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Filling the gaps: herpetological checklist of Mayombe National Park and Cabinda Province (Angola) shed light on one of the most unexplored corners of tropical Central Africa

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ABSTRACT

The global environmental crisis has reinforced the importance of improving the documentation of the geographical distributions of extant species. With this aim, species inventories of specific locations or regions are a high priority, especially so in poorly explored areas. Cabinda Province, an Angolan enclave located between the Republic of Congo and the Democratic Republic of the Congo (DRC), represents one of the most enigmatic and poorly explored areas in Africa. No detailed species inventories within its protected areas (namely, Mayombe National Park) exist. Furthermore, this region presents some of the better preserved remanent of primary moist rainforest in West Africa. Although these forests are severely threatened by logging and by the rapid social growth in the area. Therefore, we provide here the first herpetological checklist of Mayombe National Park and Cabinda Province, Angola, to shed light on this underexplored corner of Africa. To obtain the most accurate species identification, we performed detailed morphological examinations and DNA barcoding identifications. As a result, we recorded a total of 76 species of amphibians and reptiles in the area, including four new genera, 19 new distribution records for Angola, and 13 candidate species. This work also provides novel topotypic genetic material from three reptile species (i.e., *Agama congica*, *Panaspis cabindae*

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and *Atractaspis congica*), that may contribute to revise and solve taxonomic inconsistencies in these different groups. Finally, we identified areas of high species richness, as well as areas with a high number of habitat specialists, thus indicating species more vulnerable to extinction. Therefore, our study allowed us to identify areas that are of special interest for conservation of reptiles and amphibians, primarily focus on species vulnerable to extinction, but also to identify some knowledge gaps that still need further investigation. To conclude, this work not only contributes to an improved understanding of Angolan herpetofauna, but also highlights the importance of the western slope of Central Africa as an important biodiversity hotspot, centre of endemism and potential source of diversification for this group of land vertebrates.

Introduction

Amphibians and reptiles are facing a conservation crisis due to human activities and are among the most threatened terrestrial vertebrates (Cox et al. 2022; Guirguis et al. 2023; Lötters et al. 2023; Luedtke et al. 2023). The Global Amphibian and Reptile Assessments (GARA) currently feature in the prospective agendas for most countries or Non-government Organisations (NGO's) conservation plans. However, these global assessments are often severely constrained by sampling bias, specifically sampling efforts in poorly explored areas (Tolley et al. 2016; Luedtke et al. 2023), and the consequent inability to adequately assess the conservation status of several taxa (Meiri et al. 2023).

This lack of knowledge is especially remarkable in Africa, where countries like Angola, Republic of the Congo and Democratic Republic of the Congo are excluded from any GARA (Tingley et al. 2016; Tolley et al. 2016; Luedtke et al. 2023). Consequently, these countries are frequently excluded from global conservation plans, despite containing some of the most pristine and biodiverse regions of tropical Africa, such as isolated remnants of Afromontane Forest or unique blocks of Afrotropical Forests (Huntley and Ferrand 2019). In addition, these areas are recognised as important centres of diversification and endemism, having functioned as bioclimatic refugia during the Miocene and early Pleistocene (Plana 2004).

Notwithstanding the renaissance of Angolan herpetology in the last decade, the diversity of amphibians and reptiles in the country remains still poorly documented in terms of geographic distribution and taxonomy (Baptista 2024; Conradie 2024). This is especially true in provinces such as Cabinda, Lunda-Norte, Lunda-Sul, Cunene and eastern Moxico, where exploration has been limited due to remoteness and difficult access (Baptista 2024). Herpetological surveys and species inventories in Angola have primarily focused on already-designated or proposed conservation areas, including national parks and reserves (Ceríaco et al. 2016, 2018; Conradie et al. 2016, 2021, 2022, 2023; Baptista et al. 2018, 2019; Butler et al. 2019; Ernst et al. 2020; Lobón-Rovira et al. 2022). These inventories contributed to the rapid improvement of knowledge on Angolan herpetofauna, with several species' descriptions and new distribution records for the country (Baptista 2024; Conradie 2024). However, the herpetofaunal diversity in some protected areas like Mayombe National Park (hereafter Mayombe NP) in Cabinda Province, or Cameia National Park in Moxico Province, remains poorly documented and needs further attention.

The enclave of Cabinda stands out not only for being geographically 'disconnected' from the remaining territory of Angola, but also for including relatively intact and biodiversity-rich habitats (Huntley and Ferrand 2019) and yet its biodiversity remains poorly documented. The history of biological expeditions in Cabinda Province is quite rich, tracing back to botanical surveys carried out between the 16th and 19th centuries (Goyder and Gonçalves 2019). The earliest zoological collections from Cabinda Province were obtained in the 1860's during the first expedition conducted by José de Anchieta, followed by a German expedition to the Loango coast (Crawford-Cabral and Mesquitela 1989). Their efforts, and those of other naturalists during the second half of the 19th and early 20th century, led to the description of several new herpetological taxa from coastal Cabinda Province (e.g. Bocage 1866; Peters 1877; Rochebrune 1885) and have contributed to the current knowledge on the province's biodiversity. Nevertheless, social instability has curtailed scientific research in Cabinda Province since the 1960's, and most of the area covered by Mayombe NP was never zoologically studied. Only very recently have systematic efforts been launched to document the vertebrate diversity in the park and across the province, due to the detection of rare and endangered mammals such as western lowland gorillas (P. Vaz Pinto pers. obs.), and records of 24 new bird species for the country (Mills et al. 2023; Vaz Pinto and Lutondo in press).

To contribute to the knowledge on the amphibian and reptile diversity of Angola and Central Africa, we implemented a barcoding and taxonomic revision, following several recent herpetological surveys in Cabinda Province, and with a special focus on Mayombe NP. Consequently, this work aims to provide novel information on the regional herpetofaunal diversity of one of the potentially richest and yet least known corners of tropical Central Africa, while also identifying potential threats and contributing to the understanding of the conservation status of its populations.

Material and Methods

Study Area

The main study area is defined by the formal boundaries of Cabinda Province. Therefore, all records from neighbouring countries have not been included, yet those species found near its borders (less than ~10 km) have been listed as potential candidate species to occur in Cabinda Province.

The Cabinda Province (7 064 km^2) is in the western coastal region of Central Africa, ~50 km north of the Congo River mouth and Angola mainland, and bordering the Republic of the Congo and the Democratic Republic of the Congo (hereafter DRC) (Figure 1). Approximately one third of its territory has been designated as a protected area, Mayombe NP (1 930 km^2). This national park, proclaimed in 2011, represents the southern extension of the Mayombe Forest Transfrontier Protected Area (MTR, which extends over 36 000 km^2, from south-western Gabon to DRC). However, this transfrontier conservation area was proclaimed to protect the Atlantic-influenced rainforests of Mayombe (often known in Angola by the Portuguese spelling *Maiombe*), but primarily focusing on large mammals, especially the great apes, with less emphasis on other taxonomic groups, such as herpetofauna (Huntley et al. 2019).

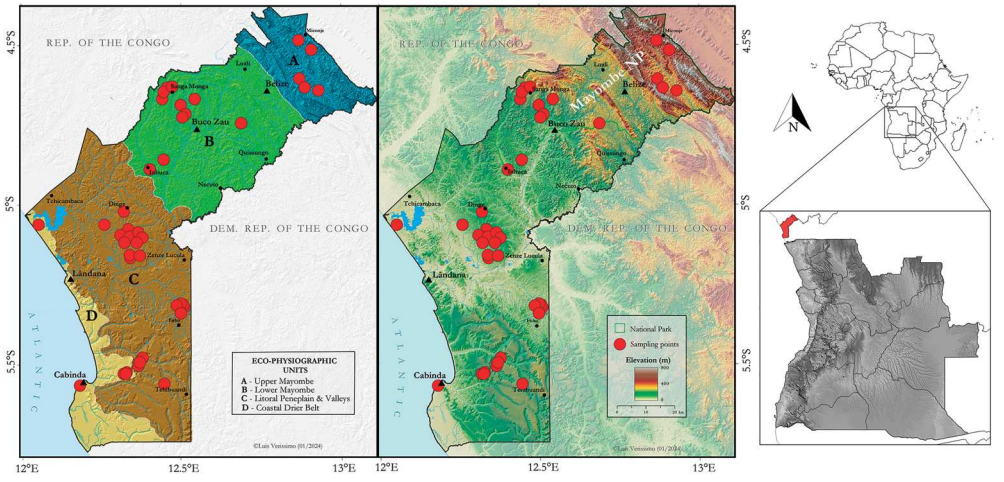

Figure 1. Left – Map of Cabinda Province, Angola highlighting the four main eco-physiological zones within the territory (blue: Upper Mayombe; green: Lower Mayombe; dark brown: Littoral Peneplain & Valleys; light brown: Coastal Drier Belt). **Centre** – Topographic map of Cabinda Province (darker shades indicate higher elevations). Green line depicts the boundaries of Mayombe NP. **Left & Centre** – Red circles depict localities where material was collected or recorded during this study. **Right (top)** – Map of Africa, indicating Angola. **Right (bottom)** – Map of Angola, indicating Cabinda Province.

The landscape in Cabinda Province exhibits a remarkable diversity of ecological zones for such a small area, each characterised by distinct physiographic and vegetative features. Expanding from the works of Gossweiler and Mendonça (1939), Barbosa (1971) and Diniz (1973), we divided the study area into four main eco-physiographic units (Figures. 1 and 2), defined as follows:

Upper Mayombe (Figures 2A–C)

The Upper Mayombe is characterised by a high-elevation orographic landscape dominated by the Serra Moabi and Serra Vaku massifs, exceeding 500 m a.s.l. with peaks reaching well over 900 m a.s.l. Paraferralic soils are prevalent throughout this zone. A rich, multi-strata and permanently moist tropical rainforest (sempervirens) blankets the region (Figures 2B–C). This rainforest exhibits high species richness of plants, with a notable abundance of trees from the genera *Julbernardia*, *Gilbertiodendron*, *Tetraberlinia*, and *Librevillea*. Toward the northeastern border with the Republic of Congo, this rainforest formation undergoes a natural transition to a characteristic moist shrub-savannah ecosystem that punctuates the landscape on conspicuous elevated hilltops.

Lower Mayombe (Figures 2D–F)

Situated mainly within the confines of the Inhuca and Chiloango Rivers, the Lower Mayombe exhibits a moderately elevated orographic landscape ranging from 50 to 500 m a.s.l. The foothills of the Serra Moabi massif mark the northern boundary of this zone. Soil composition alternates between paraferralic and ferralic associations. The dominant vegetation cover is a dense, moist, semi-deciduous, and multi-strata forest (Figure 2E). These forests are characterised by a high abundance of trees from the genera *Grossweilerodendron*, *Guibourtia*, and *Oxystigma*.

Figure 2. Examples of habitat diversity in Mayombe National Park and Cabinda Province, Angola. **A.** Tributary River at Upper Mayombe. **B.** Evergreen Forest from Upper Mayombe. **C.** Aerial view of Lombe River at Upper Mayombe. **D.** Riverine Forest with bamboo trees at Chimbete, Lower Mayombe. **E.** Pristine primary forest at Lower Mayombe, Mbundu **F.** Aerial view of Lower Mayombe. **G.** Large channel in central depression surrounded by dense swamp forest, **H.** dense savanna woodland / secondary forest mosaic and **I.** transitional area between forest and savanna found between Dinge and Chindende, Littoral Peneplain. **J.** Mosaic Transition Zone at Massabi Lake. **K.** Mangrove region at Massabi Lake. **L.** Palm trees plantation at Fazenda Mandarin, Massabi Lake. Photographs by JLR (A–F, J–L) and LV (G–I).

Littoral Peneplain and Valleys (Figures 2G–I)

The Littoral Peneplain is characterised by psammo-ferralic soils and supports patches of dense humid forest exhibiting discontinuous distribution. These forest patches share physiographic similarities with the Mayombe forests but display lower species homogeneity and density. Notably, these forest patches form a mosaic landscape with tree-shrub savannah formations. Interestingly, these semi-deciduous forest patches exhibit a riparian distribution pattern, developing as gallery forests within valleys. In correspondence with depressional and swampy areas, pure herbaceous communities with *Cyperus papyrus* formations dominate, sometimes distributed over extensive areas.

Coastal Drier Belt (Figures 2J–L)

The coastal belt is characterised by psammitic soils and exhibits extensive open areas devoid of forest. These areas are colonised by drier shrub-grass savannahs dominated by genera such as *Hymenocardia*, *Piliostigma*, and *Annona*. On the more dissected Plio-Pleistocene surfaces, these savannah formations often transition to phases of dense, homogenous grasslands dominated by *Hyparrhenia* and *Andropogon* species (Figure 2J). A prominent feature within the main coastal estuaries influenced by tidal regimes are stands of tall mangroves (*Rhizophora mangle*) (Figure 2K).

Sampling

The herpetological material included in this work was collected during ten short expeditions conducted between 2018 and 2024, and supplemented with opportunistic observations (e.g., records from street markets and photographic records) during the same period (Table S1). The surveys varied greatly in effort, performed by one to three researchers lasting between three and eight days, and covering different sites and seasons across the study area. Overall, we systematically surveyed suitable habitat during the night (from sunset up to 10 p.m.) and day (between sunrise and 11 a.m.). The first expedition was conducted in October 2018 on the Littoral Peneplain and Coastal Drier Belt (Figure 1) during the beginning of the rainy season. In 2019 and 2021, two additional surveys were performed in the same ecological region at the end of the rainy season. The first visits to Mayombe NP took place in 2022, and three surveys were undertaken there during the year. The first survey was conducted in March at the end of the rainy season and visiting the Upper and Lower Mayombe, followed by a second survey in June and a third in September, both during the dry season and only focusing on the Upper Mayombe. In 2023, three additional surveys were conducted in both dry and rainy seasons and covering the Upper Mayombe (March and June) and Lower Mayombe (March, June and December) (Figure 1). Finally, in March 2024, the Coastal Drier Belt and Lower Mayombe were surveyed. Precise localities visited during these expeditions and discriminated by eco-physiographic units, are detailed in Table 1 and Figure 1.

Table 1. Main sampling areas surveyed in Cabinda Province, Angola, per eco-physiographic unit, with information on coordinates (decimal) and local names. Coordinates are presented in WGS84 datum.

	Eco-physiographic Units	Sampling Sites	Latitude	Longitude
Mayombe NP	Lower Mayombe	Chimbete	–4.663056	12.544722
		Inhuca	–4.887600	12.404500
		Mbundu	–4.687500	12.498056
		Sanga Mongo	–4.666074	12.440662
		Sanga Wanda	–4.625278	12.458333
	Upper Mayombe	Lombe River	-4.640278	12.93500
		Mbongo Zimune	–4.744169	12.691391
		Miconge	–4.514167	12.919167
		Quissoki	–4.602778	12.873611
		Vaku	–4.632305	12.893751
	Littoral Peneplain & Valleys	Caio Cacungo	–5.061815	12.258807
		Between Dinge and Chindende	–5.120833	12.366667
		East of Cabinda city	–5.558171	12.447904
		Tando Zinze	–5.324150	12.507331
	Coastal Drier Belt	Cabinda city	–5.562294	12.18017
		Lagoa Massabi	–5.060332	12.048811
		Nganzi	–5.502527	12.367874

More than 50 sampling sites were recorded from a total of 17 localities during the surveys, including 10 different localities within Mayombe NP and eight additional localities elsewhere across the province (Table 1 and S1). Geographic coordinates were recorded using the WGS84 datum. Photographs of all the species observed were taken, and tissue samples or vouchers were collected. Tissue samples were stored in 99% ethanol, and vouchers were fixed in 10% formalin or 96% ethanol and then transferred to 70% ethanol for long-term storage at Fundação Kissama (FKH), Angola.

Species identification

Individuals recorded during this work were primarily identified to species level based on external morphological characters published in guides (du Preez and Carruthers 2017; Channing and Rödel 2019; Chippaux and Jackson 2019) and original descriptions specified in the species accounts and subsequently compared with DNA barcoding sequencing (described below). We were not able to make call recordings to corresponding species to assist identification or make taxonomic decisions. For records that were based only on sight observations (including undocumented "catch and release"), the best estimate of identification was made in the field and, in cases of uncertainty, these records were flagged as either "cf." (to be compared with), "aff." (affinity with) or "sp." (not known), following Sigovini et al. (2016). Additional distributional information was obtained from historical herpetological records from the study area (Marques et al. 2018) and additional relevant information for the neighbouring areas in Republic of the Congo and DRC. All new records were examined to assess whether they represented extensions to the known geographic range of a species or represent new records for Angola.

DNA sequencing

A partial mitochondrial ribosomal gene (*16S* rRNA) was used for molecular identification in amphibians and reptiles, aiming to provide a best-fit comparison with the data available in GenBank. We generated a total of 405 new sequences for different individuals across the study area. Total genomic DNA was extracted using EasySpin Genomic DNA Tissue Kit, following the manufacturer's protocols. The *16S* rRNA was amplified using Polymerase Chain Reaction (PCR) with primers 16Sa and 16Sb (Palumbi et al. 1991). The PCR reactions were carried out following the same protocol as Lobón-Rovira et al. (2022). Amplicons were sequenced using the forward primers on an ABI 3130xl Genetic Analyser (Applied Biosystems, Foster City, California, USA) at Centre for Molecular Analysis (CTM, CIBIO–InBio). All sequences were checked and edited using GENEIOUS Prime v2024.0.4 (http://www.geneious.com) and aligned using the MUSCLE plugin for GENEIOUS. To aid in species level identification, sequences were compared to the nucleotide database available in GenBank using the BLAST algorithm (https://blast.ncbi.nlm.nih.gov/Blast.cgi; Altschul et al. 1997), with the *nblast* default parameters. Sequences were also compared with unpublished sequences from other regions of Angola (Baptista 2024) and neighbouring Republic of the Congo (Jongsma unpublished data). All sequences have been deposited in GenBank, and the accession numbers are provided on the species accounts below.

Results

We recorded 76 species, comprising 48 amphibians (15 species of the family Arthroleptidae, six Bufonidae, one Dicroglossidae, ten Hyperoliidae, four Phrynobatrachidae, four Pipidae, five Ptychadenidae, two Ranidae and one Rhacophoridae; Table 2) and 28 reptiles (one testudine, one crocodile, 14 lizards and 12 snakes; Table 2). Species were recorded across all four eco-physiographic units considered for the study area (Figure 3). Although species richness was imbalanced for the two zoological classes (reptiles and amphibians), the "Coastal Drier Belt" was the eco-physiographic unit with lowest richness recorded for both groups. For amphibians, we recorded similarly high richness in Mayombe NP (Upper Mayombe [27 spp.] and Lower Mayombe [33 spp.]), followed by the Littoral Peneplain 20 spp.), and far fewer in the Coastal Drier Belt (five spp.) (Table 2; Figure 3). By contrast, we found the highest reptile richness in the Littoral Peneplain (19 spp.) and the Lower Mayombe (13 spp.), with lower species richness recorded in the Coastal Drier Belt (six spp.) and Upper Mayombe (seven spp.).

We failed to recover 33 species previously reported from Cabinda Province, including one amphibian and 32 reptile species (Table 3). This includes four species originally described from Cabinda Province, namely one lizard (*Trachylepis notabilis* Peters, 1879), and three snakes (*Elapsoidea guentherii* Bocage, 1866, *Philothamnus dorsalis* (Bocage, 1866) and *Natriciteres olivacea* (Peters, 1854)) (Table 3). We excluded seven amphibian species previously recorded from Cabinda Province by Marques et al. (2018), either because we followed other authors in considering them junior synonyms (*Afrixalus quadrivittatus*, *Hyperolius lucani, Hyperolius maestus, Hyperolius protchei, Hyperolius rhizophilus;* Frost 1985; Channing 2001; Frétey et al. 2011), or treated them as misidentifications for lack of evidence that they occur in the region (*Hyperolius nitidulus, Hyperolius dartevellei*; Channing et al. 2013; Baptista 2024). Finally, we added 13 species that have either been recorded in a buffer zone of ~10 km from the Cabinda Province border (by GJ), or have been suggested by various authors as likely to occur in Cabinda Province (Table 3) (Marques et al. 2018).

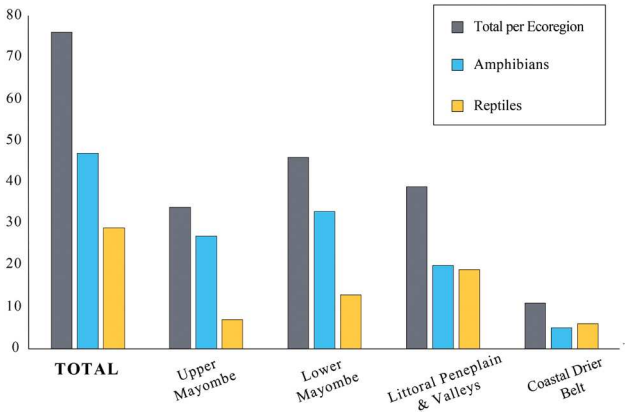

Figure 3. Amphibian and reptile species richness reported at Mayombe National Park and Cabinda Province by eco-physiographic units.

Table 2. Species recorded during the present study of the herpetofauna of Cabinda Province, including localities [tabulated according to the four main eco-physiographic units coded as follows: UM (Upper Mayombe), LM (Lower Mayombe), LP (Littoral Peneplain and Valleys) and CD (Coastal Drier Belt)]. "x" denotes species recorded from each eco-physiographic units, while "N/A" denotes species for which it was not possible to ascribe any precise eco-physiographic units. Asterisk "*" denotes species originally described from Cabinda Province, Angola.

			Eco-physiographic Units			
			Mayombe NP			
Order	Family	Scientific Name	UM	LM	LP	CD
Amphibia	**Arthroleptidae**	*Arthroleptis adelphus*	x			
		Arthroleptis carquejai	x	x	x	
		Arthroleptis aff. *poecilonotus*	x	x	x	
		Arthroleptis sylvaticus	x	x		
		Cardioglossa leucomystax	x	x		
		Leptopelis aubryi	x	x	x	x
		Leptopelis cf. *aubryioides*		x		
		Leptopelis boulengeri		x		
		Leptopelis cf. *calcaratus*		x		
		Leptopelis cf. *jordani*	x	x		
		Leptopelis millsoni			x	
		Leptopelis ocellatus		x	x	
		Leptopelis rufus	x			
		Scotobleps gabonicus		x		
		Astylosternus robustus	x			
	Bufonidae	*Nectophryne afra*	x			
		Nectophryne aff. *batesii*		x		
		Sclerophrys sp.	x	x		
		Sclerophrys pusilla	x	x		x
		Sclerophrys regularis			x	
		Sclerophrys tuberosa		x		
	Dicroglossidae	*Hoplobatrachus occipitalis*	x		x	
	Hyperoliidae	*Afrixalus* aff. *dorsalis*		x	x	
		Afrixalus osorioi	x			
		Afrixalus paradorsalis	x	x		
		Hyperolius adspersus*			x	
		Hyperolius ocellatus	x	x	x	
		Hyperolius olivaceus	x	x	x	x
		Hyperolius parallelus			x	
		Hyperolius pardalis		x	x	
		Hyperolius platyceps	x	x	x	x
		Hylambates leonardi		x		
	Phrynobatrachidae	*Phrynobatrachus auritus*	x	x	x	
		Phrynobatrachus aff. *parvulus*		x	x	
		Phrynobatrachus sp. 1	x	x		
		Phrynobatrachus sp. 2		x	x	
	Pipidae	*Xenopus (Xenopus) allofraseri*		x		
		Xenopus (Xenopus) andrei		x		
		Xenopus (Silurana) mellotropicalis	x			
		Hymenochirus feae		x		
	Ptychadenidae	*Ptychadena anchietae*	x	x		
		Ptychadena mascareniensis OTU 6	x			
		Ptychadena perreti	x	x		
		Ptychadena sp.				x
		Ptychadena taenioscelis			x	
	Ranidae	*Hylarana (Amnirana) albolabris*	x	x	x	x
		Hylarana (Amnirana) aff. *lepus*	x			
	Rhacophoridae	*Chiromantis rufescens*	x	x	x	
Testudines	**Testudinidae**	*Kinixys erosa*		x		
Crocodylia	**Crocodylidae**	*Osteolaemus tetraspis*	x	x	x	
Squamata	**Chamaeleonidae**	*Chamaeleo dilepis*		x	x	
	Agamidae	***Agama congica****		x	x	x

(*Continued*)

Table 2. Continued.

