Check List the journal of biodiversity data

LISTS OF SPECIES

Check List 11(3): 1658, May 2015 doi: http://dx.doi.org/10.15560/11.3.1658
ISSN 1809-127X

Reptile checklist of Río Pilcomayo National Park, Formosa, Argentina

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Abstract: The present study reports a qualitative survey of the reptiles present in Río Pilcomayo National Park in Formosa, Argentina. A total of 30 reptile species were recorded between June 2009 and June 2011. Here we provide a checklist that includes relative species abundance, the different habitats present in the national park as well as the national conservation category for each species. In addition, 12 other reptile species cited in the literature for this area are included in the checklist. This study provides baseline information for future research in the park.

Key words: reptiles, national park, Formosa

INTRODUCTION

The Río Pilcomayo National Park (RPNP) is located in Formosa province, northeastern Argentina. To date, there are no published studies focusing on the reptiles of the protected area. The amphibian and reptile diversity of Formosa province has been described mainly based on nationwide listings, such as lists based on maps of species distribution including this province, which also provide general biological and taxonomic information (Koslowsky 1898; Abalos and Mischis 1975; Williams and Francini 1991; Cei 1993; Lions et al. 1997; Giraudo 2001; Scrocchi and Giraudo 2002; Giraudo and Scrocchi 2005). Arzamendia and Giraudo (2012) analyzed an area in the Paraguay River close to RPNP (60 km east) comprising the Lower Paraguay and the northern section of Middle Parana. This area is characterized by heterogeneous floodplain habitats, including a diverse gallery and riparian humid forest that contains tropical trees species, a variety of wetlands (lagoons, marshes), and flooded grasslands and groves of the White Palm (*Copernicia alba*). The authors found 54 snake taxa. There are no recent contributions focused on the reptilian fauna specifically for Formosa province. However, there are some works about the fauna of Corrientes, Chaco and Formosa provinces that include a list of the herpetofauna and the distribution of taxa by province (Alvarez et al. 1988; 2002). Specifically for the province of Formosa, the presence of 51 snake species, 20 lizards and four amphisbaenians was mentioned (Alvarez et al. 2002; Giraudo et al. 2004).

Biodiversity inventories are the basis for the development of conservation policies and the selection of priority areas for conservation (Leynaud and Bucher 1999). The importance of herpetological inventories in serving as a basis for land-use planning and conservation, and as a prelude to future research has been frequently mentioned (Raven and Wilson 1992; Sasa and Solórzano 1995; Silva and Sites 1995). Knowing the regional diversity of the less studied areas, especially protected areas, is essential to ensure species conservation; this may be successfully accomplished by conducting field surveys and therefore provide tools for improving management strategies. The east of Formosa is one of the less studied sectors of the province (Giraudo et al. 2004). Current data on reptiles for RPNP, located in this sector of the province, consists of lists of species included in internal publications of the National Parks Administration (NPA) and unpublished research reports (Gil et al. 1991, 1993; Pujalte et al. 1995; Giraudo et al. 1999; Almiron et al. 2000). This unpublished information was later compiled by Chebez et al. (2005) in a work that mentions 34 confirmed species and eight of questionable presence in RPNP.

The aim of this work is to provide the inventory of reptiles of RPNP.

MATERIALS AND METHODS

Study area

RPNP was created in 1951; it covers 52,000 ha and is located in the northeast of Formosa province, in Argentina (Figure 1). From a phytogeographical point of view, RPNP is located in the Eastern District of the Province of Chaco, Chaco Domain (Cabrera 1976;

