

Noteworthy Paraguayan records and range extensions of birds from the city of Encarnación, Departamento Itapúa, Paraguay

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Encarnación, in Departamento Itapúa, is the most southerly city in Paraguay (Figure 1). It is located in an area of transition from Humid Chaco to Atlantic Forest habitat on the northern shore of the Paraná River, opposite the city of Posadas, capital of Provincia Misiones, Argentina. The surroundings of the city have recently undergone considerable change as a result of rapid urban development and raising water levels associated with the Yacyreta Dam project. With these coming changes in mind, field work to document the avifauna of the city and its immediate surroundings was begun in 2004.

Though Guyra Paraguay (2005) provides a summary of the distribution of Paraguayan birds in map form, the results of this field work were not available in time for inclusion in that publication. As a result records of national interest or those representing notable easterly or southerly national range extensions according to Guyra Paraguay (2005) are documented here. Records of species from Hotel Tirol, 17 km east of Encarnación that were reported by Smith *et al.* (2005), but would otherwise have qualified for inclusion under the criteria employed here are omitted.

Background

During early 2010 construction work began on the Encarnación waterfront in preparation for the rising water levels, including the raising of a 34 km long coastal barrier. Taking into account the changes earmarked by the local municipality, fieldwork was concentrated on areas of natural habitat that would later be lost or modified once the construction work began.

The rising water completely flooded the old town (Zona Baja), and the market zone of the city was relocated to an area of wet scrub on higher ground to be renamed the Feria Municipal (27°21'08"S, 55°51'56"W). A series of coastal marshes and reed beds associated with small tributaries of the Paraná River such as the Arroyo Mboi Kae (27°21'04"S, 55°52'37"W) were also set to be completely flooded as the new water level was established, essentially transforming the city into an island and necessitating the construction of a series of large bridges to cross the newly formed bays. The removal of sand and dredging of these marshes caused irreversible changes to the relief of the area resulting in their permanent destruction. By late 2011 the majority of the building work had been completed and the city coastline had been completely redefined.

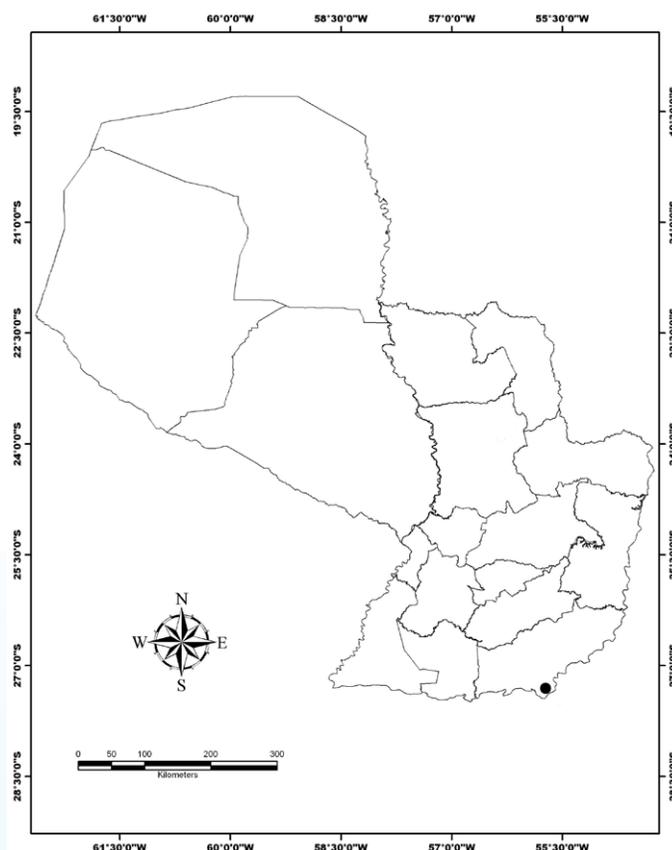


Figure 1: Location of Encarnación, Departamento Itapúa, Paraguay.