Order	Family	Scientific Name	Eco-physiographic Units			
			Mayombe NP			
			UM	LM	LP	CD
	Gerrhosauridae	*Gerrhosaurus nigrolineatus*	x		x	x
	Lacertidae	*Holaspis guentheri*	x	x		
	Geckkonidae	*Hemidactylus mabouia*	x		x	x
		Hemidactylus pfindaensis*	x	x	x	x
		Lygodactylus lobeke		x		
	Varanidae	*Varanus niloticus*		x		
	Scincidae	*Feylinia grandisquamis*			x	
		Panaspis breviceps	x			
		Panaspis cabindae*			x	
		Trachylepis albilabris	x	x	x	x
		Trachylepis maculilabris		x	x	x
		Trachylepis polytropis		x		
	Atractaspididae	***Atractaspis congica****			x	
	Colubridae	*Dipsadoboa weileri*		x		
		Grayia ornata		x		
		Hapsidophrys smaragdinus			x	
	Elapidae	*Dendroaspis jamesoni*			x	
		Naja melanoleuca			x	
	Lamprophiidae	*Boaedon virgatus*			x	
		Limaformosa savorgnani			x	
		Mehelya poensis			x	
	Psammophiidae	*Psammophis mossambicus*			x	
	Pythonidae	*Python sebae*	N/A	N/A	N/A	N/A
	Viperidae	*Atheris squamigera*			x	

Below we provide a summary of each species' identification, geographic distribution, biology, and newly collected material in the study area. Species listed in Table 3 (historical and nearby records) have not been included in the species accounts. All museum accession numbers for material collected are listed as FKH (Fundação Kissama Collection). For other codes (tissue samples) listed below, see Table S1.

Species Accounts

Amphibia

Arthroleptidae

Arthroleptis adelphus (Perret, 1966)

Figure 4A

Material. ANGOLA – **Cabinda Province** • Mayombe NP, Miconge; –4.4860, 12.8780; 377 m a.s.l.; FKH 1255; GenBank: PQ455662.

Identification. A medium-sized *Arthroleptis* (SVL = 30–33.6 mm, Zimkus and Blackburn 2008). The individual could not be clearly assigned to any species by morphology alone. Therefore, the species was identified genetically, being identical or almost identical (0.6% *16S p*-distance) to material from Minkébé, Gabon (GenBank: KX289618) and Lekoumou, Republic of the Congo (GenBank: KY080052). Deichmann et al. (2017) found two different lineages that include material from Cameroon (near the type locality), suggesting that *A. adelphus* might represent a species complex which needs further investigation.

Table 3. Species not recorded in this study but reported (upper) or expected to be present (lower) in Cabinda Province, Angola, based on historical material, and material collected or reported (photographically) from nearby localities in DRC and Republic of the Congo, with information on locality and source. Asterisk "*" denotes species originally described from Cabinda Province.

Order	Family	Species	Locality	Source
Amphibia	**Pipidae**	*Xenopus epitropicalis* (Fischberg, Colombelli & Picard, 1982)	Chinchoxo	Peters 1877
Testudines	**Pelomedusidae**	*Pelusios castaneus* (Schweigger, 1812)	Chinchoxo	Peters 1877
		Pelusios gabonensis (Duméril, 1856)	Rio Quilo	Bocage 1866
	Trionychidae	*Trionyx triunguis* (Forskål, 1775)	Chinchoxo	Peters 1877
Crocodylia	**Crocodylidae**	*Crocodylus niloticus* Laurenti, 1768	Chinchoxo	Peters 1877
		Mecistops cataphractus (Cuvier, 1825)	Chinchoxo	Peters 1877
Squamata	**Scincidae**	*Feylinia elegans* (Hallowell, 1852)	Cabinda (without precise locality)	Bocage 1866
		Sepsina bayonii (Bocage, 1866)	Chinchoxo	Peters 1877
		Trachylepis acutilabris (Peters, 1862)	Chinchoxo	Peters 1877
		Trachylepis notabilis* (Peters, 1862)	Chinchoxo	Peters 1877
	Chamaeleonidae	*Chamaeleo gracilia etiennei* Schmidt, 1919	Chinchoxo	Peters 1877
		Trioceros oweni (Gray, 1831)	Cabinda (without precise locality)	Tilbury 2010
	Typhlopidae	*Afrotyphlops lineolatus* (Jan, 1864)	Chinchoxo	Peters 1877
	Boidae	*Calabaria reinhardtii* (Schlegel, 1851)	Cabinda (without precise locality)	Frade, 1963
	Viperidae	*Bitis gabonica* (Duméril, Duméril and Bibron, 1854)	Chinchoxo	Peters 1877
	Atractaspididae	*Atractaspis irregularis* (Reinhardt, 1843)	Chinchoxo	Peters 1877
	Lamprophiidae	*Boaedon olivaceus* (Duméril, 1856)	Chinchoxo	Peters 1877
		Lycophidion laterale Hallowell, 1857	Molembo	Bocage 1866
		Lycophidion meleagre Boulenger, 1893	Chinxasio	Broadley 1996
		Lycophidion multimaculatum Boettger, 1888	Chinchoxo	Peters 1877
	Elapidae	***Elapsoidea guentherii* Bocage, 1866***	Cabinda (without precise locality)	Bocage 1866
	Colubridae	*Crotaphopeltis hotamboeia* (Laurent, 1768)	Cabinda (without precise locality)	Bocage 1866
		Dasypeltis palmarum (Leach, 1818)	Chinchoxo	Peters 1877
		Dasypeltis scabra (Linnaeus, 1758)	Chinchoxo, Molembo	Peters 1877 / Bocage 1895
		Grayia caesar (Günther, 1863)	Mouth of Loango	Boulenger 1894
		Grayia smythii (Leach, 1818)	Mouth of Loango	Boulenger 1894
		Hormonotus modestus (Duméril, Bibron and Duméril, 1854)	Mouth of Loango	Boulenger 1896
		Philothamnus dorsalis* (Bocage, 1866)	Molembo	Bocage 1866
		Philothamnus heterolepidotus (Günther, 1863)	Cabinda (without precise locality)	Bocage 1895
		Philothamnus hoplogaster (Günther, 1863)	Chinchoxo	Peters 1877
		Thrasops flavigularis (Hallowell, 1852)	Chinchoxo	Peters 1877
		Toxicodryas pulverulenta (Fischer, 1856)	Chinchoxo	Peters 1877
		Natriciteres olivacea* (Peters, 1854)	Chinchoxo	Peters 1877
Amphibia	**Hemisotidae**	*Hemisus perreti* Laurent, 1972	Republic of the Congo	This work

(*Continued*)

Table 3. Continued.

Order	Family	Species	Locality	Source
	Ptychadenidae	*Ptychadena perreti* Guibé and Lamotte, 1958	Republic of the Congo	This work
Gymnophiona	**Dermophiidae**	*Geotrypetes seraphini* (Duméril, 1859)	Republic of the Congo	This work
		Herpele squalostoma (Stutchbury, 1836)	DRC	Laurent 1961
Squamata	**Scincidae**	*Lacertaspis reichenowii* (Peters, 1874)	Republic of the Congo	This work
	Pelomedusidae	*Pelusios chapini* Laurent, 1965	Republic of the Congo and DRC	Marques et al. 2018
	Atractaspididae	*Atractaspis boulengeri* Mocquard, 1897	Republic of the Congo and DRC	Marques et al. 2018
		Atractaspis reticulata heterochilus Boulenger, 1901	Republic of the Congo and DRC	Marques et al. 2018
	Colubridae	*Dispholidus typus typus* (Smith, 1828)	Republic of the Congo and DRC	Marques et al. 2018
		Rhamnophis aethiopissa Günther, 1862	Republic of the Congo and DRC	Marques et al. 2018
		Philothamnus heterodermus (Hallowell, 1857)	Republic of the Congo and DRC	Marques et al. 2018
	Lamprophiidae	*Mehelya stenophthalmus* (Mocquard, 1887)	Republic of the Congo	This work
	Viperidae	*Bitis nasicornis* (Shaw, 1792)	Republic of the Congo and DRC	Marques et al. 2018

Biology and distribution. The species is widely distributed in the Gulf of Guinea, from Nigeria to the Republic of the Congo (Nneji et al. 2019; Sánchez-Vialas et al. 2020). This represents the species' southernmost record, and the first for Angola (Baptista 2024). As with the other members of the genus, *A. adelphus* is usually found moving among leaf litter (Zimkus and Blackburn 2008). The only specimen recovered was found foraging among leaf litter at night in the dry season, and in sympatry with the much more common and closely-related species, *A.* aff. *poecilonotus*.

Arthroleptis carquejai **Ferreira, 1906**

Figure 4B

Material. ANGOLA – **Cabinda Province** • Caio Cacongo; –5.0618, 12.2588; 43 m a.s.l.; FKH 0978; GenBank: PQ455663. • Mayombe NP, Sanga Wanda; –4.6253, 12.4583; 221 m a.s.l.; FKH 1232; GenBank: PQ455665. • Mayombe NP, Bata Lunhuca; –4.5981, 12.4597; 215 m a.s.l.; P4.083; GenBank: PQ455664. • Mayombe NP, Mbongo Zimune; –4.7442, 12.6914; 324 m a.s.l.; P3.147; GenBank: PQ455666. • Mayombe NP, Quissoki; –4.6028, 12.8736; 336 m a.s.l.; P3.158; GenBank: PQ455667.

Identification. *Arthroleptis carquejai* is a bulky medium-sized *Arthroleptis* (SVL = 20–29.7 mm). The specimens from Cabinda Province differ by ∼0.6% (*16S p*-distance) with material from near topotypic material from Golungo Alto, Kwanza Norte, Angola (>10 km from the type locality at Cambondo). Our material is identical to material from Loufika, Republic of the Congo and differ by 0.2% (*16S p*-distance) from material from Tchikoulou, Republic of the Congo (Jongsma unpublished data). In addition, the specimens differ by ∼2.2% (*16S p*-distance) from type material of *A. palava* (GenBank: HM238187) and by 3.2% from *A. kroskosua* (GenBank: EU350211). *Arthroleptis carquejai* differs morphologically from *A. palava* in having well-defined black spots on the lateral

Figure 4. Species of the families Arthroleptidae, Bufonidae and Dicroglossidae recorded from Mayombe National Park and Cabinda Province, Angola. Codes in brackets represent field tissue numbers. **A.** Arthroleptis adelphus from Miconge, Upper Mayombe (P3.186). **B.** *A. carquejai* (P3.123) and **C.** *A.* aff. *poecilonotus* (P3.119) from Sanga Wanda, Lower Mayombe. **D.** *A. sylvaticus* from Miconge, Upper Mayombe (P2.194). **E.** *Cardioglossa leucomystax* from Vaku (P2.031) and from **F.** Miconge (P2.218), Upper Mayombe. **G.** *Leptopelis aubryi* from Mbundu, Lower Mayombe (P3.214). **H.** *L.* cf. *aubryioides* (P3.514), **I.** *L. boulengeri* (P3.523) and **J.** *L.* cf. *calcaratus* (P3.513) from Sanga Wanda, Lower Mayombe. **K.** *L.* cf. *jordani* (P3.163) from Lombe River, Vaku, Upper Mayombe. **L.** *L. millsoni* (P9.070) from South of Dinge. **M.** *L. ocellatus* (P3.113) from Sanga Wanda, Lower Mayombe. **N.** *L. rufus* (P2.045) from Vaku, Upper Mayombe **O.** *Scotobleps gabonicus* (P3.139) from Chimbete, Lower Mayombe. **P.** *Trichobatrachus robustus* (P2.181) from Miconge, and **Q.** *Nectophryne afra* (P2.063) from Vaku, Upper Mayombe. **R.** *N.* aff. *batesii* (P3.224) from Mbundu, Lower Mayombe. **S.** *Sclerophrys* sp. (P2.042) from Vaku, Upper Mayombe. **T.** *S. pusilla* (P2.094) from Sanga Mongo, Lower Mayombe. **U.** *S. regularis* (P1.142) from Tando Zinze. **V.** *S. tuberosa* (P3.509) from Sanga Wanda, Lower Mayombe. **W.** *Hoplobatrachus occipitalis* (P9.073) from South of Dinge. Photographs by PVP (A–J, L, N, P–T, V–W), JLR (K, M, O) and TB (U).

surface of the head (absent in *A. palava*) (Blackburn et al. 2010), but similar to specimens of *A. variabilis* from Gabon (Larson and Zimkus 2018).

Biology and distribution. *Arthroleptis carquejai* is known to occur in northern Angola, recorded in disturbed forest habitats and along logging roads (Ernst et al. 2020). However, the species was reported from Gabon by Dewynter and Frétey (2019), although the authors have not provided commentary on their material. Here we report the first records of the species in Cabinda Province (Baptista 2024) and Republic of the Congo (Jongsma unpublished data). In Cabinda Province, the species was recorded from the Littoral Peneplain to higher elevations in Mayombe NP. Specimens were found moving in the leaf litter and on dirt roads at night.

Arthroleptis aff. *poecilonotus* Peters, 1863 complex

Figure 4C

Material. ANGOLA – **Cabinda Province** • Nganzi; –5.5304, 12.3236; 78 m. a.s.l.; EI 1129; GenBank: PQ455668 • Cacata; –5.3242, 12.4980; 25 m. a.s.l.; P1.294, FKH-0697; GenBank: PQ455669–70 • between Dinge and Chindende; –5.1208, 12.3667; 15 m a.s.l.; P9.050, FKH 0155–56; GenBank: PQ455671–73. • Mayombe NP, Sanga Mongo; –4.6661, 12.4407; 146 m a.s.l.; FKH 0959, FKH 0969; GenBank: PQ455674–75. • Mayombe NP, Mbundu; –4.6875, 12.4981; 127 m a.s.l.; P3.128, P3.217, P4.099—100, P3.539—40; GenBank: PQ455676–81. • Mayombe NP, Sanga Wanda; –4.6253, 12.4583; 221 m a.s.l.; P3.119—20, FKH 1262; GenBank: PQ455682–84. • Mayombe NP, Bata Lunhuca; –4.5981, 12.4597; 215 m a.s.l.; P4.087—89; GenBank: PQ455685–87. • Mayombe NP, Miconge; –4.4860, 12.8780; 377 m a.s.l.; FKH 1040—44, FKH 1051, P2.221, P2.230; GenBank: PQ455693–700. • Mayombe NP, Quissoki; –4.6028, 12.8736; 336 m a.s.l.; P3.156; GenBank: PQ455701. • Mayombe NP, Vaku; –4.6323, 12.8937; 319 m a.s.l.; FKH 0921—24; GenBank: PQ455688–91. • Mayombe NP, Lombe River, Vaku; –4.6403, 12.935; 269 m a.s.l.; P3.160; GenBank: PQ455692.

Identification. *Arthroleptis poecilonotus* represents a species complex. Material from Cabinda Province is identical to material reported from Mount Kupe, Cameroon (GenBank: KX671725), Mayongongo, Republic of the Congo (GenBank: KY080058) and other material from Angola (Baptista 2024). However, this material differs by 3.2% (*16S p*-distance) from topotypic material of the species in Ghana (Rockney et al. 2015; GenBank: KU166807). Therefore, it is better to regard material from Cabinda Province and northern Angola as *Arthroleptis* aff. *poecilonotus*.

Biology and distribution. Members of the *A. poecilonotus* complex are widely distributed from Guinea Bissau eastwards to Uganda and southwards to Angola (Sánchez-Vialas et al. 2020; Baptista 2024). In Angola, the species is widely distributed in the northwestern forest regions (Ernst et al. 2020; Baptista 2024). In Cabinda Province, the taxon was recorded in all the four main ecological zones, from the Coastal Drier Belt to Upper Mayombe. It proved to be one of the most common amphibians in Mayombe NP, often found moving among the leaf litter or crossing dirt roads mostly at night, but sometimes during the day.

Arthroleptis sylvaticus Laurent, 1954 complex

Figure 4D

Material. ANGOLA – **Cabinda Province** • Mayombe NP, Sanga Mongo; –4.6661, 12.4407; 146 m a.s.l.; FKH 0970; GenBank: PQ455703. • Mayombe NP, Bata Lunhuca; –4.5981,

12.4597; 215 m a.s.l.; P4.085; GenBank: PQ455702. • Mayombe NP, Miconge; –4.4860, 12.8780; 377 m a.s.l.; FKH 1035–37, FKH 1045, FKH 1048; GenBank: PQ455704–08.

Identification. *Arthroleptis sylvaticus* also represents a species complex with three distinct mitochondrial lineages (Larson and Zimkus 2018; Deichmann et al. 2017). Material from Cabinda Province is identical to material from the Republic of the Congo (GenBank: KY080080), which represent the closest genetic samples available from the type locality of Buta, DRC (Deichmann et al. 2017), still 1,300 km from the type locality. Also, it is genetically identical to material from Uíge Province, Angola (Baptista 2024). Therefore, material from Cabinda Province and northern Angola may represent true *Arthroleptis sylvaticus*. However, due to the large distance from the type locality we suggest caution and recommend further taxonomic investigation.

Biology and distribution. Members of the *A. sylvaticus* complex are distributed in the Congo Basin. The specimens from Cabinda Province were found in dense rainforest among leaf litter near streams in Lower and Upper Mayombe.

***Cardioglossa leucomystax* (Boulenger, 1903)**

Figures 4E–F

Material. ANGOLA – **Cabinda Province** • Mayombe NP, Sanga Wanda; –4.6253, 12.4583; 221 m a.s.l.; P3.189; GenBank: PQ455717. • Mayombe NP, Miconge; –4.4860, 12.8780; 377 m a.s.l.; FKH 1032–34, FKH 1052, FKH 1054; GenBank: PQ455712–16. • Mayombe NP, Vaku; –4.6323, 12.8937; 319 m a.s.l.; FKH 0916–18; GenBank: PQ455709–11.

Identification. Material from Cabinda Province is almost identical (0.2% *16S p*-distance) to material ascribed to *C. leucomystax* 1 (sensu Blackburn et al. 2021) from the Bandjoko, Republic of the Congo and Ivindo, Gabon (GenBank: MW624175, MW624173), and identical to other material from Lekoumou, Republic of the Congo (GenBank: KY080101). Our records represent the southernmost records of the species, and the first for Angola (Baptista 2024).

Biology and distribution. The species appeared to be more common at higher elevations in Upper Mayombe, and all specimens were found near fast-flowing forest streams, either at the water edge or on sandbanks.

***Leptopelis aubryi* (Dumeril, 1856)**

Figures 4G and 5A

Material. ANGOLA – **Cabinda Province** • between Dinge and Chindende; –5.1208, 12.3667; 15 m a.s.l.; FKH 0171–73; GenBank: PQ455803–05. • Fazenda Mandarim; –5.0553, 12.0610; 14 m a.s.l.; P4.072; GenBank: PQ455845. • Mayombe NP, Sanga Mongo; –4.6661, 12.4407; 146 m a.s.l.; FKH 0954–55, FKH 0961, FKH 0968, P2.091; GenBank: PQ455808–12. • Mayombe NP, Mbundu; –4.6875, 12.4981; 127 m a.s.l.; P3.214, P3.223, P4.098, P4.103–04; GenBank: PQ455813–14, PQ455847–49. • Mayombe NP, Sanga Wanda; –4.6253, 12.4583; 221 m a.s.l.; FKH 1225–28, FKH 1261; GenBank: PQ455822–26. • Mayombe NP, Bata Lunhuca; –4.5981, 12.4597; 215 m a.s.l.; P4.086; GenBank: PQ455846. • Mayombe NP, Miconge; –4.4860, 12.8780; 377 m a.s.l.; FKH 1030, P2.231, P3.172; GenBank: PQ455834–36. • Mayombe NP, Vaku; –.6323, 12.8937; 319 m a.s.l.; FKH 0930, FKH 0939; GenBank: PQ455837–38. • Mayombe NP, Lombe River, Vaku; –4.6403, 12.935; 269 m a.s.l.; FKH 1247, FKH 1249–50, P3.166, P3.169, FKH 1252, GenBank: PQ455839–44.

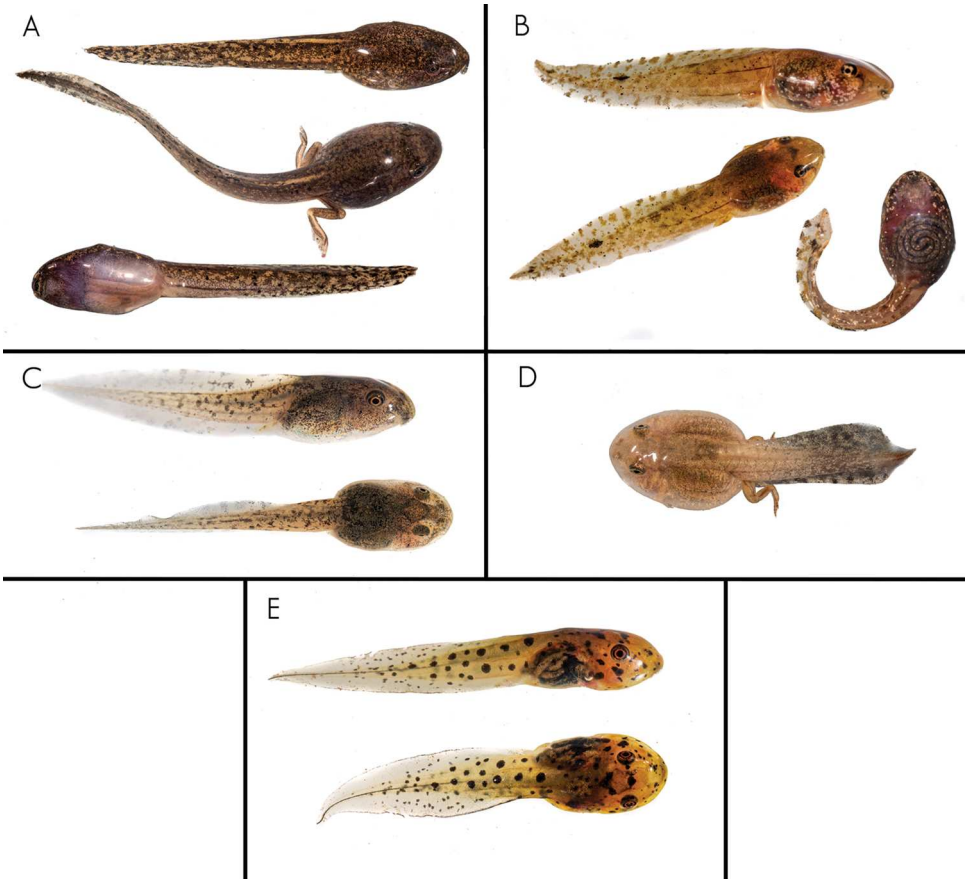

Figure 5. Tadpoles found in Mayombe National Park and Cabinda Province, Angola. Codes in brackets represent field numbers. **A.** *Leptopelis aubryi* (P3.545); **B.** *Hyperolius ocellatus purpurescens* (FKH 1266); **C.** *Chiromantis rufescens* (P3.200); **D.** *Ptychadena anchietae* (P3.524) from Sanga Wanda, Lower Mayombe; and **E.** *Hylarana* (*Amnirana*) *albolabris* (P3.212) from Mbundo, Lower Mayombe. Photographs by PVP.

Identification. A small *Leptopelis* (SVL = 42–59 mm) with an orange upper margin to the eyes, often with a dark triangle between the eyes (Channing and Rödel 2019). The specimens here reported are identical (*16S p*-distance) to material from Lekoumou, Republic of the Congo (GenBank: KY080240) and almost identical to material from Tchimbélé, Gabon (0.4% *16S p*-distances; GenBank: KF888326).

Biology and distribution. The species is widely distributed in the Gulf of Guinea from Nigeria to northern Angola (Marques et al. 2018; Channing and Rödel 2019; Ernst et al. 2020; Baptista 2024). The species can be found in branches near swampy areas, ponds and riverine areas in primary forest, but also in secondary forest and degraded forest edges (Channing and Rödel 2019). In Cabinda Province, it is the most abundant *Leptopelis* species, present in all four main ecological zones. Often found low in bushes, leaves or branches, and in sympatry with all the other *Leptopelis* species recorded in the province.

***Leptopelis* cf. *aubryioides* (Andersson, 1907)**

Figure 4H

Material. ANGOLA – **Cabinda Province** • Mayombe NP, Sanga Wanda; –4.6253, 12.4583; 221 m a.s.l.; P3.514; GenBank: PQ455850.

