

LISTS OF SPECIES

Herpetofauna, Espora Hydroelectric Power Plant, state of Goiás, Brazil.

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Abstract: We provide a checklist of the herpetofaunal assemblage from Espora Hydroelectric Power Plant region (UHE Espora), southwestern of the state of Goiás, Brazil. Representatives of 32 amphibian and 71 reptile species were obtained during faunal monitoring and faunal rescue programs carried out in the study area. The obtained species list and distribution records are here discussed in an attempt to improve the still limited knowledge on Cerrado herpetofaunal assemblages.

Introduction

Amphibians and reptiles have not been treated appropriately in environmental assessments, mostly due to lack on data about natural history and basic ecological information for many species. Gaps in basic knowledge include many aspects such as diversity and geographical distribution, endemism levels, population dynamics and faunal composition (Azevedo-Ramos and Gallatti 2002).

The herpetofauna of the Cerrado region, one of the 25 global biodiversity hotspots (Mittermeier et al. 1998; Myers et al. 2000), is considered poorly known, with many areas not yet adequately studied (Strüßmann 2000; Colli et al. 2002). Despite poor knowledge, previous studies (Colli et al. 2002; Nogueira et al. 2005) point habitat diversity as a very important determinant of faunal diversity in this region. Thus, the great habitat diversity and related ecological conditions distinguishes Cerrado from other biogeographical systems (see Colli et al. 2002).

Although still poorly studied, the herpetofauna of the Brazilian Cerrado is very rich and diverse. Colli et al. (2002) listed 113 species of amphibians (32 endemics) and 122 species of reptiles (34 endemics), although these numbers need to be updated due to the description of several new taxa (e.g. Caramaschi and Niemeyer 2003; Jorge da Silva et al. 2005; Passos et al. 2006).

Data on the species of amphibians and reptiles from the Cerrado must also include new records from several localities in the states of Goiás (Bastos et al. 2003; Jorge da Silva et al. 2005), Distrito Federal (Brandão and Araújo 1998; 2001; Brandão et al. 2005; Nogueira et al. 2005), Tocantins (Brandão and Peres 2001; Vitt et al. 2002; Vitt et al. 2005; Vaz-Silva et al. 2005a; 2005b; Pavan and Dixo 2004), Mato Grosso (Strüßmann 2000), São Paulo (Brasileiro et al. 2005), and Minas Gerais (Haddad et al. 1998; Eterovick and Sazima 2004; Silveira 2006).

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Previous knowledge on the herpetofauna from regions near the limits between Southwestern Goiás and Northeastern Mato Grosso do Sul states, in the central portion of the Brazilian Cerrado, is scarce. To our knowledge, it is restricted to data on the amphibians and reptiles occurring in a region between the rivers Aporé and Sucuriú in Mato Grosso do Sul (Uetanabaro et al. 2006), and a list of range extensions from Southeastern Goiás, in Emas National Park region (Nogueira and Valdujo 1999; Valdujo and Nogueira 2001) and Aporé (Ribeiro et al. 2007).

The present study offers additional information on the herpetofauna from Cerrado areas in Southwestern Goiás, by providing a checklist of amphibians and reptiles from areas directly and indirectly affected by the Espora Hydroelectric

Power Plant (UHE Espora). The list is based on specimens collected during faunal monitoring and rescue programs conducted at UHE Espora prior and during the flooding of the local reservoir.

Materials and Methods

The UHE Espora is located in the Corrente River, tributary of the Paranaíba River, at the municipality of Aporé (18°40'26" S, 51°52'50" W), Southwestern of the state of Goiás, Central Brazil (Figure 1). The area is environmentally partially degraded, mostly by several years of extensive cattle ranching. Remnants of original vegetation can be classified as savanna environments (*cerrado típico* and *cerrado denso*) and forested environments (*cerradão*, *matas de galeria*, and *mata ciliar*), according Ribeiro and Walter (1998).

