 78830	Tombouctou	16	18	90
MVZ 75447	Hombori	16	17	92
MVZ 75454	Gao	16	19	95

TABLE 3. *Tarentolas from Chad, Sudan, Egypt, and Tunisia.*

Mus. No.	*Locality*	*Dorsal Tubercles Rows*	*Scales Under Fifth Toe*	*Midbody Scale Rows*
Tarentola annularis				
LACM 25286	Chad: Oum Chalouba	12	27	168
LACM 25287	Chad: Gongo	12	23	170
CAS 55180	Sudan: Khartoum	14	23	170
CAS 55053	Egypt	12	26	177
Tarentola ephiappiata (Tarentola neglecta?)				
LACM 25288	Chad: Gongo	15	17	94
MCZ 21949	Tunisia	16	15	98

Tropiocolotes tripolitanus apoklomax Papenfuss, new subspecies.

HOLOTYPE. California Academy of Sciences 103209, an adult male from Sanga, Mali, collected by T. Papenfuss (field no. 3098), December 6, 1965.

DIAGNOSIS. Midbody scale-rows 54 (in type), range 46–54 ($X = 52.1 \pm 2.0$ SD. ± 0.4 SE: $N = 21$). Enlarged chin shields present behind postmentals. Postmental prevents chin shields from contacting first lower labial.

PARATYPES. Twenty paratypes have been examined. MALI: CAS 103207–08, 103210, 103213 from the type locality, Sanga; CAS 103205–06, MVZ 75437–43, Bandiagara; CAS 103213–14, MVZ 75432–36, Hombori.

DESCRIPTION OF HOLOTYPE. Snout acutely pointed, longer than the distance between the eye and the ear-opening; rostral broader

than high, with median cleft above, extending nearly to mouth; scales on anterior of snout rugose, becoming keeled posteriorly; nostril between rostral, first labial, and two nasals; upper labials 9–10; lower labials 7–7; mental triangular; a pair of large post mentals in contact on the median line, forming a suture with the first and second lower labials, followed by two pairs of chin-shields, the first nearly the size of the postmentals, the second one-third the size of the first.

Back, belly, limbs, and tail covered with keeled scales, those on the belly smaller than those on the back; midbody scale rows 54; limbs short, adpressed hind limb not quite reaching the axilla; head and body depressed; tail longer than head and body; total length, 57 mm.; snout-vent, 26 mm.; tail, 31 mm.

Color of holotype. Above, pale brown, with scattered darker brown scales; each scale with scattered minute black flecks; a dark brown streak runs from nostril to beyond shoulder; limbs colored as back; tail with eleven brown crossbars; dorsal pattern merges into ventral region; mid-ventral region pale.

Field observations. Specimens were collected December 13, 1961 and December 6, 1965 at Bandiagara; December 17, 1961 and December 13, 1965 at Hombori; December 6, 1965 at Sanga. At Sanga and Bandiagara all were found during the day under rocks which were lying on sandy ground near rock outcrops. At Hombori specimens were collected during the day in the village under rocks lining trails and at night active on the surface of the ground around a spring in the village.

Range. Niger bend region south of the Niger River between Mopti and Gao, Mali. Sanga and Bandiagara are on the Bandiagara Plateau about 75 miles east of Mopti. Hombori is 120 miles northeast of Sanga on the road to Gao.

Discussion. The seven specimens from Hombori have a lower mid-body scale row count (46, 48, 50, 50, 51, 52, 52) than those from Sanga and Bandiagara which all have a count of 52–54. All specimens have two pairs of chin shields, but in some the the second pair is much smaller than the first. In seven specimens the entire ventral region is white. Only two paratypes have original tails. Regenerated tails lack crossbars.

Tropiocolotes tripolitanus apoklomax seems to be most closely

related to *T. tripolitanus tripolitanus* which has chin shields and a mid-body scale count of 42–48. Geographically, however, *T. tripolitanus apoklomax* is separated from *T. tripolitanus tripolitanus* of Niger, Tunisia, Libya, and Egypt by *T. tripolitanus algericus* which is found in the Hoggar Mountains of the central Sahara approximately 700 miles northeast of Hombori. The type of *Tropiocolotes tripolitanus algericus* lacks chin shields and has 44 mid-body scale rows. *Tropiocolotes tripolitanus occidentalis* with no chin shields and 40–41 mid-body scale rows occurs in Spanish Sahara and adjacent Mauritania, some 950 miles northwest of Sanga.

The name "*apoklomax*" (Greek: "from a stony place") refers to the habitat of this gecko.

Chamaeleo africanus Laurenti.

Material. (9) MALI: CAS 103364–65, Bandiagara, December 6, 1965; CAS 103362–63, MVZ 81401, Doentza, December 12, 1965; CAS 103366, 6 miles E. of Mopti, December 11, 1965. NIGERIA: CAS 104562, 22 miles E. of Damatura, September 19, 1966; CAS 104563, Gwoza, September 17, 1966.

Remarks. According to Dunger (1966, p. 62) *C. africanus* is common throughout northern Nigeria. The two Nigerian specimens examined, collected by Dr. Edward Ross and Ken Lorenzen of the Department of Entomology, California Academy of Sciences, are from localities in the northeastern part of the country near the Niger and Chad borders. The specimens from Bandiagara were found walking on the ground. The Mopti individual, the only male, was found dead on the road. At Doentza this species is very common in trees in the town. The four lizards were brought in within a period of an hour by children who knocked them out of trees with sticks. Chamaeleons are thought to be poisonous at Doentza and the children were amazed to see us handle them. A single female, from Doentza, contained eggs.

In West Africa, *C. basiliscus* is found in the arid savanna and sub-desert regions. It has been collected at Tombouctou and in the Aïr Mountains. It probably occurs together with *C. senegalensis*, the common chamaeleon of the West African savanna. *C. senegalensis* has been taken at Gao (Angel and Lhote, 1938).

Chalcides thierryi Tornier.

Material. NIGERIA: CAS 104553, 6 miles S. of Jos (1250 m.), September 16, 1966, collected by E. S. Ross and K. Lorenzen.

Remarks. *Chalcides bottegi thierryi* was described by Tornier (1901, p. 87) from two specimens collected at Mangu and Jendi in German Togo (presently Sansanne Mango, Togo and Yendi, Ghana). Neumann (1905, p. 401) regarded *C. thierryi* as a good species, differing from *C. bottegi* of the Somalia Region in having a uniform body coloration, only 20 mid-body scale rows, and a much longer tail. E. G. Boulenger (1920, pp. 79–80) treated *C. bottegi* as a subspecies of *C. ocellatus* and pointed out that *C. thierryi* differs from *C. ocellatus bottegi* in having shorter and less unequal toes, a large ear opening, and a long thick tail. Boulenger also synonymized *C. pulchellus* with *C. thierryi. C. pulchellus* was described by Mocquard (1906, p. 465) from a single specimen from Lobi District, French Sudan. This lizard differs from other specimens of *C. thierryi* in having numerous black flecks on the body and 24 mid-body scale rows. Loveridge (1936, p. 74) reports on a specimen (as *C. bottegi thierryi)* from Marama, Nigeria, and states that it agrees with Tornier's description.

CAS 104553: Total length 295 (134 + 161) mm. Mid-body scale rows 20. Two median rows of dorsal scales enlarged. Uniform brown body coloration. Ocelli on tail only.

Mabuya perrotetii (Duméril and Bibron).

Material. (4) MALI. MVZ 75628–29, Bandiagara, December 13, 1961; CAS 103196–97, Bandiagara, December 6, 1965.

Remarks. Three of the specimens are juveniles (S.V. 48, 53, and 55 mm.). The fourth is an adult (S.V. 128 mm.). The juveniles all have unicarinate subdigital lamellae. Otherwise they agree with other descriptions of *M. perrotetii* (Boulenger, 1887, pp. 168–169; Schmidt, 1917, pp. 540–545). Schmidt (p. 543) states that in one specimen out of 27 collected in the Congo the subdigital lamellae are distinctly keeled and that in others they are faintly keeled. In life the juveniles did not have the brilliant orange flanks that are characteristic of adults of the species, but were colored brown.

The juveniles were found under rocks at the edge of the town. The adult was found dead on the surface of the ground.

Mabuya quinquetaeniata scharica Sternfeld.

MATERIAL. (22) MALI: CAS 103248–49, 12 miles S. of Gao, December 20, 1965; MVZ 75622–25, 75627, 75630–31, Bandiagara December 13, 1961; MVZ 81430, 81435–36, CAS 103215–24, Bandiagara, December 16, 1965.

REMARKS. The two specimens from near Gao are females. In the series of 20 from Bandiagara there are only two adult males. Adult males have a uniform brown dorsal coloration and a black throat. Females and young have a striped dorsal pattern and a light-colored throat. Very young specimens have a bright blue tail in life. Near Gao these lizards were common running about clumps of scrub palm along the Niger River. At Kidal this species was seen but not collected around rock walls in an irrigated date grove; however, none was seen elsewhere in the Adrar des Iforas. On the Bandiagara Plateau, *M. quinquetaeniata* was the most abundant diurnal lizard.

Scincopus fasciatus (Peters).

MATERIAL. (1) NIGERIA: CAS 102806, Sokoto, April 1958, collector unknown.

REMARKS. This specimen and others from the same locality in the collection of the Los Angeles County Museum extend the range of *S. fasciatus* some three hundred miles south from Agadez, Niger (Angel, 1950). This species has been thought to occur only in the desert regions of North Africa. However, the specimens from Sokoto establish its presence at least as far south as the savanna of northern Nigeria.

Sphenops delislei (Lataste).

MATERIAL. (1) MALI: CAS 103227–34, MVZ 81431–32, Hombori, December 13, 1965.

REMARKS. Pasteur and Bons (1960) removed this species, and several others, from the genus *Chalcides*. Apparently this species occurs along the southern edge of the Sahara from the Atlantic to the Red Sea. The type is from Senegambia and it has been collected at Agadez (Angel, 1950, p. 335) and Suakin,

Sudan on the Red Sea (Loveridge, 1936, p. 74). *Sphenops delislei* is easily separated from other species by the tridactyl fore limbs and tetradactyl hind limbs.

TABLE 4. *Measurements and counts for specimens of* Sphenops delislei.

No.	*Sex*	*s.v. (mm)*	*Mid-body scale rows*
CAS 103227	M	66	24
CAS 103228	M	83	24
CAS 103229	M	65	24
CAS 103230	F	85	24
CAS 103231	F	76	24
CAS 103232	M	69	24
CAS 103233	M	66	24
CAS 103234	M	91	24
MVZ 81431	M	72	24
MVZ 81432	F	75	24

All the lizards were taken within an hour in the village of Hombori. All were under rocks, either on the surface of the sand under the rocks, or uncovered by raking through the sand under the rocks. The lizards were very active and some escaped by "swimming" through the sand. Stomachs examined contained the adults and larvae of small beetles.

Acanthodactylus boskianus asper (Audouin).

MATERIAL. (1) MALI: CAS 103250–56, MVZ 81419, 81422–23, 12 miles S. of Gao, December 20, 1965.

REMARKS. The species is found throughout North Africa. Angel and Lhote (1938) report on a specimen from Segou, Mali and another from the Hoggar, southern Algeria. These two localities are approximately 1100 miles apart. A straight line runnig between the two would pass through Gao, some 500 miles NE. of Segou. Dunger (1967b) reports on specimens from northern Nigeria.

The specimens range from 38–63 mm. s.v. Smaller specimens show six distinct light dorsal stripes. These are gradually lost with increase in size, until in large individuals the entire dorsal pattern is checkered, with only the most lateral stripe on each side distinct.

All specimens were shot with 22-dust shot in about an hour's

time in the late afternoon. The lizards were active in and around thickets of scrub palm growing in loose sand a few hundred feet from the edge of the Niger River. *Mabuya quinquetaeniata* was equally common. A single specimen of *Latastia longicaudata* was collected along with the *Acanthodactylus*. Several 3- to 4-foot brown snakes, probably *Psammophis sibilans,* were seen in palm thickets, but escaped.

Ememias guineensis Boulenger.

MATERIAL. (1) NIGER: CAS 103274, 10 miles NW. of Tapoa on road to Tamou, December 26, 1965. Tapoa is a camp in Parc Nationaux Du W, a game reserve in the extreme southwestern part of Niger Republic.

REMARKS. Until recently this species was known only from the type specimen supposedly collected at Brass, mouth of the Niger. This locality in coastal Nigeria is within the rain forest. Schmidt (1919, p. 511) regards its occurrence there as accidental, as *Eremias* is a savanna or desert genus. The present specimen was obtained in the dry savanna some seven hundred miles to the northwest of the mouth of the Niger. Dunger (1967b, pp. 122–123) reports that *E. guineensis* is common on the Jos Plateau in northcentral Nigeria. Dunger's description of Nigerian material agrees with Boulenger's description of the type and with CAS 103274.

Monard (1949, pp. 737–741) described *Eremias* (*Taenieremias*) *benuensis* from seven specimens collected at Ngaouyanga and Bangouvé, northern Cameroun as the second species of the West African subgenus *Taenieremias.* A comparison of CAS 103274 with Monard's description of *E. benuensis* and a description of *E. guineensis* given by Boulenger (1921, pp. 256–257) shows that the specimen from Niger is intermediate in several of the characters used by Monard to distinguish his new species from *E. guineensis* (see table 5). Therefore it seems best to consider *E. guineensis* a single species known presently to range from Niger to northern Cameroun.

The specimen was collected in a sandy wash in an area of dry savanna. No other lizards were seen during a two hour stop at the locality

TABLE 5. *Comparison of* E. guineensis *Boulenger and* E. benuensis *Monard.*

Character	CAS 103247	*E. benuensis*	*E. guineensis*
head length (mm.)	10.5	9–14	7
s.v. (mm.)	42	32–58	24
s.v./head length	4	3.5–4.5	3.5
head width	6.0	?	4
head length/ head width	1.75	2	1.75
hind leg (mm.)	24.5	?	13
hind leg reaches	midway ear and shoulder	shoulder	ear
frontal	as long as dist. from rostral	as long as dist. from rostral	as long as dist. from end of snout
supraciliaries	4+5	5	4
granules between supraoculars and supraciliaries	2	2–3	1
posterior nasal	⅔ size of inferior	½ size of inferior	posterior as large as inferior
white body lines	6	6	5
dorsal scale rows	50	50–64	60
ventral plate rows	8	10	10 (6–10 in Dunger's sample)
femoral pores	19	18–20	21

Eremias rubropunctata (Lichtenstein).

MATERIAL. (1) MALI: CAS 103245, Kidal Road, 40 miles NE. of Anefis, December 18, 1965. This locality is at the southern edge of the Adrar des Iforas in northeastern Mali.

