

Black-necked Swan *Cygnus melancoryphus*: Is there any evidence that it ever occurred in Paraguay?

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Abstract

The Black-necked Swan is commonly cited as occurring in Paraguay in the international literature, yet the species has never been treated as anything other than hypothetical in the national literature. The reason for this discrepancy is investigated with a review of the relevant literature. It is concluded that there is no evidence that the species has ever been positively recorded in Paraguay and it is recommended that it be considered “erroneously cited” in the country.

Introduction

The Black-necked Swan *Cygnus melancoryphus* has repeatedly been included on lists of the Paraguayan avifauna, yet the evidence for its occurrence in the country has never been fully elucidated. The tendency in the Paraguayan literature has generally been to omit the species from the national list, yet this is in direct contrast to most of the international literature which consistently includes the country in the distribution of the species.

Perhaps as a result of this confusion it was treated as “possible” by Guyra Paraguay (2004, 2007), and as “possibly occurring as an austral migrant” by Hayes (1995) who highlighted the fact that there are no substantiated records. No subsequent documentation or reports of the species in Paraguay have been forthcoming since these publications. Despite this, all of the major monographs on wildfowl published in recent times include Paraguay as being in the Black-necked Swan’s range, including Soothill & Whitehead (1978) “breeds in ... Paraguay”; Wilmore (1979) “Paraguay”; Madge & Burn (1992) “southern Paraguay” and “disperses north to northern Paraguay”; Carboneras (1992) “Paraguay” and “occurring as far N as Tropic of Capricorn”; Kear (2005) “southeast Paraguay” and “some movement into northern Paraguay”; Carbonell *et al.* (2007) “locally common ... in Paraguay”; and Johnsgard (2010) “breeds in Paraguay”.

Clearly there is a contradiction between the national literature and the international perception of the distribution of the species, and the source of the discrepancy warrants investigation. In this paper I provide a review of the principal literature citations



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regarding the presence of the species in Paraguay in an attempt to clarify the situation as to the present and historical distribution of the species in the country.

Literature review

The first mention of *C. melancoryphus* in a work commonly associated with Paraguay is that of Azara (1802) “No. 425 Cisne de Cabeza Negra”, who asserts that “the species does not occur in Paraguay, but abounds in the area of the River Plate and the great lagoons of Buenos Aires”. Azara even goes so far as to state that “they tell me” the species is resident in that area, thereby dispelling any possible misunderstanding as to his opinion of the distribution of the species. Consistent with this, the species was not mentioned by Rengger (1835) who travelled and collected widely through the Paraná basin between 1818 and 1826 (Ramella & Perret 2011) and Eyton (1848) also confined the species to the south of the continent in his monograph of the Anatidae.

Lieutenant Thomas Jefferson Page travelled extensively through Paraguay and Argentina in the years 1853–1855 (Smith & Bartlett 2009). In his report on the expedition Page (1859) states in an appendix

that he collected specimens “higher up the Rio Paraná than ever before documented”, but in the main text he mentions collecting the species on the Paraná only at La Paz–San Juan, Argentina 475 miles north of Buenos Aires, a location well to the south of even the expanded boundaries of Paraguay prior to the territory loss following the reparations of the Triple Alliance War (1864–1870). This specimen is not listed in the online database as part of the ornithological collection of the Smithsonian Museum and its whereabouts are unknown.

Burmeister (1860) associated his *Cygnus nigricollis* with Azara’s No.425 (in agreement with Hartlaub 1847) and gave the distribution as “Frequent on the lagoons of the Pampa, also in Paraná”, referring to the river, not the Brazilian state where the species has never been recorded (Scherer-Neto *et al.* 2011). This ambiguity may potentially be a source of confusion for later writers who also perhaps unwittingly associated both Azara and the Paraná River with Paraguay. Burmeister (1872) later clarified what he meant regards the Argentine distribution, describing the bird as common “... in the southern parts of the Republic near the river Paraná and the great lagunes (sic) of the interior”. A similar southerly distribution was given in the principal English language work on the Argentine avifauna available until this date, which states that the species is “very abundant on the pampas of Buenos Ayres and in Patagonia, and ranges south to the Magellan Straits and the Falklands” (Sclater & Hudson 1889).

At this point it was clear that there were still no *bona fide* records of the species in Paraguay, but the presence of the species on the southern Rio Paraná was enough to prompt Berlepsch (1887) to include it amongst his species of hypothetical occurrence (No. 87) with known distribution “Sta. Catharina — Paraná & B. Aires”. The Argentine distribution he provided echoes Burmeister (1872), and the citation for Santa Catarina is probably that of Burmeister (1856).

