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Beyond the asymptote: a near-complete reptile inventory in the Miombo woodland and on Mount Morué, Mocuba Municipality, with a major range extension for the lizard *Nucras boulengeri* Neumann, 1900

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Abstract. We assessed the composition and diversity of reptiles occurring in a dry Miombo woodland at Zambezi University and on Mount Morué, both in Mocuba Municipality, northern Mozambique. Reptiles were collected using active daytime searches, pitfall traps, and opportunistic encounters. A total of 23 species (17 lizards and six snakes) belonging to 15 genera and 12 families were recorded. Among them, the dwarf gecko *Lygodactylus grotei* was the most frequently recorded species with 11 individuals. All sampling methods were effective in detecting terrestrial species, although most species were recorded using pitfall traps (56.5%). The rarefaction curves almost reached an asymptotic point, indicating that few species are likely to be added with additional sampling effort. It was possible to extend the known range of Boulenger's Scrub Lizard, *Nucras boulengeri*, southward by 662 km. This survey is the first to document the reptiles in Mocuba Municipality and represents an important contribution to our knowledge of reptiles in the dry Miombo woodland ecotone in northern Mozambique.

Keywords. Biodiversity, lizards, snakes, Miombo woodland, range extension, Mozambique.

Resumo. Avaliámos a composição e diversidade dos répteis presentes numa floresta seca de Miombo na Universidade Zambeze e no Monte Morué, ambos no município de Mocuba, no norte de Moçambique. Os répteis foram coletados através de buscas ativas durante o dia, armadilhas de queda e encontros oportunísticos. Foram registadas um total de 23 espécies (17 lagartos e seis serpentes) pertencentes a 15 géneros e 12 famílias. Entre elas, o lagarto-anão *Lygodactylus grotei* foi a espécie mais frequentemente registada, com 11 indivíduos. Todos os métodos de amostragem foram eficazes na deteção de espécies terrestres, embora a maioria das espécies tenha sido registada utilizando armadilhas de queda (56,5%). As curvas de rarefação quase atingiram um ponto assintótico, indicando que é provável que poucas espécies sejam adicionadas com esforços de amostragem adicionais. Foi possível estender a área de distribuição conhecida do Lagarto-Arbustivo-de-Boulenger, *Nucras boulengeri*, 662 km para sul. Este estudo é o primeiro a documentar os répteis no município de Mocuba e representa uma importante contribuição para o nosso conhecimento sobre os répteis no ecótono da floresta seca de Miombo, no norte de Moçambique.

Palavras-chave: Biodiversidade, lagartos, cobras, floresta de Miombo, extensão da distribuição, Moçambique

Introduction

Mozambique's herpetofauna represents a fascinating and still insufficiently explored component of the country's biodiversity, with its scientific origins dating back to the 19th century. Pioneers such as Wilhelm Peters and José Vicente Barbosa du Bocage were the first to document reptile species in the region, laying the foundations for future studies (Peters, 1882; Bocage, 1901). Decades later, Donald Broadley's significant contributions in the 1960s and 1990s, accompanied by collaborative efforts with John Poynton in the 1980s and 1990s, substantially expanded knowledge of the country's herpetofauna (Broadley, 1962, 1965, 1990, 1992; Poynton and Broadley, 1985b, 1987, 1991).

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Despite these milestones, the current panorama of herpetological diversity remains fragmented, reflecting the scientific challenges of documenting the fauna of a vast and ecologically diverse country. Northern Mozambique, particularly the region between the Zambezi and Rovuma rivers, is a notable example of this knowledge gap (Conradie et al., 2016; Tolley et al., 2016). Several reasons for this shortfall include historical difficulties in access and the prolonged impacts of the country's civil war, which have limited research efforts in this region (Branch et al., 2005).

Although there is currently no single comprehensive list of reptiles for Mozambique, estimates of species richness vary considerably between sources. Bates (2018), based on the previous work of Schneider et al. (2005), considered it to be approximately 294 species, while Farooq et al. (2022) suggested the number was around 240 and The Reptile Database currently lists 229 species (Uetz et al., 2025). This lack of consistency highlights the limited and fragmented nature of the available data. Even so, it is likely that these estimates represent an underestimate. Information from neighbouring countries reveals even greater diversity, with 417 species recorded in South Africa and 357 in Tanzania (Uetz et al., 2025). Considering these data and the fact that large areas of Mozambique, a vast and ecologically diverse country, have not yet been sufficiently explored, it is plausible to assume that reptile diversity is greater than currently recognised, possibly including species not yet described by science.

Based on estimates by Bates (2018) and more recent descriptions of new species by Branch et al. (2019) and Barbosa et al. (2025), the species number has now increased to at least 296, highlighting the ongoing progress in understanding the country's herpetofauna. This diversity represents about 2.5% of the global reptile fauna (Uetz et al., 2025), and while this value highlights the country's ecological importance it is also a reflection on the geographic disparity in research efforts, which have mainly been focused on specific habitats such as islands (Broadley, 1990, 1992; Jacobsen et al., 2010), coastal forests (Ohler and Frétey, 2015; Miguel et al., 2024, 2025), inselbergs and associated forests (Portik et al., 2013a, b; Branch et al., 2005, 2014, 2017; Branch and Tolley, 2010; Conradie et al., 2016, 2018a, b; Bittencourt-Silva et al., 2020), and Miombo woodland (Pietersen et al., 2013; Pietersen, 2014; Miguel et al., 2022; Buruwate and Lloyd-Jones, 2024) but not on broader analyses.

The frequent discovery of new species indicates the under-documentation of Mozambique's herpetofauna (e.g., Branch and Bayliss, 2009; Branch and Tolley, 2010; Portik et al., 2013b; Branch et al., 2014, 2017, 2019; Broadley and Measey, 2017; Conradie et al., 2018a, b; Verburgt et al., 2018; Channing et al., 2025; Barbosa et al., 2025), and it reinforces the urgent need to expand research into historically neglected habitats north of the Zambezi River, such as dry Miombo woodland in Mocuba Municipality, northern Mozambique. Although data on amphibian occurrences in the area already exist (Miguel et al., 2022), reptile diversity generally remains undocumented, revealing a significant gap in our understanding of local biodiversity. Miombo woodland, which predominates in Mocuba Municipality, is vital to the biological diversity of southern Africa (e.g., Frost, 1996; Jew et al., 2016) and harbours a unique herpetofauna that remains poorly studied. In this context, the present study documents the reptile species occurring in the dry Miombo woodland in the Mocuba area, including the granitic outcrop Mount Morué, to provide an overview of their distribution and their role in Mozambique's biodiversity, while also underscoring the importance of conserving this particular ecosystem.

Materials and Methods

Study area. The study was carried out in dry Miombo woodland on the 57-ha campus of the Faculty of Agricultural and Forestry Engineering of Zambezi University (16.8931°S, 36.9430°E, elevation 160 m; Fig. 2A), and on the isolated granitic hill, Mount Morué (16.8819°S, 36.9153°E, elevation ca. 361 m; Fig. 2B) and its surrounding Miombo woodland. Both visited sites are in Mocuba Municipality, Zambezia Province, northern Mozambique (Fig. 1). The climate in the area is tropical, and the intertropical convergence zone determines the precipitation pattern, with the rainy season lasting from November–February and the dry season from March–October, although there is some infrequent rainfall during the dry season. The average annual temperature ranges from 22–27°C, and the average annual rainfall ranges from 850–1300 mm (Barimalala et al., 2010; Toté et al., 2015).

