

Herpetofauna of protected areas in the Caatinga III: The Catimbau National Park, Pernambuco, Brazil

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Abstract: Despite the increase in herpetofaunal inventories in the Caatinga biome, information for many areas is still lacking and new surveys are required. We conducted a 30-day inventory of the herpetofauna of the Catimbau National Park, Pernambuco State, Brazil. Thirty-seven pitfall trap arrays composed of 4 buckets each, along with glue traps and active searches were used to sample local herpetofaunal diversity. We recorded 21 species of frogs, 25 lizards, 11 snakes, and 1 chelonian. All sampling methods contributed significantly to achieve the amphibian and reptile diversity recovered in the inventory. Rarefaction curves and richness estimators suggest that local biodiversity is still underestimated. We attempted to show the great potential of Catimbau National Park, characterized by the richest herpetofauna surveyed in a core region of the biome, along with the presence of endemic species such as the worm snake *Amphisbaena supranumeraria* and the limbless lizard *Scriptosaura catimbau*, underscoring the importance of the area for the conservation and maintenance of the Caatinga herpetofauna biodiversity.

Keywords: *Amphibians, reptiles, inventory, northeast Brazil.*

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Resumo: Apesar do crescente aumento nos inventários de herpetofauna no bioma Caatinga, ainda faltam informações para muitas áreas e novos estudos são necessários. O Parque Nacional do Catimbau, Pernambuco, Brasil, foi inventariado entre os meses de março e abril de 2013 totalizando 30 dias de amostragem, para descrever a herpetofauna local. Foram utilizados 37 pontos amostrais de armadilhas de interceptação e queda, onde cada ponto era composto por quatro baldes conectados por cercas-guia. Armadilhas de cola e procura ativa também foram métodos utilizados para amostrar a diversidade de anfíbios e répteis. Foram registradas 21 espécies de anfíbios, 25 espécies de lagartos, 11 espécies de serpentes e uma tartaruga. Todos os métodos de amostragem contribuíram para o inventário. As curvas de rarefação e os estimadores de riqueza sugerem que a diversidade local ainda está subestimada. Nós apresentamos o grande potencial do Parque Nacional do Catimbau, caracterizado pela mais rica herpetofauna inventariada na região central do bioma, e também pela presença de espécies endêmicas como *Amphisbaena supranumeraria* e *Scriptosaura catimbau*, evidenciando a importância da área para a manutenção e conservação da herpetofauna da Caatinga.

Palavras-chave: *Anfíbios, répteis, inventário, nordeste do Brasil.*

Introduction

The Caatinga biome is exclusive to Brazil, covering approximately 800.000 km² of the country's Northeastern region and is one of the three semi-arid ecosystems of South America (Ab'Saber 2005). The Caatinga is highly impacted by human activities, what is aggravated by a poor network of protected areas (only 2% under some form of protection) and by a lack of systematic biodiversity studies in most of its region (Leal et al. 2005).

Historically, the Caatinga herpetofauna was considered impoverished and lacking character compared to forest biomes in South America (Vanzolini et al. 1980). However, a rapid increase in the last decades of long-term inventories for several localities has shown a much higher amphibian and reptile species richness and endemism than previously believed (Rodrigues 2003). Currently, there are more than 150 squamate and amphibian species known for the Caatinga, many of which are endemic (Rodrigues 2003, Delfim 2012), and new endemic species are continuously being described (Cruz et al. 2012, Pombal-Jr et al. 2012, Magalhães et al. 2014). Despite this increase in herpetofaunal inventories, information for many areas of the biome is still lacking and new surveys are required.

Herein, we present the results of a 30-day inventory of the herpetofauna from the Catimbau National Park, in the semi-arid region of Pernambuco State. Our aims were to 1) provide a list based on an intensive effort conducted over a whole month; 2) contribute to the knowledge of the Caatinga herpetofauna, and 3) contextualize the results comparing, when possible, the richness and abundance of squamates and amphibians with other Caatinga sites.

Materials and methods

The Catimbau National Park (PARNA Catimbau) was created by a federal decree (Decreto n° 4.340/2002) in December 13th, 2002, and is located in central Pernambuco state, at the Ipanema Valley region, comprising the municipalities of Buíque, Sertânia, Ibimirim, and Tupanatinga (Figure 1). The Park is

included in the sedimentary deposits of Tacaratu formation, from the Paleozoic era, with the topography mainly uneven, due to strong intemperism (Ferreira 2010). The region of Catimbau is rich in ancient rock paintings and prehistoric artifacts dating back at least 6,000 years, making the park an important archeological site (Proença 2010). Also, the region is considered to be of extreme biological importance due its richness and endemism (MMA 2002).

The Park has an area of approximately 62,000 ha, and ranges from 600 m to 1,000 m of altitude. The climate is semi-arid, with monthly rainfalls varying from 0 mm to 256 mm, and annual mean temperature of 23°C (ICMBio 2013, INMEP 2013). The landscape is a typical Caatinga, with physiognomies such as dense arboreal Caatinga, shrubby spineless vegetation, sandy soils and rock fields, both evergreen and deciduous flora with plant species such as *Caesalpinia ferrea*, *Ziziphus joazeiro*, *Orbignya phalerata*, *Bursera leptophloeos*, as well as cacti and bromeliads (Figueiredo et al. 2000, Andrade et al. 2004, Sousa et al. 2012).

