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The herpetofauna of Parque Nacional da Serra das Confusões, state of Piauí, Brazil, with a regional species list from an ecotonal area of Cerrado and Caatinga

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Abstract: Different physiognomies at Parque Nacional da Serra das Confusões (PNSCo) were intensively sampled aiming to access the distribution pattern of its herpetofauna. Sixty six species were found in the park (47 reptiles and 19 amphibians); the rarefaction curve for lizards, although not fully stabilized in an asymptote, indicates that the sampling effort was enough to reveal most lizard species occurring in the area; and richness estimators recovered values close to observed. For amphibians, the curve shows a weak tendency to stabilization with richness estimators indicating that additional records could be done. Field work carried out at PNSCo has highlighted an unique herpetofauna: five new species were described and there are three candidates as new species. The regional list including Cerrados's units - Estação Ecológica Serra Geral do Tocantins (EESGT) and Estação Ecológica de Uruçuí-Una (EEUU) with Caatinga's ones - PNSCo and Parque Nacional da Serra da Capivara (PNSCa), shows a high herpetofaunal diversity (191 species) to the region. The cluster analysis recovered the Cerrados's units and Caatinga's ones, in separate clusters evidencing a species turnover between domains, despite its geographical proximity. Thus, although there is widespread fauna throughout region shared by the units, each reserve holds its own faunal identity, harboring a singular assemblage of species.
Keywords: *Reptiles, Amphibians, Herpetofaunal Inventory, Herpetofaunistic similarities.*

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Resumo: Diferentes fisionomias foram intensivamente amostradas no Parque Nacional da Serra das Confusões (PNSCo) com o objetivo de acessar o padrão de distribuição da sua herpetofauna. Sessenta e seis espécies foram encontradas no parque (47 répteis e 19 anfíbios); a curva de rarefação de lagartos, embora não totalmente estabilizada em uma assíntota, indica que o esforço amostral foi suficiente para revelar a maioria das espécies de lagartos que ocorrem na área; e estimadores de riqueza recuperaram valores perto dos observados. Para os anfíbios, a curva mostra uma fraca tendência para a estabilização com estimadores de riqueza indicando que registros adicionais podem ser feitos. O trabalho de campo realizado no PNSCo destacou uma herpetofauna única: cinco novas espécies foram descritas e há três candidatos como novas espécies. A lista regional, incluindo unidades de Cerrado - Estação Ecológica Serra Geral do Tocantins (EESGT) e Estação Ecológica Uruçuí-Una (EEUU) com aqueles da Caatinga - PNSCo e Parque Nacional da Serra da Capivara (PNSCa), mostra uma alta diversidade da herpetofauna (191 espécies) para a região. A análise de agrupamento recupera as unidades do Cerrado e as da Caatinga em grupos separados, evidenciando uma substituição de espécies entre os domínios, apesar da sua proximidade geográfica. Assim, embora haja fauna ocorrente em toda a região e compartilhada pelas unidades, cada uma das reservas mantém a sua própria identidade, abrigando um conjunto singular de espécies.
Palavras-chave: *Répteis, Anfíbios, Inventário da herpetofauna, Similaridade herpetofaunística.*

Introduction

For many years, our limited knowledge of the herpetofaunal diversity present in the Brazilian Cerrado and Caatinga biomes led us to the erroneous idea these open formation areas were characterized by low endemism rates (Sick 1965, Vanzolini 1963, 1976, 1988). However, extensive field work carried out in last two decades showed the opposite, with elevated local diversity recorded throughout their extension (**Cerrado:** Colli et al. 2002, Rodrigues 1987, Nogueira et al. 2009, Vitt et al. 2005, França & Araújo 2006, Silveira 2006, Recoder & Nogueira 2007, Recoder et al. 2011, Dal Vechio et al. 2013; **Caatinga:** Borges-Nojosa & Cascon 2005, Ribeiro et al. 2008, Loebmann & Haddad 2010, Moura et al. 2011a, Moura et al. 2011b) and exceptional regional diversity along the contact zone between the Cerrado and Caatinga biomes (Rodrigues 1984a,b, 1987, 1988, 1996; Nogueira et al. 2010, Nogueira et al. 2011).

Such efforts also resulted in the description of several new species for the region (**Cerrado:** Colli et al. 2003, Ferrarezzi et al. 2005, Nogueira & Rodrigues 2006, Rodrigues et al. 2007, 2008, Pinna et al. 2010, Teixeira Jr. et al. 2012; Arias et al. 2014; Recoder et al. 2014; **Caatinga:** Rodrigues et al. 2001, Rodrigues et al. 2003b, Bour and Zaher 2005, Nogueira & Rodrigues 2006, Arias et al. 2011a, Arias et al. 2011b, Passos et al. 2011) and the discovery of large populations of species that were considered rare until now (Rodrigues et al. 2013). High diversity in Cerrado faunal assemblages can be explained by local physiognomic heterogeneity, (Eiten 1972, Oliveira-Filho & Ratter 2002, Colli et al. 2002, Nogueira et al. 2009) and historical climatic stability (Werneck et al. 2012). The Caatinga domain, on the other hand, presents more homogeneous drier habitats, and a singular fauna that is associated with these phytoecological conditions (Rodrigues 2003a).

Both Cerrado and Caatinga biomes lost extensive areas of original vegetation, mostly due to fast expansion of agricultural enterprises (Myers et al. 2000, Cavalcanti & Joly 2002, Klink & Machado 2005, Silva et al. 2006). With this continuous process of habitat loss, it seems imperative to prioritize faunal inventories within both biomes in order to fill the geographical gaps in our knowledge, allowing more accurate decisions when defining areas for conservation (Brooks et al. 1992; Greene 1994; Silva & Bates 2002). According to Castro (2000), the state of Piauí harbors an important center of biodiversity, mainly for its highly diversified vegetation that accounts for a large ecotonal zone that includes Cerrado, Dry Forest, Caatinga and pre-Amazon elements.

Here, we present a taxonomic list of the local herpetofauna present at the Parque Nacional da Serra das Confusões (PNSCo), located in southwestern Piauí, one of the least studied areas of the Cerrado-Caatinga ecotone. We also provide a regional list of the herpetofauna that includes three intensively sampled conservation units that are geographically closer to PNSCo, as follows: Parque Nacional da Serra da Capivara (PNSCa), Estação Ecológica de Uruçuí-Una (EEUU) and Estação Ecológica Serra Geral do Tocantins (EESGT). Finally, we compare the herpetofaunal composition of PNSCo with other local lists from the Caatinga and neighboring biomes.

Materials and Methods

1. Study area

The Parque Nacional da Serra das Confusões (PNSCo) (approximate coordinates: 08°32' - 09°16'S, 43°15' - 43°51'W, Figures 1, 2) was created in October 1998, and preserves an area of approximately 500.000 ha in southwestern Piauí, close to the border of the state of Bahia. The park is placed in an ecotonal area of Tropical Dry Forest and Caatinga (Olson et al. 2001), with a predominance of deciduous forest and arboreal Caatinga. Climate is considered to be tropical semi-arid. The park is situated within the Parnaíba drainage, in a sandstone plateau with altitudes ranging from about 450 to 700 m above the sea level [a.s.l.]) (Rodrigues et al. 2001; Bour & Zaher 2005). The plateau is locally known as "Chapada da Serra Grande," contains most of the area belonging to the park, and is dissected on its southwestern portion by the intermittent Santana River drainage (Rodrigues et al., 2001; Bour and Zaher, 2005). The top of the plateau, averages 550 m a.s.l., being covered by a tall arboreal caatinga that grows on sandy soil and produces an abundant leaf litter. The plateau is dissected by the intermitent Itaueira River in its central portion and by the "Lagoa do Jacu" depression created by erosive processes in its northern portion. The southern and western borders of the park are deeply dissected, with scattered rocky outcrops over sandy soil originated from the erosion of the Chapada da Serra Grande plateau. Lowland areas are characterized by dense rocky outcrops with low arboreal Caatinga growing over a sandy soil. This vegetation is widespread on the open lowlands. Several canyons, dissected by intermittent rivers with an evergreen forest and a dense leaf litter, are also present, but account for only a minor portion of the area.