Data collection. The study was carried out from April–June 2021 and December 2021–March 2022, for seven days each month, totalling 42 sampling days. Two habitats were sampled: dry Miombo woodland and exposed granitic hill (Fig. 2). Specimens were collected through pitfall traps, active daytime searches on fixed transects, and opportunistic encounters

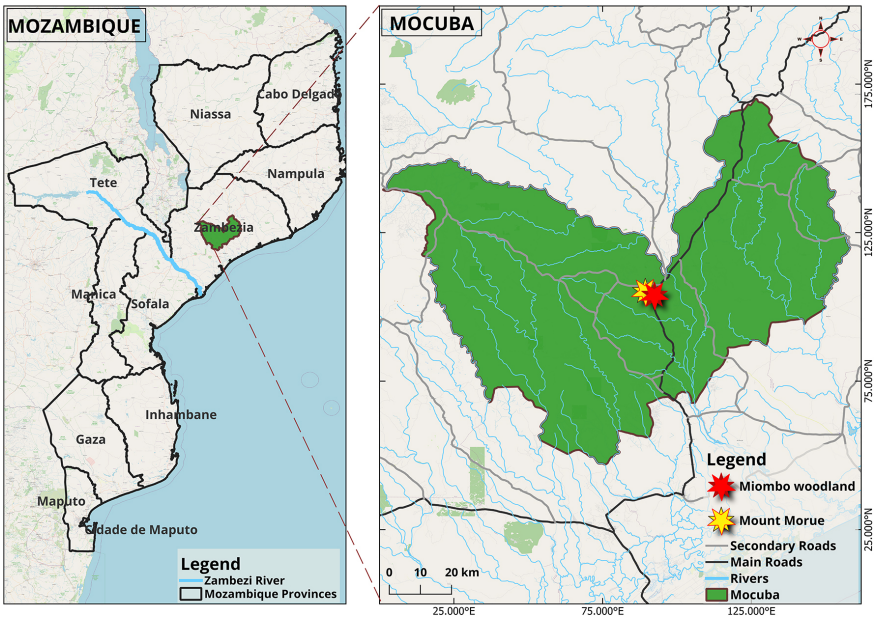

Figure 1. Location of the study area in Mozambique. The map on the left is a general map of the country, showing the Zambezi River (blue line), which divides the country into two biogeographic regions: northern Mozambique (the area north of the Zambezi River) and southern Mozambique (the area south of the Zambezi River). Mocuba District is shown in green. The map on the right presents a detailed view of Mocuba District, indicating the Miombo woodland site (red star) and Mount Morué (yellow star).

Figure 2. Areas surveyed in Mocuba Municipality, Zambezia Province, northern Mozambique. (A) Part of the Faculty of Agronomic and Forestry Engineering campus of Zambezi University. (B) Mount Morué, is located in the surroundings of Mocuba City. Photos by Avelino Miguel.

on trails and roads. Six sets of pitfall traps were installed, each consisting of five 25-liter buckets buried in the ground, interconnected by drift fences made from plastic sheeting 80 cm high and 5 m long. Traps were arranged in a Y-shape, with a distance of 5 m between buckets, and they were installed in dry Miombo woodland. Traps remained open only while we actively conducted fieldwork, so that they could be visited every 24 h. Active daytime searches were carried out in the mornings from 06:00–10:00 h and in the afternoons from 14:00–17:00 h.

Species identification. Species were identified using the guides of Marais (2004) and Branch (1998, 2016), and specialist consultations were requested as needed. Voucher specimens collected were euthanised by subcutaneous injection of a 2% Lidocaine solution (AVMA, 2020), after which they were fixed in 10% formalin for 48 h and transferred to 70% alcohol for long-term storage at Zambezi University in Mocuba for use in the teaching collection (UZ-FEAF). All captured individuals were preserved. Collections made on this private property did not require any permits.

Data analysis. Species richness was estimated using rarefaction curves, incorporating both interpolation and extrapolation methods. Rarefaction curves represented standardised abundances of individuals (standardised sample size estimates) and measures of sample coverage (sample completeness; Chao and Jost, 2012). The confidence intervals (95%) associated with these curves were estimated based on bootstraps with 1000 randomizations. Analyses were performed in iNEXT online (iNterpolation and Extrapolation; Chao et al., 2016).

Cyclone Freddy. Mozambique was seriously affected by this storm, which struck the country twice and was recorded as one of the strongest storms on record. As a consequence, dates and some measurements were lost as flooding and the cyclone's general impact led to the loss of field notebooks and computers. It is possible to obtain snout–vent length data from the collected specimens, but this has not been possible for logistical reasons.

Results

A total of 23 species of squamate reptiles from 14 genera and 12 families were observed (Table 1). Scincidae was the most diverse group, represented by five species, followed by Gerrhosauridae (3), Lamprophiidae (3), Gekkonidae (2), Agamidae (2), Lacertidae (2), Chamaeleonidae (1), Colubridae (1), Cordylidae (1), Elapidae (1), Varanidae (1), and Viperidae (1). The dwarf gecko *Lygodactylus grotei* was the species with the most captured individuals (n = 11), followed by *Trachylepis varia* (n = 10) and *Hemidactylus mabouia* (n = 9).

Thirteen species were recorded exclusively in dry Miombo woodland (lizards: *Agama mossambica*, *Broadleysaurus major*, *Chamaeleo dilepis*, *Nucras boulengeri*, *N. ornata*, *Panaspis* aff. *wahlbergii*, *Trachylepis farooqi*, *T. varia*; snakes: *Bitis arietans*, *Naja mossambica*, *Prosymna stuhlmanni*, *Psammophis mossambicus*, *Thelotornis mossambicanus*), three species exclusively on Mount Morué (lizards: *Agama kirkii*, *Matabosaurus validus*, *Platysaurus maculatus*), and seven species were recorded in both habitats (lizards: *Hemidactylus mabouia*, *Gerrhosaurus flavigularis*, *Lygodactylus grotei*, *Trachylepis margaritifer*, *T. striata*, *Varanus niloticus*; snakes: *Psammophis orientalis*; Table 1). Regarding the collection methods used, these were not equivalent in terms of species capture efficiency since pitfall traps allowed the recording of 14 species, active searches ten species, and opportunistic encounters only five species. All methods recorded terrestrial species more efficiently.

Diversity. Rarefaction curves almost reached an asymptote (Fig. 3A), indicating that few, if any, additional reptile species are expected to be found with additional sampling effort. The coverage analysis of the compiled data showed that our records of 23 species in these habitats represent > 92% of the reptile fauna for the sampled conditions, which supports the result from the rarefaction curves that we collected almost all the reptile species occurring in Mocuba Municipality (Fig. 3B).

Species accounts. In the following section, we provide natural history information regarding the reptile species found in this study. We also briefly provide diagnostic characteristics of each species to facilitate their identification in the field. Additionally, the ranges of the species within Mozambican territory are presented, with a distinction made between northern Mozambique (the area north of the Zambezi River) and southern Mozambique (the area south of the Zambezi River), as illustrated in Fig. 1 (Branch et al., 2005; Conradie et al., 2016; Tolley et al., 2016). We provide English and Portuguese common names, the latter primarily taken from Schneider et al. (2005). We also enrich our accounts by providing links to representative images on iNaturalist for each species.

Table 1. List of reptile species recorded in the dry Miombo woodland (MW) and on Mount Morué (MM) in Mocuba Municipality, northern Mozambique. The numbers of collected animals are provided in the habitat columns, with the different collection methods (PT – pitfall traps; AS – active daytime searches; OE – opportunistic encounters) indicated by bullet points (•). Asterisks (*) in the habitat column indicate that the number of observed individuals could not be specified, and a superscripted r indicates a range extension.

