Neotropical Biodiversity

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/tneo20

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To cite this article: Paul Smith & Hugo Del Castillo (2021) Aramides saracura and Aramides cajaneus do not have a parapatric distribution, at least not in Paraguay: A reply to Marcondes and Silveira (Zookeys 500, 2015), Neotropical Biodiversity, 7:1, 57-60, DOI: 10.1080/23766808.2021.1886757

To link to this article: https://doi.org/10.1080/23766808.2021.1886757

Published online: 11 Feb 2021.

NEOTROPICAL BIODIVERSITY
2021, VOL. 7, NO. 1, 57–60
https://doi.org/10.1080/23766808.2021.1886757

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Aramides saracura and Aramides cajaneus do not have a parapatric distribution, at least not in Paraguay: A reply to Marcondes and Silveira (Zookeys 500, 2015)

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ABSTRACT

A taxonomic review of the Grey-necked Wood-Rail *Aramides cajaneus* remarked on a "previously unnoticed" parapatric distribution of this species with respect to Slaty-breasted Wood-Rail *Aramides saracura*. It was postulated that the two might act to exclude each other and that this isolating mechanism might have driven the evolution of a coastal species *A. avicenniae* Stotz, 1992. Here we demonstrate that Grey-necked and Slaty-breasted Wood-Rails are widely sympatric in Paraguay (a portion of the species range that was not discussed by the authors) and propose that this pattern probably extends to other areas of the species range too. We consider that the theory of parapatry between both species is an artefact of insufficient data, and that any proposed evolutionary processes based on that theory thus require re-evaluation.

ARTICLE HISTORY
Received 16 June 2020
Accepted 4 February 2021

KEYWORDS
Argentina; Grey-necked Wood-Rail; Slaty-breasted Wood-Rail

A recent, much-needed, taxonomic review of Grey-necked Wood-Rail *Aramides cajaneus* [1] remarked on the supposed parapatric distribution of this species with respect to Slaty-breasted Wood-Rail *Aramides saracura* in southeastern Brazil and northeastern Argentina. It was postulated that, despite the differing habitat requirements of the two species (*A. saracura* in Atlantic Forest and *A. cajaneus* in wetlands), these ecological preferences might not be sufficiently different to allow sympatry of the two species, and that this pattern may have played a role in the evolution of a coastal species *A. avicenniae* Stotz, 1992. Clearly such an evolutionary hypothesis would not be confined by geopolitical boundaries.

The authors provided a map (Figure 12) of the range of the two species in southeastern South America which purports to show "almost perfectly parapatric distributions never before remarked on" (*contra* [2–6]). The map includes four clustered points in Paraguay, three for *A. cajaneus* and one for *A. saracura*, which clearly show that the ranges of the two species in Paraguay approach each other very closely, thus representing a challenge to the hypothesis of near-perfect sympatry. However, the distribution in Paraguay was then omitted from the rest of the Discussion, and the supplementary data did not clarify which *A. saracura* specimens were examined in order to determine the exact Paraguayan locality that was represented.

An examination of the literature indicates that there exists ample documentation of the two species occurring sympatrically across a broad band of the eastern Oriental region of Paraguay, and that the near-perfect parapatry reported by the authors is an artifact of their data sampling. Whilst we take the opportunity to recognize the value of specimen-based studies, and to express our support for the use of specimen data as a fundamental practice in ornithology, we add the caveat that it should not be to the exclusion of other published data. Below (Table 1), we provide a review of published examples of sympatry of the two species in Paraguay (some of which was published posterior to [1]), and additionally document several previously unpublished cases. To complement this information, we provide a map that illustrates the localities from where both species have been reported (exclusively), indicating a broad area of overlap of the two species in eastern Paraguay west to approximately 56.5°W (Figure 1) and corresponding roughly to the coverage of the Atlantic Forest ecorregion.

The taxonomic review of *Aramides cajaneus* by [1] is an important and valuable contribution to the literature for which we congratulate the authors. However, sympatry of the Grey-necked and Slaty-breasted Wood-Rail in Paraguay is a well-known and adequately published phenomenon, and the perceived parapatry of the distribution of these two species is an artifact of the sampling method employed. Whilst we concede that the extent of global sympatry does require clarification, there is ample indication that the two species are indeed widely sympatric in southeastern South

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Published online 11 Feb 2021

Table 1. Records of *Aramides cajaneus* and *A. saracura* occurring in sympatry in the Oriental region of Paraguay. *Both species are listed as part of the avifauna of San Rafael National Park [12], the specific localities within the park are documented in [13].