REMARKS. This species is reported from the Adrar des Iforas (Angel and Lhote, 1938). It is found throughout North Africa from Morocco to Israel and in the Algerian Sahara. Of 47 specimens examined by Boulenger (1921, p. 279), eight had the nasals in contact. Of these eight, five were from Algerian Sahara localities nearest to the Adrar specimen, which also has nasals in contact. Boulenger's specimens had 53–67 scales across the

middle of the body; in the Adrar specimen there are only 50. In this respect it is more like the similar *E. guttulata,* which has a 36–54 range of scale rows. However, all specimens of *E. guttulata* reported on by Boulenger and examined by me have eight to ten longitudinal rows of ventral plates, while the Adrar specimen has 12. Boulenger's specimens of *E. rubropunctata* have 10–14 longitudinal rows of ventral plates, with 43 of 47 specimens having 12.

The specimen was collected as it ran under a small bush along the road. At this point the road crossed a half mile-wide, hard, gravel pan. No other lizards were seen here during a half hour stop.

Latastia longicaudata longicaudata (Reuss).

MATERIAL. (1) MALI: CAS 103257, 13 miles S. of Gao, December 20, 1965.

REMARKS. This lizard has not been collected in the Sahara Desert, but occurs in the savanna and sub-desert regions across the whole of Africa bordering on the Sahara from Senegal to Sudan. This single specimen was collected along with a series of *Acanthodactylus boskianus asper.* In the field the whole series appears to be *Acanthodactylus,* and its identity remained unknown until the series was examined in preparation for this paper.

Agama agama (Linnaeus).

MATERIAL. (16) MALI: MVZ 75514–16, Bandiagara, December 13, 1961; MVZ 81399, 81424, CAS 103225, Bandiagara, December 6, 1965; MVZ 81394–97, CAS 103246–47, Kidal Road, 40 miles NE. of Anefis, December 17, 1965; MVZ 75518–21, Timbuctu (Tombouctou), December 20, 1961.

REMARKS. At Bandiagara and near Anefis these lizards were common on rocky outcrops. At Tombouctou *A. agama* was found on the walls of buildings at the edge of the town.

Agama sankaranica Chabanaud.

MATERIAL. (2) MALI: CAS 103226, Bandiagara, December 6, 1965; MVZ 81398; Kidal Road, 40 miles NE. of Anefis, December 17, 1965.

REMARKS. This species of *Agama* is much less common than *A. agama*. The two specimens were found in open, flat areas. The specimen from near Anefis extends the range of *A. sankaranica* some three hundred miles to the north.

Uromastyx geyri Müller.

MATERIAL. (2) MALI: CAS 103072–73, Kidal Road, 40 miles NE. of Anefis, December 17, 1965.

REMARKS. Müller (1922) described *U. geyri* from the Hoggar region of the central Sahara. Andersson (1935) reported on five specimens of *U. geyri* from the Hoggar and the Adrar des Iforas and a single specimen of *U. acanthinurus* from Tin-Saouaten (Ti-N-Zaouatene), Adrar des Iforas. Andersson distinguished the two species by the number of tail verticils (21–22 in *U. geyri;* 17 in *U. acanthinurus*), length of tail (44–48 percent of total length in *U. geyri;* 35–38 percent in *U. acanthinurus*), the shape of the tail (narrower at the middle than at the base in *U. geyri;* uniform width nearly to the tip in *U. acanthinurus*), patches of enlarged scales on the flanks (present in *U. geyri;* absent in *U. acanthinurus*), and size of the dorsal scales (smaller in *U. acanthinurus* than in *U. geyri*).

Angel and Lhote (1938) listed *U. acanthinurus* from a number of localities in the Sahara and the subdesert, including the Hoggar and the Adrar des Iforas. However, no mention was made of *U. geyri.* Angel (1950) reported on *U. acanthinurus* from the Aïr region of Niger and again listed various other localities, but did not mention *U. geyri.* Pasteur and Bons (1960) regarded *U. geyri* and *U. acanthinurus* as distinct species and stated that Angel and Lhote (1938) and Angel (1944, 1950) overlooked the fact that two species of *Uromastyx* are found in the central and southern Sahara. Neither Angel nor Lhote gave specimen numbers or descriptions of their specimens so both species may be represented in their collections. Mertens (1962) reduced *U. geyri* to a subspecies of *U. acanthinurus,* but overlooked characters distinguishing the two forms. Table 6 compares the two specimens of *U. geyri* (CAS 103072–73) with four of *U. acanthinurus* (CAS 91526–29) from Morocco: Dra Inferieur.

TABLE 6. *Comparison of specimens of* Uromastyx geyri (103072–73) *and* Uromastyx acanthinurus (91526–29).

CAS no.	*s.v. (mm.)*	*tail (mm.)*	*tail × 100 / s.v.*	*no. of verticils*	*tail width 4th vert.*	*tail width 12th vert.*
103072	165	132	80.0	22	31 mm.	19 mm.
103073	197	157	79.7	21	38 mm.	22 mm.
91526	133	86	64.5	20	23 mm.	21 mm.
91527	213	137	64.3	18	42 mm.	36 mm.
91528	123	81	65.9	20	20 mm.	16 mm.
91529	218	145	66.5	18	41 mm.	39 mm.

In cross section the tails of *U. geyri* are egg-shaped, whereas the tails of *U. acanthinurus* are greatly flattened. Only *U. geyri* have enlarged scales on the flanks.

The specimens of *U. geyri* were collected in rock outcrops. Even at midday no individuals were seen sunning. The two specimens obtained and several others that could not be caught were all found by looking in crevices in boulders several feet above the ground. The lizards were tightly wedged in the cracks and when disturbed they would inflate, making it impossible to extract them unless the rock was broken apart with a crowbar. These large lizards may not be active during December in the cool, dry season. The two specimens that were caught were sluggish when taken out of their retreats. However, another lizard did move several feet to another crevice. Its first crack was broken open until its leg and tail were exposed, but no amount of pulling would dislodge its inflated body. On returning to the rock the next day, we discovered that the animal had abandoned its nearly destroyed home, and was now deep in another crack several feet away.

Leptotyphlops macrorhynchus (Jan).

MATERIAL. (1) MALI: CAS 84215, Vicinity east of Bourem, November 23, 1948, collected by B. Malkin.

REMARKS. This species is found from the Indus Valley of India through the Middle East, across North Africa to Morocco, and south into West Africa to Ghana. Apparently it has not previously been reported from Mali; however it is known from Mauritania, Guinea, and Niger which border on Mali. The speci-

men was found under cattle droppings. Color in life deep pink. Total length 205 (191 + 14) mm.

Leptotyphlops narirostris narirostris (Peters).

Material. (1) NIGERIA: CAS 104555, 6 miles S. of Jos (1250 meters elevation), September 16, 1966, collected by E. S. Ross and K. Lorenzen.

Remarks. This subspecies is found in Nigeria, Ivory Coast, and Cameroun. To the north in Mauritania, Senegal, and Mali it is replaced by *Lepotyphlops narirstris boueti* (Chabanaud). Total length 126 (107 + 19) mm. The stomach contained some 50 ant eggs.

Boaedon fuliginosus (Boie).

Material. (1) UPPER VOLTA: MVZ 81441, 12 miles NW. of Ouagadougou, December 2, 1965.

Remarks. The specimen was collected as it crawled across a road during the late afternoon.

Psammophis elegans (Shaw).

Material. (1) MALI: CAS 103194, Bandiagara, December 6, 1965.

Remarks. *Psammophis elegans* is a common diurnal snake in the open country of West Africa. It is found from the edge of the Sahara in Senegal and Mali to the coast in Ghana and Nigeria. The specimen from Bandiagara was collected during mid-morning as it was crawling among rocks.

Psammophis sibilans sibilans (Linnaeus).

Material. (2) MALI: MVZ 75477, Bandiagara, December 13, 1961; CAS 103195, Bandiagara, December 6, 1965.

Remarks. This form is widespread throughout Africa. In the north it is found along the Nile to the Delta and in the Sahara of southern Algeria. It occurs all through tropical Africa except for the rain forest where it is replaced by *P. sibilans phillipsi*. MVZ 75477 was found under a trash pile early in the morning. CAS 103195 was active on the surface of the ground during midmorning.

Telescopus variegatus (Reinhardt).

MATERIAL. (1) UPPER VOLTA: CAS 103356, 12 miles SE. of Tenkodogo, December 27, 1965.

REMARKS. This species is apparently restricted to the savanna and semiarid regions of West Africa from Guinea to northern Cameroun. It penetrates the southern Sahara at least in the Aïr Mountains of Niger where the more desert-dwelling *T. tripolitanus* is found. The specimen was found at night crossing a road in a dry savanna area that had recently burned over.

ZOOGEOGRAPHY

The reptiles found within the Mali Region have two origins. There are Palearctic desert forms that have moved into the area from the north, and tropical African forms that have moved into the area from the south. As would be expected, many of the Palearctic species are found only in the northern subdesert and desert zones of the study area, and many of the tropical African species are found only in the wetter savanna zones in the southern part of the study area. However, there are a number of species whose distributions are restricted to the savanna and subdesert zones and are neither found in the rain forest to the south nor in the Sahara Desert to the north. The origins of these species are both Palearctic and tropical African.

The present distributions of the species included in this paper can be divided into several patterns. Species are listed below according to pattern, and possible reasons for the distribution are discussed.

SPECIES THROUGHOUT AFRICA SOUTH OF THE SAHARA

Twenty-seven of the species that have been recorded from the Mali Region have distributions that are primarily throughout tropical Africa south of the Sahara. These are:

Agama agama
Hemidactylus brookii angulatus
Lygodactylus picturatus guttaralis
Varanus exanthematicus exanthematicus
Varanus niloticus niloticus
Typhlops punctatus punctatus

Python sebae
Boaedon fuliginosus
Crotaphopeltis hotamboeia
Dasypeltis scabra
Dispholidus typus
Dromophis lineatus
Dromophis praeornatus
Meizodon coronatus
Natriciteres olivaceus
Philothamnus irregularis
Philothamnus semivariegatus
Ramphiophis oxyrhynchus
Psammophis sibilans
Bitis arietans arietans
Causus rhombeatus
Naja haje haje
Naja melanoleuca
Naja nigricollis
Trionyx triunguis
Pelomedusa subrufa
Crocodylus niloticus

All of these species are of tropical African origin. Several occur in North Africa but have not been collected in the central part of the Sahara. *Boaedon fuliginosus, Bitis arietans,* and *Naja haje* are found in Morocco and probably reached North Africa during less severe climatic conditions along the Atlantic coast of Spanish Sahara. Even at the present time this coastal desert is not as extreme as in the interior. These three snakes are characteristic of savanna and semi-desert areas.

Dasypeltis scabra, Trionyx triunguis, and *Crocodylus niloticus* are found along the Nile River into Egypt. The Nile River provides a permanent, well-watered pathway from Tropical Africa to the Mediterranean Sea. The presence in historic times of *Crocodylus niloticus* in the Tassilli des Ajjers of the central Sahara suggests that at one time either there was a water connection between the savanna and the desert or that the savanna extended much further north. Fresh water fish of a tropical origin are also found in the Tassili des Ajjers.

Most of the species in this group are not found north of the moister savanna zones. Such species as *Dispholidus typus, Philo-*

thamnus irregularis, and *Philothamnus semivariegatus* are arboreal and are not found north of wooded areas. Species such as *Varanus niloticus, Python sebae, Crotaphopeltis hotamboeia, Causus rhombeatus,* and *Pelomedusa subrufa* are restricted to areas where there is permanent water because of their physiological requirements or food. The Niger River provides such permanent water and enables these species to survive. *Typhlops punctatus* and *Meizodon coronatus* are burrowing snakes that live in soil and apparently cannot survive in sandy areas. *Agama agama* and *Hemidactylus brookii* are commonly found around habitations and part of their distribution may be due to man.

Tropical Forms Restricted to West Africa from Senegal-Guinea to the Cameroun-Congo-Chad Area

Fourteen species, all of a tropical African origin, are restricted to West Africa and not found throughout east and southern Africa. These are:

Mabuya perrotetii
Mabuya quinquetaeniata
Chamaeleo senegalensis
Gonionotophis granti
Lycophidium irroratum
Lycophidium semicinctum
Mehelya crossi
Natrix anoscopus
Psammophis elegans
Telescopus variegatus
Atractaspis dahomeyensis
Atractaspis microlepidota micropholis
Elapsoidea sundevallii moebiusi
Cyclanorbis senegalensis

Only *Mayuba quinquetaeniata* penetrates the Sahara Desert along the Nile River. *Gonionotophis granti, Atractaspis dahomeyensis, Atractaspis microlepidota,* and *Elapsoidea sundevallii,* are burrowing savanna snakes and have not been collected north of the Dry Savanna. A lack of suitable soil and the presence of sand north of the Dry Savanna is probably the barrier to their northern distribution. *Chamaeleo senegalensis* is arboreal and is found along the Niger River, but is not found

in the Wooded Steppe where the small leaved, deciduous *Acacia* trees do not provide sufficient protection from the sun. *Lycophidium semicinctum, L. irroratum, Mehelya crossi,* and *Natrix anoscopus* are snakes of the forest and tall grass savannas and are found only in the extreme southern part of the Mali Region. *Psammophis elegans* and *Telescopus variegatus,* both lizard feeders, occur into the Subdesert Steppe where lizards are abundant. *Cyclanorbis senegalensis* is an aquatic turtle.

Savanna and Semidesert Forms Found Across Africa North of the Rain Forest and South of the Sahara from Senegal to or Nearly to the Red Sea

Nine species, both of Palearctic and tropical African origin, occur in a band across Africa north of the forest and south of the Sahara. The species of Palearctic origin include:

Tarentola annularis
Tarentola ephippiata
Sphenops delislei
Eryx colubrinus

The species of probable African origin include:

Latastia longicaudata
Chamaeleo africanus
Python regius
Prosymna meleagris laurenti
Geochelone sulcata

Sphenops delislei, a burrowing skink, and *Eryx colubrinus* are found in areas where there is sand soil, but are not found in the extreme desert. The rock-dwelling gecko, *Tarentola annularis,* and the rock and tree-trunk dwelling *Tarentola ephippiata* are found in suitable habitats in all the zones of the study area and even in parts of the Sahara Desert. However, they appear to be absent from the central Sahara. *Tarentola annularis* is found along the Nile River to the Delta.

Chamaeleo africanus is restricted to savanna areas where there are trees, but can survive in regions where there is less rainfall than is needed for *C. senegalensis. Geochelone sulcata* is a tortoise found primarily in the Wooded Steppe. *Python regius* and *Prosymna meleagris* are both widely distributed in tall grass

savannas. *Latastia longicaudata* is found throughout short grass and subdesert areas.