Identification. This is the smallest *Leptopelis* from Cabinda Province (SVL = 35–45 mm). It is slenderer than *L. aubryi*, lacks orange colouration on the eyes and has white spurs on the heels. The specimen reported from Cabinda Province differs by 2.2% (*16S p*-distance) from material collected at Lekoumou, Republic of the Congo (GenBank: KY080248), and by 4% from material collected at Mount Kupe, Cameroon (GenBank: KX671754). The large genetic distance may suggest cryptic diversification in the group; however, further analyses are needed to take taxonomic action. Consequently, we list the material from Cabinda Province as *Leptopelis* cf. *aubryioides*, pending further investigation.

Biology and distribution. An arboreal *Leptopelis* widely distributed in dense forests across the Gulf of Guinea (Channing and Rödel 2019). This material represents the first record for Cabinda Province, and for Angola (Baptista 2024). This specimen was found in a primary rainforest on a leaf about 4 m above ground in Lower Mayombe, and in sympatry with *L. aubryi*, *L. boulengeri*, *L.* cf. *calcaratus* and *L. ocellatus*.

***Leptopelis boulengeri* (Werner, 1898)**

Figure 4I

Material. ANGOLA – **Cabinda Province** • Mayombe NP, Sanga Wanda; –4.6253, 12.4583; 221 m a.s.l.; P3.203, P3.523; GenBank: PQ455851–52.

Identification. A large-sized *Leptopelis* (SVL = 48–81 mm), with characteristic angular region between the nostrils and eyes, tympanum barely visible and white spot below the eyes (Channing and Rödel 2019). The specimens from this work are identical (*16S p*-distance) to material from Minkébé, Gabon (GenBank: KX260263). However, they differ by ∼1.6% (*16S p*-distance) from material from Mount Kupe, Cameroon (GenBank: KX671756), < 90 km from the type locality (Victoria [now Limbé], Cameroon).

Biology and distribution. An arboreal species, widely distributed in the Gulf of Guinea, including Bioko Island (Channing and Rödel 2019). These records represent a range extension south from the previously reported southernmost record of Lekoumou, Republic of Congo, and represent the first country records (Baptista 2024). Specimens were collected from leaves between 2 and 3 m above ground in the primary rainforest.

***Leptopelis* cf. *calcaratus* (Boulenger, 1906)**

Figure 4J

Material. ANGOLA – **Cabinda Province** • Mayombe NP, Sanga Wanda; –4.6270, 12.4527; 215 m a.s.l.; P3.513, P3.515; GenBank: PQ455853–54. • Mayombe NP, Bata Lunhuca; –4.5981, 12.4597; 215 m a.s.l.; P4.084; GenBank: PQ455855.

Identification. A medium-sized *Leptopelis* (SVL = 42–57 mm) with characteristic white spurs on the heels. The specimens from Cabinda Province differ by 3.8–4% (*16S p*-distance) from material collected from Sapia, Cameroon (GenBank: KT967090, KT967091), ∼100 km south of the type locality at Efoulan, Cameroon. The large genetic distance suggests cryptic diversification within *L. calcaratus*. We therefore listed the material from Cabinda Province as *Leptopelis* cf. *calcaratus*, pending further investigation.

Biology and distribution. An arboreal *Leptopelis* widely distributed in the Gulf of Guinea and the Congo Basin, from Nigeria eastwards to DRC (Channing and Rödel 2019). The species had recently been reported from northwestern Angola (Ernst et al. 2020; Baptista 2024), but these specimens constitute the first records of the species for Cabinda (Baptista 2024).

***Leptopelis* cf. *jordani* (Parker, 1936)**

Figure 4K

Material. ANGOLA – **Cabinda Province** • Mayombe NP, Mbundu; –4.6875, 12.4981; 127 m a.s.l.; P4.105; GenBank: PQ455858. • Mayombe NP, Mbongo Zimune; –4.7442, 12.6914; 306 m a.s.l.; FKH 1245; GenBank: PQ455856. • Mayombe NP, Lombe River, Vaku; –4.6403, 12.935; 269 m a.s.l.; FKH 1248; GenBank: PQ455857.

Identification. A medium-sized and robust *Leptopelis* (max. SVL = 62 mm). The species was originally described from Congulo in the central Angolan escarpment. Genetically, *L. jordani* belongs to the *L. bocagii* complex (Baptista 2024), from which it differs by only 1.3% *16S p*-distance. It can be distinguished from the latter species by having arboreal habits (versus ground-dwelling in *L. bocagii* sensu stricto), well-developed discs on fingers and toes (versus absent in *L. bocagii*), and usually shows characteristic white leg and arm margins and spots in knees and elbows (versus absence of white markings on *L. bocagii*). Therefore, we ascribe specimens from Cabinda Province to *L.* cf. *jordani* based on the similar morphology to topotypic material (presence of discs and white markings) and behaviour (arboreal). However, the low genetic divergence on the *16S* gene makes it impossible to resolve the taxonomy of this complex until other taxonomic tools can be applied.

Biology and distribution. The real distribution of this species is still poorly understood, but specimens ascribed to this forest-obligate, arboreal form have been recorded along the western escarpment of Angola (Baptista 2024) and now also in Cabinda Province. The specimens from Cabinda Province were found in Lower and Upper Mayombe, on leaves more than 2 m high in primary or secondary forest.

***Leptopelis millsoni* (Boulenger, 1895)**

Figure 4L

Material. ANGOLA – **Cabinda Province** • Caio Cacongo; –5.0618, 12.2588; 43 m a.s.l.; P2.111; GenBank: PQ455859. • between Dinge and Chindende; -5.1208, 12.3667; 15 m a.s.l.; FKH 0174, EI 808; GenBank: MZ408748–PQ455861.

Identification. A large brown *Leptopelis* (SVL = 49–87 mm) with irregular darker transverse bands on the dorsum. Material from Cabinda Province was included in the revision of Jaynes et al. (2022), where they report sub-structuring within the species either north and south of the Congo River. As expected, material from Cabinda Province clusters with material from Gabon, Cameroon and Nigeria (Jaynes et al. 2022).

Biology and distribution. An arboreal species widely distributed in the Gulf of Guinea (excluding the islands) and the Congo Basin south to northwestern Angola (Jaynes et al. 2022). The species is associated with large waterbodies in the lowland rainforest and secondary forests. In Cabinda Province it was collected inside gallery forest along slow-moving streams in the Littoral Peneplain.

***Leptopelis ocellatus* (Mocquard, 1902)**

Figure 4M

Material. ANGOLA – **Cabinda Province** • between Dinge and Chindende; –5.1208, 12.3667; 15 m a.s.l.; FKH 0170; GenBank: PQ455863. • Mayombe NP, Sanga Wanda; -4.6253, 12.4583; 221 m a.s.l.; FKH 1229, P3.204, P3.517; GenBank: PQ455864–65, PQ455862. • Mayombe NP, Bata Lunhuca; –4.5981, 12.4597; 215 m a.s.l.; P4.090; GenBank: PQ455866.

Identification. A medium-sized *Leptopelis* (SVL = 46–58 mm) that can be distinguished from other *Leptopelis* occurring in Cabinda Province by having large dark markings on the flanks, hidden parts of the limbs bright yellow with dark marbling, and copper-coloured eyes. The material from this study is almost identical (0.8% *16S p*-distance) to material from Lekoumou, Republic of the Congo (GenBank: KY080253), but differs by ~2.3% (*16S p*-distance) from material collected from Birougou, Gabon (~215 km from the type locality) (GenBank: KX260264).

Biology and distribution. The species is distributed from Cameroon to Cabinda Province and western DRC (Channing and Rödel 2019). *Leptopelis ocellatus* can be found in a wide panoply of ecological zones from lowland forest to more disturbed areas. In Cabinda Province, this species has been found in gallery, primary and secondary forests, in the Littoral Peneplain and Lower Mayombe, in sympatry with *L. aubryi*, *L.* cf. *aubryioides*, *L. boulengeri* and *L.* cf. *calcaratus*.

***Leptopelis rufus* Reichenow, 1874**

Figure 4N

Material. ANGOLA – **Cabinda Province** • Mayombe NP, Miconge; –4.4860, 12.8780; 377 m a.s.l.; FKH 1049, FKH 1053; GenBank: PQ455867–68. • Mayombe NP, Vaku; –4.6323, 12.8937; 319 m a.s.l.; FKH 0931—32; GenBank: PQ455869–70.

Identification. A large brown *Leptopelis* (SVL = 55–87 mm) sister to *L. millsoni* and *L. macrotis*, from which it can be difficult to differentiate morphologically other than by having a comparatively smaller tympanum (Jaynes et al. 2022). Material from Cabinda Province is identical (*16S p*-distance) to material from south of Ogooué River, Gabon (GenBank: MZ408848).

Biology and distribution. An arboreal *Leptopelis* widely distributed in the Gulf of Guinea lowlands forests, from southern Nigeria to Cabinda Province, including Bioko Island (Channing and Rödel 2019). The species is associated with primary moist forest. The specimens were collected from leaves near fast-flowing forest streams at Upper Mayombe between 300–400 m a.s.l. and represent the first country records (Baptista 2024).

***Scotobleps gabonicus* Boulenger, 1900**

Figure 4O

Material. ANGOLA – **Cabinda Province** • Mayombe NP, Chimbete; –4.6631, 12.5447; 182 m a.s.l.; P3.138, FKH 1237–38; GenBank: PQ455954–56.

Identification. *Scotobleps gabonicus* is a relatively large species (SVL = 52–70 mm) and the sole representative of a monotypic genus of Arthroleptidae. It can be distinguished from other Arthroleptidae by having large and small warts on the dorsum, head, and limbs, and webbed feet (Channing and Rödel 2019). Specimens from the study area are almost identical (0.3% *16S p*-distance) to material from Ivindo, Gabon (GenBank:

MF511944) and identical to material for Lekoumou, Republic of the Congo (GenBank: KY080407). However, they differ by ~5% (*16S p*-distance) from material from Cameroon and Nigeria (GenBank: KX671793, MT630558), which may suggest cryptic diversification in this group that warrants further investigation.

Biology and distribution. The species is widely distributed in the lowland forests of the Gulf of Guinea (Channing and Rödel 2019). This material represents the first records from Cabinda Province, and adds a new amphibian genus to the country list (Baptista 2024). All the specimens were found active at night near water or moving in open areas near a slow-moving stream in Lower Mayombe. Individuals tried to hide under leaf litter when they were approached.

***Astylosternus robustus* (Boulenger, 1903)**

Figure 4P

Material. ANGOLA – **Cabinda Province** • Mayombe NP, Miconge; –4.4860, 12.8780; 377 m a.s.l.; FKH 1023; GenBank: PQ455957.

Identification. A large species (SVL = 90–130 mm) in a monotypic genus, with reproductive males developing hair-like appendages on the lower parts of the hind limbs (Channing and Rödel 2019). Only one specimen was recorded during this study, and it differs by 1.2% (*16S p*-distance) from other material from Serra do Pingano, Uíge Province, Angola (GenBank: HG940465) and by 2.6% from material from Cameroon (GenBank: KF991265).

Biology and distribution. It has a wide distribution in lowland forests and submontane streams from Nigeria southwards to northwestern Angola (Channing and Rödel 2019; Ernst et al. 2020). The specimen reported here was an adult male found perched on a rock in the middle of a fast-flowing river close to a waterfall in Upper Mayombe.

Bufonidae

***Nectophryne afra* Buchholz and Peters, 1875**

Figure 4Q

Material. ANGOLA – **Cabinda Province** • Mayombe NP, Vaku; –4.6323, 12.8937; 319 m a.s.l.; FKH 0948 (froglet); GenBank: PQ455871.

Identification. A small toad (SVL = 19–25 mm) with slender body and webbed fingers and toes. Snout short and pointed (Channing and Rödel 2019). Two distinct clades have been recognised within *N. afra*, which might represent two valid taxa (Liedtke et al. 2021). The specimen reported here differs by ~1% (*16S p*-distance) from material collected from Nyanga, Gabon (GenBank: MT724587), which clusters with other material from Republic of the Congo and southern Cameroon (Liedtke et al. 2021).

Biology and distribution. *Nectophryne afra* is an arboreal toad widely distributed in primary moist forest of the Gulf of Guinea and Congo Basin, including Bioko Island (Channing and Rödel 2019; Sanchez-Vialas et al. 2020). The material reported here represents a southern range extension and the first country record (Baptista 2024). The specimen was a metamorph found perched on a leaf ~1.5 m high at Upper Mayombe.

Nectophryne* aff. *batesii

Figure 4R

Material. ANGOLA – **Cabinda Province** • Mayombe NP, Sanga Mongo; –4.6661, 12.4407; 146 m a.s.l.; FKH 0960, P2.081; GenBank: PQ455872–73 • Mayombe NP, Sanga Wanda; –4.6253, 12.4583; 221 m a.s.l.; FKH 1265; GenBank: PQ455874 • Mayombe NP, Mbundu; –4.6875, 12.4981; 127 m a.s.l.; FKH 1271; GenBank: PQ455875. • Mayombe NP, Bata Lunhuca; –4.5981, 12.4597; 215 m a.s.l.; P4.109; GenBank: PQ455876.

Identification. A small toad (SVL = 23–25 mm) with compact body, webbed fingers and toes, and short, rounded and truncated snout (Channing and Rödel 2019). Liedtke et al. (2021) recognised three different clades within *N. batesii* that might justify specific status. The material from Cabinda Province represents an additional distinctive clade which differs by a minimum of ~3.8% (*16S p*-distance) when compared with material of the southern clade from Liedtke et al. (2021), which includes material from Ivindo, Gabon (GenBank: KF665313) and Bioko Island (GenBank: MT724579).

Biology and distribution. An arboreal toad widely distributed in primary lowland forest of the Gulf of Guinea and Congo Basin, including Bioko Island (Channing and Rödel 2019; Sanchez-Vialas et al. 2020). The specimens reported here represent the southernmost records of the species, and taken together with the previous species, they add a new genus to the Angolan list. The collected individuals were recorded in Lower Mayombe between 100–250 m a.s.l. and found on top of tree or bush leaves between 1 and 3 m above the ground.

***Sclerophrys* sp.**

Figure 4S

Material. ANGOLA – **Cabinda Province** • Mayombe NP, Vaku; –4.6323, 12.8937; 319 m a.s.l.; FKH 0927–29; GenBank: PQ455939–41. • Mayombe NP, Chimbete; –4.6630, 12.5447; 195 m a.s.l.; P3.134; GenBank: PQ455942.

Identification. Individuals from Cabinda Province correspond morphologically to the *S. funerea* group (which includes *S. funerea*, *S. kisoloensis* and *S. gracilipes*). It differs by 3.1% (*16S p*-distance) from material of *S. kisoloensis* from Uganda (GenBank: AF220891) and *S. funerea* from Capaia, Angola (GenBank: KY555640), both near the type locality of the respective species, and by ~4.2% (*16S p*-distance) from a sequence of *S. gracilipes* from Likouala, Republic of the Congo (GenBank: KY079965–66). However, it agrees morphologically by having webbing between toes and large parotoid glands, with well-developed warts scattered across the body (Bocage 1866; Loveridge 1932). Furthermore, a fast *16S* Maximum Likelihood phylogenetic analysis suggests that this material clusters with the other three species. In addition, the material from Cabinda Province displays smooth ventral skin, either with a completely whitish colour or with light black speckles (versus immaculate white in *S. kisoloensis*, or with spiny skin and black with white speckles in *S. funerea*), and different morphology of toes and webbing from the three species. Consequently, we ascribe the material from Cabinda Province to a candidate species (*Sclerophrys* sp.) within the *S. funerea* group, pending a taxonomic revision of the group, which is currently in progress.

Biology and distribution. Specimens belonging to this candidate species were found moving at night among leaf litter or crossing dirt roads in primary and secondary rainforest in both Upper and Lower Mayombe.

***Sclerophrys pusilla* (Mertens, 1937)**

Figure 4T

Material. ANGOLA – **Cabinda Province** • Fazenda Mandarim; –5.0401, 12.0508; 14 m a.s.l.; P4.071; GenBank: PQ455949. • Mayombe NP, Sanga Mongo; –4.6661, 12.4406; 146 m a.s.l.; P2.089, FKH 0966; GenBank: PQ455943–44 • Mayombe NP, Mbundu; –4.6875, 12.4981; 127 m a.s.l.; P3.129, P3.221, P3.546, P4.101; GenBank: PQ455946–48, PQ455950 • Mayombe NP, Miconge; -4.4860, 12.8780; 377 m a.s.l.; P2.210; GenBank: PQ455945.

Identification. A medium-sized toad (SVL = 65–80 mm) with flattened parotoid glands and great variation of morphological patterns. Specimens from Cabinda Province are genetically identical to other material from Angola (e.g., Iona NP [GenBank: ON006588] and Caccuchi River [GenBank: KT862862]) and differ by <1% from other material from Republic of the Congo (GenBank: KY079995), DRC (GenBank: KT862859) and Gabon (GenBank: KX260256).

Biology and distribution. A terrestrial toad with the widest distribution in the genus, present across most sub-Saharan savannahs and woodlands, but also present in forest, from Cameroon to Ethiopia in the east, southwards to Mozambique and eastern South Africa, and westward to Angola and northern Namibia. Although the species is widely distributed in Angola (Marques et al. 2018), this represents the first records from Cabinda Province (Baptista 2024). This species is likely common throughout the province, from the rainforest edge in both Lower and Upper Mayombe to the more arid savannahs of the Coastal Drier Belt.

***Sclerophrys regularis* (Reuss, 1833)**

Figure 4U

Material. ANGOLA – **Cabinda Province** • Tando Zinze; –5.3068, 12.4985; 32 m a.s.l.; P1.142; GenBank: PQ455951.

Identification. A large toad (SVL = 91–130 mm) with enlarged parotoid glands and large warts scattered across the entire body. The species has low genetic divergence across its entire range. The specimen reported here is genetically identical to material from Pool, Republic of the Congo (GenBank: KY080012), Sambolabo, Cameroon (GenBank: KF665304), Kampala, Uganda (GenBank: AF220890) and Lake Baringo, Kenya (GenBank: AF220889), and almost identical to material from the type locality in Egypt (GenBank: KF665201).

Biology and distribution. This toad is known to occur from Senegal eastwards to Ethiopia and northern Tanzania, northwards across the Nile River, and southwards to northern Angola (Channing and Rödel 2019). The species is widely distributed in sub-Saharan savannahs and commonly found in urban and highly impacted areas (e.g. farms and plantations). Only one specimen was found during this study, in degraded forest near farmland in the Littoral Peneplain.

***Sclerophrys tuberosa* (Günther, 1858)**

Figure 4V

Material. ANGOLA – **Cabinda Province** • Mayombe NP, Sanga Wanda; –4.6253, 12.4583; 221 m a.s.l.; FKH 1258; GenBank: PQ455952. • Mayombe NP, Sanga Wanda; –4.6270, 12.4527; 215 m a.s.l.; P3.509; GenBank: PQ455953.

Identification. A medium-sized toad (SVL = 48–74 mm) with compact body and enlarged globose parotoid glands, and body covered with long spiny warts (Channing and Rödel 2019). The material from the study area differs by <1% (*16S p*-distance) from material from between Malapa and Mbimb, Cameroon (GenBank: KF665246), and ~2.5% from material from Lekoumou, Republic of the Congo (GenBank: KY080024).

Biology and distribution. The species is known to occur in lowland and mid-elevation primary forest to the north of the Congo River, from southeast Nigeria to western DRC (Channing and Rödel 2019). The specimens reported here are the first records for Cabinda Province and Angola (Baptista 2024) and represent the southernmost records for the species. Both specimens collected were found foraging on the ground at the edge of a dirt road surrounded by primary rainforest in Lower Mayombe, at ~200 m a.s.l.

Dicroglossidae

***Hoplobatrachus occipitalis* (Günther, 1858)**

Figure 4W

Material. ANGOLA – **Cabinda Province** • Fazenda Mandarim; –5.0401, 12.0508; 14 m a.s.l.; P4.069; GenBank: PQ455727. • between Dinge and Chindende; –5.1208, 12.3667; 15 m a.s.l.; FKH 0177; GenBank: PQ455726. • Mayombe NP, Lombe River, Vaku; –4.6403, 12.935; 269 m a.s.l.; sight record.

Identification. A large frog (104–160 mm) and sole representative of the genus in Africa, with a characteristic transverse groove behind the eyes, visible supratympanic folds and eyes positioned on the top of the head. Specimens from Cabinda Province are genetically identical to material from Malanje Province, Angola (GenBank: MK036439), Tanzania (GenBank: AB272600) and Nigeria (GenBank: MH708922).

Biology and distribution. *Hoplobatrachus occipitalis* is widely distributed in the sub-Saharan tropical savannahs from Senegal to Ethiopia, Kenya and Tanzania in the east, and northern and western Angola in the south (Channing and Rödel 2019). This species is likely common throughout Cabinda Province, and across most habitats excluding the interior of intact primary forests. This material was collected during the rainy season in temporary pools in highly disturbed areas, in farmland and urban environments, in both the Coastal Drier Belt and Littoral Peneplain. However, on a different occasion we also observed and recorded a species chorus in a temporary pool in partially cleared areas in Lower Mayombe.

Hyperoliidae

***Afrixalus* aff. *dorsalis* (Peters, 1875) complex**

Figures 6A–C

Material. ANGOLA – **Cabinda Province** • Tando Zinze; –5.3241, 12.5073; 29 m a.s.l.; P1.138, FKH 0586; GenBank: PQ455620–21. • Caio Cacongo; –5.0618, 12.2588; 43 m a.s.l.; P2.110; GenBank: PQ455622. • Mayombe NP, Sanga Mongo; –4.6661, 12.4407; 146 m a.s.l.; FKH 0950–51, P2.070–71; GenBank: PQ455623–26. • Mayombe NP, Mbundu; –4.6875, 12.4981; 127 m a.s.l.; P3.127; GenBank: PQ455627.

Identification. A small reed frog (SVL = 28–30 mm), with diurnal colouration showing a dark brown dorsum and light cream colouration between the eyes that extends as two

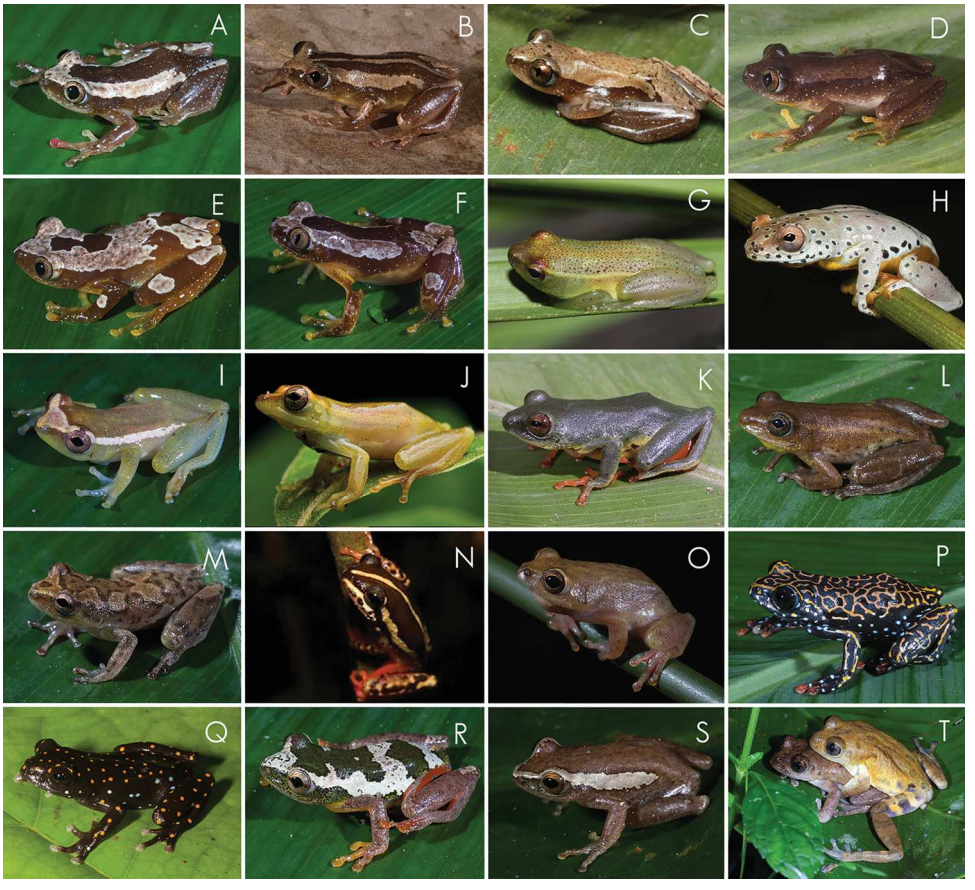

Figure 6. Species of the family Hyperoliidae recorded from Mayombe National Park and Cabinda Province, Angola. Codes in brackets represent field numbers. **A.** *Afrixalus* aff. dorsalis (P2.068) from Sanga Mongo, **B.** Mbundu (P3.127), Lower Mayombe and **C.** Tando Zinze (P1.150). **D.** *Afrixalus osorioi* (P3.175) from Miconge, Upper Mayombe. **E.** *Afrixalus paradorsalis* (P3.520) from Sanga Wanda, Lower Mayombe and **F.** Vaku (P2.060), Upper Mayombe. **G.** *Hyperolius adspersus* (P1.147) from Tando Zinze. **H.** Female *Hyperolius ocellatus* (P9.062) from South of Dinge and **I.** male *H. ocellatus* from Sanga Mongo, Lower Mayombe (P2.078) **J.** *Hyperolius olivaceus* (P3.173), **K.** (P2.222) and **L.** (P2.227) from Miconge, Upper Mayombe, and **M.** (P3.205) from Lower Mayombe. **N.** *Hyperolius parallelus* (P1.298) from Tando Zinze. **O.** Male *Hyperolius pardalis* (P3.143) from Chimbete, Lower Mayombe, and P. females of *H. pardalis* from Sanga Mongo, Lower Mayombe (P2.083) and **Q.** from South of Dinge (P9.058). **R.** *Hyperolius platyceps* (P2.067) and **S.** (P2.102) from Sanga Mongo, Lower Mayombe. **T.** *Hylambates leonardi* (P2.095) in amplexus, from Sanga Mongo, Lower Mayombe. Photographs by PVP (A–I, K–M, O–T), JLR (J) and TB (G, N).

broad dorsolateral bands towards the anterior insertion of the hindlimbs (Figure 6A), and at night a mostly green-yellow dorsum with slightly darker greenish bands. Some individuals may present a light cream vertebral stripe (Figure 6B), and rarely complete absence of dark brown coloration on the dorsum (Figure 6C). The specimens reported here are genetically identical. However, material from Cabinda Province differs by a minimum of 5% (*16S p*-distance) from any published material, including material from Mount Kupe, Cameroon (6.5% *16S p*-distance; GenBank: KX671711), ~100 km north of the type locality

(Limbe, Cameroon). Therefore, these results suggest that *A. dorsalis* represents a species complex that needs further investigation. Due to the large genetic distance between our samples and with other published material and the sub structuring exhibited by this group, we regard the material from Cabinda Province as *Afrixalus* aff. *dorsalis* until more information becomes available.