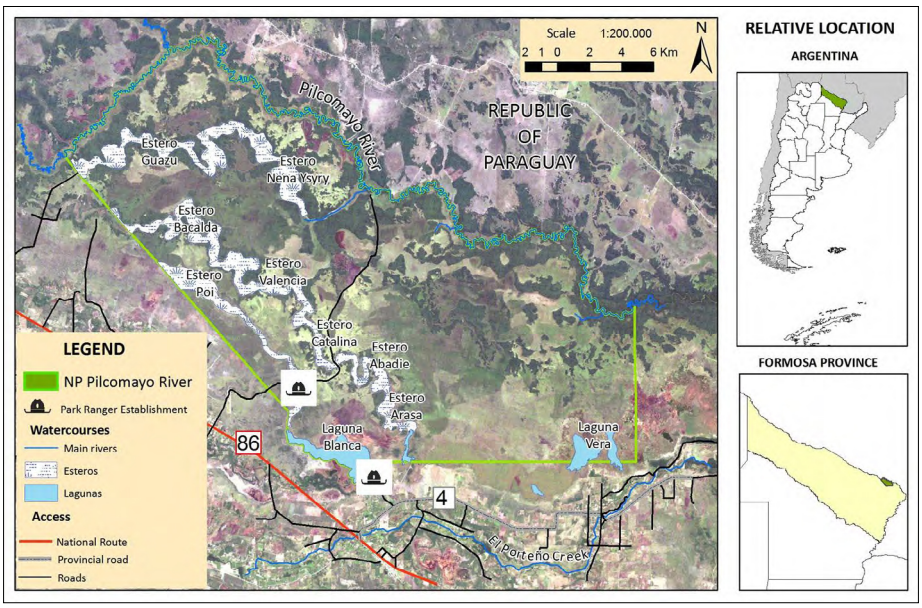

Figure 1. Río Pilcomayo National Park, Formosa, Argentina.

Cabrera and Willink 1980). The climate in the region is subtropical humid, with a short dry season and a significant decrease of rainfall in winter. Average temperature is 22.4°C, ranging from 29.3°C to 15.9°C. Average annual rainfall is 1300 mm (Canevari et al. 1981; Pujalte et al. 1995).

Description of the sampled environments

The area comprises different autonomous units that were characterized by Pujalte et al. (1995) and López-Lanús (1997). In this paper, we group them into five units and provide a brief characterization of each habitat:

Marshes and swamps: lowlands with standing water most of the year. The characteristic plant species include *Thalia geniculata*, *Cyperus giganteus*, *Typha domingensis*, *Scirpus giganteus* and other floating plants like *Pistia stratiotes* and *Eichhornia* sp.

Lagoons: The Poi and Von Sastrow marshes flow into the Laguna Blanca, the largest lake of approximately 600 ha. The unit is characterized by a wide surface water area surrounded by a dense line of *Thalia geniculata* and *Eichhornia* sp.

Oxbow lakes: They are generally semicircular lagoons formed by old bends in the Pilcomayo River. In some cases, they are clogged with aquatic vegetation.

Scrubland, grassland with palm tree and arboreal savannah: In the lowlands, there are grasslands of *Andropogon lateralis* and scrublands of *Elionorus muticus*. Many of the grassland areas include clustered or sparse individuals of *Copernicia alba* as well as dispersed individuals of *Prosopis* sp.

Closed forests: These grow as islands or patches of variable areas in the upper parts of the terrain, in combination with the surrounding grasslands. Common species include *Tabebuia impetiginosa, Schinopsis balansae, Astronium balansae, Caesalpinia paraguariensis, Gletdisia amorphoides, Chorisia spesiosa, Prosopis* sp., *Celtis* sp. and diverse associated vegetation, such as bromeliads, cacti, ferns and vines. The "riparian forest" was also included in this unit, and corresponds to the gallery forest of the Pilcomayo River along the northern boundary of the protected area. The characteristic tree species present are *Enterolobium contortisuliquum, Ficus* sp., *Inga* sp. *Piptadenia* sp. *Lonchocarpus* sp., as well as various lianas and epiphytes.

Data Collection

Direct, general unsystematic searches were performed in each environment. All specimens captured were identified, photographed and then released in RPNP. Observations were conducted on foot, by horseback and boat throughout the study area between June 2009 and June 2011, and all species observed were recorded. During this period, we also gathered information from publications and internal reports made by NPA Park Rangers, specialists and researchers who surveyed the study area in order to compare and complete the existing records. For previous records, we cite Chebez et al. (2005), who compiled existing unpublished internal reports up to 2005.

Information processing

To estimate the relative abundance of the species observed, we followed Yanosky (1989), who considered four categories based on the monthly presence and number of individuals observed, as follows:

Very abundant: species present every month with more than 5 records per month.

Abundant: species present every month with fewer than 5 records per month.

Common: species present in more than 50% of the months, regardless of the number of records.

Low: species observed at least three times throughout the sampling period.

These categories should be taken as merely descriptive and exploratory. For accurate calculations of species abundances, specific and appropriate methods should be used such as capture-recapture for species whose direct observations are difficult. Each species is mentioned for the protected area environments in which they were recorded and the conservation status at national level according to Lavilla (2000) is indicated. Nomenclature follows Zaher et al. (2009).

RESULTS

A total of 30 reptile species belonging to nine families were recorded in RPNP. Six species previously cited as of uncertain presence were confirmed (*Chironius maculoventris quadricarinatus, Leptodeira annulata pulchriceps, Erythrolamprus almadensis, Ophiodes intermedius, Teius oculatus,* and *Teius teyou*). *Leptodeira annulata pulchriceps* was recorded by Arzamendia and Giraudo for the Paraguay River. One species (*Oxyrhopus guibei*) not previously recorded in the area was also observed. The species *Chelonoidis chilensis* was observed, but we believe it does not belong to the original herpetofauna of RPNP and its presence may be accidental. In addition, 10 species that were mentioned as confirmed and two species that were of dubious presence by Chebez et al. (2005) for the RPNP (Table 1) were not recorded in this study.