2. Sampling method

Sampling was carried out in two campaigns in the years 2000 and 2002, one at the end of the dry season (September 26th to October 10th 2000) and other during the rainy season (January 10th to 26th 2002). The main physiognomic subunits present in the region were sampled using pitfall traps with drift fences, complemented by active visual searches. Twelve lines of pitfall traps were installed, each composed of 10 sampling units that consisted of four 30 liters buckets arranged in Y-shape, with a central one connecting to three peripherals by 4 m long plastic fences. Habitat types, geographic coordinates, campaigns and the total sampling effort are summarized in Table 1. The following habitats were sampled:

1. Dry Forest (Lagoa do Jacu) - Line 1. Mesophitic forest, growing on sandy soil, embedded within the river valley. Dominated by arboreal elements, with canopy reaching about 20 m and understory with sparse shrubs. Forest with variable width, reaching 25 m wider sections.
2. High Arboreal Caatinga (Serra Grande Plateau) - Lines 2 to 5. Vegetation on top of the plateau, consisting of arboreal and shrubby elements, characterized by Euphorbiaceae and Leguminosae such as "mimosa" (*Anadenanthera macrocarpa*). Canopy at about 6 m, growing over sandy soil.
3. High Arboreal Caatinga (Serra das Confusões Plateau) - Lines 6 and 7. Predominantly arboreal vegetation growing over sandy/clay soil, covered with leaf litter. Canopy reaching 15 m in height with understory undeveloped.
4. Low Arboreal Caatinga (Lowland) - Lines 8 and 9. Sandstone outcrops, covered by xeromorphic vegetation, dominated by Cactaceae, Bromeliaceae and Velloziaceae.
5. Grooved Forest (Lowland) - Line 10. Evergreen forest along canyon bottoms, with great number of bromeliads, pteridophytes and tall trees, around 30-40 m in height, such as jatobá *(Hymenaea* spp.), forming continuous canopy.

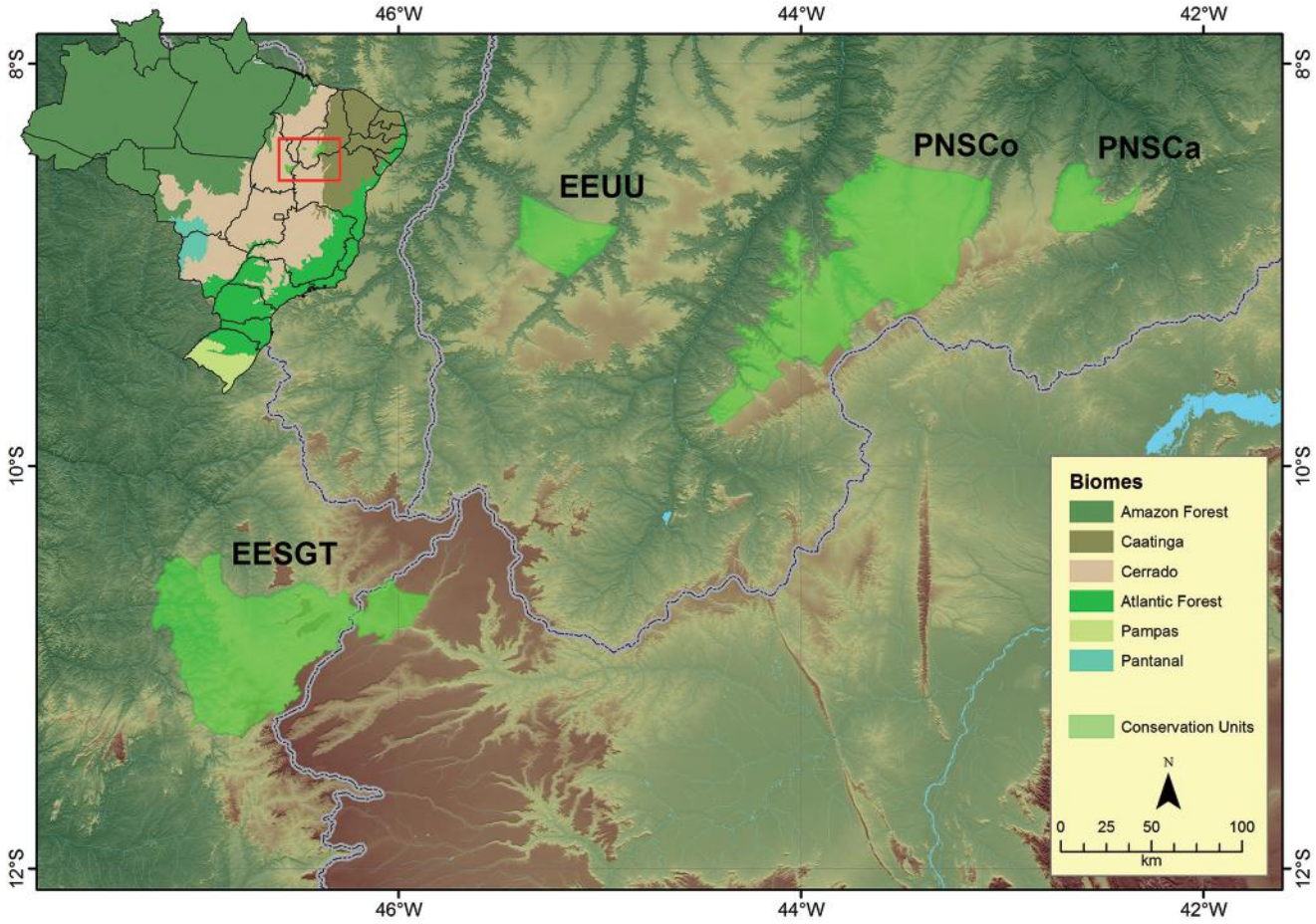

Figure 1. Map of northwestern Brazil showing the conservation units: Estação Ecológica Serra Geral do Tocantins (EESGT), Estação Ecológica de Uruçuí-Una (EEUU) Parque Nacional da Serra das Confusões (PNSCo) and Parque Nacional da Serra da Capivara (PNSCa).

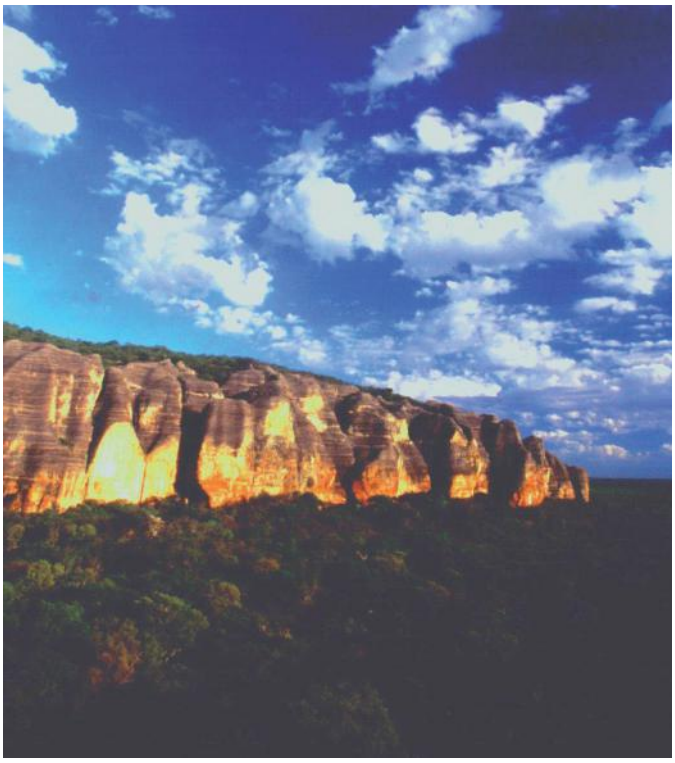

Figure 2. View of plateau with rock outcrop and arboreal caatinga in its base.