The inventory was conducted from March 13th to April 14th, 2013. We used 37 pitfall trap arrays divided into two different trails, one in an open shrubby vegetation area with sandy soil and the other in a dense forest vegetation area. Each array of traps was composed of four buried buckets, with one in the center and the remaining three attached to the central one through plastic sheets drift fences 6 m long each, spaced 120° from each other and constituting a Y shape. Additionally, we used 148 glue traps distributed as quartets in each array of pitfall traps: two glue traps were placed on the ground, above fallen tree trunks and rocks, and the other two in branches and trees 1 m high (Figure 2). All traps were checked daily. We used a standardized methodology that allows results to be compared across previous and future inventories (Garda et al. 2013, Cavalcanti et al. 2014)

We also carried random active searches for specimens, which were conducted in the morning, in the afternoon, and at night, in the following locations and trails, locally known as: "Meu Rei", "Casco da Tartaruga", "Pititi", "Pedra do Cachorro", "Trilha do Camelo", "Paraíso Selvagem", as well as near to the

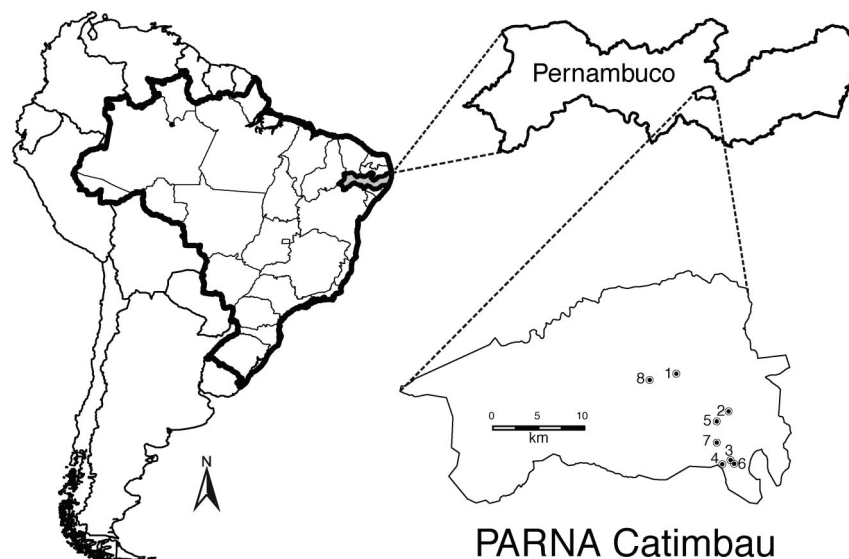


Figure 1. Location of the Catimbau National Park in the State of Pernambuco, Brazil. Points 1–8 refer to locations and trails where we conducted searches.

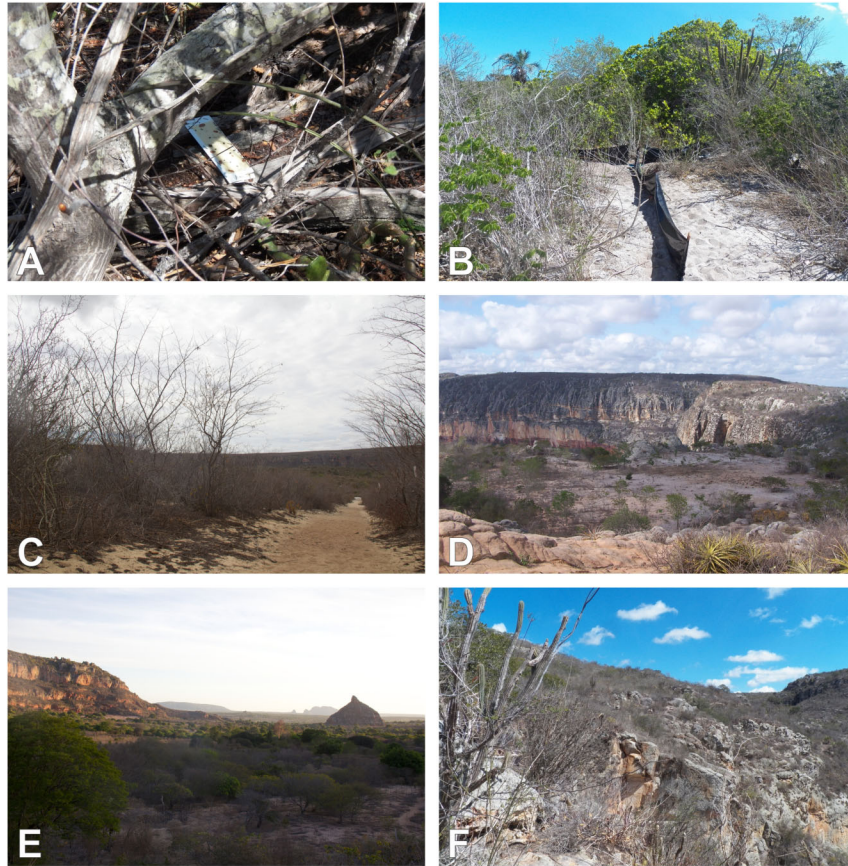


Figure 2. Habitats sampled during the herpetological survey at the Catimbau National Park. A) glue trap B) pitfall trap C) one of the trails where the pitfall traps were located D) trail “Casco da Tartaruga” E) trail “Pititi” F) trail “Trilha do Camelo”.

two pitfall trails (Figure 1; points 1-8, respectively). In order to cover the widest range of microhabitat and activity periods possible, we further searched sites with different phytophysiognomies, like dense vegetation areas, open vegetation areas with sandy soils, rock crops, and areas with water bodies.

The collected individuals were euthanized with lidocaine 5%, preserved in 10 formalin, and stored in 70% ethanol. All collected specimens were deposited at herpetological collections at Universidade Federal Rio Grande do Norte (Laboratório de Anfíbios e Répteis – CLAR/UFRN), Universidade Federal da Paraíba (Coleção Herpetológica da UFPB – CHUFPB), and Universidade Federal de Alagoas (Museu de História Natural). Specimens were collected according to permits granted by appropriate agencies to TBC (SISBIO # 29550-4) and AAG (SISBIO # 32575-1).