Department	Locality	Relative abundance	Co-ordinates	Source
Alto Paraná	Area Itakyry/Estancia Arakanguy	*cajaneus*: rare; *saracura*: frequent	−24 55 00 − 55 10 00	Unpublished field data
Alto Paraná	Estancia San Antonio	*cajaneus*: rare; *saracura*: uncommon	−25 18 00 − 55 20 00	Unpublished field data
Alto Paraná	Refugio Biológico Limoy	*cajaneus*: rare; *saracura*: frequent	−24 43 00 − 54 22 00	Unpublished field data
Alto Paraná	Refugio Biológico Itabó	*cajaneus*: rare; *saracura*: scarce	−25 02 00 − 54 42 00	Unpublished field data
Alto Paraná	Vivero Forestal Itaipú, Hernandarias	both species present, no abundance data	−25 20 00 − 54 40 00	Unpublished field data
Amambay	Reserva Natural Privada Arroyo Blanco	*cajaneus*: rare; *saracura*: rare	−22 27 30 − 56 09 02	Unpublished field data
Caaguazú	Estancia Mainumby	both species present, no abundance data	−25 13 26 − 56 10 38	Unpublished field data
Caaguazú	Estancia Santa Rosa	both species present, no abundance data	−25 16 02 − 56 09 22	Unpublished field data
Caazapá	Estancia Tapyta	both species present, no abundance data	−26 15 00 − 55 45 00	Unpublished field data
Caazapá	Estancia Quinto Potrero	both species present, no abundance data	−25 14 38 − 56 10 28	Unpublished field data
Caazapá	Reserva Ypetí	*cajaneus*: uncommon; *saracura*: uncommon	−25 38 00 − 55 29 00	[14]
Caaguazú	Arroyo Yhú	*cajaneus*: rare; *saracura*: uncommon	−25 15 00 −55 56 00	[12,13]*
Canindeyú	Reserva Natural Bosque Mbaracayú	*cajaneus*: extremely rare; *saracura*: common	−24 07 00 − 55 16 00	[15]
Canindeyú	Refugio Biológico Mbaracayú	both species present, no abundance data	−24 03 21 − 54 17 56	[16]
Canindeyú	Refugio Biológico Carapá	*cajaneus*: rare; *saracura*: frequent	−24 16 00 54 22 00	Unpublished field data
Canindeyú	Estancia Itabó	*cajaneus*: rare; *saracura*: frequent	−24 31 00 − 54 38 00	Unpublished field data
Guairá	Reserva de Recursos Manejados Yvytyrusu	*cajaneus*: rare; *saracura*: frequent	−25 50 00 − 56 10 00	Unpublished field data
Itapúa	Estancia Nueva Gambach	*cajaneus*: rare; *saracura*: frequent	−26 38 00 − 55 39 00	[12,13]*
Itapúa	San Pedro Mi	*cajaneus*: rare; *saracura*: uncommon	−26 31 39 − 55 47 31	[12,13]*
Itapúa	Kanguery	*cajaneus*: uncommon; *saracura*: frequent	−26 31 53 − 55 46 55	[12,13]*
Itapúa	Guyra Retá	*cajaneus*: rare; *saracura*: frequent	−26 26 33 − 55 47 47	[12,13]*
San Pedro	Rancho Adela	both species present, no abundance data	−24 47 00 − 56 10 00	Unpublished field data
San Pedro	Rancho Laguna Blanca	*cajaneus*: uncommon; *saracura*: uncommon	−23 47 56 − 56 17 32	[17,18]. A specimen of *A. cajaneus* from this locality is preserved in the Colección Zoológica Para La Tierra (28 July 2011; A. Oxley leg.; CZPLT 0003)
San Pedro	Yaguarete Forests	*cajaneus*: rare; *saracura*: rare	−23 45 00 − 56 14 00	Unpublished field data

America as previous authors have suggested. The extent of sympatry is perhaps not as ubiquitous as generalist works on the subject might infer (as *A. cajaneus* is possibly restricted in its distributions by the tablelands of southern Brazil), but there is undoubtedly a broad zone of co-existence of the species that should not be defined as parapatry.

