Snakes of Angola: An annotated checklist

1,2William R. Branch

1Research Associate, Department of Zoology, P O Box 77000, Nelson Mandela University, Port Elizabeth 6031, SOUTH AFRICA 2National Geographic Okavango Wilderness Project, Wild Bird Trust, SOUTH AFRICA

Abstract.—The first annotated checklist for over 120 years is presented of the snakes of Angola, Africa. It details the snakes currently recorded from Angola (including the Cabinda enclave), and summarizes the literature documenting their description, provenance, and often tortuous taxonomic history. The species are assigned, with comment where appropriate, to higher taxonomic groupings based on modern snake phylogenetic studies, and the need or potential for further studies are noted. In 1895 José Vicente Barboza du Bocage recorded 71 snakes in his monographic treatment of the Angolan herpetofauna, and subsequently Monard (1937) added 10 additional species. This review documents the 122 snakes currently recorded from Angola, and lists a further seven that have been recorded in close proximity to the Angolan border and which can be expected to occur in Angola, albeit marginally. Cryptic diversity identified in taxa such as the Boaedon capensis-fuliginosus-lineatus complex and Philothamnus semivariegatus complex indicate more species can be expected. Relative to southern Africa, the Angolan snake fauna contains a higher proportion of colubrid snakes, enhanced particularly by diverse arboreal species of the Congo Basin. There are relatively few endemic snakes (5.4%), and most inhabit the mesic grasslands of the escarpment and adjacent highlands. None are obviously threatened, although records of the endemic Angolan adder (Bitis heraldica) remain scarce and the species may require directed surveys to assess its conservation status.

Keywords. Bocage, taxonomy, Africa, diversity, endemicity, conservation

Introduction

The need for national summaries of biodiversity and the selection of suitable areas for protection are of increasing urgency in the face of exploding human populations and their demand for natural resources. However, biodiversity surveys in Angola were severely curtailed in the post-colonial era, and for nearly 60 years studies on Angolan biodiversity remained almost quiescent. Reptile studies were particularly curtailed and as a consequence knowledge of the status and distribution of many Angolan snake species remains poorly known. This is understandable as the last monographic review was published over 120 years ago (Bocage 1895). Nearly 50 years later Monard (1937) prepared an updated overview incorporating new material (Monard 1931), but overlooked a
number of regional reports (e.g., Schmidt 1933; Parker 1936), and many others have subsequently appeared (e.g., Mertens 1938; Bogert 1940; Hellmich 1957a; 1957b; FitzSimons 1959). Summaries of snakes in the collection of the Museu do Dundu in extreme northeast Angola (Laurent 1950, 1954; Tys van den Audenarde 1967) added numerous records of snakes from the Congo Basin. Others were added by Laurent (1964), who also described the extensive collections of reptiles from northeast and southwest Angola collected by António Barros de Machado, then Director of the Museu do Dundu. In the last 10 years increasing access to Angola, coupled with awareness of the urgent need to document the remaining wildlife and to revitalize the Angolan protected area network, has led to increasing numbers of herpetological surveys (Huntley 2009; Ceriaco et al. 2014, 2016; Ernst et al. 2014; Huntley 2015; Conradie et al. 2016, 2017; Conradie and Branch 2017; Branch 2018) and the concomitant discovery of new species (amphibians - Conradie et al. 2012a, 2013; reptiles - Conradie et al. 2012b; Stanley et al. 2016; Branch et al. 2017). Regional (Branch et al. 2012; Ceriaco et al. 2014a, 2016a; Baptista et al. 2018a) and even national (Oliveira 2017) summaries are increasingly appearing, and this checklist forms part of these developments.

All these publications included important taxonomic insights and new records of Angolan snakes, but usually listed only generalized localities for the species with little discussion of habitat associations, although Parker (1936), Monard (1937), and Hellmich (1957b) attempted to place the herpetofauna within an early biogeographic framework. Most, however, were working with museum collections, many collected by explorers or local people and with little habitat insight or even detailed locality data. These deficiencies all limit their usefulness in constructing biogeographic patterns, or in gaining insights into the conservation of the listed species. At the outset it is important to stress aspects of Bocage’s (1895) monograph, particularly with respect to its coverage and the taxonomic milieu in which it was written. His work summarizes nearly 30 years of study on the Angolan herpetofauna, but also includes discussion of some species from the adjacent Congo area, particularly between the Congo River mouth and the Bight. His discussions include material from Cabinda Province (formerly Portuguese Congo), which was established as a protectorate of Angola in 1885, but only fully incorporated into Angola by the mid-1920s.

Although Bocage described many new genera and species from Angola, many were subsequently synonymized under other names. In part, this was because his papers before the mid-1880s were during the early stages of his development as a taxonomist, and he was not as familiar with the peripheral literature. More importantly he was not based at a major European museum such as those in London, Paris, or Berlin, and Portugal was also no longer a dominant colonial power. Albert Günther and George Boulenger at the British Museum were familiar with a cosmopolitan herpetofauna rather than just African, and perhaps were less impressed by novelty than Bocage. Certainly, Bocage deferred to Boulenger’s judgement when the latter synonymized many of Bocage’s new taxa, often without comment in his publications and his monumental catalogue of snakes (Boulenger 1883–1886). Bocage did, however, continue to discuss variation within Boulenger’s composite species and subsequently, as modern taxonomy developed new tools and insight into evolutionary relationships, some of Bocage’s names were revived (e.g., Afrotyphlops angolensis from Typhlops punctatus and Philothamnus angolensis from P. irregularis). In some of his species accounts Bocage used varieties (var.), e.g., Typhlops punctatus var. lineolatus, which in many respects is an outdated equivalent of subspecies. The latter itself has been under criticism as lineage-based species definitions become increasingly prevalent (Frost and Hillis 1990) and the subspecies concept considered by many redundant. Acceptance of this in the modern taxonomic approach is reflected in recent revisions in which no new subspecies of southern African snakes have been described in the last 40 years, and many earlier subspecies proposed in particular by Laurent and Broadley in the 1960s–1980s have been either rejected or raised to full species. Many of the ‘varieties’ Bocage noted have subsequently been re-assessed, some rejected, some becoming full species.

The online Reptile Database (Uetz et al. 2018) has revolutionized public access to biodiversity documentation. It provides a wealth of information for every currently recognized reptile species, summarizing details of the original description, locality of type material, generalized synonymsies, relevant literature, etc. It is a ‘home base’ for systematic studies and the generation of regional checklists. Understandably, however, it is not without problems. A search on Reptile Database (Uetz et al. 2018) currently generates a list of 267 Angolan reptiles, including 122 snakes. Unfortunately, it is inaccurate in a number of respects, as some species are included that are unknown from the country: e.g., Calabaria reinhardtii, Aparallactus guentheri, and Hemirhagerrhis nototaelia, and even the South American Micrurus bogerti and Madagascan Compsophis boulengeri. Other species are duplicated and listed under historical and current assignments: e.g., Atheris ansioplex (= Atheris squamigera) and Bitis peringueyi (= Bitis heraldica).

As a first small step towards a modern synthesis of the Angolan herpetofauna an up-to-date annotated checklist of the snakes of Angola is summarized below. It builds on the summaries in Bocage (1895) and Monard (1937), and on a modern electronic database (Uetz et al. 2018), but includes details of taxonomic changes, literature conflicts, and new discoveries. It does not fully cover the historical literature, or directly re-assess the identification of historical museum material. It also makes no attempt to map the distributions of Angolan snakes, as other initiatives are currently involved in these tasks (Marques et al. 2014). Instead it serves as a working document for Afri-
can and Angolan researchers, established and new, who want to understand the diversity of Angolan snakes and the development of our knowledge of them. The checklist details the 122 snakes currently recorded from Angola (including the Cabinda enclave), and summarizes the literature documenting their description, provenance, and often tortuous taxonomic history. The species are assigned, with comment where appropriate, to higher taxonomic groupings based on modern snake phylogenetic studies, and the need or potential for further studies are noted. For the historical literature authors of only original records are noted, and historical place names have been updated to their modern name or spelling at the first occurrence and the updated name subsequently used. Additional new snake distribution records for Angola will be published elsewhere (Branch et al., in prep.). Gazetteer of most historic Angolan place names mentioned in early faunal accounts is included in Crawford-Cabral and Mesquitella (1989).

Comments on the Checklist

The higher-level taxonomy adopted in the checklist reflects recent developments in our understanding of phylogenetic relationships of African snakes. Recent taxonomic insights into higher nomenclatural categories are included in the introductory text to the various sections below, and many are updated versions of those presented elsewhere for South African snakes (Branch and Bauer 2014). Vidal et al. (2009) summarized increasing understanding of the early history and phylogenetic relationships of snakes. At the outset it should be stressed that snakes are a subset of lizards but that this is rarely reflected in current taxonomic hierarchies where snakes are afforded similar subordinal status (Sauria) to that of all other lizards (Sauria). This historical anomaly is slowly being addressed and a suitable nomenclatural hierarchy developed that addresses these relationships and their attendant complexity (e.g., Pyron et al. 2013). It has become increasingly evident that snakes originated on West Gondwana, that part of the supercontinent comprising South America and Africa. Among extant lineages, the deepest divergencies are found between what have been termed the Amerophidia and Afrophidia (Vidal et al. 2009). The monophyly of this division has been supported in subsequent molecular phylogenies (e.g., Reynolds et al. 2014), and also reproductive anatomy (Seigel et al. 2011), but awaits full acceptance (Hisang et al. 2015). The division occurred 106 (116–97) Ma, probably in association with continental breakup. Most (~85%) living snakes are afrophidians and are now globally distributed, having initially dispersed out of Africa through Laurasia or on the ‘Indian raft’. Most basal afrophidian families (Henophidia) diverged in the Cretaceous (104–70 Ma), while advanced afrophidian families (Caenophidia) diverged in the early Cenozoic, 63–33 Ma (Vidal et al. 2009).

The ~3,500 living snakes display an evolutionary trend of increasing gape size, from fossorial scoloeophidians (locally represented by the blind snakes, Typhlopidae, and thread snakes, Leptotyphlopidae) to ecologically diverse alethinophidians, large-mouthed lineages that feed and swallow large prey (also more descriptively called macrotomatans). Among the latter, the Henophidia (pythons and relatives) comprise relictual lineages scattered throughout tropical and subtropical regions, and including all but one of the world’s largest (>5 m) snakes. The Caenophidia comprise the great majority of living snakes (~2,700 spp.), divided among numerous families, and including all the venomous species.

The use of subspecies (previously races or varieties) has been declining in the 21st Century (Uetz and Stylilaneou 2018), and no snake subspecies have been described in greater southern Africa (the subcontinent and all the countries immediately bordering to the north) since two South Africa races of Lycodon morphus laevissimus (Raw 1973).

SCOLECOPHIDIA

Blind snakes (Typhlopidae) and thread snakes (Leptotyphlopidae) and their non-African relatives are ancient lineages. Due to their burrowing life style they are morphologically conservative and have thus been a source of great taxonomic confusion in studies based on traditional morphology. Fortunately, recent detailed morphological studies by Broadley and Wallach on both African families (Broadly and Watson 1976; Broadley and Broadley 1999; Broadley and Wallach 2007a, b, 2009) has brought relative stability to species boundaries in both. However, modern molecular phylogenies have not only revealed the antiquity of these lineages, but also deep divergences between them (Adalsteinsson et al. 2009; Hedges et al. 2014; Pyron and Wallach 2014; Nagy et al. 2015). As a consequence, higher taxonomic relationships within scoloeophidians have been in upheaval with numerous new genera, and the shuffling of species between these as taxon sampling increases. In leptotyphlopids numerous cryptic species have been signaled (Adalsteinsson et al. 2009), and studies on Australian typhlopids have shown similar diversity (Martin et al. 2013). Despite the current taxonomic upheaval, deeper insight into both phylogenetic relationships and biogeographic patterns continue to emerge (Vidal et al. 2010; Nagy et al. 2015), with scoloeophidians believed to undergo an initial diversification following the separation of East and West Gondwana and isolation on Indigiazza, the combined India and Madagascar (Vidal et al. 2010). Studies on Angolan scoloeophidians are in their infancy and it is likely that further taxonomic diversity awaits discovery. Western arid leptotyphlopids of Southern African were placed in the genus Namibiana by Adalsteinsson et al. (2009), whilst Broadley and Wallach (2009) placed most Angolan typhlopids in the new genus Afrotyphlops, as well as reviving Letheobia for the majority of the small, pink, attenuate forms.
Family: Leptotyphlopidae

Shaba Thread Snake

*Leptotyphlops kafubi* (Boulenger 1919)


Revived from synonymy of *Leptotyphlops nigricans* by Broadley and Broadley (1999). Unknown from Angola by Bocage (1895), but subsequently recorded by Laurent (1964, as *Leptotyphlops emini emini*) from Lagoa Calundo and Luisavo Falls (= Quedas do Luisavo). No fresh material has been recorded.

Peter’s Thread Snake

*Leptotyphlops scutifrons* (Peters 1854)


Bocage’s (1895) records from Catumbela and Novo Redondo (=Sumbe) were reassigned to *Nambiana latifrons* (Broadley and Broadley 1999). Bocage’s (1895) material from Duque de Bragança (= Calandula), Huila, Biballa (= Bibala), Capangombe, Cacanda and Cahata, and Ferreira’s (1904) from Cazengo and Zembe were destroyed and their current assignment remains problematic. The presence of this species in Angola is currently confirmed by only a single specimen from Chitau, north of Kuito (Broadley and Broadley 1999), however, Adalsteinsson et al. (2009) demonstrated that numerous cryptic lineages are currently subsumed under *L. scutifrons* (type locality Sena, Mozambique), and it is unlikely that Angolan material is conspecific with Mozambique material.

Damara Thread Snake

*Nambiana labialis* (Sternfeld 1908)


The first Angolan specimen was collected in May 1954 by Dr Charles Koch at Miranda, Cunene Province, Angola (1614Dd, 16°47’S, 14°57’E). This was documented by Broadley and Broadley (1999), but overlooked in subsequent reviews of the region (Ceriaco et al. 2016a). No other Angolan material has been recorded. Adalsteinsson et al. (2009) placed the species and others in the new genus *Nambiana*.