In one of the most significant ornithological works of the 19th Century, Salvadori (1895) gave the distribution of the species as “Southern Brazil, Paraguay, Uruguay, Argentine Republic, Chili, Patagonia, and Falkland Islands.” The basis for him doing so is uncertain as he lists no Paraguayan specimens and none of the citations he lists mentions concrete Paraguayan records either. However this is the first major work to state categorically that the species occurs in Paraguay and, given its significant

impact on ornithological science around this time, may be the source of subsequent confusion. Other prominent authors such as Brabourne & Chubb (1912) cited a similar distribution of “South Brazil: Paraguay: Argentina, to Tierra del Fuego: Chile: Falkland Islands” and arguably most significantly of all Peters (1931) provided an almost verbatim distribution of “Paraguay, southern Brazil, Uruguay, Argentina, Chile, Falkland Islands.”

German-born Hermann von Ihering was perhaps the most influential ornithologist in southern Brazil at the beginning of the 20th Century, having been contracted by the German Imperial government to carry out scientific exploration in the region, and was in part funded by the wealthy aristocrat Berlepsch. Ihering founded the Museu Paulista, and shared correspondence with Arnaldo de Winkelried Bertoni, the principal Paraguayan naturalist of the time, who held him in high regard (Smith *et al.* 2015). Ihering (1904) omitted the species from his compendium on the birds of Paraguay, but Ihering & Ihering (1907) then cited a distribution that more closely resembles that of Salvadori (1895), but further extends the distribution to the north “Patagonia, Chile, Uruguay, Paraguay, Argentina, Rio Grande do Sul, Santa Catharina, S. Paulo and Bolivia”. The inclusion of Bolivia may be rooted in a speculative comment in Sclater & Salvin (1876) that the species occurs “perhaps almost to the frontier with Bolivia”, but those authors also omitted mention of Paraguay in the range. An almost word-for-word reproduction of Ihering & Ihering (1907) was provided by Pinto (1938) who added that occurrence further north on the large rivers was “exceptional”, perhaps in an effort to explain the lack of documentation. Major regional authorities thus included Paraguay in the species distribution without citing any supporting evidence.

Bertoni (1914, 1939), the only author actually based in Paraguay and presumably therefore the best placed to be aware of any real records, never treated the species as anything other than hypothetical in the country during this time. The distribution he provided reflected his faith in Ihering as can be seen from his inclusion of Bolivia in his list of countries “S. Brasil, Bolivia, Argentina, Paraguay?, Bs. Aires (Azara)”, but it is noteworthy that he queries the Paraguayan range, and additionally highlights that Azara referred to reports from the Buenos Aires (perhaps to dispel confusion as to the link between Azara and Paraguay?). However Bertoni’s work was published locally and received only

limited circulation compared to that of his distinguished colleagues. Consequently it was regularly overlooked by successive authors.

Writing at approximately the same time Laubmann (1939) produced a detailed German language treatise on Paraguayan birds, which highlighted that the citation by Salvadori and by Bradbourne & Chubb “appears to be in error as there are no records of the species”. Podtiaguin (1941) omitted the species entirely from the Paraguayan list, but Schade & Masi Pallarés (1969) included it, though the text was brief, general and predictably lacked any specific details.

None of these key works on the Paraguayan avifauna appear to have been widely consulted or cited, but two further influential works of the mid 20th Century continued to include Paraguay in the distribution. Hellmayr & Conover (1949) clearly base their distribution on Ihering & Ihering (1907) as can be inferred from the Brazilian distribution that they include, and it is perhaps significant that though they provide specific localities for other countries in the distribution, they do not do so for Paraguay. The 2nd edition of the monumental Peters Checklist (Mayr & Cottrell 1979) then included a fanciful description of the species range in which it claimed that the species “Winters north to the Tropic of Capricorn, in Paraguay and the three southern provinces of Brazil”. The Tropic of Capricorn corresponds closely to the Upper Paraná region of Paraguay, perhaps implying a misunderstanding of the works of Page (1859) or Burmeister (1860), but more likely it is an over-extrapolation, as the northernmost point of the southern three provinces of Brazil corresponds effectively to the same latitude as the Tropic. Regardless of the reasoning, they repeat the same speculation of previous authors. The influence of these standard global taxonomic works cannot be over-estimated.