The full effects of these changes on the local avifauna are still unclear, but given the dramatic changes in the landscape we consider it necessary to document the presence of the species recorded during this period of intensive environmental modification.

Results

Documentation of 22 species of interest is provided with field notes and, where available, a voucher photograph. The nomenclature follows Remsen *et al.* (2013). The observers responsible for each record are represented with the following codes: PS (Paul Smith), RD (Roberto Derna), BW (Bryan Wainwright), GB (Geoff Bromfield), RN (Regis Nossent), AB (Adam Betuel).

Nomonyx dominicus (Anatidae) (PS, BW) Group of five individuals observed on 13 May 2005 at Arroyo Mboi Kae, representing a slight southerly range extension in Paraguay.

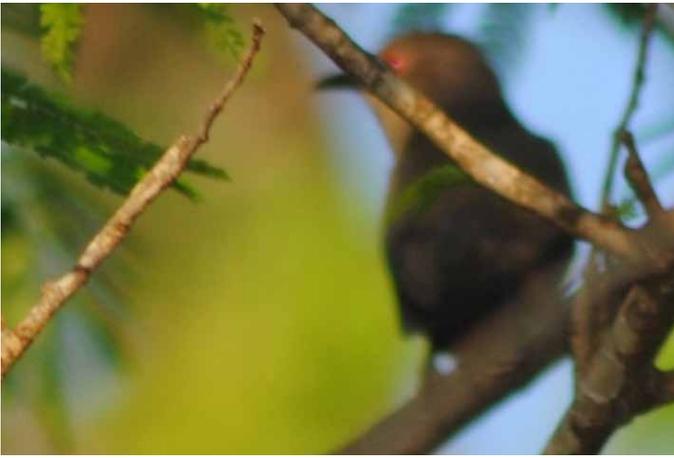


Figure 2. *Coccyzus cinereus*, Waste Treatment Plant, 7 November 2011 (Photo: Roberto Derna).



Figure 3. *Amazilia versicolor* "brevirostris", Barrio San Roque, 25 August 2007 (Photo: Paul Smith).



Figure 4. *Thamnophilus ruficapillus*, Fería Municipal, 9 October 2005 (Photo: Paul Smith).



Figure 5. *Pseudocolaptes flaviventris*, Arroyo Mboi Kae, 25 August 2005 (Photo: Paul Smith).

Tachybaptus dominicus (Podicipedidae) (PS, BW) Recorded during September and October 2005 at Arroyo Mboi Kae, representing a slight southerly range extension in Paraguay.

Coccyzus cinereus (Cuculidae) (RD) An adult photographed on 7 November 2011 at the waste treatment plant (27°18'53"S, 59°02'60"W) is only the fifth locality record from the Oriental region of Paraguay and the most southerly Paraguayan record (Figure 2).

Chordeiles minor (Caprimulgidae) (PS) First recorded on 22 January 2005, this is an annual summer visitor in Encarnación city centre where it can be seen regularly in the area of the Centro Regional de Educación (CREE) (27°20'04"S, 55°51'56"W). This is the southernmost record in Paraguay.

Amazilia versicolor (Trochilidae) (PS) One individual present in Barrio San Roque (27°21'04"S, 55°51'42"W) between 20 and 28 August 2007. This is the first documentation of the "brevirostris" form *sensu* Chebez *et al.* (2008) in Paraguay (Figure 3).

Florisuga fusca (Trochilidae) (PS, RN, BW) A pair observed feeding at a flowering *lapacho* tree (Bignoniaceae) at the Encarnación bus terminal (27°20'04"S, 55°51'56"W) on 11 July 2005 represented the fifth record for Paraguay. The species was considered an Atlantic Forest endemic by Guyra Paraguay (2005) but in Brazil the species occurs in degraded areas, woodlands and even gardens (Van Perlo 2009). The

scarce records in Paraguay are probably due to irregular seasonal movements.