Benguela Thread Snake

*Nambiana latifrons* (Sternfeld 1908)


This species has caused confusion, and continues to be mis-assigned to *L. scutifrons* (Ceriaco et al. 2016a). Sternfeld (1908) noted that material identified as *Glauconia scutifrons* by Boulenger was different from Peters (1854) type for the species, and therefore proposed the new name *Glauconia latifrons* for this material. Unfortunately, he gave no type locality. Broadley and Watson (1976) noted that Boulenger’s knowledge of *scutifrons* was based solely on two specimens from Benguela, identified as such by Peters (1865). To stabilize the situation, they designated the Benguela material as the types of *Leptotyphlops latifrons*, and also reassigned Bocage’s (1895) records of *Stenostoma scutifrons* from Catumbela and N’Gunza (= Novo Redondo) to *L. latifrons*. The species is endemic to the coastal region of southwestern Angola.

Angolan Beaked Thread Snake

*Nambiana rostrata* (Bocage 1886)


The only specimen known to Bocage (1886) was his type of *Stenostoma rostrata* sent by Anchieta from “Humbe, sur les bords du Cunene.” Broadley and Broadley (1999) noted additional material, including another thread snake collected in May 1954 by Dr Charles Koch at Vane e Lombe, Namibe Province, Angola (1513Ad, 15°30’S, 13°30’E), two from west of Huila, and a problematic record from “Luanda.” Many old specimens were listed from the home base of the collector, rather than from where they were actually collected. Fresh material from Luanda is required to confirm if the species extends as far north.

Family: Typhlopidae

Angolan Blind Snake

*Afrotyphlops angolensis* (Bocage 1866)


First described by Bocage (1866a) as *Onychophalus angolensis* nov. sp.?, but without a diagnosis and therefore a *nomen nudum*. It was soon correctly described by Bocage (1866b) from “distrito do Duque de Bragança,
situated on the latitude of Loanda, orum umas 75 leguas para o interior, portuguezas Africa occidental.” He confusingly treated it as *Typhlops congricus* (Boettger 1887) in his monograph (Bocage 1895) even though his own name had priority. Parker (1936, as *T. punctatus intermedius*) recorded it from Congulu and Quirimbo, and Laurent (1954, finally as *T. angolensis*) from Dondo. Laurent (1964) described Dundo material as the subspecies *T. angolensis adolfi*, but this is no longer recognized (Broadley and Wallach 2009).

Angolan Giant Blind Snake

*Afrotyphlops anomalus* (Bocage 1873)


Described by Bocage (1873a) from “Huilla, l’intérieur de Mossamedes,” (= Huila, Huila Province, not “Moçamedes [= Namibe]” as recorded by Ceriaco et al. 2016a). Other localities are given in Bocage (1895) and Monard (1937). Broadley and Wallach (2009) discussed the varied taxonomic history of the species and placed it in a new genus (*Megatyphlops*) that was itself subsequently subsumed within the current genus (Hedges et al. 2014). The species appears to occur on the high plateau and has recently been recorded at Lubango and other inland localities.

Blotched Blind Snake

*Afrotyphlops congestus* (Duméril and Bibron 1844)


A northern Congo Basin species that extends south to Cabinda, and is known only from the type of *Typhlops* (*Onychocephalus*) *crassatus* Peters, 1881 collected at “Chinchoxo” (= Lândana, Cabinda). Its complicated taxonomic history is reviewed by Broadley and Wallach (2009).

Lined Blind Snake

*Afrotyphlops lineolatus* (Jan 1864)


First recorded from Angola by Bocage (1893) when he described *Typhlops boulengeri* (type-locality “Quindumbo, dans l’intérieur de Benguella, Angola”). Later corrected to *Typhlops punctatus lineolata* (Bocage 1895), and described again as *Typhlops bocagei* by Ferreira (1904) from “Cabicula, Bom Jesus (margens do Quanza).” Additional material was noted from Cazengo (Ferreira 1903), Rio Luinha (Ferreira 1906), and Dundo Laurent (1954, 1964). Broadley and Wallach (2009) designated a lectotype (BMNH 1946.1.11.18) for *T. boulengeri* Bocage, 1893. Ceriaco et al. (2014b) noted a syntype (MHNFCP 017434) from Angola donated to the Porto museum from Lisbon, and confirmed the identity of the specimen. However, Bocage’s original material from “Quindumbo” (= Chindumbo – Crawford-Cabral and Mesquitela 1989) is now lost, and a range extending to Benguela Province does not conform to the species’ known habitat (forest) and distribution (Broadley and Wallach 2009). The only other Angolan localities given for the species by Broadley and Wallach (2009) are Cazengo (Ferreira 1903) and Rio Luinha (Ferreira 1906), both in Cuanza Norte Province. Bocage’s (1893) Chindumbo locality should be treated with caution unless confirmed by new material. Ceriaco et al. (2014b) signaled the possible rediscovered of one of the syntypes of *Typhlops bocagei* Ferreira, 1904, but have not subsequently discussed its significance with respect to its current taxonomic status.

Schlegel’s Blind Snake

*Afrotyphlops schlegelii* (Bianconi 1847)


All country records are restricted to localities above the escarpment in southwest Angola. Bocage was confused by this species and described it as a new species on three different occasions: *Onychocephalus petersii* described from “Biballa” (= Bibala, Namibe Province) (Bocage 1873a), *Typhlops* (*Onychocephalus*) *humbo* described from Quissange (Bocage 1886), and *Typhlops hottentotus* from “Humbe” (Bocage 1893). Broadley and Wallach (2009) discuss this taxonomic confusion and summarize recent records.
Fig. 1. *Afrotyplops mucrosa*, Lungue Bungue River, Moxico Province (Photo: Werner Conradie).

Giant Blind Snake
*Afrotyplops mucrosa* (Peters 1854)


A sister species to the previous species and long considered an eastern subspecies. Broadley and Wallach (2009) map five localities in northwest Angola but give no voucher details. Laurent (1964) listed *Typhlops schlegeli mucrosa* from Chicapa, Calonda and Camissombo in Lunda Province, and these may be the source (in part) of these records. It extends further south in the poorly surveyed eastern region of the country (Fig. 1.; Conradie April 2018).

Leopoldville Beaked Blind Snake
*Letheobia praeocularis* (Stejneger 1894)


Known in Angola from a single record from Dundo (Laurent 1964, as *Typhlops praeocularis lundensis*). Roux-Esteve (1974) rejected the race *lundensis* and transferred the species to *Rhinotyphlops*. Binomials were retained by Broadley and Wallach (2007), who transferred the species again to *Letheobia*.

HENOPHIDIA

Family: Pythonidae

Pythons form part of the Henophidia, along with boas and their relatives. They are restricted to the Old World with about 40 species in eight genera, most within Australasia and with only four in Africa, three of which occur in Angola. The Calabar Burrowing Python (*Calabaria reinhardtii*) is no longer included within the Pythonidae as it has greater affinities with boas, and is placed in a monotypic subfamily (*Calabariinae*) within an enlarged Boidae (Pyron et al. 2014). It is restricted to forest habitat in West Africa and the Congo Basin, but is unknown from Angola, although it may extend south into Cabinda.

Namib Dwarf Python
*Python anchietae* (Bocage 1887)


Bocage (1887a) described the dwarf python from “Catumbella” (= Catumbela, Benguela Province). Additional Angolan specimens are noted from Hanha (Bogert 1940) and 18 km from Lobito to Hanha (Laurent 1964). During field work in Angola (1974), Wulf Haacke collected the only record from the inland plateau at Viriambundo, Huila Province (15°33’S, 14°03’E, 1,288 m a.s.l.). Restricted mainly to the coastal plain of southwest Angola, with a more extensive distribution in northern Namibia.

Southern African Python
*Python natalensis* (Smith 1840)


Angolan pythons examined by Bocage (1895) were mostly from southern Angola and conformed to *P. natalensis*. He thus referred them to *P. natalensis*, but he was cautious whether they were “a species apart or... a simple variety of *P. Sebae*”. For most of the 20th Century African pythons were treated as a monotypic *P. sebae*, although Monard (1931) noted that his material from Ebanga, Chimporo and Vila da Ponte (= Cuvango) had the characteristics of *natalensis*. Broadley (1984) revived *P. s. natalensis* as a subspecies for southern populations, to which he referred material from Bocage (1895), Bogert (1940), and Monard (1937). He considered the Kwanza River to be the northern boundary for the species in the west. Later he raised *P. s. natalensis* to a full species (Broadley 1999).

Northern African Python
*Python sebae* (Gmelin 1789)

Bocage (1895) did not refer any Angolan pythons to *P. sebae*. Broadley (1984), however, considered the species to enter northern Angola, reaching as far south as Ambiz on the coast. Both Laurent (1954, 1964) and Tys van den Audenaerde (1967) recorded pythons from Dundo, which Broadley (1984) also referred to *P. sebae*. Broadley (1984) showed that scolation features overlapped considerably between *sebae* and *natalensis*, and that the most distinctive features between the putative taxa were the extent of scale fragmentation on the crown of the head and head color pattern. There are no Angolan localities where parapatry occurs between the two taxa (Broadley 1984).

**CAENOPHIDIA**

Within Africa most snakes are part of the Caenophidian radiation, i.e., the ‘higher’ snakes, and include a suite of snake families that comprise the Colubroidea. Knowledge of snake relationships has changed drastically in the new millennium, fuelled by developments in genetic sequencing, computer assessment and modeling of relationships, and increasing gene and taxon sampling. Numerous new arrangements and higher taxonomic categories have been proposed, and increasing consensus is being reached. Branch and Bauer (2014) gave a summary with an African perspective, but this has been modified by recent phylogenetic updates (e.g., Hsiang et al. 2015; Figueroa et al. 2016). The concept of the Colubroidea proposed by Vidal et al. (2007, 2010), which is restricted to a clade of snakes that is sister to the Elapoidea (Elapidae + Lampropeltidae) of Kelly et al. (2008) is maintained. It includes various families previously treated as subfamilies within a more inclusive Colubridae (e.g., Natricidae and other non-African families), and the Colubroidea is therefore equivalent to previous usage of the Colubridae. Pyron et al. (2011) give fuller discussion and a conflicting treatment. A major difference between conflicting arrangements is that basal caenophidian lineages such as the Viperidae are included, along with other diverse snakes, within the Colubroidea of Pyron et al. (2011), but not within the restricted usage of Vidal et al. (2007, 2010). The families Natricidae and Colubridae, the latter including the recently recognized subfamily Grayinae (Pyron et al. 2011), are the only representatives of the Colubroidea in Angola. It should be stressed, however, that the higher-level relationships of snakes remain unsettled, and understanding of the snake tree of life remains incomplete (Figueroa et al. 2016) and that the arrangement adopted here is likely to change again.

**Family: Colubridae**

Relationships within the African colubrid radiation remain unresolved. Based on cranial features Bourgeois (1968) recognized a subfamily Boiginatae that included the genera *Boiga* (restricted now to Asia as the two African species were transferred to *Toxicodryas*, *Telescopus*, *Crotaphopeltis*, and *Dipsadoxoa*). Subsequent molecular data (Gravlund 2001; Kelly et al. 2003; Figueroa et al. 2016) also support the inclusion of *Dasypeltis* within the Boiginatae. Bourgeois (1968) erected two other subfamilies: the Dipsidinae including diverse tree snakes of the genera *Thrasops*, *Rhamnophis*, *Dispholidus*, *Theolotornis* and *Xyelodontophis* (the latter now synonymized with *Theolotornis*, Eimermacher 2012); and the Philothamninae, including the genera *Philothamnus* and *Hapsidophrys*. The latter has not been supported by molecular data although Figueroa et al. (2016) found these genera were sister to Bourgeois Dipsidinae. Broadley and Wallach (2002) recognized Bourgeois subfamily as the tribe Dispholidini, and the diverse colubrids treated as subfamilies by Bourgeois (1968) are perhaps best treated as tribes (Boiginatae, Dispholidini) within the Colubridae. Relatively few African colubrids have been included in phylogenies, usually with only single species representatives of the diverse genera, and fuller resolution of their relationships await fuller taxon sampling.

**Subfamily: Colubrinae**

**White-lipped Snake**

*Crotaphopeltis hotamboeia* (Laurenti 1768)


Bocage (1895) considered the species (as *Crotaphopeltis rufescens*) to be common throughout much of Angola, and most recent surveys (e.g., Parker 1936; Hellmich 1957; Ceriaço et al. 2016b; Conradie et al. 2016, 2017) confirm this, although it appears rare in northeast Angola (Laurent 1950).

**Barotse Water Snake**

*Crotaphopeltis barotseensis* (Broadley 1968)

---

*Fig. 3. Python sebae, Cabesa da Cobra, Soyo (Photo: Warren Klein).*

A poorly known snake, still known in Zambia only from the type locality (Kalabo). All other records are restricted to the Okavango Delta (Rasmussen 1997), with the exception of the first records for Angola collected during the National Geographic Okavango Wilderness Project survey of the headwaters of the Cuito River (Conradie et al. 2017; Conradie and Branch 2017).

**Fig. 4.** *Crotaphopeltis barotseensis*, Lake Saliakembo, Cuando Cubango (Photo: Werner Conradie).

Confusing Egg-Eater *Dasylepis confusa* (Trape and Mané 2006)


**Fig. 5.** *Dasylepis confusa*, Cuanavale River Source, Cuando Cubango (Photo: Werner Conradie).

This recently described species was described from Senegal, with disjunct records as far east as Cameroon, West Africa (Trape and Mané 2006). Bates (2013) recorded additional material, and extended the range as far south as Gabon, but Bates et al. (2012) and Bates and Broadley (2018) noted that *D. confusa* extends in to Angola. Recent material collected during the NGOWP surveys (Conradie et al. 2017; Conradie and Branch 2017) conform to this species, as does the illustration of *D. scabra* from Cangandala in Ceriaco et al. (2016b) as it has the ‘5L’ color pattern (Gans 1959) that Trape and Mane (2006) refer to *D. confusa*. Further studies are required to resolve the species’ distribution in Angola and further south.

Palm Egg-Eater *Dasypeltis palmarum* (Leach 1818)

*Coluber palmarum* Leach, 1818. in Tuckey, Narrative of an expedition to explore the river Zaire, usually called the Congo, in South Africa, in 1816. London, J. Murray: 408.