Savanna and Semidesert Forms Found Only in West Africa

Twelve species, both of Palearctic and tropical African origin, are found only in the savanna and semidesert parts of West Africa. The species of Palearctic origin are:

Hemitheconyx caudicinctus
Chalcides thierryi
Eremias guineensis
Eremias nitida
Eryx muelleri
Coluber dorii

The species of tropical African origin are:

Cynisca leucura
Philochortus lhotei
Agama sankaranica
Leptotyphlops bicolor
Leptotyphlops brevicauda
Leptotyphlops narirostris boueti

Both *Hemitheconyx caudicinctus* and *Chalcides thierryi* are found in rocky areas. Only a few specimens have been collected. *Eremias guineensis, s. nitida,* and *Agama sankaranica* are active, diurnal lizards found in open country. They have not been collected east of the northern Cameroun-Chad region. However, almost no collecting has been done between Chad and Somalia. Therefore the apparent restriction of these three species, and in fact of other species in this section, may be due to a lack of collecting.

Coluber dorii, the only member of the genus *Coluber* in tropical Africa, is rare in collections, and its distribution is not well understood. *Philochortus lhotei* is known only from the type locality. The center of the genus *Philochortus* is in the Ethiopia-Somalia region.

Cynisca leucura, Leptotyphlops bicolor, L. brevicauda, and *L. narirostris* are subterranean, termite- and ant-eating species. They are only occasionally found on the surface of the ground after a rain. They are absent from extensive sandy areas and

the sand of the Subdesert Steppe may limit their northward distribution.

Forms of the Sahara Desert

Nineteen species of reptiles, all of Palearctic origin, are found in the Sahara Desert, and do not extend into the Middle East. Some of the species are found south of the Sahara into the savanna. The species of a Saharan distribution are:

Stenodactylus petrii
Stenodactylus sthenodactylus
Tropiocolotes steudneri
Tropiocolotes tripolitanus
Scincopus fasciatus
Scincus scincus
Acanthodactylus scutellatus
Acanthodactylus erythrurus bellii
Eremias olivieri olivieri
Eremias pasteuri
Eremias rubropunctata
Uromastyx acanthinurus
Uromastyx geyri
Agama bibroni
Coluber florulentus algirus
Lytorhynchus diadema
Macroprotodon cucullatus cucullatus
Telescopus tripolitanus
Cerastes vipera

These species are true desert forms. Only four of the species have been collected south of the Subdesert Steppe. *Stenodactylus sthenodactylus, Scincopus fasciatus,* and *Acanthodactylus erythrurus bellii* have been found in extreme northern Nigeria. *Tropiocolotes tripolitanus apoklomax* is found in rocky areas in the Wooded Steppe of Mali.

Within the Sahara some of the species like *Scincus scincus* and *Cerastes vipera* occur in areas of loose sand, some like *Uromastyx geyri* and *Agama bibroni* are found in rocky areas, and others like *Eremias rubropunctata* usually occur in open flat areas, but not among sand dunes.

All these species are found only as far east as the Red Sea

and Israel. The Great Rift Valley of East Africa which extends north through the Red Sea and the Dead Sea at one time formed a sea barrier between Africa and the Middle East. The Nile River is not an effective barrier since many of the species are found east of the Nile in Sinai and Israel.

Forms of the Middle East and the Sahara

Fourteen species of reptiles, all of Palearctic origin, are found both in the Middle East and in the Sahara Desert. These include:

Phyodactylus hasselquistii
Chalcides ocellatus
Acanthodactylus boskianus asper
Eremias guttulata guttulata
Agama mutabilis
Varanus griseus
Leptotyphlops macrorhynchus
Coluber rhodorachis rhodorachis
Malpolon moilensis
Psammophis schokari
Spalerosophis diadema cliffordi
Cerastes cerastes
Echis carinatus pyramidum
Clemmys caspica

Four of these species are found south of the Subdesert Steppe in the savanna. *Ptyodactylus hasselquistii* is found in rocky areas in all of the savanna zones. *Acanthodactylus boskianus asper* is found in Ghana and *Echis carinatus,* a widely ranging and adaptable viper, is found from India through the Sahara Desert and into all zones in West Africa except the forest.

The aquatic turtle, *Clemmys caspica,* absent from the central Sahara, is found in the Middle East, North Africa, and the Aïr Mountains and the Adrar des Iforas of the southern Sahara. It is possible that this species may have crossed the Sahara during wetter times, but it is also very likely that *Clemmys caspica* was introduced from North Africa by camel caravans. Agadez, the only specific locality for *Clemmys caspica,* was a major southern caravan terminus.

All of the species found both in Africa and the Middle East either were distributed before the Rift Valley separation, or

more likely, since there is little population variation, throughout their ranges, have more recently migrated into the Sahara.

CHECKLIST

This checklist contains 97 species and subspecies of reptiles that have been collected within the boundaries of the "Mali" study area. Within this region: one ampisbaenid, 41 lizards, 49 snakes, 5 turtles and tortoises, and 1 crocodilian are known to occur. The checklist includes the following: the current scienttific name, reference to the type description, reference to current literature on the species, the geographic range, and localities within the study area where the species has been collected.

Except for localities where the author collected specimens, each locality is followed by a number. Each number refers to a literature reference listed below; the complete citation may be found in the bibliography at the end of this paper.

1. Andersson, 1935
2. Angel, 1922
3. de Witte, 1930
4. Angel, 1931
5. Angel, 1932
6. Angel, 1933
7. Angel, 1936a
8. Angel, 1936b
9. Angel, 1944
10. Angel, 1950
11. Angel and Lhote, 1938
12. Chabanaud, 1917a
13. Chabanaud, 1917b
14. Grandison, 1956
15. Hughes, Barry (Department of Zoology, University of Ghana; personal communication)
16. Loveridge, 1936
17. Pellegrin, 1909
18. Villiers, 1950b
19. Villiers, 1950a
20. Villiers, 1951
21. Villiers, 1952
22. Villiers, 1953
23. Villiers, 1954
24. Villiers, 1956
25. Villiers, 1965

Class **REPTILIA**

Order AMPHISBAENIA

Family Amphisbaenidae

Genus **Cynisca** Gray

Cynisca leucura (Duméril and Bibron).

Amphisbaena leucura Duméril and Bibron, 1839, Herp. Gen., vol. 5, p. 498 (type locality: coast of Guinea).

Cynisca leucura, GANS, 1967, Bull. Amer. Nat. Hist., vol. 135, p. 80 (synonymy).

RANGE. Liberia to Nigeria.

LOCALITY. Bobo Dioulasso[14].

Order SQUAMATA

Family GEKKONIDAE

Genus **Hemitheconyx** Stejneger

Hemitheconyx caudicinctus (Duméril).

Stenodactylus caudi-cinctus A. DUMÉRIL, 1851, Rev. Mag. Zool., p. 484 (type locality: Senegal).

Hemitheconyx caudicinctus, LOVERIDGE, 1947, Bull. Mus. Comp. Zool., vol. 98, no. 1, pp. 26–28 (description, synonymy).

RANGE. West Africa from Senegal to northern Nigeria.

LOCALITIES. MALI: Kati near Bamakko (*Psilodactylus caudicinctus*)[2]; Nioro[14]. UPPER VOLTA: Dano[14].

Genus **Hemidactylus** Oken

Hemidactylus brookii angulatus (Hallowell).

Hemidactylus angulatus HALLOWELL, 1852, Proc. Acad. Nat. Sci. Philadelphia, p. 63, fig. (type locality: West Coast of Africa).

Hemidactylus brookii angulatus, LOVERIDGE, 1947, Bull. Mus. Comp. Zool., vol. 98, no. 1, pp. 134–142 (description, synonymy).

RANGE. Most of tropical Africa south of the Sahara.

LOCALITIES. MALI Bourem; Douentza[11]; Bamako, Daifarabé; Segou[14]; Hombori. NIGER: Zinder [10]; Tahoua[11]; Matankari[17]; UPPER VOLTA: Dano[14]. NIGERIA: Argungu; Sokoto (Dunger, 1968).

Genus **Lygodactylus** Gray

Lygodactylus picturatus guttaralis (Bocage).

Hemidactylus guttaralis BOCAGE, 1873, Journ. Sci. Lisboa, vol. 4, p. 211 (type locality: Bissao, Portuguese Guinea).

Lygodactylus picturatus guttaralis, LOVERIDGE, 1947, Bull. Mus. Comp. Zool., vol. 98, no. 1, pp. 224–227 (description, synonymy).

RANGE. Portuguese Guinea to Sudan; south to Tanzania.

LOCALITY. UPPER VOLTA: Bobo Dioulasso[10].

Genus **Ptyodactylus** Gray

Ptyodactylus hasselquistii (Donndorff).

Lacerta hasselquistii DONNDORFF, 1798, Zool. Betyr., vol. 3, p. 133 (type locality: Cairo, Egypt).

Ptyodactylus hassellquistii hasselquistii, LOVERIDGE, 1947, Bull. Mus. Comp. Zool., vol. 98, no. 1, pp. 275–281 (description, synonymy).

RANGE. Savanna and desert regions of Africa north of 10°N: Middle East. The status of the subspecies *P. h. oudrii* Lataste in Morocco and Algeria and *P. h. togoensis* Tornier in Togo is unclear.

LOCALITIES. ALGERIA: Hogar (Hoggar)[1]; Silet (Hoggar); Tassili de Timissao[3]; Imegha ou Imerera (Imarera), 2000 m. (Hoggar) (*P. lobastus*)[4]; Hoggar (*P. lobastus*)[9]; Tamrit; Djanet[11]. MALI: Tin-Zaouaten (Ti-N-Zaouâtene), Adrar Mountains[1]; Djénné (*P. lobatus*)[13]; Kidal Rd., 40 miles NE. Anefis (Anefis I-N-Darane), Adrar; Bandiagara; Hombori; 2 miles S. of Airport, Mopti; Sanga. NIGER: Agadez; Dabaga (Aïr); Irabellaben (Aïr); Téouar (Aïr)[10]; Agadez; Iferouâne; I-N-Gall[11]; Agadez[14]. UPPER VOLTA: Fada Ngourma.

Genus **Stenodactylus** Fitzinger

Stenodactylus petrii Anderson.

Stenodactylus petrii ANDERSON, 1896, Contr. Herp. Arabia, p. 96 (type locality: Tel el Amarna, Assuit Province, Egypt).

Stenodactylus petrii, LOGERIDGE, 1947, Bull. Mus. Comp. Zool., vol. 98, no. 1, pp. 41–43 (description, synonymy).

RANGE. Desert regions of North Africa and Near East from Algeria to Israel.

LOCALITIES. MALI: 42 miles N. of Bourem. NIGER: Agadez, Téouar (Aïr)[10].

Stenodactylus sthenodactylus (Lichtenstein).

Ascalabotes sthenodactylus LICHTENSTEIN, 1823, Verz. Doubl. Mus. Zool. Berlin., p. 102 (type locality: Egypt and Nubia).

Stenodactylus sthenodactylus, LOVERIDGE, 1947, Bull. Mus. Comp. Zool., vol. 98, no. 1, pp. 44–50 (description, synonymy).

RANGE. Desert regions of North Africa from Morocco and Mauritania to Egypt. Extends into northern Nigeria, the Sudan, and northern Kenya.

LOCALITIES. ALGERIA: Hogar (Hoggar) (*S. elegans*)[1]; Hoggar[9]; Fort Flatters (Sahara)[11]. MALI: Tanezrouft; Asselar (Asler) (*S. guttatus*)[3]; Elequit (El Ouit). NIGER: Agadez[10]; Tahoua[11]. NIGERIA: Kwara (Dunger, 1968, p. 39).

Genus **Tarentola** Gray

Tarentola annularis (Geoffroy).

Gecko annularis GEOFFROY SAINT HILAIRE, 1823, in Savigny, Descr. Egypte, Hist. nat. Rept., vol. 1, p. 130 (type locality: Egypt).

Tarentola annularis, GRANDISON, 1961, Zool. Meded., Leiden, vol. 38, no. 1, pp. 3–6 (description, synonymy).

RANGE. Mauritania and Senegal to Egypt and Somalia.

LOCALITIES. *Tarentola annularis* and *T. ephippiata* have been confused in West Africa. Only localities definitely referrable to *T. annularis* are listed. MALI: Goundam (*T. senegalensis*)[6]; Bandiagara; Elequit (El Ouit); Gao; Timbuctu (Tombouctou); 2 miles S. of Airport, Mopti.

Tarentola ephippiata O'Shaughnessy.

Tarentola ephippiata O'SHAUGHNESSY, 1875, Ann. Mag. Nat. Hist., ser. 4, vol. 16, p. 264 (type locality: West Africa).

Tarentola ephippiata, GRANDISON, 1961, Zool. Meded., Leiden, vol. 38, no. 1, pp. 6–9 (description, synonymy).

RANGE. Senegal to Chad. Absent from Nile River region. Saukin (Red Sea).

LOCALITIES. MALI: Gao; Hombori; Timbuctu (Tombouctou); NIGER: Agadez; Azzel (Aïr)[10].

Genus **Tropiocolotes** Peters

Tropiocolotes steudneri (Peters).

Gymnodactylus steudneri PETERS, 1869, Monatsb. Akad Wiss. Berlin, p. 788 (type locality: Sennar, Anglo-Egyptian Sudan).

Tropicolotes (sic) *steudneri*, Loveridge, 1947, Bull. Mus. Comp. Zool., vol. 98, no. 1, pp. 52–53 (description, synonymy).

Range. Desert regions of North Africa from Algeria to Egypt and Sudan.

Locality. ALGERIA: Amguid[11].

Tropiocolotes tripolitanus algericus Loveridge.

Tropicolotes (sic) *tripolitanus algericus* Loveridge, 1947, Bull. Mus. Comp. Zool., vol. 98, no. 1, pp. 56–57 (type locality: Kenetsa (Kenedsa), south of Colomb Bechar, western Algerian Sahara).

Range. Algerian Sahara.

Locality. Ahaggar (Hoggar Mountains) (Loveridge, 1947, p. 57).

Tropiocolotes tripolitanus tripolitanus Peters.

Tropiocolotes tripolitanus Peters, 1880, Monatsb. Akad. Wiss, Berlin, p. 306 (type locality: Uadi M'bellem, Tripolitania).

Tropicolotes (sic) *tripolitanus tripolitanus*, Loveridge, 1947, Bull. Mus. Comp. Zool., vol. 98, no. 1, pp. 54–55 (description).

Range. Egypt west to Tunisia and Niger.

Localities. NIGER: Azzel (Aïr Sud); Dabaga (Aïr); Téouar (Aïr Central)[10].

Family Scincidae

Genus **Chalcides** Laurenti

Chalcides ocellatus (Forskål).

Lacerta ocellata Forskål, 1775, Descr. Anim., p. 13 (type locality: Egypt).

Chalcides ocellatus, E. G. Boulenger, 1920, Proc. Zool. Soc. London, no. 6, pp. 77–83 (variation in the *C. ocellatus* group).

Range. North Africa. Southern Europe. Middle East.

Localities. The taxonomy of the subspecies in the Sahara is not clear. Three forms have been reported from the mountain masses of the Sahara. ALGERIA: Hogar (Hoggar)[1]; Hoggar (*C. ocellatus tiligugu*)[9]; Djanet (*C. ocellatus tiligugu*)[11]; Djanet; Tamrit (*C. ocellatus tassiliensis*)[11]. NIGER: Azzel (Aïr); Irabellaben (Aïr) (*C. ocellatus ocellatus*)[10]; Oued Goufat (Aïr) (*C. ocellatus tiligugu*)[11].