Thamnophilus ruficapillus (Thamnophilidae) (PS, BW). A male netted on 9 October 2005 at Fería Municipal was the first Paraguayan record since the mid 1990s. It had been seen and heard for several days prior to this. A male was later photographed on 7 August 2011 (RD) at the waste treatment plant (27°18'53"S, 59°02'60"W) and the species was again seen nearby on 11 May 2013 (27°18'40"S, 56°23'60"W) (PS, RD). The species is considered resident in Paraguay, but clearly occurs at low density, being apparently confined to the southeastern Oriental region and replaced in the rest of the country by the ecologically similar *Thamnophilus doliatus* (Guyra Paraguay 2005) (Figure 4).

Phleocryptes melanops (Furnariidae) (PS, RN, BW) Observed on numerous occasions in reed beds of Arroyo Mboi Kae during July to September 2005, with the first record of a single individual on 17 July. This species is poorly known in Paraguay and these records are the first for Departamento Itapúa and the most easterly in Paraguay. Guyra Paraguay (2005) considers it a non-breeding winter visitor.

Asthenes pyrrholeuca (Furnariidae) (PS, AB) Winter records from the Fería Municipal during August 2006. Guyra Paraguay (2005) consider it a non-breeding winter visitor, and this record represents a considerable easterly and southerly extension of the published range, as well as the first occurrence in Departamento Itapúa.



Figure 6. *Pygochelidon cyanoleuca*, Barrio San Roque, September 2006 (Photo: Paul Smith).



Figure 7. *Paroaria capitata*, Cantera Tecnoedil, 22 May 2011 (Photo: Roberto Derna).



Figure 8. *Poospiza nigrorufa*, Arroyo Mboi Kae, 21 August 2005 (Photo: Paul Smith).



Figure 9. *Sporophila leucoptera*, Arroyo Mboi Kae, September 2006 (Photo: Paul Smith).



Figure 10. *Sporophila palustris*, Fería Municipal, 31 November 2006 (Photo: Paul Smith).

Pseudocolopteryx sclateri (Tyrannidae) (PS, RN, BW) Seen on several occasions at Arroyo Mboi Kae during 2006, with the first record on 22 August. This is the most easterly record in Paraguay and the first record for the Alto Paraná biogeographical region. The species is considered resident in Paraguay (Guyra Paraguay 2005).

Pseudocolopteryx flaviventris (Tyrannidae) (PS, BW) A juvenile was captured at Arroyo Mboi Kae on 25 August 2005. The individual may have been born in the area as it was a weak flier, though the proximity of the capture site to

the river means that this cannot be confirmed. The species is considered a non-breeding winter visitor to Paraguay (Figure 5).

Tachycineta meyeri (Hirundinidae) (PS, BW, GB, AB) A handful of individuals were present during winter 2005 and 2006 along the coast of the Rio Paraná in the Avenida Francia area (27°20'07"S, 55°52'37"W), with the first record on 19 May 2005. Though considered a northern austral migrant by Guyra Paraguay (2005) the extreme dates given for this species confirm that is a typographical error and the correct status should be a non-breeding winter visitor in accordance with Guyra Paraguay (2004).

Pygochelidon cyanoleuca (Hirundinidae) (PS, BW, GB, AB) With the exception of *Progne chalybea*, this is the most frequently observed Hirundine in the city and these records are the most southerly documented in Paraguay. Considered a breeding southern migrant by Guyra Paraguay (2005), this species has been observed to undergo large migratory movements through the area, but at least some individuals are resident year round in the city centre (Figure 6).

Pygochelidon melanoleuca (Hirundinidae) One individual seen amongst a large migrating flock of *Pygochelidon cyanoleuca* on 10 March 2005 (PS, GB) on the Rio Paraná waterfront. At the beginning of July 2005 a second specimen was seen in a mixed flock of Hirundines at Arroyo Mboi Kae (RN, BW). This rare resident species in Paraguay had previously

been recorded once before at Arroyo Mboi Kae (Rob Clay, pers. comm.), but there have been no subsequent records and it is known from only one other locality in Paraguay (Guyra Paraguay 2005).