Bocage (1895) listed uniform-colored egg-eaters, which he referred to var. *palmarum* from Ambaca, Catumbela, Dombe (= Dombe Grande), Quissange and Quindumbo, and also from Lândana in Cabinda (Peters 1877). Bocage (1897) later listed “Dous exemplares da var. *palmarum*” in material collected by Achietae at Hanha, and Bou lenger (1905) referred material from Punga Andonga (= Pungo Andongo) to *D. scabra* var. *palmarum*. Laurent (1964) also recorded a uniform colored snake from Dundo that may well have been *D. palmarum*. Various *Dasypeltis* species with blotched patterns occasionally have uniform-colored individuals, e.g., *D. scabra* (Branch 1998), *D. atra* and *D. medici* Spawls et al. (2018), and the status of uniform-colored Angolan egg-eaters and their assignment to *D. palmarum* needs further study.

**Fig. 6.** *Dasypeltis palmarum*, Soyo (Photo: Warren Klein).

Rhombic Egg-Eater *Dasypeltis scabra* (Linnaeus 1758)


Bocage (1895) considered egg-eaters to comprise a “single species of the genus *Dasypeltis*” and with “several varieties more or less distinct in their colors” occurring in Angola. However, as his material was destroyed in the Lisbon fire
it is now difficult to assign his records to the diverse species now recognized or recently described. Subsequent authors, e.g., Parker (1936), Laurent (1954, 1964), Tys van den Audenaerde (1967), Ceriaco et al. (2016) have reported new Angolan material (but see *D. confusa* and *D. plamarum*). Bates and Broadley (2018) elevated *D. loveridgei* Mertens 1954 to a full species based on Namibian material, but whether it extends into southern Angola remains uncertain.

**Shrewe’s Tree Snake**


Described by Loveridge (1932) as *Dipsadoboa shrewei*, on a single specimen from “Missao de Dondi, Bella Vista” (Missão do Dondi, Huambo, 12°32’S, 16°15’E). Only two other Angolan specimens are known (Chitau, Schmidt 1933; Lagoa Calundo, Mexico Province, Laurent 1964). It is more common in northern Zambia, extending into southeastern DRC. Tanzanian records (Rasmussen 1986; Spawls et al. 2018) from Arusha usually refer to as *D. s. kageleri* are particularly problematic, which possibly deserves specific status (Branch et al. submitted).

**Punctate Boomslang**

*Dispholidus typus punctatus* (Laurent 1955)


Bocage first recorded the boomslang (as *Bucephalus capensis*) in Angola from Dondo, and later (Bocage 1895) noted that the species was very abundant in the highlands, but absent from the coastal region. He listed numerous localities, and others are given by Laurent (1950, 1954, 1964), Tys van den Audenaerde (1967), Peters (1881), Loveridge (1936), Bogert (1940), Manaças (1973, 1981), Ceriaco et al. (2016b), etc. Boomslang display both ontogenic and sexual dimorphic color change, compounded by regional color phases. This has resulted in numerous taxonomic names, treated by various authors as synonyms, species or subspecies. Males of the most widespread color form in Angola have a dark body with numerous yellow blotches, and were referred to *Dispholidus typus punctatus* based on material from Dundo by Laurent (1954). In a molecular phylogeny of the Boomslang, Eiemacher (2012) identified at least four separate clades that he concluded represented distinct species, including *D. viridis* from southern Africa, north and west of the Great Escarpment, and *D. punctatus* from Angola, northern Zambia and adjacent DRC, but deferred taxonomic revival of these species pending clarification of additional putative new taxa in East Africa.

**Green Boomslang**

*Dispholidus typus viridis* (Smith 1838)

*Bucephalus viridis* Smith, 1838. Illustration Zoology of South Africa pl. 3.

Bocage (1882) referred material from Caconda to *Bucephalus capensis*, var. *viridis* Smith 1838. Later, however, he noted a green boomslang only from Humbe (Bocage 1895), with other color forms, particularly punctuate, occurring at other localities, but also at Humbe. *Dispholidus typus viridis* was recently revived by Broadley and Blaylock (2003), following a molecular phylogeny of the genus (*Eiemacher* 2012).

**Emerald Snake**

*Hapsidophrys smaragdina* (Schlegel 1837)


It was known to Bocage (1895) only from Cabinda (Lândana). Subsequently, Ferreira (1903) recorded the first Angolan specimen from N’Dalla-Tando (= N’Dalatando) and Hellmich (1957) added a large series from Piri-Dembos (= Piri). Laurent (1954, 1964) and Tys van den Audenaerde (1967) recorded the first records from northeast Angola (Dundo).

**Angolan Green Snake**

*Philothamnus angolensis* (Bocage 1882)


Most Angolan material has been referred to *Chlorophis (= Philothamnus) irregularis*: e.g., Peters (1881), Bocage (1895), Ferreira (1903), Parker (1936), Monard (1937), Bogert (1940), Hellmich (1957), and Laurent (1964). Although Hughes (1985) resolved confusion concerning the content of *Philothamnus irregularis* and restricted this name to West African populations, reviving Bocage’s *P. angolensis* for southern populations, this has sometimes been overlooked (e.g., Ceriaco et al 2014; Ceriaco et al. 2016b).

**Striped Green Snake**

*Philothamnus dorsalis* (Bocage 1886)


When naming *Leptophis dorsalis* Bocage (1866) gave the
ill-defined type locality “Molembo, Afrique occidentale,” which he later emended (Bocage 1882) to “Molembo de la Côte de Loango au nord du Zaïre” (= Malembo, Cabinda Prov., ext. NW Angola, 05°20’S, 12°11’E). He later (Bocage 1895) listed a number of Angolan localities (Rio Dande, Loanda, Benguela, Catumbela, and Pungo-Andongo). Those south of the Kwanza River are likely to have been confused with *P. ornatus* (e.g., Catumbela), or their origin given as the collector’s home base (e.g., Benguela). Additional material was recorded (often as *P. semivariegatus dorsalis*, Loveridge 1958) from Dondo and Libolo (= Calulo) (Hellmich 1957).

![Fig. 7. Philothamnus dorsalis, Soyo (Photo: Warren Klein).](image-url)

Emerald Green Snake
*Philothamnus heterodermus* (Hallowell 1857)


Bocage (1895) knew *Philothamnus heterodermus* only from the Congo, but it was subsequently recorded for Angola from: Congulu (= Fazenda Congulu, Parker 1936), Piri (Hellmich 1957b), Dundo (Tys van den Audenaerde 1967), and Capanda Dam (Ceriaco et al. 2014).

Slender Green Snake
*Philothamnus heterolepidotus* (Günther 1863)


This elegant species was known from Angola to Bocage (1866, 1879, 1882, 1887b), and by 1895 he knew it from varied localities (Dondo, Duque de Braganca. Quibala, Cacenda and Cassange). Additional records include Muita River, Cameia, Moxico and Dundo (Laurent 1964, 1965, 1964; Tys van den Audenaerde 1967).

Southeastern Green Snake
*Philothamnus hoplogaster* (Günther 1863)


Bocage (1895) did not include *P. hoplogaster* in his monograph, but listed material that he had earlier (Bocage 1887b) referred to *P. hoplogaster* from St Salvador du Congo (= M’banza-Kongo) as *P. irregullaris*. The status of this specimen remains unresolved. Laurent (1964) listed Angolan material from Dundo, Alto Chicapa and Camissombo, but whether this material is correctly identified also remains unknown. Loveridge (1958) did not list the species from Angola or discuss any material from the country. In contrast, Hughes (1985) mapped seven Angolan records (without M’banza-Kongo), but cited no authority for these records. A snake from north of Saurimo, Lunda Sul Province shows genetic monophyly with *P. hoplogaster* but deep divergence (Englebrecht et al. 2018). This is provisionally referred to this species, but is being investigated further.

Günther’s Green Snake
*Philothamnus nitidus* (Günther 1863)


The only Angolan records are from Dundo (Laurent 1964; Tys van den Audenaerde 1967). Loveridge (1958) treated *P. nitidus* and *P. dorsalis* (see above) as subspecies of *P. semivariegatus*, but Laurent (1960) revived *P. nitidus* as a valid species and described DRC material as a new race, *P. n. loveridgei*, that Hughes (1985) continued to recognize. However, a molecular phyogeny of the genus (Englebrecht et al. 2018) confirmed specific status of *P. nitidus* but only intra-specific divergence between the two putative subspecies. We therefore reject *P. n. loveridgei* and *P. nitidus* reverts to binomials.

Ornate Green Snake
*Philothamnus ornatus* (Bocage 1872)


Bocage (1872) described his new species on three specimens “from Cacheu, on the coast of Guinea, the other two collected at Huilla by Mr. d’Anchieta” and was therefore probably composite, with the Guinea specimens referable to *P. dorsalis*, which also has a dorsal stripe. Nomenclatural problems were avoided when Bogert (1940) restricted the type locality to Huilla (= Huila), and discussed another specimen from Huambo. Additional material was recorded from Bela Vista (Hellmich 1957), and obtained during the National Geographic Okavango

Spotted Bush Snake
*Philothamnus semivariegatus* (Smith 1840)


Bocage (1882b) first described *Philothamnus smithii*, based on diverse material from Portuguese Guinea and Angola. He was cautious referring southern Angolan material from Capangombe and Maconjo to his new species, but on coloration considered Angolan material from Catumbela, Huila and Humbe to be similar to material from Bissau. He later (Bocage 1895) referred all Angolan material to *P. semivariegatus*. Loveridge (1958) restricted the name *P. smithii* to Portuguese Guinea, and Trape and Baldé (2014) revived *smithii* as a West African subspecies of *P. semivariegatus*, extending from Guinea to Niger (Trape and Mané 2015). They noted that “Molecular studies suggest that this taxon could deserve full species status.” Subsequent Angolan material from Dundo was referred to *P. semivariegatus* (Laurent 1954, 1964). Recent Angolan material, including some included in a recent molecular phylogeny of the genus (Englebrecht et al. 2018), confirmed cryptic diversity within *P. semivariegatus*.

**Fig. 8.** *Philothamnus semivariegatus*, Humpata, Huila.

Large-eyed Green Treesnake
*Rhamnophis aethiopissa* (Günther 1862)


In his monograph Bocage (1895) did not consider *Rhamnophis aethiopissa* Günther described from “West Africa,” as it was then unknown from either Congo or Angola. It is a rare arboreal snake of closed canopy forest, and the first Angolan recorded was from Piri (Hellmich 1957).

Hook-nosed Snake
*Scaphiophis albopunctatus* (Peters 1870)


Bocage (1895) did not know this eastern savannah species from Angola. The only Angolan record is from Muita River (Laurent 1950).

Damara Tiger Snake
*Telescopus finkeldeyi* (Haacke 2013)


A recently described species (Haacke 2013) mainly restricted to Damaraland, Namibia, entering the southwest arid region of Angola. Haacke (2013) recorded a single Angolan record from just north of Namibé and an additional record from Espinheira (Fig. 19.; Branch December 2012).

**Fig. 9.** *Telescopus finkeldeyi*, Espinheira, Namibe.

Western Tiger Snake
*Telescopus semiannulatus polystictus* (Mertens 1954)


Bocage (1895) noted that this snake (as *Crotaphopeltis semiannulatus*) was rare in Angola, and was known to him only from Gambos, Humbe, and Quissange. Additional specimens were recorded from Calulo (Hellmich 1957) and recently from coastal Namibe. All these specimens are referred to the western subspecies *T. s. polystictus*, which probably deserves specific status.
Oates’ Vine Snake
*Thelotornis capensis oatesi* (Günther 1881)


Bocage (1895) discussed this species under the name *Dryiophis kirtlandii* var. *oatesi*, and knew that it was “frequently seen in the highlands of Angola to the south of the Kwuanza.” Additional material has been recorded (as *Thelotornis capensis*) from Hanha (Bogert 1940), Chitado (Hellmich 1957), Alto Chicapa (Laurent 1964), and Longa (Conradie et al 2016). Loveridge (1953) revived *oatesii* as a subspecies of *T. kirtlandii*, later transferred to the southern species *T. capensis* by Broadley (1979a).

Forest Vine Snake
*Thelotornis kirtlandii* (Hallowell 1844)


Known to Bocage (1895) in Angola only from Calandula. Subsequent material recorded from Caconda and Quirimbo (Parker 1936), Piri-Dembos (Hellmich 1957); Dundo (Laurent 1964; Tys van den Audenaerde 1967) and Ile Bena-Mai, Rio Luachimo (Laurent 1954).

Yellow-throated Treesnake
*Thrasops flavigularis* (Hallowell 1852)


Bocage (1895) knew the species in Angola only from Cabinda (Lândana), although it was subsequently recorded from Piri (Hellmich 1957).

Jackson’s Treesnake
*Thrasops jacksoni* (Günther 1895)


Bocage (1895) did not know the species from Angola, although it was subsequently recorded from Dundo (Tys van den Audenaerde 1967). Broadley and Wallach (2002) reviewed the genus, and did not include Angola in the range of *T. jacksoni*, although in their map they plot a locality at Calandula. The recent discovery of the species in Gabon (Carlino and Pauwels 2013) and also from Soyo, Angola (Fig. 12. Klein April 2011) indicates that the species may occur in sympathy with *T. flavigularis* in the forests of Cabinda and even northwestern Angola. The status of both species in the region needs confirmation.

Blanding’s Treesnake
*Toxicodryas blandingii* (Hallowell 1844)


This large, nocturnal snake has been recorded infrequently from Angola. Bocage (1895) had no records for Angola and the first documented record for the country was based on a specimen from Congula (Parker 1936).
Subsequently Hellmich (1957) recorded material from Piri and Laurent (1964) from Dundo.

**Powdered Treesnake**  
Toxicodryas pulverulenta (Fischer 1856)  


As with Blanding’s Tree Snake, Bocage (1895) knew of no Angolan material, and again Parker (1936) and Hellmich (1957) recorded this species from Congulu and Piri, respectively. No additional material is known.

**Subfamily: Grayinae**

**Ornate Water Snake**  
Grayia ornata (Bocage 1866)  


Bocage (1866) described *Macrophis ornatus* by from Duque de Braganca (= Calandula), and it was transferred to *Grayia* by Sternfeld (1917). Little additional material has been recorded: Dundo (Laurent 1954, 1964), Lagoa Carumbo (Branch and Conradie 2015).

**Smith’s Water Snake**  
Grayia smithii (Leach 1818)  


Bocage (1866) described *Grayia triangularis* based on “l’exemplaire d’Angola, recueilli à Rio Dande par M. Banyures.” He continued to use this name in his monograph, although it was soon synonymized with *G. smithii* by Günther (1895). Bocage (1895) noted that it must be rare and confined to north of the Kwanza. The few subsequent specimens confirm its rarity: Cambondo (Ferreira 1904), Dundo and Luachimo River (Laurent 1964).