Chalcides thierryi Tornier.

Chalcides bottegi var. *thierryi* Tornier, 1901, Beiheft Archiv Naturges., Berlin, vol. 67, p. 87 (type locality: Mangu and Jendi (Togo)).

Chalcides pulchellus Mocquard, 1906, Bull. Mus. Hist. Nat., vol. 12, no. 7, p. 466 (type locality: Lobi District, French Sudan (Upper Volta)).

Range. Rocky regions in the savanna from Upper Volta to Nigeria.

Localities. NIGERIA: Marama (*C. bottegi thierryi*)[14]; 6 miles S. of Jos. UPPER VOLTA: Lobi District (*C. pulchellus*) (Mocquard, 1906).

Genus **Mabuya** Fitzinger

Mabuya perrotetii (Duméril and Bibron).

Euprepes perrotetii Duméril and Bibron, 1839, Erpét Gén., vol. 5, p. 669 (type locality: Senegal).

Mabuya perrotetii, Schmidt, 1919, Bull. Amer. Mus. Nat. Hist., vol. 39, pp. 540–545 (description, synonymy).

Range. Senegal to Congo.

Localities. MALI: Diafarabé; Ségou[14]; Bandiagara. UPPER VOLTA: Fada Ngourma[10].

Mabuya quinquetaeniata scharica Sternfeld.

Mabuya quinquetaeniata scharica Sternfeld, 1917, Wiss. Ergebn. Deutsch. Zent.-Africa-Exped. 1910–1911, vol. 1, p. 436 (type locality: Shari River and Upper Ubangi, French Equatorial Africa).

Mabuya quinquetaeniata scharica, Loveridge, 1952, Bull. I.F.A.N., vol. 14, no. 1, pp. 236–237 (description, synonymy).

Range. West Africa from Senegal to the Ubangi-Shari region.

Localities. MALI: Burem (Bourem)[1]; Kati near Bamakko[2]; Goundam[6]; Ansongo; Ménaka; Ségou[11]; Gao; Tombouctou[13]; Gao (*M. intermedia*)[13]; Koulikoro[14]; Bandiagara; 12 miles S. of Gao. NIGER: Dungass (Dungas); Matankari; Zinder[17].

Genus **Scincus** Laurenti

Scincus scincus (Linnaeus).

Lacerta stincus Linnaeus, 1758, Syst. Nat., p. 205 (type locality: Libya, Egypt, Arabia) (*stincus* typographical error corrected to *scincus*).

Scincus officinalis, ANDERSON, 1898, Zoology of Egypt, vol. 1, pp. 205–207 (description).

RANGE. Morocco to Syria. In West Africa south to desert regions of Mauritania, Mali, and Niger.

LOCALITIES. ALGERIA: Hoggar (*S. officinalis*)[9]; Djanet; Oued Iminrou (*S. officinalis*)[11]. MALI: Tombouctou (*S. muscatensis*)[13]; Adrar des Iforas (*S. officinalis*)[11]. NIGER: Bilma (*S. officinalis*)[11].

Genus **Scincopus** Peters

Scincopus fasciatus Peters.

Scincus (*Scincopus*) *fasciatus* PETERS, 1864, Monatsb. Akad. Wiss. Berlin, p. 45 (type locality: Geryvilli, Algeria).

Scincopus fasciatus, ANDERSON, 1898, Zoology of Egypt, vol. 2, pp. 201–203 (description).

RANGE. Mauritania to Egypt and Sudan. South to Northern Nigeria.

LOCALITIES. MALI: Tombouctou[11]; Tombouctou (*Scincus fasciatus*)[13]. NIGER: Agadez[10]. NIGERIA: Sokoto.

Genus **Sphenops** Wagler

Sphenops delislei (Lataste).

Allodactylus de l'Islei LATASTE, 1876, Journ. Zool., p. 238, pl. x. (type locality: Japan).

Chalcides delislii, BOULENGER, 1887, Cat. Liz., vol. 3, p. 407 (description).

Chalcides delislii, ANDERSON, 1898, Zoology of Egypt, vol. 1, pp. 223–224 (description).

Chalcides delislii, ANGEL, 1950, Mem. I.F.A.N., no. 10, p. 335 (description, distribution).

Sphenops del'islei, PASTEUR AND BONS, 1960, Travaux Inst. Sci. Chérifien, ser. Zool., no. 21, p. 59 (discussion of the genus *Sphenops*).

RANGE. Sub-Sahara regions from Senegal to the Red Sea. Hoggar Mountains of the Central Sahara. The type locality, Japan, is in error.

LOCALITIES. ALGERIA: Hoggar[9]. MALI: Hombori. NIGER: Agadez[10]; Dungass (Dungas)[17].

Family Lacertidae

Genus **Acanthodactylus Wiegmann**

Acanthodactylus boskianus asper (Audouin).

Lacerta aspera Audouin, 1829, Descr. Egypte, Rept., Suppl., p. 173 (type locality: Egypt).

Acanthodactylus boskianus var. *asper*, Boulenger, 1921, Mon. Lacert., vol. 2, pp. 86–87 (description).

Range. Desert regions of North Africa. Israel. Arabia.

Localities. ALGERIA: Hogar (Hoggar)[1]; Tamanrasset[3]; In Ameri (Hoggar); Imegha (Imarera); Ararne (Tefedest); Tazerouk[4]; Hoggar[9]; Amguid; Djanet; Azaka Emire; Assakao[11]. MALI: Segou[11]; 12 miles S. of Gao. NIGER: Agadez[10]. NIGERIA: Illela; Kware; Sokoto-Kware road (Dunger, 1967b, p. 126).

Acanthodactylus erythrurus bellii Gray.

Acanthodactylus Bellii Gray, 1845, Cat. Liz. British Mus., p. 36 (type locality: Algiers).

Acanthodactylus vulgaris var. *belli*, Boulenger, 1921, Mon. Lacert., vol. 2, pp. 45–46 (description, remarks on a specimen from Sokoto, Nigeria).

Acanthodactylus erythrurus bellii, Pasteur and Bons, 1960, Travaux Inst. Sci. Chérifien, ser. Zool., no. 21, p. 61 (synonymy).

Range. Morocco, Algeria, Northern Nigeria.

Locality. NIGERIA: Sokoto (*A. vulgaris*)[17].

Acanthodactylus scutellatus (Audouin).

Lacerta scutellata Audouin, 1829, Descr. Egypte, Rept., Suppl., p. 172 (type locality: Egypt).

Acanthodactylus scutellatus, Boulenger, 1921, Mon. Lacert., vol. 2, pp. 97–111 (description).

Range. Desert regions of North Africa. Israel. More than one subspecies may occur in the Southern Sahara.

Localities. ALGERIA: Tassili de Timissao[3]; Amguid; Erg d'Admer; oued Rofat[11]. MALI: Timétrine; Tisserlitine[3]; Goundam; Mbouna[6].

Genus **Eremias** Fitzinger

Eremias guineensis Boulenger.

Eremias guineensis BOULENGER, 1887, Ann. Mag. Nat. Hist., ser. 5, vol. 20, p. 51 (type locality: Brass, Mouth of the Niger).

Eremias guineensis, BOULENGER, 1921, Mon. Lacert., vol. 2, pp. 256–257 (description).

Eremias benuensis MONARD, 1949, Rev. Suisse Zool., vol. 56, no. 38, pp. 737–741 (type locality: Ngaouyanga, Cameroun).

Eremias guineensis, DUNGER, 1967, Nigerian Field, vol. 32, no. 3, pp. 122–123 (description, distribution in Nigeria).

RANGER. Savanna of Niger, Nigeria, and Cameroun.

LOCALITY. NIGER: 10 miles NW. of Tapoa on road to Tamou.

Eremias guttulata guttulata (Lichtenstein).

Lacerta guttulata LICHTENSTEIN, 1823, Verz. Doub. Zool. Mus. Berlin, p. 101 (type locality: Egypt).

Eremias guttulata forma *typica,* BOULENGER, 1921, Mon. Lacert., vol. 2, pp. 258–261 (description).

Eremias guttulata guttulata, PASTEUR AND BONS, 1960, Travaux Inst. Sci. Chérifien, ser. Zool., no. 21, pp. 64–66 (recognizes *E. guttulata* and *E. olivieri* as separate species).

RANGE. Desert regions of North Africa. Middle East to Iraq.

LOCALITIES. ALGERIA: Hoggar[9]; Adrar In Gechika; Amguid; Hamada de Tim Gechika[11]. NIGER: Agadez; Taferjit (Tafersit)[11].

Eremias nitida Günther.

Eremias nitida GÜNTHER, 1872, Ann. Mag. Nat. Hist., ser. 4, vol. 9, p. 381 (type locality: West Africa).

Eremias nitida, BOULENGER, 1921, Mon. Lacert., vol. 2, pp. 231–233 (description).

RANGE. Savanna of West Africa from Guinea to Cameroun.

LOCALITY. NIGERIA: Rimi (Dunger, 1967b, p. 125).

Eremias olivieri olivieri (Audouin).

Lacerta Olivieri AUDOUIN (part), 1829, Descr. Egypte, Rept., Suppl., p. 175 (type locality: Egypt).

Eremias guttulata var. *olivieri,* BOULENGER, 1921, Mon. Lacert., vol. 2, pp. 261–263 (description).

Eremias olivieri olivieri, PASTEUR AND BONS, Travaux Inst. Sci. Chérifien,

ser. Zool., no. 21, pp. 64–67 (recognizes *E. guttulata* and *E. olivieri* as separate species).

RANGE. Desert regions of North Africa. Israel.

LOCALITIES. ALGERIA: Hoggar[9]; Amguid[11].

Eremias pasteuri Bons.

Eremias (Mesalina) pasteuri BONS, 1960, C. R. Soc. sci. nat. phys. Maroc, vol. 26, no. 4, pp. 69–71 (type locality: Amguid, Hoggar).

Eremias pasteuri, GAUTHIER, 1965, Bull. Mus. Nat. Hist. Nat., vol. 37, no. 6, pp. 962–930 (distribution, ecology).

RANGE. Sahara Desert of extreme southern Morocco, central Algeria and northern Niger.

LOCALITIES. ALGERIA: Amguid; Hoggar (Gauthier, 1965, p. 926). NIGER: Agadez; Bilma (Gauthier, 1965, p. 926).

Eremias rubropunctata (Lichtenstein).

Lacerta rubropunctata LICHTENSTEIN, 1823, Verz. Doub. Zool. Mus. Berlin, p. 109 (type locality: Egypt and Nubia).

Eremias rubropunctata, BOULENGER, 1921, Mon. Lacert., vol. 2, pp. 276–280 (description).

RANGE. Desert regions of North Africa.

LOCALITIES. ALGERIA: Arak[1]; Tanezrouft (250 kilometers S. of Reggan)[5]; Hoggar[9]; Amguid; Isolane (Issalane)[11]. MALI: Tanezrouft; Région de Sounfat (Tessounfat)[3]; 40 miles NE. of Anefis. NIGER: Jadel (Jadal)[11].

Genus **Latastia** Bedriaga

Latastia longicaudata longicaudata Reuss.

Lacerta longicaudata REUSS, 1834, Mus. Senckenb., vol. 1, p. 29 (type locality: Tor, Sinaitic Peninsula).

Latastia longicaudata, forma *typica,* BOULENGER, 1921, Mon. Lacert., vol. 2, pp. 25–32 (description).

RANGE. Savanna and sub-desert regions from Senegal to the Red Sea.

LOCALITIES. MALI: Goundam[6]; 12 miles S. of Gao. NIGER: Azzel (Aïr); Dabaga (Aïr); Téouar (Aïr)[10]; Dungas[17]. NI-

GERIA: Illela; Kalgo; Kware-Sokoto road; Sokoto (Dunger, 1957b, p. 128).

Genus **Philochortus** Matschie

Philochortus lhotei Angel.

Philochortus lhotei ANGEL, 1936, Bull. Soc. Zool. France, vol. 61, pp. 100–103 (type locality: puits d'In Abezou).

RANGE. Known only from the type locality.

LOCALITY. NIGER: Puits d'In Abezou, 100 kilometers southwest of Puits d'In Abangarit (I-N-Abanrherit).

Philochortus spinalis (Peters).

Lacerta spinalis PETERS, 1874, Mon. Ak. Berlin, p. 369, pl. fig. 2 (type locality: Bogos).

Philochortus spinalis, BOULENGER, 1921, Mon. Lacert., vol. 2, pp. 3–5 (description, synonymy).

RANGE. Eritrea, Ethiopia [to Mali (?)].

LOCALITY. MALI: Burem (Bourem)[1]. This specimen from a locality some 2500 miles west of Ethiopia may not be *P. spinalis*. However, Andersson (1935, p. 14) states that it agrees in every detail with Peters' description.

Family AGAMIDAE

Genus **Agama** Daudin

Agama agama (Linnaeus).

Lacerta agama LINNAEUS, 1758, Syst. Nat., ed. 10, vol. 1, p. 207 (type locality: America (in error)).

Agama agama, WERMUTH, 1967, Das Tierreich, Berlin, vol. 86, pp. 3–6 (synonymy, subspecies).

RANGE. Throughout Africa south of the Sahara and Egypt. The subspecific status of West African material is not clear.

LOCALITIES. ALGERIA: Djanet; Tamrit (may be misidentified specimens of *A. impalearis*)[11]. MALI: Kati near Bamako (*A. colonorum*)[2]; Goundam (*A. colonorum*)[4]; Douentza[11]; Diafarabé; Nioro, Ségou[14]; Bandiagara; Tombouctou; Kidal Road, 40 miles

NE. of Anefis. NIGER: Téouar; Monts Baguezans (Aïr); Agadez[10]; Aoudéras (Aïr)[11]; Aïr[14]; Dungas; Zinder (*A. colonorum*)[17].

Agama impalearis Boettger.

Agama colonorum var. *impalearis* BOETTGER, 1874, Abh. Senck. Nat. Ges., Frankfurt, vol. 9, p. 132 (type locality: Morocco).

Agama impalearis, WERMUTH, 1967, Das Tierreich, Berlin, vol. 86, pp. 15–16 (synonymy).

RANGE. Morocco, Algeria, Tunisia, Mali, Niger.

LOCALITIES. ALGERIA: Mont Ilaman (Hoggar); Tassili de Timissao[3]; Imegha[4]; Hoggar[9]. MALI: Between Tisserlitine and Timetrine[3]. NIGER: In Abezou (100 kilometers SW. of I-N-Abanrherit)[11].

Agama mutabilis Merrem.

Agama mutabilis MERREM, 1820, Tent. Syst. Amphib., p. 50 (type locality: Egypt).