Taxon	Habitat		Sampling Method		
	MW	MM	PT	AS	OE
LIZARDS					
Agamidae					
Agama kirkii Boulenger, 1885		2	•		
Agama mossambica Peters, 1854	5		•		
Chamaeleonidae					
Chamaeleo dilepis Leach, 1819	6		•	•	
Cordylidae					
Platysaurus maculatus maculatus Broadley, 1965		*			
Gekkonidae					
Hemidactylus mabouia (Moreau de Jonnès, 1818)	9	1	•	•	
Lygodactylus grotei Sternfeld, 1911	11	*	•	•	•
Gherrosauridae					
Broadleysaurus major (Duméril, 1851)	2		•		
Gerrhosaurus flavigularis Wiegmann, 1828	1	1	•		
Matabosaurus validus (Smith, 1849)		*		•	
Lacertidae					
r*Nucras boulengeri* Neumann, 1900	1				•
Nucras ornata (Gray, 1864)	2		•		
Scincidae					
Panaspis aff. *wahlbergii*	*				•
Trachylepis farooqii Barbosa et al., 2025	3				
Trachylepis margaritifer (Peters, 1854)	4	1	•	•	
Trachylepis striata (Peters, 1844)	2				
Trachylepis varia (Peters, 1867)	10	*	•	•	•
Varanidae					
Varanus niloticus (Linnaeus, 1766)	1	*	•	•	•
SNAKES					
Colubridae					
Thelotornis mossambicanus (Bocage, 1895)	2		•		
Elapidae					
Naja mossambica Peters, 1854	1			•	
Lamprophiidae					
Psammophis mossambicus Peters, 1882	2		•		
Psammophis orientalis Broadley, 1977	1	1			
Prosymna stuhlmanni (Pfeffer, 1893)	1			•	
Viperidae					
Bitis arietans (Merrem, 1820)	2		•	•	

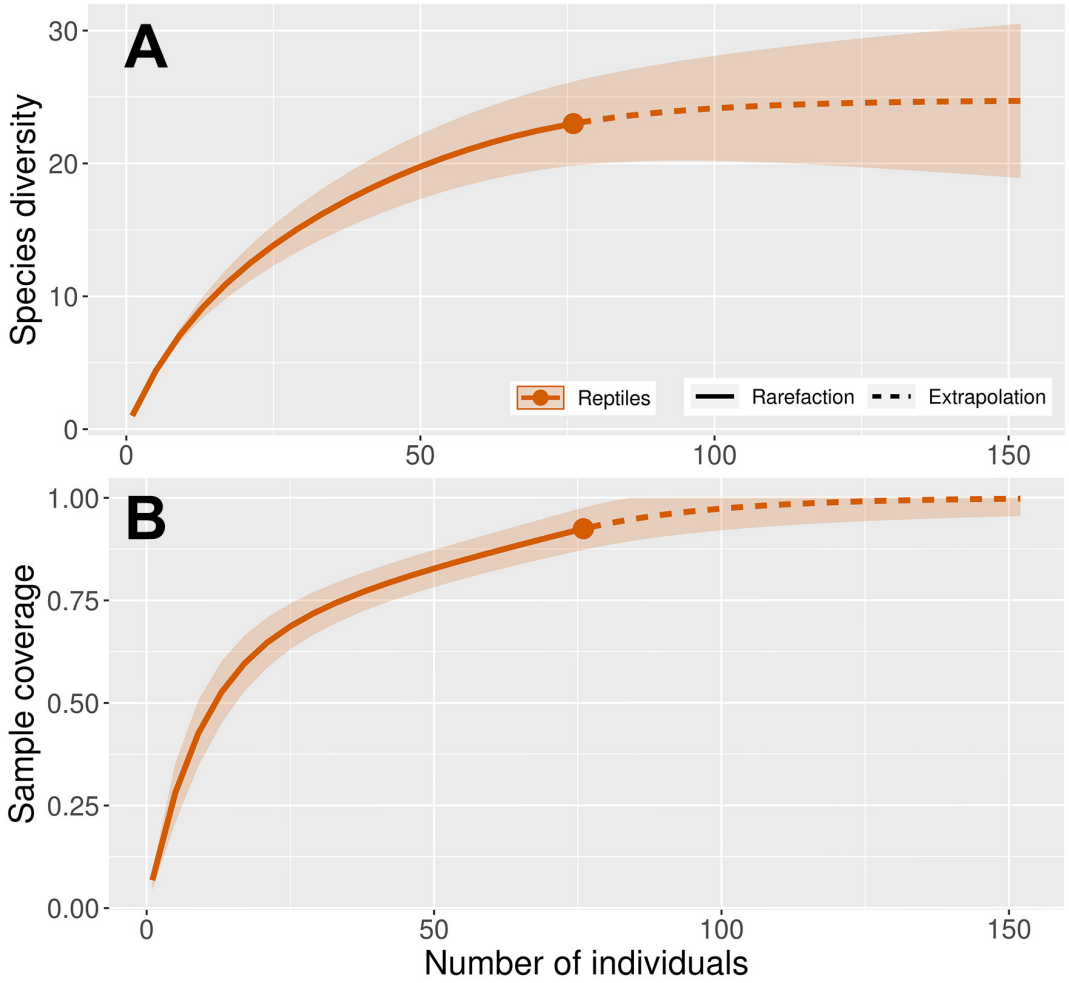

Figure 3. (A) Species richness for reptiles in Mocuba Municipality, Mozambique, using the rarefaction (interpolation and extrapolation) method based on the abundance of individuals. (B) Rarefaction and extrapolation curves based on sampling coverage for reptile communities. In both analyses, we used 1000 bootstrap replicates and displayed the 95% confidence intervals.

LIZARDS

Family Agamidae

***Agama kirkii* Boulenger, 1885**

Kirk's Rock Agama (English); Agama-de-rochas (Portuguese)

Vouchers.—UZ-FEAF-11, 45.

Observations.—Two individuals were captured at the base of Mount Morué during active searches while they were moving in the habitat during morning hours on a sunny day.

Identification.—The males of this species have an orange head and throat, a dorsal colouration that oscillates between greyish and purple, with white dots surrounded by dark edges. Females are less vibrant, displaying a 'salt and pepper' colour pattern on a brown background. *Agama kirkii* is very similar to *A. mossambica* in its overall morphology. However, males can easily be differentiated by the orange colour of the head and throat of males, and the greyish to purple dorsal colouration with a white, dark-edged area. Juveniles have a reticulated pattern on the chest (Branch et al., 2005). Both species may occur in sympatry (Bittencourt-Silva et al., 2020).

Comments.—We have no record of any work mentioning the occurrence of this species in southern Mozambique. Published records of this species for northern Mozambique are by Branch et al. (2005), Portik et al. (2013), Farooq and Conradie (2015), Bittencourt-Silva et al. (2020), Farooq et al. (2022), and Buruwate and Lloyd-Jones (2024).

iNaturalist.—A photo of this species from Mecula, Mozambique (12.1913°S, 37.5581°E) was posted by Tomas Chipiri Buruwate (252876212). Photos of a male and a female from southern Malawi (16.1990°S, 35.6651°E) were posted by Matthieu Berroneau (260370287).

***Agama mossambica* Peters, 1854**
Mozambique Agama; Agama de Moçambique

Vouchers.—UZ-FEAF-19, 27, 33, 41, 43.

Observations.—Five individuals were captured using pitfall traps in dry Miombo woodland in the morning as they moved through the habitat.

Identification.—Unlike *A. kirkii*, the males of this species have blue heads, dark throats, and a dorsum with darker mid-dorsal stripes, arranged in pairs (not spots) along the vertebral crest (Fig. 4). Females of *A. mossambica* exhibit more subtle patterns, without the vivid colours seen in *A. kirkii*.

Comments.—We have no record of any work mentioning the occurrence of this species in the southern part of the country. Recent records of this species for northern Mozambique are by Farooq and Corandie (2015), Conradie et al. (2016), Bittencourt-Silva et al. (2020), Buruwate and Lloyd-Jones (2024), and Miguel et al. (2024).

iNaturalist.—A photo of a female from Mocuba, Mozambique (16.8229°S, 37.0335°) was posted by Luke Kemp (278711538).

Figure 4. *Agama mossambica*. Individual captured in a pitfall trap in dry Miombo woodland. Photo by Avelino Miguel.

Family Chamaeleonidae

***Chamaeleo dilepis* Leach, 1819**
Flap-Necked Chameleon; Camaleão-de-pescoço-achatado

Vouchers.—UZ-FEAF-28–31, 40, 42.