We obtained species accumulation curves for amphibians and reptiles (and for lizards and snakes separately) for the Catimbau National Park by using the individual-based rarefaction method (with the nonparametric Mao Tau estimator) to evaluate the relationship between collection effort and species saturation in the assemblages (Gotelli & Colwell 2001, Colwell et al. 2004). The function of richness (Mao Tau) was calculated as the accumulation function of species throughout the number of collected individuals. The species rarefaction curves were attained without replacement, using 1,000 randomizations. In addition, we used species richness estimators (with nonparametric incidence-based estimators: Bootstrap, Chao 2, ICE, Jackknife 1 and 2, and abundance-based data:

ACE and Chao 1) to determine the expected richness of amphibians and reptiles (Colwell & Coddington 1994, Colwell 2009). The species rarefaction and richness estimators were constructed in EstimateS 9.1.0 (Colwell 2013).

Results and Discussion

We recorded 1,286 individuals pertaining to 37 species of reptiles (25 lizards, three amphisbaenians, 11 snakes, and one chelonian) and 21 species of amphibians (Table 1, Figures 3 – 8). Of those, eight species were recorded in the Catimbau National Park for the first time.

The rarefaction curves (Mao Tau) did not reach stability (Figure 9) and the various species richness estimators produced greater estimates than the observed richness for amphibians and reptiles, or also for individual estimates for lizards and snakes (Table 2).

A number of species of amphibians and reptiles that we did not record in this study are known from semi-arid of central Pernambuco state and are likely to occur within Catimbau National Park, such as *Hypsiboas raniceps*, *Physalaemus albifrons*, *Iguana iguana*, *Ameiva ameiva*, *Boa constrictor* and *Micrurus ibiboboca* (Campos & Santos 2011, Muniz & Santos 2011). With the addition of those few species, the number of species of amphibians and lizards approaches the richness projected by the estimators. However, snake richness will increase considerably with more sampling effort and consequently the number of reptiles will rise. Usually, in rapid

Table 1. List of sampled amphibians and reptiles from Catimbau National Park, Pernambuco state, Brazil. Abbreviations: (*) = new record for the study area; (e) = Caatinga endemic; (p) = pitfall trap; (a) = active search; (g) = glue trap; and (r) = road kill.

Family	Species	Voucher	Sampling Method
Anurans			
Bufonidae	<i>Rhinella granulosa</i> (Spix, 1824)	AAGARDA 7752	p, a
	<i>Rhinella jimi</i> (Stevaux, 2002)	AAGARDA 8048	a
Odontophrynidae	<i>Odontophrynus carvalhoi</i> Savage & Cei, 1965	AAGARDA 8418	a
	<i>Proceratophrys cristiceps</i> (Müller, 1884 "1883")	AAGARDA 8435	p, a
Hylidae	<i>Corythomantis greeningi</i> Boulenger, 1896	AAGARDA 8690	a
	<i>Dendropsophus oliveirai</i> (Bokermann, 1963)	AAGARDA 7755	a
	<i>Dendropsophus soaresi</i> (Caramaschi & Jim, 1983)	AAGARDA 8399	a
	<i>Hypsiboas crepitans</i> (Wied-Neuwied, 1824)	AAGARDA 8487	a
	<i>Phyllodytes acuminatus</i> Bokermann, 1966	AAGARDA 8344	a
	<i>Phyllomedusa nordestina</i> Caramaschi, 2006	AAGARDA 8398	a
	<i>Scinax pachycrus</i> (Miranda-Ribeiro, 1937)	AAGARDA 8670	a
	<i>Scinax x-signatus</i> (Spix, 1824)	AAGARDA 8667	a
	<i>Trachycephalus atlas</i> Bokermann, 1966	AAGARDA 8265	a
	Leptodactylidae	<i>Pleurodema dipolister</i> (Peters, 1870)	AAGARDA 8419
<i>Physalaemus cuvieri</i> Fitzinger, 1826		AAGARDA 7762	a
<i>Leptodactylus vastus</i> A. Lutz, 1930		AAGARDA 8491	a
<i>Leptodactylus</i> sp.*			a
<i>Leptodactylus macrosternum</i> Miranda-Ribeiro, 1926		AAGARDA 8266	a
Microhylidae	<i>Leptodactylus troglodytes</i> A. Lutz, 1926	AAGARDA 8273	p,a
	<i>Dermatonotus muelleri</i> (Boettger, 1885)	AAGARDA 8434	p,a
Pipidae	<i>Pipa carvalhoi</i> (Miranda-Ribeiro, 1937)	AAGARDA 7994	a
Lizards and Amphisbaenids			
Amphisbaenidae	<i>Amphisbaena alba</i> Linnaeus, 1758	CHUFPB 13101	r
	<i>Amphisbaena supernumeraria</i> Mott, Rodrigues & Santos, 2009e	CHUFPB 13103	p
	<i>Amphisbaena vermicularis</i> Wagler, 1824*	CHUFPB 13102	p
Anguidae	<i>Diploglossus lessonae</i> Peracca, 1890	AAGARDA 8200	a
Gekkonidae	<i>Hemidactylus brasilianus</i> (Amaral, 1935)	AAGARDA 8211	p, a, g
	<i>Hemidactylus mabouia</i> (Moreau de Jonnés, 1818)	AAGARDA 8338	a
	<i>Lygodactylus klugei</i> (Smith, Martin & Swain, 1977)	AAGARDA 8350	p, a, g
Gymnophthalmidae	<i>Acratosaura mentalis</i> (Amaral, 1933)	AAGARDA 8469	p, a
	<i>Anotosaura vanzolinia</i> Dixon, 1974	AAGARDA 8499	p, a
	<i>Micrablepharus maximiliani</i> (Reinhardt & Luetken, 1862)	AAGARDA 8501	p, a, g
	<i>Scriptosaura catimbau</i> Rodrigues & Santos, 2008 ^e	AAGARDA 8570	p,a
	<i>Vanzosaura rubricauda</i> (Boulenger, 1902)	AAGARDA 8569	p, a, g
Leiosauridae	<i>Enyalius bibronii</i> Boulenger, 1885	AAGARDA 8587	p, a, g
Phyllodactylidae	<i>Gymnodactylus geckoides</i> Spix, 1825	AAGARDA 8620	p, a, g
	<i>Phyllopezus periosus</i> Rodrigues, 1986 ^e	AAGARDA 8628	a
	<i>Phyllopezus pollicaris pollicaris</i> (Spix, 1825)	AAGARDA 8677	a, g
Polychrotidae	<i>Polychrus acutirostris</i> Spix, 1825	AAGARDA 8152	a, g
Scincidae	<i>Mabuya agmosticha</i> (Rodrigues, 2000) ^e	AAGARDA 8201	a
	<i>Mabuya heathi</i> (Schmidt & Inger, 1951)	AAGARDA 8390	p, a, g
Sphaerodactylidae	<i>Coleodactylus meridionalis</i> (Boulenger, 1888)*	AAGARDA 7607	p
Teiidae	<i>Cnemidophorus ocellifer</i> (Spix, 1825)	AAGARDA 7611	p, a, g
	<i>Tupinambis merianae</i> Duméril & Bibron, 1839	not collected	r
Tropiduridae	<i>Tropidurus cocorobensis</i> Rodrigues, 1987 ^e	AAGARDA 7627	p, a, g
	<i>Tropidurus hispidus</i> (Spix, 1825)	AAGARDA 7641	p, a, g
	<i>Tropidurus semitaeniatus</i> (Spix, 1825) ^e	AAGARDA 7642	p, a, g
Chelonians			
Kynosternidae	<i>Kinosternon scorpioides</i> (Linnaeus, 1766)	AAGARDA 7960	a
Snakes			
Boidae	<i>Epicrates assisi</i> Machado, 1945	AAGARDA 7609	a
Viperidae	<i>Bothrops erythromelas</i>	AAGARDA 7704	p, a
Colubridae	<i>Tantilla melanocephala</i> (Linnaeus, 1758)	AAGARDA 7827	p, a