It remains constantly in the shade, and accumulates large layers of leaf litter over sandy soil.

6. High arboreal Caatinga (Lowland) - Lines 11 and 12. High arboreal elements, with canopy at 10 m above sandy soil rich in organic matter and closed understory. This type of vegetation predominates in the valleys.

A representative sample of specimens was collected and housed at the herpetological collection of the Museu de Zoologia, Universidade de São Paulo, São Paulo, Brazil (MZUSP). Voucher specimens were fixed in 10% formalin and preserved in 70% alcohol. The remaining individuals were marked by toe clipping and released near the capture site.

1. Data Analysis

The effectiveness of the sampling effort was estimated based on rarefaction curves, through 10.000 randomizations without replacement, of a matrix containing the number of individuals per species at each sampling day, including data from both pitfall traps and active search, for lizards and anurans. This analysis was performed using EstimateS v.8.0.0 (Colwell 2006). We also estimated species richness with the Chao2 and Jacknife1 estimators. Snakes were excluded from this analysis because capture rates were low, and the resulting list for the group may be underestimated, which could compromise the behavior of the rarefaction curves.

Initially, we performed faunistic comparisons with herpetofaunal lists available for intensively sampled (long-term sampling) conservation

Table 1. All pitfall lines with its accurate coordinate and the effort spent in each campaign.

Pitfall Lines	Drier Season (1st campaign)	Wet season (2nd campaign)
Line 1 - Dry Forest (Lagoa do Jacu) 08º40'37" S, 43º29'09" W	320	
Line 2 - Toca da Cabocla High Arboreal Caatinga 08º55'28" S, 43º26'58" W	400	
Line 3 - Morrinhos High Arboreal Caatinga 08º57'38" S, 43º26'50" W	360	
Line 4 - Camaçari High Arboreal Caatinga 08º59'10" S, 43º26'45" W		560
Line 5 - Camaçari High Arboreal Caatinga 08º59'10" S, 43º26'45" W		560
Line 6 - Guarita IBAMA 1 High Arboreal Caatinga 09º13'38" S, 43º27'05" W	440	
Line 7 - Guarita IBAMA 2 High Arboreal Caatinga 08º59'10" S, 43º26'45" W		560
Line 8 - Olho d'água Santa Low Arboreal Caatinga (Low Land) 09º13'03" S, 43º29'26" W	520	600
Line 9 - Baixão do Fausto Low Arboreal Caatinga (Low Land) 09º09'53" S, 43º33'58" W		440
Line 10 - Grooved Forest (Low Land) 09º13'10" S, 43º29'27" W	400	
Line 11 - Pinga Velho 1 High arboreal Caatinga (Low Land) 09º03'46" S, 43º44'27" W		80
Line 12 - Pinga Velho 2 High arboreal Caatinga (Low Land) 09º03'42" S, 43º44'23" W		480
Sampling effort	2440 buckets. days	3280 buckets. days

units geographically closer to PNSCo: Estação Ecológica Serra Geral do Tocantins (EESGT) (Recoder et al. 2011, Valdujo et al. 2011), Estação Ecológica de Uruçuí-Una (EEUU) (Dal Vechio et al. 2013), and Parque Nacional da Serra da Capivara (PNSCa) (Cavalcanti et al. 2014). An additional motivation in using these listings is the similar latitude in which these areas are located, forming a Cerrado-Caatinga transect. EESGT and EEUU are mostly within the Cerrado (with EEUU having some Caatinga's elements) while PNSCo and PNSCa are mostly within a Caatinga physiognomy (with PNSCo including Cerrado elements).

A dendrogram was estimated using the UPGMA clustering algorithm and Jaccard's similarity index with the program MVSP v.3.1 (Kovach 2000). Subsequently, we performed a cluster analysis using the Jaccard's coefficient, considering only the presence and absence of species and using the following local lists from different Brazilian domains: **Caatinga**: Planalto da Ibiapaba, Ceará (Loebmann & Haddad 2010), Serra das Almas, Ceará (Borges-Nojosa & Cascon 2002), Parque Nacional do Catimbau, Pernambuco (Moura et al. 2011a, b; Pedrosa et al. 2014), Ouricuri, Pernambuco (Moura et al. 2011a, b), Fazenda Saco, Pernambuco (Moura et al. 2011a, b); **Cerrado**: UHE Espora, Goiás (Vaz-Silva 2007), Parque Nacional das Emas-PNE, Goiás (Nogueira et al. 2009; Valdujo et al. 2009; Kopp et al. 2010), Northern Tocantins River basin-BTN, Tocantins and Maranhão (*i.e.* municipalities of Estreito, Babaçulândia, Carolina and Palmeirante) (Pavan 2007), Southern Tocantins River basin-BTS, Tocantins and Goiás (*i.e.* municipalities of Peixe, São Salvador do Tocantins, Paranã and Minaçu) (Pavan 2007); **Atlantic Forest:** Mata do Buraquinho, Paraíba (Santana et al. 2008), Estação Ecológica do Tapacurá-EET, Pernambuco (Moura et al. 2011a, b); **Amazon:** Espigão do Oeste, Rondônia (Bernarde & Abe 2006; Bernarde 2007; Macedo et al. 2008), Carajás, Pará (Cunha et al. 1985; Pinheiro 2010), Cacoal, Rondônia (Turci & Bernarde 2008) Reserva Ducke, Amazonas (Lima et al. 2006; Vitt et al. 2008; Fraga et al. 2014).

Results

Sixty six species of reptiles and amphibians were found at PNSCo: 47 reptiles (21 lizards, 20 Snakes, 2 turtles and 4 amphisbaenids) and 19 amphibians (18 anurans and one caecilian) (Table 2, Figures 3, 4, 5).

Table 2. List of the herpetofauna recored at Parque Nacional Serra da Confusões (PNSCo). N: number the specimens registered; DF: Dry Forest; HAC-SGP: High Arboreal Caatinga-Serra Grande plateau; HAC-SCP: High Arboreal Caatinga-Serra das Confusões plateau; LAC: Low Arboreal Caatinga; GF: Groove Forest; HAC-LL: High Arboreal Caatinga-Lowland; "?" without information. * recorded in a recent field trip.

	N	Habitat of capture
REPTILIA		
SQUAMATA		
LIZARDS		
HOPLOCERCIDAE		
Hoplocercus spinosus Fitzinger, 1843	18	HAC-SCP, LAC, HAC-LL
IGUANIDAE		
Iguana iguana (Linnaeus, 1758)	2	?
TROPIDURIDAE		
Stenocercus squarrosus Nogueira & Rodrigues, 2006	13	HAC-SGP, HAC-LL
Tropidurus hispidus (Spix, 1825)	84	HAC-SGP, HAC-SCP, LAC, H AC-LL
Tropidurus semitaeniatus (Spix, 1825)	32	HAC-SGP
LEIOSAURIDAE		
Enyalius bibronii Boulenger, 1885	18	HAC-SGP, HAC-SCP, LAC, HAC-LL
PHYLLODACTYLIDAE		
Phyllopezus pollicaris (Spix, 1825)	12	HAC-SGP, LAC, GF
SPHAERODACTYLIDAE		
Coleodactylus brachystoma (Amaral, 1935)	1	LAC
GEKKONIDAE		
Hemidactylus brasilianus (Amaral, 1935)	16	DF, HAC-SGP, HAC-SCP, LAC, HAC-LL
SCINCIDAE		
Mabuya heathi (Schmidt & Inger, 1951)	11	HAC-SGP, HAC-SCP

Continued Table 2.