Agama mutabilis, PASTEUR AND BONS, 1960, Travaux Inst. Sci. Chérifien, ser. Zool., no. 21, pp. 35–42 (*A. inermis* Reuss, 1834, a synonym for *A. mutabilis* MERREM, 1820; *A. pallida* and *A. mutabilis* are conspecific; *A. ruderata* and *A. mutabilis* are distinct).

RANGE. Desert and sub-desert regions of northern Africa.

LOCALITIES. ALGERIA: Hogar (Hoggar)[1]; Oued Ahetes (Teffedest) (*A. inermis*)[4]; Hoggar; Tassili de Timissao (*A. inermis*)[3]; Tékébrine; Todock[11]. MALI: Tanezrouft; Timetrine; Tisserlitine (*A. inermis*)[2]. NIGER: Adrar Sederog (Sederor); Adrar Tazerzait (Tazerzaït, Mont)[11]; Bilma (*A. pallida*)[11].

Agama sankaranica Chabanaud.

Agama sankaranica CHABANAUD, 1918, Bull. Mus. Nat. Hist. Nat., vol. 24, p. 105 (type locality: Moussaia, Sankaran (Guinea)).

Agama sankaranica, GRANDISON, 1968, Bull. Br. Mus. Nat. Hist., Zool., vol. 17, no. 3, pp. 83–85 (description, ecology).

RANGE. Portuguese Guinea to Nigeria.

LOCALITIES. MALI: Ségou[14]; Bandiagara; Kidal Road, 40 miles NE. of Anefis.

Genus **Uromastyx** Merrem

Uromastyx acanthinurus Bell.

Uromastyx acanthinurus BELL, 1825, Zool. Journ., vol. 1, p. 457 (type locality: Africa).

Uromastyx acanthinurus, PASTEUR AND BONS, 1960, Travaux Inst. Sci. Chérifien, ser. Zool., no. 21, pp. 42–47 (discussion and key to African *Uromastyx*).

RANGE. Desert and semi-desert regions of North Africa from Morocco and Senegal to Egypt and Sudan.

LOCALITIES. ALGERIA: Hoggar[3]; Oued Ahetes (Teffedest)[4]; Hoggar[9]. MALI: Tin-Saouaten (Ti-N-Zaouàtene)[1]; Tanezrouft; Timétrine[3]. NIGER: Agadez; Téouar (Aïr) [10].

Uromastyx geyri Müller.

Uromastyx geyri MÜLLER, 1922, Naturwiss. Beob. Frankfurt, vol. 15/16, pp. 1–9 (type locality: Berge bei Tahihaõut).

Uromastyx geyri, PASTEUR AND BONS, 1960, Travaux Inst. Sci. Chérifien, ser. Zool., no. 21, pp. 42–47 (discussion and key to African *Uromastyx*).

RANGE. Mountains of the central and southern Sahara, including Tassili des Ajjers, Hoggar, Aïr, and Adrar des Iforas.

LOCALITIES. ALGERIA: Hogar (Hoggar)[1]. MALI: Adrar Mountains (Adrar des Iforas)[1]; Kidal Road, 40 miles NE. of Anefis. Some of the localities given for *U. acanthinurus* may be for *U. geyri*.

Family VARANIDAE

Genus **Varanus** Merrem

Varanus exanthematicus exanthematicus (Bosc).

Lacerta exanthematicus BOSC, 1792, Act. Soc. Hist. nat. Paris, vol. 1, p. 25, pl. 5, fig. 3 (type locality: "ad fluvium Senegal").

Varanus exanthematicus exanthematicus, MERTENS, 1942, Abh. senckenb. naturf. Ges., Frankfurt, no. 465, p. 189; no. 466, p. 352 (description).

RANGE. Senegal to Eritrea; south to the rain forest.

LOCALITIES. MALI: Kidal[1]; Kati near Bamakko[2]; Goundam[6]; Tombouctou[13]. NIGERIA: Kware (Dunger, 1967c, p. 174).

Varanus griseus griseus (Daudin).

Tupinambis griseus DAUDIN, 1803, Hist. nat. Rept., vol. 8, p. 352 (type locality: Egypt).

Varanus griseus griseus, MERTENS, 1942, Abh. senckenb. naturf. Ges., no. 462, pp. 338–347 (description, distribution, synonymy).

RANGE. North Africa. Other subspecies in Southwest Asia and India.

LOCALITIES. ALGERIA: Hoggar[9]. MALI: Adrar des Iforas[11]. NIGER: Aïr; puits d'Assaouas[11].

Varanus niloticus niloticus (Linnaeus).

Lacerta nilotica LINNAEUS, 1766, Syst. Nat., ed. 12, p. 369 (type locality: Egypt).

Varanus niloticus niloticus, MERTENS, 1942, Abh. senckenb. naturf. Ges., Frankfurt, no. 465, p. 177; no. 466, p. 320 (description, synonymy).

RANGE. Africa south of the Sahara.

LOCALITIES. MALI: Burem (Bourem); Adrar Mountains (Adrar des Iforas)[1]. NIGER: Tapoa (sight record by author).

Family CHAMAELEONIDAE

Genus **Chamaeleo** Laurenti

Chamaeleo africanus Laurenti.

Chamaeleo africanus LAURENTI, 1768, Synops. Rept., p. 46 (type locality: not given).

Chamaeleo basiliscus, ANDERSON, 1898, Zool. Egypt, vol. 1, pp. 230–232 (description).

Chamaeleo africanus, MERTENS, 1966, Das Tierreich: Chamaeleonidae, Lief. 83, pp. 6–7 (synonymy).

RANGE. Savanna from Mali to Somalia.

LOCALITIES. MALI: Diafarabé (*C. basiliscus*)[3]; Tombouctou (*C. basiliscus*)[11]; Gourao; Mopti; Route Mopti to Bandiagara; Ségou[14]; Bandiagara; Doentza; 6 miles E. of Mopti. NIGER: Agadez; Téouar (Aïr) (*C. basiliscus*)[10]; Dungas (*C. basiliscus*)[17]. NIGERIA: Illela; Kalgo; Katsina; Kware; Rimi (*C. basiliscus*) (Dunger, 1967a, p. 62).

Chamaeleo senegalensis senegalensis Daudin.

Chamaeleo senegalensis Daudin, 1802, Hist. nat. Rept., vol. 4, p. 203 (type locality: Senegal).

Chamaeleo senegalensis senegalensis, Mertens, 1966, Das Tierreich: Chamaeleonidae, Lief. 83, p. 27 (synonymy).

Chamaeleo senegalensis senegalensis, Dunger, 1967, Nigerian Field, vol. 32, no. 2, pp. 59–61 (description, distribution in Nigeria).

Range. Senegal to Cameroun.

Localities. MALI: Gao[11]; Baoulé; Koulikoro[14].

Order SERPENTES

Family Leptotyphlopidae

Genus **Leptotyphlops** Fitzinger

Leptotyphlops bicolor (Jan).

Stenostoma bicolor Jan, 1860, Icon. Gen., vol. 1, pl. 5, fig. 15 and 1864, Les Typhlopiens, p. 40 (type locality: Gold Coast).

Leptotyphlops bicolor, Villiers, 1963, Initiations Africaines, I.F.A.N., ed. 2, vol. 2, pp. 83–87 (description, key).

Range. Ivory Coast and Mali to Dahomey.

Localities. MALI: Diafarabé[19]. UPPER VOLTA: Bobo Dioulasso[19]; Garango[25].

Leptotyphlops brevicauda (Bocage).

Stenostoma brevicauda Bocage, 1887, Journ. Sci. Lisbon, vol. 11, p. 194 (type locality: West Africa).

Leptotyphlops brevicauda, Villiers, 1963, Initiations Africaines, I.F.A.N., ed. 2 vol. 2, pp. 84–87 (description, key).

Range. Ivory Coast and Mali to Nigeria.

Localities. GHANA: Bawku[15]. MALI: Bamako[19].

Leptotyphlops macrorhynchus (Jan).

Stenostoma macrorhynchus Jan, 1862, Arch. Zool. Anat. Phys., vol. 1, p. 190 (type locality: Sennar, Sudan).

Leptotyphlops macrorhynchus, Villiers, 1963, Initiations Africaines, I.F.A.N., ed. 2, vol. 2, pp. 83–87 (description, key).

Range. Africa from Ghana to Sudan. Middle East. India.

LOCALITIES. MALI: Vicinity E. of Bourem. NIGER: Bilma[8]; Agadez; Bilma[11]; Agadez; Téouar (Aïr)[18].

Leptotyphlops narirostris boueti (Chabanaud).

Glauconia boueti CHABANAUD, 1917, Bull. Mus. Nat. Hist. Nat., vol. 23, no. 1, pp. 3–4 (type locality: Djenné, Soudan).

Leptotyphlops narirostris boueti, VILLIERS, 1963, Initiations Africaines, I.F.A.N., ed. 2, vol. 2, pp. 83–87 (description, key).

RANGE. Mauritania, Senegal, Mali.

LOCALITIES. MALI: Djenné[12]; Bamako[19]. MAURITANIA: Aïoun-el-Atrouss[19].

Family TYPHLOPIDAE

Genus **Typhlops** Schneider

Typhlops punctatus punctatus (Leach).

Acontias punctatus LEACH, 1819, in Bowdich, Miss. Ashantee, App., p. 493 (type locality: Fantee (Fanti, Ashanti, Ghana)).

Typhlops punctatus punctatus, LOVERIDGE, 1957, Bull. Mus. Comp. Zool., vol. 117, no. 2, pp. 241–242 (synonymy).

Typhlops punctatus punctatus, LAURENT, 1964, Bull. Mus. Comp. Zool., vol. 130, no. 6, pp. 411–412 (description).

RANGE. Senegal to Sudan. South to Uganda.

LOCALITIES. MALI: Diafarabé[22]. NIGER: Birni Nkonni (*T. punctatus* var. *nigro-lineata*)[17].

Family BOIDAE

Genus **Eryx** Daudin

Eryx colubrinus (Linnaeus).

Anguis colubrina LINNAEUS, 1758, Syst. Nat., ed. 10, p. 228 (type locality: Egypt).

Eryx colubrinus, VILLIERS, 1963, Initiations Africaines, I.F.A.N., ed. 2, vol. 2, pp. 92–94 (description, key).

RANGE. Niger east to Egypt, Sudan and Kenya.

LOCALITIES. Agadez; Tabaello (Aïr)[18].

Eryx muelleri (Boulenger).

Gongylophis muelleri BOULENGER, 1892 Ann. Mag. Nat. Hist., ser. 6, vol. 9, p. 74 (type locality: Nubia).

Eryx muelleri, VILLIERS, 1963, Initiations Africaines, I.F.A.N., ed. 2, vol. 2, pp. 92–93 (description, key).

RANGE. Savanna and semi-desert regions of West Africa.

LOCALITIES. MALI: Bandiagara[6]; Gao[11]; Nioro[19]; Dogo[24].

Genus **Python** Daudin

Python regius (Shaw).

Boa regia SHAW, 1802, Gen. Zool., vol. 3, p. 347, pl. 96 (type locality: Africa).

Python regius, VILLIERS, 1963, Initiations Africaines, I.F.A.N., ed. 2, vol. 2, pp. 90–91 (description, key).

RANGE. Senegal to Sudan. South to Nigeria. Absent from the rain forest.

LOCALITY. GHANA: Navrongo[15].

Python sebae (Gmelin).

Coluber Sebae GMELIN, 1789, Syst. Nat., ed. 13, vol. 1, part 3, p. 1118 (type locality: America (in error)).

Python sebae, FITZSIMONS, 1962, Snakes of Southern Africa, Macdonald, London, pp. 93–98 (description, field notes, synonymy).

RANGE. Africa south of the Sahara.

LOCALITIES. MALI: Kati near Bamakko[2]; Sikasso[25]. UPPER VOLTA: Dano[20].

Family COLUBRIDAE

Genus **Boaedon** Duméril and Bibron

Boaedon fuliginosus (Boié).

Lycodon fuliginosus BOIÉ, 1827, Isis von Oken, vol. 20, col. 551 (type locality: "Java" in error).

Boaedon Lineatum DUMÉRIL AND BIBRON, 1854, Erp. Gén., vol. 7. p. 363 (type locality: Gold Coast).

Boaedon fuliginosus fuliginosus, LOVERIDGE, 1957, Bull. Mus. Comp. Zool., vol. 117, no. 2, p. 251 (synonymy).

Boaedon fuliginosus fuliginosus, FITZSIMONS, 1962, Snakes of Southern Africa, MacDonald, London, pp. 119–123 (description).

Boaedon lineatum, VILLIERS, 1963, Initiations Africaines, I.F.A.N., ed. 2, vol. 2, pp. 102–104 (key to West African *Boaedon*).

Boaedon fuliginosus, ROUX-ESTÈVE AND GUIBÉ, 1965, Bull. I.F.A.N., ser. A, vol. 27, no. 1, pp. 397–409 (*B. lineatus* synonymized with *B. fuliginosus*).

RANGE. Southern Morocco. Senegal to Eritrea. South to South Africa.

LOCALITIES. GHANA: Tumu[15]. MALI: Diafarabé[20]; Kati near Bamakko (*B. lineatus*)[2]. UPPER VOLTA: Dano (*B. lineatus*)[20]; 12 miles NW. of Ouagadougou.

Genus **Coluber** Linnaeus

Coluber dorii (Lataste).

Periops dorii LATASTE, 1888, Le Natur., p. 227 (type locality: Bakel, Upper Senegal).

Coluber dorii, VILLIERS, 1963, Initiations Africaines, I.F.A.N., ed. 2, vol. 2, p. 110, fig. 131 (description).

RANGE. Senegal, Mali.

LOCALITIES. MALI: Kati near Bamakko[2]; Bamako[24].

Coluber florulentus algirus (Jan).

Periops algira JAN, 1863, Elenco Sist. Degli Ofidi, p. 60 (type locality: Sphax d'Algeria).

Coluber florulentus algirus, KRAMER AND SCHNURRENBERGER, 1963, Rev. Suisse Zool., vol. 70, no. 27, pp. 484–501 (discussion of North African *Coluber*).

RANGE. North Africa from Spanish Sahara to Libya.

LOCALITIES. ALGERIA: Coudia (Hoggar) (*Zamensis algirus*)[3]; Hoggar (*Coluber algirus*)[9].

Coluber rhodorachis rhodorachis (Jan).

Zamenis rhodorachis JAN, 1865, in de Filippi, Viaggio in Persia, p. 356 (type locality: Persia).

Zamenis rhodorachis, ANDERSON, 1898, Zoology of Egypt, vol. 1, pp. 252–254 (description).

Coluber rhodorachis rhodorachis, KRAMER AND SCHNURRENBERGER, 1963, Rev. Suisse Zool., vol. 70, no. 27, pp. 501–502 (discussion of specimens from Libya).

RANGE. North Africa from Algeria to Egypt. Middle East.

LOCALITY. ALGERIA: Djanet[11].

Genus **Crotaphopeltis** Fitzinger

Crotaphopeltis hotamboeia (Laurenti).

Coronella hotamboeia LAURENTI, 1768, Syn. Rept., p. 85 (type locality: "India orientali").