Continued on next page

Table 1. Continued.

Family	Species	Voucher	Sampling Method
Dipsadidae	<i>Apostolepis cearensis</i> Gomes, 1915*	AAGARDA 7876	p, a
	<i>Oxyrhopus trigeminus</i> Duméril, Bibron & Duméril, 1854	AAGARDA 8185	p, a
	<i>Philodryas nattereri</i> Steindachner, 1870	AAGARDA 7942	a
	<i>Philodryas olfersii</i> (Lichtenstein, 1823)	AAGARDA 7719	r
	<i>Pseudoboa nigra</i> (Duméril, Bibron & Duméril, 1854)*	AAGARDA 8186	a
	<i>Rodriguesophis iglesi</i> (Gomes, 1915)*	AAGARDA 8607	a
	<i>Taeniophallus affinis</i> (Günther, 1858)*	AAGARDA 8308	p
	<i>Thamnodynastes</i> sp. ^{2c}	AAGARDA 8404	p, a

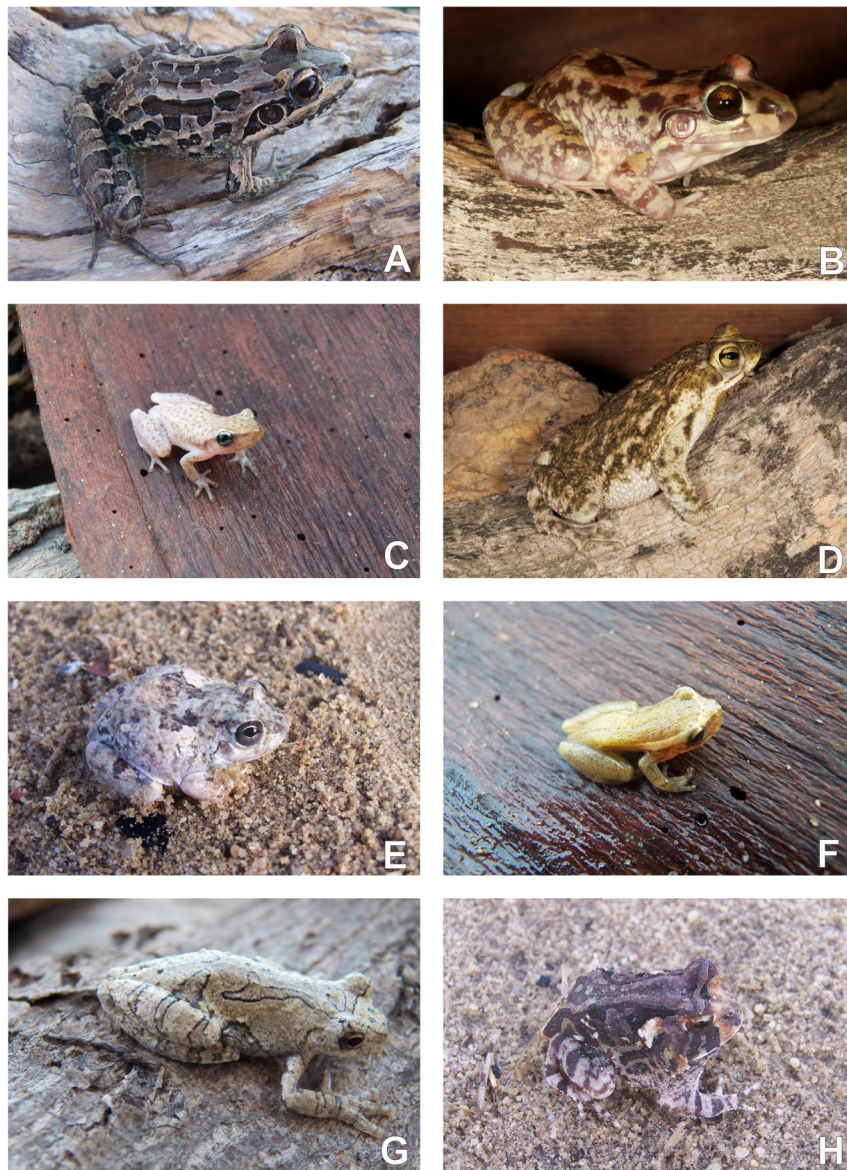


Figure 3. Frog species collected in the Catimbau National Park, Pernambuco, Brazil. A- *Leptodactylus macrosternum*; B- *Leptodactylus troglodytes*; C- *Phyllodytes acuminatus*; D- *Rhinella granulosa*; E- *Pleurodema diplolister*; F- *Dendropsophus oliveirai*; G- *Dendropsophus soaresi*; H- *Proceratophrys cristiceps*.



Figure 4. Frog species collected in the Catimbau National Park, Pernambuco, Brazil. A- *Scinax x-signatus*; B- *Physalaemus cuvieri*; C- *Trachycephalus atlas*; D- *Scinax pachycrus*; E- *Hypsiboas crepitans*; F- *Dermatoneotus muelleri*; G- *Phyllomedusa nordestina*; H- *Corythomantis greeningi*.

inventories, snakes are harder to sample than lizards and frogs because they present secretive habits, low abundance, do not produce sound, and due to the lack of effective collecting methods (Shine 1991). This is supported by our results, which

show species accumulation curves quite asymptotic for amphibians and lizards but not for reptiles and snakes, and that species richness estimates were higher than the observed number of species, specially for reptiles and snakes. Taken

Table 2. Species richness estimates for amphibians and reptiles in the Catimbau National Park using different estimators and the individual-based rarefaction methods.

Estimators	Mean \pm SD			
	Amphibians	Reptiles	Lizards	Snakes
ACE	22.76 \pm 0.07	42.72 \pm 0.19	25.59 \pm 0.02	17.56 \pm 0.76
ICE	22.68 \pm 0.07	42.56 \pm 0.19	25.50 \pm 0.19	17.38 \pm 0.75
Chao 1	21.75 \pm 1.42	42.12 \pm 6.07	24.25 \pm 0.74	20.83 \pm 10.02
Chao 2	21.75 \pm 1.42	42.12 \pm 6.07	24.25 \pm 0.74	20.83 \pm 10.02
Jackknife 1	23.99 \pm 1.72	42.99 \pm 2.64	26.00 \pm 1.41	15.91 \pm 2.12
Jackknife 2	24.00 \pm 0.19	45.99 \pm 0.30	25.00 \pm 0.30	20.74 \pm 0.65
Bootstrap	22.66 \pm 0.02	39.26 \pm 0.02	25.24 \pm 0.14	12.86 \pm 0.30