List of species arranged alphabetically by family

Alligatoridae (2 species)

Caiman latirostris (Freiberg and Carvalho, 1965) (Figures 2 and 3)

Population: common.

Habitat: in or near the water. Observed in Laguna Blanca and Bañado Pirityí. Microhabitats varied, with a dominant use of the lagoons and swamps during the

Table 1. Species that have not been found in this study but have been mentioned by other authors for RPNP, Formosa, Argentina. X: presence; ?: dubious presence.

Species not recorded in this study	Literature	Source
Lygophis meridionalis	X	Chebez et al. 2005
Erythrolamprus reginae macrosoma	X	Chebez et al. 2005
Mabuya frenata	X	Chebez et al. 2005
Phimophis vittatus	X	Chebez et al. 2005
Phrynops hilarii	X	Chebez et al. 2005
Sibynomorphus turgidus	X	Chebez et al. 2005
Thamnodynastes chaquensis	X	Chebez et al. 2005
Thamnodynastes hypoconia	X	Chebez et al. 2005
Thamnodynastes strigatus	X	Chebez et al. 2005
Tropidurus spinulosus	X	Chebez et al. 2005
Leptotyphlops vellardi	?	Chebez et al. 2005
Micrurus baliocoryphus	?	Chebez et al. 2005

Figure 2. *Caiman latirostris*. Photo by M. Carpinetto.

Figure 3. *Caiman latirostris*. Photo by H. Ball.

Figure 4. *Caiman yacare*. Juvenile. Photo by H. Ball.

Figure 5. *Caiman yacare*. Adult. Photo by H. Ball.

Figure 6. *Ophiodes intermedius.* Photo by H. Ball.

Figure 7. *Ophiodes intermedius.* Photo by D. Cano.

Figure 8. *Eunectes notaeus.* Juvenile. Photo by H. Ball.

Figure 9. *Eunectes notaeus.* Adult. Photo by M. Bronfman.

night, and their margins during the day.

Comments: previously reported from RPNP by Chebez et al. (2005).

National status: Vulnerable (Lavilla et al. 2000).

Behavior: nocturnal behavior of crocodilians is generally quite different from diurnal behavior.

Caiman yacare (Daudin, 1802) (Figures 4 and 5)

Population: very abundant.

Habitat: in or near water. Observed in Laguna Blanca, Estero Catalina, Estero Poí, oxbow lakes and along the margins of Pilcomayo River. Microhabitats as in *Caiman latirostris*.

Comments: cited for RPNP by Chebez et al. (2005).

National status: Vulnerable (Lavilla et al. 2000).

Behavior: as in *Caiman latirostris*.

In Argentina, four ranching programs are using *C. yacare*, two in Formosa province (Sirosky 2004; Larriera et al. 2008).

Anguidae (1 species)

Ophiodes intermedius (Boulenger, 1894) (Figures 6 and 7)

Population: abundant.

Habitat: terrestrial; grasslands of *Andropogon lateralis* and *Paspapum* sp. Observed near water-filled ditches.

Comments: first reported from the "Estero Poí" ranger station (Lanfiutti 2000). The Chebez et al. (2005) record was based on this earlier reference.

National status: not threatened (Lavilla et al. 2000).

Boidae (1 species)

Eunectes notaeus (Cope, 1862) (Figures 8 and 9)

Population: common.

Habitat: water and flooded grasslands. Observed in Estero Poi, Estero Catalina and Laguna Blanca.

Comments: first reported from RPNP by Chebez et al. (2005).

National status: Vulnerable (Lavilla et al. 2000).

Behavior: This animal is strictly solitary and timid, and is observed with other anaconda only for mating. The species spends most of the time hunting prey in aquatic habitats, although they venture onto land for mating, moving to other water bodies, or hunting occasional terrestrial prey.

The experimental pilot program (EPP) of the "Program for the conservation and sustainable use of the Yellow Anaconda (*Eunectes notaeus*) in Argentina" was carried out in Formosa Province between 2002 and 2004 (Micucci et al. 2006).

Figure 10. *Boiruna maculata.* Photo by M. Carpinetto.

Figure 11. *Chironius quadricarinatus maculoventris.* Juvenile. Photo by D. Cano.

Dipsadidae (15 species)

Boiruna maculata (Boulenger, 1896) (Figure 10)

Population: common.

Habitat: terrestrial; savannahs and forests, generally on the ground.