Observations.—Four chameleons were captured in dry Miombo woodland. Two individuals were foraging, while the other two were observed on tree branches in the morning (Fig. 5). One additional individual was found in a pitfall trap in the afternoon.

Identification.—Body colouration is variable and may include shades of green, black, yellow, and brown. There is usually a pale stripe on the lower flanks and three pale spots higher up on the flanks. This species has a large, mobile occipital lobe.

Comments.—This species has a wide distribution with several records from southern Mozambique, including from the Bazaruto Archipelago and Banhine National Park (Broadley, 1990, 1992; Downs and Verminghaus, 1997; Jacobsen et al., 2010; Pietersen et al., 2013), as well as localities such as Ponta do Ouro and Ponta Malongane (Weinell et al., 2017). In the northern part of the country, there are records for several locations (Branch et al., 2005; Portik et al., 2013; Conradie et al., 2016; Farooq and Conradie, 2015; Bittencourt-Silva et al., 2020; Farooq et al., 2022; Buruwate and Lloyd-Jones, 2024; Miguel et al., 2024). In a recent study, Miguel et al. (2024) recorded two subspecies of *C.*

Figure 5. *Chamaeleo dilepis* was captured during an active search while moving in the branches of trees in dry Miombo woodland in the morning. Photo by Avelino Miguel.

dilepis in northern Mozambique: *C. d. quilensis* Bocage, 1866, characterized by small occipital lobes, and *C. d. petersii* Gray, 1865, with occipital lobes that extend over the shoulders. However, a molecular analysis conducted by Main et al. (2018) indicated that *C. dilepis* may represent a complex of three or more cryptic species, including a clade identified in KwaZulu-Natal Province of South Africa, which possibly encompasses neighbouring populations in Mozambique.

iNaturalist.—A photo of this species from Montepuez, Mozambique (11.7999°S, 38.4180°E) was posted by Tomas Chipiri Buruwate (260918947).

Family Cordylidae

***Platysaurus maculatus maculatus* Broadley, 1965**
Spotted Flat Lizard; Lagarto-achatado-malhado

Observations.—Two individuals were occasionally seen and photographed while they were foraging during the day on Mount Morué (Fig. 6), but neither was captured.

Identification.—This lizard has a dorsoventrally flattened body with a series of enlarged scales on the side of the neck. The body has small yellow spots that are particularly obvious in females, and there are some more evident spots beginning on the snout and extending to the area under the eye to the tympanic region. We identified these individuals as *P. m. maculatus* after consulting the descriptions by Broadley (1965, 1978), based on the presence of six infralabial scales (five in *P. m. lineicauda*), supranasals in contact (separated in *P. m. lineicauda*), and absence of an occipital scale (present in *P. m. lineicauda*).

Figure 6. *Platysaurus m. maculatus*. This individual was occasionally seen while foraging during the day on Mount Morué. Photo by Berta Sitole.

Comments.—In terms of distribution, this species is restricted to northern Mozambique (Broadley, 1965, 1978), with records from Branch et al. (2005), Conradie et al. (2016), Bittencourt-Silva et al. (2020), Buruwate and Lloyd-Jones (2024), and Miguel et al. (2024). This species has isolated populations in southern Tanzania (Broadley, 1995). The record we present is approximately 50 km south of that reported by Broadley (1965) in Namuava, north of Mugeba.

iNaturalist.—Photos of a male (105836131) and a female (105836196) from approximately 40 km north of Nampula, Mozambique (14.7605°S, 39.3206°E), were posted by Marco Aurelio de Sena.

Family Gekkonidae

***Hemidactylus mabouia* (Moreau de Jonnès, 1818)**
Tropical House Gecko; Osga das Casas Tropical

Vouchers.—UZ-FEAF-02–04, 13, 15, 22, 36–37, 44, 66.

Observations.—Seven individuals were captured in pitfall traps and three during active searches, with some observed while they were foraging for insects and others as they attempted to escape. These geckos are frequently associated with human infrastructure, but the species can also be found on trees in natural environments. These individuals were observed in both the dry Miombo woodland and Mount Morué.

Identification.—These geckos are relatively small (total length up to 140 mm, of which about half is the tail) and have a narrow head. This species has a smaller number of preanal pores than *H. platycephalus*, another species that has been recorded from northern Mozambique (Branch et al., 2005a; Jacobsen et al., 2010; Conradie et al., 2016).

Comments.—The name *H. mabouia* is associated with significant taxonomic challenges (Kluge, 1969), as it appears to represent a large species complex that includes at least 20 distinct lineages (Agarwal et al., 2021). The group likely originated in the Zambezia region approximately 21 million years ago and is highly diverse, with the highest population densities seen in Zimbabwe, Mozambique, and northeastern South Africa (Agarwal et al., 2021). Identification of some *Hemidactylus* populations to the species level is hampered by the conservative morphology of

these geckos, which requires detailed analysis, and sometimes molecular datasets for a reliable diagnosis. According to Miguel et al. (2024), who documented the occurrence of this species in Gilé National Park (PNAG), taxonomic recognition of *Hemidactylus* species in the region requires a thorough review, given the high degree of morphological similarity between species. *H. mabouia* is widely distributed and quite common in human settlements, occurring in sympatry with *H. platycephalus* both in human dwellings and in Miombo woodland (Branch et al., 2005a; Jacobsen et al., 2010; Conradie et al., 2016). In the south of Mozambique, records include Bazaruto National Park (Broadley, 1990, 1992; Downs and Verminghaus, 1997) and Banhine National Park (Pietersen et al., 2013), although some species identification may be tenuous.

iNaturalist.—Photos of this gecko from Gorongosa National Park, Mozambique (18.9802°S, 34.3520°E), were posted by Bart Wursten (264793500).

***Lygodactylus grotei* Sternfeld, 1911**
Grote's Dwarf Gecko; Osga-anã de Grote

Vouchers.—UZ-FEAF-05–06, 09, 10–12, 17–18, 20–21, 23.

Observations.—This was the most commonly encountered lizard in dry Miombo woodland, with seven individuals captured during active searches and four in pitfall traps. Three were found while they were foraging for insects, and four were mating pairs. This gecko was frequently found on trees.

Identification.—This small arboreal lizard lives well camouflaged in the dry branches of trees. The species has a brown body speckled with white dots and a wide, brown middorsal stripe running from the tip of the snout to the base of the tail (Fig. 7). Flanks are usually adorned with a white band. In some individuals, the tail is orange. Males have widened tails and a row of preanal pores. Toepads are present on fingers and toes. This species can be confused with *L. capensis*, however, *L. grotei* does not show signs of intergradation in the subcaudal diagnostic condition (Branch et al., 2005).

Comments.—This species is known from Tanzania and northern Mozambique (Spawls et al., 2018). It was also recorded in Mozambique by Branch (2005), Conradie et al. (2016), and Farooq et al. (2022).

iNaturalist.—A photo of this gecko (59860903) from a village approximately 31 km northeast of Moma, Mozambique (16.6356°S, 39.4963°E), was posted by Marius Burger.

Figure 7. *Lygodactylus grotei*. This individual was found hunting insects during the day in dry Miombo woodland. Photo by Avelino Miguel.

Family Gerrhosauridae

***Broadleysaurus major* (Duméril, 1851)**
Rough-scaled Plated Lizard; Lagarto-Mulato-com-Placas

Vouchers.—UZ-FEAF-51, 58.

Observations.—Two individuals were captured in pitfall traps during the day in dry Miombo woodland (Fig. 8).

Identification.—This lizard has a large body size (up to 230 mm SVL) with a short head and large eyes. Body scales are large, squarish, and keeled. The rounded, light brown body may have a light-speckled and faint dorsolateral strip. The chin and throat are pale cream, and there is a characteristic, light-coloured ventrolateral fold along the entire trunk length.