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Figure 5. Reptiles and amphibians collected in the Catimbau National Park, Pernambuco, Brazil. A- *Odontophrynus carvalhoi*; B- *Leptodactylus* sp.; C- *Pipa carvalhoi*; D- *Kinosternon scorpioides*; E- *Amphisbaena vermicularis*; F- *Amphisbaena supernumeraria*; G- *Lygodactylus klugei*; H- *Taeniophallus affinis*.

together, our results indicate that the Central Pernambuco region has the highest known herpetofaunal richness within the Caatinga and that Catimbau National Park is a key area for Caatinga biodiversity conservation (Rodrigues 2003).

Although curves did not reach asymptote, our sampling protocol proved to be quite effective, with all of the three methods being important to reveal/estimate species richness and abundances. Out of 21 amphibian species, we collected only five of them with pitfall traps as well as through active search (Table 1). All the other 16 species were collected exclusively by active search, indicating the importance of such method for this group. For lizards, four species were only collected through active search (Table 1) and three species were only caught with pitfall traps, including two amphisbaenians and the tiny gecko *Coleodactylus meridionalis*. The glue traps were efficient for lizard survey, capturing 64 individuals from 13 species.

Usually, snakes and turtles are not prone to be collected with specific traps. It is more likely to find snakes and turtles during active searches or sporadically. We collected the two specimens of the mud-turtle *Kinosternon scorpioides* during the active searches. Also, four snake species were only found and collected through active search (Table 1). Seven species we collected both during active searches and in the pitfall traps. Although we used small buckets (30 liters) for pitfall traps, we collected a total of 35 snake specimens with this method. Those were small snakes with terrestrial or fossorial/cryptozoic habits, including the 19 *Tantilla melanocephala*, seven *Apostolepis cearensis*, six *Bothrops erythromelas*, and one *Taeniophallus affinis*. Finally, two species (*Amphisbaena alba* and *Philodryas olfersii*) were found killed on roads within and adjacent to the Catimbau National Park. While we did not extensively searched roads, this may be a great concern due to the impact on the wild fauna, primarily around protected areas.