Discussion

The literature review found no substantiated records of Black-necked Swan *Cygnus melancoryphus* in Paraguay and no evidence to support the occurrence of regular long-distance migrations in the species that may imply a former, regular appearance in Paraguay. Despite affirmations to the contrary, available data suggests that occasional irregular local movements in coastal southern Brazil and central Argentina only rarely reach latitudes comparable with southern

Paraguay and that the core of the distribution is well to the south.

Belton (1994) describes the species as an uncommon resident in “wetlands, lakes and lagoons in the southern half of the littoral” in Rio Grande do Sul but that numbers may be augmented during winter due to local movements from further south. The odd few Brazilian records north of here in Santa Catarina, São Paulo (MZUSP–9818 “Iguape”) and Rio de Janeiro (MN–36248 “Lagoa de Maricá”) are coastal and refer to vagrant individuals (Rosário 1996, Straube *et al.* 2013). The species thus does not occur regularly at latitudes comparable to Paraguay in its Brazilian range.

The most northerly documented records from Argentina are from Provincias Santiago del Estero (Nores *et al.* 1991) and Tucumán (Olrog 1953), but records are few and refer to vagrants or overshooting migrants. There are undocumented, sight reports from extreme southeastern Provincia Chaco (Contreras *et al.* 1990, “D. Benvenuti pers. comm.”) and Rio Guayquiraro, southern Provincia Corrientes (Doering 1874, “observed in passage by Sr. Schulz, but very rare”), as well as a mention of the species from Candelaria department, Provincia Misiones (Chebez 1996), but there are no records from Provincia Formosa which directly borders the Paraguayan Chaco (Contreras *et al.* 2013). Contreras *et al.* (1990, 2013) speculated that such records may represent birds in passage moving northwards, but the lack of physical evidence to support the records closest to Paraguay cannot be overlooked. Such speculation is apparently based in part on the erroneous assumption that the species winters in Paraguay but, there is in fact no reason to believe that they represent anything other than exceptional cases of vagrancy.

Extrapolation of distributions into poorly known areas is a common practice, but not without considerable risk (Straube *et al.* 2013) and the result of extrapolating extrapolations can be far removed from reality. As highlighted by Laubmann (1939) the source of the erroneous citation of Paraguay in the distribution of the species appears to be Salvadori (1895) and its acceptance and/or embellishment by most of the subsequent major international ornithological works that followed is without sound basis.

As there is no evidence to suggest that the species has ever occurred in Paraguay it should be treated as “cited in error” and removed from the national list

pending evidence to the contrary. Any potential future occurrence of the species in Paraguay is certain to be the result of vagrancy and the inclusion of the country in the species normal breeding or migratory range is thus unwarranted.