Comments: previously reported from RPNP by Chebez et al. (2005).

National status: not threatened (Lavilla et al. 2000).

Behavior: generalist diet. We observed individuals feeding on small mammals, lizards, snakes and birds.

Chironius quadricarinatus maculoventris (Boie, 1827) (Figures 11 and 12)

Population: common.

Habitat: Arboreal and terrestrial in open areas. Observed in forests and fields near RPNP.

Comments: first reported from RPNP by Chebez et al. (2005).

National status: not threatened (Lavilla et al. 2000).

Behavior: mostly nocturnal and arboreal.

Clelia bicolor (Peracca, 1904) (Figure 13)

Population: common.

Habitat: terrestrial. Observed in grasslands, generally

Figure 12. *Chironius quadricarinatus maculoventris.* Adult. Photo by D. Cano.

Figure 13. *Clelia bicolor.* Juvenile. Photo by D. Cano.

Figure 14. *Erythrolamprus almadensis.* Photo by H. Ball.

Figure 15. *Erythrolamprus almadensis.* Ventral. Photo by H. Ball.

Figure 16. *Erythrolamprus poecilogyrus.* Juvenile. Photo by D. Cano.

Figure 17. *Erythrolamprus poecilogyrus.* Adult. Photo by H. Ball.

on the ground.

Comments: first reported from RPNP by Chebez et al. (2005).

National status: not threatened (Lavilla et al. 2000).

Erythrolamprus almadensis (Wagler, 1824)
(Figures 14 and 15)

Population: low.

Habitat: terrestrial. Observed in grasslands near the former ranger station "Aguará Guazú".

Comments: Chebez et al. (2005) reported this species as dubious or unconfirmed. This is the first documented record for the RPNP.

National status: not threatened (Lavilla et al. 2000).

Erythrolamprus poecilogyrus (Wied, 1825)
(Figures 16 and 17)

Population: common.

Habitat: terrestrial and near water. Observed in grasslands and fields near RPNP. In RPNP this is a common species, occupying diverse habitats such as grasslands, marshes, forest fragments and even modified areas.

Comments: First recorded from "Estero Poí" ranger station (Lanfiutti 2001). In 2001 the Government Office of RPNP, NEA Technical Delegation, was informed of this record.

National status: not threatened (Lavilla et al. 2000).

Figure 18. *Helicops leopardinus.* Photo by D. Cano.

Figure 19. *Hydrodynastes gigas.* Photo by D. Cano.

Figure 20. *Hydrodynastes gigas.* Photo by M. Carpinetto.

Helicops leopardinus (Schlegel, 1837) (Figure 18)

Population: common.

Habitat: near water. Observed in grasslands. Floating vegetation may be a critical habitat for *H. leopardinus*.

Comments: first reported from RPNP by Chebez et al. (2005).

National status: not threatened (Lavilla et al. 2000).

Hydrodynastes gigas (Duméril, Bibron and Duméril, 1854) (Figures 19 and 20).

Population: common.

Habitat: Aquatic. Observed in Laguna Blanca, the

Figure 21. *Leptodeira annulata pulchriceps.* Photo by D. Cano.

Figure 22. *Leptodeira annulata pulchriceps.* Photo by H. Ball.

former "Zanjita" ranger station, Estero Poi and open areas near "Estero Poi" ranger station.

Comments: first reported from RPNP by Chebez et al. (2005).

National status: not threatened (Lavilla et al. 2000).

Leptodeira annulata pulchriceps (Duellman, 1958) (Figures 21 and 22)

Population: low.

Habitat: terrestrial. Observed near human settlements.

Comments: Chebez et al. (2005) mentioned this species as dubious or not confirmed for RPNP. This is the first record for RPNP and the Government Office of RPNP, NEA Technical Delegation was informed of it.

National status: not threatened (Lavilla et al. 2000).

Leptophis ahaetulla marginatus (Cope, 1862) (Figures 23 and 24)

Population: abundant.

Habitat: arboreal and terrestrial. Observed on the banks of Laguna Blanca and on the ground in forested areas of "Estero Poi" ranger station.

Comments: first reported from RPNP by Chebez et al. (2005).

National status: not threatened (Lavilla et al. 2000).

Figure 23. *Leptophis ahaetulla marginatus.* Photo by M. Carpineto.

Figure 24. *Leptophis ahaetulla marginatus.* Photo by D. Cano.

Figure 25. *Lygophis dilepis.* Photo by M. Carpinetto.

Figure 26. *Lygophis dilepis.* Photo by H. Ball.

Figure 27. *Erythrolamprus guentheri.* Photo by M. Carpinetto.

Figure 28. *Mastigodryas bifossatus.* Photo by M. Carpinetto.