Biology and distribution. The *Afrixalus dorsalis* complex is widely distributed in West Africa and the lowland forests of Central Africa, from Guinea Bissau to northern Angola (Channing and Rödel 2019). In Cabinda Province, the species was found on vegetation near water on the edge of gallery forest, often in disturbed habitat in the Littoral Peneplain and Lower Mayombe, but was not recorded from the Coastal Drier Belt and Upper Mayombe. This suggests some ecological segregation between *A.* aff. *dorsalis* and the other two *Afrixalus* species recorded in Cabinda Province (*A. osorioi* and *A. paradorsalis*).

Afrixalus osorioi Ferreira, 1906

Figure 6D

Material. ANGOLA – **Cabinda Province** • Mayombe NP, Miconge; –4.4860, 12.8780; 377 m a.s.l.; FKH 1253; GenBank: PQ455628.

Identification. A medium-sized reed frog (SVL = 31–35 mm), with shorter body than the other two congeners occurring in Cabinda Province (see *Afrixalus* aff. *dorsalis* and *A. paradorsalis* species accounts). Dorsum with light golden-brown color with a dark brown central blotch (Channing and Rödel 2019). Originally described from Angola, the single specimen of *A. osorioi* recorded from Cabinda Province is almost identical (0.2% *16S p*-distance) to other material from neighbouring Mayongongo, Republic of the Congo (GenBank: KY079930). Additionally, it differs ≥3% from material from northern DRC (GenBank: KY079929), Kenya (GenBank: MK509538) and Uganda (GenBank: MH378405), which suggests cryptic diversification. Furthermore, Baptista (2024) reported structuring between populations north and south of the Congo River that needs further investigation.

Biology and distribution. *Afrixalus osorioi* is widely distributed from northwestern Angola northwards to Ogooué River in Gabon and eastwards through the northern rim of the Congo River, to southern Uganda (Channing and Rödel 2019). In Cabinda Province we only collected one specimen, a male found in the rainy season, calling from vegetation near a slow-flowing forest stream in Upper Mayombe.

Afrixalus paradorsalis Perret, 1960 complex

Figures 6E–F

Material. ANGOLA – **Cabinda Province** • Mayombe NP, Mbongo Zimune; –4.7442, 12.6914; 306 m a.s.l.; FKH 1244; GenBank: PQ455631. • Mayombe NP, Sanga Wanda; –4.6270, 12.4527; 215 m a.s.l.; P3.520; GenBank: PQ455629. • Mayombe NP, Entrance Sanga Wanda; –4.6304, 12.4714; 219 m a.s.l.; P3.530; GenBank: PQ455630. • Mayombe NP, Vaku; –4.6323, 12.8937; 319 m a.s.l.; FKH 0945–46; GenBank: PQ455632–33.

Identification. *Afrixalus paradorsalis* represents a species complex of medium-sized (SVL = 28–30 mm) reed frogs (Charles et al. 2018). However, we found low genetic distances within our material (0.6–1.6% *16S p*-distance; GenBank: MK509656, MK509588) compared to material from Tsinguidi, Republic of the Congo and Monts de Cristal National Park, Gabon, respectively, and ascribed by Portik et al. (2019) to *Afrixalus*

paradorsalis paradorsalis. Therefore, we ascribe our material to be conspecific with this taxon until more information becomes available.

Biology and distribution. The *Afrixalus paradorsalis* complex is widely distributed in the lowland forests of the Gulf of Guinea (Charles et al. 2018). This material constitutes the first records of the species for Cabinda Province and Angola (Baptista 2024) and the southernmost records for this species complex. This species has a unique call, unlike most other *Afrixalus*, consisting of short sequences of clicks rather than a long series. Individuals from Cabinda Province were found calling from low vegetation near small temporary pools, but we often found them perched far from permanent water.

***Hyperolius adspersus* Peters, 1877**

Figure 6G

Material. ANGOLA – **Cabinda Province** • Tando Zinze; –5.3241, 12.5073; 29 m a.s.l.; FKH 0583–84, FKH 0693; GenBank: PQ455732–34.

Identification. *Hyperolius adspersus* is part of a larger *H. nasutus* species complex of small (SVL = 19–23 mm) green reed frogs with highly conserved morphology and basal to many *Hyperolius* species (Channing et al. 2013). In Angola, the group consisting of 'little green frogs' remains unresolved, comprising four highly divergent clades, two of which can be confidently ascribed to *H. nasutus* and *H. benguellensis* as they include topotypic material (Baptista 2024). Quite a lot of structure is present within Angolan *H. nasutus*, but with genetic distance between different lineages below 2% (*16S* p-distance) (Baptista 2024). *Hyperolius adspersus* was originally described from Chinchoxo, Cabinda Province (Peters, 1877). The material reported here clusters with material of *H. adspersus* from Plain of Vera (15 km SE Gamba), Gabon (GenBank: JQ863695), from which it differs by 1.2% (*16S p*-distance). However, it also differs from the topotypic material of *H. nasutus* from Calandula (GenBank: JQ863641) by 1.9%, thus raising doubts about the taxonomic status of *H. adspersus*.

Biology and distribution. *Hyperolius adspersus* is known to occur in the western lowlands of Central Africa, north of the Congo River (Channing et al. 2013). The only specimen collected in this study was found on vegetation near water in highly impacted farmland habitat.

***Hyperolius ocellatus purpurescens* Günther, 1858**

Figures 5B and 6H–I

Material. ANGOLA – **Cabinda Province** • between Dinge and Chindende; –5.1208, 12.3667; 15 m a.s.l.; FKH 0166; GenBank: PQ455735. • Caio Cacongo; –5.0618, 12.2588; 43 m a.s.l.; P2.108; GenBank: PQ455736. • Mayombe NP, Sanga Mongo; -4.6661, 12.4407; 146 m a.s.l.; FKH 0953, FKH 0957–58, FKH 0971–73; GenBank: PQ455737–42. • Mayombe NP, Mbundu; –4.6875, 12.4981; 127 m a.s.l.; FKH 1234, FKH 1266 (Tadpoles), FKH 1268–69, P3.225, P4.081 (Tadpoles); GenBank: PQ455743–48. • Mayombe NP, Sanga Wanda; –4.6253, 12.4583; 221 m a.s.l.; P3.192; GenBank: PQ455749. • Mayombe NP, Entrance Sanga Wanda; –4.6304, 12.4714; 219 m a.s.l.; P3.534–5; GenBank: PQ455750–51. • Mayombe NP, Chimbete; -4.6631, 12.5447; 182 m a.s.l.; FKH 1240, FKH 1242; GenBank: PQ455752–53. • Mayombe NP, Quissoki; –4.6028, 12.8736; 336 m a.s.l.; P3.153; GenBank: PQ455754. • Mayombe NP, Vaku; –4.6323, 12.8937; 319 m a.s.l.; FKH 0947; GenBank: PQ455755.

Identification. *Hyperolius ocellatus* is a medium-sized reed frog (SVL = 27–34 mm) with pronounced sexual dimorphism in size and colour pattern, displaying several documented female morphotypes, and with two subspecies currently recognised (Bell et al. 2017). Males are usually green with a white triangular mask between the top of the eyes and the snout, and two white dorsolateral bands from the eyes to the anterior insertion of the hind limb (Figure 6I). Our female specimens correspond to the morphotype in which the females have a bright yellow ventrum, and the dorsal and limb colouration is greyish to white with characteristic black "ocelli" (Figure 6H). The species was described from Bioko Island, Equatorial Guinea, and Angola (Laurent, 1943). However, Perret (1975) restricted the type locality to Bioko Island, Equatorial Guinea, to bring taxonomic stability to the species. Material from Cabinda Province differs from topotypic material of *H. ocellatus* (GenBank: MK509614) by 3.2% (*16S p*-distance). It clusters with a clade ascribed to *Hyperolius ocellatus purpurescens* from Ivindo, Gabon and Cuvette, Republic of the Congo (Bell et al. 2017), from which it differs by ∼2.5% and ∼1.5% (*16S p*-distance), respectively (GenBank: MF376543, MF376630). Consequently, we regard the material from Cabinda Province to be conspecific with *H. o. purpurescens*.

Biology and distribution. This species complex is widely distributed in the Gulf of Guinea and the Congo Basin, including Bioko Island. In Cabinda Province, the species appears to be relatively common and widely distributed in forested habitats, and only absent from the Coastal Drier Belt. It was typically found calling from vegetation near water in primary and secondary forest, and often in sympatry with other *Hyperolius* species reported in this work.

Hyperolius olivaceus **Peters, 1876**

Figures 6J–M

Material. ANGOLA – **Cabinda Province** • Caio Cacongo; –5.0618, 12.2588; 43 m a.s.l.; P2.109; GenBank: PQ455758. • Lagoa Massabi; –5.0603, 12.0488; 10 m a.s.l.; P2.121; GenBank: PQ455759. • Fazenda Mandarim; –5.0553, 12.0610; 14 m a.s.l.; P4.079–80; GenBank: PQ455756–57. • Tando Zinze; –5.3241, 12.5073; 29 m a.s.l.; P1.139, FKH 0585, FKH 0694; GenBank: PQ455760–62. • Mayombe NP, Sanga Mongo; –4.6661, 12.4407; 146 m a.s.l.; FKH 0952, FKH 0964–65, P2.087–88, P2.092–93; GenBank: PQ455763–69. • Mayombe NP, Mbundu; –4.6875, 12.4981; 127 m a.s.l.; FKH 1235, P4.097; GenBank: PQ455770, PQ455774. • Mayombe NP, Chilito Mbundu; –4.7280, 12.50681; 85 m a.s.l.; P3.541; GenBank: PQ455771. • Mayombe NP, Sanga Wanda; –4.6253, 12.4583; 221 m a.s.l.; FKH 1263; GenBank: PQ455772. • Mayombe NP, Bata Lunhuca; –4.5981, 12.4597; 215 m a.s.l.; P4.094; GenBank: PQ455773. • Mayombe NP, Miconge; –4.4860, 12.8780; 377 m a.s.l.; FKH 1055, FKH 1059–60, P3.173; GenBank: PQ455775–78. • Mayombe NP, Vaku; –4.6323, 12.8937; 319 m a.s.l.; FKH 0925–26, FKH 0944; GenBank: PQ455779–81. • Mayombe NP, Lombe River, Vaku; –4.6403, 12.935; 269 m a.s.l.; P3.161; GenBank: PQ455782.

Identification. A medium-sized reed frog (SVL = 28–33 mm) which can display polymorphic colour patterns. Most specimens from Cabinda Province are rather large, do not display sexual dimorphism, and are typically bright green-yellow at night (Figure 6J), turning darker green during the day, with bright red inner thighs (Figure 6K). Some male specimens may be orangey to dark brown (Figure 6L), and rarely some morphs are mottled displaying a dorsal hourglass pattern resembling that of

H. platyceps (Figure 6M). Material recovered from the study area is genetically identical (*16S p*-distance) to material from Lekoumou and Kouilou, Republic of the Congo (GenBank: KY080172, KY080174), while only differing by 1.5% (*16S p*-distance) from material from Sahoue, Gabon (Genbank: KY080177), ~150 km from the type locality.

Biology and distribution. The species is distributed from Equatorial Guinea to northern Angola (Channing and Rödel 2019; Ernst et al. 2020). In Cabinda Province, *H. olivaceus* is the most abundant species of *Hyperolius* and was recorded in almost all sites surveyed, and across all four ecological zones considered. The species was found in many different habitats, from mangroves (sea level) to highly disturbed savannah and farmland, to moist rainforest at higher elevations (above 300 m a.s.l.). It was also recorded in sympatry with all the other *Hyperolius* reported in this work.

***Hyperolius parallelus* Günther, 1858**

Figure 6N

Material. ANGOLA – **Cabinda Province** • between Dinge and Chindende; –5.1208, 12.3667; 15 m a.s.l.; FKH 0696; GenBank: PQ455783.

Identification. Part of the *H. viridiflavus* complex, that in Angola includes material previously assigned to *H. angolensis*, now ascribed to *H. parallelus* (Channing 2022). While juveniles and some males display a drab colour pattern (Phase J), two very different morphotypes are reported in adult females and some males (Phase F), namely a colourful red-marbled dorsum on the Angolan plateau, or with two broad dark dorsal stripes in populations on the coastal regions and up to the western escarpment forests. The material reported here differs by a minimum of 1.8% (*16S p*-distance) from other material in Angola (Channing 2022). The single specimen sampled in this work displays a "lined form" (Figure 6N), in agreement with specimens reported from the coastal region of Angola (Channing 2022).

Biology and distribution. Widely distributed in the Congo Basin and the savannahs south of the Congo River, including DRC, Zambia, Angola, and western Tanzania (Channing 2022). In Angola, it is widely distributed across the entire territory (Marques et al. 2018; Baptista 2024). In Cabinda Province, the species has only been recorded in the Littoral Peneplain (this work), in addition to some historical records on the Coastal Drier Belt at Landana (Marques et al. 2018). The specimen reported here was found on vegetation surrounding a pond in a highly disturbed area.

***Hyperolius pardalis* Laurent, 1948**

Figures 6O–Q

Material. ANGOLA – **Cabinda Province** • between Dinge and Chindende; –5.1208, 12.3667; 15 m a.s.l.; FKH 0161–62, FKH 0164, P9.063, FKH 0168; GenBank: PQ455784–88. • Mayombe NP, Chimbete; –4.6631, 12.5447; 182 m a.s.l.; FKH 1241; GenBank: PQ455789. • Mayombe NP, Sanga Mongo; –4.6661, 12.4407; 146 m a.s.l.; FKH 0962–63; GenBank: PQ455790–91. • Mayombe NP, Bata Lunhuca; –4.5981, 12.4597; 215 m a.s.l.; P4.093; GenBank: PQ455792.

Identification. *Hyperolius pardalis* is a medium-sized reed frog (SVL = 26–33 mm) within the *H. steindachneri* complex (*sensu* Baptista 2024), and is highly polymorphic. We recorded two different morphotypes in both males and females. Based on the strikingly different female patterns we can tentatively recognise two subpopulations, a western subpopulation found only in gallery forest in the Littoral Peneplain, and an eastern subpopulation found in several rainforest sites across Lower Mayombe. Males are

characterised by a dark canthal line, white transversal line defining the base of the gular sac, reddish toe and finger discs and usually orange-brown dorsum, sometimes with a yellowish tinge, covered with darker spots (Figure 6O). In the eastern subpopulation females had the same black ventrum with white spots, but the dorsal parts displayed a golden-black marbled pattern (Figure 6P). In the western subpopulation, one collected male was yellowish-green with white dorsolateral stripes, while all females were black with bright yellowish to orange spots on the dorsum, and white spots on the ventrum (Fig. 6Q). All material collected in Cabinda Province showed little genetic divergence (<0.8% *16S p*-distance) despite striking colour differences. In addition, specimens reported here were assigned to *H. pardalis* because they only differ by 1.2% (*16S p*-distance) from material collected from Pool, Republic of the Congo (GenBank: KY080201) and by 1.5% (*16S p*-distance) from material collected from Mambele, Cameroon (GenBank: MK509657), ~340 km east of the type locality (Bitye, Cameroon).

Biology and distribution. Widely distributed in West-Central Africa, from southern Cameroon and the Central African Republic to northern Angola (Channing and Rödel 2019). All specimens collected in this work were found in thick vegetation near deep water pools in mature forest habitat. The geographical segregation between the two morphotypes, albeit apparently not supported genetically, suggests some phenotypic plasticity and/or ecological segregation that needs further investigation. The species was not recorded in Upper Mayombe.

***Hyperolius platyceps* (Boulenger, 1900)**

Figures 6R–S

Material. ANGOLA – **Cabinda Province** • Fazenda Mandarim; –5.0553, 12.0610; 14 m a.s.l.; P4.077; GenBank: PQ455793. • Caio Cacongo; –5.0618, 12.2588; 43 m a.s.l.; FKH 0977; GenBank: PQ455796. • Tando Zinze; –5.3241, 12.5073; 29 m a.s.l.; FKH 0582; GenBank: PQ455797. • Mayombe NP, Sanga Mongo; –4.6661, 12.4407; 146 m a.s.l.; FKH 0949, FKH 0956, FKH 0974; GenBank: PQ455798–00. • Mayombe NP, Sanga Wanda; –4.6270, 12.4527; 210 m a.s.l.; P3.519; GenBank: PQ455801. • Mayombe NP, Bata Lunhuca; –4.5981, 12.4597; 215 m a.s.l.; P4.095–96; GenBank: PQ455794–95. • Mayombe NP, Miconge; –4860, 12.8780; 377 m a.s.l.; P3.174; GenBank: PQ455802.

Identification. A medium-sized (SVL = 33–40 mm) reed frog with two very different morphotypes. They either have dark dorsal blotches against a light background forming an hourglass pattern with a transverse band on the lower back (Figure 6R), or a dark green to brown dorsum with two broad dorsolateral white bands from snout to anterior insertion of the hind limbs, and yellow underparts (Figure 6S). Specimens from Cabinda Province differ from material collected from Talangai, Republic of the Congo (GenBank: MK509613), Ndombam, Cameroon (GenBank: MK509701) and Iguéla, Gabon (GenBank: MK509680) by >3% (*16S p*-distance), and from unpublished material from the remainder of Angola by a minimum of 2.8% (*16S p*-distance) (Baptista 2024). The large genetic divergence may suggest some cryptic diversification. However, genetic material from the type locality is not available, therefore no taxonomic action can be taken at this point.

Biology and distribution. Widely distributed in West-Central Africa, from southern Cameroon to northern Angola (Channing and Rödel 2019). The species is reportedly associated with degraded forest and swampy forest areas (Channing and Rödel 2019), and in Cabinda Province it has been found in all four ecological zones considered, from

sea level to around 400 m a.s.l., including primary moist forest and lowland degraded forest. Frequently found in syntopy with *H. olivaceus*.

***Hylambates leonardi* Boulenger, 1906**

Figure 6T

Material. ANGOLA – **Cabinda Province** • Mayombe NP, Sanga Mongo; –4.6661, 12.4407; 146 m a.s.l.; FKH 0967; GenBank: PQ455728. • Mayombe NP, Sanga Wanda; –4.6253, 12.4583; 221 m a.s.l.; FKH 1230; GenBank: PQ455729. • Sanga Wanda entrance; –4.6304, 12.4714; 203 m a.s.l.; P3.528; GenBank: PQ455730.

Identification. A large hyperoliid (SVL = 54 mm) that can be distinguished from other members in the family by its characteristic black and yellow-orange stripes on the hind limbs and brownish dorsum. Specimens from the study area are identical (*16S p*-distance) to material from Gamba, Gabon (GenBank: KY080267), ~300 km from N'Djolè, where a lectotype was restricted (Frétey et al. 2014).

Biology and distribution. A nocturnal tree frog that is known to occur in Equatorial Guinea, Gabon, Republic of the Congo and DRC (Channing and Rödel 2019). This material represents the first records of this genus for Angola and Cabinda Province (Baptista 2024). On one occasion, specimens in this study were observed jumping to the ground from 4 m high in the forest during a rainstorm, and breeding in a deep rain pool at the edge of the primary rainforest, in Lower Mayombe.

Phrynobatrachidae

***Phrynobatrachus auritus* Boulenger, 1906**

Figures 7A–D

Material. ANGOLA – **Cabinda Province** • between Dinge and Chindende; –5.1208, 12.3667; 15 m a.s.l.; EI 800, FKH 0158; GenBank: PQ455877–78. • Cacata; –5.3150, 12.4844; 39 m a.s.l.; P1.297; GenBank: PQ455880. • Caio Cacongo; –5.0618, 12.2588; 43 m a.s.l.; FKH 0976; GenBank: PQ455879. • Mayombe NP, Chimbete; –4.6631, 12.5447; 182 m a.s.l.; FKH 1239; GenBank: PQ455881. • Mayombe NP, Sanga Wanda; –4.6253, 12.4583; 221 m a.s.l.; FKH 1264, P3.117–18, P3.190–91; GenBank: PQ455882–86. • Mayombe NP, Mbongo Zimune; –4.7442, 12.6914; 306 m a.s.l.; P3.148; GenBank: PQ455887. • Mayombe NP, Quissoki; –4.6028, 12.8736; 336 m a.s.l.; P3.155, P3.157; GenBank: PQ455888–89. • Mayombe NP, Miconge; –4.4860, 12.8780; 377 m a.s.l.; P3.184; GenBank: PQ455890. • Mayombe NP, Vaku; –4.6323, 12.8937; 319 m a.s.l.; FKH 0919–20, FKH 0940–43; GenBank: PQ455891–96. • Mayombe NP, Lombe River, Vaku; –4.6403, 12.935; 269 m a.s.l.; P3.167; GenBank: PQ455897.

Identification. A medium sized (SVL = 33–40 mm) terrestrial frog with a characteristic facial mask pattern. Specimens reported here were genetically identified and differ between 0.2–0.6% (*16S p*-distance) from material collected from Nyanga, Gabon (GenBank: KY080313, KY080311), thus we consider our material to be conspecific with *P. auritus* sensu stricto. The material recovered in this study represents the first confirmed country records of this species (Baptista 2024), although historical material ascribed to the west African species *P. plicatus* (Günther, 1858), from Chinchoxo, Cabinda Province (Peters 1877) was probably a misidentification of *P. auritus* due to its similar morphology (Marques et al. 2018).