	N	Habitat of capture
Mabuya nigropunctata (Spix, 1825)	17	HAC-SGP, HAC-SCP, LAC, HAC-LL
Mabuya frenata (Cope, 1862)	10	DF, HAC-SGP, HAC-SCP
GYMNOPHTHALMIDAE		
Calyptommatus confusionibus Rodrigues, Zaher & Curcio, 2001	14	HAC-SGP, HAC-LL
Colobosaura modesta (Reinhardt & Lütken, 1862)	45	HAC-SGP, HAC-SCP, LAC, HAC-LL
Micrablepharus maximiliani (Reinhardt & Lütken, 1862)	32	HAC-SGP, HAC-SCP, LAC, HAC-LL
Procellosaurinus erythrocercus Rodrigues, 1991	16	HAC-SGP, HAC-LL
TEIIDAE		
Ameiva ameiva (Linnaeus, 1758)	29	DF, HAC-SGP, HAC-SCP, LAC, HAC-LL
Ameivula confusioniba (Arias, De Carvalho, Rodrigues & Zaher, 2011)		
Ameivula sp.		HAC-SGP, HAC-SCP, LAC, HAC-LL
Glaucomastix venetacauda (Arias, De Carvalho, Rodrigues & Zaher, 2011)	23	HAC-SGP, LAC
Salvator merianae (Duméril & Bibron, 1839)	2	LAC
AMPHISBAENA		
AMPHISBAENIDAE		
Amphisbaena aff. *meringoera**	1	?
Amphisbaena frontalis Vanzolini, 1991	5	HAC-SGP, LAC
Amphisbaena polystega (Duméril, 1851)	1	?
Amphisbaena vermicularis Wagler, 1824	2	?
SNAKES		
LEPTOTYPHLOPIDAE		
Trilepida cf. *fuliginosa*	5	HAC-SGP, HAC-SCP, HAC-LL
BOIDAE		
Corallus hortulanus (Linnaeus, 1758)	3	DF, HAC-SCP
Epicrates assisi Machado, 1945	1	?
COLUBRIDAE		
Drymarchon corais (Boie, 1827)	3	LAC, GF
Drymoluber brazili (Gomes, 1918)	2	GF
Leptophis ahaetulla (Linnaeus, 1758)	1	?
Oxybelis aeneus (Wagler, 1824)	1	?
Spilotes pullatus (Linnaeus, 1758)	3	HAC-SGP, LAC, GF
Tantilla melanocephala (Linnaeus, 1758)	2	DF
DIPSADIDAE		
Apostolepis cearensis Gomes, 1915	10	HAC-SGP
Erythrolamprus miliaris (Linnaeus, 1758)	1	?
Erythrolamprus viridis Günther, 1862	1	?
Oxyrhopus trigeminus Duméril, Bibron & Duméril, 1854	3	?
Philodryas nattereri Steindachner, 1870	1	HAC-SCP

Continued Table 2.

	N	Habitat of capture
Philodryas olfersii (Lichtenstein, 1823)	1	DF
Pseudoboa nigra (Duméril, Bibron & Duméril, 1854)	5	HAC-SGP
Rodriguesophis iglesiasi (Gomes, 1915)	1	?
Xenodon merremii (Wagler, 1824)	1	?
Xenodon nattereri (Steindachner, 1867)	1	?
VIPERIDAE		
Crotalus durissus (Linnaeus, 1758)	1	?
ARCHOSAURIA		
ANAPSIDA		
TESTUDINES		
CHELIDAE		
Mesoclemmys perplexa Bour & Zaher, 2005	3	LAC, GF
Mesoclemmys tuberculata (Luederwaldt, 1926)	6	GF
AMPHIBIA		
ANURAN		
HYLIDAE		
Corythomantis greeningi Boulenger, 1896	11	LAC
Dendropsophus soaresi (Caramaschi and Jim, 1983)	1	?
Phyllomedusa nordestina Caramaschi, 2006	11	LAC
Scinax gr. *ruber*	7	LAC
Scinax sp.	1	?
LEPTODACTYLIDAE		
Adenomera sp. n.	25	LAC, GF
Leptodactylus aff. *syphax*	10	LAC
Leptodactylus fuscus (Schneider, 1799)	2	LAC
Leptodactylus macrosternum Miranda-Ribeiro, 1926	3	?
Leptodactylus mystaceus (Spix, 1824)	9	LAC
Leptodactylus troglodytes Lutz, 1926	32	HAC-SGP, LAC, HAC-LL
Leptodactylus vastus Lutz, 1930	5	LAC, GF
Physalaemus albifrons (Spix, 1824)	6	LAC
Physalaemus cuvieri Fitzinger, 1826	59	HAC-SGP, LAC, GF
BUFONIDAE		
Rhinella granulosa (Spix, 1824)	18	LAC, GF
Rhinella jimi (Stevaux, 2002)	4	GF
ODONTOPHRYNIDAE		
Proceratophrys cristiceps (Müller, 1883)	19	HAC-SGP, LAC, GF
MICROHYLIDAE		
Dermatonotus muelleri (Boettger, 1885)	20	HAC-SGP, LAC
GYMNOPHIONA		
CAECILIIDAE		
Siphonops paulensis Boettger, 1892	2	HAC-SGP, LAC

Figure 3. Some of the amphibians sampled at PNSCoe. A - *Siphonops paulensis*; B - *Corythomantis greeningi*; C - *Leptodactylus mystaceus*; D - *Leptodactylus* aff. *syphax*; E - *Leptodactylus troglodytes*; F - *Physalaemus albifrons*; G - *Proceratophrys cristiceps* (male) and H - *Proceratophrys cristiceps* (female).

For lizards, the rarefaction curve showed a tendency to asymptote, with decreasing standard deviation after 34 sampling days (two campaigns together) (Figure 6A), same pattern found in each campaign separately (Figure 6B). The richness estimators Chao2 and Jacknife1 recovered 19 and 20 species, respectively. For amphibians, the rarefaction curve for the two campaigns together showed only a weak tendency towards stabilization (Figure 7A), differently from the results attained for each campaign separately (Figure 7B). The richness estimators Chao2 and Jacknife1 recovered 17 and 18 species, respectively.

The complex PNSCo-PNSCa (Caatinga's units) harbors at least 74 species, and share 30 species, as follows: 52 reptiles (24 lizards, 4 amphisbaenas, 22 snakes and 2 turtles) and 22 amphibians (20 anurans and two caecilians). Adding the closer EEUU and EESGT Cerrado's units, the number of species increases to 191 (about 12.5% of Brazilian species): 130 reptiles (45 lizards, 10 amphisbaenas, 69 snakes, 4 turtles and 2 crocodilians) and 61 amphibians (59 anurans and two caecilians) (Table 3).

Sixteen species occured in all four units while 17 species were shared among three of them, 32 species were shared only between EEUU and EESGT, 8 species between PNSCo and PNSCa, 5 species between PNSCo and EEUU, and 4 between PNSCo and EESGT. Only one species was shared between PNSCa and EEUU and none were exclusive of PNSCa and EESGT together. Seven species occurred exclusively in PNSCa, 17 in PNSCo, 20 in EEUU, and 64 in EESGT (Table 3).

Figure 4. Some of the reptile sampled at PNSCo. A - *Amphisbaena vermicularis*; B - *Hoplocercus spinosus* (female); C - *Hoplocercus spinosus* (male); D - *Hemidactylus brasilianus*; E - *Phyllopezus pollicaris*; F - *Tropidurus hispidus*; G - *Tropidurus semitaeniatus*; H and I - *Stenocercus squarrosus*; J - *Enyalius bibronii* (male); K - *Enyalius bibronii* (female); L - *Enyalius bibronii* (juvenile); M - *Ameiva ameiva*; N - *Ameivula confusioniba*; O - *Glaucomastix venetacauda*.

Figure 5. Some of the reptile sampled at PNSCo. A - *Colobosaura modesta*; B - *Procellosaurinus erythrocercus*; C - *Boa constrictor*; D - *Corallus hortulanus*; E - *Epicrates assisi*; F - *Drymarchon corais*; G - *Drymoluber brazili*; H - *Apostolepis cearensis*; I - *Erythrolamprus miliaris*; J - *Oxyrhopus trigeminus*; K - *Philodryas nattereri*; L - *Pseudoboa nigra*.