Lyophis dilepis (Cope, 1862) (Figures 25 and 26)

Population: common.

Habitat: terrestrial. Observed in grasslands and savannahs.

Comments: reported from RPNP by Chebez et al. (2005).

National status: not threatened (Lavilla et al. 2000).

Erythrolamprus guentheri (Perraca, 1897) (Figure 27)

Population: low.

Habitat: terrestrial. Observed in palm tree forests.

Comments: reported from RPNP by Chebez et al. (2005).

National status: not threatened (Lavilla et al. 2000).

Mastigodryas bifossatus (Radi, 1820) (Figure 28)

Population: low.

Habitat: terrestrial. Observed in palm shrublands and grassland islands near the former "Fonzo" ranger station.

Comments: reported from RPNP by Chebez et al. (2005).

National status: not threatened (Lavilla et al. 2000).

Oxyrhopus guibei (Hoge and Romano, 1977) (Figure 29)

Population: low.

Habitat: terrestrial. Observed near "Estero Poi" park ranger station.

Comments: not previously cited for the RPNP.

National status: not threatened (Lavilla et al. 2000).

Figure 29. *Oxyrhopus guibei.* Photo by H. Ball.

Figure 30. *Philodryas patagoniensis.* Photo by M. Carpinetto.

Figure 31. *Xenodon merremii.* Photo by N. Sucunza.

Figure 32. *Xenodon merremii.* Photo by N. Sucunza.

Figure 33. *Micrurus pyrrhocryptus*. Photo by D. Cano.

Figure 34. *Cercosaura schreibersi.* Photo by D. Cano.

Philodryas olfersii latirostris (Cope, 1862)
Population: common.
Habitat: arboreal and terrestrial. Observed in savannahs and fields near RPNP.
Comments: reported from RPNP by Chebez et al. (2005).
National status: not threatened (Lavilla et al. 2000).

Philodryas patagoniensis (Girard, 1854) (Figure 30)
Population: abundant.
Habitat: terrestrial. Observed in grasslands, forests and fields near RPNP.
Comments: reported from RPNP by Chebez et al. (2005).
National status: not threatened (Lavilla et al. 2000).

Xenodon merremii (Wagler, 1824) (Figures 31 and 32)
Population: common.
Habitat: terrestrial. Observed in grasslands and woods.
Comments: reported from RPNP by Chebez et al. (2005).
National status: not threatened (Lavilla et al. 2000).

Elapidae (1 species)

Micrurus pyrrhocryptus (Linnaeus, 1758) (Figure 33)
Population: low.
Habitat: terrestrial and fossorial. Observed in forest near the bird observation trail.
Comments: Chebez et al. (2005) mention this species as dubious or not confirmed for RPNP. However, the first record for this species was in "Estero Poí" ranger station (Lanfiutti 2000).
National status: not threatened (Lavilla et al. 2000).

Gymnophthalmidae (1 species)

Cercosaura schreibersi (Wiegmann, 1834) (Figure 34)
Population: common.
Habitat: terrestrial. Observed in grasslands.
Comments: reported from RPNP by Chebez et al. (2005).
National status: not threatened (Lavilla et al. 2000).

Figure 35. *Polychrus acutirostris.* Photo by M. Carpinetto.

Figure 36. *Polychrus acutirostris.* Photo by M. Carpinetto.

Polychrotidae (1 species)

Polychrus acutirostris (Spix, 1825)
(Figures 35 and 36)
Population: common.
Habitat: terrestrial and arboreal. Observed in grassland clearings and near human settlements.
Comments: cited for the RPNP by Chebez et al. (2005).
National status: vulnerable (Lavilla et al. 2000).

Figure 37. *Teius oculatus*. Photo by D. Cano.

Figure 38. *Teius teyou*. Normal coloration. Photo by D. Cano.

Figure 39. *Teius teyou*. Reproductive male coloration. Photo by M. Carpinetto.

Figure 40. *Tupinambis merianae*. Juvenile, Photo by D. Cano.

Figure 41. *Tupinambis merianae*. Adult. Photo by D. Cano.

Teiidae (4 species)

Ameiva ameiva (Linnaeus, 1758)

Population: low.

Habitat: terrestrial. Observed in forests and grasslands. Most lizards were observed on leaf litter, in habitats with intermediate sun radiation and generally in grasslands.

Comments: previously reported from RPNP by Chebez et al. (2005).

National status: not threatened (Lavilla et al. 2000).

Teius oculatus (D'Orbigny and Bibron, 1837) (Figure 37)

Population: abundant.

Habitat: terrestrial. Observed in grassland clearings.

Comments: Chebez et al. (2005) reported this species as dubious or unconfirmed for RPNP. This is the first documented record of the species for the RPNP.

