

EARTHWATCH INSTITUTE FIELD REPORT

Amphibians and Reptiles of the Southern Pantanal

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Research Site(s): Fazenda Rio Negro, Southern Pantanal, Brazil. A Private Reserve (RPPN) belonging to Conservation International of Brazil

Scientific names of primary species being studied:

Table 1 - Amphibian species documented at Fazenda Rio Negro. Records are from surveys conducted from January 2004 to April 2004 and observations made since January 2000. Use of various recording methods: Pitfall trap (P), Chance encounter (C), Vocalization (V), Third part (T). Number of species per taxonomic category in parenthesis. Classification follows <http://research.amnh.org/cgi-bin/herpetology/amphibia>

Classification	English common name	Local name	Record method
Order Anura (Frogs, toads, tree frogs)			
Family Bufonidae (1)			
<i>Bufo schneideri</i>	Cururu toad	Sapo-cururu	P, C,
Family Hylidae (7)			
<i>Pseudis paradoxa</i>	Greater paradox frog	Rã-aquática	P, C, V
<i>Lysapsus limellus</i>	Harlequin frog	Rã-aquática	P, C, V
<i>Hyla albopunctata</i>	Treefrog	Perereca	C, V, T
<i>Hyla minuta</i>	Lesser treefrog	Perereca	C, V, T
<i>Hyla</i> spp	Treefrog	Perereca	C, V, T
<i>Scinax</i> spp	Treefrog	Perereca	C, V, T
<i>Phyllomedusa hypocondrialis</i>	Monkey frog	Perereca	P, C
Family Leptodactylidae (9)			
<i>Adenomera</i> sp	Chirping frog	Rã	P
<i>Leptodactylus chaquensis</i>	Chaco jungle frog	Rã	P, C, T
<i>Leptodactylus elenae</i>	Jungle frog	Rã	P, C
<i>Leptodactylus mystacinus</i>	Mustached frog	Rã	P, C
<i>Leptodactylus podicipinus</i>	Pointedbelly frog	Rã	P, C, T
<i>Leptodactylus labyrinthicus</i>	Labyrinth frog		P
<i>Physalaemus albonotatus</i>	Menwig frog	Rã	P, C, V
<i>Physalaemus fuscomaculatus</i>	Brown-spotted dwarf frog	Rã	P, C, V, T
<i>Eleutherodactylus</i> sp	Rainfrogs	Rã	C, T
Family Microhylidae (2)			

<i>Elachistocleis bicolor</i>	Two-colored sheep frog	Rã	P
<i>Chiasmocleis albopunctata</i>	White-spotted sheep frog	Rã	P

Table 2 - Reptile species documented at Fazenda Rio Negro. Records are from surveys conducted from January 2004 to April 2004 and observations made since January 2000. Use of various recording methods: Pitfall trap (P), Chance encounter (C), Search (S), Third part (T). Number of species per taxonomic category in parenthesis. Classification follows <http://www.embl-heidelberg.de/~uetz/LivingReptiles.html>