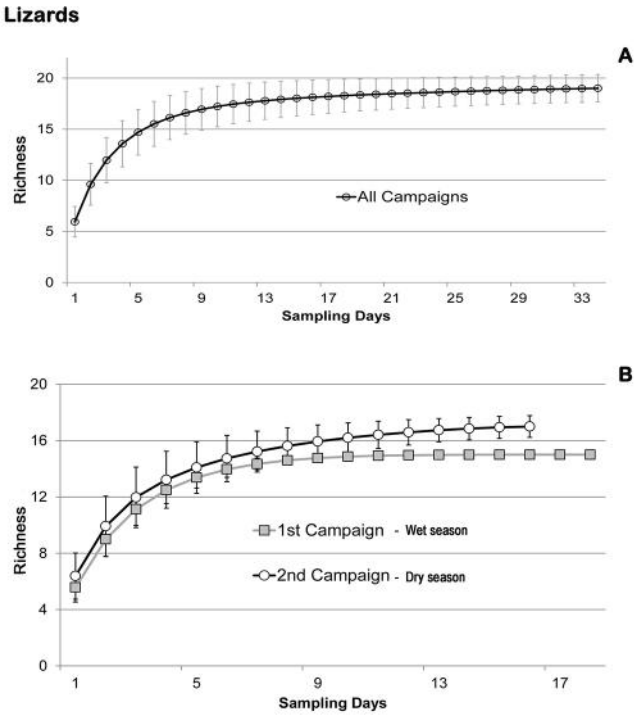

Figure 6. Rarefaction curve for lizards. A - after 34 sampling days (two campaign together); B - for each campaign separately.

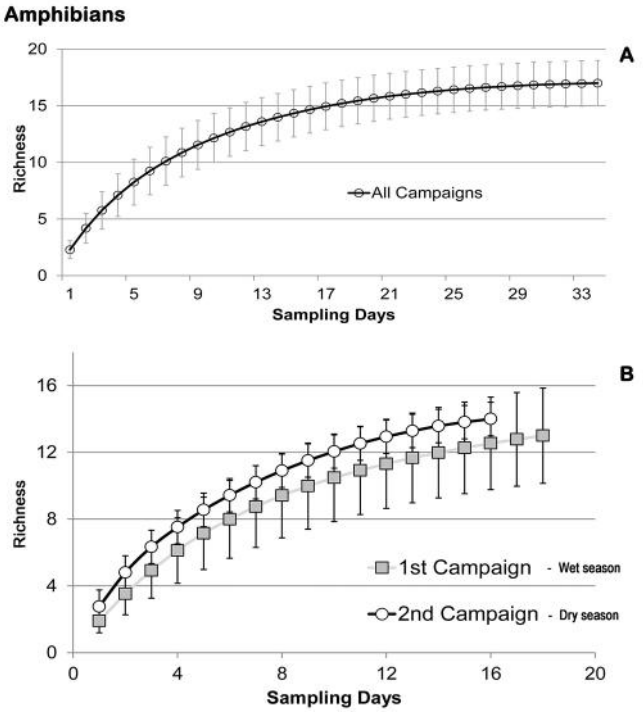

Figure 7. Rarefaction curve for amphibians. A - after 34 sampling days (two campaign together); B - for each campaign separately.

Table 3. Regional Herpetofaunal list, with presence "X" or "-" absence of species for each conservation unit. PNSCo: Parque Nacional da Serra das Confusões (present work); EEUU: Estação Ecológica de Uruçuí-Una (Dal Vechio et al. 2013); EESGT: Estação Ecológica Serra Geral do Tocantins (Recoder et al. 2011, Valdujo et al. 2011); PNSCa: Parque Nacional da Serra da Capivara (Cavalcanti et al. 2014).

	PNSCa (Caatinga)	PNSCo (Caatinga with Cerrado elements)	EEUU (Cerrado with Caatinga elements)	EESGT (Cerrado)
REPTILIA				
SQUAMATA				
LAGARTOS				
HOPLOCERCIDAE				
Hoplocercus spinosus Fitzinger, 1843	-	X	X	X
IGUANIDAE				
Iguana iguana (Linnaeus, 1758)	X	X	X	X
TROPIDURIDAE				
Stenocercus squarrosus Nogueira & Rodrigues, 2006	X	X	-	-
Stenocercus quinarius Nogueira & Rodrigues, 2006	-	-	-	X
Tropidurus cf. *oreadicus*	-	-	-	X
Tropidurus helenae (Manzani & Abe, 1990)	X	-	-	-
Tropidurus oreadicus Rodrigues, 1987	-	-	X	-
Tropidurus semitaeniatus (Spix, 1825)	X	X	X	-
Tropidurus hispidus (Spix, 1825)	X	X	-	-
LEIOSAURIDAE				
Enyalius bibronii Boulenger, 1885	X	X	-	-
POLYCHROTIDAE				
Norops chrysolepis Duméril & Bibron, 1837	-	-	-	X
Norops brasiliensis Vanzolini & Williams 1970	-	-	X	-
Norops meridionalis Boettger, 1885	-	-	X	-

Continued Table 3.

	PNSCa (Caatinga)	PNSCo (Caatinga with Cerrado elements)	EEUU (Cerrado with Caatinga elements)	EESGT (Cerrado)
Polychrus acutirostris Spix, 1825	-	-	X	X
PHYLLODACTYLIDAE				
Gymnodactylus amarali Barbour, 1925	-	-	-	X
Phyllopezus pollicaris (Spix, 1825)	X	X	X	X
SPHAERODACTYLIDAE				
Coleodactylus brachystoma (Amaral, 1935)	-	X	X	X
Coleodactylus cf. *meridionalis*	-	-	-	X
GEKKONIDAE				
Hemidactylus brasilianus (Amaral, 1935)	X	X	X	X
Hemidactylus mabouia (Moreau de Jonnès, 1818)	-	-	X	X
Lygodactylus klugei (Smith, Martin & Swain, 1977)	X	-	-	-
SCINCIDAE				
Mabuya cf. *heathi*	-	-	-	X
Mabuya heathi (Schmidt & Inger, 1951)	-	X	-	-
Mabuya cf. *nigropunctata*	-	-	-	X
Mabuya nigropunctata (Spix, 1825)	X	X	X	-
Mabuya frenata (Cope, 1862)	-	X	-	X
GYMNOPHTHALMIDAE				
Bachia oxyrhina Rodrigues et al., 2008	-	-	-	X
Calyptommatus confusionibus Rodrigues, Zaher & Curcio, 2001	-	X	-	-
Cercosaura ocellata Wagler, 1830	-	-	-	X
Colobosaura modesta (Reinhardt & Lütken, 1862)	X	X	X	X
Micrablepharus maximiliani (Reinhardt & Lütken, 1862)	X	X	X	X
Procellosaurinus erythrocercus Rodrigues, 1991	X	X	-	-
Vanzosaura savanicola Recoder, Werneck, Teixeira Jr., Colli, Sites & Rodrigues, 2014	-	-	-	X
TEIIDAE				
Ameiva ameiva (Linnaeus, 1758)	X	X	X	X
Ameivula confusioniba (Arias, De Carvalho, Rodrigues & Zaher, 2011)	-	X	-	-
Ameivula cf. *mumbuca*	-	-	X	-
Ameivula jalapensis (Colli et al., 2009)	-	-	-	X
Ameivula mumbuca (Colli et al., 2003)	-	-	-	X
Ameivula ocellifera (Spix, 1825)	X	-	-	-
Ameivula sp.	-	X	-	-
Glaucomastix venetacauda (Arias, De Carvalho, Rodrigues & Zaher, 2011)	X	X	-	-
Kentropyx aff. *paulensis* Boettger, 1893	-	-	-	X
Kentropyx calcarata Spix, 1825	-	-	X	-
Salvator duseni (Lönnberg, 1910)	-	-	-	X
Salvator merianae (Duméril & Bibron, 1839)	X	X	X	X
Tupinambis quadrilineatus Manzani & Abe, 1997	-	-	X	X
AMPHISBAENAS				
AMPHISBAENIDAE				
Amphisbaena acrobeles (Ribeiro, Castro-Mello & Nogueira, 2009)	-	-	-	X
Amphisbaena aff. *miringoera**	X	X	X	X

Continued Table 3.