National status: not threatened (Lavilla et al. 2000).

Behavior: *T. oculatus* has a relatively generalized diet and is an opportunist lizard that feeds on arthropods, mainly insects.

Teius teyou (Daudin, 1802) (Figures 38 and 39)

Population: low.

Habitat: terrestrial and arboreal. Observed in forest, grassland clearings, around human settlements, as well as in fields near RPNP. On bare ground and shrubs in forest.

Comments: Chebez et al. (2005) mentioned this species as dubious or unconfirmed in RPNP. This is the first documented record of the species for RPNP.

National status: not threatened (Lavilla et al. 2000).

Tupinambis merianae (Duméril and Bibron, 1839) (Figures 40 and 41)

Population: very abundant.

Habitat: terrestrial. Observed in grassland and forest clearings and around human settlements.

Figure 42. *Bothrops alternatus.* Photo by H. Ball.

Figure 43. *Bothrops alternatus.* Photo by D. Cano.

Comments: previously reported from RPNP by Chebez et al. (2005).

National status: not threatened (Lavilla et al. 2000).

Behavior: These animals are diurnal, terrestrial, actively foraging omnivores that often feed on fruit, eggs, invertebrates, and small vertebrates.

Viperidae (3 species)

Bothrops alternatus (Duméril, Bibron & Duméril, 1854) (Figures 42 and 43)

Population: common.

Habitat: terrestrial. Observed in grasslands and grass patches.

Comments: previously reported from RPNP by Chebez et al. (2005).

National status: not threatened (Lavilla et al. 2000).

Bothrops diporus (Cope, 1862) (Figure 44)

Population: abundant.

Habitat: terrestrial. Observed in grasslands, grass patches and forests.

Comments: previously reported from RPNP by Chebez et al. (2005).

National status: not threatened (Lavilla et al. 2000).

Behavior: We observed this species feeding on small mammals, lizards and reptiles.

Figure 44. *Bothrops diporus.* Photo by H. Ball.

Figure 45. *Crotalus durissus terrificus.* Photo by G. Rotta.

Figure 46. *Crotalus durissus terrificus.* Photo by G. Rotta.

Crotalus durissus terrificus (Laurenti, 1768) (Figures 45 and 46)

Population: common.

Habitat: terrestrial. Observed in Grasslands, former "Quebrachal" ranger station, "Laguna Blanca" ranger station, Estero Catalina and in fields near RPNP. Microhabitat generalists.

Comments: previously reported from RPNP by Chebez et al. (2005).

National status: not threatened (Lavilla et al. 2000).

Additional comments on turtles in the RPNP
Chelidae (1 species)

Phrynops hilarii (Duméril and Bibron, 1835)

Previously reported from RPNP by Chebez et al. (2005) based on the sighting of an individual by Giraudo et al. (2005). We did not record the species in our surveys. Because this species is very easy to see, and there is just one record, we assume that this record was accidental or that this animal was released into the natural area.

National status: not threatened (Lavilla et al. 2000).

Testudinidae (1 species)

Chelonoidis chilensis (Gray 1870)

Not previously reported for the RPNP. A male specimen of this species was found in 2010 by national park ranger Germán Peña. The specimen was found dead about 1 km away from the road to Pilcomayo River. We assume that this individual was released in the protected area by a visitor and that this record may only be accidental. We consider that this species is not part of the herpetofauna of RPNP because this record is outside the limit of its range.

National status: Endangered (Lavilla et al. 2000).

DISCUSSION

Alvarez et al. (2002) mentioned the presence of 74 reptile species (50 snake species, 20 lizards and four amphisbaenians), not including the families Testudinidae and Chelidae, for Formosa province. A total of 30 species of reptiles were recorded in this work for RPNP. If the 10 species reported by other authors were added, this would result in a total of 40 confirmed species (excluding *Chelonoidis chilensis*). It is necessary to confirm the presence of the following two species in RPNP: *Leptotyphlops vellardi*, whose presence in was probably inferred, and *Micrurus baliocoryphus*, most probably an error (Scrocchi pers. com.). *Leptotyphlops vellardi* was recorded by Arzamendia and Giraudo (2012) for the Paraguay River. This would result in RPNP protecting at least 54% of the species recorded in Formosa province. In this study, we recorded four species (*Caiman latirostris*, *Caiman yacare*, *Eunectes notaeus* and *Polychrus acutirostris*) that are considered vulnerable at the national level (Lavilla et al. 2000).

This inventory should be supported with additional sampling effort because we believe that this information is extremely useful for the protected area. Knowing the fauna of protected areas provides a useful tool for conservation planning, management and operation of the protected area, and generates lines of research on poorly documented aspects (Cano et al. 2007). These data are also essential for the management and conservation of ecosystems (Giraudo et al. 2004).