Classification	Local name	Local name	Record method
Order Chelonia (Turtles)			
Family Testudinidae (1)			
<i>Geochelone carbonaria</i>	Red-footed tortoise	Jabuti	C, T
Family Chelidae (1)			
<i>Acantochelys macrocephala</i>	Toad-headed turtle	Cágado-do-Pantanal	C, S, T
Order Squamata			
Suborder Sauria (Lizards)			
Family Polychrotidae (1)			
<i>Anolis</i> sp	Anole	Papa-vento	C, P
Family Tropicuridae (1)			
<i>Tropidurus guarani</i>	Neotropical ground lizard	Calango	C, T
Family Gekkonidae (2)			
<i>Coleodactylus brachistoma</i>	Gecko	Lagartixa	P
<i>Hemidactylus mabouia</i>	Common gecko	Lagartixa-de-parede	C, T
Family Gymnophthalmidae (4)			
<i>Vanzosaura rubricauda</i>	Orange-tailed forest lizard	Rabinho-vermelho-listrado	P, C, T
<i>Micrablepharus maximiliani</i>	Blue-tailed forest lizard	Rabinho-azul	P, C, T
<i>Cercosaura ocellata</i>	Ocellated tegu	-	
<i>Cercosaura schreibersii</i>	Schreiber's many fingered teiid	-	
Family Scincidae (1)			
<i>Mabuya</i> sp	Common skink	Lagartixa-cobra	P
Family Teiidae (4)			
<i>Ameiva ameiva</i>	Giant ameiva	Calango-verde	P, C, T
<i>Tupinambis merianae</i>	Tegu lizard	Teiu	C
<i>Dracaena paraguayensis</i>	Caiman lizard	Víbora	C
<i>Cnemidophorus ocellifer</i>	Spix's whiptail	-	
Family Amphisbaenidae (1)			
<i>Amphisbaena</i> sp	Worm lizard	Cobra-de-duas-cabeças	P
Suborder Serpentes (Snakes)			
Family Typhlopidae (1)			
<i>Typhlops brongersmianus</i>	Typical blind snake	Cobra-cega	P
Family Boidae (2)			
<i>Boa constrictor</i>	Common boa	Jibóia	C, T
<i>Eunectes notaeus</i>	Yellow anaconda	Sucuri	C, T

Family Colubridae (20)			
<i>Chironius flavolineatus</i>	Yellow lined vine snake	Cobra-cipó-de cabeça-tijolo	
<i>Chironius</i> sp	-	Cobra-cipó	C
<i>Echivanthera occipitalis</i>	-	-	C
<i>Helicops leopardinus</i>	Spotted water snake	Cobra-d'água-do-Pantanal	C
<i>Hydrodynastes gigas</i>	False water cobra	Jararacussu-do-brejo	C, T
<i>Leptodeira annulata</i>	Cat-eyed snake	Dormideira; Olho-de-gato	P, C, T
<i>Leptophis ahaetulla</i>	Parrot snake	Azulão-bóia	C, T
<i>Liophis typhlus</i>	Velvety swamp snake	Jararaquinha-verde	P, C, T
<i>Liophis poecilogyrus</i>	Swamp snake	Cobra-de-lixo	P, C, T
<i>Liophis meridionalis</i>	Lined ground snake	Cobra-de-capim	P, C, T
<i>Lystrophis matogrossensis</i>	Tricolored hognose snake	Falsa-coral	P, C, T
<i>Mastigodryas bifossatus</i>	Brown-lined snake	Cascavel-do-charco	C, T
<i>Oxyrhopus petola digitalis</i>	Blinded calico snake	Falsa-coral	P, C
<i>Phalotris</i> sp	Collared false coral snake	Falsa-coral	P
<i>Philodryas olfersii</i>	Palm snake	Cobra-verde	P, C, T
<i>Pseudoboa neuwiedii</i>	Eastern scarlet snake	Falsa-coral	P
<i>Pseudoeryx plicatilis</i>	Dusky mud snake	Cobra-d'água-lisa	C, T
<i>Psomophis genimaculatus</i>	Spirit ground snake	Cobra-de-capim	P, C, T
<i>Sibynomorphus</i> sp	Bolivian tree snake	Dormideira	P, C, T
<i>Thamnodynastes</i> sp	House snake	Jararaquinha-do-Pantanal	C, T
Family Viperidae (2)			
<i>Bothrops neuwiedii</i>	Neuwied's lancehead	Boca-de-sapo	C, T
<i>Crotalus durissis</i>	Neotropical rattlesnake	Cascavel	T

Key Research Objectives:

- To determine the diversity (richness and abundance) of amphibians and reptiles in the different habitats in the Southern Pantanal;
- To investigate the ecology of the Pantanal turtles, the Pantanal Toad Headed Turtle (*Acantochelys macrocephala*) and the Red Foot Tortoise (*Geochelone carbonaria*);
- To improve the knowledge base of teacher and student fellows, as well as volunteers but mainly the local community, concerning amphibians and reptiles, and to increase their degree of comfort and appreciation for handling non-dangerous species.
- Access the status of the populations of the amphibians and reptiles in the Southern Pantanal;
- Support the design of conservation strategies for amphibians and reptiles in the Southern Pantanal;
- Produce an Audio CD containing the frog calls;
- Produce a field guide on amphibians and reptiles from the Southern Pantanal.

Date this report was completed: April 11 2005

Data Collection and Results

- a) Give a concise account of the data you have collected during the past field season.
- A total of 982 frogs from 13 species was captured in pitfall traps, marked and released (24% in the dry season and 76% in the wet season).
 - The highest index of diversity for the anurofauna was observed in the Baias, during the dry season, and the lowest in Salinas during the rainy season.
 - Twenty-five snake species are known to occur at Fazenda Rio Negro, but only 10 species (33 individuals) were collected in the pitfall traps: 33.3% in dry season and 66.4% in the wet season.
 - One snake species not known to the area was trapped.
 - Thus far, 14 lizard species have been recorded for FRN. A total of 60 individuals from 9 species was trapped (26 in the dry and 34 in the rainy season), being two arboreal species.
 - Twenty-three red-footed tortoises, *Geochelone carbonaria* (13 males and 9 females) were captured, marked and released in 2004. Scat samples from several individuals were collected.
 - Thirteen toad-head turtles, *Acantochelys macrocephala*, (4 males and 9 females) were collected: 9 in the dry season and 4 in the rainy season. Two newborns were trapped in pitfall traps near salinas. They were released without marking.

- b) What progress have you made towards achieving your original objectives?

We have been able to detect slight differences in the frog community among the habitats where surveys have been conducted. However, more sampling and data on environmental factors need to be matched in order to get a better picture on the distribution of species.

A large number of good-quality photos of several species from the local herpetofauna has been taken. We hope to publish a photo field guide for amphibians and reptiles by the end of this research. A good recorder plus microphone have been purchased with EWI funds and a collection of frog calls is being recorded for future audio CD.

It seems obvious to us that more sampling effort is necessary for long-term monitoring studies on the herpetofauna, especially because populations from several frog species undergo natural fluctuations that are not detected unless frequently monitored. Also, we are not sure how the floods affect distribution of amphibians and reptiles in the area.

c) Please provide a summary of your results (even if they are preliminary).

During the year of 2004, we surveyed amphibians and reptiles in three different habitats (Gallery Forest, Baías and Salinas) during the dry and rainy season in the Southern Pantanal. A total of 982 frogs from 13 species was captured in pitfall traps, marked and released. Highest frog abundance was observed in the Gallery Forest, followed by Baías and Salinas. In Baías and Salinas, *Physalaemus albonotatus* was the most abundant species and in Gallery Forest, it was *Leptodactylus podicipinus*, during both dry and rainy season. Twenty-five snake species are known to occur at Fazenda Rio Negro, but only 10 species (33 individuals) were collected in the pitfall traps. Thus far, 14 lizard species have been recorded for FRN. A total of 60 lizards from 9 species was trapped being two arboreal species. Twenty-three red-footed tortoises, *Geochelone carbonaria* (13 males and 9 females) were captured, marked and released in 2004. Scat samples from several individuals were collected.

Significance/Benefits of Research

a) What is/are the significance/benefits of your research at the following levels?

- Local (in the area of the research site)
 1. At Fazenda Rio Negro, we have noticed a marked change in behavior of the local community as one of us (EW) has lived in the farm for a couple of years. Before we started the project, the workers naturally killed snakes whenever they came across one. But now, they even bring us snakes and are able to distinguish the poisonous from non-poisonous ones. When we first ran an expedition, lots of kids were in the farm and they were more curious than the adults. It was through the children that we reached the adults.
 2. Also, the neighboring farmers are interested about learning more about snakes because they believe snakes sometimes kill the cattle and horses. Whenever possible, we show visitors the snake and frog collection kept in the farm and it is rewarding to share our love and respect for such important animals.