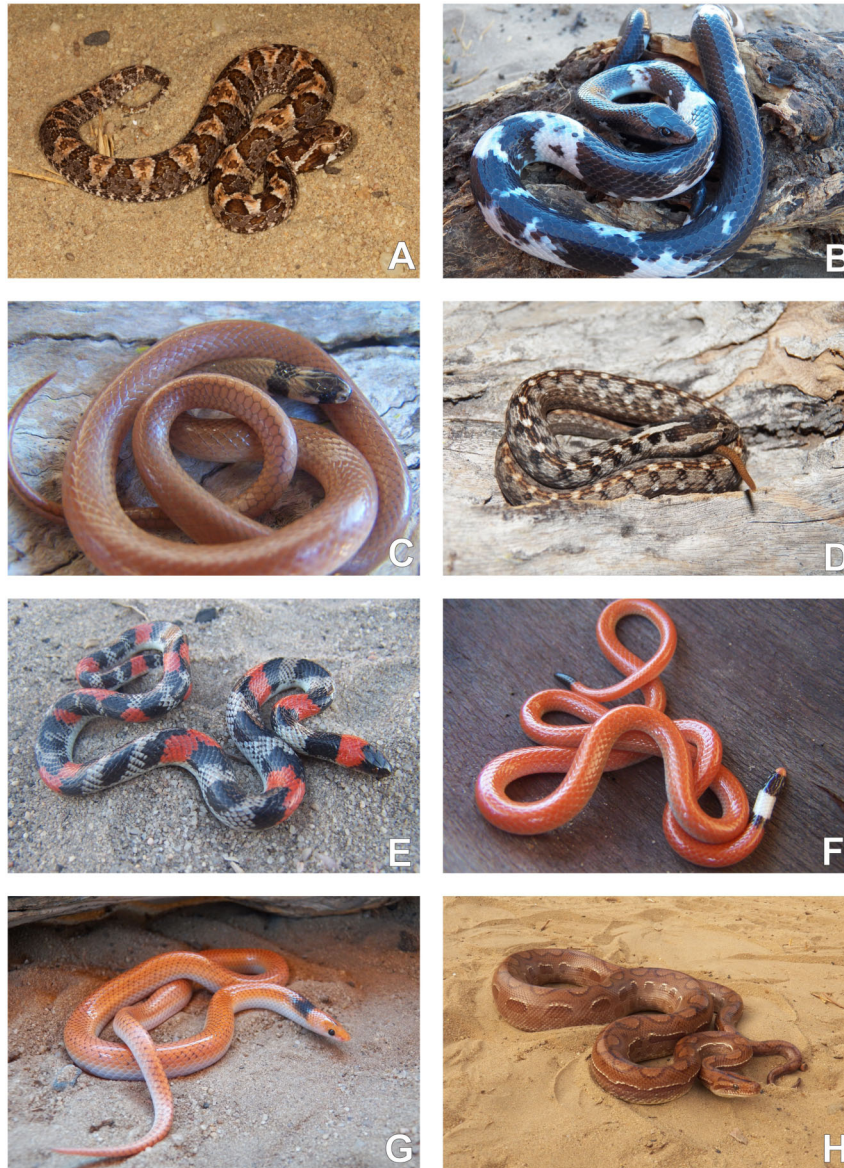


Figure 6. Snake species collected in the Catimbau National Park, Pernambuco, Brazil. A- *Bothrops erythromelas*; B- *Pseudoboa nigra*; C- *Tantilla melanocephala*; D- *Thamnodynastes* sp2; E- *Oxyrhopus trigeminus*; F- *Apostolepis cearensis*; G- *Rodriguesophis iglesiassi*; H- *Epicrates assisi*.

All amphibians found in Catimbau National Park were anuran species distributed in seven families. The composition of amphibian families is similar to other surveys in the Caatinga core region (Garda et al 2013, Arzabe et al 2005), with species distributed in 6-8 families with a dominance of Hylidae and Leptodactylidae, followed by other families with 1-2 species, such as Bufonidae and Odontophrynidae. We found the same number of amphibian species encountered in Raso da Catarina Ecological Station (ESEC-RC), Bahia state (Garda et al. 2013). Nevertheless, the inventory of anuran amphibians in ESEC-RC was conducted along a whole year. Compared to other areas within the Caatinga biome surveyed in short-term inventories, such as Curimataú, Paraíba state (21 species; Arzabe et al. 2005), Serra de Almas, Ceará state (18 species; Borges-Nojosa & Cascon 2005), Betânia and Floresta, Pernambuco state (19 species; Borges-Nojosa & Santos 2005), the current sampled amphibian richness may be considered non-discrepant. In ecotonal areas (with other

biomes such as Cerrado and Atlantic Forest), a higher number of species may be found (Loebmann & May 2008, Loebmann & Haddad 2010, Magalhães et al. 2013). In a previous work conducted in Catimbau National Park (Campos & Santos 2011), 26 anuran species were recorded with a few differences in species composition. With the addition of other species found by Campos & Santos (2010) and in this survey, the Catimbau amphibian richness is over 30 species, making this area key to the maintenance of the Caatinga amphibian biodiversity.