Comments.—Records for the southern part of Mozambique include the work of Broadley (1992) and Downs and Verminghaus (1997) in the Bazaruto Archipelago. In northern Mozambique, records were reported by Miguel et al. (2024).

iNaturalist.—A photo of this species from Zinave National Park, Mozambique (21.4089°S, 33.8467°E) was posted by Delport Botma (250769396).

***Gerrhosaurus flavigularis* Wiegmann, 1828**
Yellow-throated Plated Lizard; Lagarto-Amarelo-com-Placas

Vouchers.—UZ-FEAF-47, 63.

Observations.—Two individuals were captured in pitfall traps in the morning. These individuals were observed in both dry Miombo woodland and Mount Morué.

Figure 8. *Broadleysaurus major*. This individual was captured in a pitfall trap during the day in dry Miombo woodland. Photo by Nando Calonga.

Identification.—This species is characterised by a small head, a long tail, and a bright yellow colouration. It bears a lateral band with dark edges on each flank, while adults develop a vivid blue flush on the throat and flanks (Fig. 9). Juveniles display small yellow spots on the legs. In contrast, *G. intermedius* is more robust, with a predominantly brown, speckled body; adults develop an intense blue colouration on the throat and flanks.

Comments.—This species is widely distributed in Mozambique (Broadley, 1966; Branch, 1998). It was recorded in the south of the country by Broadley (1990) and from the islands of Bazaruto and Inhaca by Downs and Verminghaus (1997). In northern Mozambique, records have been documented in the localities of Moebase, in Zambézia Province, and Moma, in Nampula Province (Branch et al., 2005). The most recent record was reported by Miguel et al. (2024). A molecular analysis by Bates et al. (2013) indicated substructuring within *G. flavigularis*, and the taxonomic status of a lineage from East Africa (including Bazaruto and the Zambezi Delta in Mozambique) requires further investigation.

iNaturalist.—Photos of this species from Monte Bunga, Mozambique (16.8736°S, 33.2900°E) were posted by Dadzie Taura (266102047).

Figure 9. *Gerrhosaurus flavigularis*. This individual was captured in a pitfall trap in the morning in dry Miombo woodland. Photo by Berta Sitole.

***Matabosaurus validus* (Smith, 1849)**

Common Giant Plated Lizard; Lagarto-gigante-com-placas

Voucher.—UZ-FEAF-39.

Observations.—This lizard was observed occasionally as it moved and escaped into a crevasse during the day on Mount Morué (Fig. 10A). The skin of this lizard was also collected at Mount Morué (Fig. 10B).

Identification.—This is a large black lizard with a series of yellow spots on its back and bars on its flanks. The head and body are flattened. The dorsal scales are small and only slightly keeled.

Comments.—We have no record of any work mentioning the occurrence of this species in the southern part of the country, but there are two records on iNaturalist (142307906, 141439103) from the Naamacha area (25.8197°S, 31.9671°E and 25.9854°S, 31.9976°S, respectively), both posted by Richard McKibbin. Records for northern Mozambique include the work of Branch et al. (2005), Portik et al. (2013), Buruwate and Lloyd-Jones (2024), and Miguel et al. (2024).

iNaturalist.—A representative photo of this lizard from Pebane, central Mozambique (16.3884°S, 38.5565°E) was posted by Tomas Chipiri Buruwate (190808319).

Figure 10. Adult *Matabosaurus validus*. (A) The live specimen was occasionally observed in its natural habitat, exhibiting the typical body pattern of the species, with clearly defined dorsal lines. (B) Skin recovered from the ground at Mount Morué, showing the species' detailed scaly pattern. Photo by Berta Sitole.

Family Lacertidae

Nucras boulengeri Neumann, 1900

Boulenger's Scrub Lizard or Uganda Savannah Lizard; Lagarto de Boulenger

Observations.—Only a single individual was seen occasionally near a residence during the day while it was hunting insects in dry Miombo woodland.

Identification.—This lizard is easily recognised by its elongated body and a reddish-orange tail that is more than twice the length of the body (Fig. 11). The tympanum is half the size of the ear opening. The species has small, pointed dorsal scales and larger scales on the sides of the body. The venter is white. The feet are much shorter than the head. This lizard differs from *N. tessellata* (Smith, 1838) and *N. ornata* (Gray, 1864) by being smaller and having a thin, orange tail. It differs from *N. ornata*, which has a long, pale reddish-brown tail (Gray, 1864).

Comments.—This species is common across a region extending diagonally from south-central Kenya to the southeastern coast of Tanzania (Vincent and Malonza, 2011). Its presence has also been reported in northwestern Zambia, and a possible occurrence suggested in Uganda (Razzetti and Msuya, 2002; Bauer et al., 2025). The first record of this species in Mozambique was by Buruwate and Lloyd-Jones (2024) in the Niassa National Reserve, in the northern part of the country. Our record represents the second for the country, located 662 km south of the first. This is an important record that extends the range of this species to the southern part of Africa.

iNaturalist.—There are photos of this species from Mecula, northern Mozambique (12.1512°S, 38.0554°E), posted by Tomas Chipiri Buruwate (26556975).

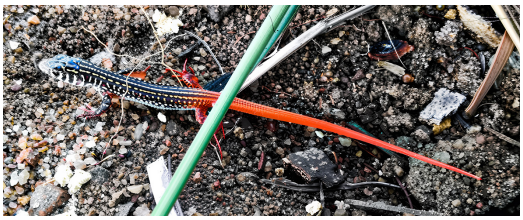

Figure 11. Juvenile *Nucras boulengeri*. This individual was occasionally seen near a residence during the day while hunting insects in dry Miombo woodland. Photo by Nando Calonga.

Nucras ornata (Gray, 1864)

Ornate Sandveld Lizard, Lagarto de Sandveld ornamentado

Vouchers.—UZ-FEAF-01, 09.

Observations.—Two differently coloured individuals of this species were collected using pitfall traps in dry Miombo woodland.

Identification.—This lizard varies greatly in colour. Its long, orange-brown tail is more than twice the length of its body (Fig. 12). The back is light brown, with several rows of white spots outlined by a black

border (Branch, 2016). The ventral region is white, with dark spots restricted to the sides. Juveniles display a more vibrant coloration, with the red tail standing out. It is a terrestrial and agile species.

Comments.—This species has been recorded in Malawi, southern Zambia, eastern Botswana, Zimbabwe, and northeastern South Africa (Alexander and Tolley, 2021). In Mozambique, its presence has been reported in the southeastern regions from the Lebombo Mountains, through the Lowveld, to central Mozambique (Branch, 2016). In addition, the identification of a population of *N. ornata* (Gray, 1864) in the Miombo woodland of the Rondo Plateau in southeastern Tanzania suggests the potential for sympatric occurrence with *N. boulengeri* Neumann, 1900 in the Niassa National Reserve, northern Mozambique (Buruwate and Lloyd-Jones, 2024). Our results, therefore, confirm the hypothesis that these two species coexist in Miombo woodland, as also confirmed by iNaturalist records (see below) and specimens in the Museum of Comparative Zoology, Cambridge, Massachusetts, USA (MCZ Herp R-50999–51002) collected near Tete in 1949 by Arthur Loveridge.

iNaturalist.—There are six localities with records of this species on iNaturalist. In a south–north direction, two of these are from Naamacha (26.1865°S, 32.1559°E, Marco Aurelio de Sena, 105843285; 25.8912°S, 31.9852°E, Willem Van Zyl, 92237960), from Inhassoro (21.5789°S, 35.0220°E, Warren McCleland, 32684913), from Vunduzi (18.5579°S, 34.3250°E; Ali Puruleia, 258205257), from Mount Bunga (16.8736°S, 33.2900°E, Dadzie Tarua, 266102540), and from Tete (16.1466°S, 33.7090°E, Paulo E. Cardoso, 793096).