**Thollon’s Water Snake**  
Grayia tholloni (Mocquard 1897)  


Bocage (1895) had no records for Angola and the only documented record for the country remains Laurent’s (1964) record from Rio Muîta, Lunda Norte.

**Family: Natricidae**

The Natricidae is a recent coloniser of Africa, and has a relatively low diversity in sub-Saharan Africa with only five genera (*Afronatrix*, *Heliophis*, *Hydraethops*, *Limnophis*, and *Natriciteres*) and 11 species. All are semiaquatic, feeding on frogs and fish.

**Bangweulu Swamp Snake**  
Limnophis bangweolicus (Mertens 1936)  


Mertens’ (1936) species *L. bangweolicus* was described from Lake Bangweulu, northern Zambia, and treated as a synonym of Günther’s *L. bicolor* by de Witte (1953). It was revived as a subspecies by Laurent (1964), who found snakes referable to both taxa in northeast Angola, recording *L. bicolor bangweolicus* from Calundo, Mexico. Broadley (1991a) found the species in close proximity in the Ikelenge pedicle in northwest Zambia, and suggested that the two races should be treated as full species. This was supported by additional material from the region (Haagner et al. 2000), which also supported a dietary difference between the two species. Conradie et al (2016, 2017) record additional material in the Angolan Okavango catchment.

**Striped Swamp Snake**  
Limnophis bicolor (Günther 1865)  


Günther (1865) described *Limnophis bicolor* based on two specimens sent by Bayão in 1864 from Calandula. Bocage (1866, 1879) discussed additional specimens.
sent by Anchieta from Huila, Caconda, Quindumbo, and Cahata, and Boulenger (1893) transferred the species to Helicops. Bocage (1895) discussed the species (as Helicops bicolor) and noted that it was found only on the high plateau. Later specimens were recorded from Hanha (Bocage 1896) and numerous localities on the southern high plateau (Monard 1931, 1937), and Bela Vista (Hellmich 1957). After reassessing the taxonomic status of L. bicolor (see above), Laurent (1964) recorded specimens of L. b. bicolor from Alto Chilo and Alto Chicapa. Branch and Conradie (2015) recorded the species around Lagoa Carumba, Lunda Norte, where it was commonly caught in fish traps.

Olive Marsh Snake


Bocage (1895) knew this small marsh snake (as *Mizodon olivaceus*) from relatively few localities, e.g., Pungo-Andongo and Malange (= Malanje), and considered that its range south was limited by the Kwanza River. Additional material includes: “Angola,” a specimen from the Vernay Lang Angola expedition without further details (Bogert 1840), Dundo and Muita (Laurent 1954), and Dondo (Hellmich 1957).

**Family: Lamprophiidae**

Early molecular studies helped clarify interfamilial relationships within advanced snakes (Vidal and Hedges 2002a; Kelly et al. 2003; Lawson et al. 2005; Vidal et al. 2007), and highlighted the existence of a major clade (Elapoiidea, Vidal et al. 2007) that included elapids (cobras, mambas, sea snakes, etc.) and a large and diverse radiation of mostly African and Malagacian snakes. The latter radiation has been treated as the Lamprophiidae (Vidal et al. 2009). Pyron et al. (2011) noted that they considered “the most difficult aspect of higher-level colubroid taxonomy to be Lamprophiidae, the assemblage of mostly African snakes related to Elapidae.” The Lamprophiidae envisaged by Vidal et al. (2007) initially included only four subfamilies: the Psammophiinae, Atractaspidinae, Lamprophiinae, and Pseudoxyrhophiinae. Kelly et al. (2008) treated these as full families, and also proposed the additional families Prosymnidae and Pseudaspidae. Subsequent studies (e.g., Pyron et al. 2011; Figueroa et al. 2016) have basically retained these groupings as subfamilies (but with additional, sometimes non-African members of various subfamilies). The Pseudoxyrhophiinae include numerous Malagasy genera with a number of species also found in the Comoros Islands. Surprisingly, the African genera *Duberria, Amplorhinus* (and probably *Montaspis*) are also included in this subfamily, but none occur in Angola.

**Subfamily: Atractaspidinae**

The atractaspidines are sometimes raised to a full family (Figueroa et al. 2016), with a reduced Atractaspidinae containing only *Atractaspis* and South African *Homoroselaps*, and all other genera placed in a new subfamily, the Aparallacinae. This arrangement is not adopted here, where the Atractaspidinae is retained within the Lamprophiidae and contains all genera traditionally placed in that group. A suite of genera have usually been assigned to the atractaspidines (*Amblyodipsas, Aparallactus, Atractaspis, Brachyophis, Chlorinophis, Elapoton, Homoroselaps, Hypoptophis, Macrelaps,* and *Coronella olivacea*)
Poecilopholis, Polemon, Xenocalamus), which are distributed broadly in Africa but with a limited occurrence of some genera in the Middle East. The monophyly of atractaspidines is well supported by both morphological (McDowell 1968; Underwood and Kochva 1993; Zaher 1999) and molecular data (Nagy et al. 2005; Vidal and Hedges 2007; Portillo et al. 2018). Figueroa et al. (2016) proposed that Xenocalamus be synonymized with Amblyodipsas, but based this on very limited taxon sampling of these genera. A more comprehensive molecular analysis of the subfamily (Portillo et al. 2018) included 158 individuals from six of eight aparallactine genera, and revealed numerous cryptic taxa, as well as the need for a number of generic readjustments to retain monophyletic clades that continue to include generic status for both Xenocalamus and Amblyodipsas, but with adjusted species content.

Bibron’s Burrowing Asp
Atractaspis bibronii (Smith 1849)


Bocage (1895) knew the species from Catumbela, Benguela and Dombe Grande, the only places from which Anchieta sent material, and on this basis noted that “cette espèce, qui paraît affectionner en Angola la zone littorale.” Additional material (as Atractaspis bibronii rostrata) was recorded from Dundo (Laurent 1950, 1954, 1964; Tys van den Audenaerde 1967).

Congo Burrowing Asp
Atractaspis congica (Peters 1877)


Bocage (1873) did not recognize the first Angolan record sent to him from Huilla by Anchieta, as a new species and mistakenly referred it to Atractaspis aterrima. Peters (1877) described the species a few years later from Lândana, Cabinda. He later (Peters 1881) record another specimen from Cuango. Bocage (1895) concluded that the species lived in the highlands of the interior, as he had received material from Quibula, Quindumbo, Galanga, Caconda, and Huila from Anchieta. Later additions included: Cazengo (Ferreira 1904), Calandula, Golungo Alto (Boulenger 1905), Bimbe (Monard 1937), Entre Rios, Piri, Bela Vista, Alto Cubal (Hellmich 1957), Alto Cuilo (as A. c. congica), and Calundo, Mexico (A. c. orientalis) (Laurent 1964), and show that it has a wider distribution than known to Bocage (1895). The status of Laurent’s subspecies of A. congica, e.g., A. c. orientalis Laurent, 1945 from Katanga and northern Zambia, and A. c. lelupi Laurent, 1950 from Katanga remain problematic, although Wallach et al. (2014) treated A. lelupi as a full species.

Fig. 15. Atractaspis congica, Soyo (Photo: Warren Klein).

Southern Reticulate Burrowing Asp
Atractaspis reticulata heterochilus (Boulenger 1901)


Hellmich’s (1957) record of A. reticulata heterochilus from Piri-Dembos (= Piri) is the only record of this species from Angola, and needs re-examination to confirm it is not misidentified. The race is recorded from Cameroon to Gabon and so may extend through Cabinda further south.

Subfamily: Aparallactinae

Common Purple-glossed Snake
Amblyodipsas polylepis (Bocage 1873)


Bocage’s (1873) description of Calamelaps polylepis was based on a snake from Dondo, and later material was added from Quissange and Humbe (Bocage 1895), Cavicula (Ferreira 1904), and Cazengo (Boulenger 1905). Broadley (1971a) when revising the genus added no further Angolan material, but recognized an East African race (A. p. hildebranditii) whose status has not been reassessed.

Kalahari Purple-glossed Snake
Amblyodipsas ventrimaculata (Roux 1907)

The presence of this Kalahari species was first recorded in Angola from material collected during NGOWP surveys (Conradie et al. 2017; Conradie and Branch 2017) and from Bicuar National Park (Baptista et al., in prep.).

Fig. 16. Amblyodipsas ventrimaculata, Cuito River Source, Cuando Cubango (Photo: Werner Conradie).

Cape Centipede Eater
Aparallactus capensis (Smith 1849)


Bocage (1895) recorded the species (as Urechis capensis) from Sumbe, Bibala and Gambos, but discussed variation among this small sample (5 specimens). Boulenger (1895) considered Bocage’s material to be composite and referred some to A. guentheri and the others to two new species, A. bocagii and A. punctatolineatus, but confusingly without allocating to which of Bocage’s specimens/localities these names applied! The type localities for these new species therefore by default became simply ‘Angola’. Loveridge (1944) revised the genus and assigned Bocage’s Quindumbo specimen to true A. c. capensis, and his other material from Bibala, Gambos and Sumbe to A. c. bocagii. Boulenger’s A. punctatolineatus was relegated to the synonymy of A. c. capensis by Loveridge (1944), but treated as a subspecies, A. capensis punctatolineatus, by De Witte and Laurent (1947). Laurent (1954) recorded A. c. punctatolineatus from Dundo and Sombo, and Broadley (1961) continued to recognize A. c. punctatolineatus as a northwestern race. However, after discussing in detail morphological variation in all subspecies Broadley (1966a) rejected them all and later formally returned A. capensis to bionomials (Broadley 1983). However, a recent molecular phylogeny of the Aparallactinae (Portillo et al. 2018) noted deep divergence between various A. capensis populations, for which some of Boulenger’s names may be available. Branch and McCarthy (1992) recorded a specimen near Cuito Cuanavale with a blunt head and low labials counts, but that was otherwise typical for A. capensis. Apart from this specimen, no recent material has been collected and the status of Angolan A. capensis, particularly western bocagii (currently in the synonymy of A. capensis), is unresolved.

Wilson’s burrowing snake
Hypoptophis wilsoni (Boulenger 1908)


It is known in Angola from only a single record of H. w. katangae from Dundo (Laurent 1964). De Witte and Laurent (1947) differentiated H. w. katangae from typical H. w. wilsoni by its lower ventral and subcaudal counts and nasal condition. Broadley (1966a) noted that Zambian material was intermediate between the two poorly defined races and subsequently reverted to bionomials (Broadley 1998a; Broadley et al. 2003). No recent material has been available for genetic assessment.

Collared Snake-Eater
Polemon collaris (Peters 1881)


Peters (1881) described Microsoma collarare from “Macange, Cuango, West-Africa.” However, Peters (1881) interchanged the spellings Macange and Malange frequently in the paper, and Crawford-Cabral and Mesquitela (1989) listed Malange as a variant of Malanje. Wallach et al. (2014) corrected the type locality to Malanje, Malanje Province, northern Angola (9°33’S, 16°20’E). Crawford-Cabral and Mesquitela (1989), who prepared a summary of all published records of Angolan terrestrial vertebrates (1784–1974), do not discuss any of Peters’ reptile publications, and also list “Macanje” as a version of Maconge, Moçamedes (= Namibe Province, 15°01’S, 13°12’E). However, this cannot refer to Peters’ locality as Polemon collaris is a forest species. Bocage (1887b) referred a specimen from Cazengo to this species, and later two from Quindumbo (Bocage 1895). Additional material was noted form Gulango Alto (Ferreira 2014), Entre Rios and Bela Vista (Hellmich 1957 - as Miodon gabonensis, then a senior synonym of M. collaris, which was later revalidated as a full species, Bogert 194). A recent specimen, confirmed by genetic monophyly (Portillo et al. 2018) was collected from northeast Angola.

Bi-colored Quill-snouted Snake
Xenocalamus bicolor machadoi (Laurent 1954)
Xenocalamus bicolor machadoi Laurent, 1954. Reptiles et batraciens de la région de Dundo (Angola) (Deuxième note). Companhia de Diamantes de Angola (Diamang), Serviços Culturais, Publicações Culturais, No. 2: 45.

First recorded from Angola by Boulenger (1905) on a specimen from between Benguela and Bihé (= Bié Province) collected by Anchieta, but mistakenly assigned to Xenocalamus mechowii, Peters. Laurent (1954) described Xenocalamus bicolor machadoi from Dundo, including Boulenger’s (1905) material. Broadley (1971a) reviewed the genus and recognized four subspecies in X. bicolor and two in X. mechowii (see below). Genetic material is required to re-assess the status of these races.

Elongate Quill-snouted Snake
Xenocalamus mechowii (Peters 1881)


Described by Peters (1881) from “Macange, West-Africa.” Wallach et al. (2014) corrected the type locality to Malanje (see above). Bocage (1895) overlooked Peters (1881) description and did not discuss the genus in Angola. Witte and Laurent (1947) described X. m. inornatus from northern Namibia, and Laurent (1954) noted the second Angolan specimen of X. m. mechowii from Sombo. Broadley (1971a) continued to recognize both subspecies, but had no additional Angolan material. Branch and McCarthy (1992) recorded the first Angolan record of the southern race from near Lupire. The status of the X. mechowii subspecies has not been genetically assessed.

Subfamily: Lamprophiinae

This assemblage of African snakes (equivalent to the Lamprophiidae of Kelly et al. 2008) includes a basic division between wolf snakes and their relatives (Lycophidion, Chamaelycus, Hormonotus, Mehelya, Gonionotophis, Limaformsa, etc.) and house snakes and their relatives (Boaedon, Bothrophthalmus, Lycodonomorphus, etc.). Kelly et al. (2011a) restricted Lamprophis for a group of four South African snakes, and revived Boaedon for all other African house snakes (albeit that not all taxa had been assessed). In addition, numerous additional cryptic taxa within southern Boaedon populations were identified, but not described pending further studies. The presence of paraphyletic genera within file snakes was also identified (Kelly et al. 2011a), but the inclusion of Mehelya within Gonionotophis to maintain generic monophyly was premature. Fuller taxon sampling has resulted in the revival of Mehelya (but with reduced content), the description of two new genera (Limafor- mosa and Gracililima), and reduced content for Gonionotophis, now restricted to the majority of the dwarf file snake species (Broadley et al. 2018). Unresolved, although the subject of ongoing investigation, are species boundaries and phylogenetic relationships within house snakes (Boaedon) and their aquatic relatives (Lycodonomorphus).