	PNSCa (Caatinga)	PNSCo (Caatinga with Cerrado elements)	EEUU (Cerrado with Caatinga elements)	EESGT (Cerrado)
Amphisbaena alba Linnaeus, 1758	-	-	X	X
Amphisbaena cf. *ibijara**	X	-	-	-
Amphisbaena frontalis Vanzolini, 1991	-	X	-	-
Amphisbaena kraoh (Vanzolini, 1971)	-	-	-	X
Amphisbaena sp. nov.	-	-	-	X
Amphisbaena polystega (Duméril, 1851)	-	X	X	X
Amphisbaena sp.*	X	-	-	-
Amphisbaena vermicularis Wagler, 1824	-	X	X	X
SERPENTES				
LEPTOTYPHLOPIDAE				
Trilepida cf. *fuliginosa*	-	X	-	-
Tricheilostoma brasiliensis (Laurent, 1949)	-	-	X	-
Siagonodon acutirostris Pinto & Curcio, 2011	-	-	-	X
TYPHLOPIDAE	-			
Typhlops brongersmianus Vanzolini, 1976	-	-	X	X
BOIDAE				
Boa constrictor Linnaeus, 1758	-	-	X	X
Corallus hortulanus (Linnaeus, 1758)	X	X	X	X
Epicrates assisi Machado, 1945	-	X	X	-
Epicrates crassus Cope, 1862	-	-	-	X
Eunectes murinus (Linnaeus, 1758)	-	-	X	X
COLUBRIDAE	-			
Chironius exoletus (Linnaeus, 1758)	-	-	X	-
Chironius flavolineatus (Boettger, 1885)	-	-	X	X
Chironius quadricarinatus (Boie, 1827)	-	-	-	X
Drymarchon corais (Boie, 1827)	-	X	-	X
Drymoluber brazili (Gomes, 1918)	-	X	-	-
Leptophis ahaetulla (Linnaeus, 1758)	-	X	X	-
Mastigodryas bifossatus (Raddi, 1820)	-	-	X	X
Mastigodryas boddaerti (Sentzen, 1796)	-	-	X	X
Oxybelis aeneus (Wagler, 1824)	X	X	-	X
Spilotes pullatus (Linnaeus, 1758)	X	X	X	-
Tantilla melanocephala (Linnaeus, 1758)	-	X	X	X
DIPSADIDAE				
Apostolepis ammodites Ferrarezzi, Barbo & Albuquerque, 2005	-	-	-	X
Apostolepis cf. *longicaudata* Amaral, 1921	-	-	-	X
Apostolepis cearensis Gomes, 1915	-	X	X	-
Apostolepis nelsonjorgei Lema & Renner 2004	-	-	-	X
Apostolepis polylepis Amaral, 1921	-	-	X	X
Atractus pantostictus Fernandes & Puorto, 1993	-	-	-	X
Boiruna cf. *sertaneja*	-	-	-	X
Clelia plumbea (Wied, 1820)	-	-	X	X
Erythrolamprus almadensis (Wagler, 1824)	-	-	X	X
Erythrolamprus cf. *frenatus*	-	-	-	X
Erythrolamprus maryellenae (Dixon, 1985)	-	-	-	X

Continued Table 3.

	PNSCa (Caatinga)	PNSCo (Caatinga with Cerrado elements)	EEUU (Cerrado with Caatinga elements)	EESGT (Cerrado)
Erythrolamprus poecilogyrus (Wied, 1825)	-	-	X	-
Erythrolamprus miliaris (Linnaeus, 1758)	-	X	-	-
Erythrolamprus reginae (Linnaeus, 1758)	-	-	X	X
Erythrolamprus taeniogaster (Jan, 1863)	-	-	X	-
Erythrolamprus viridis (Günther, 1862)	-	X	-	-
Helicops angulatus (Linnaeus, 1758)	-	-	X	X
Helicops leopardinus (Schlegel, 1837)	-	-	-	X
Hydrodynastes gigas (Duméril, Bibron & Duméril, 1854)	-	-	-	X
Hydrops triangularis (Wagler, 1824)	-	-	X	-
Leptodeira annulata (Linnaeus, 1758)	-	-	-	X
Lygophis meridionalis (Schenkel, 1902)	-	-	-	X
Lygophis paucidens Hoge, 1953	-	-	X	X
Oxyrhopus guibei Hoge & Romano, 1977	-	-	-	X
Oxyrhopus rhombifer Duméril, Bibron & Duméril, 1854	-	-	X	X
Oxyrhopus trigeminus Duméril, Bibron & Duméril, 1854	X	X	X	X
Phalotris labiomaculatus Lema, 2002	-	-	-	X
Philodryas nattereri Steindachner, 1870	X	X	X	X
Philodryas olfersii (Lichtenstein, 1823)	X	X	X	-
Philodryas patagoniensis Girard, 1858	-	-	-	X
Phimophis guerini (Duméril, Bibron & Duméril, 1854)	-	-	-	X
Pseudoboa nigra (Duméril, Bibron & Duméril, 1854)	X	X	X	X
Psomophis joberti (Sauvage, 1884)	-	-	X	X
Rodriguesophis iglesiasi (Gomes, 1915)	X	X	X	X
Sibynomorphus mikanii (Schlegel, 1837)	-	-	X	X
Taeniophallus occipitalis (Jan, 1863)	-	-	X	X
Thamnodynastes sp.	X	-	X	-
Thamnodynastes hypoconia (Cope, 1860)	-	-	-	X
Thamnodynastes cf. *pallidus*	-	-	-	X
Xenodon merremii (Wagler, 1824)	X	X	X	X
Xenodon nattereri (Steindachner, 1867)	-	X	X	-
ELAPIDAE				
Micrurus brasiliensis Roze, 1967	-	-	-	X
Micrurus ibiboboca (Merrem, 1820)	-	-	X	-
VIPERIDAE	-			
Bothrops lutzi (Miranda-Ribeiro, 1915)	X	-	X	X
Bothrops mattogrossensis Amaral, 1925	-	-	-	X
Bothrops neuwiedi Wagler, 1824	-	-	-	X
Bothrops pauloensis Amaral, 1925	-	-	-	X
Bothrops moojeni Hoge, 1966	-	-	X	X
Crotalus durissus (Linnaeus, 1758)	-	X	X	X
ARCHOSAURIA				
ANAPSIDA				
TESTUDINES				
CHELIDAE				
Mesoclemmys perplexa Bour & Zaher, 2005	-	X	-	-

Continued Table 3.