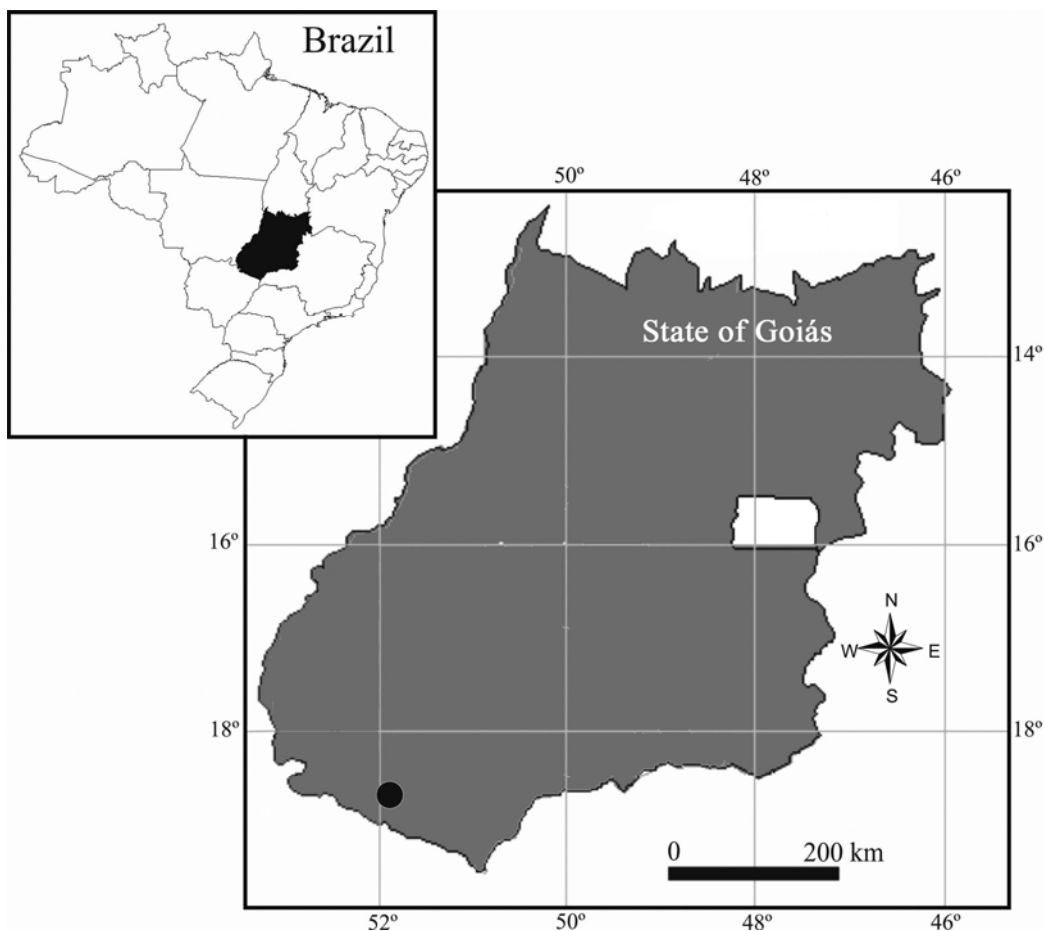


Figure 1. Position of the UHE Espora (black point), Southwestern of the state of Goiás, in the Brazilian Cerrado.

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Five field expeditions for inventorying and monitoring local herpetofauna were carried at UHE Espora: April 2003, August 2004, December 2004, March 2005, and May 2005; Between May and August 2006 the Faunal Rescue Program was carried during the filling of the reservoir.

Specimens were recorded in diurnal and nocturnal visual surveys, and also by captures in pit fall traps with drift fences (Fitch 1987; Cechin and Martins 2000). Twelve groups of pit falls with drift fences (5.0 x 0.5 m) were installed (ten with container of 30 liters arranged in Y form, and two with container of 100 liters arranged in linear form) in the following habitats: *cerrado típico*, *cerrado denso*, *mata de galeria*, and anthropic areas. The sample effort was 130 hour/researcher per field expedition and the capture rate per survey in pit fall traps ranged from 0.75 specimens/container/month (May 2005) to 5.43 specimens/container/month (December 2004).