House Snake
Boaedon capensis-fuliginosus-lineatus complex (Boie 1827)

Resolution of the taxonomic status of these house snakes remains one of the most persistent and challenging problems in African herpetology (e.g., Roux-Esteve and Guibe 1965; Thorpe and McCarthy 1978; Hughes 1997). Numerous studies have juggled the nomenclature, with various names and generic assignments proposed, as well as new species described (Greenbaum et al. 2015; Trape and Medannikov 2016). Kelly et al. (2011a) resolved most generic affiliations although adjustments have occurred (Greenbaum et al. 2015) or are probably required (Lycodonomorphus (?) subtaeniatus, see below). Lamprophis is now restricted to a few South African endemic, with all other names/species by genetic monophyly or default being transferred to Boaedon. House snakes are common throughout Angola, but none were included in the above studies, and neither were many other African populations or even putative species (e.g., mentalis, erlangeri, arabis, bedriagae, etc.), and the status of all remains unresolved. The names Alopecion variegatum Bocage, 1867 and Boaedon lineatus var. angolenensis Bocage, 1895, currently considered synonyms of B. lineatus, remain unresolved. In addition, the Coastal House Snake (B. littoralis) recently described (Trape and Medannikov 2016) from the coastal region of southern Gabon and Republic of Congo, may extend at least into Cabinda. It is probable that many different house snake species currently occur in Angola, but their distributions and diagnostic features, as well as the allocation of existing names and description of new species, are under investigation (Hallermann et al., in prep.). In addition, it is likely that a number of species from adjacent regions, e.g., B. radfordi, are likely to enter the northern forested habitats.

Fig. 17. Boaedon capensis-fuliginosus-lineatus complex, near Menongue, Cuando Cubango.
Amphib. Reptile Conserv.

Olive House Snake
Boaedon olivaceus (Dumeril 1856)


Bocage (1895) specifically stated that he knew of no Angolan material. It was subsequently recorded from Dundo (Laurent 1954; Tys van den Audenaerde 1967), but the recent description of a sister species, *B. radfordii*, from the Albertine Rift (Greenbaum et al. 2015), means that the relationship of Dundo material to this new species requires assessment.

Red-Black Striped House Snake
Bothrophthalmus lineatus (Peters 1863)


Not known to Bocage (1895) from Angola, although it was subsequently recorded from Dundo (Laurent 1950, 1954, 1964; Tys van den Audenaerde 1967). This remains the only Angolan locality. Plain western populations, previously known as *B. l. brunnaeus*, are now treated as a full species (Pauwels et al. 2006), and may extend south to Cabinda.

Parker’s Banded Snake
Chamaelycus parkeri (Angel 1934)


Parker (1936) recorded *Oophilositum parkeri* from Fazenda Congulu, and this remains the only known Angolan material. The species was transferred to *Chamaelycus* by de Witte (1963). Parker’s (1936) material creates a significant disjunction in the species’ range, which elsewhere is restricted to DRC and Congo Brazzaville (Trape and Roux-Esteve 1995).

Yellow Forest Snake
Hormonotus modestus (Duméril, Bibron and Duméril 1854)


A characteristic species of the Congo forest known from Angola from a single specimen from scarp forest habitat at Congula (Parker 1936).

Branch

Brussaux’s Dwarf File Snake
Gonionotophis brusseauii (Mocquard 1889)


This small file snake was not known to Bocage (1895) from Angola. Laurent (1954) documented the only Angolan record from Dundo.

Common File Snake
Limaformosa capensis (Smith 1847)


Bocage (1895) did not know this species from Angola. Monard (1937) signalled the first record (as *Mehelya capensis capensis*) from Huamo, and additional material was recorded from Rive des Ganguelles (Angel 1923), ‘Rives du la Calundo’, 105 km E Luso, Mexico (Laurent 1964), and 14 km north Mapupa (Branch and McCarthy 1992). Despite Laurent’s records, Haacke (1981) and Broadley (1983) continued to exclude Angola from the range of *M. capensis*. The few known records are all restricted to the eastern regions of Angola. In a molecular analysis Kelly et al. (2011a) showed that *Gonionotophis brussauxi* (Mocquard 1889; type species) was nested within *Mehelya*, and as the former generic name had priority, the latter and all other file snakes were placed in *Gonionotophis*. Lanza and Broadley (2016) also reassessed northern populations related to *G. capensis*, with the revival of *G. chanleri* and *G. savorgnani* as full species. Moreover, a more recent phylogeny with greater taxon sampling confirmed monophyletic clades within *Gonionotophis sensu lato*, and led to the revival of *Mehelya* (but restricted to *M. poensis*, *M. stenophthalmus*, *M. egbensis*, *G. gabouensis* (Trape and Mané 2005), and *G. laurenti*); a more traditional content for *Gonionotophis* (including the dwarf species *G. brussauxi*, *G. granti* and provisionally *G. klingi*); the description of a new genus, *Gracililima* for *G. nyasae*; and a new genus *Limaformosa* for the remaining file snakes of the *G. capensis* complex (Broadley et al. 2018).

Savorgan’s File Snake
Limaformosa savorgnani (Moquard 1887)


Bocage knew no file snakes from Angola and reported only *Heterolepis bicarinatus* from the Congo (Bocage 1866). He later (Bocage 1895) corrected this identification to *H. guirali*. Loveridge (1939) undertook the last revision of file snakes and placed *H. guirali* in the synon-
y my of *Mehelya capensis savorgani*. Lanza and Broadley (2016) revived *M. savorgani* as a full species, and included northern Angola in the species’ range, but examined no Angolan material or gave citations for Angolan localities. It was recently transferred to a new genus by Broadley et al. (2018).

**Fig. 18. Limaformosa savorgani, Soyo (Photo: Warren Klein).**

Vernay’s File Snake  
*Limaformosa vernayi* (Bogert 1940)


This poorly known file snake was described from Hanha by Bogert (1940). Haacke (1981) reviewed file snakes in the western arid region, and noted few additional records (<10) for northern Namibia, but no new material from Angola. It was recently transferred to a new genus by Broadley et al. (2018).

**Fig. 19. Mehelya poensis, Lagoa Carumba, Lunde Norte.**

Equatorial File Snake  
*Mehelya poensis* (Smith 1849)


Bocage (1895) did not discuss *M. poensis* from either Angola or the Congo region. Its presence in Angola was first signaled from Cabucula (Cazengo) (Ferreira 1904). Additional material was recorded from Piri (Hellmich 1957); Dundo (Laurent 1950), Muita River (Tys van den Audenaerde 1967), and Lagoa Carumbo (Branch and Conradie 2015). Recently placed in an expanded *Goniopholus* (Kelly et al 2011a), but now returned to a reduced *Mehelya* (Broadley et al. 2018).

White-bellied Water Snake  
*Lycodonomorphus (?) subtaeniatus* (Laurent 1954)


Laurent (1954) described *Lycodonomorphus subtaeniatus* based on a specimen from Keseki (DRC) and a series of 12 paratypes, including four from Dundo, which remain the only Angolan material. At the same time Laurent (1954) also described the subspecies *L. s. upembae* from Nyonga (DRC). The type series for both taxa included material previously identified as *Boaedon*, i.e., *B. virgatus* and *B. lineatus*, respectively (Laurent 1952; De Witte 1933). It was thus not unexpected that when preparing a molecular phylogeny of house snakes of the description of their new species *B. radfordii*, Greenbaum et al. (2015) found *L. s. upembae* embedded within *Boaedon*, to which it was transferred. No new material was available to assess the generic relationships of *L. subtaeniatus*, but the current placement within *Lycodonomorphus* is problematic and its relationship to *B. virgatus* with which has previously been confused should be investigated.

Hellmich’s Wolf Snake  
*Lycophidion hellmichi* (Laurent 1964)


Laurent (1964) described *Lycophidion hellmichi* from “Kapolopopo, desert de Mossamedes,” and included the *L. c. capense* (Hellmich 1957, Entre Rios) in the synonym, which was the first record of the species in Angola. He later (Laurent 1968) assigned a number of Namibian specimens to *L. hellmichi*, which Broadley (1991b) later realized were a new species, *L. namibianum*. The only remaining Namibian specimen of *L. hellmichi* is from the Kaokoveld (Broadley 1991b), and Broadley (1996) recorded another Angolan specimen from Quissange. It therefore appears to be known from only three specimens.
Flat Wolf Snake  
*Lycophidion laterale* (Hallowell 1857)


A dwarf West African species, ranging from Ivory Coast to Uganda, and south to Angola. It was known to Bocage (1866, 1895) only from Molembo (Cabinda), but later recorded from north of the Kwanza River (Ferreira 1903) and from N’Dalatando (Monard 1937).

Speckled Wolf Snake  
*Lycophidion meleagris* (Boulenger 1893)


A small wolf snake described from Ambriz and Ambritzete (= N’zeto) in coastal northern Angola (Boulenger, 1893). These remained the only material known to Bocage (1895). Additional material was recorded from Cabiri (Ferreira 1904), Libolo-Luati (= Calulo) (Hellmich 1957), Landana (Cabinda) and Luanda (Broadley 1996). Specimens referred to this species have been recorded over 3,000 km away in coastal northern Tanzania (Broadley 1996), thus creating a considerable zoogeographic anomaly. The assignment of the Tanzanian material needs to be tested for genetic monophyly.

Spotted Wolf Snake  
*Lycophidion multimaculatum* (Boettger 1888)


Bocage (1895) referred Angolan material to two forms of *L. capense*, one from the Congo (St. Salvador), Cabinda and Calandula (that may be referable to *L. meleagris*) and wolf snakes from the southern parts of Angola (Galanga, inland from Namibe, Caconda) that he referred to var. *multimaculata* (Boettger). Additional records are recorded as *L. capense* from Malanje (Peters 1881), Entre-Rios, and Piri (Hellmich 1957); and as *L. c. multimaculatum* from Dundo, Alto Cuilo, Cazombo, Macondo, Calonda (Laurent 1964). Broadley (1991b) reviewed Namibian wolf snakes, describing *L. namibianum* (see below), and raised *L. multimaculatum* to a full species, recording it as far south as the Caprivi. Branch and McCarthy (1992) recorded the species from Cuito Cuanavale. Broadley (1996) reviewed all the Angolan species, mapped their distributions, and no longer considered *L. capense* to occur in the country.

Namib Wolf Snake  
*Lycophidion namibianum* (Broadley 1991)


This attractive wolf snake was described by Broadley (1991b) from northern Namibia, and included many Namibian specimens previously confused with Laurent’s *L. hellmichi* (Broadley 1991). The only Angola record was collected at Espinheira (Branch et al., in prep.).

Fig. 20. *Lycophidion namibianum*, Espinheira, Namibe.

Ornate Wolf Snake  
*Lycophidion ornatum* (Parker 1936)


Described from two specimens from scarp forest at Faenza Congulu (Parker 1936), which remain the only known Angolan records. Elsewhere it extends through DRC to south Sudan (Broadley 1996).

Subfamily: Psammophiinae

The psammophiine genera (*Dipsina, Hemirhagerrhis, Malpolon, Psammophis, Psammophylax, Rhampophis*) are distributed throughout Africa, the Middle East, south-central Asia, and southern Europe (Branch 1998; Kelly et al. 2008), with *Mimophis* restricted to Madagascar. Their monophyly is supported by morphological and molecular data (Cadle 1994; Brandstätter 1996; Zaher 1999; Vidal and Hedges 2002a; Kelly et al. 2008). Two recent genera have been synonymized: *Dromophis* with *Psammophis* (Kelly et al. 2008) and *Rhagerhis* with *Malpolon* (Figueroa et al. 2016). Figueroa et al. (2016) consider Asian *Psammodynastes* to also be part of the Psammophiidae, but this species has a bifurcate, heavily ornamented hemipenis (see Fig. 17 in Zaher 1999) that contrasts with the well established synapomorphy of
the simple, tubular and unadorned hemipenes of psammodynes. We therefore continue to exclude Psammodyastes from the Psammophidae.

Viperine Rock Snake
_Hemirhagerrhis viperina_ (Bocage 1873)


Bocage (1873) described _Psammophylax viperinus_ from Dombe Grande, and later added further Anchieta material from Humbe, Maconjo, and Capangombe (Bocage 1895), but deferred to Boulenger in treating this material as _Psammophylax nototaenia_. Bogert (1940) added new records from the Vernay Lang Angola expedition from Hanha, Huamo, and Munhino, and revived it as a subspecies, _H. nototaenia vipernua_, for all Angolan material. Laurent (1964) recorded a specimen from Humpata. Broadley (2000) revived _H. viperina_ again as a full species, and noted no _H. nototaenia_ from Angola.

Angolan Sand Snake
_Psammophis angolensis_ (Bocage 1872)


This dwarf psammophine was described by Bocage (1872) from “Dondo, (intérieur d’Angola).” Wallach et al. (2014) discuss confusion over the correct location of Bocage’s type locality “Dondo,” which has been presented in various forms; e.g., Danda, Loanda Dist. (Loveridge 1940; Broadley 1962), Donda, Loanda Dist. (FitzSimons 1962; Auerbach 1987), and Dondo, Luanda Dist. (Crawford-Cabral and Mesquitela 1989). They note that it was correctly located by Loveridge (1957) and Hellmich (1957a) as Dondo, north bank of Kwanza River, SW Cuanza Norte Dist., NW Angola (09°41’S, 14°26’E, elevation 50 m). Additional material was noted (Bocage 1895) from Caconda, Quindumbo, Humbe, Sumbe, Pungo-Andongo and Ambrizette (=N’Zeto), and later from Dundo, Cameia, and Lagoa Calundo (Laurent 1964).

Ansorge’s Sand Snake
_Psammophis ansorgii_ (Boulenger 1905)


Boulenger (1905) described _Psammophis ansorgii_ on a snake collected by Anchieta between “Benguella to Bihe, Angola.” Hellmich (1957) recorded the species from Bela Vista, but of his seven specimens, five were just heads. However, this new material allowed him to note that the preocular was, at most, only in narrow contact with the frontal, and he therefore removed the species from the synonymy of _P. jallae_, where it had been placed by Loveridge (1940). This was followed by Broadley (1977, 2002), who noted no new material. Branch et al. (2018a) discussed new material and phylogenetic relationships, and noted that it is one of the few snakes endemic to Angola.