Crotaphopeltis hotamboeia hotamboeia, LOVERIDGE, 1957, Bull. Mus. Comp. Zool., vol. 117, no. 2, pp. 271–272 (synonymy).

Crotaphopeltis hotamboeia, VILLIERS, 1963, Initiations Africaines, I.F.A.N. ed. 2, vol. 2, pp. 129–130 (description).

RANGE. Africa south of the Sahara.

LOCALITIES. GHANA: Bawku; Binduri; Lawra; Zorsi (Zwase)[15]. MALI: Bamako[21]. NIGER: Birni Nkonni[17]. UPPER VOLTA: Dano[20].

Genus **Dasypeltis** Wagler

Dasypeltis scabra (Linnaeus).

Coluber scaber LINNAEUS, 1758, Syst. Nat., ed. 10, p. 223 (type locality: "in Indiis" = Cape Colony, South Africa per Flower, 1933, p. 818).

Dasypeltis scabra, GANS, 1959, Ann Mus. Roy. Congo Belg., vol. 74, pp. 141–154 (description, distribution, localities, synonymy).

RANGE. Gambia to Somalia. South to the Cape. Arabia. Absent from the desert and parts of the rain forest.

LOCALITIES. MALI: Diafarabé[22]. UPPER VOLTA: Garango[25]; sud de Tenkodogo[25].

Genus **Dispholidus** Duvernoy

Dispholidus typus (A. Smith).

Bucephalus typus A. SMITH, 1829, Zool. Journ., vol. 4, p. 441 (type locality: "Old Latakoo" = Lattakoo or Lithako, approx. 27°S., 24°E., Cape Province, South Africa).

Dispholidus typus FITZSIMONS, 1962, Snakes of Southern Africa, Macdonald, London, pp. 196–200 (description, synonymy).

RANGE. Senegal to Eritrea. South to the tip of South Africa. Arboreal in the savanna, but absent from the rain forest.

LOCALITIES. GHANA: Lawra[15]. MALI: Sikasso[25]. UPPER VOLTA: Diébougou[23].

Genus **Dromophis** Peters

Dromophis lineatus (Duméril and Bibron).

Dryophylax lineatus DUMÉRIL AND BIBRON, 1854, Erp. Gén., vol. 7, p. 1124 (type locality: White Nile, Sudan).

Dromophis lineatus, FITZSIMONS, 1962, Snakes of Southern Africa, Macdonald, London, pp. 219–220 (description).

RANGE. Savanna from Mali to Zambia.

LOCALITY MALI: Kati near Bamakko[2].

Dromophis praeornatus praeornatus (Schlegel).

Dendrophis praeornata SCHLEGEL, 1837, Essai Phys. Serp., vol. 2, p. 236 (type locality: Walo, Senegal).

Dromophis praeornatus praeornatus, LOVERIDGE, 1940, Bull. Mus. Comp. Zool., vol. 87, no. 1, pp. 10–11 (description, synonymy).

RANGE. Senegal to Nigeria.

LOCALITIES. GHANA: Bolgatanga; Lawra[15]. MALI: Sanga[24]; Sikasso[25]. UPPER VOLTA: Dano[20]; Garango[25].

Genus **Gonionotophis** Boulenger

Gonionotophis grantii (Günther).

Simocephalus grantii GÜNTHER, 1863, Ann Mag. Nat. Hist., ser. 3, vol. 12, p. 361 (type locality: West Africa).

Gonionotophis grantii, BOULENGER, 1893, Cat. Snakes, vol. 1, p. 324, pl. 23, fig. 1 (description).

Gonionotophis granti, VILLIERS, 1963, Initiations Africaines, I.F.A.N., ed. 2, vol. 2, p. 101 (description, key).

RANGE. Portuguese Guinea to Cameroun.

LOCALITY. GHANA: Navrongo[15].

Genus **Lycophidium** Duméril and Bibron

Lycophidium irroratum (Leach).

Coluber irroratus LEACH, 1819, in Bowdich, Miss. Ashantee, p. 494 (type locality: Fantee (Fanti, Ashanti, Ghana)).

Lycophidium irroratum, VILLIERS, 1963, Initiations Africaines, I.F.A.N., ed. 2, vol. 2, pp. 104–107 (description, key).

Range. Senegal to Congo.

Locality. UPPER VOLTA: Garango[25].

Lycophidium semicinctum Duméril and Bibron.

Lycophidium semicinctum Duméril and Bibron, 1854, Erp. Gén., vol. 7, p. 414 (type locality: not given).

Lycophidium semicinctum, Villiers, 1963, Initiations Africaines, I.F.A.N., ed. 2, vol. 2, p. 107 (description, key).

Range. Senegal to Chad.

Localities. GHANA: Gambaga; Lawra[15].

Genus **Lytorhynchus** Peters

Lytorhynchus diadema (Duméril and Bibron).

Heterodon diadema Duméril and Bibron, 1854, Erp. Gén., vol. 7, p. 779 (type locality: Algeria).

Lytorhynchus diadema, Anderson, 1898, Zool. Egypt, vol. 1, pp. 271–273 (description).

Range. Desert regions of North Africa.

Localities. ALGERIA: Hoggar; Tassili N'Ajjer[9]; Tiror (Tassili)[11].

Genus **Macroprotodon** Guichenot

Macroprotodon cucullatus cucullatus (Geoffroy Saint-Hilaire).

Coluber cucullatus Geoffroy Saint-Hilaire, 1827, Descr. Egypt Hist. Nat., vol. 1, p. 151 (type locality: Lower Egypt).

Macroprotodon cucullatus, Anderson, 1898, Zool. Egypt, vol. 1, pp. 308–311 (description).

Macroprotodon cucullatus, Kramer and Schnurrenberger, 1963, Rev. Suisse Zool., vol. 70, no. 27, pp. 506–509 (discussion of subspecies *M. c. cucullatus* and *M. c. brevis* in North Africa).

Range. Mauritania to Egypt. Israel. Spain.

Localities. ALGERIA: Mont Ilaman (Hoggar)[3]; Hoggar[9].

Genus **Malpolon** Fitzinger

Malpolon moilensis (Reuss).

Coluber moilensis Reuss, 1834, Descript. Mus. Senckenb., vol. 1, p. 142 (type locality: Moila, Arabian coast of the Red Sea).

Malpolon moilensis, KRAMER AND SCHNURRENBERGER, 1963, Rev. Suisse Zool., vol. 70, no. 27, pp. 511–513 (discussion).

RANGE. Mauritania to Egypt. Southwest Asia.

LOCALITIES. MALI: Adrar des Iforas; Between the Aïr and the Adrar (des Iforas)[11].

Genus **Mehelya** Csiki

Mehelya crossii (Boulenger).

Simocephalus crossii BOULENGER, 1895, Ann. Mag. Nat. Hist., ser. 6, vol. 16, p. 33 (type locality: Lower Niger).

Mehelya crossi, VILLIERS, 1963, Initiations Africaines, I.F.A.N., ed. 2, vol. 2, p. 108 (description, key).

RANGE. Senegal to Nigeria.

LOCALITY. MALI: Sikasso[25].

Genus **Meizodon** Fischer

Meizodon coronatus (Schlegel).

Calamaria coronata SCHLEGEL, 1837, Essai Phys. Serp., vol. 2, p. 46 (type locality: Gold Coast).

Meizodon coronatus, LOVERIDGE, 1957, Bull. Mus. Comp. Zool., vol. 117, no. 2, p. 159 (synonymy).

RANGE. Savanna from Senegal through northern Congo to Kenya and Uganda.

LOCALITIES. GHANA: Lawra; Pusiga[15]. MALI: Kati near Bamakko (*Coronella coronata*); Tilembaya[20]; Diafarabé[21]; Ouana (Wana Boubou)[22]. UPPER VOLTA: Dano[20].

Genus **Natriciteres** Loveridge

Natriciteres olivaceus (Peters).

Coronella olivacea PETERS, 1854, Monatsb. Akad. Wiss. Berlin, p. 662 (type locality: Tete, Mozambique).

Natrix olivaceus, SCHMIDT, 1923, Bull. Amer. Mus. Nat. Hist., vol. 49, pp. 58–60 (description, distribution).

Natriciteres olivacea olivacea, LOVERIDGE, 1957, Bull. Mus. Comp. Zool., vol. 117, no. 2, p. 256 (synonymy).

Natriciteres olivaceus, VILLIERS, 1963, Initiations Africaines, I.F.A.N., ed. 2, vol. 2, pp. 99–100 (description, key).

Range. Guinea to Somalia. South to Zambia.

Locality. MALI: Gao (*Tropidonotus olivaceus*)[12].

Genus **Natrix** Laurenti

Natrix anoscopus (Cope).

Tropidonotus anoscopus Cope, 1861, Proc. Acad. Nat. Sci., Philadelphia, p. 299 (type locality: Cuba (in error)).

Natrix anoscopus, Villiers, 1963, Initiations Africaines, I.F.A.N., ed. 2, vol. 2, pp. 98–99 (description).

Range. Guinea to Cameroun.

Locality. UPPER VOLTA: Toussiana[22].

Genus **Philothamnus** Smith

Philothamnus irregularis irregularis (Leach).

Coluber irregularis Leach, 1819, in Bowdich, Miss. Ashantee, p. 494 (type locality: Fantee, Gold Coast).

Philothamnus irregularis irregularis, Loveridge, 1958, Bull. Mus. Comp. Zool., vol. 119, no. 1, pp. 85–98 (description, revision, synonymy).

Range. West and Central Africa.

Localities. GHANA: Binduri; Lawra[15]. MALI: Kati near Bamakko (*Chlorophis emini*)[2]; Kayo (*P. nitidus*)[19]; Diafarabé; Tilembaya[22]; Ké Macina[24]; Sikasso[25]. UPPER VOLTA: Dano (*P. nitidus*)[19]; Toussiana[22].

Philothamnus semivariegatus semivariegatus (A. Smith).

Dendrophis (*Philothamnus*) *semivariegata* A. Smith, 1847, Ill. Zool. S. Africa, pls. lix, lx, lxiv, figs. 1a–b (type locality: Bushman Flat, Cape Province, South Africa (restricted by Bogert, 1940)).

Philothamnus semivariegatus semivariegatus, Loveridge, 1958, Bull. Mus. Comp. Zool., vol. 119, no. 1, pp. 105–119 (description, revision, synonymy).

Range. Most of Africa south of the Sahara.

Localities. GHANA: Pusiga[15]. MALI: Bandiagara[6].

Genus **Prosymna** Gray

Prosymna meleagris laurenti Loveridge.

Prosyma meleagris laurenti Loveridge, 1958, Bull. Mus. Comp. Zool., vol.

119, no. 1, pp. 141–145 (type locality: Mongalla, Equatoria Province, Sudan).

RANGE. Southern Sudan and northern Congo west through northern Nigeria to Senegal.

LOCALITIES. GHANA: Zuarungu[15]. MALI: Kati near Bamakko[2]; San[11]. UPPER VOLTA: Dano[19].

Genus **Psammophis** Boie

Psammophis elegans (Shaw).

Coluber elegans SHAW, 1802, Gen. Zool., vol. 3, p. 536 (type locality: South America (in error)).

Psammophis elegans, LOVERIDGE, 1940, Bull. Mus. Comp. Zool., vol. 87, no. 1, pp. 17–19 (description, synonymy).

RANGE. Senegal to Nigeria.

LOCALITIES. GHANA: Babile; Lawra; Zorsi (Zwase)[15]. MALI: Kati near Bammako (*P. schokari*)[2]; Bandiagara[6]; Dogo[22]. UPPER VOLTA: Dano[20].

Psammophis schokari (Forskål).

Coluber schokari FORSKÅL, 1775, Descript. Animal., p. 14 (type locality: Yemen, Arabia).

Psammophis sibilans schokari, LOVERIDGE, 1940, Bull. Mus. Comp. Zool., vol. 87, no. 1, pp. 24–30 (description, synonymy).

Psammophis schokari, VILLIERS, 1963, Initiations Africaines, I.F.A.N., ed. 2, vol. 2, pp. 136–137 (key).

RANGE. North Africa from Mauritania and Morocco to Egypt. Middle East to India.

LOCALITIES. ALGERIA: Hogar (Hoggar)[1]; Hoggar[9]; Amsel[11]. MALI: Tombouctou[12]. NIGER: Agadez[18].

Psammophis sibilans sibilans (Linnaeus).

Coluber sibilans LINNAEUS, 1758, Syst. Nat., ed. 10, vol. 1, p. 222 (type locality: Asia).

Psammophis sibilans sibilans, LOVERIDGE, 1940, Bull. Mus. Comp. Zool., vol. 87, no. 1, pp. 30–41 (description, synonymy).

RANGE. Mauritania to Egypt. South to Natal.

LOCALITIES. ALGERIA: Tigharghart (Hoggar); Tigen Daouo (Hoggar)[4]; Hoggar[9]; Djanet; Tamrit[11]. GHANA: Bawku;

Lawra; Wiaga[15]. MALI: Kati near Bamakko[2]; Bandiagara[6]; Mopti[11]; Diafarabé; Gourao[19]; Bamako[24]; Sikasso[25]. NIGER: Azzel (Aïr)[18]. UPPER VOLTA: Dano[20]; Garango[25].

Genus **Rhamphiopis** Peters

Ramphiophis oxyrhynchus oxyrhynchus (Reinhardt).

Psammophis oxyrhynchus Reinhardt, 1843, Dansk. Vidensk. Silsk. Skrift., vol. 10, p. 234 (type locality: Guinea).

Ramphiophis oxyrhynchus, Doucet, 1963, Acta Tropica, vol. 20, no. 4, pp. 303–304 (description).

Range. Savanna from Mali through northern Congo to Uganda.

Localities. GHANA: Babile; Lawra; Wiaga[15]. MALI: Kati near Bammako[2]; Diafarabé[20]. UPPER VOLTA: Dano[20]; Tenkodogo[25].

Genus **Spalerosophis** Jan

Spalerosophis diadema cliffordi (Schlegel).

Coluber cliffordi Schlegel, 1837, Essai Phys. Serp., vol. 2, p. 163 (type locality: Tripoli).

Spalerosophis diadema cliffordi, Marx, 1959, Fieldiana: Zool., vol. 39, no. 30, pp. 350–353 (description, synonymy).

Spalerosophis diadema cliffordii, Pasteur and Bons, 1960, Travaux Inst. Sci. Chérifien, ser. Zool., no. 21, pp. 89–92 (only *S. d. cliffordi* occurs in the southern Sahara).

Range. North Africa from Senegal to Egypt. Middle East to Iraq.

Localities. ALGERIA: Hoggar (*Zamensis diadema*)[1]; Oued Edjeoui (Hoggar) (*Z. diadema*)[3]; Hoggar (*Coluber diadema*)[9]; Tamanrasset (*C. diadema*)[11]. MALI Goundam (*Z. diadema*)[6]. NIGER: Agadez; Tabello (Aïr)[18].