Collected specimens (permission # 009/2006, conceded by the *Agência Goiana Meio Ambiente*

e *Recursos Naturais* – AGMARN) are deposited at *Coleção Herpetológica da Universidade de Brasília* (CHUNB), *Coleção Herpetológica do Museu Nacional*, Rio de Janeiro (MNRJ), *Coleção de Herpetologia do Centro de Estudos e Pesquisas Biológicas da Universidade Católica de Goiás* (CEPB-UCG), and *Coleção de Zoologia da Universidade Federal de Goiás* (CZUFG). Taxonomic arrangement is based on SBH (2007a; 2007b).

Results and Discussion

Thirty-two amphibian species were recorded from UHE Espora, representing two orders, seven families, and 15 genera (Table 1). The family Hylidae was the richest taxon, corresponding to 50 % of all amphibians.

Seventy-one reptile species were recorded from UHE Espora, representing three orders, 17 families, and 51 genera (Table 1). The family Colubridae was the richest taxon, corresponding to 52.1 % of the local richness (Table 1).

Table 1. Amphibians and reptiles recorded in the region affected by Espora Hydroelectric Power Plant (municipality of Aporé, state of Goiás, Brazil). Habitat according to Ribeiro and Walter (1998): MC = *mata ciliar* of the Corrente River; CE = *cerrado típico*; AT = anthropic areas; AL = arbustive vegetation on margin of ponds and aquatic environment (*vereda*, *brejos*, and others); CD = *cerrado denso*; MG = *mata de galeria*; ? = not recorded.

CLASS/ORDER/FAMILY	SPECIES	HABITAT
AMPHIBIA		
GYMNOPHIONA		
Caeciliidae	<i>Siphonops paulensis</i> Boettger, 1892	?
ANURA		
Bufoinidae	<i>Rhinella granulosa</i> (Spix, 1824)	CE, AT
	<i>Rhinella ocellata</i> (Günther, 1859)	MC
	<i>Rhinella schneideri</i> (Werner, 1894)	AT
Cyclorhampidae	<i>Proceratophrys</i> sp.	CE
Hylidae	<i>Dendropsophus cruzi</i> (Pombal & Bastos, 1998)	AL
	<i>Dendropsophus jimi</i> (Napoli & Caramaschi, 1999)	AL
	<i>Dendropsophus minutus</i> (Peters, 1872)	AL
	<i>Dendropsophus nanus</i> (Boulenger, 1889)	AL
	<i>Dendropsophus rubicundulus</i> (Reinhardt & Lütken, 1862)	AL
	<i>Dendropsophus soaresi</i> (Jim & Caramaschi, 1980)	MG
	<i>Hypsiboas albopunctatus</i> (Spix, 1824)	AL, MG
	<i>Hypsiboas lundii</i> (Burmeister, 1856)	MG
	<i>Hypsiboas multifasciatus</i> (Günther, 1859)	AL
	<i>Hypsiboas raniceps</i> Cope, 1862	AL

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Table 1. Continued.