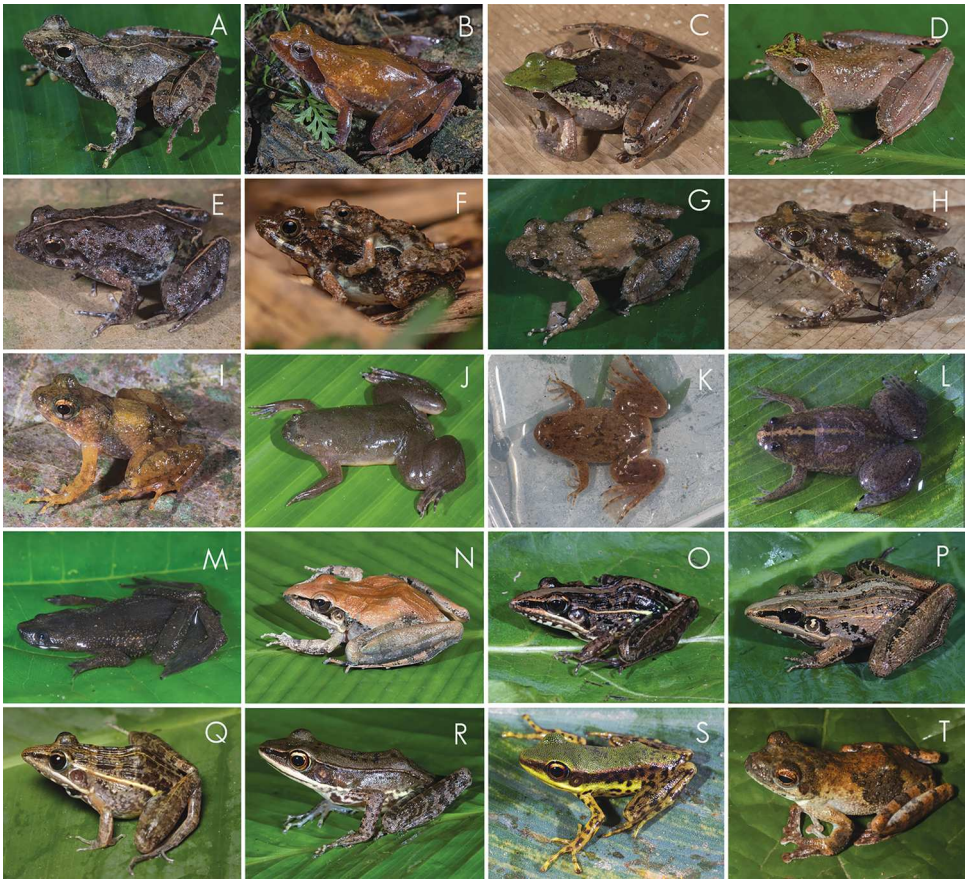

Figure 7. Species of the families Phrynobatrachidae, Pipidae, Ptychadenidae, Ranidae and Rhacophoridae recorded from from Mayombe National Park and Cabinda Province, Angola. Codes in brackets represent field numbers. **A.** *Phrynobatrachus auritus* (P2.057) and **B.** (P2.033) from Vaku, Upper Mayombe, **C.** (P3.141) from Chimbete and **D.** (P3.191) from Sanga Wanda, Lower Mayombe. **E.** *P.* aff. *parvulus* (P2.115) from Caio Cacungo. **F.** Amplectant pair of *P.* aff. *parvulus* from Sanga Wanda, G. (P3.135) from Chimbete, and **H.** (P3.124) Mbundu, Lower Mayombe. **I.** *Phrynobatrachus* sp. (P2.196) from Miconge, Upper Mayombe. **J.** *Xenopus (Xenopus) allofraseri* (P3.121) and **K.** *Xenopus (Xenopus) andrei* (P3.533) from Sanga Wanda, Lower Mayombe. **L.** *Xenopus (Silurana) mellotropicalis* (P3.176), from Quissoki, Upper Mayombe. **M.** *Hymenochirus feae* (P3.544) from Mbundo, Lower Mayombe. **N.** *Ptychadena anchietae* (P3.107) from Sanga Wanda, Lower Mayombe. **O.** *Ptychadena mascareniensis* OUT 6 (P3.168), Lombe River, Vaku, Upper Mayombe. **P.** *Ptychadena perreti* (P2.214) from Miconge, Upper Mayombe **Q.** *Ptychadena taenioscelis* (P1.141) from Tando Zinze. **R.** *Hylarana (Amnirana) albolabris* (P3.154) from Quissoki and **S.** *Hylarana (Amnirana)* aff. *lepus* (P2.187) from Miconge, Upper Mayombe. **T.** *Chiromantis rufescens* (P9.072) from South of Dinge. Photographs by PVP (A–E, G–T), JLR (F).

Biology and distribution. A widely distributed species in lowland and submontane forests across the Congo Basin and Gulf of Guinea. *Phrynobatrachus auritus* is widely distributed across the entire study area in forest habitats from the Littoral Peneplain to Upper Mayombe. The species was often found moving among the leaf litter in degraded areas, forest edges or primary moist forest and crossing

dirt roads during the day, but at night they can be found perched on leaves up to 1 m above the ground. It was one of the most common frog species in most forest sites.

***Phrynobatrachus* aff. *parvulus* (Boulenger, 1905)**

Figures 7E–H

Material. ANGOLA – **Cabina Province** • Caio Cacongo; –5.0618, 12.2588; 43 m a.s.l.; FKH 0979; GenBank: PQ455898. • Tando Zinze; –5.3068, 12.4985; 32 m a.s.l.; FKH 0587–90; GenBank: PQ455899–02. • Cacata; –5.3144, 12.4878; 38 m a.s.l.; FKH 0698–99; GenBank: PQ455903–04. • Mayombe NP, Chimbete; –4.6631, 12.5447; 182 m a.s.l.; P3.135; GenBank: PQ455905. • Mayombe NP, Sanga Mongo; –4.6661, 12.4407; 146 m a.s.l.; P2.065; GenBank: PQ455906. • Mayombe NP, Mbundu; –4.6875, 12.4981; 127 m a.s.l.; FKH 1233, P3.219; GenBank: PQ455907–08. • Mayombe NP, Sanga Wanda; –4.6253, 12.4583; 221 m a.s.l.; FKH 1257; GenBank: PQ455909.

Identification. *Phrynobatrachus parvulus* is a species of small terrestrial frog within the *P. mababiensis* complex, which is not taxonomically resolved (Zimkus and Schick 2010). The type locality of *P. mababiensis* is "Tsotsoroga Pan, Mababe Flats", in Botswana, and the type locality of *P. parvulus* is "Bange Ngola" = Dande Angola, Malanje Province, Angola. Our material does not seem to be conspecific with anything published to date, being closest to material from Malanje Province, Angola (~3.5% *16S p*-distance; GenBank: MK036476–78) and Zambia (~4.2% *16S p*-distance; GenBank: MK464392–93). Thus, we ascribed this material to *Phrynobatrachus* aff. *parvulus* until more information becomes available.

Biology and distribution. *Phrynobatrachus* aff. *parvulus* appears to be widely distributed in the Littoral Peneplain and Lower Mayombe, being absent from the Coastal Drier Belt and Upper Mayombe. The species was found among leaf litter at night or moving during the day, often hiding on the forest floor under logs or fallen leaves, sometimes close to streams in mature forest, but also in secondary and degraded forest. Several specimens were found in amplexus during the rainy season at Chimbete, Lower Mayombe.

***Phrynobatrachus* sp.**

Figure 7I

Material. ANGOLA – **Cabinda Province** • between Dinge and Chindende; –5.1208, 12.3667; 95 m a.s.l.; FKH-0157; GenBank: PQ455914. • Chilito, Mbundo; –4.7279, 12.5068; 95 m a.s.l.; P3.550 (tadpoles); GenBank: PQ455915. • Sanga Wanda entrance; –4.6304, 12.4714; 203 m a.s.l.; P3.526; GenBank: PQ455913. • Mayombe NP, Miconge; –4.4860, 12.8780; 377 m a.s.l.; FKH 1038–39, FKH 1047; GenBank: PQ455910–12.

Identification. We collected material of small-sized puddle frogs, representing two different lineages that differ among themselves by a minimum of 3.5% *16S* (*p*-distance), that were tentatively assigned to *P. mayokoensis*, based on having the posterior part of the back and hind limbs dark, with a lighter cross band in the midbody (Figure 7I). Nevertheless, the material reported here lacks the conspicuous red spot on the hindlimbs characteristic of *P. mayokoensis*, and differs between 4.0–4.5% from the type material of that species (GenBank: KR827545). In addition, the specimens reported here have a black gular region not reported in other similar taxa. Given the lack of morphological and molecular evidence, we cannot ascribe the material reported here to any available names, thus we

regard this material as *Phrynobatrachus* sp., which may represent two genetically well-distinguished candidate species. No taxonomic action can be taken until more material becomes available followed by a deep integrative taxonomic study of the group.

Biology and distribution. The material reported here represents two mitochondrial lineages. One of the lineages (*Phrynobatrachus* sp. 2) consisted of one specimen collected on the ground at the edge of gallery forest and coastal woodland in the Littoral Peneplain (P9.053), and tadpoles collected from a temporary pool under bamboo in degraded forest near farmland in Lower Mayombe (P3.550). The other lineage (*Phrynobatrachus* sp. 1) includes one specimen found crossing a dirt road under mature rainforest in Lower Mayombe (P3.526) and a series found in moss or among leaf litter near a waterfall in primary rainforest in Upper Mayombe (FKH 1038–39, FKH 1047).

Pipidae

***Xenopus (Xenopus) allofraseri* Evans, Carter, Greenbaum, Gvoždík, Kelley, McLaughlin, Pauwels, Portik, Stanley, Tinsley, Tobias and Blackburn, 2015**

Figure 7J

Material. ANGOLA – **Cabinda Province** • Mayombe NP, Sanga Wanda; –4.6253, 12.4583; 221 m a.s.l.; P3.121, FKH 1231; GenBank: PQ455958–59.

Identification. A medium-sized (SVL = 38–48 mm) flattened frog with four claws on the feet and smooth skin on the head and dorsum. As with several other members of the group, this species can only be distinguished based on molecular data, calls and subtle morphological features (Evans et al. 2015). Material from Cabinda Province differs by 0.6% (*16S p*-distance) from the type material from Bioko, Equatorial Guinea (GenBank: KT728120–28) and is identical to material from Bas-Congo Province, DRC (GenBank: KT728112) ascribed to this species.

Biology and distribution. An aquatic species widely distributed in forested areas in the Gulf of Guinea from Cameroon to Cabinda Province (Baptista 2024). These records represent the first records of the species in Angola (Baptista 2024), and the southernmost for the species. The specimens reported here were collected at night in a small pond on a dirt road after a rainstorm, in primary rainforest in Lower Mayombe. The species was found in sympatry with *X. andrei*.

***Xenopus (Xenopus) andrei* (Loumont, 1983)**

Figure 7K

Material. ANGOLA – **Cabinda Province** • Mayombe NP, Sanga Wanda entrance; –4.6304, 12.4714; 203 m a.s.l.; P3.532–33; GenBank: PQ455960–61.

Identification. A medium-sized (SVL = 37–53 mm) flattened frog, with four claws on the feet and smooth skin on the head and dorsum. Specimens are genetically identical (*16S p*-distance) to material from southern Londgi, Cameroon (GenBank: NC_044878).

Biology and distribution. Widely distributed from southern Cameroon to northern Angola and western DRC (Evans et al. 2015). The specimens reported here were collected at night in a small pond in a dirt road after a rainstorm. The species was found in sympatry with *X. allofraseri*.

***Xenopus (Silurana) mellotropicalis* Evans, Carter, Greenbaum, Gvoždík, Kelley, McLaughlin, Pauwels, Portik, Stanley, Tinsley, Tobias and Blackburn, 2015**

Figure 7L

Material. ANGOLA – **Cabinda Province** • Mayombe NP, Quissoki; –4.6028, 12.8736; 336 m a.s.l.; P3.176; GenBank: PQ455960.

Identification. A medium-sized (SVL = 51–58 mm) flattened frog with four claws on the feet and smooth skin on the head and dorsum, grey belly with pale yellow markings (Channing and Rödel 2019). The specimens reported here differ by 1.3% (*16S p*-distance) from the type series from Estuaire, Gabon (GenBank: KT728050) and by 0.8% (*16S p*-distance) from unpublished sequences from Loufika, Republic of the Congo (Greg Jongsma unpublished data). The specimens from Cabinda Province exhibit an extension of the interocular cream-yellow line reported by Evans et al. (2015), that extends backwards to the insertion of the hind limbs.

Biology and distribution. *Xenopus mellotropicalis* is distributed in primary moist forest from Cameroon to southeastern DRC and Cabinda Province (Baptista 2024). The specimen reported here represents the first record of the species for Angola (Baptista 2024). The specimen was found in Upper Mayombe, in a pond next to a large river in syntopy with *Hoplobatrachus occipitalis*.

***Hymenochirus feae* (Boulenger, 1906)**

Figure 7M

Material. ANGOLA – **Cabinda Province** • Mayombe NP, Chilito, Mbundo; –4.7196, 12.5110; 336 m a.s.l.; P3.544; GenBank: PQ455731.

Identification. A medium-sized (SVL = 42–46 mm) flat aquatic frog with characteristic fingers and toes characteristically fully webbed to the tips (Boulenger 1906). Large heads, dark brown to black dorsal coloration, different wart sizes along the body, and two distinctive black claws on the feet. The specimen reported here represents the first genetic sample of the species, which differs by 3.4–3.6% from *H. boettgeri* from Mbemba and Simombondo, Republic of the Congo (GenBank: OR360735 and KY080144, respectively).

Biology and distribution. Previously only known from Gabon. However, Nagy et al. (2013) reported *Hymenochirus* sp. aff. *feae* from Luki, Bas-Congo, DRC, which may represent the same species. This record represents a new genus for Angola (Baptista 2024). The specimen reported here was found in a small pond under permanent shade in a deep valley, surrounded by degraded and secondary forest in Lower Mayombe.

Ptychadenidae

***Ptychadena anchietae* (Bocage, 1868)**

Figures 5D & 7N

Material. ANGOLA – **Cabinda Province** • Fazenda Mandarim; –5.0553, 12.0610; 14 m a.s.l.; P4.070; GenBank: PQ455921. • Mayombe NP, Sanga Mongo; –4.6661, 12.4407; 146 m a.s.l.; P2.090; GenBank: PQ455916. • Mayombe NP, Sanga Wanda; –4.6253, 12.4583; 221 m a.s.l.; P3.107–08, P3.207–08; GenBank: PQ455917–20. • Mayombe NP, Sanga Wanda entrance; –4.6304, 12.4714; 203 m a.s.l.; P3.524 (Tadpoles), P3.536 (Tadpoles); GenBank: PQ455924–25. • Mayombe NP, Mbundu; –4.6875, 12.4981; 127 m a.s.l.; P4.102; GenBank: PQ455923. • Mayombe NP, Bata Lunhuca; –4.5981, 12.4597; 215 m a.s.l.; P4.092; GenBank: PQ455922. • Mayombe NP, Vaku; –4.6323, 12.8937; 319 m a.s.l.; FKH 0934; GenBank: PQ455926.

Identification. A species complex of medium-sized grass frogs (SVL = 51−62 mm) with flattened dorsal skin folds that are usually indistinct (Channing and Rödel 2019). Dorsal colouration can vary from very light grey to deep reddish-brown, with vertebral stripe absent. The material from Cabinda Province is almost identical to unpublished topotypic material from Benguela Province, Angola. Therefore, we consider this material to be conspecific with *Ptychadena anchietae* sensu stricto, despite the high potential for cryptic diversity reported by Hübler (2016).

Biology and distribution. The *Ptychadena anchietae* complex is widely distributed in savannahs south of the Congo Basin and in East Africa (Hübler 2016). In mainland Angola, the species is often present in forest habitats, reported along the western escarpment and extending inland in northern moister habitats (Baptista 2024). In Cabinda Province, the species is probably common and present in all ecological regions, from the Coastal Drier Belt to the Upper Mayombe. Our specimens were usually found in clearings, forest edges or disturbed areas.

***Ptychadena mascareniensis* OTU 6 (Dumeril and Bibron, 1841)**

Figure 7O

Material. ANGOLA – **Cabinda Province** • Mayombe NP, Miconge; –4.4860, 12.8780; 377 m a.s.l.; FKH 1031; GenBank: PQ455936. • Mayombe NP, Lombe River, Vaku; –4.6403, 12.935; 269 m a.s.l.; FKH 1251; GenBank: PQ455937.

Identification. A species complex of medium-sized (SVL = 46–58 mm) grass frogs that includes several new candidate species (Zimkus et al. 2017). Usually with brown to grey dorsal colouration, a green vertebral line and 4–6 continuous rows of dorsolateral and lateral skin folds (Channing and Rödel 2019). In Cabinda Province we recorded two well differentiated (~3.4% *16S p*-distance) mitochondrial lineages within this species complex (see *Ptychadena* sp. account). Material from Upper Mayombe is conspecific with material from Congo Basin and Gabon ascribed to OTU6 by Zimkus et al. (2017), which is identical to material from Buba, Lake Albert, DRC (GenBank: KX836481) and Kampala, Uganda (GenBank: DQ525931).

Biology and distribution. The species complex is widely distributed in sub-Saharan savannah and rainforest, including Madagascar. Adapted to a wide panoply of biomes and ecoregions, this species complex has the largest geographic distribution of any amphibian species in Africa. The material mentioned here was collected in clearings on the edge of primary rainforest.

***Ptychadena perreti* Guibé & Lamotte, 1958**

Figure 7P

Material. ANGOLA – **Cabinda Province** • Mayombe NP, Sanga Wanda; –4.6253, 12.4583; 221 m a.s.l.; FKH 1256, P3.206, P3.531; GenBank: PQ455928–30. • Mayombe NP, Bata Lunhuca; –4.5981, 12.4597; 215 m a.s.l.; P4.091; GenBank: PQ455927. • Mayombe NP, Miconge; –4.4860, 12.8780; 377 m a.s.l.; FKH 1050, P2.215–16, P2.229; GenBank: PQ455931−34.

Identification. A medium to large grass frog (SVL = 48–64 mm) with compact body and long legs. The specimens reported here present continuous median and post-eyelid folds, and a short but continuous dorsolateral fold, with continuous external fold, and the lack of sacral ridges (Channing and Rödel 2019). Brownish dorsum with black speckles or a green

vertebral line from snout to hind limbs (Figure 7P). Material from this work differs by 0.4% (*16S p*-distance) from material assigned to *Ptychadena bibroni* collected in Gabon (GenBank: AY517604), from material from Mount Kupe, Cameroon (GenBank: KX671789) ascribed to *Ptychadena* aff. *aequiplicata* by Portik et al. (2016), also differs by 0.4–0.6% (*16S p*-distance) from material from the Republic of the Congo (GenBank: KY080384–85) ascribed to *Ptychadena* sp. B by Deichmann et al. (2017). However, Nečas et al. (2024) demonstrated that all those GenBank sequences have been the result of a long-standing confusion within this group, and demonstrate that they all represent indeed material of *P. perreti*. Thus, we consider Angolan material as conspecific to that from Gabon, Cameroon and Republic of Congo, representing the southwestern most record of the species.

Biology and distribution. This species is a forest-obligate distributed from Cameroon to Cabinda Province (Channing and Rödel 2019). The specimens collected were found along trails in the forest and near forest streams. All the material from Cabinda Province was collected from Mayombe NP between 200—400 m a.s.l. and represents a new country record.

***Ptychadena* sp.**

Material. ANGOLA – **Cabinda Province** • Fazenda Mandarim; –5.0401, 12.0508; 14 m a.s.l.; P4.075; GenBank: PQ455935.

Identification. Within the *Ptychadena mascareniensis* species complex, we identified a second independent lineage which differs from material of *P. mascareniensis* OTU 6 collected from Cabinda Province by ~3.4% (*16S p*-distance). This material clusters with material ascribed to OTUs 4, 5 and 8 from West Africa and north-eastern DRC (Zimkus et al. 2017), but it represents a distinct lineage. Thus, we regard this material as "*Ptycadena* sp." pending further investigation.

Biology and distribution. The specimen was collected on a palm oil plantation in the Coastal Drier Belt.

***Ptychadena taenioscelis* Laurent, 1954**

Figure 7Q

Material. ANGOLA – **Cabinda Province** • Tando Zinze; –5.3241, 12.5073; 29 m a.s.l.; P1.141; GenBank: PQ455938.

Identification. A small (SVL = 35–40 mm) grass frog with a compact body and long legs. Dorsum brownish with distinctive and continuous skin folds from the posterior part of the eye to lower back. Red to yellow thin vertebral stripe surrounded by numerous black spots (Channing and Rödel 2019). The specimen reported here is identical (*16S p*-distance) to material from Nyanga, Gabon (GenBank: KY080398) and almost identical (0.2% *16S p*-distance) to material from Likouala, Republic of the Congo (GenBank: KY080399). However, the species was originally described from Tanganyika Province, DRC, from where genetic material is not available. Therefore, due to the high diversification of this group we recommend future efforts to obtain topotypic material from Lukuka, Tanganyika Province, DRC, to compare against this available material from west Central Africa. Nevertheless, a preliminary *16S* ML tree clusters in the Cabinda Province material with material from Gabon, which has been regarded as nominotypical *P. taenioscelis* (Conradie 2024).

Biology and distribution. *Ptychadena taenioscelis* is widely distributed in humid savannahs, woodlands and secondary forest in the southern rim of the Congo Basin (Channing and Rödel 2019). In Cabinda Province, the species was only found in the Littoral Peneplain near plantations and degraded secondary forest.

Ranidae

***Hylarana (Amnirana) albolabris* (Hallowell, 1856)**

Figures 5E and 7R

Material. ANGOLA – **Cabinda Province** • Fazenda Mandarim; –5.0553, 12.0610; 14 m a.s.l.; P4.074, P4.076; GenBank: PQ455636–37. • Tando Zinze; –5.3241, 12.5073; 29 m a.s.l.; P1.140; GenBank: PQ455634. • Mayombe NP, Chimbete; –4.6631, 12.5447; 182 m a.s.l.; P3.133; GenBank: PQ455635. • Mayombe NP, Mbundu; –4.6875, 12.4981; 127 m a.s.l.; P3.212 (Tadpoles), FKH 1267 (Tadpoles), P3.222, P4.082 (Tadpoles); GenBank: PQ455638–41. • Mayombe NP, Sanga Wanda; –4.6253, 12.4583; 221 m a.s.l.; P3.115, P3.188, P3.195 (Eggs); GenBank: PQ455642–44. • Mayombe NP, Quissoki; –4.6028, 12.8736; 336 m a.s.l.; P3.154; GenBank: PQ455645. • Mayombe NP, Miconge; –4.4860, 12.8780; 377 m a.s.l.; FKH 1024, FKH 1026–28, FKH 1057–58, P2.211, FKH 1254, P3.187; GenBank: PQ455646–54.

Identification. A medium to large (SVL = 57–74 mm) white-lipped frog. The species can be distinguished from other *Hylarana* species present on Cabinda Province (*H. lepus*) by its smaller size, males having large, elongated glands on the forelimbs (versus small and oval in *H. lepus*) and the presence of narrow and continuous glandular dorsolateral ridges from the posterior part of the eye to midbody (*versus* absent in *H. lepus*). Jongsma et al. (2018) reported potential cryptic diversification within this taxon, with one distinctive species in West Africa (which represents an undescribed taxon) and two well-defined lineages in the nominotypical lineage from north and south of the Congo River, respectively. Our material clusters (*16S p*-distance) with sequences from north of the Congo River (e.g., Republic of the Congo [GenBank: KY080037], Gabon [GenBank: KX289626], Cameroon [GenBank: MG552470] and Nigeria [GenBank: MG552474]), some collected within 50 km of the type locality (Jongsma et al. 2018). Therefore, we regard our material to be conspecific with *H. albolabris* sensu stricto.

Biology and distribution. The nominotypical lineage of *H. albolabris* is known to occur across the lowlands and mid-elevation forest along the northern rim of the Congo Basin, including Nigeria, Cameroon, Gabon, Equatorial Guinea, Republic of the Congo, northwestern DRC and Cabinda Province (Jongsma et al. 2018). It represents a forest-dwelling species frequently found near streams and ponds. Specimens from Cabinda Province were found at night in gallery, primary and secondary moist forests, which were often degraded and across the study area from the Coastal Drier Belt to Upper Mayombe. Individuals were typically found perched in branches near water ~1 m above the ground or water.

***Hylarana (Amnirana)* aff. *lepus* (Andersson, 1903)**

Figure 7S

Material. ANGOLA – **Cabinda Province** • Mayombe NP, Miconge; –4.4860, 12.8780; 377 m a.s.l.; FKH 1025, FKH 1029, FKH 1056; GenBank: PQ455655–57. • Mayombe

NP, Vaku; –4.6323, 12.8937; 319 m a.s.l.; FKH 0935–37; GenBank: PQ455658–00. • Mayombe NP, Lombe River, Vaku; -4.6403, 12.935; 269 m a.s.l.; P3.159; GenBank: PQ455661.