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References

- Alda do Rosário, L. 1996. *As aves em Santa Catarina. Distribuição geográfica e meio ambiente*. Editora DAUFSC, Florianópolis, Brazil.
- Azara, F. de. 1802. *Apuntamientos para la historia natural de los páxaros del Paraguay y Rio de la Plata Tomo 3*. Imprenta de la Viuda Ibarra, Madrid, Spain.
- Belton, W. 1994. *Aves do Rio Grande do Sul, distribuição e biologia*. Editora UNSINOS, São Leopoldo, Brazil.
- Berlepsch, H. von. 1887. Appendix systematisches verzeichniss in der Republik Paraguay bisher beobachteten vogelarten. *Journal fur Ornithologie* 35:113–134.
- Bertoni, A de W. 1914. *Fauna Paraguaya. Catálogos sistemáticos de los vertebrados del Paraguay*. Gráfica M. Brossa, Asunción, Paraguay.
- Bertoni, A de W., 1939. Catálogos sistemáticos de los vertebrados del Paraguay. *Revista de la Sociedad Científica del Paraguay* 4 (4):3–60.
- Brabourne, L., & Chubb, C. 1912. *The birds of South America, volume 1*. R.H. Porter, London, UK.
- Burmeister, H. 1856. *Systematische uebersicht der thiere Brasiliens welche wahrend eine Reise durch die Provinzen von Rio de Janeiro und Minas Geraes, 3er theil, vogel (Aves), 2te halfte*. Georg Reimer, Berlin, Germany.
- Burmeister, H. 1860. Systematisches Verzeichniss der in den La Plata–Staaten beobachteten Vögelarten. *Journal fur Ornithologie* 8: 241–268.
- Burmeister, H. 1872. Synopsis of the Lamellirostres of the Argentine Republic. *Proceedings of the Zoological Society of London, 5 March 1872*: 364–370.
- Carbonell, M., Kriese, K., & Alexander, K. 2007. *Waterfowl of the Neotropical Region*. Ducks Unlimited, Memphis, USA.
- Carboneras, C. 1992. Family Anatidae (ducks, geese and swans). In: del Hoyo, J., Elliott, A., & Sargatal, J. (eds.), *Handbook of the birds of the world volume 1 ostrich to ducks*: pp. 536–630. Lynx Edicions, Barcelona, Spain.
- Chébez, J.C. 1996. Aves de la Provincia de Misiones. In Chebez, J.C. (ed.) *Fauna Misionera*: pp. 108–179. LOLA, Buenos Aires, Argentina.
- Contreras, J.R., Berry, L.M., Contreras, A.O., Bertonatti, C.C., & Utges, E.C. 1990. *Atlas ornitogeográfico de la Provincia del Chaco, República Argentina I, no Passeriformes*. LOLA, Buenos Aires, Argentina.
- Contreras, J.R., Agnolin, F., Davies, Y.E., Godoy, I., & Ríos, E. 2013. *Atlas ornitogeográfico de la Provincia de Formosa, República Argentina I, no Passeriformes*. Universidad Maimónides, Buenos Aires, Argentina.
- Doering, A. 1874. Noticias ornitológicas de las regiones ribereñas del Río Guayquiraró. *Periodico Zoológico Argentino* 1: 237–258.
- Ely, C.R. & Meixell, B.W. 2016. Demographic outcomes of diverse migration strategies assessed in a metapopulation of tundra swans. *Movement Ecology* 4: 10. DOI 10.1186/s40462-016-0075-8
- Eyton, T.C. 1848. *A monograph of the Anatidae or duck tribe*. Longman, Orme, Brown, Green & Longman, London, UK.
- Guyra Paraguay. 2004. *Lista comentada de las aves del Paraguay*. Guyra Paraguay, Asunción, Paraguay.
- Guyra Paraguay. 2007. *Guía de los patos del Paraguay*. Guyra Paraguay, Asunción, Paraguay.
- Hartlaub, D.G. 1847. *Systematischer index zu Don Félix de Azara's Apuntamientos para la historia natural*