ACKNOWLEDGEMENTS

We are especially thankful to the head of the Río Pilcomayo National Park, park ranger Nestor Sucunza, Dalma Raymundi, NEA Regional Delegation, national park ranger Andres Lanfiutti, support park ranger Hugo Servin and Brigadista Sebastian Ravano. We also thank Nicolás Carpinetto, Gustavo Rotta and Mara Bronfman for photographs; Pedro Cacivio, for help with the identification of some species; Gustavo Scrocchi, who made critical comments on the manuscript; and Anabella Carp who provided Figure 1. Juan Carlos Chebez kindly supported and encouraged this work, and Msc. Jorgelina Brasca helped with the English translation of the manuscript.

LITERATURE CITED

Abalos, J.W. and C.C. Mischis. 1975. Elenco sistemático de los ofidios argentinos. Boletín de la Academia Nacional de Ciencias en Córdoba 51(1–2): 55–76.

Álvarez, B.B., M.E. Tedesco and A.B. Hernando.1988. Nota preliminar sobre la composición y distribución de la lacertofauna de Corrientes, Chaco y Formosa (República Argentina). Revista de la Asociación de Ciencias Naturales del Litoral 19(1): 79–89.

Álvarez, B.B., R.H. Aguirre, J.A. Cespedez, A.B. Hernando, M.E. Tedesco and O. Orfeo. 2002. Atlas de anfibios y reptiles de las provincias de Corrientes, Chaco y Formosa, Argentina: anuros, cecílidos, saurios, anfisbénidos y serpientes. 1ª ed. Corrientes: UNNE. 160 pp.

Arzamendia, V. and A.R. Giraudo. 2012. A panbiogeographical model to prioritize areas for conservation along large rivers. Diversity and Distribution 18(2): 168–179. doi: http://dx.doi.org/10.1111/j.1472-4642.2011.00829.x

Cabrera, A.L. 1976. Regiones fitogeográficas argentinas. Enciclopedia Argentina de Agricultura y Jardinería II. 1 y 2ª Edición. Buenos Aires: ACME. 85 pp.

Cabrera, A. and R. Willink. 1980. Biogeografía de América Latina. Washington, D.C.: OEA. Serie Biología, Monografía 13: 117 pp.

Canevari, P., C.E. Cheheber and L. Cusato. 1981. Informe preliminar sobre el Parque Nacional Río Pilcomayo. Buenos Aires: APN. 67 pp.

Cano, D., G. Leynaud and H. Ball. 2007. Nuevos registros de anfibios para el Parque Nacional Mburucuyá, Corrientes. Facena 23: 55–56. http://exa.unne.edu.ar/revisfacena/23/55-56.pdf

Cei, J.M. 1993. Reptiles del noroeste, nordeste y este de la Argentina. Herpetofauna de las selvas subtropicales, Puna y Pampas. Museo Regionale di Scienze Naturali Torino, Monografía 14: 1–949.

Chebez, J.C., N.R. Rey dan J.D. Williams. 2005. Los reptiles de los Parques Nacionales de la Argentina. Buenos Aires: L.O.L.A. 76 pp.

Gil, G. and D. Gómez. 1991. Listas sistemáticas de vertebrados, Parque Nacional Pilcomayo, Formosa. Buenos Aires: APN. 5 pp.

Gil, G., S. Heinnonen, E. Haene, G. Marino, N. Hilgert and P. Cichero. 1993. Anfibios, reptiles y aves del Parque Nacional Río Pilcomayo. Informe complementario. Buenos Aires: APN. 8 pp.

Giraudo, A.R. 2001. Diversidad de serpientes de la selva Paranaense y del Chaco Húmedo: taxonomía, biogeografía y conservación. Buenos Aires: L.O.L.A. 285 pp.

Giraudo, A.R., R.J. Lajmanovich, D. Fernández, M.A. Vázquez, M.

Almirón, N. Frías, V.R. Zalazar and R.R. Sottini. 1999. Estudio preliminar de los anfibios y reptiles del Parque Nacional Pilcomayo, aplicando diferentes metodologías. Corrientes: INALI. 15 pp.

Giraudo, A.R., Arzamendia, V. and M.S. López. 2004. Ofidios del litoral de Argentina (Reptilia: Serpentes): Biodiversidad y síntesis sobre el estado actual de conocimiento. Miscelánea 12: 323–330.

Giraudo, A. and G. Scrocchi. 2002. Argentinean snakes: a commented checklist. Smithsonian Herpetological Information Service 132: 1–53.