Fig. 21. _Psammophis ansorgii_, Tundavala, Huila (Photo: Ninda Baptista).

Jalla’s Sand Snake
_Psammophis jallae_ (Peracca 1896)


Loveridge (1940) removed _P. jallae_ from the synonymy of _P. crucifer_, and Broadley (1977, 2002) discussed additional material, although noting that it remained known from Angola only from the type of _Psammophis rohani_ Angel, 1921 (Lumuna River). A second Angolan record was noted by Conrado et al. (2017).

Leopard Sand Snake
_Psammophis leopardinus_ (Bocage 1887)


Bocage (1887b) was confronted with diverse color patterns and sculation in sand snakes, and like many subsequent researchers (Boulenger 1895; Loveridge 1940; Broadley 1977, 2002) found it difficult to resolve species boundaries. As was customary at the time he used varieties to characterize intraspecific grouping. Some of these have subsequently been demonstrated, both morphologically (Broadley 1977, 2002) and genetically (Kelly et al. 2018b).
2008) to be valid species. One such is this species, first described by Bocage (1887) as a variety of *P. sibilans* (now restricted to North Africa), eventually as a western subspecies of *P. brevirostris* (Broadley, 1977), before being raised to a full species (Broadley 2002). The latter lists numerous localities for western Angola, including the type locality Catumbela.

Namib Sand Snake

*Psammophis namibensis* (Broadley 1975)

Some early Bocage *Psammophis* material from Mossamedes (= Namibe, MBL 1809) and Rio Curoca (MBL 1810) was studied by Broadley before the Lisbon fire. He assigned them to a new taxon, originally as a western arid subspecies (Broadley 1975) of *P. leightoni*, but later treated as a full species, *P. namibensis* (Broadley 2002). Additional material, collected by Haacke from Cunene Forde 15 km NE, Iona Res, Foz do Cunene and Pico de Acezevedo, was also assigned to this species (Broadley 2002). It has a much greater distribution in the western arid region, through Namibia to South Africa.

Karoo Sand Snake

*Psammophis notostictus* (Peters 1867)

This species is restricted to the semi-arid scrubland and mopane woodland, above and below the escarpment in southwest Angola. Whether all Angolan large sand snakes are referable to *P. mossambicus*, or whether northwest populations have affinities with West African *P. philippsi*, requires fresh material and genetic assessment.

Western Strip-bellied Sand Snake

*Psammophis subtaeniatus* (Peters 1882)

The large sand snakes of the *Psammophis sibilans-philippsi-mossambicus* complex have remained a recurrent taxonomic problem among African snakes for over 100 years; see discussion and shifting nomenclature in Bocage (1887, 1895), Boulenger (1895), Loveridge (1940), Broadley (1977, 2002), Hughes (1999), and Brandstättter (1995, 1996). Most Angolan *Psammophis* have previously been included in varied taxa within this complex. Broadley (2002) lists numerous localities for this species, which is widespread in savannah and secondary habitats in Angola. Whether all Angolan large sand snakes are referable to *P. mossambicus*, or whether northwest populations have affinities with West African *P. philippsi*, requires fresh material and genetic assessment.

Bocage (1895) recognized five forms of *Psammophis sibilans* (vars. A–E), of which the problem is that most of the specimens from Rio Bengo, Catumbela, Bibala, Macionjo, Humbe and Cunene, all collected by Anchieta, looked like var. *subtaeniata*. Broadley (2002) list numerous localities for *P. subtaeniatus* in Angola, including many from the Lisbon Museum subsequently lost in the fire. The species is restricted to the semi-arid scrubland and mopane woodland, above and below the escarpment in southwest Angola. Broadley (2002) includes *Psammophis bocagii* Boulenger, 1895 as a synonym.

Western Sand Snake

*Psammophis trigrammus* (Günther 1865)

For many years this snake was known only from the type locality (“São Nicolau, Mossamedes”). Bocage (1887) seemed to consider it distinct, but only as a variety of *Psammophis sibilans* and not identical to the other varieties described at the time (*e.g.*, *stenocephalus* and *leopoldinus*). Later he seems to have overlooked the species as he did not discuss it in his monograph (Bocage 1895). This may be why Monard (1937) also overlooked it, as its taxonomic status has never been challenged. Broadley (2002) plotted the limited extension into southwest Angola.
Zambezi Sand Snake
*Psammophis zambiensis* (Hughes and Wade 2000)


Only recently described (Hughes and Wade 2002), the species was first reported from Angola during the NGOWP surveys in the headwater region of the Angolan Okavango catchment (Conradie et al. 2017; Conradie and Branch 2017).

**Fig. 22.** *Psammophis zambiensis*, Cuanavale River Source, Cuando Cubango (Photo: Werner Conradie).

Striped Beaked Skaapstekker
*Psammophylax acutus* (Günther 1888)


First recorded from Angola by Bocage (1873) from material sent by Capello and Ivens from Cassange (= Baixa de Cassange). Unfortunately he misidentified it as *Rhagerrhis tritaeniata* and later, after Günther (1888) had described it as a new species on a specimen from Pungo Andongo, apologized to the collectors (Bocage 1895) and noted more specimens from Caconda and Huila. Additional material was recorded (as *P. rhombeatus*) from Humbe (Bocage 1895; Boulenger 1896) and Tunduvala (Baptista et al. 2018a). Broadley (1977) reviewed the Angolan material and revived *P. r. ocellatus* as a northern subspecies. Branch et al. (2018a) extending the known range to the Chela escarpment region and also validated *P. ocellatus* as a full species.

**Fig. 23.** *Psammophylax ocellatus*, Humpata, Huila.

Striped Skaapstekker
*Psammophylax tritaeniatus* (Günther 1868)


First recorded from Dondo by Bocage (1873), and later from the Rio Kwanza, Quissange, Cahata, Quindumho, Caconda, Huila, Gambos, and Humbe by Bocage (1895), who noted it was one of the most common and widespread snakes on the highlands of Angola. Additional records from Cuvango, Mupanda, Vila da Ponte (= Cuvango) (Monard 1937), Capelongo (Bogert 1940), Alto Cubal (Hellmich 1957), Cazombo, Forte Roçadas (Laur lent 1964), and Calombe (Manaças, 1973). Broadley (1977) reviewed the genus.

**Subfamily: Prosymninae**

A small subfamily containing only the African genus *Prosymna*, which currently includes 16 species. It is well-differentiated genetically (Kelly et al. 2008) and morphologically (Broadley 1980). They are small terrestrial snakes with an exclusive diet of reptile eggs (Broadley 1979b).

Zambezi Shovel-snout Snake
*Prosymna ambigua* (Bocage 1873)

Bocage (1873) described Prosymna ambiguous on a small juvenile from Calandula, which remained the only Angolan specimen known to him (Bocage 1895). Laurent (1954) reviewed Prosymna ambiguous and described three new subspecies, including P. a. brevis based on an extensive series from Dundo and Sombe, and Sandoa in DRC. This subspecies was subsequently synonymized by Broadley (1980) with typical P. a. ambiguus, who continued to recognize P. a. bocagii Boulenger, 1897 for a northern race in the Congo basin. Recent material was collected from Cangandala (Ceriaco et al. 2016b).

Angola Shovel-snout Snake
Prosymna angolensis (Boulenger 1915)


Boulenger (1915) gave a terse description of Prosymna angolensis, noting only that he referred snakes discussed by Bocage as Prosymna frontalis (1895, p. 98, pl., fig. 2) to his new species and gave the type locality simply as “Angola.” Loveridge 1958 cleared up the mess and designated “Huila, 15°5’S, 13°30’E, Angola” as the type locality. Broadley (1980) assigned Bocage’s inland frontalis material from Bibala, Caconda, and Maconjo to P. angolensis, as well as other material, including an unusual coastal record (Mossamedes) that may be either a mis-identified P. frontalis or the locality of the collector rather than that of the specimen. Additional records from Bela Vista (Hellmich 1957), and southeast Angola (Conradie et al. 2017; Conradie and Branch 2017), and all indicate that it is a species of the escarpment foothills and inland plateau.

South-west Shovel-snout Snake
Prosymna frontalis (Peters 1867)


Visser’s Shovel-snout Snake
Prosymna visseri (FitzSimons 1959)


Prosymna visseri was one of the first new reptiles that Charles Koch collected incidentally whilst researching the tenebrionid beetle fauna of the Angolan Namib region. Described by FitzSimons (1959) from Caraculo, Haacke collected several others during his field work in
southwest Angola, but the species was known from only three specimens at the time of Broadley’s (1980) revision. It was later described from Namibia (McLachlan 1987), from where all subsequent specimens have come (Bauer et al. 2000). All Angolan records are from arid habitats in the coastal southwest, but the species extends further inland in the Kaokoveld, Namibia.

Subfamily: Pseudaspinae

This small subfamily currently includes only two species in monotypic genera. Although Pyron et al. (2011) expanded the content of Pseudaspidinae to include African Buhoma and Asian Psammodynastes, this was not supported by Figueroa et al. (2016), who rather associated the latter with the Psammophiinae (but see above).

Mole Snake
Pseudaspis cana (Linnaeus 1758)


First recorded from Angola by Bocage (1882) when describing a new genus and species Ophirhina anchietae from Caconda, in the interior of Benguela. Bocage soon realized that his ‘new’ species was already known, and discussed further material in his monograph (Bocage 1895) as Pseudaspis cana. Monard (1937) recorded material from Cuvango and Sangueve, and Bogert (1940) from Mombolo.

Western-keeled Snake
Pythonodipsas carinata (Günther 1868)


First collected in September 1956 in Angola by Koch from Cima, Rio Giraul, Mossamedes and included in an updated map for the species (Branch et al. 1997), but without locality details. FitzSimons (1962) and Broadley (1983) both utilized Koch’s record in species maps and noted the distribution to include southern Angola.

Family: Elapidae

The taxonomy of African elapids has changed considerably in recent years, particularly among cobras (Naja), although the generic relationships of allied species have also been affected and numerous new species have been described (Broadley 1968, 1995; Broadley and Wüster 2004; Wüster and Broadley 2003, 2007; Wallach et al. 2009; Ceriaco et al. 2017; Wüster et al. 2018). Water cobras (Boulengerina) were demonstrated to be closely related to the Forest Cobra (Naja melanoleuca) and therefore synonymized with Naja (Nagy et al. 2005; Wüster et al. 2007). Wallach et al. (2009) proposed four subgenera within Naja, with the subgenus Naja restricted to Asia, and with the three other subgenera used for African cobras, and Angolan species assigned to various subgenera: i.e., Naja (Boulengerina) melanoleuca, N. (Uraeus) anchietae, N. (Afronaja) mossambica, N. (Afronaja) nigricollis, and N. (Afronaja) n. nigricincta. Moreover, a recent revisions of forest cobras (Ceriaco et al. 2017; Wüster et al. 2018) recognize a suite of five species, with typical N. (B.) melanoleuca entering northern Angola and the revived N. (B.) subfulva occurring in central Angola.

Coral Shield Cobra
Aspidelaps lubricus cowlesi (Bogert 1940)


Bogert (1940) described Aspidelaps lubricus cowlesi from a snake collected from Munhino (101 km east of Namibe, via railroad). Originally considered endemic to Angola, Mertens (1971) extended its range into the Kaokoveld. Broadley and Baldwin (2006) relegated it to the
synonymy of the northern Namibia subspecies *A. l. infuscatus*, citing intermediates between *A. l. cowlesi* and *A. l. infuscatus*. Unusually they still presented an account for *A. l. cowlesi* even though synonymizing it. Moreover, no morphological data was presented to show that even *A. l. infuscata* was a valid taxon, or a molecular data presented to support the new taxonomic arrangement.

Jameson’s Mamba

*Dendroaspis jamesoni* (Traill 1843)


The identification of historical records of Angolan mambas is complicated by confusion between green and black mambas in the early literature. Prior to 1946 the Black Mamba (*D. polylepis*) was considered a juvenile of the southern Green Mamba (*D. angusticeps*), and recognition of the Black mamba as a separate species was only confirmed by FitzSimons (1946). Bocage (1888) discussed the identification of mambas, reducing the number of species then known from seven to three, whilst also describing a new, overlooked species from Angola, *D. neglectus* (hence the unusual name). He gave detailed scale counts of the material he examined, and also presented a diagnostic key to the species recognized. From this it is evident that he applied the existing names wrongly: His *D. jamesoni* is now identified as *D. viridis*; his *D. angusticeps* is really *D. polylepis*; and his new species *D. neglectus* was already known as *D. jamesoni*. This arrangement continued to be reflected in his monograph (1895), where two species of mamba were correctly considered to occur in Angola, both unfortunately incorrectly named. *Dendroaspis jamesoni* has been recorded from Pungo-Andonga (the type of *Dendroaspis welwitschii* Günther, 1865, which Bocage considered a synonym of his own *D. neglectus* even though Günther’s name had priority). As *D. neglectus* its was recorded from north of the Kwanza River (Bocage 1888) and from N’Dalatando (Ferreira 1903); and recorded correctly as *Dendroaspis jamesoni* from Piri, Bela Vista (Hellmich 1957) and Dundo (Laurent 1954), although the status of the eastern subspecies *D. j. kaimosae* needs genetic assessment. Recent material was discussed by Vaz Pinto and Branch (2015).

Black Mamba

*Dendroaspis polylepis* (Günther 1864)


All early records (up to 1946) from Angola were discussed under *D. angusticeps* (Peters 1881; Bocage 1888, 1895; Monard 1937; Bogert 1940), until *D. polylepis* was shown to be a valid species (FitzSimons 1946). The species is nowhere common, but is relatively well-known in the central and southern regions. Bocage (1895) recorded it from the “hauts-plateaux de l’intérieur d’Angola,” although Bogert (1940) recorded it from Hanha.

Günther’s Garter Snake

*Elapsoidea guentherii* (Bocage 1866)


Bocage (1866) described both the genus and species *Elapsoidea guentherii* in one of his first herpetological papers. The description was based on material sent by Anchieta from Cabinda, and led to the long association between these two icons of Angolan herpetology. Another adult from Bissau was included in the description, and to avoid confusion Parker (1949) later restricted the type locality to Cabinda. Additional material was discussed by Bocage (1895), Loveridge (1936), Bogert (1940), Hellmich (1957), Laurent (1964), and Broadley (1971b) who summarized its range from the northern parts of Angola, through Zambia to Zimbabwe.