We also found a high diversity of lizards in Catimbau National Park. The lizard richness is higher than other Caatinga areas, which typically range from 14 to 21 species (Vitt 1995, Cavalcanti et al. 2014, Garda et al. 2013). Furthermore, the abundance of some species, such as the gymnophthalmids *Scriptosaura catimbau* and *Vanzosaura rubricauda*, or the tropidurid *Tropidurus cocorobensis*, was remarkably high. Nevertheless, more species are likely to be

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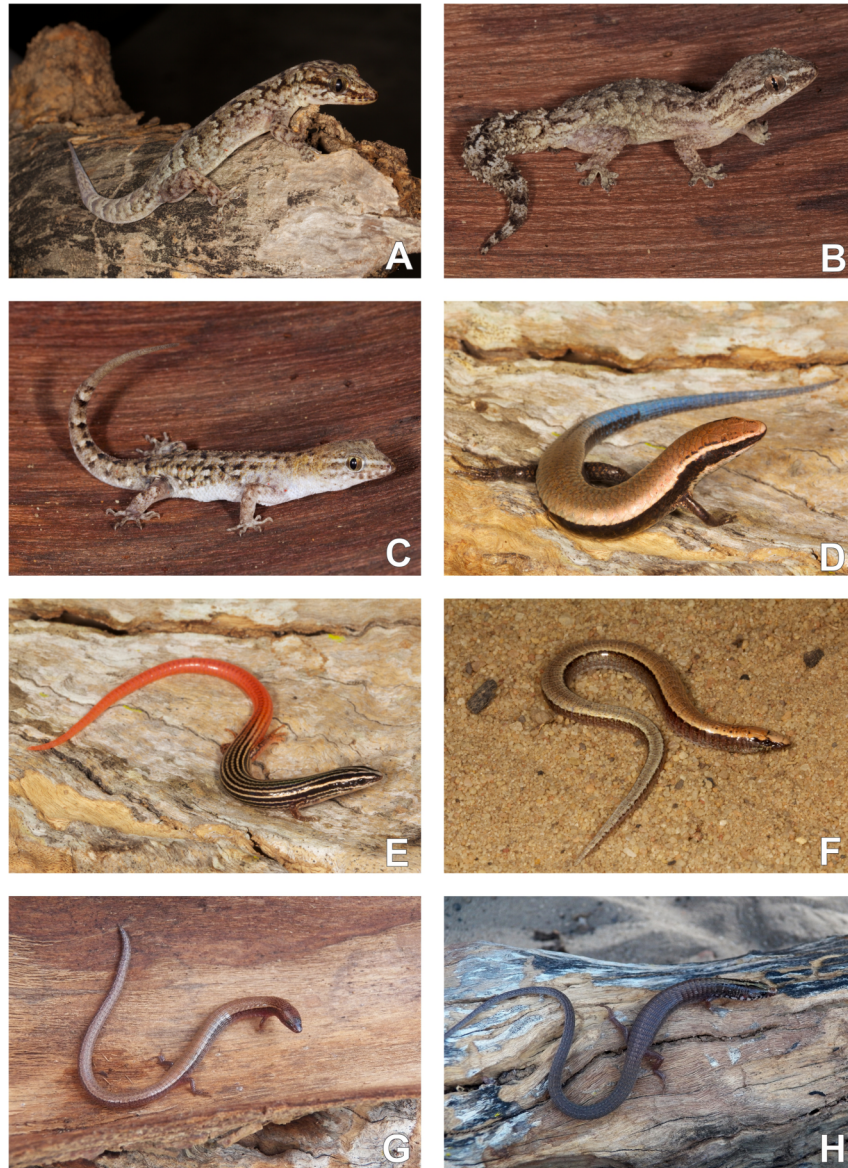


Figure 7. Lizard species collected in the Catimbau National Park, Pernambuco, Brazil. A- *Phyllopezus pollicaris*; B- *Hemidactylus brasilianus*; C- *Gymnodactylus geckoides*; D- *Micrablepharus maximiliani*; E- *Vanzosaura rubricauda*; F- *Scriptosaura catimbau*; G- *Anotosaura vanzolinia*; H- *Acratosaura mentalis*.

incorporated to the local lizard richness. Muniz & Santos (2011) recorded 26 lizard species for Catimbau region, of which we did not find *Ameiva ameiva* and *Iguana iguana*. In addition, six lizards are Caatinga endemics (Table 1), and *Amphisbaena supernumeraria* and *Scriptosaura catimbau* are endemic of the Catimbau region (Rodrigues & Santos 2008, Mott et al. 2009). Some other species are almost restrict to Caatinga, such as *Anotosaura vanzolinia* that is only found on Atlantic forest enclaves within the Caatinga domain (Gonçalves et al. 2012) and *Lygodactylus klugei*, that is found all over the Caatinga but also in marginal Cerrado areas (Delfim, 2012).

Usually, snakes contribute with a small number of species in short-term inventories. We found a number of snake species similar to other surveys with similar sampling efforts (11 species both in Raso da Catarina Ecological Station, Bahia state, as in Capivara National Park, Piauí state; Garda et al. 2013, Cavalcanti et al. 2014). However, we collected a higher number

of individuals comparing with the two previous works, accounting more than 20 individuals of small and fossorial/cryptozoic snakes *Apostolepis cearensis* and *Tantilla melanocephala*. We collected five individuals of the undescribed species of *Thamnodynastes* sp2 (*sensu* Franco & Ferreira 2002), but another species, *Thamnodynastes sertanejo*, was previously recorded in the study area (Campos & Santos 2011). Those two species have their distributions almost confined to the Caatinga biome (Coelho et al. 2013), such as *Rodriguesophis iglesiasi* and *Bothrops erythromelas*, which are found in Caatinga and also in marginal areas of Cerrado. Finally, the only turtle species found in Catimbau National Park is a common species in Caatinga areas and it has wide distribution in South America (Bonin et al. 2006).

In this study, our principal goal, using the same methodology to describe and compare the herpetofauna of the protected areas in Caatinga biome has been reached (see Garda et al.