Identification. A large (SVL = 70–100 mm) white-lipped frog with small oval glands on the forelimbs in males and granular skin across the entire body. The material from Cabinda Province is identical (*16S p*-distance) to material from Lekoumou, Republic of the Congo (GenBank: KY080044, KY080047) and DRC (GenBank: MG552243), which was ascribed by Jongsma et al. (2018) to an undescribed species (*Hylarana "lepus*1"). Thus, we consider the newly collected material to be conspecific with the material of Jongsma et al. (2018), here referred to as *H*. aff. *lepus*.

Biology and distribution. *Hylarana lepus* sensu lato is distributed across the Congo Basin and Gulf of Guinea from Cameroon to Angola (Channing and Rödel 2019), with two separate lineages from either side of the Congo River (Jongsma et al. 2018). In Cabinda Province, the species was only found in primary moist forest at Upper Mayombe between 260–400 m a.s.l. perched low on branches over water in fast-flowing forest streams.

Rhacophoridae

***Chiromantis rufescens* (Günther, 1869)**

Figures 5C and 7T

Material. ANGOLA – **Cabinda Province** • Chimbaunde; –5.5582, 12.4479; 139 m a.s.l.; FKH 0933; GenBank: PQ455718. • between Dinge and Chindende; –5.1208, 12.3667; 15 m a.s.l.; FKH 0175–76; GenBank: PQ455719–20. • Mayombe NP, Sanga Wanda; –4.6253, 12.4583; 221 m a.s.l.; P3.116, FKH 1260 (Tadpoles), P3.521–22; GenBank: PQ455721–24. • Mayombe NP, Vaku; –4.6323, 12.8937; 319 m a.s.l.; P2.053; GenBank: PQ455725.

Identification. *Chiromantis rufescens* is the only representative of the genus in the area and can easily be distinguished from other tree frogs by having rough skin, long fingers and toes with terminal discs and extensive webbing between fingers and toes (Channing and Rödel 2019). *Chiromantis rufescens* has very little genetic variation across the entire distribution range, except for the western Guinean populations, which have been suggested to represent a new taxon (Leaché et al. 2019). Material from Cabinda Province is almost identical (≤ 1% *16S p*-distance) to material from Médouneu, Gabon (GenBank: MK789356), Tsinguidi, Republic of the Congo (GenBank: MK789354, KY080102) and Dzanga-Sangha NP, Central African Republic (GenBank: MK789330).

Biology and distribution. A foam-nest tree frog widely distributed in the northern rim of the Congo Basin and extending southwards to northern Angola. The species proved to be very common in the province and was found at most sites surveyed, from primary moist forest to transitional zones between forest and savannah and even highly transformed habitats. Specimens were usually found perched on branches or leaves near the ground to a few metres high, and never far from water. In Cabinda Province the species was recorded from all four ecological zones considered, from the Coastal Drier Belt to Upper Mayombe.

Figure 8. Some of the reptile species recorded from from Mayombe National Park and Cabinda Province, Angola. Codes in brackets represent field numbers. **A.** *Kinixys erosa* (P2.208) from Inhuca. **B.** *Osteolaemus tetraspis* (P2.064) from Vaku, Upper Mayombe. **C.** *Chamaeleo dilepis* (EI 817), **D.** *Agama congica* and **E.** *Gerrhosaurus nigrolineatus* from near Nganzi. **F.** *Holaspis guentheri* from Vaku, Upper Mayombe. **G.** *H. mabouia* (P2.232) from Miconge, Upper Mayombe. **G.** *Hemidactylus pfindaensis* (EI 1136) from near Nganzi, and **I.** *H. pfindaensis* (P2.234) from Miconge, Upper Mayombe. **J.** *Lygodactylus* aff. laterimaculatus (P3.199) from Sanga Wanda, Lower Mayombe. **K.** *Feylinia grandisquamis* from near Nganzi. **L.** *Panaspis breviceps* (P2.205), from Miconge, Upper Mayombe. **M.** *P. cabindae* (EI 1135) from near Nganzi. **N.** *Trachylepis albolabris* (P3.130) from Mbundu, Lower Mayombe, and **O.** from near Nganzi. **P.** *T. maculilabris* and **Q.** *T. polytropis* (P3.218) from Mbundu, Lower Mayombe. **R.** *Dipsadoboa weileri* (P3.151) from Mbundu, Lower Mayombe **S.** *Grayia ornata* (P3.145) from Chimbete, Lower Mayombe. **T.** *Hapsidophrys smaragdinus* (P1.144) from Tando Zinze. **U.** *Dendroaspis jamesoni*, from near Nganzi. **V.** *Naja melanoleuca* killed by farmers at Nganzi. **W.** *Psammophis mossambicus* (EI 809) from near Nganzi. **X.** *Python sebae* from a street market in Cabinda City. Photographs by PVP (A–B, G, I–J, L, N, Q), JLR (R–S), TC (T–U, X), LV (C–E, V–W), Alex Rebelo (H, K, M), Rogério Ferreira (F, P).

Testudines

Testudinidae

***Kinixys erosa* (Schweigger, 1812)**

Figure 8A

Material. ANGOLA – **Cabinda Province** • Inhuca; –4.8590, 12.4440; 81 m a.s.l.; P2.208; GenBank: PQ456003. • Chilito, Mbundo; –4.7279, 12.5068; 83 m a.s.l.; P3.543; GenBank: PQ456004.

Identification. A large tortoise with spiny and upturned marginal scutes (Branch 2008). Specimens collected in Cabinda Province differ by >2% (*16S p*-distance) from material collected from Equateur, DRC (GenBank: LR697076) and by 3.5% from its sister species *Kinixys homeana* (GenBank: DQ424975).

Biology and distribution. A rainforest dweller widely distributed across West and Central Africa, from Guinea and Sierra Leone to Uganda and southwards to northern Angola (Sánchez-Vialas et al. 2022). We sampled two individuals caught by local people in primary rainforest and for human consumption, afterwards confiscated by rangers and released in Mayombe NP.

Crocodylia

Crocodylidae

***Osteolaemus tetraspis* Cope, 1861**

Figure 8B

Material. ANGOLA – **Cabinda Province** • Mayombe NP, Vaku; –4.6323, 12.8937; 319 m a.s.l.; (P2.064) • Dinge; –4.6323, 12.8937; 319 m a.s.l.; EI 810; EI 812; GenBank: PQ456007–08 (street market).

Identification. A small crocodile (max. SVL = ~2 m) with black dorsum and yellowish patches on tail and jaw (Waitkuwait 1986), three transverse series of nuchal scales, and snout as long as wide at the base. Genetically, it differs by ~3.6% from material collected from Ogooue Basin, Gabon (GenBank: MN885919).

Biology and distribution. *Osteolaemus tetraspis* is a widely distributed rainforest species in West Africa, from Senegal to Cabinda Province (Waitkuwait 1986). It is associated with ponds, swampy areas or water pools, frequently far away from main rivers or open waters (Waitkuwait 1986). The photographed specimen was found in a small rain pool under shade in the primary rainforest in Upper Mayombe. Samples from this study were obtained from specimens found in street markets in the Littoral Peneplain, being sold as bushmeat.

Squamata

Chamaeleonidae

***Chamaeleo dilepis* Leach, 1819**

Figure 8C

Material. ANGOLA – **Cabinda Province** • Nganzi; –5.5025, 12.3679; 107 m a.s.l.; EI 817; GenBank: PQ455967. • Mayombe NP, Mbongo Zimune; –4.7442, 12.6914; 324 m a.s.l.; P3.146; GenBank: PQ455966.

Identification. The material reported in this work differed by 2.5% (*16S p*-distance) from material collected from Gabon (GenBank: AY927270) and by 3% from material from other

specimens from Huila, Angola (GenBank: HF570444). Nevertheless, phylogenetic analyses have suggested cryptic speciation within the *C. dilepis* complex (Main et al. 2022). Given that the type locality of *C. dilepis* is coastal Gabon, these specimens may represent true *C. dilepis*, so no further taxonomic actions are recommended for *C. dilepis* from Cabinda Province. It must be noted that Rio Cuilo in coastal Gabon is also the type locality of *C. dilepis quilensis*, but genetics analysis found this taxon to be conspecific with *C. d. dilepis*, leading to regarding *C. d. quilensis* to be regard as a synonym of *C. d. dilepis* (Main et al. 2018, 2022)

Biology and distribution. *Chamaeleo dilepis* is widely distributed in sub-Saharan Africa. In Angola, the species is also widely distributed, spanning a wide range of habitats and ecoregions (Main et al. 2022). In Cabinda Province, the species is frequently found in the Littoral Peneplain and the Coastal Drier Belt. However, one specimen was found in Lower Mayombe on a riverine area next to a village, among extensive plantations of introduced bamboo.

Agamidae

***Agama congica* (Peters, 1877)**

Figure 8D

Material. ANGOLA – **Cabinda Province** • Mayombe NP, Inhuca; –4.8590, 12.4440; 81 m a.s.l.; P2.103; GenBank: PQ455963. • between Dinge and Chindende; -5.1021 12.3804, 113 m a.s.l.; sight record. • Nganzi; –5.5292, 12.3264, 89 m a.s.l.; sight record. • Lagoa Massabi; –5.0603, 12.0488, 10 m a.s.l.; sight record.

Identification. *Agama congica* was described as a variety of *A. colonorum* (*Agama colonorum* var. *congica*) by Peters (1877) based on different coloration of juveniles as follows (translation from German): "the pattern of the young specimens (which disappears in the adults) is very different and consists of two rows of black rings on each side and faint lines and spots along the middle of the back on an olive-coloured background". However, these two morphs were synonymised by Loveridge (1936) and this action was followed by several subsequent authors. Nevertheless, Wagner et al. (2009) considered *A. congica* to be a valid taxon. A recent phylogenetic analysis (Butler 2024) that includes material from Cabinda Province and the nearby Republic of Congo recovered an independent clade ascribed to this species. However, this genetic material remains unpublished for comparison. Our samples differ by 1.2% (*16S p*-distance) from samples of *A. finchi* from Kenya (GenBank: GU128452), 4.3% (*16S p*-distance) from *A. picticauda* from Mali (GenBank: GU128441) and 4.1% (*16S p*-distance) from the neotype of *A. agama agama* from Margui-Wandala Province, northern Cameroon (GenBank: GU133323).

Biology and distribution. An arboreal agamid. The species is only known from Cabinda Province, Zaire Province in northern Angola (Marques et al. 2018) and the neighbouring areas of the Republic of the Congo. In Cabinda Province, the species has been observed on the Littoral Peneplain and Coastal Drier Belt but extending at least to Lower Mayombe, being frequently recorded in urban environments, near villages, plantations and mangroves.

Gerrhosauridae

***Gerrhosaurus nigrolineatus* Hallowell, 1857**

Figure 8E

Material. ANGOLA – **Cabinda Province** • Tando Zinze; –5.306833, 12.498538; 32 m a.s.l.; P1.143; GenBank: PQ455970. • between Dinge and Chindende; –5.1021, 12.3804, 113 m a.s.l.;

sight record. • Fazenda Mandarim; –5.0401, 12.0508; 14 m a.s.l.; P4.078, P4.078; GenBank: PQ455972. • Mayombe NP, Miconge; -4.4860, 12.8780; 377 m a.s.l.; P2.228; GenBank: PQ455971.
Identification. A large lizard (SVL = 140–175 mm) with stout body and head. Four supraciliary scales, 22–24 longitudinal dorsal scale rows (Bates et al. 2013). Dorsum light brown with scattered white lateral scales, and white and black lateral stripes from occipitals to tail, and usually light cream broken vertebral stripe. Specimens collected in Cabinda Province differ by 2% (*16S p*-distance) from material collected from Loulema, Republic of the Congo (GenBank: KF717399).
Biology and distribution. A widely distributed species in western and central Africa (Pietersen et al., 2021). An elusive and shy lizard that can be frequently found in bushveld and savannahs. In Cabinda Province, it is commonly encountered in the Littoral Peneplain area and Coastal Drier Belt, moving rapidly between grassland and bushes. However, the species was also recorded in patches of secondary forest at Upper Mayombe.

Lacertidae

***Holaspis guentheri* Gray, 1863**
Figure 8F
Material. ANGOLA – **Cabinda Province** • Mayombe NP, Vaku; –4.6323, 12.8937; 319 m a.s.l.; Photographic record.
Identification. A relatively small lizard (SVL = 45–50 mm) with flattened head and body. Head elongated with pointed snout. Dorsum black, bisected by two lateral bright bluish-coloured lines that become creamy-yellow on the head, belly and sides of the tail. This species can be distinguished from its sister taxon (*H. laevis*) by having four yellow-beige lateral stripes (versus six in *H. laevis*) and thus we refer our material to *H. guentheri*.
Biology and distribution. *Holaspis guentheri* is an arboreal rainforest dweller found actively moving during the day on tree trunks (Spawls et al. 2018). The species is widely distributed in forests of West and Central Africa, with some scattered records in Uganda, Tanzania and Angola (Marques et al. 2018; Spawls et al. 2018). In this study, we observed and photographed several individuals moving up and down the trunks of large trees, and once on a very large fallen log in a clearing in mature rainforest which was subject to logging activities in Upper Mayombe.

Gekkonidae

***Hemidactylus mabouia* (Moreau de Jonnès, 1818)**
Figure 8G
Material. ANGOLA – **Cabinda Province** • Caio Cacongo; –5.0618, 12.2588; 43 m a.s.l.; P2.105; GenBank: PQ455975. • Fazenda Mandarim; –5.0401, 12.0508; 14 m a.s.l.; P4.068; GenBank: PQ455978. • Mayombe NP, Mbundu; –4.6875, 12.4981; 127 m a.s.l.; P4.106; GenBank: PQ455979. • Mayombe NP, Miconge; –4.4860, 12.8780; 377 m a.s.l.; P2.232–33; GenBank: PQ455976–77.
Identification. A medium-sized *Hemidactylus* (SVL < 68 mm) that can be distinguished from other Angolan *Hemidactylus* based on the presence of enlarged subcaudal scales, absent in other close relatives. The specimens collected at Mayombe NP are identical (*16S p*-distance) to other individuals from Angola, which represent *H. mabouia* sensu

stricto (fide Agarwal et al. 2021). However, the specimens from Caio Cacongo differ by 1.3% (*16S p*-distance) from other relatives from Cabinda Province and other regions of Angola, which may suggest a posterior colonisation event of this invasive species.

Biology and distribution. *Hemidactylus mabouia* is a nocturnal gecko widely distributed across Africa, Madagascar and the Neotropics (Agarwal et al. 2021). Frequently associated with human infrastructure, the species can also be found in trees at night near villages or construction. All material from Cabinda Province was collected while active at night in or next to human infrastructure, such as walls, fences and planted trees, in villages and farms.

***Hemidactylus pfindaensis* Lobón-Rovira, Conradie, Buckley, Ernst, Veríssimo, Baptista and Vaz Pinto, 2021**

Figures 8H–I

Material. ANGOLA – **Cabinda Province** • Nganzi; –5.5213, 12.3233; 98 m a.s.l.; EI 1135; GenBank: PQ455980. • Caio Cacongo; –5.0618, 12.2588; 43 m a.s.l.; FKH 0980–82; GenBank: PQ455981–83. • Fazenda Mandarim; –5.0401, 12.0508; 14 m a.s.l.; P4.067, P4.107–08; GenBank: PQ455985–87. • between Dinge and Chindende; –5.1208, 12.3667; 15 m a.s.l.; FKH 0178–79; GenBank: PQ455988–89. • Lagoa Massabi; –5.0603, 12.0488; 10 m a.s.l.; FKH 0984–86, P2.120; GenBank: PQ455990–92, PQ455984. • Mayombe NP, Sanga Mongo; –4.6661, 12.4407; 146 m a.s.l.; P2.106; GenBank: PQ455993. • Mayombe NP, Mbundu; –4.6875, 12.4981; 127 m a.s.l.; P3.131; GenBank: PQ455994. • Mayombe NP, Sanga Wanda; –4.6253, 12.4583; 221 m a.s.l.; P3.105–06, P3.194, P3.510; GenBank: PQ455995–98. • Mayombe NP, Miconge; –4.4860, 12.8780; 377 m a.s.l.; FKH 1061; GenBank: PQ455999. • Mayombe NP, Quissoki; –4.6028, 12.8736; 336 m a.s.l.; P3.152; GenBank: PQ456000. • Mayombe NP, Vaku; –4.6323, 12.8937; 319 m a.s.l.; FKH 0975, FKH 0983; GenBank: PQ456001–02.

Identification. A medium-sized *Hemidactylus* (max. SVL = 49 mm) with a moderately long snout (Lobón-Rovira et al. 2021). The species usually has a characteristic black spot in the occipital region; however, some specimens from the Coastal Drier Belt do not have this black spot. The specimens reported here are segregated into four different lineages based on *16S*, which differ among themselves by <2.8%. Each lineage corresponds to the four ecological zones considered here (Upper Mayombe, Lower Mayombe, Littoral Peneplain and Coastal Drier Belt), with the lineage from Upper Mayombe being the most divergent, differing by a maximum of 2.8% from conspecific material. Material from Cabinda Province is topotypic and differs by 5.5–6% (*16S p*-distance) from material collected from Macocola, Uíge Province (FKH 004, see Lobón-Rovira et al. 2021).

Biology and distribution. A nocturnal, arboreal gecko frequently found on tree branches or large leaves. We recorded material from all four ecological zones considered in this work. However, at Fazenda Mandarim, where the species was found in syntopy with *H. mabouia*, individuals were actively hunting on the floor among leaf litter, perhaps a consequence of ecological competition with *H. mabouia*. The species is known to occur in Cabinda Province and Uíge Province, Angola (Lobón-Rovira et al. 2021). It is the most abundant gecko in Cabinda Province, having been collected or observed in most surveyed sites. It is expected to occur in the neighbouring areas of the Republic of the Congo and DRC.

***Lygodactylus lobeke* Röll, Vaz Pinto and Lobón-Rovira, 2024**

Figure 8J

Material. ANGOLA – **Cabinda Province** • Mayombe NP, Sanga Wanda; –4.6253, 12.4583; 221 m a.s.l.; FKH 1259; GenBank: PQ456005.

Identification. This individual is part of the type series of a recently described taxon within the *L. scheffleri* group, *L. lobeke*. It differs by 3.5% (*16S p*-distance) from the only other known specimen from Cameroon (GenBank: GU593484), which is referred to as *Lygodactylus* sp. B (Röll et al. 2010) and *Lygodactylus* sp. 6 in Gippner et al. (2021). A recent phylogenetic and taxonomic revision of this group have considered this material from Cabinda and Cameroon to be conspecific and described it as a new species (Röll et al., in press).

Biology and distribution. The collected specimen was found in primary rainforest in Lower Mayombe. It was found during the day among leaf litter, while the terrain was being prepared for a camp site. Presumably, it may have fallen from the tree canopy above.

Varanidae

***Varanus niloticus* (Linnaeus, 1758)**

Material examined. ANGOLA – **Cabinda Province** • Susso; –5.3273, 12.2371; 134 m a.s.l.; roadkill.

Identification. This is the largest species of monitor lizard in Africa (SVL = 600–800 mm) (Wilms et al., 2021). It has a stout body with powerful limbs, strong claws and an elongated snout. The tongue is dark, almost black. Tail long, laterally compressed, with a low dorsal crest. Limbs spotted, belly and throat paler than dorsum with black bars. Juvenile colouration is black and bright yellow.

Biology and distribution. This species is well adapted to living in deep river valleys in all sub-Saharan countries from the Nile River in Egypt throughout the network of rivers across most of Africa, reaching southwest to Angola and Namibia (Wilms et al. 2021).

Scincidae

***Feylinia grandisquamis* Müller, 1910**

Figure 8K

Material. ANGOLA – **Cabinda Province** • Nganzi; –5.5213, 12.3233; 98 m a.s.l.; Photographic record.

Identification. A small legless skink (SVL = 150–200 mm) with 18–20 longitudinal scale rows across the body and the third supralabial scale in contact with the eye (Chirio and LeBreton 2007). The species was identified based on the previously mentioned morphological traits; however, it was originally described as a subspecies of *F. currori* (Müller 1910). Therefore, the genetic validation of this species remains unclear.

Biology and distribution. A fossorial skink found in forest areas. The biology and geographic distribution of this species remain poorly known and needs further investigation.

***Panaspis breviceps* (Peters, 1873)**

Figure 8L

Material. ANGOLA – **Cabinda Province** • between Dinge and Chindende; –5.1076, 12.3326; 54 m a.s.l.; EI 758; GenBank: PQ456012. • Mayombe NP, Miconge; –4.4860,

12.8780; 377 m a.s.l.; FKH 1046, P2.205; GenBank: PQ456009–10. • Mayombe NP, Vaku; –4.6323, 12.8937; 319 m a.s.l.; FKH 0938; GenBank: PQ456011.

Identification. *Panaspis breviceps* can be distinguished from other Angolan species based on the presence of movable lower eyelids and number of midbody scales (Ceríaco et al. 2020). The specimens reported here were identified genetically, differing by <3% (*16S p*-distance) from material collected from between Bamenda and Douala, Cameroon (GenBank: KY683582) and Ivindo, Gabon (GenBank: OL457697) from where the species was described, and by ~3% from material collected from Tshopo, DRC (GenBank Ascension: OL457698). Specimens from Cabinda Province cluster with the *16S* lineage from western, central and eastern populations of the Congo Basin recognised by Lokasola et al. (2021).

Biology and distribution. The species is widely distributed in West and Central Africa from Cameroon to west DRC (in the west) and Cabinda Province (in the south), while some historical records suggest that the species' geographic range may extend much further south along the western Angolan escarpment but requiring further examination and molecular validation (Ceríaco et al. 2020). In Cabinda Province, the species was found along fast-flowing forest streams in the rainforest of Upper Mayombe, often seen moving swiftly among pebbles on the sides of streams or getting into the water to escape.

***Panaspis cabindae* (Bocage, 1866)**

Figure 8M

Material. ANGOLA – **Cabinda Province** • Nganzi; –5.5297, 12.3280; 96 m a.s.l.; EI-1135; GenBank: PQ456013.

Identification. A small-sized *Panaspis* (max. SVL = 38.4 mm) with pre-ablepharine eyes. The specimen reported here represents the first molecular sample of the species from near the type locality (Chinchoxo, =Landana). It differs by 2.4–3.9% (*16S p*-distance) from material from other parts of Angola (GenBank: MN846689–93) and by 4.3% from material from DRC (GenBank: KU236750–53).

Biology and distribution. The species is distributed across central Africa southwards to the Angolan plateau and constitutes the most widely distributed *Panaspis* in Angola (Ceríaco et al. 2020). Usually found moving among leaf litter in savannah and woodland habitats.

***Trachylepis albilabris* (Hallowell, 1857)**

Figure 8N–O

Material. ANGOLA – **Cabinda Province** • between Dinge and Chindende; –5.0922, 12.3092; 31 m a.s.l.; EI 776; GenBank: PQ456020. • Nganzi; –5.5025, 12.3679; 107 m a.s.l.; Photographic record. • Mayombe NP, Sanga Mongo; –4.6661, 12.4407; 146 m a.s.l.; P2.066; GenBank: PQ456017. • Mayombe NP, Mbundu; –4.6875, 12.4981; 127 m a.s.l.; P3.130; GenBank: PQ456018. • Mayombe NP, Miconge; –4.4860, 12.8780; 377 m a.s.l.; P3.171; GenBank: PQ456019.

Identification. A medium-sized skink (max. SVL = 75.8 mm). Dorsum olive-brown with dark flecks, a dark brown to black lateral band running from the snout to the tail, bordered by a white stripe below. Supra- and infralabials characteristically white with a yellowish to orange patch near the forelimb insertion (Figure 8O). In reproductively active males, the white colouration on the labials is replaced by a yellowish colouration (Figure 8N). Specimens from Cabinda Province are genetically identical to material from Lekoumou, Republic of the Congo (GenBank: KY683566).

Biology and distribution. An arboreal skink widely distributed in West Africa, from Guinea Bissau to Angola (Allen et al. 2019). In Cabinda Province, the species was found in all four ecological zones considered, moving actively during the day on tree trunks and branches.

***Trachylepis maculilabris* (Gray, 1845)**

Figure 8P

Material. ANGOLA – **Cabinda Province** • Caio Cacongo; −5.0618, 12.2588; 43 m a.s.l.; P2.104; GenBank: PQ456021. • Mayombe NP, Mbundu; −4.6875, 12.4981; 127 m a.s.l.; P3.220; GenBank: PQ456022.