Genus **Telescopus** Wagler

Telescopus tripolitanus (Werner).

Leptodira tripolitana Werner, 1909, Zool. Jb. Syst., vol. 27, no. 6, p. 619 (type locality: Tripoli).

Telescopus obtusus, Villiers, 1963, Initiations Africaines, I.F.A.N., ed. 2, vol. 2, pp. 125–126 (key to West African *Telescopus*).

Telescopus tripolitanus, KRAMER AND SCHNURRENBERGER, 1963, Rev. Suisse Zool., vol. 70, no. 27, pp. 529–536 (discussion of North African *Telescopus*, synonymy).

RANGE. Senegal to southern Libya.

LOCALITIES. MALI: Kidal (*Tarbophis obtusus*)[1]. NIGER: Agadez (*Tarbophis obtusus*)[18].

Telescopus variegatus (Reinhardt).

Dipsas variegata REINHARDT, 1843, Dansk. Vidensk. Selsk. Skrift., vol. 10, p. 249 (type locality: Guinea).

Telescopus variegatus, VILLIERS, 1963, Initiations Africaines, I.F.A.N., ed. 2, vol. 2, pp. 125–126 (description).

RANGE. Guinea to Cameroun.

LOCALITIES. GHANA: Babile; Gambaga; Lawra; Pusiga; Zuarungu[15]. MALI: Kati near Bamakko (*Tarbophis variegatus*)[2]. NIGER: Tahoua (*Tarbophis variegatus*)[11]; Tabello (Aïr) (*Tarbophis variegatus*)[18]; Niamey [20]. UPPER VOLTA: 12 miles SE. of Tenkodogo.

Family VIPERIDAE

Genus **Atractaspis** Smith

Atractaspis dahomeyensis Bocage

Atractaspis dahomeyensis BOCAGE, 1887, Journ. Sci. Lisboa, vol. 11, p. 196 (type locality: Zomai (Dahomey)).

Atractaspis dahomeyensis, LAURENT, 1950, Mem. Inst. R. Sci. Nat. Belgique, ser. 2, vol. 38, pp. 15–16 (description).

RANGE. Guinea to Cameroun.

LOCALITIES. UPPER VOLTA: Bobo Dioulasso[19]; Toussiana[22].

Atractaspis microlepidota micropholis Günther.

Atractaspis micropholis GÜNTHER, 1872, Ann. Mag. Nat. Hist., ser. 4, vol. 9, p. 36 (type locality: not given).

Atractaspis watsonii BOULENGER, 1908, Ann. Mag. Nat. Hist., ser. 8, vol. 2, 94 (type locality: Sokoto, Nigeria).

Atractaspis microlepidota micropholis, LAURENT, 1950, Mem. Inst. R. Sci. Nat. Belgique, ser. 2, vol. 38, pp. 5–6 (description, synonymy).

Atractaspis microlepidota micropholis, VILLIERS, 1963, Initiations Africaines, I.F.A.N., ed. 2, vol. 2, p. 67 (key).

RANGE. Savanna from Mauritania to northern Nigeria.

LOCALITIES. MALI: Bandiagara (*A. watsonii*)[6]; Douentza (*A. watsonii*)[11]. NIGER: Birni Nkonni (*A. nigra*)[17]. NIGERIA: Sokoto (Boulenger, 1908). UPPER VOLTA: Garango[25].

Genus **Bitis** Gray

Bitis arietans arietans (Merrem).

Vipera (*Echidna*) *arietans* MERREM, 1820, Tent. Syst. Amphib., p. 152 (type locality: Cape of Good Hope).

Bitis arietans arietans, FITZSIMONS, 1962, Snakes of Southern Africa, Macdonald, London, pp. 334–349 (description, synonymy).

RANGE. Morocco to Arabia. South to the Cape. Absent from the central Sahara and the rain forest.

LOCALITIES. GHANA: Lawra[15]. MALI: Katibougou; Sormé prés Macina (Ké Macina)[19]; 2 miles SW. of Sévaré on road to Mopti. NIGER: Tassessat (Aïr) (*Bitis lachesis*)[18].

Genus **Causus** Wagler

Causus rhombeatus (Lichtenstein).

Sepedon rhombeata LICHTENSTEIN, 1823, Verz. Doubl. Mus. Zool. Berlin, p. 106 (type locality: not given).

Causus rhombeatus, FITZSIMONS, 1962, Snakes of Southern Africa, Macdonald, London, pp. 324–328 (description, synonymy).

RANGE. Africa south of the Sahara.

LOCALITIES. GHANA: Bawku; Lawra; Navrongo; Pusiga[15]. MALI: Kati near Bamakko[2]; Saré Modi (Saré Malé)[19]; Kati[20]; Dia Bozo (Taga Diabozo)[21]; Dogo[22]; Bamako[24]; Sikasso[25]. UPPER VOLTA: Toussiana[22]; Diébougou[23]; Garango[25].

Genus **Cerastes** Wagler

Cerastes cerastes (Linnaeus).

Coluber cerastes LINNAEUS, 1758, Syst. Nat., ed. 10, vol. 1, p. 217 (type locality: Orient (restricted: Egypt)).

Cerastes cornutus, ANDERSON, 1898, Zool. Egypt., vol. 1, pp. 330–335 (description, synonymy).

Cerastes cerastes, VILLIERS, 1963, Initiations Africaines, I.F.A.N., ed. 2, vol. 2, p. 165 (description, key).

RANGE. Desert regions of North Africa. Lowlands of Middle East.

LOCALITIES. ALGERIA: Tassili de Timissao[3]; In Baragen (Teffedest)[4]; Hoggar[9]; Tahifet; Tamrit; Oued Ilezi[11]. MALI: Tanezrouft (*C. cornutus*)[1]; Timétrine (*C. cornutus*). NIGER: Dungas; Nguigmi (*C. cornutus*)[17]; Agadez; Dabaga (Aïr); Oued In Kakane (5 miles NW. of I-N-Gall)[18].

Cerastes vipera (Linnaeus).

Coluber Vipera LINNAEUS, 1758, Syst. Nat. ed. 10, vol. 1, p. 216 (type locality: Egypt).

Cerastes vipera, KRAMER AND SCHNURRENBERGER, 1963, Rev. Suisse Zool., vol. 70, no. 27, pp. 541–544 (discussion).

RANGE. Desert regions of North Africa. Israel.

LOCALITIES. ALGERIA: Ig'elen (Hoggar)[3]; Hoggar[9]; Amguid; Oued Ilezi[11]. MALI: Tanezrouft; Between Tisserlitine and Timétrine[3].

Genus **Echis** Merrem

Echis carinatus pyramidum (Geoffroy Saint-Hilaire).

Scythale pyramidum GEOFFROY SAINT-HILAIRE, 1827, Descr. Egypte Hist. Nat., vol. 1, p. 152 (type locality: Egypt).

Echis carinatus pyramidum, LOVERIDGE, 1957, Bull. Mus. Comp. Zool., vol. 117, no. 2, p. 303 (synonymy).

RANGE. Northern India, west through Middle East and North Africa. South to Kenya and Ghana.

LOCALITIES. ALGERIA: Hoggar[9]. GHANA: Bawku; Lawra; Navrongo; Pusiga[15]. MALI: Kidal[1]; Kati near Bamakko[2]; Bandiagara[6]; Adrar des Iforas, south of Kidal[11], Tombouctou[12]; Kati[20]; Bamako[24]. NIGER: Tabello (Aïr)[18]. UPPER VOLTA: Dano[20]; Garango[25].

Family ELAPIDAE

Genus **Elapsoidea** Boulenger

Elapsoidea sundevallii moebiusi (Werner).

Elapechis moebiusi WERNER, 1897, Verh. Zool. Bot. Ges. Wien, vol. 47, p. 400 (type locality: Keta, Togoland).

Elapsoidea sundavallii güntherii, Loveridge, 1944, Bull. Mus. Comp. Zool., vol. 95, no. 2, pp. 213–231 (description, key, revision of genus, genus monotypic).

Elapsoidea sundevallii moebiusi, Parker, 1949, Zool. Verhandelingen, no. 6, pp. 93–98 (discussion of geographic variation, proposal of available names, agrees with Loveridge (1944) that genus is monotypic).

Elapsoidea decosteri moebiusi, Laurent, 1956, Ann. Mus. Roy. Congo Bel., vol. 48, pp. 271–286 (description of Congo forms, key, three species and several sugspecies recognized for Congo).

Elapsoidea guntheri guntheri, Villiers, 1962, Initiations Africaines, I.F.A.N., ed. 2, vol. 2, p. 155 (description, name changed from *E. sundevalli guntheri* of the 1st edition without stating reason).

Range. West Africa.

Locality. GHANA: Gambaga[15].

Genus **Naja** Laurenti

Naja haje haje (Linnaeus).

Coluber haje Linnaeus, 1758, Syst. Nat., ed. 10, vol. 1, p. 225 (type locality: Lower Egypt).

Naja haje haje, FitzSimons, 1963, Snakes of Southern Africa, Macdonald, London, pp. 293–296 (description, synonymy).

Range. Morocco to Egypt. South to South Africa. Absent from the central Sahara and the rain forest.

Localities. GHANA: Tumu[15]. NIGER: Agadez[18]. UPPER VOLTA: Dano[19].

Naja melanoleuca Hallowell.

Naja haie var. *melanoleuca* Hallowell, 1857, Proc. Acad. Nat. Sci., Philadelphia, p. 61 (type locality: Gabon, French Congo).

Naja melanoleuca, FitzSimons, 1962, Snakes of Southern Africa, Macdonald, London, pp. 300–302 (description, synonymy).

Range. Forested and moist savanna regions from Senegal to Zululand.

Localities. MALI: Kati near Bamakko[2]. UPPER VOLTA: Dano[20].

Naja nigricollis Reinhardt.

Naja nigricollis Reinhardt, 1843, Danks. Vidensk. Selsk. Skrift., vol. 10, p. 369, pl. 3, figs. 5 and 7 (type locality: Guinea).

Naja nigricollis var. *Katiensis* ANGEL, 1922, Bull. Mus. Nat. Hist Nat., vol. 28, no. 1, p. 40 (type locality: Kati near Bamakko).

Naja nigricollis nigricollis, FITZSIMONS, 1962, Snakes of Southern Africa, Macdonald, London, pp. 302–305 (description, synonymy).

RANGE. Savanna of Africa south of the Sahara. According to Mr. Barry Hughes, University of Ghana, Accra, Ghana (personal communication), *Naja katiensis* should be considered distinct at the species level because it is sympatric with typical *Naja nigricollis* over a large area of northern Ghana and Upper Volta.

LOCALITIES. GHANA: Babile; Bawku; Lawra; Tumu; Zorsi (*Naja katiensis*)[15]. MALI: Kati near Bamakko[2]; Kati[20]; Sidasso[25]. NIGER: Irabellaben (Monts Baguezans, Aïr)[18]. UPPER VOLTA: Dano[20].

Order CHELONIA

Family TESTUDINIDAE

Genus **Clemmys** Ritgen

Clemmys caspica leprosa (Schweigger).

Emys leprosa SCHWEIGGER, 1812, Königsberger Arch. Naturw. Math., vol. 1, p. 298 (type locality restricted: Southern Spain).

Clemmys caspica leprosa, LOVERIDGE AND WILLIAMS, 1957, Bull. Mus. Comp. Zool., vol. 115, no. 6, pp. 192–201 (description, synonymy).

RANGE. Iberian Peninsula. Morocco and Senegal to Libya and Niger.

LOCALITIES. MALI: Adrar des Iforas (Loveridge and Williams, 1957, p. 201). NIGER: Agadez (*C. leprosa*)[18].

Genus **Geochelone** Fitzinger

Geochelone sulcata (Miller).

Testudo sulcata MILLER, 1780, Icones animalium et plantarum, pl. xxvi (type locality: India occidentali (in error)).

Geochelone sulcata, LOVERIDGE AND WILLIAMS, 1957, Bull. Mus. Comp. Zool., vol. 115, no. 6, pp. 230–235 (description, synonymy).

RANGE. Savanna south of the Sahara from Senegal to Eritrea.

Localities. MALI: Doentza; Tombouctou (sight records of author).

Family Trionychidae

Genus **Cyclanorbis** Duméril and Bibron

Cyclanorbis senegalensis (Duméril and Bibron).

Cryptopus senegalensis Duméril and Bibron, 1835, Herp. Gen., vol. 2, p. 504 (type locality: Senegal).

Cyclanorbis senegalensis, Loveridge and Williams, 1957, Bull. Mus. Comp. Zool., vol. 115, no. 6, pp. 443–450 (description, synonymy).

Range. Senegal to Sudan.

Localities. NIGER: Lake Tchad (Loveridge and Williams, 1957, p. 450). NIGERIA: Niger River at Lohata, Kabba province (Loveridge and Williams, 1957, p. 450).

Genus **Trionyx** Geoffroy

Trionyx triunguis (Forskål).

Testudo triunguis Forskål, 1775, Descr. Anim. Avium. Amphib., p. ix (type locality: Nile River).

Trionyx triunguis, Loveridge and Williams, 1957, Bull. Mus. Comp. Zool., vol. 115, no. 6, pp. 423–435 (description, synonymy).

Range. Senegal to Egypt. South to Angola. Israel.

Locality. NIGER: Bilchem (not located)[17].

Family Pelomedusidae

Genus **Pelomedusa** Wagler

Pelomedusa subrufa (Lacépède).

Testudo subrufa Lacépède, 1788, Hist. nat. Quadrup. ovip., vol. 1, p. 173 (type locality restricted: Cape of Good Hope).

Pelomedusa subrufa, Wermuth and Mertens, 1961, Schildkröten Krokodile Brückenechsen, pp. 284–286 (synonymy).

Pelomedusa subrufa, Villiers, 1958, Initiations Africaines, I.F.A.N., vol. 15, pp. 226–229 (description).

Range. Africa South of the Sahara. Malagasy Republic.

Locality. MALI: Kati near Bamakko (*P. galeata*)[2].

Order LORICATA

Family CROCODYLIDAE

Genus **Crocodylus** Laurenti

Crocodylus niloticus Laurenti.

Crocodylus niloticus LAURENTI, 1768, Syn. Rept., p. 53 (type locality restricted: Egypt).

Crocodylus niloticus, VILLIERS 1958, Initiations Africaines, I.F.A.N., vol. 15, pp. 308–314 (description).

RANGE. Nile River, Africa south of the Sahara.

LOCALITIES. ALGERIA: Tassili des Ajjers (extinct?)[11]. NIGER: Tapoa (sight record of author).

BIBLIOGRAPHY

ANONYMOUS

1943a. Algeria. Volume I. Geographical Handbook Series, Naval Intelligence Division, London, B.R. 505, xii + 313 pages.

1943b. French West Africa. Volume I. The Federation. Geographical Handbook Series, Naval Intelligence Division, London, B.R. 512, xii + 436 pages.

1944a. Algeria. Volume II. Geographical Handbook Series, Naval Intelligence Division, London, B.R. 505A, xiv + 500 pages.