- National
 1. One of us (Earthwatch) was on local and national TV programmes because two famous Brazilian actors filming a soap opera in the research site were learning about snakes and also helped in the field work.
 2. In November 2004, a newspaper article entitled “Turistas pagam para caçar sapos”. published in a Sunday edition of “ O Estado de São Paulo”, one of the most important periodicals in Brazil featured Earthwatch Institute and Volunteers, highlighting several projects, including the Herpetology Project. Ellen Wang and Vanda Lucia Ferreira were interviewed.

- International

Several fellow students, teachers, corporate workers, policy makers and community members from different countries have participated our project and they take back to their communities the knowledge acquired during field work. They do not learn only about scientific methodology, but also to respect and protect natural resources. What they experience in the Pantanal is taken back to their original countries, and they become strongly engaged towards this new way of life and therefore, contribute with the worldwide conservation of the environment.

The Herpetology Project also tries to demystify the fear for frogs and snakes most of the world population has. We allow volunteers to have a closer contact with animals by holding and photographing them. However, it is important to stress that nobody is forced to hold them, unless desired. Also, special precautions are taken concerning both non-poisonous and poisonous snakes and volunteers are not allowed to handle species that represent any sort of danger, even those that are non-poisonous but aggressive. Lots of other tasks are involved in the project and volunteers do not necessarily need to deal directly with the specimens.

b) How do your findings contribute to issues of sustainability?

The data obtained by this research can be useful at different levels:

- identification of environmentally impacted sites;
- present evidence of impacts to landowners, policy makers, and regional conservation organizations;

- identify & prioritize management actions to reduce impacts and restore degraded sites;
- use sensitive indicator species to identify the onset of environmental impacts, e.g. related to pollution, fire, eutrophication, sedimentation, or climate change
- use data to plan and implement biodiversity corridors;
- provide data for biodiversity monitoring programs.

Dissemination of Results

a) Have you provided details of results from your research to or within:

- Scientific papers

Ferreira, V.L., Wang, E. & Himmelstein, J. 2005 . Geographic distribution. Phalotris nasutus. *Herpetol. Review*. (in press).

- Management plans and reports (in progress or completed)

Management plan for the Fazenda Rio Negro RPPN. Meeting between CI and several EW PIs in April 28-29, 2005 in Campo Grande, MS.

- Presentations (given or planned)

1. Mar. 2004: Presentation on the Herpetology Project at University of Pennsylvania. Speaker: Jeff Himmelstein. Undergraduate and graduate students and community members attended.
2. Nov. 2004: Oral presentation: "Amphibians and Reptiles of Southern Pantanal" presented by Vanda L. Ferreira, during the IV SINPAM (Symposium for the Natural, Social and Economical Resources in the Pantanal) organized by Embrapa in Corumbá, MS, Brazil, in. Participants: Ellen Wang and Vanda Lucia Ferreira. Audience: Conservationists, undergraduate and graduate students, environmental agencies representatives, scientists.
3. Nov. 2004: Annual EW conference, Boston, MA. CRI poster presented by Jeff Himmelstein.

- Popular articles or films (in progress or completed)

1. Nov. 2004: Newspaper article "Turistas pagam para caçar sapos". Published in a Sunday edition of " O Estado de São Paulo", one of the most important periodicals in Brazil. The article was about Earthwatch Institute and Volunteers,

featuring several projects, including the Herpetology Project. Ellen Wang and Vanda Lucia Ferreira were interviewed.

2. Nov/Dec 04, The Expeditioner: The Pantanal: Flooded with Life, by Ken Mallory.