Angolan Garter Snake

*Elapsoidea semiannulata semiannulata* (Bocage 1882)


After describing the previous species, Bocage (1882) described *Elapsoidea semiannulata* from additional material from Caconda, but in his monograph (Bocage 1895) treated his new species as *E. guentheri* var. *semiannulata*. Laurent (1964) described *Elapsoidea decosteri huilenensis* from Humpata, which was relegated to the synonym of *E. s. semiannulata* by (Broadley 1971b). However, Broadley (1971b) also treated a species described by Werner (1897) from Ghana as a northern race, *Elapsoidea semiannulata moebiusi*, that extended to Gabon but was unrecorded from Cabinda or northern Angola. All of

[Fig. 29. *Dendroaspis jamesoni*, Gabela, Cuanza Sul.]
Bocage’s northern localities (1866, 1895, 1897) were restricted to Bissau, but Broadley (1998) reassessed some of Laurent’s Congo-Kinshasa material and reassigned it to *E. s. moebiusi*. Although Broadley (1998) described the range of *E. s. moebiusi* as extending into northern Angola, he neither mapped nor noted any localities supporting this claim. His closest locality was a poorly defined “Bas Congo” (Broadley 1998), and the race remains unknown from Angola, including Cabinda. Haacke and Finkeldey (1967) recorded the first record of *E. s. semianullata* from southern Africa. Broadley (1971b) summarized and mapped the species in Angola, and recognized *E. s. boulengeri* Boettger, 1895, from Mozambique as an eastern race, which he later raised to a full species (Broadley 1998). This is unrecorded from Angola, although known from adjacent regions in Namibia and Zambia, and parapatry between *E. s. semianullata* and *E. boulengeri* occurs in the Caprivi area.

Anchieta’s Cobra
*Naja (Uraeus) anchietae* (Bocage 1879)

As with the previous species, Bocage (1879) also described *Naja anchietae* from snakes sent from Caconda. Mertens (1937) relegated it to a subspecies of the Egyptian Cobra (*N. haje anchietae*), Broadley (1995) referred southern populations of *N. haje* to the Snouted Cobra (*N. annulifera*), retaining *N. a. anchietae* as a western race. Finally, Broadley and Wüster (2004) refer Bocage’s (1895) *N. haje* material to *N. anchietae*. Known records were summarized and mapped in Broadley (1995) and Broadley and Wüster (2004), and its range was extended north to Capanda Dam by Ceriaco et al. (2014a).

Central African Forest Cobra
*Naja (Boulengerina) melanoleuca* (Hallowell 1857)


Bocage (1895) had a very different understanding of species boundaries within African cobras compared with modern nomenclature, but the loss of so much of his material has made assignment of his records to modern species difficult. Much of his cobra material was grouped as varieties under the spitting cobra *N. nigricollis*, e.g., *Naja nigricolls* var. *melanoleuca*. Fortunately, Broadley (1974) examined this material before it was destroyed in the Lisbon Museum fire (1978) and corrected the identity of the individual specimens of which none was referable to true *Naja melanoleuca* (Hallowell). To stabilize taxonomy Broadley (1974) designated MBL 1972 from “Caconda” as the lectotype of Bocage’s (1895) *Naja nigricolls* var. *melanoleuca*, and treated it as a synonym of *N. nigricollis*. Whether Bocage knew true forest cobras from Angola remains debatable, but subsequent records confirming its presence are from Pungo Andongo (Boulenger 1905), Piri, Calulo, Sangeunge (Hellmich 1957), Dundo (Laurent 1954, 1964) and Soyo (Wüster et al. 2018). Genetic material from the latter validated...
the presence of true *N. melanoleuca* in northwest Angola (Wüster et al. 2018). Laurent (1964) considered that true *N. melanoleuca* in northeast Angola was probably confined to forest galleries with *N. subfulva* living in secondary forests and the intervening savannas.

Brown Forest Cobra
*Naja (Boulengerina) subfulva* (Laurent 1955)


The taxonomic status of the different populations of the forest cobra has long been problematic. Don Broadley (in litt., July 2013), in conjunction with Wolfgang Wüster and colleagues, recognized at least six species-level taxa within the forest cobra complex, including an endemic species on São Tome. Description of these cryptic taxa was delayed by Broadley’s illness, and the São Tome population subsequently described as *Naja (Boulengerina) perioscobari* (Ceriac et al. 2017). The delay also led to some nomenclatural confusion for other forest cobra populations, with various authors prematurely adopting some of the taxonomic findings. Broadley and Blaylock (2013) referred southern populations to Laurent’s (1955) savannah-inhabiting subspecies *N. m. subfulva*, and noted that unpublished molecular data indicated it deserved specific status. They also used subgenera within *Naja* as proposed by Wallach et al. (2009), but some authors subsequently elevated these subgenera to full genera, e.g., Wallach et al. (2014) and Ceriac et al. (2016b), evens though the intention of using subgenera was to avoid medical issues possibly arising from nomenclatural changes in the names of medically important snakes. Chirio and Ineich (2006) and Ceriac et al. (2017) also revived *N. subfulva*, the latter based on genetic divergence of Mozambique material. Wüster et al. (2018) mapped populations of *N. subfulva* from large parts of Angola. However, the assignment was presumably based on historical aspects, as no analysis was presented for Angolan populations, with various authors prematurely adopting the presense of true *N. melanoleuca* in northwest Angola when he identified a specimen from Maconjo (MBL 1964, now lost) that Bocage (1895) had referred to *N. nigricollis* var. *fasciata*. Broadley (1968) treated *mosambica* as a full species after finding sympatry between *N. nigricollis* and *N. mossambica* in Zambia. The species is poorly known in Angola and the few records are restricted to the southern provinces (Conradie et al. 2016).

Western Barred Spitting Cobra
*Naja (Afronaja) nigricincta nigricincta* (Bogert 1940)


Broadley (1974), after examination of Bocage’s original material, assigned Bocage’s (1895) *N. nigricollis* var. *fasciata* to Bogert’s *N. nigricollis nigricincta*, and designated MBL 1968 (now lost) from Benguela as the lectotype. He was also unable to find Bocage’s var. *fasciata* from Dondo, and this record may be in error. Molecular studies later supported the elevation of *N. nigricincta* to a full species, with a southern subspecies *N. n. woodi* (Wüster et al. 2007). However, no Angolan material was included in this analysis and the status of Namibian material needs confirmation, as the type locality for *N. nigricincta* is “Munhino (101 km east of Mossamedes via railroad,” and nominotypical Angolan *N. nigricincta* have a different color pattern to those in Namibia.

Fig. 32. *Naja nigricincta*, 40 km N Caracul, Namibe.

Black Spitting Cobra
*Naja (Afronaja) nigricollis* (Reinhardt 1843)


Broadley (1968) had reinstated *N. mossambica* as a full species after confirming sympatry with *N. nigricollis* in eastern Zambia. He treated *pallida*, *katiensis*, *nigricincta* and *woodi* as subspecies of *N. mossambica*, whilst various other names, e.g., *crawshayi*, *occidentalis*, and *atri-
**Snakes of Angola: An annotated checklist**

**Echis squamigera** were considered synonyms of *N. nigricollis*. Later, Broadley (1974) assigned Bocage’s (1895) *N. nigricollis* var. *occidentalis* to *N. nigricollis nigricollis*, and designated MBL 1963 (now lost) from Dondo as the lectotype. He also noted that *Naja nigricollis* var. *melanoleuca* Bocage, 1895, described from Angola, was preoccupied by *N. melanoleuca* (Hallowell). Finding additional sympatry between *N. mossambica* and *N. nigricollis nigricincta* in Angola, he treated *nigrincta* and the all-black woodi from western South Africa and southern Namibia as subspecies of *N. nigricollis*. Following a molecular analysis of African spitting cobras, Wuster et al. (2007) validated *N. nigricincta* as a valid species, with *N. nigricincta woodi* as a southern race. The Black Spitting Cobra, *N. nigricollis*, therefore reverted to binomials. It is widespread in Angola, but generally absent from closed-canopy forest.

Gold’s Tree Cobra  
**Pseudohaje goldii** (Boulenger 1895)


Parker (1935, as *Naja goldii*) recorded the first examples of this arboreal cobra from south of the Congo River and for Angola. The specimens were collected from remnant scarp forest near Quirimbo. The only other historical Angolan material is from Peri (Hellmich 1957) and Dundo (Laurent 1950, 1954).

**Family: Viperidae**

Compared with other snake families, African Viperidae have had relatively little taxonomic change, with various new species described (e.g., *Bitis harenna*, Gower et al. 2016; *Causus rasmusseni* Broadley, 2014) or species boundaries readjusted (e.g., revival of *Bitis rhinoceros*, Lenk et al. 1999) but few generic re-arrangements. With the exception of confusion over night adder identifications (see below), few taxonomic changes have affected Angolan vipers. As with the genus *Naja*, vipers of the genus *Bitis* had a number of subgenera proposed, and these are adopted in the following species accounts.

Variable Bush Viper  
**Atheris squamigera** (Hallowell 1854)


Bocage (1895) knew of no Angolan material except Peters’ (1881) record from Cuango. Later material was recorded from Gulongo Alto (Ferreira 1904), Piri (Hellmich 1957), and Dundo and Luachimo River (Laurent 1954, 1964). *Atheris squamigera* is widespread in the Congo Basin, and a highly variable species. Laurent (1964) only tentatively attributed four specimens from the Dundo region to *A. squamigera*, as he believed that there were two sympatric species in the lower Congo, and that *A. anisolepis* may be valid. Recognition of Mocquard’s anisolepis had been problematic, placed first in the synonymy of *A. squamigera* by Boulenger (1896), revived as a subspecies by Bogert (1940), treated again as a full species by Broadley (1998b), until finally again synonymized by Lawson and Ustach (2000).

Puff Adder  
**Bitis (Bitis) arietans** (Merrem 1820)


Although Bocage (1895) noted that the species was common in Angola, there are few records from the southwest region. Günther’s (1865) record from Moçâmedes (= Namibe) may have reflected the collector’s home base.

Horned Adder  
**Bitis (Calechidna) caudalis** (Smith 1839)


Although common through the western arid regions of southern Africa (Branch 1998) there are few Angolan records of the species. Bocage (1867) first signalled its presence (as *Cerastes caudalis*) with a specimen from Namibe collected by Anchieta. Subsequent records were added by Bocage (1895, Capangombe, Rio Curoca), and Laurent (1964, “35 km south of Namibe”).

Gaboon Adder  
**Bitis (Macrocerastes) gabonica** (Duméril, Bibron and Duméril 1854)

*Echidna gabonica* Duméril, Bibron and Duméril 1854. Erpétol-
Angolan Adder

_Bitis (?) heraldica_ (Bocage 1889)


Bocage (1889) described this endemic Angolan snake from “sur les bords de la rivière Calae, l’un des affluents du Cunene, entre le 13 et le 14 parallèle à l’est de Caconda, Angola” (= Caluè River, a tributary of the Cunene River, east of Caconda, Huila District, Angola). Soon after its description the species was incorrectly synonymized with the _Bitis peringueyi_, a dwarf adder from Namib Desert dune habitat (Boulenger 1896), leading to over 50 years of confusion. Early records of ‘_B. peringueyi_’ in southern Angola were all based on Boulenger’s synonymization of _B. heraldica_: i.e., a female from “Between Benguela and Bié” (Boulenger 1905), one from Caluqueumo (Monard 1937), and another from “Mombolo, Angola” from the Vernay, Lang, Boulton, expedition of 1925 (Bogert 1940). The specific status of _Bitis heraldica_ was revalidated by Mertens (1958) following the collection of a series of _Bitis heraldica_ from Piri (Hellmich 1957) and the species confirmed as endemic to the Angolan highlands. Due to the absence of any fresh genetic material the subgenera status remains uncertain.

Rhinoceros Viper

_Bitis (Macrocerastes) nasicornis_ (Shaw 1802)


Unknown to Bocage (1895) from Angola or Congo, it was first recorded from Angola from scarp forest at Quirimbo (Parker 1936). That it could be regionally common is shown by Hellmich’s (1957) astonishing record of 53 specimens from Piri. Recent material was recorded from Úige (Ernst et al. 2016).

Two-lined Night Adder

_Causus bilineatus_ (Boulenger 1905)


Night adders in Angola have been a source of great confusion, with Bocage (1895) and most subsequent authors recognizing only two species in Angola, _C. rhombeatus_ and _C. resimus_. Bocage (1895), however, did note well-marked adders with lateral stripes from Calandula, Quissango, Caconda, and Huila, but made no taxonomic decision. Boulenger (1905) on receiving additional material from Anchieta noted these same features and proposed the name _bilineatus_. This name was overlooked by subsequent authors until Laurent (1955) described _Causus lineatus_ for material from DRC. Later, when looking at material from Dundo that he realized was referable to Boulenger’s _bilineatus_ and also conspecific with his DRC material, Laurent (1964) used trinomials and treated his DRC material as the subspecies _C. bilineatus lineatus_ and Angolan material from Calundo, Mexico, as nominotypical _C. b. bilineatus_. Broadley (1968), based on unpublished analysis in his Ph.D. thesis (Broadley 1966a), synonymized _C. b. lineatus_ with _C. bilineatus_ and this was supported by Rasmussen (2005), who reviewed _C. bilineatus_, re-assessed and mapped Angolan night adders, and corrected many early misidentifications by Hellmich (1957) and Laurent (1964). He noted that _C. bilineatus_ occurred in sympathy with _C. rhombeatus_ in the Benguela-Bié area, Caconda, and Chitau, and with _C. rhombeatus_ and _C. maculatus_ at Piri.

Angola Green Night Adder

_Causus resimus_ (Peters 1862)


Bocage (1895) tentatively proposed the name _C. resimus_, var. _angolensis_ for night adders from several localities in Angola, including Rio Dande, Rio Bengo, Cazengo, Sumbe, Quissango, Rio Chimba, Bibala, and Maconjo. Additional records of _C. resimus_ have also been reported from Cazengo, Caculo, Cabicula (Ferreira 1904), Quirimbo, Fazenda Congulo (Parker 1936), and Hanha (Bogert 1940). Few of these have been accepted by Rasmussen (2005). The Green Night Adder is currently distributed in four isolated populations around the Congo Basin, with the most isolated being that recorded from Angolan scarp forest refugia. The taxonomic status of the Angolan population, and the applicability of Bocage’s (1895) _C. resimus_, var. _angolensis_ or _C. nasalis_ Stej-
neger, 1893, remain unresolved. A preliminary molecular phylogeny of Causus (Tolley et al. in prep.) indicates cryptic diversity within C. resimus, and supports the distinctiveness of Angolan material. Rasmussen (2005) mapped 13 localities for C. resimus in Angola, including one from Cabinda.