CLASS/ORDER/FAMILY	SPECIES	HABITAT
AMPHIBIA		
ANURA		
Hylidae (continued)		
	<i>Phyllomedusa azurea</i> Cope, 1862	AL
	<i>Pseudis bolbodactylus</i> A. Lutz, 1925	AL
	<i>Scinax fuscomarginatus</i> (A. Lutz, 1925)	AL
	<i>Scinax fuscovarius</i> (A. Lutz, 1925)	AL, AT
	<i>Scinax x-signatus</i> (Spix, 1824)	AL, AT
	<i>Trachycephalus venulosus</i> (Laurenti, 1768)	MC
Leiuperidae	<i>Eupemphix nattereri</i> Steindachner, 1863	CE, AT, CD
	<i>Physalaemus centralis</i> Bokermann, 1962	CE, AT, CD
	<i>Physalaemus cuvieri</i> Fitzinger, 1826	CE, AT, CD
	<i>Physalaemus marmoratus</i> (Reinhardt & Lütken, 1862)	AT
	<i>Pseudopaludicola falcipes</i> (Hensel, 1867)	AL
Leptodactylidae	<i>Leptodactylus</i> aff. <i>ocellatus</i> (Linnaeus, 1758)	AL, AT, CD
	<i>Leptodactylus fuscus</i> (Schneider, 1799)	AT, AL
	<i>Leptodactylus labyrinthicus</i> (Spix, 1824)	AL, AT
	<i>Leptodactylus podicipinus</i> (Cope, 1862)	AL
Microhylidae	<i>Chiasmocleis albopunctata</i> (Boettger, 1885)	CE, CD
	<i>Elachistocleis</i> cf. <i>ovalis</i> (Schneider, 1799)	CE, CD
REPTILIA		
TESTUDINES		
Chelidae	<i>Mesoclemmys vanderhaegei</i> (Bour, 1973)	AL
Testudinidae	<i>Chelonoidis carbonaria</i> (Spix, 1824)	CE
CROCODYLIA		
Alligatoridae	<i>Paleosuchus palpebrosus</i> (Cuvier, 1807)	AL
SQUAMATA		
Amphisbaenidae		
	<i>Amphisbaena alba</i> Linnaeus, 1758	CE
	<i>Amphisbaena mertensi</i> Strauch, 1881	CE
	<i>Cercolophia roberti</i> (Gans, 1964)	CE
	<i>Leposternon infraorbitale</i> (Bertold, 1859)	CE, AT
	<i>Leposternon</i> sp.	CE, AT
Anguidae	<i>Ophiodes</i> sp.	CE, AT
Gekkonidae	<i>Hemidactylus mabouia</i> (Moreau de Jonnés, 1818)	AT
Gymnophthalmidae	<i>Cercosaura ocellata</i> Wagler, 1830	CD, CE
	<i>Cercosaura schreibersii</i> Wiegmann, 1834	CD
	<i>Colobosaura modesta</i> (Reinhardt & Lütken, 1862)	CE, CD
	<i>Micrablepharus atticolus</i> Rodrigues, 1996	CE, AT
Polychrotidae	<i>Anolis meridionalis</i> Boettger, 1885	CE, AT
	<i>Polychrus acutirostris</i> Spix, 1825	CE
Scincidae	<i>Mabuya dorsivittata</i> Cope, 1862	MG, MC
	<i>Mabuya frenata</i> (Cope, 1862)	CE, MG
	<i>Mabuya nigropunctata</i> (Spix, 1825)	CD, MG, MC
Teiidae	<i>Ameiva ameiva</i> (Linnaeus, 1758)	CE, AT, CD
	<i>Cnemidophorus ocellifer</i> (Spix, 1825)	CE
	<i>Kentropyx paulensis</i> Boettger, 1893	CE
	<i>Tupinambis duseni</i> Lönnberg, 1896	CE, MG
	<i>Tupinambis merianae</i> (Duméril & Bibron, 1839)	CE, MG
Tropiduridae	<i>Stenocercus sinesaccus</i> Torres-Carvajal, 2005	CD
	<i>Tropidurus itambere</i> Rodrigues, 1987	AT, CE
Typhlopidae	<i>Typhlops brongersmianus</i> Vanzolini, 1976	?
Leptotyphlopidae	<i>Leptotyphlops koppesi</i> Amaral, 1954	?

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Table 1. Continued.