Identification. A medium-sized skink (max. SVL = 95 mm) with robust limbs and body. Dorsum olive-grey to dark brown, with scattered white to yellowish speckles on the flanks and limbs. Venter, throat and infralabials cream to yellow, uniformly coloured (Ceríaco et al. 2024). Specimens from Cabinda Province differ by ∼1% (*16S p*-distance) from specimens from Nyanga, Gabon (GenBank: MK792018) and Mambasa, DRC (GenBank: MK496123). However, they differ by ∼3.9% from material south of the Congo River at Cuanza-Sul Province, Angola (GenBank: MK792017).

Biology and distribution. *Trachylepis maculilabris* is the arboreal skink with the widest distribution in Africa (Allen et al. 2019). In Cabinda Province, the species was recorded from the coast to Lower Mayombe, being found in clearings, patches of secondary or degraded forest, and in farmland and on buildings.

***Trachylepis polytropis* (Boulenger, 1903)**

Figure 8Q

Material. ANGOLA – **Cabinda Province** • Mayombe NP, Mbundu; −4.6875, 12.4981; 127 m a.s.l.; FKH 1270; GenBank: PQ456023.

Identification. A medium-sized skink (max. SVL = 96 mm). Dorsum brown with dark wavy transverse stripes and two black lateral bands running from the snout to the tail, bordered ventro-laterally by a white to yellow stripe. Venter bluish, becoming yellow on the throat. The specimen reported here differs by 1.8% (*16S p*-distance) from specimens collected near the type locality at Monts Doudou, Gabon (GenBank: KY683558).

Biology and distribution. The species is typically associated with the great Central African forest block, where the species can be found on the leaf litter, dead trees and roots on soil and dead tree trunks (Chirio et al. 2008). This record represents the first country record for the species. The collected specimen was found active on a rotten trunk of a fallen tree on the forest floor, in Lower Mayombe.

Atractaspididae

***Atractaspis congica* Peters, 1877**

Material. ANGOLA – **Cabinda Province** • between Dinge and Chindende; −5.0922, 12.3092; 31 m a.s.l.; EI 811 (roadkill); GenBank: PQ455964.

Identification. A stiletto snake (max. SVL = 481 mm) with 19–21 midbody scale rows and divided cloacal scales (Peters 1877). The species was originally described from Chinchoxo, Cabinda Province, but there has never been topotypical material for genetical comparisons. Therefore, the obtained sample represents the genetic material closest to the

type locality. This material differs by 4.1% (*16S p*-distance) from material collected from Hillwood Farm, Zambia (GenBank: MK464459), and by >8% (*16S p*-distance) from material collected from Soyo, Angola (GenBank: MK621461) and DRC (GenBank: MK621462). This suggests some intraspecific diversification south of the Congo River, which is currently under investigation (Lobón-Rovira et al. in prep).

Biology and distribution. Widely distributed in Central Africa, from Cameroon to Zambia (Chippaux and Jackson 2019). Very little is known about its biology.

Colubridae

***Dipsadoboa weileri* (Lindholm, 1905)**

Figure 8R

Material. ANGOLA – **Cabinda Province** • Mayombe NP, Mbundu; –4.6875, 12.4981; 127 m a.s.l.; FKH 1246; GenBank: PQ455968. • Mayombe NP, Sanga Wanda; -4.6270, 12.4527; 215 m a.s.l.; P3.511; GenBank: PQ455969.

Identification. The genus was morphologically revised by Rasmussen (1993). Specimens from Cabinda Province agree morphologically with *D. weileri* by having single subcaudals, dorsum dark grey to black and ventrum with uniform yellow colour with the exception of the subcaudal region that becomes black on the tip. The specimens reported here were genetically identified, differing by 2.8% (*16S p*-distance) from other conspecific material from Cross River National Park, Nigeria (GenBank: KX660288).

Biology and distribution. The species is known to occur from Guinea Bissau eastwards to South Sudan and southwards to the Republic of the Congo, being widely distributed in the Congo Basin (Rasmussen 1993). These represent the southernmost records of the species and the first for Angola (Branch 2018). Both individuals were found at night in rainforest in Lower Mayombe, one perched on a branch overhanging a small pond, and the other moving among leaf litter in a cleared area of the forest.

***Grayia ornata* (Bocage, 1866)**

Figure 8S

Material. ANGOLA – **Cabinda Province** • Mayombe NP, Chimbete; –4.6631, 12.5447; 182 m a.s.l.; P3.145; GenBank: PQ455973.

Identification. A large snake (max. SVL = 1190 mm) with dorsum brown or grey with numerous black transverse bands (Chaney et al. 2024). Material from Cabinda Province is almost identical (<0.5% *16S p*-distance) to that of *G. ornata* sensu stricto (fide Chaney et al. 2024) from Ogooue, Gabon (GenBank: AY611866).

Biology and distribution. *Grayia ornata* is an aquatic snake widely distributed in Central Africa from Gabon to the westernmost region of the DRC and northern Angola (Chaney et al. 2024). The species is typically found in a variety of aquatic habitats (Chippaux and Jackson 2019). The specimen reported here was found at night in a deep pool at the edge of a slow-moving forest stream in Lower Mayombe.

***Hapsidophrys smaragdinus* (Schlegel, 1837)**

Figure 8T

Material. ANGOLA – **Cabinda Province** • Tando Zinze; –5.306833, 12.498538; 32 m a.s.l.; P1.144; GenBank: PQ455974.

Identification. The species can be distinguished from its congeners by having divided subcaudals and fewer than 175 ventral scales (Chippaux and Jackson 2019). The specimen reported here differs by ~1% (*16S p*-distance) from other specimens from Mount Kupe, Cameroon (GenBank: KX671734) and Rabi, Gabon (GenBank: AY611875).
Biology and distribution. The species is widely distributed in West, Central and East Africa from Senegal to Kenya in the east and the Congo River mouth in the DRC and south to northern Angola (Chippaux and Jackson 2019). In Cabinda Province the specimen was found in degraded lowland riparian forest.

Elapidae

***Dendroaspis jamesoni* (Traill, 1843)**
Figure 8U
Material. ANGOLA – **Cabinda Province** • near Nganzi; –5.306833, 12.498538; 32 m a.s.l.; photographic record.
Identification. *Dendroaspis jamesoni* can be distinguished from *D. viridis* by having a larger number of dorsal scale rows at midbody (Chippaux and Jackson 2019), their unique coloration with yellow tail in adults, and its geographic distribution (see below).
Biology and distribution. A Central African forest specialist, widely distributed from Togo to Kenya in the east and southwards to Angola (Chippaux and Jackson 2019). In Angola, the species is widely distributed in the moister habitats of the escarpment and in the northeast (Branch 2018). In Cabinda Province, the species has been recorded in the Littoral Peneplain (this work) and the Coastal Drier Belt (Marques et al. 2018), but it is expected to be present throughout.

***Naja melanoleuca* (Hallowell, 1857)**
Figure 8V
Material. ANGOLA – **Cabinda Province** • Nganzi; –5.107126, 12.332535; 79 m a.s.l.; Photographic record.
Identification. Dorsum black, with 1–3 semi-divided yellow crossbands on the neck. Venter yellow with 4–6 black bands on the first half of the body and thereafter uniform black until the tail tip (Wüster et al. 2018).
Biology and distribution. A widely distributed species in the Congo Basin, extending northwards to Nigeria and southwards to Angola (Wüster et al. 2018). In Angola, the species is present along the escarpment and in the northern half of the country (Branch 2018).

Lamprophiidae

***Boaedon virgatus* (Boie, 1827)**
Material. ANGOLA – **Cabinda Province** • Nganzi; –5.1028, 12.3709; 107 m a.s.l.; (shedding). • Cacata; –5.3200, 12.5022; 32 m a.s.l.; P1.296 (roadkill); GenBank: PQ455965.
Identification. The species is characterised by having a low number of ventral scales (< 198), < 25 dorsal scale rows at midbody, and a venter with a central broad greyish or yellowish stripe with darker lateral edges (Hallermann et al. 2020). The individual reported here from Cacata is almost identical (<1% *16S p*-distance) to a sample from Rabi, Gabon (GenBank: AY611825). In Angola, first Branch (2018) and later Hallermann et al. (2020) assigned three specimens from

Cabinda Province reported by Peters (1877) to this species based on morphology. This represents the first genetically corroborated record for the species from Angola.

Biology and distribution. The species is widely distributed in West Africa, north of the Congo River, from Guinea Bissau to Cabinda Province and the Congo River in DRC. Very little is known about its biology.

***Limaformosa savorgnani* (Mocquard, 1887)**

Material. ANGOLA – **Cabinda Province** • Tando Zinze; –5.306833, 12.498538; 32 m a.s.l; photographic record; roadkill.

Identification. *Limaformosa savorgnani* can be distinguished from congeners by having two rows of strongly developed secondary keels on the vertebral scales. The species is reported from neighbouring areas in the Republic of the Congo and DRC (Broadley et al. 2018).

Biology and distribution. Widely distributed in Central Africa from Cameroon eastwards to Ethiopia and southwards to Cabinda Province. The specimen from Cabinda Province was found in the Littoral Peneplain and represents the first confirmed record of the species in Angola.

***Mehelya poensis* (Smith, 1849)**

Material. ANGOLA – **Cabinda Province** • Nganzi; –5.4730, 12.3832; 129 m a.s.l.; EI 813 (roadkill); GenBank: PQ456006.

Identification. A file snake with weak to smoothly developed secondary keels on the dorsal scales, 15 scale rows across the midbody and >84 subcaudal scales (Chippaux and Jackson 2019). The Cabinda Province material is identical (*16S p*-distance) to material from DRC (GenBank: MF680168) and Gabon (GenBank: AY611863) and differs very little across its distribution range (<1% *16S p*-distance) (Trape et al. 2018).

Biology and distribution. This species is widely distributed from Sierra Leone to Uganda in the east and Angola in the south (Chippaux and Jackson 2019), being frequently found in forest patches (Spawls et al. 2018). In Angola, the species in known to occur in the northern half of the country (Branch 2018). The specimen from Cabinda Province was found killed on the road in the Littoral Peneplain, and additional information about its biology cannot be provided.

Psammophiidae

***Psammophis mossambicus* Peters, 1882**

Figure 8W

Material. ANGOLA – **Cabinda Province** • Nganzi; –5.5297, 12.3280; 96 m a.s.l.; EI 809; GenBank: PQ456014. • between Dinge and Chindende; –5.0835, 12.3677; 92 m a.s.l.; EI 816; GenBank: PQ456015.

Identification. *Psammophis mossambicus* has remarkable colour polymorphism across its distribution, contrasting with very little genetic variation (Keates 2021). The specimens reported here were genetically identical and differ by <1% (*16S p*-distance) from other material from Angola (Keates 2021).

Biology and distribution. A diurnal, widely distributed species in sub-Saharan savannahs but absent from desert, semi-deserts and rainforest (Keates 2021). In Cabinda Province the

species is only known to occur in the Littoral Peneplain and the Coastal Drier Belt, from where these new records are reported.

Pythonidae

***Python sebae* (Gmelin, 1788)**

Figure 8X

Material. ANGOLA – **Cabinda Province** • Fazenda Mandarim; –5.0401, 12.0508; 14 m a.s.l.; P4.073 (bushmeat); GenBank: PQ456016. • Tando Zinze; –5.306833, 12.498538; 32 m a.s.l.; photographic record (street market).

Identification. A large rock python (max. SVL = 6.5 m) that can be distinguished from its close relative *P. natalensis* based on the colour pattern on the side of the head and larger scales on the head (see Chippaux and Jackson 2019). The specimens reported here are genetically identical (<0.5% *16S p*-distance) to unpublished material (K. Tolley unpublished data) from northern Angola (e.g., Luquembo and Cuanza River).

Biology and distribution. Widely distributed in West and Central Africa from Senegal eastwards to Tanzania and southwards to Angola (Chippaux and Jackson 2019). The species is frequently found at night and in a wide variety of habitats. The species is frequently used as bushmeat and sold in street markets across Africa. We recorded several pythons in street markets, mostly in the Littoral Peneplain and drier coastal belt, but also in Mayombe NP.

Viperidae

***Atheris squamigera* (Hallowell, 1854)**

Material. ANGOLA – **Cabinda Province** • Nganzi; –5.5279, 12.3273; 109 m a.s.l.; photographic record.

Identification. *Atheris squamigera* is the only known representative of the genus to occur in Cabinda Province, although no molecular identification has been provided for this species in the territory. Rochebrune (1885) described two species of *Atheris* (*Atheris lucani* and *Atheris proximus*) from Landana, Cabinda Province, which were subsequently considered as junior synonyms of *Atheris squamigera* by Loveridge (1957). The specimen reported here was photographed in the forest canopy and we provisionally regard it as *Atheris squamigera*. The species has very variable colouration.

Biology and distribution. An arboreal viper widely distributed in the Congo Basin, found in all types of forest, including woodland and savannahs (Spawls et al. 2018). In Angola, it is known to occur in the north (Branch 2018) and has recently been recorded in gallery forest along the northern escarpment (PVP pers. obs.) in Cuanza Norte Province.

Discussion

Understanding the species composition of a given area is essential for developing conservation plans (Groves et al. 2002). However, several protected areas in Africa still lack species inventories. This is of special importance for key areas in tropical Africa, which in addition to being important biodiversity hotspots, also host some of the most severely

threatened pristine forests (Habel et al. 2019), including areas with the biggest knowledge gaps about its real biodiversity (Tolley et al. 2016).

This work provides the first amphibian and reptile assessment for Mayombe NP and Cabinda Province in Angola, shedding light on the diversity of this neglected region of tropical Africa. It adds to the ongoing efforts to document both the national and continental level, especially focusing on protected areas (Ceríaco et al. 2016, 2018; Baptista et al. 2019; Butler et al. 2019; Lobón-Rovira et al. 2022). It is noteworthy that we used DNA barcoding, together with morphological examination for species identification for all amphibians and most reptile species (19 out of the 28 species), thus ensuring the best possible identifications for all the species reported here (Vences et al. 2012). We increased the list of Angolan amphibians by 15 new records. In addition, we identified 12 candidate species (e.g. *Leptopelis* cf. *aubryioides*, *Phrynobatrachus* sp.) and reported four new genera (*Scotobleps*, *Nectophryne*, *Hylambates* and *Hymenochirus*) for Angola. We also added four species to the reptile list (*Trachylepis polytropis*, *Dipsadoboa weileri, Limaformosa savorgnani* and *Hapsidophrys smaragdinus*) and new species (*Lygodactylus lobeke*). Finally, we provide genetic topotypic material for four species (*Hyperolius adspersus*, *Agama congica*, *Panaspis cabindae* and *Atractaspis congica*) and genetic data for several species complexes across Africa that may help to investigate cryptic diversification in these groups, as well as the phylogeographic patterns and speciation processes in West-Central Africa.

We collected ~50% more amphibians than reptiles in the study area. However, while only one amphibian species previously reported from the Cabinda Province was not detected in this study (*Xenopus epitropicalis*), we failed to confirm the presence of 31 reptile species (mainly snakes) known from the province (Marques et al. 2018; Branch 2018). We consider this result to be biased based on the sampling techniques (active capture technique) employed during the surveys. While active capturing techniques are the most effective to observe the largest diversity of amphibians and some reptiles over large areas in short periods of time, the use of secondary passive techniques (e.g., pitfall or funnel traps) would help to increase the detected species richness and to capture elusive species (e.g., snakes and caecilians) (Hutchens and DePerno 2009). Therefore, we recommend that future surveys assessing the herpetological diversity of this region use passive techniques and longer-term sampling strategies.

Interestingly, despite the high diversity found in the study, none of the species reported here represent local endemics. Cabinda Province seems to be a region connecting species that are widely distributed in Western and Central Africa, including the Congo Basin and northern Angola. Many rainforest specialists known from southern Cameroon, but especially from the Mayombe forest block present in western Gabon and Republic of Congo, seem to extend their distribution southwards and occur in Mayombe NP (e.g., *Nectophryne* aff. *batesii* and *Dipsadoboa weileri*), and we expect that further studies will reveal other examples. On the other hand, the province also shares many forest elements characteristic of the broader Congo Basin, including species present in the escarpment and gallery forests of northern Angola. Finally, the Coastal Drier Belt of Cabinda Province is unique in constituting a northern tip of a dry corridor linking the region southwards along the coastline to the Namib Desert.

Our results include widely distributed species (e.g., *Osteolaemus tetraspis*, *Panaspis cabindae* and *Ptychadena mascareniensis* OTU 6), species complexes (e.g., *Hyperolius* cf. *ocellatus* and *Arthroleptis* aff. *poecilonotus*) and species that might represent potential endemics of the Mayombe Forest Transfrontier Protected Area (MTR) (e.g., *Hemidactylus pfindaensis* and *Sclerophrys* sp.). These results highlight the importance of this area, firstly as a unique biodiversity hotspot in West-Central Africa, but also highlighting the relevance of the MTR, which should be recognised as being of special interest not only for mammals (Ijang et al. 2012), but also for other terrestrial vertebrates.

Finally, the results of this work show similar species diversity between the different eco-physiographic units considered (around 40 spp.), except for the Coastal Drier Belt, with fewer species (around 10 spp.). However, this result is biased by a less intensive sampling effort in this latter eco-physiographic region. In addition, while some regions, like Lower Mayombe and the Littoral Peneplain, had species with a wider distribution between primary forest, forest edge and degraded forest (generalists), the Upper Mayombe had the highest number of specialist taxa (7 spp.) only found in primary moist forest and, therefore, more vulnerable species (Packer et al. 2005; Segura et al. 2007; Klaus and Noss 2016). Consequently, a further recommendation is that despite the special importance of Cabinda Province in general due to its ecological and biological richness and the high vulnerability of its ecosystems, major efforts should be directed towards protecting primary forest blocks at Upper Mayombe. Finally, the species inventory provided here is expected to contribute towards more accurate IUCN and CITES assessments for several species that have poorly understood geographical distributions and which are potentially threatened by the pet trade.

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No conflict of interest was reported by the author(s).

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References

Agarwal I, Ceríaco LMP, Metallinou M, Jackman TR, Bauer AM. 2021. How the African house gecko (*Hemidactylus mabouia*) conquered the world. R. Soc. Open Sci. 8:210749. https://doi.org/10.1098/rsos.210749

Allen KE., Greenbaum E, Welton LJ, Bauer AM. 2019. High levels of hidden phylogenetic structure within Central and West African *Trachylepis* skinks. Salamandra 55(4):231–241. https://doi.org/10.1093/nar/25.17.3389

Altschul SF, Madden TL, Schäffer AA, Zhang J, Zhang Z, Miller W, Lipman DJ. 1997. Gapped BLAST and PSI-BLAST: a new generation of protein database search programs. Nucleic Acids Res. 25 (17):3389–3402. https://doi.org/10.1093/nar/25.17.3389

Baptista NL. 2024. Conservation biogeography of Angolan amphibians. [PhD Thesis]. Porto: Faculdade de Ciências da Universidade do Porto.

Baptista NL, António T, Branch WR. 2018. Amphibians and reptiles of the Tundavala region of the Angolan Escarpment. In: Revermann R, Krewenka KM, Schmiedel U, Olwoch JM, Helmschrot J, Jürgens N (eds.) Climate change and adaptive land management in Southern Africa – assessments, changes, challenges, and solutions, Biodiversity & Ecology, vol 6, pp. 397–403. https://doi.org/10.7809/b-e.00351

Baptista NL, António T, Branch WR. 2019. The herpetofauna of Bicuar National Park and surroundings, southwestern Angola: a preliminary checklist. Amphib. Reptile Conserv. 13(2):96–130.

Barbosa LG. 1971. Phytogeographical map of Angola. Mitt. Bot. Staatssamml. Münch. 10:114–115.

Bates MF, Tolley KA, Edwards S, Davids Z, Da Silva JM, Branch WR. 2013. A molecular phylogeny of the African plated lizards, genus *Gerrhosaurus* Wiegmann, 1828 (Squamata: Gerrhosauridae), with the description of two new genera. Zootaxa 3750(5):465–493. https://doi.org/10.11646/zootaxa.3750.5.3

Bell RC, Parra JL, Badjedjea G, Barej MF, Blackburn DC, et al. 2017. Idiosyncratic responses to climate-driven forest fragmentation and marine incursions in reed frogs from Central Africa and the Gulf of Guinea Islands. Mol. Ecol. 26(19):5223–5244. https://doi.org/10.1111/mec.14260

Blackburn DC, Gvoždík V, Leaché AD. 2010. A new squeaker frog (Arthroleptidae: *Arthroleptis*) from the mountains of Cameroon and Nigeria. Herpetologica 66(3):335–348. https://doi.org/10.1655/HERPETOLOGICA-D-10-00015.1

Blackburn DC, Nielsen SV, Ghose SL, Burger M, Gonwouo LN, et al. 2021. Phylogeny of African Long-fingered Frogs (Arthroleptidae: *Cardioglossa*) reveals recent allopatric divergences in coloration. Ichthyology & Herpetology 109(3):728–742. https://doi.org/10.1643/h2020165

Bocage JVB. 1866. Lista dos repteis das possessões d'Africa occidental que esistem no Museu de Lisboa. Jorn. Sci. Math. Phys. Nat. 1(1):37–56.

Bocage JVB. 1895. Herpétologie d'Angola et du Congo. Ministério da Marinha e das Colónias, Lisbonne, Portugal. 203pp, 20pls.

Boulenger GA. 1894. Catalogue of the snakes in the British Museum (Natural History). Volume 2. Containing the conclusion of the Colubridæ Aglyphæ, part. Trustees of the British Museum, London, United Kingdom. xi +382 pp., 1–20 pls.

Boulenger GA. 1896. Catalogue of the snakes in the British Museum (Natural History). Volume 3. Containing the families Colubridæ (Opisthoglyphæ and Proteroglyphæ), Amblycephalidæ, and Viperidæ. Trustees of the British Museum, London, United Kingdom. xiv +727 pp., 1–25 pls.

Boulenger GA. 1906. Report on the batrachians collected by the late L. Fea in West Africa. Ann. Mus. Civ. Stor. Nat. Genova 42(2):157–172.