Rasmussen’s Night Adder
Causus cf. rasmusseni (Broadley 2014)


Broadley (2014) described C. rasmusseni based on four specimens from northern Zambia. It is weakly differentiated from sympatric C. rhombeatus by having slightly fewer ventrals in males (130–132, versus 134–150 in Zambian C. rhombeatus) and reduced blotches or uniform dorsal coloration. Although the un-patterned dorsal pattern and low ventral counts of a specimen from Rio Longa (Conradie et al. 2016) conform to Broadley’s concept of C. rasmusseni, we caution acceptance of its presence in Angola, and indeed its specific status. A preliminary molecular phylogeny of night adders (Tolley et al., in prep.) supports such caution.

Fig. 34. Causus cf. rasmusseni, Rio Longa, Cuando Cubango.

Rhombic Night Adder
Causus rhombeatus (Lichtenstein 1823)


Bocage consistently used this name (Bocage 1879, 1880, 1895) and considered it widespread in the interior of Angola. Additional material was noted from Golungo Alto (Ferreira 1904), Mt Moco, Quirimbo (Parker 1936), Calundo, Dundo, and Cossa (Laurent 1964). Bocage (1895) considered material from Calandula, Quissange, Caconda, and Huila formed “une variété bien caractérisée du C. rhombeatus” which was later described as C. bilineatus by Boulenger (1905). Rasmussen (2005) mapped the species in Angola, and corrected misidentified material (Hellmich 1957, Laurent 1964), following confusion with C. maculatus in northern populations.

West African Night Adder
Causus maculatus (Hallowell 1842)


This species was confused with C. rhombeatus by Bocage, and the first material from Angola was noted by Laurent (1964) from Dundo. Rasmussen (2005) noted the importance of the lateral oblique scale row number in distinguishing between the two species, corrected earlier misidentifications, and showed that C. maculatus occurs in sympathy with both C. rhombeatus and C. bilineatus at Piri. It is restricted to the northern parts of Angola.

Lichtenstein’s Night Adder
Causus lichtensteini (Jan 1859)


Laurent (1964) recorded the first and only specimens of C. lichtensteini in Angola from Dundo and the Lukashi River, 50 km east Dundo. In the Dundo region it occurs in sympatry with both C. rhombeatus and C. maculatus (Rasmussen 2005).

Species not confirmed for Angola that may occur

Hallowell’s House Snake
Boaedon virgatus (Hallowell 1854)


Known from both Congo (Brazzaville) and Gabon (Pauwels and Vande weghe 2008), and therefore likely to occur in forested habitats in Cabinda.

Plain Striped House Snake
Bothrophthalmus brunneus (Günther 1863)

Bothrophthalmus lineatus brunneus Günther, 1863. Third account of new species of snakes in the collection of the British
Not known to Bocage (1895) from Angola. Although Bothrophthalmus lineatus was recorded from Dundo (Laurent 1950, 1954, 1964; Tys van den Audenaerde 1967), the plain western subspecies B. l. brunnea, from Cameroon to Gabon, is now treated as a full species (Pauwels and Vande weghe 2008). It is possible that B. brunnea may extend south to the Cabinda forests, and those in Angola just south of the border.

Mopane Racer
*Mopanveldophis zebrinus* (Broadley and Schätti 2000)


This unusual and rare snake was described (Broadley and Schätti 2000) from a single specimen collected near Rucana on the Cunene River, western Owamboland, Namibia (17°25’S, 14°10’E). It is known from only three other specimens from the Kaokoveld (Bauer et al. 2001), and from the Kunene River mouth (Cunningham et al. 2018), and was provisionally considered to form part of a Trans-Kunene mopaneveld fauna, and that it may therefore occur in southern Angola. Even at the time of its description, however, its inclusion in the genus *Coluber* was provisional as the genus was undergoing reassessment and division, particularly the African representatives (e.g., Schätti and Charvet 2003). Schätti and Utiger (2001) erected a monotypic genus for the unusual Sociotran racer, *Hemerothphis sociotrae*, but deferred a description on *C. zebrinus* as its phylogenetic relationships were unknown. However, it was subsequently prematurely placed in *Hemerothphis* (Wallach et al. 2014), creating a 3,000 km² zoogeographic enigma, before being finally placed in the monotypic *Mopanveldophis* (Figueroa et al. 2016). This generic name is as non-euphonious as it is a misnomer, as Mopane veld has a much wider distribution than that of the snake, and there is as yet no confirmation that this attractive small racer is restricted to mopaneveld.

Bark Snake
*Hemirrhaggheris nototaenia* (Günther 1864)


*Hemirrhaggheris* in Africa was reviewed by Broadley and Hughes (2000), who showed that all historical Angolan records of *H. nototaenia* (e.g., Bocage 1895, Monard 1937) were confused with *H. viperina*. The species may enter extreme eastern Angola as it is recorded from Caprivi (Broadley and Hughes 2000), the adjacent Ike-

Branch

Lined Grass Snake
*Psammophis lineatus* (Duméril, Bibron and Duméril 1854)


Its presence in Angola is based on a single record (as *Dromophis lineatus*, Bogert 1940) from “Angola,” (AMNH 50611, Vernay, Lang, Boulton 1925). The specimen lacks detailed locality data, and members of the Vernay-Lang Angola expedition did not visit eastern or northern Angola, although they visited other areas in Africa after the expedition (Hill and Carter 1940). The species is known from savannah habitats in adjacent countries (Hughes 2004), but Bogert’s record should be treated with caution until the discovery of additional material. *Dromophis* was synonymized with *Psammophis* (Kelly et al. 2008).

Boulenger’s Garter Snake
*Elapsoidae boulengeri* (Boettger 1895)


Broadley (1998) mapped parapatry between *Elapsoidae boulengeri* and *E. s. semiannulata* from the eastern Caprivi and it is possible that *E. boulengeri* enters extreme southeast Angola.

Perringuey’s Adder
*Bittis peringueyi* (Boulenger 1888)


Haacke (1975) when reviewing the small adders of the western arid of southern Africa recorded no *B. peringueyi* from Angola, and no confirmed records have subsequently been recorded. Despite this, the species continued to be incorrectly listed for the country (e.g., Branch 1998; Dobiey and Vogel 2007; Uetz and Hozeck 2017). Possibly suitable habitat occurs in the small extension of the Namib Desert into extreme southwest Angola, but there remain no records.

Discussion

The diversity and composition of snake families in Angola basically reflects that of Sub-Saharan Africa and
remains unresolved), whereas night adders (Naja, Hemachatus) dominate the elapid fauna. Among vipers, however, both regions have local but different radiations of small vipers. Small adders of the Bitis atropos-cornuta (7–10 species) and Bitis caudalis-schneideri (4–6 species) complexes in southern Africa may be regionally common, highly endemic and taxonomically difficult (Branch 1997, 1999; Kelly et al. 2011b). Only a single component of this radiation, Bitis caudalis, enters Angola (the phylogenetic affinities of B. heraldica remain unresolved), whereas night adders (Causus) are marginally present in the subcontinent but in Angola are their most diverse anywhere in Africa (Rasmussen 2005).

The dominant African snake family is the Lamprophiidae which appears to have originated in Africa, and within which some lineages subsequently radiated into Arabia and Asia. It appears to have been a rapid radiation, and untangling the relationships and even content of the many subfamilies if proving difficult (e.g., Kelly et al. 2008; Pyron et al. 2011; Figuerio et al. 2016) and a consequently unstable higher-level classification. The Atractaspidinae (here included within lamprophids, but sometimes treated as a separate family; Figuerio et al. 2016), Lamprophiinae, Prosyminae and Psammophiinae form important lamphrid radiations in Sub-Saharan Africa, and together also form the dominant component of the Angolan snake fauna (37 species). As with elapids and vipers a number of Congo Basin species enter the northern forests, including some currently known from very few Angolan specimens, e.g., Lycodon morporhus (?) subtaeniatus, Chaemaelycus parkeri, Boaedon cf. olivaceus, Bothrophthalmus lineatus, etc. Perhaps the greatest difference between South Africa and Angola is reflected in the greater diversity of colubrids (Colubridae) in Angola (29 species). These include numerous tropical Congo Basin snakes that enter the northern and scarp forests, and of particular interest are the Congo Basin species Toxicodryas blandingii, T. pulverulenta, Rhamnophis aethiopissa, Philothamnus nitidus, Dasyopsis palmarum, etc. The family is considered of Asian origin and to have entered and subsequently radiated in Africa.

Although a number of new Angolan lizards have been described (Haacke 2008; Conradie et al. 2012; Stanley et al. 2016) or identified (e.g., Branch et al. 2017) since the end of civil hostilities and the start of modern biodiversity surveys, no new snakes have yet been described. It is therefore unsurprising that snake diversity in Angola appears to be the most well-known component of the country’s reptile fauna. However, the distributions of snakes in Angola remain poorly-known, particularly those of forest-adapted species in tropical forest associated with the Congo Basin along the northern border, and with the evergreen forest isolates associated with the escarpment along the western edge of the country. Angola harbours the second highest level of vertebrate endemism associated with the disjunct components of the African Great Escarpment (Clark et al. 2011). Studies on the phylogenetic relationships of the snakes associated with these isolated forest populations are needed to confirm their conspecificity with northern populations, and to understand the consequences and timing of the disjunctions between these forests. Similarly, the montane grassland habitats associated with the Humpata plateau of the escarpment, particularly in the Tundavala region, includes numerous regional reptile endemics (Baptista et al. 2018a), including two psammophine snakes (Branch et al. 2018).

As noted in the Introduction, this checklist is a first step towards stimulating increased interest in the herpetofauna of Angola. Bocage’s early studies, culminating in his monographic summary of Angola’s herpetological riches, placed the country among the few African countries with a well-studied herpetofauna during the early colonial period. Sadly, this was followed by a century of relative neglect, but with an early scientific revival in the 1970s that was nipped in the bud by civil conflict. However, overviews of both reptile (Branch et al. 2018b) and amphibian diversity (Baptista et al. 2018b) are included in an updated synopsis of the countries’ biodiversity (Huntley et al. 2018), and finally with peace and welcoming borders, studies on Angolan biodiversity are entering the new Millenium.

Acknowledgements.—My colleagues Pedro Vaz Pinto, Ninda Baptista and Werner Conradie, with whom I work on the Angolan herpetofauna, have made my forays into that beautiful country both as exciting as it has been scientifically productive, for which I thank them. Although they are not co-authors on this particular summary, they have reviewed this article fully and made numerous corrections and useful comments, as did my colleague Colin Tilbury. Any inaccuracies or oversights, however, obviously remain my own. Some of my fieldwork in Angola was funded either through National Geographic Exploration Grants (Branch 2011) or as part of the National Geographic Okavango Wilderness Project (National Geographic Society grant number EC0715-15). I also want to thank Werner Conradie, Ninda Baptista and Warren Klein for the use of their photos.

Literature Cited


Bocage JVB. 1887b. Mélanges herpétologiques. V. Reptiles et Batraciens de Quissange (Benguela) envoyés par M. J. d’Anchieta. *Journal de Sciences, Mathématicas, Physicas e Naturaes* (Lisboa) XII(44): 208–211.


Bocage JVB. 1897. Mammiféros, Aves e Reptis da Hanha, no Sertãto de Benguella. *Journal de Sciences, Mathématiques, Physicas e Naturaes* (Lisboa) Series 2, 4: 207–211.


Boulenger GA. 1895. Descriptions of two new snakes from Usambara, German East Africa. *Annals and
Snakes of Angola: An annotated checklist


Amphib. Reptile Conserv. 76
September 2018 | Volume 12 | Number 2 | e159

629–697.


Ceríaco LMP, Bauer AM, Blackburn DC, Cavaco ACFC. 2016b. The “Cobra-preta” of São Tomé Island, Gulf of Guinea. *Proceedings of the California Academy Sciences* 10(2) [Special Section]: 6–36.


Conradie W, Bills R, Branch WR. 2016. The herpetofauna of the Cuango River, Cuito, and lower Cuango river catchments of south-eastern Angola. *Amphibian & Reptile Conservation* 10(2) [Special Section]: 6–36.


Snakes of Angola: An annotated checklist
figs., 43 plates, 75 colored plates.
Kelly CMR, Branch WR, Broadley DG, Barker NP, Villet MH. 2011a. Molecular systematics of the African snake family Lamprophiidae Fitzinger, 1843 (Serpent-
Snakes of Angola: An annotated checklist


Monard A. 1931. Reptiles. Mission Scientifique Suisse
Branch


Rasmussen JB. 1986. On the taxonomic status of Dipsadoboa werneri (Boulenger), D. shrevei (Loveridge), and Chrotaphopeltis hotamboeia kageleri Uthmüller (Boiginae, Serpentes). Amphibia-Reptilia 7: 51–73.


Snakes of Angola: An annotated checklist


Wüstner W, Broadley DG. 2007. Get an eyeful of this: A new species of giant spitting cobra from eastern and


London-born Bill Branch was employed as Curator of Herpetology at the Port Elizabeth Museum for over 30 years (1979–2011), and although now retired remains Curator Emeritus Herpetology. His herpetological studies have concentrated mainly on the systematics, phylogenetic relationships, and conservation of African reptiles, but he has been involved in numerous other studies on the reproduction and diet of African snakes. He has published over 300 scientific articles, as well as numerous popular articles and books. The latter include: *South African Red Data Book of Reptiles and Amphibians* (1988), *Dangerous Snakes of Africa* (1995, with Steve Spawls), *Field Guide to the Reptiles of Southern Africa* (1998), *Tortoises, Terrapins and Turtles of Africa* (2008), and *Atlas and Red Data Book of the Reptiles of South Africa, Lesotho and Swaziland* (multi-authored, 2014), as well as smaller photographic guides. In 2004 he was the 4th recipient of the “Exceptional Contribution to Herpetology” award of the Herpetological Association of Africa. He has undertaken field work in over 16 African countries, and described nearly 50 species, including geckos, lacertids, chameleons, cordylids, tortoises, adders, and frogs.