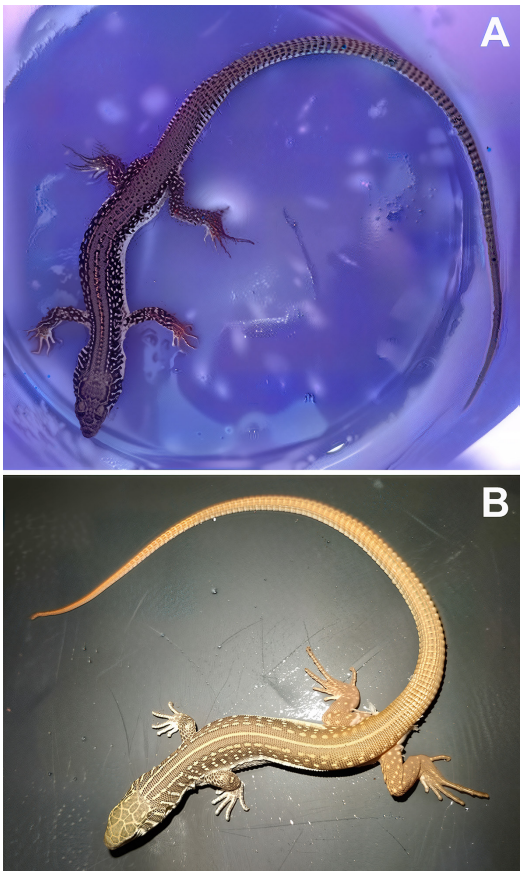

Figure 12. Adult *Nucras ornata*. These individuals were captured in a pitfall trap in the morning in a dry Miombo woodland. (A) Specimen with darker colouring and a spotted pattern. (B) Specimen with light brown to beige colouring and a long tail. Photo by Celso Duarte. Photo by Celso Duarte.

Family Scincidae

Panaspis* aff. *wahlbergi

Wahlberg's Snake-eyed Skink; Lagartixa-de-Olhos-de-cobra de Wahlberg

Observations.—During opportunistic encounters, we recorded two lizards that closely resemble *P. wahlbergii* (Smith, 1849) moving in dry Miombo woodland.

Identification.—This type of lizard can easily be confused with *P. maculicollis* Jacobsen & Broadley, 2000. However, it differs from the latter as it lacks a series of black-and-white spots along the side of the neck and the presence of a distinctive white dorsolateral stripe (Branch, 2016).

Comments.—Records of *P. wahlbergii* from southern Mozambique include those by Broadley (1990), Downs and Verminghaus (1997), and Jacobsen et al. (2010) from the islands of Bazaruto and Inhaca. In the northern part of the country, there are records by Branch et al. (2005), Conradie et al. (2016), and Miguel et al. (2024). According to Medina et al. (2016), *P. wahlbergii* sensu stricto is restricted to the eastern half of southern Africa and southern Mozambique, ranging at least as far as the Save River region, while the populations in northern Mozambique may correspond to a distinct species not yet described. For this reason, we use a conservative taxonomic approach and identify these lizards as *P.* aff. *wahlbergii*.

iNaturalist.—Nice close-up photos of this type of lizard from the Namalope Forest (16.4939°S, 39.6758°E) were posted by Marius Burger (119584992).

***Trachylepis farooqii* Barbosa et al., 2025**
Farooq's skink; Lagartixa de Farooq

Observations.—During our fieldwork, three individuals were occasionally spotted navigating the dry vegetation in the morning within dry Miombo woodland.

Identification.—These skinks are robust, shiny-bodied lizards with well-developed limbs and a relatively long tail. They feature a dorsolateral line of white spots extending from the supraciliary region to the middle of the trunk, with dark brown flanks. A white line runs from the second loreal scale past the eye and ear opening, continuing over the insertion of the forelimb to the flank, where it fades (Fig. 13). The upper eyelid has a white border, while the lower eyelid shows white only near the corners of the eye, with the central portion ranging from light to dark grey. Although morphologically very similar to *T. maculilabris* (Gray, 1845), this species can be distinguished by several notable features: in *T. farooqii*, the prefrontals and supranasals are generally separated, whereas in *T. maculilabris* these scales are typically in contact. Another key difference is the presence of orange dorsolateral stripes in *T. farooqii*, which are absent in *T. maculilabris* (Barbosa et al., 2025).

Comments.—*Trachylepis farooqii* is a newly described species, based on specimens collected in Naburi, northern Mozambique (Barbosa et al., 2025). The distribution of *T. farooqii* is fairly extensive, encompassing Malawi, Tanzania, the dry coastal forests of southeastern Kenya, and various regions of Mozambique. For Mozambique, Barbosa et al. (2025) reported that in addition to the records from Naburi, the species also occurs in Taratibu and Gilé National Park, where it lives in sympatry with *T. boulengeri* (Sternfeld, 1911). Additional specimens from other Mozambican localities are housed in scientific collections, including Mount Mabu, Ribaue, Mecula, Moma, and Moebase (Broadley, 2000; Branch et al., 2005; Conradie et al., 2016). The new record presented here lies approximately 87.8 km south of the site documented by Conradie et al. (2016). However, until now, there are no reports of this species from the southern part of the country.

iNaturalist.—There are currently no records for this species on iNaturalist, although there are observations from northern Mozambique and Malawi under the name *T. maculilabris*.

Figure 13. Adult *Trachylepis farooqii*. This individual was captured in a pitfall trap in dry Miombo woodland in the morning. Photo by Nando Calonga.

***Trachylepis margaritifer* (Peters, 1854)**
Rainbow Skink; Lagartixa-Arco-Íris

Vouchers.—UZ-FEAF-8, 24–26, 37.

Observations.—Four individuals were captured in pitfall traps during the day in dry Miombo woodland. Additionally, one individual was occasionally sighted thermoregulating at Mount Morué during active searches.

Identification.—Males have an olive to brown dorsum with white specks and a yellow to orange tail (Fig. 14). Females and juveniles have a dark brown dorsum with pale yellow to bronze stripes and bright blue tails.

Figure 14. Adult male *Trachylepis margaritifer*. This individual was captured during an active search while it was thermoregulating on Mount Morué. Photo by Avelino Miguel.

Comments.—The species has a wide distribution in Mozambique, with several records reported from the southern (Downs and Verminghaus, 1997; Pietersen, 2014) and northern (Branch et al., 2005; Portik et al., 2013; Conradie et al., 2016; Farooq and Conradie, 2015; Bittencourt-Silva et al., 2020; Farooq et al., 2022; Buruwate and Lloyd-Jones, 2024; Miguel et al., 2024) parts of the country.

iNaturalist.—Photos of a male (266102949) from Monte Bunga, Mozambique (16.8736°S, 33.2900°E), was posted by Dadzie Tarua. A representative photo of a female (292038064) from Sussundenga, Mozambique (19.5859°S, 33.0850°E), was posted by Sergio Chozas.

***Trachylepis striata* (Peters, 1844)**
African Striped Skink; Lagartixa-com-listras

Vouchers.—UZ-FEAF-39, 60.

Observations.—Two individuals were seen in the dry Miombo woodland during the morning.

Identification.—These lizards have a reddish-brown dorsal coloration with a pair of well-defined yellow dorsolateral stripes.

Comments.—The range of this species covers a wide area in Mozambique, from the south, where it was recorded by Broadley (1990), Downs and Verminghaus (1997), Jacobsen et al. (2010), and Pietersen et al. (2013), to the north, where several studies have documented its presence in different locations (Portik et al., 2013; Conradie et al., 2016; Farooq and Conradie, 2015; Bittencourt-Silva et al., 2020; Farooq et al., 2022; Buruwate and Lloyd-Jones, 2024; Miguel et al., 2024).

iNaturalist.—Photos of this species from Gorongosa National Park, Mozambique (18.9802°S, 34.3520°E), were posted by Bart Wursten (264793516).

***Trachylepis varia* (Peters, 1867)**
Variable Skink; Lagartixa-variada

Vouchers.—UZ-FEAF-01, 07, 14, 16, 32, 55, 59–61, 71.

Observations.—Seven individuals were captured in pitfall traps, and three were captured during active searches during the day in the Miombo forest while they were thermoregulating. More sightings were noted on Mount Morué, where specimens were observed during active searches and through occasional encounters.