Koslowsky, J. 1898. Enumeración sistemática y distribución geográfica de los reptiles argentinos. Revista del Museo de La Plata 8: 161–200.

Lanfiutti, A. 2000. Actualización del listado de peces, anfibios, reptiles y mamíferos del P. N. Río Pilcomayo. Buenos Aires: APN. 20 pp.

Larriera, A., A. Imhof and P. Siroski. 2008. Estado actual de los programas de conservación y manejo del género Caiman en Argentina; pp. 143–179, in: Castroviejo, J., J. Ayarzagüena and A. Velasco (eds.). Contribución al conocimiento de los caimanes del género Caiman de Suramérica. Publ. Asoc. Amigos de Doñana.

Lavilla, E.O., E. Richard and G.J. Scrocchi. 2000. Caracterización de los anfibios y reptiles de la República Argentina. Tucumán: Asociación Herpetológica Argentina. 97 pp.

Leynaud, G. and E.H. Bucher. 1999. La fauna de serpientes del Chaco Sudamericano: diversidad, distribución geográfica y estado de conservación. Academia Nacional de Ciencias, Córdoba, Miscelánea 98: 1–46.

Lions, M.L., R.H. Aguirre, J.A. Céspedez and B.B. Álvarez. 1997. Reptiles de las áreas protegidas del oeste de la Provincia de Formosa. Facena 13: 43–48.

López–Lanús, B. 1997. Inventario de las aves del Parque Nacional Río Pilcomayo, Formosa, Argentina. Buenos Aires: LOLA. Monografía 4: 76 pp.

Pujalte, J.C., A.R. Reca, A. Balabusic, P. Canevari, L. Cusato and V.P. Fleming. 1995. Unidades ecológicas del Parque Nacional Río Pilcomayo. Anales de Parques Nacionales 16: 1–185.

Raven, P.H. and E.O. Wilson. 1992. A fifty–year plan for biodiversity surveys. Science 258: 1099–1100. doi: 10.1126/science.258.5085.1099

Sasa, M. and A. Solórzano. 1995. The reptiles and amphibians of Santa Rosa National Park, Costa Rica, with comments about the herpetofauna of xerophytic areas. Herpetological Natural History 3: 113–126.

Scrocchi, G.J. and A.R. Giraudo. 2005. Reptiles de la Reserva El Bagual; pp. 155–198, in: A.G. Di Giacomo and S.F. Krapovickas (eds.). Historia natural y paisaje de la Reserva El Bagual, Formosa, Argentina. Inventario de la fauna de vertebrados y de la flora vascular de un área del Chaco Húmedo. Temas de Naturaleza y Conservación 4. Buenos Aires: Aves Argentinas/Asociación Ornitológica del Plata.

Silva Jr., N.J. and J.W. Sites Jr. 1995. Patterns of diversity of Neotropical squamate reptile species with emphasis on the Brazilian Amazon and the conservation potential of Indigenous reserves. Conservation Biology 9: 873–901. doi: 10.1046/j.1523-1739.1995.09040873.x

Siroski, P. 2004. *Caiman latirostris* and *Caiman yacare* population surveys in Formosa Province, Argentina; pp. 443–446, in: Crocodiles. Proceedings of the 17th Working Meeting of the Crocodile Specialist Group of the Species Survival Commission of IUCN—The World Conservation Union, convened at Darwin, Northern Territory of Australia, 24–29 May 2004. Gland, UK: International Union for the Conservation of Nature. Accessed at https://portals.iucn.org/library/node/9946.

Williams, J.W. and F. Francini. 1991. A checklist of the Argentine snakes. Bollettino del Museo Regionale di Scienze Naturali di Torino 9: 55–90.

Yanosky, A.A., J.R. Dixon and C. Mercolli. 1993. The herpetofauna of El Bagual Ecological Reserve (Formosa, Argentina) and comments on its herpetological collection. Bulletin of the Maryland Herpetological Society 29(4): 160–171.

Zaher, H., F.G. Grazziotin, J.E. Cadle, R.W. Murphy, J.C. de Moura–Leite and S. L. Bonatto. 2009. Molecular phylogeny of advanced snakes (Serpentes, Caenophidia) with an emphasis on South American Xenodontines: a revised classification and descriptions of new taxa. Papéis Avulsos de Zoologia 49(11): 115–153. doi: 10.1590/S0031-10492009001100001

Authors' contribution statement: PDC wrote the research proposal, made the data analysis and wrote the first draft of manuscript. PDC, HAB, MFC and GDP collected, identified and photographed the specimens. HAB and MFC corrected the first draft of manuscript. PDC proof read the final draft of manuscript.

Received: January 2012
Accepted: April 2015
Editorial responsibility: Cameron Siler