1944b. French West Africa. Volume II. The Colonies. Geographical Handbook Series, Naval Intelligence Division, London, B.R. 512A, xiv + 596 pages.

1965a. Upper Volta. Official Standard Names Gazetteer, no. 87. Washington, D.C. (Office of Geography, Department of the Interior), iii + 168 pages.

1965b. Mali. Official Standard Names Gazetteer, no. 93. Washington, D.C. (Office of Geography, Department of the Interior), v + 263 pages.

1966a. Niger. Official Standard Names Gazetteer, no. 99. Washington, D.C. (Office of Geography, Department of the Interior), iv + 207 pages.

1966b. Mauritania. Official Standard Names Gazetteer, no. 100. Washington, D.C. (Office of Geography, Department of the Interior), vii + 149 pages.

1967. Ghana. Official Standard Names Gazetteer, no. 102. Washington, D.C. (Office of Geography, Department of the Interior), iii + 282 pages

ANDERSSON, L. G.

1935. Reptiles and batrachians from the central Sahara. Göteborgs Kungl. Vetenskaps och Vitterhets Samhälles Handlinger, series B; 4 (10):3–19.

ANGEL, F.

1922. Sur une collection de reptiles et de batraciens recueillis au Soudan francais par la mission du Dr. Millet Horsin. Bulletin du Muséum National d'Histoire Naturelle, 28 (1): 39–41.

1923. Reptiles du Sahara, rapportés par la mission du Colonel Hovart. Description d'un ophidien nouveau du Genre *Ramphiophis*. Bulletin du Muséum National d'Histoire Naturelle, 29 (3):205–208.

1932. Sur quelques reptiles et batraciens du Sahara. Bulletin du Muséum National d'Histoire Naturelle, ser. 2; 4 (4):385–387.

1933. Sur quelques et batraciens du nord du Soudan francais. Bulletin du Muséum National d'Histoire Naturelle, ser. 2; 5 (1):68–69.

1936a. Description d'une nouvelle espéce du Genre *Philochortus* provenant des confins Saharo-Soudanais, et tableau synoptique des especes du Genere. Bulletin de la Société Zoologique de France, 61:100–105.

1936b. Sur quelques formed nouvelles de reptiles et batraciens du Sahara central. Bulletin de la Société Zoologique de France, 61:273–277.

1938. Liste des reptiles de Mauritanie recueillis par la mission d'etudes de la biologie des acridiens en 1936 et 1937. Description d'une sous-espéce nouvelle d'*Eryx muelleri*. Bulletin du Muséum National d'Histoire Naturelle, ser. 2; 10 (5):485–487.

1944. Contribution a l'etude de la faune herpetologique du Sahara central. Bulletin du Muséum National d'Histoire Naturelle, ser. 2; 16 (6):418–419.

1950. Contribution a l'étude de l'AÏr. Lézards. Mémoires de l'Institut Francais d'Afrique Noire, no. 10:331–336.

ANGEL, F. AND H. LHOTE

1938. Reptiles et amphibiens du Sahara central et du Soudan. Bulletin du Comité d'Etudes Historiques et Scientifiques le l'Afrique Occidentale Francaise, 21:345–384.

BARBOHR, T.

1914. Notes on some reptiles from Sinai and Syria. Proceedings of the New England Zoological Club, Cambridge, Massachusetts, 5:73–92.

BOULENGER, E. G.

1920. On some lizards of the genus *Chalcides*. Proceedings of the Zoological Society of London, number 6:77–83.

BOULENGER, G. A.

1885a. Catalogue of the lizards in the British Museum. London (Taylor and Francis), 1:xii + 436, 32 plates.

1885b. Catalogue of the lizards in the British Museum. London (Taylor and Francis), 2:xiii + 497, 24 plates.

1887. Catalogue of the lizards in the British Museum. London (Taylor and Francis), 3:xii + 475 pp. + addenda and corrigenda, 477–512, 40 plates.

1898. Concluding report on the late Capt. Bottego's collection of reptiles and batrachians from Somaliland and British East Africa. Annali del Museu Civico di Storia Naturale Genova, series 2; 18 (38):715–723, 2 plates.

1920. Monograph of the Lacertidae. London (Adlard and Son and West Newman), 2:viii + 451 pages.

BRAESTRUP, F. W.

1947. Remarks on faunal exchange through the Sahara. Videnskabelige Meddelelser fra Dansk Naturhistorisk Forening i Kobenhavn, 110:1–15.

CHABANAUD, P.

1917a. Note complémentaire sur les ophidians de l'Afrique occidentale, avec la description d'une espéce nouvelle. Bulletin du Muséum National d'Histoire Naturelle, 21 (1): 7–14.

1917b. Énumération des reptiles non encore etudiés de l'Afrique occidentale, appartenant aux collections du muséum avec la description des espèces nouvelles. Bulletin du Muséum National d'Histoire Naturelle, 23 (2):83–105.

1918. Etude complementaire de deux *Agama* de l'Afrique occidentale et description de quatre especes nouvelles de reptiles de la meme region. Bulletin du Muséum National d'Histoire Naturelle, 24 (2):104–112.

DEKEYSER, P. L. AND A. VILLIERS

1954. Essai sur le peuplement zoologique terrestre de l'ouest Africain. Bulletin de l'Institut Francais d'Afrique Noire, Série A: Sciences Naturelles, 16 (3):957–970.

DUNGER, G. T.

1967a. The lizards and snakes of Nigeria, Part 1: The chameleons of Nigeria. The Nigerian Field, 32 (2):53–74.

1967b. The lizards and snakes of Nigeria, Part 2: The lacertids of Nigeria. The Nigerian Field, 32 (3):117–131.

DUNGER, G. T. — Cont.

1967c. The lizards and snakes of Nigeria, Part 3: The monitors and a plated lizard. The Nigerian Field, 32 (4):170–178.

1968. The lizards and snakes of Nigeria, Part 4: The geckos of Nigeria. The Nigerian Field, 33 (1):18–47.

GANS, C.

1959. A taxonomic revision of the African snake genus *Dasypeltis*. Annales du Musée Royal du Congo Belge, Tervuren (Belgique), Sciences Zoologiques, 74:x + 237, 13 plates.

GAUTHIER, R.

1965. Présense au Sahara nord-occidental du lézard *Eremias pasteuri* Bons. Éléments d'éco-éthologie et reproduction. Bulletin du Muséum National d'Histoire Naturelle, ser. 2: 37 (6):926–930.

GRANDISON, A. G. C.

1956. On a collection of lizards from West Africa. Bulletin de l'Institut Francais d'Afrique Noire, series A; 18 (1):224–245.

1961. Preliminary notes on the taxonomy of *Tarentola annularis* and *T. ephippiata* (Sauria: Gekkonidae). Zoologische Mededelingen, Leiden, 38 (1):1–13.

1968. Nigerian lizards of the genus *Agama* (Sauria: Agamidae). Bulletin of the British Museum (Natural History), London, 17 (3):67–90, plates 1–6.

GÜNTHER, A.

1903. Reptiles from Rio de Oro, western Sahara. Novitates Zoologicae, Tring, 10:298–299.

KEAY R. W. J., AND A. AUBREVILLE

1959. Vegetation map of Africa south of the Tropic of Cancer. Oxford University Press, 11 pages + map.

KRAMER, E. AND H. SCHNURRENBERGER

1963. Systematik, Verbreitung und Ökologie der Libyschen Schlangen. Revue Suisse de Zoologie, 70, part 3 (27):453–568, plates 1–4.

LATASTE, F.

1876. Description d'un genre nouveau et d'une espèce nouvelle de Scincoidien Saurophthalme originaire du Japon. Journal de Zoologie par Gervais, Paris, 15:237–243, plate 10.

LAURENT, F.

1950. Revision du genere *Atractaspis* A. Smith. Mêmoires Institut Royal des Sciences Naturelles de Belgique, ser. 2; 38:1–49.

LAURENT, F. — Cont.

1964. A revision of the *punctatus* group of African *Typhlops* (Reptilia; Serpentes). Bulletin of the Museum of Comparative Zoology, Harvard, 130 (6):389–444.

LOVERIDGE, A.

1936. African reptiles and amphibians in the Field Museum of Natural History. Field Museum of Natural History, Chicago, Zoological Series, 22 (1):1–111.

1940. Revision of the African snakes of the genera *Dromophis* and *Psammophis*. Bulletin of the Museum of Comparative Zoology, Harvard, 87 (1):1–69.

1947. Revision of the African lizards of the family *Gekkonidae*. Bulletin of the Museum of Comparative Zoology, Harvard, 98 (1):1–469.

1952. Mission A. Villiers au Togo et au Dahomey (1950). XII. Tortoises and lizards. Bulletin de l'Institut Francais d'Afrique Noire. 14 (1):229–242.

1958. Revision of five African snake genera. Bulletin of the Museum of Comparative Zoology, Harvard, 119 (1):1–198.

LOVERIDGE, A. AND E. E. WILLIAMS

1957. Revision of the African tortoises and turtles of the suborder *Cryptodira*. Bulletin of the Museum of Comparative Zoology, Harvard, 115 (6):163–557.

MARX, H.

1959. Review of the Colubrid snake genus *Spalerosophis*. Fieldiana: Zoology, Chicago Natural History Museum, 39 (30):347–361.

MERTENS, R.

1962. Bemerkungen über *Uromastyx acanthinurus* als Rassenkreis. Senckenbergiana, 43 (6):425–432.

MOCQUARD, F.

1905. Note préliminaire sur une collection de reptiles et batraciens offerte au muséum par M. Maurice de Rothschild. Bulletin du Muséum National d'Histoire Naturelle, 11 (5):285–289.

1906. Description de quelques espèces nouvelles de reptiles. Bulletin du Muséum National d'Histoire Naturelle, 12(7):464–466.

MONARD, A.

1949. Vertébrés nouveaux du Cameroun. Revue Suisses de Zoologie, 56 (38):731–745.

MÜLLER, L.

1922. Ueber eine neue *Uromastix*-Art aus der Zentral-Sahara. Naturwissenschaftlicher Beobachter, Frankfurt, 15/16:1–9.

NEUMANN, O.

1905. Über nordost-afrikanische und arabische Kriechtiere. Zoologische Jahrbücher, 22:389–404.

PARKER, H. W.

1942. The lizards of British Somaliland. Bulletin of the Museum of Comparative Zoology, Harvard, 91 (1):1–101.

1949. The snakes of Somaliland and the Sokotra Islands. Zoologis che Verhandelingen, Leiden, no. 6:1–115.

PASTEUR, G., AND J. BONS

1960. Catalogue des reptiles actuels du Maroc. Travaux de l'Institute Scientifiique Chérifien, Série Zoologie, no. 21:1–132, 5 plates.

PELLEGRIN, J.

1909. Reptiles du Soudan récoltés par la Mission Tilho-Gaillard. Description d'une espèce nouvelle. Bulletin du Muséum National d'Histoire Naturelle, 15:413–415.

1911. Sur la présence de la *Rana mascareniensis* D. et B. dans le Sahara Algérien. Bulletin de la Société Zoologique de France, 36:147–148.

1931. Reptiles, batraciens et poissons du Sahara central recueillis par le Pr. Seurat. Bulletin du Muséum National d'Histoire Naturelle, ser. 2; 3 (2):216–218.

ROUX-ESTÈVE, R., AND J. GUIBÉ

1965. Étude comparée de *Boaedon fuliginosus* (Boié) et *B. lineatus* D. et B. (Ophidiens). Bulletin de l'Institut Francais d'Afrique Noire, series A; 27 (1):397–409.

SCHMIDT, K. P.

1919. Contributions to the herpetology of the Belgian Congo based on the collection of the American Museum Congo Expedition, 1909–1916. Part I. Turtles, crocodiles, lizards, and chamaeleons. Bulletin of the American Museum of Natural History, 39:385–624, plates 7–32.

STAUDINGER, P.

1929. Krokodile in der Inner-Sahara und Mauritanien. Sitzungsberichte der Gesellschaft Naturforschender Freunde, Berlin, nos. 4–7:141–142.

TORNIER, G.

1901. Die Crocodile, Schildkröten und Eideschsen in Togo, Beiheft zum Archiv für Naturgeschicte, Berlin, 67:65–68.

VILLIERS, A.

1950a. La collection de serpents de l'I. F. A. N. Institut Francais d'Afrique Noire, Catalogues, no. 5:1–155.

VILLIERS, A. — Cont.

1950b. Contribution a l'étude de l'Aïr. Reptiles ophidiens et chéloniens. Mémoires de l'Institut d'Afrique Noire, no. 10:337–344.

1950c. Contribution à l'étude du peuplement de la Mauritaine. Ophidiens. Bulletin de l'Institut Francais d'Afrique Noire, 12 (4):984–998, figs. 1–2.

1951. La collection de serpents de l'I. F. A. N. (Acquisitions 1950). Bulletin de l'Institut Francais d'Afrique Noire, 13 (3): 813–836.

1952. La collection de serpents de l'I. F. A. N. (Acquisitions 1951). Bulletin de l'Institut Francais d'Afrique Noire, 14 (3): 881–898.

1953. La collection de serpents de l'I. F. A. N. (Acquisitions 1952). Bulletin de l'Institut Francais d'Afrique Noire, 15 (3): 1103–1127.

1954. La collection de serpents de l'I. F. A. N. (Acquisitions 1953). Bulletin de l'Institut Francais d'Afrique Noire, 16 (4): 1234–1247.

1956. La collection de serpents de l'I. F. A. N. (Acquisitions 1954–1955). Bulletin de l'Institut Francais d'Afrique Noire, ser. A; 18 (3):877–883.

1958. Tortues et crocodiles de l'Afrique noire franciase. Institut Francais d'Afrique Noire, Initiations Africaines, 15:1–354.

1963. Les serpents de l'Ouest Africain. Institut Francais d'Afrique Noire, Initiations Africaines, 2nd edition, 2:1–190.

1965. Serpents récoltés au Mali et en Haute-Volta par le Dr. Lamontellerie. Bulletin de l'Institut Francais d'Afrique Noire, ser. A; 27 (3):1192–1195.

WAKE, D. B., AND A. G. KLUGE

1961. The Machris Expedition to Tchad, Africa. Amphibians and reptiles. Contributions in Science. Los Angeles County Museum, no. 40:1–12.

WALTER, H., AND H. LEITH

1967. Klimadiagramm-Weltatlas, Jena (Gustav Fischer), charts and maps.

WERMUTH, H.

1967. Liste der rezenten Amphibien und Reptilien: Agamidae. Das Tierreich, Berlin, 86:1–127.

WERNER, F.

1937. Über Reptilien aus den Hoggar-Gebirge. Zoologischer Anzeiger, Leipzig, 118:31–35.

WITTE, G. F. DE

1930. Mission Saharienne Augieras-Draper, 1927–1928. Reptiles et batraciens. Bulletin du Muséum National d'Histoire Naturelle, ser. 2; 2 (6):614–618.