Identification.—This lizard has white stripes on the sides that extend from behind the eye to the groin, and also has small black spots on the dorsum (Fig. 15).

Figure 15. Adult *Trachylepis varia*. This individual was captured in a pitfall trap in dry Miombo woodland in the morning. Photo by Avelino Miguel.

Comments.—The wide distribution of this species in Mozambique has been documented in numerous studies. From the southern part of the country, records were listed by Broadley (1990), Downs and Verminghaus (1997), Jacobsen et al. (2010), and Pietersen (2014, 2013), while in the north of the country these are reported in the publications by Branch et al. (2005), Portik et al. (2013), Conradie et al. (2016), Farooq and Conradie (2015), Bittencourt-Silva et al. (2020), Farooq et al. (2022), Buruwate and Lloyd-Jones (2024), and Miguel et al. (2024).

iNaturalist.—A photo of this species from Mount Mungadza, Mozambique (19.5098°S, 33.0980°E) was posted by Martin Mandák (257160635).

Family Varanidae

***Varanus niloticus* (Linnaeus, 1766)**
Nile Monitor; Varano do Nilo

Voucher.—UZ-FEAF-35.

Observations.—One individual was captured during an active search in the morning while it was being hunted by a spitting cobra, in dry Miombo woodland. Another individual was occasionally seen as it was being pursued by residents of the community around Mount Morué, and this individual was later killed for food (Fig. 16).

Figure 16. Adult *Varanus niloticus*. This individual was killed by residents from the community around Mount Morué, who claimed that this species was part of their regular diet. Photo by Berta Sitole.

Identification.—This lizard has an elongated head and a flattened tail that is much longer than its body. Juveniles have black and yellow bars on the body and are much more brightly coloured than adults.

Comments.—This species has a wide range in Africa, and records from southern Mozambique include the Bazaruto Archipelago (Broadley, 1990; Jacobsen et al., 2010). In the northern part of the country, records were documented by Portik et al. (2013) and, more recently, by Buruwate and Lloyd-Jones (2024) and Miguel et al. (2024).

iNaturalist.—A representative photo of an adult from Gorongosa National Park, Mozambique (18.8163°S, 34.4959°E) was posted by Dadzie Taura (266102279). A photo showing juvenile colouration from Marromeu, Mozambique (18.3954°S, 35.6049E), was posted by Delport Botma (292827731).

SNAKES

Family Colubridae

***Thelotornis mossambicanus* (Bocage, 1895)**
Eastern Twig Snake; Cobra-trepadeira de Moçambique

Vouchers.—UZ-FEAF-54–55.

Observations.—Two individuals were captured in pitfall traps during the day in Miombo woodland.

Identification.—This snake has a skinny and elongated body. The head is green on top with dark or brown markings speckled with black. The body is whitish with some lighter spots. It has dark spots on the sides of the neck.

Comments.—The range of this species covers a vast area in Mozambique, from the south, including the Bazaruto Archipelago (Broadley, 1990; Downs and Verminghaus, 1997; Jacobsen et al., 2010), to the north, where it has been listed in several studies (Portik et al., 2013; Conradie et al., 2016; Farooq and Conradie, 2015; Buruwate and Lloyd-Jones, 2024; Miguel et al., 2024).

iNaturalist.—Photos of an individual from Nuarro Reserve, Nampula Province, Mozambique (14.2063°S, 40.6789°E) were posted by Martin Mandák (163994871).

Family Elapidae

***Naja mossambica* Peter, 1854**
Mozambique Spitting Cobra; Cobra-cuspideira

Voucher.—UZ-FEAF-38.

Observations.—As we walked in Miombo woodland along the trail towards a termite mound, known as “Heruah” in the native language (Manhaua), we saw a Nile Monitor quickly leave the area. About a minute later, we saw a Mozambique Spitting Cobra emerging from the same burrow the lizard had left, leading us to believe that it was in pursuit. However, due to the subsequent clearing of the area around the termite mound for the installation of a greenhouse, the termite mound was quickly destroyed. In the process, we observed two Mozambique Spitting Cobras, but after an intensive search, only one of them was found, captured, and identified as a female.

Identification.—These snakes have a greyish-pink to dark olive body. Each scale is embroidered with black, while the pink belly may have irregular black crossbars or throat spots.

Comments.—The spitting cobra’s range in Mozambique extents to both the southern and northern parts of the country. In the south, Broadley (1983) and Jacobsen et al. (2010) recorded the species near Vilankulo. In the north, its occurrence was confirmed by Portik et al. (2013), Conradie et al. (2016), Farooq and Conradie (2015), Buruwate and Lloyd-Jones (2024), and Miguel et al. (2024).

iNaturalist.—Luke Kemp posted photos of spitting cobras (252251688, 267548934) from Inhassoro, southern Mozambique (21.7546°S, 35.0615°E).

Family Lamprophiidae

***Psammophis mossambicus* Peters, 1882**
Olive Grass Snake; Cobra-da-Areia-Olivácea

Vouchers.—UZ-FEAF-53, 76.

Observations.—Two individuals were captured in a pitfall trap during the day in dry Miombo woodland.

Identification.—This snake has a brown or greenish brown back, often uniform, sometimes yellowish posteriorly, sometimes with scattered, almost black scales; it has yellow or whitish dorsolateral bands. The venter is yellow or white in colour, uniform or with lateral rows of black spots or short stripes, or irregular black spots.

Comments.—For the south of the country, records were published by Jacobsen et al. (2010) and Pietersen et al. (2013), while for the north, there are records in Portik et al. (2013), Farooq et al. (2022), Buruwate and Lloyd-Jones (2024), and Miguel et al. (2024).

iNaturalist.—A photo of an individual from Marromeu, Mozambique (18.3963°S, 35.6045°E), was posted by Karin Tamar (291829350).

***Psammophis orientalis* Broadley, 1977**
Eastern Stripe-bellied Sandsnake; Cobra-da-barriga-listrada

Voucher.—UZ-FEAF-50.

Observations.—One individual was captured in a pitfall trap at the base of Mount Morué. Another individual was occasionally seen in dry Miombo woodland during the morning.

Identification.—This snake has a dark-brown dorsum, with the top of the head uniform and scattered pale scales at the base; it bears a pale, indistinct dorsolateral band and a dark band across the rostral, anterior nasal, and upper portions of the supralabials. The labials are white, speckled with black, and a yellow band is present along the middle of the ventral surface.

Comments.—In southern Mozambique, this species has been recorded in Pomene and several localities near Gorongosa National Park (Broadley, 2002). Its presence in the northern part of the country has been documented by Portik et al. (2013), Conradie et al. (2016), Farooq et al. (2022), Buruwate and Lloyd-Jones (2024), and Miguel et al. (2024).

iNaturalist.—A photo of an individual from Mocuba, Mozambique (16.8245°S, 37.0344°E), was posted by Luke Kemp (255709208).

***Prosymna stuhlmanni* (Pfeffer, 1893)**
East African Shovel-Snout; Cobra-comedora-de-centipedes de Africa Oriental

Voucher.—UZ-FEAF-34.

Observations.—One individual was captured by active search in the morning while it was moving in dry Miombo woodland.

Identification.—The body of this species presents a colouration that ranges from dark brown to metallic bluish-black. The scale patterning usually exhibits pale centres, and small pairs of white spots may be observed along the vertebral column. The belly is uniformly white. The snout is prognathous, projecting distinctly in front of the adjacent cranial structures (Fig. 17). It possesses a broad and flattened morphology, with a subtly rounded extremity. Its spatulate (or "shovel-shaped") form is recognised as a diagnostic morphological feature for the species.