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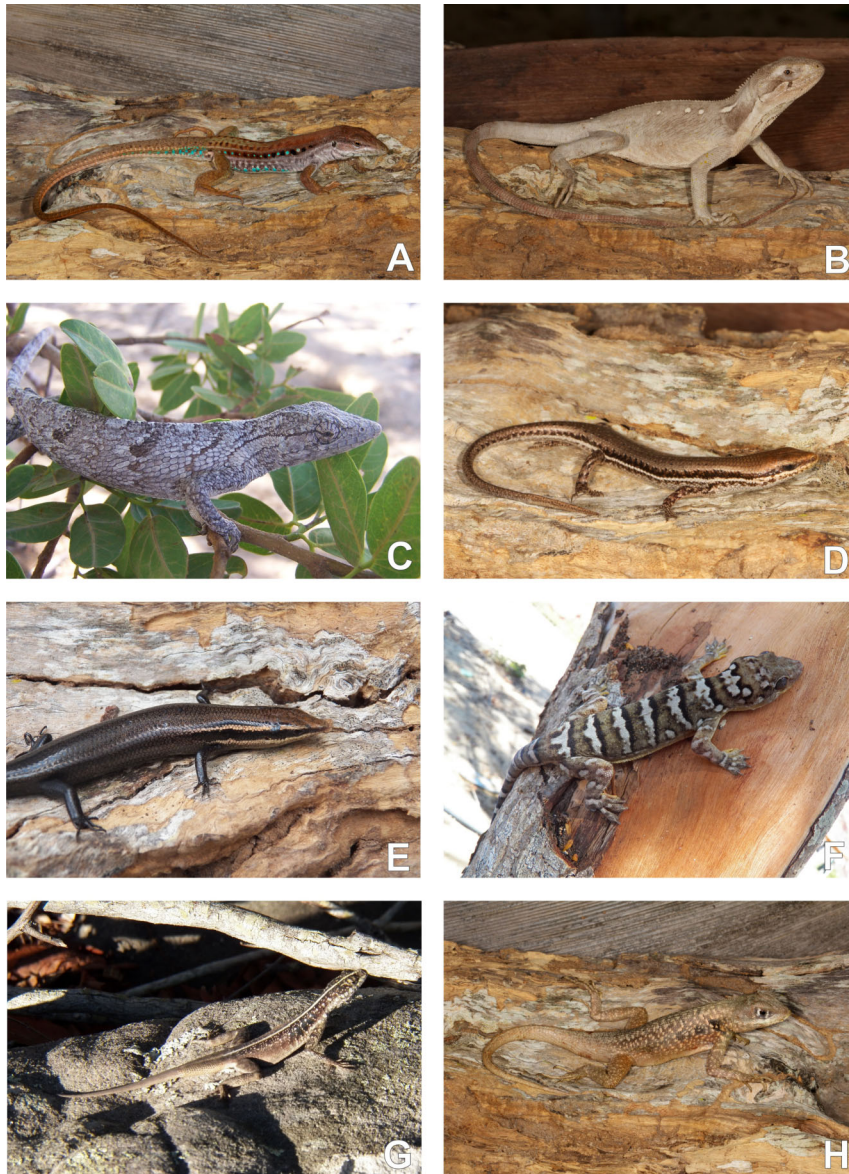


Figure 8. Lizard species collected in the Catimbau National Park, Pernambuco, Brazil. A- *Cnemidophorus ocellifer*; B- *Enyalius bibronii*; C- *Polychrus acutirostris*; D- *Mabuya heathi*; E- *Mabuya agnosticha*; F- *Phyllorhynchus periosus*; G- *Tropidurus semitaeniatus*; H- *Tropidurus cocorobensis*.

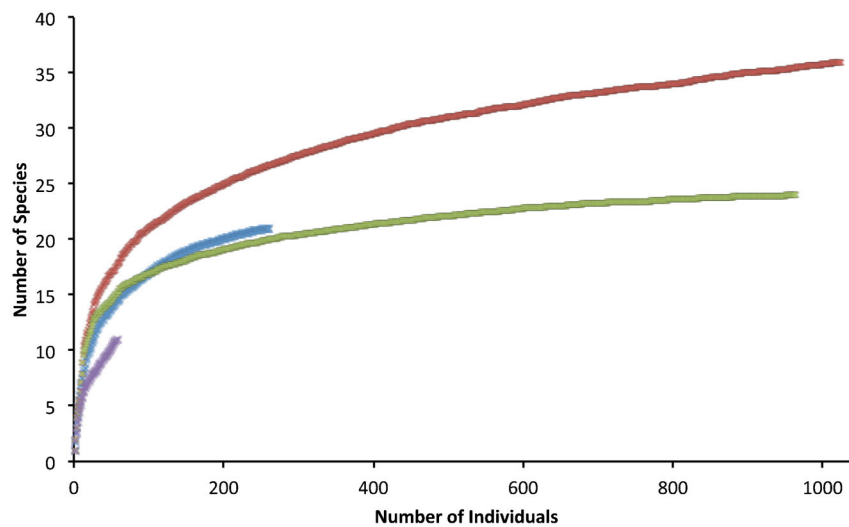


Figure 9. Species rarefaction curves for amphibians (blue curve), reptiles (red curve), lizards (green curve) and snakes (purple curve) for the Catimbau National Park.

2013; Cavalcanti et al. 2014). Additionally, we attempted to show the great potential of Catimbau National Park in harboring an important herpetofaunal Caatinga diversity, characterized by the richest herpetofauna surveyed in a core region of the biome. We suggest that long-term studies in the area should be conducted, attempting to describe the entire herpetofauna of the region. Probably, new species will be added to the list, mostly those pertaining to biological groups difficult to access rapidly, such as snakes. In addition, our work reinforces the importance of the Park in conserving and maintaining Caatinga biodiversity, and new efforts to a better preservation and management of the National Park are certainly recommended.

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