	PNSCa (Caatinga)	PNSCo (Caatinga with Cerrado elements)	EEUU (Cerrado with Caatinga elements)	EESGT (Cerrado)
Mesoclemmys tuberculata (luederwaldt, 1926)	X	X	-	-
Phrynops geoffroanus (Schweigger, 1812)	-	-	-	X
Phrynops cf. *tuberosus*	-	-	X	-
CROCODYLIA				
ALLIGATORIDAE				
Caiman crocodilus (Linnaeus, 1758)	-	-	X	X
Paleosuchus palpebrosus (Cuvier, 1807) 124spp	-	-	-	X
AMPHIBIA				
ANURA				
CRAUGASTORIDAE				
Barycholos ternetzi Caramaschi & Pombal, 2001	-	-	-	X
HYLIDAE				
Corythomantis greeningi Boulenger, 1896	-	X	-	X
Dendropsophus cruzi (Pombal & Bastos, 1998)	-	-	-	X
Dendropsophus minutus (Peters, 1872)	-	-	X	X
Dendropsophus nanus (Boulenger, 1889)	-	-	X	-
Dendropsophus rubicundulus (Reinhardt and Lütken, 1862)	-	-	X	X
Dendropsophus soaresi (Caramaschi and Jim, 1983)	-	X	X	X
Hypsiboas albopunctatus (Spix, 1824)	-	-	-	X
Hypsiboas punctatus (Schneider, 1799)	-	-	-	X
Hypsiboas raniceps Cope, 1862	-	-	-	X
Hypsiboas multifasciatus (Günther, 1859)	-	-	X	-
Osteocephalus cf. *taurinus*	-	-	-	X
Osteocephalus taurinus Steindachner, 1862	-	-	X	-
Phyllomedusa azurea Cope, 1862	-	-	X	X
Phyllomedusa nordestina Caramaschi, 2006	-	X	-	-
Scinax constrictus (lima, Bastos & Giaretta, 2005)	-	-	-	X
Scinax fuscomarginatus (Lutz, 1925)	-	-	X	X
Scinax fuscovarius Lutz, 1925)	-	-	-	X
Scinax gr. *ruber* sp.1	-	-	-	X
Scinax gr. *ruber* sp.2	-	-	X	-
Scinax gr. *ruber* sp.3	-	-	X	-
Scinax gr. *ruber* sp.4	-	X	-	-
Scinax sp.	-	X	-	-
Scinax x-signatus (Spix, 1824)	X	-	-	-
Trachycephalus venulosus (Laurenti, 1768)	-	-	X	X
LEPTODACTYLIDAE				
Adenomera sp. n.	-	X	X	-
Leptodactylus fuscus (Schneider, 1799)	-	X	X	X
Leptodactylus aff. *syphax*	X	X	-	-
Leptodactylus hylaedactylus Müller, 1923	-	-	-	X
Leptodactylus labyrinthicus (Spix, 1824)	-	-	-	X
Leptodactylus latrans (Steffen, 1815)	-	-	-	X
Leptodactylus macrosternum Miranda-Ribeiro, 1926	-	X	-	-

Continued Table 3.

	PNSCa (Caatinga)	PNSCo (Caatinga with Cerrado elements)	EEUU (Cerrado with Caatinga elements)	EESGT (Cerrado)
Leptodactylus martinezi Bokermann, 1956	-	-	-	X
Leptodactylus mystaceus (Spix, 1824)	-	X	-	-
Leptodactylus podicipinus (Cope, 1862)	-	-	X	X
Leptodactylus sertanejo (Giaretta & Costa, 2007)	-	-	-	X
Leptodactylus syphax Bokermann, 1969	-	-	-	X
Leptodactylus troglodytes Lutz, 1926	X	X	X	X
Leptodactylus vastus Lutz, 1930	X	X	X	-
Eupemphix nattereri (Steindachner, 1863)	-	-	-	X
Physalaemus albifrons (Spix, 1824)	-	X	-	-
Physalaemus centralis Bokermann, 1962	-	-	X	X
Physalaemus cuvieri Fitzinger, 1826	X	X	X	X
Pleurodema diplolistris (Peters, 1870)	-	-	-	X
Pseudopaludicola cf. *mystacalis*	-	-	X	-
Pseudopaludicola mystacalis (Cope, 1887)	-	-	-	X
Pseudopaludicola saltica (Cope, 1887)	-	-	-	X
BUFONIDAE				
Rhaebo guttatus (Schneider, 1799)	-	-	X	X
Rhinella granulosa (Spix, 1824)	X	X	-	-
Rhinella jimi (Stevaux, 2002)	X	X	X	-
Rhinella mirandaribeiroi (Gallardo, 1965)	-	-	X	X
Rhinella ocellata (Günther, 1858)	-	-	X	X
Rhinella schneideri (Werner, 1894)	-	-	-	X
Rhinella veredas (Brandão, Maciel & Sebben, 2007)	-	-	X	-
ODONTOPHRYNIDAE				
Proceratophrys cristiceps (Müller, 1883)	-	X	-	-
Proceratophrys goyana (Miranda-Ribeiro, 1937)	-	-	-	X
MICROHYLIDAE				
Dermatonotus muelleri (Boettger, 1885)	-	X	X	X
Elachistocleis carvalhoi Caramaschi, 2010	-	-	X	-
Elachistocleis cesarii (Miranda-Ribeiro, 1920)	-	-	-	X
GYMNOPHIONA				
CAECILIIDAE				
Siphonops sp.	X	-	-	-
Siphonops paulensis Boettger, 1892	-	X	-	X

The cluster analysis recovered PNSCo and PNSCa within the Caatinga group, and EEUU and EESGT within the Cerrado group, indicating a strong species turnover in the contact region between Caatinga and Cerrado in southern Piauí (Figure 8). The same pattern was recovered for lizards and amphibians when analyzed separately (Data not shown).

Discussion

The herpetofauna of PNSCo is one of the most diverse of the Caatinga biome, except for the fauna from the isolated forest patches of northeastern Brazil, usually referred as “Brejos Nordestinos”. A total of 66 species were recorded (74 species when taking together PNSCo and PNSCa), equating in diversity with previously well sampled areas like Exu in Pernambuco, Valença in Piauí, and Xingó in Alagoas (with 53, 42 and 41 species, respectively) (Rodrigues, 2003a).

Part of the high diversity found in the PNSCo and PNSCa taken together can be explained by landscape heterogeneity, which, in turn, also characterizes the Cerrado units and strongly differs from Caatinga (*sensu stricto*) areas where the landscape physiognomy is far more homogeneus. However, since the PNSCo and PNSCa are situated in an ecotonal area between these two biomes, they harbor a mix of

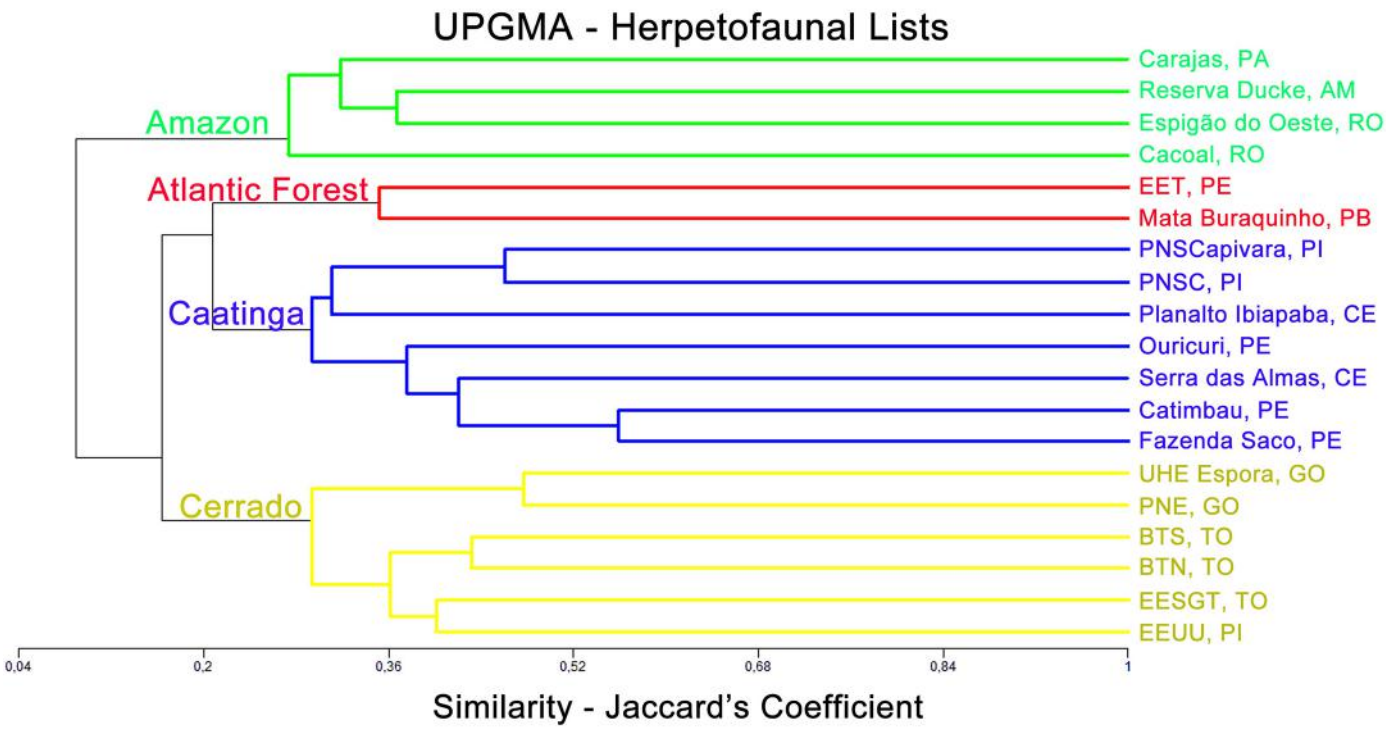

Figure 8. UPGMA of herpetofaunal lists from different Brazilian biomes. Green: Amazon; Red: northwest Atlantic Forest; Blue: Caatinga and Yellow: Cerrado.