CLASS/ORDER/FAMILY	SPECIES	HABITAT
REPTILIA		
SQUAMATA		
Boidae	<i>Boa constrictor</i> Linnaeus, 1758	MG, MC
	<i>Eunectes murinus</i> (Linnaeus, 1758)	AL
Colubridae	<i>Apostolepis assimilis</i> (Reinhardt, 1861)	CE
	<i>Atractus albuquerquei</i> Cunha & Nascimento, 1983	CE
	<i>Chironius bicarinatus</i> (Wied, 1820)	MC
	<i>Chironius exoletus</i> (Linnaeus, 1758)	MC
	<i>Chironius flavolineatus</i> (Boettger, 1885)	MC
	<i>Chironius quadricarinatus</i> (Boie, 1827)	MC
	<i>Clelia quimi</i> Franco, Marques & Puerto, 1997	CE
	<i>Dipsas indica</i> Laurenti, 1768	MC
	<i>Drymarchon corais</i> (Boie, 1827)	CE, AT
	<i>Erythrolamprus aesculapii</i> (Linnaeus, 1766)	MC
	<i>Echianthera occipitalis</i> (Jan, 1863)	CE
	<i>Helicops angulatus</i> (Linnaeus, 1758)	AL
	<i>Helicops modestus</i> Günther, 1861	AL
	<i>Hydrodynastes gigas</i> (Duméril, Bibron & Duméril, 1854)	AL
	<i>Imantodes cenchoa</i> (Linnaeus, 1758)	MC
	<i>Liophis frenata</i> (Werner, 1909)	AL, MC
	<i>Liophis maryellenae</i> Dixon, 1985	MC, CE
	<i>Liophis meridionalis</i> (Schenkel, 1901)	CE
	<i>Liophis reginae</i> (Linnaeus, 1758)	MC, CE
	<i>Liophis poecilogyrus</i> (Wied-Neuwied, 1825)	CE, AT
	<i>Mastigodryas bifossatus</i> (Raddi, 1820)	MC, CE
	<i>Oxyrhopus trigeminus</i> Duméril, Bibron & Duméril, 1854	MC, CE
	<i>Oxyrhopus petola</i> (Linnaeus, 1758)	MC, CE
	<i>Phalotris mertensi</i> (Hoge, 1955)	CE
	<i>Philodryas aestiva</i> (Duméril, Bibron & Duméril, 1854)	MC
	<i>Philodryas mattogrossensis</i> Koslowsky, 1898	CE
	<i>Philodryas nattereri</i> Steindachner, 1870	CE
	<i>Philodryas olfersii</i> (Lichtenstein, 1823)	MC
	<i>Philodryas patagoniensis</i> (Girard, 1857)	CE
	<i>Phimophis guerini</i> (Duméril, Bibron & Duméril, 1854)	CE
	<i>Pseudoboa nigra</i> (Duméril, Bibron & Duméril, 1854)	CE
	<i>Sibynomorphus mikanii</i> (Schlegel, 1837)	CE, AT
	<i>Spilotes pullatus</i> (Linnaeus, 1758)	CE
	<i>Thamnodynastes hypoconia</i> (Cope, 1860)	CE, MC
	<i>Tantilla melanocephala</i> (Linnaeus, 1758)	CE
	<i>Waglerophis merremii</i> (Wagler, 1824)	CE, AT
	<i>Xenopholis undulatus</i> (Jansen, 1900)	?
Elapidae	<i>Micrurus lemniscatus</i> (Linnaeus, 1758)	MC
Viperidae	<i>Bothrops moojeni</i> Hoge, 1966	MG, MC
	<i>Bothrops pauloensis</i> Amaral, 1925	CE
	<i>Crotalus durissus</i> Linnaeus, 1758	CE, CD

The amphibians *Rhinella ocellata*, *Dendropsophus jimi* (Figure 2B), *Dendropsophus soaresi* (Figure 2C), and *Siphonops paulensis* (Figure 2D), and the reptiles *Cercolophia roberti* (Figure 2E), *Kentropyx paulensis*, *Atractus albuquerquei* (Fi-

gure 2G), and *Philodryas mattogrossensis* (Figure 2I) are species with few records in Goiás, representing important biogeographical records for the state. The savanna vegetation of *cerrado típico* was the richest of all habitats (51 species).

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Figure 2. Representatives of some of the amphibians and reptiles recorded at the UHE Espora. A, *Thamnodynastes hypoconia*; B, *Dendropsophus jimi*; C, *Dendropsophus soaresi*; D, *Siphonops paulensis*; E, *Cercolophia roberti*; F, *Stenocercus sinesaccus*; G, *Atractus albuquerquei*; H, *Philodryas patagoniensis*; I, *Philodryas mottogrossensis*.

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