Contrary to popular belief, the Paraguayan avifauna is as well documented as any of its neighbours, but it is repeatedly ignored or overlooked, presumably because much of the available data is published in obscure publications that are not widely "found" by traditional literature search methods. We strongly encourage international researchers working on such publications to make an effort to reach out to Paraguayan-based researchers and to confirm whether the perceived gaps in their data are real or a product of the difficulties involved in accessing the relevant information, thus potentially avoiding unnecessarily erroneous conclusions.

Whilst it is beyond the scope of our knowledge to discuss in detail the potential sympatry of the two species beyond the borders of the country in which we work, we would add that distribution of the two species in Argentina is also potentially less "perfectly parapatric" than the presented data suggests and that *Aramides cajaneus* is not "absent from the Argentine province of Misiones". We note, for example, that Chebez [7] reports "*Aramides cajanea cajanea*" from Misiones in the departments of San Pedro, Candelaria, Iguazú, Guaraní, Oberá, 25 de Mayo, San Ignacio and El Dorado, representing a broad sweep of the province from east to west. *Aramides saracura* is reported as present in Iguazú, General Belgrano, San Ignacio, San Pedro, Oberá, El Dorado, Guaraní, Candelaria, Cainguás, Capital, 25 de Mayo, Montecarlo, Liberador General San Martín and Apóstoles, representing potential 100% range overlap of the two species, at least at the departmental level, within Misiones Province [8]. On the other hand, *Aramides saracura* has been reported as occurring

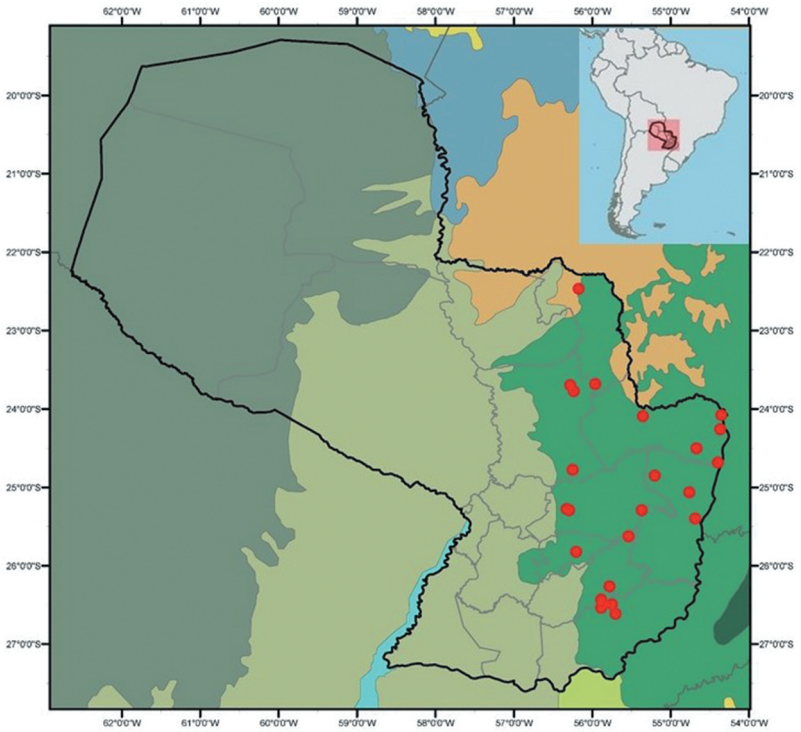

Figure 1. Map showing the ecoregions in Paraguay. Atlantic Forest (Bright Green); Humid Chaco (Pale Green); Dry Chaco (Dark Green); Cerrado (Orange); Pantanal (Pale Blue). Localities where *Aramides cajaneus* and *A. saracura* occur in sympatry are represented with red circles.

marginally in the avifauna of Provincia Corrientes further west [9–11] than mapped by Marcondes and Silveira [1], and we note that the published area of overlap in Argentina approximates in its western limits very closely to that reported in Paraguay.

We have not attempted to verify the Argentinian data that we repeat here, but clearly, it exists. There is thus good cause to re-evaluate the claims of parapatry within the Argentinian and likely also the inland Brazilian distribution of the two species, and to thoroughly investigate the unlikely possibility that sympatry of the two species is limited to the Paraguayan range. In the meantime, any evolutionary hypotheses based on presumed parapatry of the two taxa might also benefit from a re-examination of the available data.