Campylorhynchus turdinus (Troglodytidae) (PS) A species in rapid expansion throughout the country. Singing birds were first heard during mid-March 2012 and have been of regular occurrence since. These represent the first records for Departamento Itapúa and the most southerly records in Paraguay.

Poliophtila dumicola (Poliophtilidae) (PS, BW, RD, RN, GB) First recorded on 16 May 2004 and subsequently found to be frequent throughout the study area. These represent the first records for Departamento Itapúa and marginally the most easterly records in Paraguay.

Paroaria capitata (Emberizidae) (PS, BW, RN, RD, AB) Uncommon, but with several records along the banks of the Rio Paraná. These represent the first records for Departamento Itapúa and marginally the most easterly records in Paraguay (Figure 7).

Poospiza nigrorufa (Emberizidae) (PS, RN, BW) This species was netted on 21 August 2005 at Arroyo Mboi Kae having first been observed there on 11 May 2005. This represents the fifth locality for the species in Paraguay, the most southerly record in the country and the first record for Departamento Itapúa. Guyra Paraguay (2005) considers the species a non-breeding winter visitor to Paraguay, but the presence of a pair with a juvenile during September 2005, plus an adult photographed on 2 October 2011 (RD) at the waste treatment plant (27° 18' 40" S 56° 23' 60" W) raises the possibility that the species may breed in the south of the extreme south of the country (Figure 8).

Poospiza melanoleuca (Emberizidae) (PS) A single bird was seen on in a fig tree (Moraceae) close to the Avenida Francia (27°19'57"S, 55°52'20"W) on 14 and 19 December 2004.. Though a common resident in the Chaco, this is the most easterly record in Paraguay, the first record for the Alto Paraná biogeographical region and the first record for Departamento Itapúa.

Sporophila leucoptera (Emberizidae) (PS, BW, RN) Not uncommon at Arroyo Mboi Kae with several individuals and juveniles netted during September 2006. This species is considered resident by Guyra Paraguay (2005) and these records represent the first for Departamento Itapúa and marginally the most easterly in Paraguay (Figure 9).

Sporophila palustris (Emberizidae) (PS, GB) A single male in a flock of *Sporophila coerulescens* was photographed in the same general area of scrub at the Feria Municipal on 31 November 2006, again presumably on southbound passage. This species is considered a northern breeding migrant by Guyra Paraguay (2005) but we are unaware of any confirmed breeding of this species in the country (Figure 10).

Sporophila cinnamomea (Emberizidae) (PS) A single male in scrub at the Feria Municipal on 14 October 2005 was presumably on southbound passage. A video of this specimen was taken by Sally Wechsler. This species is considered a northern breeding migrant by Guyra Paraguay (2005) but we are unaware of any confirmed breeding of this species in the country.

Discussion

Krauczuk (2006) provided a thorough review of the avifauna of the Greater Posadas area on the opposite bank of the Rio Paraná. Though a similarity in the respective avifaunas may be expected because of their proximity, in fact just *Thamnophilus ruficapillus* and *Poospiza nigrorufa* of the species reported here were included in that publication as having been previously recorded in Greater Posadas. This would seem to suggest that the species documented herein are not widespread in the study area and are of genuine regional interest.

The presence of several species considered rare austral migrants by Guyra Paraguay (2004) in the marshes and reed beds close to the city suggest that important wetland habitat may have been lost for some wintering passerines. Though only the marshes on the immediate outskirts of the city were sampled, the extent of the habitat modification that such coastal marshes will have experienced as a result of the rising water levels is far more widespread and may have affected more than 100 km of coastline downriver from the Yacyreta dam. The effects of such sudden and drastic habitat alteration on migrating birds can only be guessed at, but are likely to have been severe.

No population data are available for migrant passerines passing through southern Paraguay, and it is unclear to what extent marshes such as Arroyo Mboi Kae may have played as staging posts for species of conservation concern. The records documented here include new localities for two species of global conservation concern (*Sporophila cinnamomea* and *S. palustris*) and three species of national conservation concern (*S. cinnamomea*, *S. palustris* and *Pygochelidon melanoleuca*).

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