Branch WR. 2008. Tortoises, Terrapins & Turtles of Africa. Cape Town: Struiks, 128 pp.
Branch WR. 2018. Snakes of Angola: An annotated checklist. Amphib. Reptile Conserv. 12(2):41–82.
Broadley DG. 1996. A revision of the genus *Lycophidion* Fitzinger (Serpentes: Colubridae) in Africa south of the equator. Syntarsus 3:1–33.
Broadley DG, Tolley KA, Conradie W, Wishart S, Trape JF, Burger M, Kussamba C, Zassi-Boulou A-G, Greenbaum E. 2018. A phylogeny and genus-level revision of the African file snakes *Gonionotophis* Boulenger (Squamata: Lamprophiidae). Afr. J. Herpetol. 67(1):43–60. https://doi.org/10.1080/21564574.2018.1423578
Butler BO. 2024. Systematics and phylogeography of two southwest African Lizard taxa. [Master's Thesis]. Villanova: Villanova University, 159 pp.
Butler BO, Ceríaco LMP, Marques MP, Bandeira S, Túlio T, Heinicke MP, Bauer AM. 2019. Herpetological survey of Huíla Province, southwest Angola, including first records from Bicuar National Park. Herpetol. Rev. 50(2):225–240.
Ceríaco LMP, Heinicke MP, Parker KL, Marques MP, Bauer AM. 2020. A review of the African snake-eyed skinks (Scincidae: *Panaspis*) from Angola, with the description of a new species. Zootaxa 4747(1):077–112. https://doi.org/10.11646/zootaxa.4747.1.3
Ceríaco LMP, de Sá, SDAC, Bandeira S, Valério H, Stanley EL, Kuhn AL, Marques MP, Vindum JV, Blackbrun DC, Bauer AM. 2016. Herpetological survey of Iona National Park and Namibe Regional Natural Park, with a synoptic list of the amphibians and reptiles of Namibe Province, southwestern Angola. Proc. Calif. Acad. Sci. 63(2):15–61.
Ceríaco LMP, Marques MP, Bandeira S, Blackburn DC, Bauer AM. 2018. Herpetological survey of Cangandala National Park, with a synoptic list of the amphibians and reptiles of Malanje Province, Central Angola. Herpetol. Rev. 49(3):408–431.
Ceríaco LMP, Marques MP, Parrinha D, Tiutenko A, Weinell JL, Butler BO, Bauer AM. 2024. The *Trachylepis* (Squamata: Scincidae) of Angola: An Integrative Taxonomic Review with the Description of Seven New Species. Bull. Am. Mus. Nat. Hist. 2024(465):1–153. https://doi.org/10.1206/0003-0090.465.1.1
Chaney T, Pauwels OSG, Nagy ZT, Gvoždík V, Kusamba C, et al. 2024. Phylogenetics and integrative taxonomy of African water snakes (Squamata: Colubridae: *Grayia*). Herpetol. Monogr. 38(1):1–52. https://doi.org/10.1655/HERPMONOGRAPHS-D-23-00002.1
Channing A. 2001. Amphibians of Central and Southern Africa. New York: Cornell University Press, 495 pp. ISBN 13:9780801438653
Channing A. 2022. Colour patterns to sequences: A perspective on the systematics of the *Hyperolius viridiflavus* group (Anura: Hyperoliidae) using mitochondrial DNA. Zootaxa 5134(3):301–354. https://doi.org/10.11646/zootaxa.5134.3.1
Channing A, Hillers A, Lötters S, Rödel MO, Schick S, et al. 2013. Taxonomy of the super-cryptic *Hyperolius nasutus* group of long reed frogs of Africa (Anura: Hyperoliidae), with descriptions of six new species. Zootaxa 3620(3):301–350. https://doi.org/10.11646/zootaxa.3620.3.1
Channing A, Rödel MO. 2019. Field guide to the frogs & other amphibians of Africa. Cape Town: Penguin Random House, 408 pp.
Charles KL, Bell RC, Blackburn DC, Burger M, Fujita MK, Gvoždík V, Jongsma GFM, Kouete MT, Leaché AD & Portik DM. 2018. Sky, sea, and forest islands: Diversification in the African leaf-folding frog *Afrixalus paradorsalis* (Anura: Hyperoliidae) of the Lower Guineo-Congolian rain forest. J. Biogeogr. 45(8):1781–1794. https://doi.org/10.1111/jbi.13365
Chippaux JP, Jackson K. 2019. Snakes of central and western Africa. Baltimore: Johns Hopkins University Press, 448 pp. https://doi.org/10.1353/book.66158
Chirio L, Ineich I, Schmitz A, LeBreton M. 2008. A new species of *Trachylepis* Fitzinger, 1843 (Squamata: Scincidae) from Central African forests. Afr. J. Herpetol. 57(1):13–28. https://doi.org/10.1080/21564574.2008.9635565
Chirio L, LeBreton M. 2007. Atlas des reptiles du Cameroun. Paris: IRD Editions, 688pp.
Conradie W. 2024. *Herpetofaunal diversity and affiliations of the unexplored south-eastern Angola*. [PhD Thesis]. South Africa: Nelson Mandela University, 640pp.

Conradie W, Baptista NL, Verburgt L, Keates C, Harvey J, Júlio T, Neef G. 2021. Contributions to the herpetofauna of the Angolan Okavango-Cuando-Zambezi River drainages. Part 1: Serpentes (snakes). Amphib. Reptile Conserv. 15(2):244–278.

Conradie W, Bills R, Branch WR. 2016. The herpetofauna of the Cubango, Cuito, and Lower Cuando river catchments of south-eastern Angola. Amphib. Reptile Conserv. 10(2):6–36.

Conradie W, Keates C, Verburgt L, Baptista NL, Harvey J, Julio T, Neef G. 2022. Contributions to the herpetofauna of the Angolan Okavango-Cuando-Zambezi River drainages. Part 2: Lizards (Sauria), chelonians, and crocodiles. Amphib. Reptile Conserv. 16(2)[General Section]:181–214 (e322).

Conradie W, Keates C, Verburgt L, Baptista NL, Harvey J. 2023. Contributions to the herpetofauna of the Angolan Okavango-Cuando-Zambezi River drainages. Part 3: Amphibians. Amphib. Reptile Conserv. 17(1&2)[General Section]:19–56 (e325).

Cox N, Young BE, Bowles P, Fernandez M, Marin J, et al. 2022. A global reptile assessment highlights shared conservation needs of tetrapods. Nature 605(7909):285–290. https://doi.org/10.1038/s41586-022-04664-7

Crawford-Cabral J, Mesquitela LM. 1989. Índice toponímico de colheitas zoológicas em Angola. Estudos, Ensaios e Documentos 151:1–206.

Deichmann JL, Mulcahy DG, Vanthomme H, Tobi E, Wynn AH, Zimkus BM, McDiarmid RW. 2017. How many species and under what names? Using DNA barcoding and GenBank data for west Central African amphibian conservation. PLoS One 12(11):e0187283. https://doi.org/10.1371/journal.pone.0187283

Dewynter M, Frétey T. 2019. Liste taxonomique commentée et catalogue illustré des Amphibiens du Gabon. Cah. Fond. 27:1–84.

Diniz AC. 1973. Características mesológicas de Angola. Nova Lisboa: Missão de Inquéritos Agrícolas de Angola, 482 pp.

du Preez L, Carruthers V. 2017. Frogs of southern Africa. A complete Guide. Cape Town: Struik Nature, 508 pp.

Ernst R, Lautenschläger T, Branquima MF, Hölting M. 2020. At the edge of extinction: a first herpetological assessment of the proposed Serra do Pingano Rainforest National Park in Uíge Province, northern Angola. Zoosyst. Evol. 96:237–262. https://doi.org/10.3897/zse.96.51997

Evans BJ, Carter TF, Greenbaum E, Gvoždík V, Kelley DB, et al. 2015. Genetics, morphology, advertisement calls, and historical records distinguish six new polyploid species of African clawed frog (*Xenopus*, Pipidae) from West and Central Africa. PloS One 10(12):e0142823. https://doi.org/10.1371/journal.pone.0142823

Frétey T, Dewynter M, Blanc CP. 2011. Amphibiens d'Afrique centrale et d'Angola. Clé de détermination illustrée des amphibiens du Gabon et du Mbini. Illustrated identification key of the amphibians from Gabon and Mbini. Mèze (Éditions Biotope)/Paris (Muséum national d'Histoire naturelle):1–232.

Frétey T, Dubois A, Ohler A. 2014. The status of the nomen *Hyperolius guttatus* Peters, 1875 (Amphibia: Anura) and allied nomina. Alytes 30:11–26.

Frost DR. 1985. *Amphibian species of the world*. Lawrence: Allen Press and The Association of Systematics Collections, 732pp.

Gippner S, Travers SL, Scherz MD, Colston TJ, Lyra ML, et al. 2021. A comprehensive phylogeny of dwarf geckos of the genus *Lygodactylus*, with insights into their systematics and morphological variation. Mol. Phylogenet. Evol. 165:107311. https://doi.org/10.1016/j.ympev.2021.107311

Gossweiler J, Mendonça FA. 1939. Phytogeographical map of Angola. Memoir descriptive of the principal types of vegetation in the Colony, determined from their physiological aspects and ecological characters according to the nomenclature of Rübel. Lisboa: Ministério das Colónias, 242 pp.

Goyder DJ, Gonçalves FMP. 2019. The flora of Angola: collectors, richness and endemism. In: Huntley BJ, Russo V, Lages F, Ferrand N (eds). Biodiversity of Angola. Science and Conservation: A Modern Synthesis. Cham: Springer Nature, 79–96. https://doi.org/10.1007/978-3-030-03083-4_5

Groves CR, Jensen DB, Valutis LL, Redford KH, Shaffer ML, Scott JM, Baumgartner JV, Higgins JV, Beck MW, Anderson MG. 2002. Planning for biodiversity conservation: putting conservation science

into practice: a seven-step framework for developing regional plans to conserve biological diversity, based upon principles of conservation biology and ecology, is being used extensively by the nature conservancy to identify priority areas for conservation. BioScience 52(6):499–512. https://doi.org/10.1641/0006-3568(2002)052[0499:PFBCPC]2.0.CO;2

Guirguis J, Goodyear LE, Finn C, Johnson JV, Pincheira-Donoso D. 2023. Risk of extinction increases towards higher elevations across the world's amphibians. Glob. Ecol. Biogeogr. 32(11):1952–1963. https://doi.org/10.1111/geb.13746

Habel JC, Rasche L, Schneider UA, Engler JO, Schmid E, et al. 2019. Final countdown for biodiversity hotspots. Conserv. Lett. 12(6):e12668. https://doi.org/10.1111/conl.12668

Hallermann J, Ceríaco LMP, Schmitz A, Ernst R, Conradie W, et al. 2020. A review of the Angolan House snakes, genus *Boaedon* Duméril, Bibron and Duméril (1854) (Serpentes: Lamprophiidae), with description of three new species in the *Boaedon fuliginosus* (Boie, 1827) species complex. Afr. J. Herpetol. 69(1):29–78. https://doi.org/10.1080/21564574.2020.1777470

Hübler N. 2016. Diversity and Phylogeopraphy of Ridged Frogs (Anura: Ptychadena) in Northern Angola: Morphological and Molecular Evidence. [Master's Thesis]. Greifswald: University of Greifswald, 189 pp.

Huntley BJ, Ferrand N. 2019. Angolan Biodiversity: Towards a modern Synthesis. In: Huntley BJ, Russo V, Lages F, Ferrand N (eds). Biodiversity of Angola. Science and Conservation: A Modern Synthesis. Cham: Springer Nature, pp. 3–14. https://doi.org/10.1007/978-3-030-03083-4_1

Huntley BJ, Beja P, Vaz Pinto P, Russo V, Veríssimo L, Morais M. 2019. Biodiversity conservation: history, protected areas and hotspots In: Huntley BJ, Russo V, Lages F, Ferrand N (eds). *Biodiversity of Angola*. *Science and Conservation: A Modern Synthesis*. Cham: Springer Nature, pp. 495–512. https://doi.org/10.1007/978-3-030-03083-4_18

Hutchens SJ, DePerno CS. 2009. Efficacy of sampling techniques for determining species richness estimates of reptiles and amphibians. Wildlife Biology 15(2):113–122. https://doi.org/10.2981/08-024

Ijang TP, Cleto N, Ewane NW, Chicaia A, Tamar R. 2012. Transboundary dialogue and cooperation: first lessons from igniting negotiations on joint management of the Mayombe forest in the Congo Basin. Int. J. Agric. Sci. 2:121–131. https://doi.org/10.5923/j.ijaf.20120203.08

Jaynes KE, Myers EA, Gvoždík V, Blackburn DC, Portik DM, et al. 2022. Giant Tree Frog diversification in West and Central Africa: Isolation by physical barriers, climate, and reproductive traits. Mol. Ecol. 31(15):3979–3998. https://doi.org/10.1111/mec.16169

Jongsma GF, Barej MF, Barratt CD, Burger M, Conradie W, et al. 2018. Diversity and biogeography of frogs in the genus *Amnirana* (Anura: Ranidae) across sub-Saharan Africa. Mol. Phylogenet. Evol. 120:274–285. https://doi.org/10.1016/j.ympev.2017.12.006

Klaus JM, Noss RF. 2016. Specialist and generalist amphibians respond to wetland restoration treatments. J. Wildl. Manag. 80(6):1106–1119. https://doi.org/10.1002/jwmg.21091

Laurent RF. 1961. Etude d'une collection herpetologique du Mayombe. Premiere partie: Gymnophiones, Pipidae, Bufonidae et Astylosternidae. Rev. Zool. Bot. Afr. 63:260–276.

Larson JG, Zimkus BM. 2018. Preliminary assessment of the frog assemblages from sites adjacent to three national parks in Gabon. Herpetol. Conserv. Biol. 13(1):240–256.

Leaché AD, Portik DM, Rivera D, Rödel MO, Penner J, Gvoždík V, Greenbaum E, Jongsma GFM, Ofori-Boateng C, Burger M, Eniang EA, Bell RC, Fujita MK. 2019. Exploring rain forest diversification using demographic model testing in the African foam-nest treefrog *Chiromantis rufescens*. J. Biogeogr. 46(12):2706–2721. https://doi.org/10.1111/jbi.13716

Liedtke HC, Soler-Navarro DJ, Gomez-Mestre I, Loader SP, Rödel MO. 2021. Parallel diversification of the African tree toad genus *Nectophryne* (Bufonidae). Mol. Phylogenet. Evol. 162:107184. https://doi.org/10.1016/j.ympev.2021.107184

Lobón-Rovira J, Conradie W, Iglesias DB, Ernst R, Veríssimo L, et al. 2021. Between sand, rocks and branches: an integrative taxonomic revision of Angolan *Hemidactylus* Goldfuss, 1820, with description of four new species. Vertebr. Zool. 71:465–501. https://doi.org/10.3897/vz.71.e64781

Lobón-Rovira J, Vaz Pinto P, Becker FS, Tolley KA, Measey J, et al. 2022. An updated herpetofaunal species inventory of Iona National Park in southwestern Angola. CheckList 18(2):289–321. https://doi.org/10.15560/18.2.289

Lokasola AL, Lotana CB, Tungaluna GCG, Akaibe BD, Jirků M, Gvoždík V. 2021. New distributional data and genetic variation of *Panaspis breviceps* (Squamata: Scincidae) indicate a biogeographic connection across the Congo Basin. Afr. Zool. 56(4):312–318. https://doi.org/10.1080/15627020.2021.2007418

Lötters S, Plewnia A, Catenazzi A, Neam K, Acosta-Galvis AR, et al. 2023. Ongoing harlequin toad declines suggest the amphibian extinction crisis is still an emergency. Commun. Earth Environ. 4:412. https://doi.org/10.1038/s43247-023-01069-w

Loveridge A. 1932. Eight new toads of the genus *Bufo* from East and Central Africa. Occas. pap. Boston Soc. Nat. Hist. 8:43–54.

Loveridge A. 1936. African reptiles and amphibians in the Field Museum of Natural History. Field Mus. Nat. Hist., Zool. Ser. 22(1):1–122. https://doi.org/10.5962/bhl.title.3069

Loveridge A. 1957. Check list of the reptiles and amphibians of East Africa (Uganda; Kenya; Tanganyika; Zanzibar). Bull. Mus. Comp. Zool. 117(2):153–362, I–XXXVI.

Luedtke JA, Chanson J, Neam K, Hobin L, Maciel AO, et al. 2023. Ongoing declines for the world's amphibians in the face of emerging threats. Nature 622:308–314. https://doi.org/10.1038/s41586-023-06578-4

Nagy ZT, Kusamba C, Collet M, Gvoždík V. 2013. Notes on the herpetofauna of western Bas-Congo, Democratic Republic of the Congo. Herpetol. Notes 6:413–419.

Main DC, van Vuuren BJ, Tolley KA. 2018. Cryptic diversity in the common flap-necked chameleon *Chamaeleo dilepis* in South Africa. Afr. Zool. 53(1):11–16. https://doi.org/10.1080/15627020.2018.1446358

Main DC, van Vuuren BJ, Tilbury CR, Tolley KA. 2022. Out of southern Africa: Origins and cryptic speciation in *Chamaeleo*, the most widespread chameleon genus. Mol. Phylogen. Evol. 175:107578. https://doi.org/10.1016/j.ympev.2022.107578

Marques MP, Ceríaco LMP, Blackburn DC, Bauer AM. 2018. Diversity and distribution of the amphibians and terrestrial reptiles of Angola—Atlas of historical and bibliographic records (1840–2017). Proc. Calif. Acad. Sci. (Series 4) 65(2):1–501.

Meiri S, Chapple DG, Tolley KA, Mitchell N, Laniado T, et al. 2023. Done but not dusted: Reflections on the first global reptile assessment and priorities for the second. Biol. Conserv. 278:109879. https://doi.org/10.1016/j.biocon.2022.109879

Mills MS, Ferreira R, Pinto PV. 2023. Twenty-three new bird species for Angola, including Mayombe National Park in Cabinda Province, and other noteworthy records. Ostrich 95(2):87–94. https://doi.org/10.2989/00306525.2023.2237686

Müller L. 1910. Beiträge zur Herpetologie Kameruns. Abh. Math.-Phys. Cl. Königl. Bayer. Akad. Wiss. 24(3):545–626

Nečas T, Mazuch T, Czurda J, Elmi HSA, Rödel MO, Gvoždík V. 2024. Evolutionary relationships in the African frog family Ptychadenidae, including the first molecular analysis, range extension, and distribution modelling of the monotypic genus *Lanzarana*. Afr. J. Herpetol. 73(2):236–260. https://doi.org/10.1080/21564574.2024.2404860

Nneji LM, Adeola AC, Okeyoyin A, Onadeko AB, Eniang EA, et al. 2019. First record of Foulassi Screeching Frog, *Arthroleptis adelphus* (Perret, 1966)(Anura, Arthroleptidae, Arthroleptinae), from Nigeria, with notes on its phylogenetic position. CheckList 15(2):253–259. https://doi.org/10.15560/15.2.253

Packer L, Zayed A, Grixti JC, Ruz L, Owen RE, Vivallo F, Toro H. 2005. Conservation genetics of potentially endangered mutualisms: reduced levels of genetic variation in specialist versus generalist bees. Conserv. Biol. 19(1):195–202. https://doi.org/10.1111/j.1523-1739.2005.00601.x

Palumbi SR, Martin AP, Romano SL, McMillan WO, Stice L, Grabowski G. 1991. The simple fool's guide to PCR. Honolulu: University of Hawaii, 45 pp.

Perret J-L. 1975. Les sous-espèces d'*Hyperolius ocellatus* Günther (Amphibia, Salientia). Annales de la Faculte des Sciences du Cameroun. Yaoundé 20:23–31.

Peters WCH. 1877. Übersicht der Amphibien aus Chinchoxo (Westafrika), welche von der Africanischen Gesellschaft dem Berliner zoologischen Museum übergeben sind. Ber.Akad.Wiss.Berlin 1877:611–620

Pietersen DW, Verburgt L, Davies J. 2021. Snakes and other reptiles of Zambia and Malawi. Cape Town: Struik Nature, 544pp.

Plana V. 2004. Mechanisms and tempo of evolution in the African Guineo–Congolian rainforest. Philos. Trans. R. Soc. Lond. B Biol. Sci. 359(1450):1585–1594. https://doi.org/10.1098/rstb.2004.1535

Portik DM, Bell RC, Blackburn DC, Bauer AM, Barratt CD, et al. 2019. Sexual dichromatism drives diversification within a major radiation of African amphibians. Syst. Biol. 68(6):859–875. https://doi.org/10.1093/sysbio/syz023

Portik DM, Jongsma GFM, Kouete MT, Scheinberg LA, Freiermuth B, Tapondjou WP, Blackburn DC. 2016. A survey of amphibians and reptiles in the foothills of Mount Kupe, Cameroon. Amphib. Reptile Conserv. 10(2):37–67.

Rasmussen JB. 1993. A taxonomic review of the *Dipsadoboa unicolor* complex, including a phylogenetic analysis of the genus (Serpentes, Dipsadidae, Boiginae). Steenstrupia 19(4):129–196

Rochebrune AT. 1885. Vertebratorum novorum vel minus cognitorum orae Africae occidentalis incolarum. Diagnoses (1). Bull. Soc. Philomath. Paris 7(9):86–99.

Rockney HJ, Porcino N, Leache AD, Ofori-Boateng C. 2015. A comparison of DNA barcoding markers in West African frogs. Afr. J. Herpetol. 64(2):135–147. https://doi.org/10.1080/21564574.2015.1114530

Röll B, Pröhl H, Hoffmann K-P. 2010. Multigene phylogenetic analysis of *Lygodactylus* dwarf geckos (Squamata, Gekkonidae). Mol. Phylogenetics Evol. 56(1):327–335. https://doi.org/10.1016/j.ympev.2010.02.002

Röll B, Vaz Pinto P, Lobón-Rovira. 2024. A new species of African diurnal dwarf geckos (Gekkonidae: Lygodactylus) from the Lower Guinea rainforest. Zootaxa 5538 (6): 561–574. https://doi.org/10.11646/zootaxa.5538.6.3.

Sánchez-Vialas A, Calvo-Revuelta M, de La Riva I. 2022. Synopsis of the terrestrial reptiles of Equatorial Guinea. Zootaxa 5202(1):1–197. https://doi.org/10.11646/zootaxa.5202.1.1

Sánchez-Vialas A, Calvo-Revuelta M, Fisher SJC, de la Riva I. 2020. Synopsis of the amphibians of Equatorial Guinea based upon the authors? Field work and spanish Natural History collections. Proc. Calif. Acad. Sci. 4, 66(8):137–230, I–XXV.

Segura C, Feriche M, Pleguezuelos JM, Santos X. 2007. Specialist and generalist species in habitat use: implications for conservation assessment in snakes. J. Nat. Hist. 41(41-44):2765–2774. https://doi.org/10.1080/00222930701664203

Sigovini M, Keppel E, Tagliapietra D. 2016. Open nomenclature in the biodiversity era. Methods Ecol. Evol. 7(10):1217–1225. https://doi.org/10.1111/2041-210X.12594

Spawls S, Howell K, Hinkel H, Menegon M. 2018. Field Guide to East African Reptiles. New York: Bloomsbury, 624 pp.

Tingley R, Meiri S, Chapple DG. 2016. Addressing knowledge gaps in reptile conservation. Biol. Conserv. 204:1–5. https://doi.org/10.1016/j.biocon.2016.07.021

Tolley KA, Alexander GJ, Branch WR, Bowles P, Maritz B. 2016. Conservation status and threats for African reptiles. Biol. Conserv. 204:63–71. https://doi.org/10.1016/j.biocon.2016.04.006

Trape JF, Broadley DG, Tolley KA, Conradie W, Wishart S, Burger M, Kusamba C, Zassi-Boulou A-G, Greenbaum E. 2018. A phylogeny and genus-level revision of the African file snakes *Gonionotophis* Boulenger (Squamata: Lamprophiidae). Afr. J. Herpetol. 67(1):43–60. https://doi.org/10.1080/21564574.2018.1423578

Vences M, Nagy ZT, Sonet G, Verheyen E. 2012. DNA barcoding amphibians and reptiles. In: Kress W, Erickson D (eds.) DNA barcodes: methods in molecular biology (methods and protocols). Totowa: Humana Press, pp 9–108. https://doi.org/10.1007/978-1-61779-591-6_5

Wagner P, Barej MF, Schmitz A. 2009. Studies on African Agama VII. A new species of the *Agama agama*-group (Linnaeus, 1758) (Sauria: Agamidae) from Cameroon & Gabon, with comments on *Agama mehelyi* Tornier, 1902. Bonn Zool. Beitr. 56(4):285–297.

Waitkuwait WE. 1986. Present knowledge on the West African slender-snouted crocodile, *Crocodylus cataphractus* Cuvier 1824 and the West African dwarf crocodile *Osteolaemus tetraspis*, Cope 1861. Crocodiles. In: UICN (eds.) *Their ecology, management, and conservation*. Gland: UICN Press, 260–275. https://doi.org/10.1163/156853885X00371

Wilms T, Wagner P, Luiselli L, Branch WR, Penner J, Baha El Din S, Beraduccii J, Msuya CA, Howell K, Ngalason W. 2021. *Varanus niloticus*. The IUCN Red List of threatened species 2021. https://doi.org/10.2305/iucn.uk.2021-2.rlts.t198539a2531945.en [Accessed on: 2021-11-09].

Wüster W, Chirio L, Trape J-F, Ineich I, Jackson K, et al. 2018. Integration of nuclear and mitochondrial gene sequences and morphology reveals unexpected diversity in the forest cobra (*Naja melanoleuca*) species complex in Central and West Africa (Serpentes: Elapidae). Zootaxa 4455(1):68–98. https://doi.org/10.11646/zootaxa.4455.1.3

Zimkus BM, Blackburn DC. 2008. Distinguishing features of the sub-Saharan frog genera *Arthroleptis* and *Phrynobatrachus*: a short guide for field and museum researchers. Breviora 513(1):1–12. https://doi.org/10.3099/0006-9698(2008)513[1:DFOTSF]2.0.CO;2

Zimkus BM, Lawson LP, Barej MF, Barratt CD, Channing A, et al. 2017. Leapfrogging into new territory: how Mascarene ridged frogs diversified across Africa and Madagascar to maintain their ecological niche. Mol. Phylogen. Evol. 106:254–269. https://doi.org/10.1016/j.ympev.2016.09.018

Zimkus BM, Schick S. 2010. Light at the end of the tunnel: insights into the molecular systematics of East African puddle frogs (Anura: Phrynobatrachidae). Syst. Biodivers. 8(1):39–47. https://doi.org/10.1080/14772000903543004