Disclosure statement

No potential conflict of interest was reported by the authors.

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References

[1] Marcondes RS, Silveira LF. A taxonomic review of *Aramides cajaneus* (Aves, Gruiformes, Rallidae) with notes on morphological variation in other species of the genus. Zookeys. 2015;500:111–140.

[2] Ripley SD. Rails of the world. Boston (MA): David R. Goodine; 1977.

[3] Taylor PB. Family Rallidae. In: Del Hoyo J, Elliot A, Sargatal J, editors. Handbook of the birds of the world. Vol. 3. Barcelona: Lynx Edicions, Barcelona; 1996. p. 108–209.

[4] Taylor PB. Rails: a guide to the rails, gallinules and coots of the world. Sussex: Pica Press; 1998.

[5] Erize F, Mata JRR, Rumboll M. Birds of South America. Non-passerines: rheas to woodpeckers. Princeton (NJ): Princeton University Press; 2006.

[6] Sigrist T. Guia de campo Avis Brasilis da avifauna Brasileira [Avis Brasilis field guide to the Brazilian Avifauna]. Vinhedo, São Paulo: Avis Brasilis Editora; 2009.

[7] Chebez JC. Aves de la Provincia de Misiones [Birds of the Province of Misiones]. In: Chebez JC, editor. Fauna Misionera. Buenos Aires: L.O.L.A.; 1996. p. 108–179.

[8] Bodrati A, Areta JI, White E. La avifauna de la Posada y Reserva Puerto Bemberg, Misiones, Argentina. Nuestras Aves. 2012;57:63–79.

[9] Contreras JR. Lista preliminar de la avifauna Correntina I: no paseriformes [Preliminary list of the avifauna of Corrientes 1: non-passerines]. Hist Nat. 1981;2 (3):21–28.

[10] Contreras JR. Algunas localidades interesantes para aves correntinas [Some interesting localities for birds of Corrientes]. Nótulas Faun. 1987;6:1–2.

[11] De La Peña M. Citas, Observaciones y Distribución de las Aves Argentinas: segunda Edición Ampliada y Corregida [Citations, Observations and Distribution of Argentine Birds: second Amplified and Corrected Edition]. Santa Fe: Serie Naturaleza,

Conservación y Sociedad Nº 7. Ediciones Biológica; 2013.

[12] Madroño-Nieto A, Clay RP, Robbins MB, et al. An avifaunal survey of the vanishing interior Atlantic forest of San Rafael National Park, departments Itapúa/Caazapá,Paraguay. Cotinga. 1997;7:45–53.

[13] Esquivel-Mattos A, Peris SJ. Aves de San Rafael [Birds of San Rafael]. Asunción: Universidad de Salamanca/Asociación Pro Cosara; 2011.

[14] Esquivel-Mattos A, Tiffer-Sotomayor R, Díaz A, et al. The avifauna of Ypetî Nature Reserve, and its implication for the consolidation of the Atlantic Forest corridor in Paraguay. Wilson J Orn. 2019;131:35–42.

[15] Mazar Barnett J, Madroño-Nieto A. Aves de la Reserva Natural del Bosque Mbaracayú: guía para la Identificación de 200 especies [Birds of the Mbaracayú Natural Forest Reserve: guide to the Identification of 200 species]. Asunción: Guyra Paraguay/Fundación Moises Bertoni; 2003.

[16] Pérez Villamayor N, Colmán Jara A. Avifauna de las áreas protegidas de Itaipú I: aves del Refugio Biológico Mbaracayú, Salto del Guairá, Paraguay [Avifauna of the Itaipú protected areas 1: birds of the Mbaracayú Biological Refuge, Salto del Guairá, Paraguay]. Itaipú Binac Biota. 1995;4:1–24.

[17] Smith P, Del Castillo H, Batjes H, et al. An avifaunal inventory of Laguna Blanca, Departamento San Pedro, northeastern Paraguay. FAUNA Paraguay Tech Publ. 2005;2:1–16.

[18] Smith P, Del Castillo H, Guest K. Birds of Reserva Natural Laguna Blanca, departamento San Pedro, Paraguay and the imminent threats to their conservation. Rev Biodivers Neotrop. 2016;6:55–67.