Caatinga and Cerrado elements, forming an heterogeneous landscape. This results in high species diversity, with species typical from Cerrado (*e.g. Hoplocercus spinosus*, *Coleodactylus brachystoma*, *Colobosaura modesta*) and Caatinga *(e.g. Epicrates assisi*, *Dermatonotus mulleri*, *Physalaemus albifrons*, *Corythomantis greeningi*, *Rhinella jimi*, *Proceratophrys cristiceps*) coexisting in the area. Adding to phyto-geomorphological features, historical events also could be acting to increase the local diversity in the southwestern Piauí, as the historical contacts now lost between sandy soils from this region and those from the São Francisco dunes (Rodrigues et al. 2001).

The observed richness of lizards and amphibians might be close to the real diversity in PNSCo since species rarefaction curves for both groups tend toward an asymptote after 34 sampling days (stronger for lizards) and richness estimators recover close values to those obtained. However, some new species records are expected in the future since arboreal, aquatic, fossorial species and ones with explosive reproduction are always more difficult to sample and tend to be underestimated even in long-term and/or large-scale inventories.

Indeed, the most diverse lists of local herpetofauna are those based on intensive field work with long periods of sampling along different climatic seasons and/or mega infrastructure projects with extensive devastation of natural habitats, such as hydroelectric power plants (Pavan & Dixo 2004, Vaz-Silva et al. 2007, Silva Junior et al. 2005, Loebmann & Haddad 2010, Nogueira et al. 2010, Silveira et al. 2010, Recoder et al. 2011, Valdujo et al. 2011, Dal Vechio et al. 2013, present work). In addition, long-term surveys provide necessary material to understand the basic biology of the species (Vitt 1982; Cruz 1994; Mesquita & Colli 2003; Werneck et al. 2009; Dal Vechio et al. 2014, 2015).

Sampling efforts at PNSCo resulted in the discovery and description of five new species: *Calyptommatus confusionibus* (Rodrigues et al. 2001), *Mesoclemmys perplexa* (Bour & Zaher 2005), *Stenocercus squarrosus* (Nogueira & Rodrigues 2006), *Ameivula confusioniba* and *Glaucomastix venetacauda* (Arias et al. 2011a). Another three are candidates to new species. *Adenomera* sp., was detected as a possible new species in a recent molecular study (Fouquet et al. 2014). This species also occurs at EEUU, being probably distributed along the northern Cerrado and ecotonal areas between this domain and the neighbors. *Leptodactylus* aff. *syphax* has recently been recognized as an undescribed new species (Loebmann & Haddad 2010; Andrade et al. 2011; Ribeiro et al. 2012; Cavalcanti et al. 2014). *Ameivula* sp. seems to be a hybrid between *A. confusioniba* and *G. venetacauda* (Arias pers. comun).

Five additional species are worthy of comment. The five specimens of *Trilepida* sampled in the PNSCo have scale counts that are intermediate between *T. koppesi* and *T. fuliginosa*. Although quantitatively more similar to *T. koppesi*, they present qualitative characters that resemble *T. fuliginosa* (Passos et al. 2006). *Trilepida koppesi* is distributed throughout the southern Cerrado region (São Paulo, eastern Mato Grosso do Sul and southern Goiás states), while *T. fuliginosa* is distributed in the northern part of the Cerrado, with the nearest record in Palmas (Tocantins basin), about 520 km in straight line far from PNSCo (Passos et al. 2006). Sampled specimens in PNSCo could either be an undescribed species or represent a large distribution extension for *Trilepida fuliginosa* and the first record of the species for the Caatinga domain.

Other interesting species is *Siphonops paulensis*, which is widely distributed in Brazil, with only a few records for the Caatinga biome

(Taylor 1968, 1970; Santana et al. 2015). The specimen of *S. paulensis* represents the first record for the state of Piauí and fills an important distribution gap for the group in northwestern Brazil. However, it is likely that *S. paulensis* represents a complex of cryptic species (Wilkinson, pers. comm.). Indeed, Loebmann and Haddad (2010) already pointed out the complex taxonomic nature of this species when they registered *Siphonops* for the "Brejo Nordestino" Planalto de Ibiapaba and considered their record as possibly representing an undescribed species related to *S. paulensis*. Here we treat the population in PNSCo as *S. paulensis*, pending further studies that could clarify the taxonomic status of populations considered to belong to this widely distributed species.

A recent phylogenic work of *Tropidurus semitaeniatus* showed the complexity of the the species, with several lineages candidates to fully species, inclusive, there are two distinct of these lineages that occur in PNSCo, being one of them exclusive to the park; and there is another exclusive lineage to EEUU (Werneck et al. 2015). Here, we maintain *T. semitaeniatus* as just one species until further taxonomic approach.

Amphisbaena frontalis is until now known only from the type locality at the left bank of middle São Francisco River in Alagoado, Bahia state. The record in PNSCo expands its distribution on approximately 270 km northwest of the type locality (Vanzolini 1991); and highlights an historical event of sand contact with southwestern Piauí and São Francisco Dunes as mentioned above. Finally, *Hoplocercus spinosus* is a typical Cerrado species that also occurs in contact areas with forested biomes. In PNSCo, *H. spinosus* was found in a forested Caatinga, representing the easternmost record and first for the species within the Caatinga domain (Torres-Carvajal et al. 2011).

The PNSCo together with other regional conservation units of similar latitude (*i.e.* EESGT, EEUU and PNSCa) protect an area of ca. 200.000 Km^2 in northern Cerrado and western Caatinga. There is a widespread herpetofaunal species throughout this landscape, occuring in all these four units, however, the fauna is more similar between Cerrado's units (EESGT + EEUU) and Caatinga's ones (PNSCo and PNSCa) but not so much between them. Despite the geographical proximity between these Cerrado and Caatinga parks, there is a turnover of congeneric species that seems to be related to the shift of domains (*e.g. Tropirurus oreadicus* X *Tropirurus hispidus; Stenocercus quinarius* X *Stenocercus squarrosus*; *Ameivula mumbuca* X *Ameivula confusioniba; Procellosaurinus erythrocercus* X *Vanzosaura savanicola; Epicrates crassus* X *Epicrates assisi*; *Phyllomedusa azurea* X *Phyllomedusa nordestina*; *Leptodactylus syphax* X *Leptodactylus aff. syphax*; *Physalaemus centralis* X *Physalaemus albifrons*; *Rhinella mirandaribeiroi* X *Rhinella granulosa*; *Rhinella schneideri* X *Rhinella jimi*; *Proceratophrys goyana* X *Proceratophrys cristiceps*). This shift on is also recovered in the similarity analysis, with PNSCo and PNSCa included within the "Caatinga" group while EESGT and EEUU units cluster within the "Cerrado" group, indicating that the units harbor a typical faunal of each biome.

Our results show that the PNSCo harbors one of the most diverse herpetofauna among the inventoried localities within the Caatinga domain, conferring to the park a strategic role for the conservation of the remaining regions of this vanishing domain. Our results also indicate that, despite geographical proximity, the northeastern Cerrado and Caatinga units studied still retain high levels of diversity and uniqueness with low faunal similarities between domains, evidencing a high species turnover.

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