Comments.—Its range covers both southern and northern Mozambique. In the south, these snakes have been recorded in Muda-Lamego (Broadley, 1980) and on Bazaruto Island by Broadley (1990, 1992) and Downs and Verminghaus (1997). In the north, Buruwate and Lloyd-Jones (2024) documented their presence in Niassa National Reserve.

iNaturalist.—As of this writing, there are only five records of this species from Mozambique on iNaturalist, but they cover the entire country. These are

Figure 17. *Prosymna stuhlmannii*. This individual was captured by active search in the morning while it was moving in dry Miombo woodland. Photo by Nando Calonga.

from Mecula, Mozambique (12.1772°S, 38.0909°E, Tomas Chipiri Buruwate, 20415538), Chironde Camp (18.3275°S, 35.3577°E, Bart Wursten, 50981690), the Namalope Forest (16.4979°S, 39.6692°E, Marius Burger, 119584366); from Maputo (26.0043°S, 32.5529°E, Nymphon, 145276734); and from Matutuine (26.0583°S, 32.6163°E; Sabine Lydia Müller, 272879001).

Family Viperidae

***Bitis arietans* (Merrem, 1820)**
Puff Adder; Víbora-asso-pradora or Víbora-comum

Vouchers.—UZ-FEAF-73–74.

Observations.—One individual was captured through pitfall traps during the morning, and another through active search while resting huddled under a tree in dry Miombo woodland.

Identification.—These snakes vary in colour from bright yellow to light yellow-brown, orange-brown, light brown, or grey, with more or less regular dark chevron-shaped markings on the back and dark bands or bars on the tail. It has a large, thick, sluggish body with a short tail and a triangular head covered in small scales, and the absence of horns on the snout.

Comments.—This species has an extensive distribution, with records in southern Mozambique, including the Bazaruto Archipelago (Broadley, 1990; Downs and Verminghaus, 1997), as well as in Banhine National Park (Pietersen, 2014). In the north, there are records documented by Branch et al. (2005), Portik et al. (2013), Farooq and Conradie (2015), Conradie et al. (2016), Bittencourt-Silva et al. (2020), Farooq et al. (2022), Buruwate and Lloyd-Jones (2024), and Miguel et al. (2024).

iNaturalist.—There are many records of this species from Mozambique on iNaturalist, and it can be considered iconic and noteworthy among iNaturalist photographers. A representative individual from Moma, coastal central Mozambique (16.6228°S, 39.5232°E), was posted by Marius Burger (118180413).

Discussion

Knowing which species occur in a given region is fundamental for planning effective conservation strategies (Groves et al., 2002). Despite this, many areas in Mozambique still lack detailed biological inventories, which limits our understanding of their true biodiversity and jeopardises management and protection actions. This study advances the knowledge of the herpetofauna of Mocuba Municipality, northern Mozambique, by presenting the first systematic reptile survey for the area. In total, 23 species were recorded, representing approximately 7.8% of the 296 species currently occurring in Mozambique (Bates, 2018; Branch et al., 2019; Barbosa et al., 2025). Our results include species widely distributed in other biomes or neighbouring countries (Marais, 2004; Branch, 2016), reinforcing the ecological potential of Mocuba and highlighting that the area is still underexplored from a herpetological perspective.

Our findings allowed for range extensions within Mozambique for *Nucras boulengeri*. This information is essential for expanding our understanding of reptile diversity and distribution in Mozambique and highlights the importance of continued inventorying efforts. The species composition revealed a higher proportion of lizards than snakes (17 vs. six species), with a predominance of skinks, a pattern also observed in other regions in Mozambique (Jacobsen et al., 2010; Conradie et al., 2016; Bittencourt-Silva et al., 2020). However, our results contrast with those of Pietersen et al. (2013), who reported geckos as the most diverse group. According to the IUCN Red List (2025), all species we recorded are classified in the "Least Concern" (LC) category.

The presence of species such as *Hemidactylus mabouia*, *Lygodactylus grotei*, *Gerrhosaurus flavigularis*, *Trachylepis margaritifer*, *T. striata*, *Varanus niloticus*, and *Psammophis orientalis* in both habitats shows that these species are capable of inhabiting different types of habitats. Conversely, the exclusive occurrence of certain species at a single site may suggest ecological specialisation. This exclusivity was observed with *Agama kirkii*, *Platysaurus maculatus*, and *Matabosaurus validus* on Mount Morué, and these species appear to be adapted to rocky outcrops, while species such as *Nucras boulengeri*, *N. ornata*, *Bitis arietans*, and *Naja mossambica* were found only in dry Miombo woodland, which may indicate a preference for a more heterogeneous habitat. However, this exclusivity must be interpreted with caution. The pattern may be influenced by non-detection in one of the sites, and not necessarily by ecological restriction. For example, species like *B. arietans* are known to occur in a wide variety of habitats across their range and are not dry Miombo woodland specialists.

In general, dry Miombo woodland showed greater microhabitat heterogeneity than Mount Morué. Based

on our methodologies, Mount Morué produced fewer results, suggesting that its reptile fauna is more difficult to detects using the techniques we used. Previous studies indicate that areas with high inselbergs and intact moist forests harbour significant species diversity (e.g., Branch, 2005; Conradie et al., 2016; Bittencourt-Silva et al., 2020), reinforcing the importance of considering intrinsic ecological characteristics when comparing different habitats. In addition to methodological limitations, Mount Morué faces several anthropogenic pressures, including subsistence agriculture, firewood extraction, and hunting (e.g., *Varanus niloticus*; Fig. 16). These human impacts appear to add to the difficulty of detecting species, underscoring the need to integrate the assessment of human threats and impacts into comparative biodiversity studies.

The pitfall traps efficiently captured terrestrial species and, unexpectedly, allowed some arboreal species to be recorded (e.g., *Chamaeleon dilepis*, *Psammophis orientalis*, *Thelotornis mossambicanus*). However, these traps tend to capture mostly terrestrial species, and their effectiveness depends on the design and number of traps used (Cechin and Martins, 2000; Gardner et al., 2007). Active searching also contributed to the results, recording terrestrial species more frequently as well. Future investigations should employ complementary methodologies, such as funnel traps for medium to large-sized snakes, large lizards, caecilians, and some aquatic species; coverboard arrays for fossorial snakes and small lizards; and basking traps for sun-seeking reptiles, such as certain chelonians and lizards (Bury and Corn, 1987; Greenberg et al., 1994; Crosswhite et al., 1999; Hutchens and DePerno, 2009). In addition, long-term sampling is essential to detect more cryptic species (Hutchens and DePerno, 2009).

The interpolation and extrapolation curves indicate that the herpetological survey was effective in sampling most of the local reptile diversity. The stabilisation trend observed in both curves suggests that the sampling effort employed was adequate to represent the community present in the area. However, the projection by extrapolation suggests the occurrence of a few additional species, which could be detected during future sampling efforts. Based on species known to occur within approximately 130 km from Mocuba, those might include *Afrotyphlops dinga*, *Boaedon capensis*, *Causus defilippi*, *Hemidactylus platycephalus*, *Holaspis laevis*, *Kinixys zombensis*, *Lycophidion capense*, *Lygodactylus capensis*, *Natriciteres sylvatica*, *Philothamnus angolensis*, *P. hoplogaster*, and *P. semivariegatus*, among others (Conradie et al., 2016; Bittencourt-Silva et al., 2020). The presence of rare species (detected only once, such as *Nucras boulengeri* and *Prosymna stuhlmanni*) hints that further survey efforts may reveal the presence of a few additional species. In addition, environmental education programmes, coupled with community-based management and sustainable use practices, are fundamental strategies to raise awareness among local communities and the general public about the ecological value of Miombo woodland and to promote its conservation.

This study highlights the ecological richness of the Mocuba region and reinforces its relevance for herpetological research and conservation in Mozambique. By providing the first systematic survey of reptiles in the area, it fills a critical gap in national biodiversity records. Although important advances were made, Mocuba Municipality remains underexplored, and continued inventorying efforts are essential to fully understand and protect its herpetofauna. Strengthening conservation policies and fostering environmental awareness will be key to ensuring the long-term preservation of this valuable natural heritage.

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