- de los pájaros del Paraguay y Rio de la Plata 1805. C. Schünemann, Bremen, Germany.
- Hayes, F.E. 1995. Status, distribution and biogeography of the birds of Paraguay. *American Birding Association Monographs in Field Ornithology* 1: 1–230.
- Hellmayr, C. E., and B. Conover. 1949. Catalogue of birds of the Americas. Part 1. *Field Museum of Natural History. Zoology Series* 13: 1–358.
- Ihering, H. Von. 1904. As aves do Paraguai em comparação as de. São Paulo. *Revista do Museu Paulista* 6: 310–344.
- Ihering, A. Von., & Ihering, R. Von. 1907. *As aves do Brasil*. Museu Paulista, São Paulo, Brazil.
- Johnsgard, P.A. 2010. *Ducks, Geese and Swans of the World, Revised Edition*. University of Nebraska–Lincoln Libraries, USA.
- Kear, J. 2005. *Ducks, Geese and Swans*. Oxford University Press, Oxford, UK.
- Laubmann, A. 1939. *Die Vögel von Paraguay I*. Strecker und Schröder Verlag, Stuttgart, Germany.
- Madge, S., & Burn, H. 1992. *Waterfowl. An Identification Guide to the Ducks, Geese and Swans of the World*. Christopher Helm, London, UK.
- Mayr, E., & Cottrell, G.W. 1979. *Check-list of the birds of the world. Volume 1, 2nd edition*. Museum of Comparative Zoology, Cambridge, USA.
- Nores, M. Yzurieta, D. & Salvador, S.A. 1991. Lista y distribución de las aves de Santiago del Estero, Argentina. *Boletín de la Academia Nacional de Ciencias de Córdoba* 59: 157–196.
- Olrog, C.C. 1953. Sobre aves del noroeste Argentino. *El Hornero* 10: 84–85.
- Page, T.J. 1859. *La Plata, the Argentine Confederation and Paraguay*. Harper & Brothers, New York, USA.
- Park, C.E., Park, G.-S., Kwak, Y., Hong, S.-H., Khan, A.R., Jung, B.K., Park, Y.-J., Kim, J.-G., Park, H.C. & Shin, J.-H. 2015. Complete mitochondrial genome of *Cygnus cygnus* (Aves, Anseriformes, Anatidae). *Mitochondria DNA Early On-line*: 1–2. DOI: 10.3109/19401736.2015.1060433.
- Park, C.E., Park, G.-S., Kwak, Y., Hong, S.-H., Khan, A.R., Jung, B.K., Park, Y.-J., Kim, J.-G., Park, H.C. & Shin, J.-H. 2015. Complete mitochondrial genome of *Cygnus olor* (Aves, Anseriformes, Anatidae). *Mitochondria DNA Early On-line*: 1–2. DOI: 10.3109/19401736.2015.1063133.
- Peters, J.L. 1931. *Check-list of the birds of the world, Volume 1*. Harvard University Press, Cambridge, USA.
- Pinto, O.M. de. O. 1938. Catalogo das aves do Brasil e lista de exemplares que as representam no Museu Paulista. *Revista do Museu Paulista* 22: 1–566.
- Podtiaguin, B. 1941. Catálogo sistemático de las aves del Paraguay. *Revista de la Sociedad Científica del Paraguay* 5 (5): 1–109.
- Ramella, L., & Perret, P. 2011. Las colecciones de Johann Rudolph Rengger (1795–1832) en Argentina, Brasil y Paraguay. II. Elementos biográficos y bibliografía. *Candollea* 66: 426–433.
- Rengger J.R. 1835. *Reise nach Paraguay in den Jahren 1818 bis 1826*. Aarau, Switzerland.
- Rosário, L. D. 1996. *As aves em Santa Catarina: distribuição geográfica e meio ambiente*. FATMA, Florianópolis, Brasil, 326pp.
- Salvadori, T. 1895. *Catalogue of the Chenomorphae (Palamedeae, Phoenicopterii, Anseres), Crypturi and Ratitae in the collection of the British Museum*. British Museum of Natural History, London, UK..
- Schade, F., & Masi Pallarés, R. 1967. Las aves del Paraguay 1a Parte. *Revista Paraguaya de Microbiología* 2: 72–85.
- Scherer-Neto, P., Costa Straube, F., Carrano, E., & Urban-Filho, A. 2011. *Lista das aves do Paraná*. Hori Cadernos Técnicos, Curitiba, Brazil.
- Sclater, P.L., & Hudson, W.H. 1889. *Argentine ornithology. A descriptive catalogue of the birds of the Argentine Republic, volume 2*. R.H. Porter, London, UK.
- Sclater, P.L., & Salvin, O. 1876. *A Revision of the*

Neotropical Anatidae. *Proceedings of the Zoological Society of London* (4 April 1876) 122: 358–412.

Short, L.L. 1975. A zoogeographic analysis of the South American Chaco avifauna. *Bulletin of the American Museum of Natural History* 154: 163–352.

Smith, G.A., & Bartlett, L. 2009. “A most unprovoked, unwarrantable, and dastardly attack”: James Buchanan, Paraguay, and the Water Witch incident of 1855. *The Northern Mariner* 19: 269–290.

Smith, P., Ríos Díaz, S.D., & Cibois, A. 2015. Shedding more light on historical hypothetical records

of some Paraguayan birds listed by A. de. W. Bertoni. *Revue Suisse de Zoologie* 122: 407–413.

Soothill, E. & Whitehead, P. 1978. *Wildfowl of the world*. Blandford Press, London, UK.

Straube, F., Vallejos, M.A.V., Deconto, L.R. & Urban-Filho, A. 2013. Desafios para o inventário avifaunístico do Paraná: 1 – Interpolações de distribuição. *Atualidades Ornitológicas* 176: 33–37.

Wilmore, S.B. 1979. *Swans of the World*. Taplinger, New York, USA.

Wintering swans in Krasnodar Province, Southwestern Russia

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Abstract

This article presents the results of swan counts undertaken in Krasnodar Province, SW Russia from 2003–2016, for the International Waterbird Census (IWC) programme coordinated by Wetlands International. Distribution and numbers of Mute Swans (*Cynus olor*), Whooper Swans (*C. cygnus*) and Bewick’s Swans (*C. columbianus bewickii*) are listed and discussed. Local Mute and Whooper Swan wintering populations were numerous and had positive trends over 2003–2016, whereas Bewick’s Swan numbers were low and fluctuating.

Introduction

Three species of swans are commonly found in Russia: the Mute Swan *Cygnus olor* (Gm.), Whooper Swan *Cygnus cygnus* (L.) and Bewick’s Swan *Cygnus columbianus bewickii* (Yarr.). In Krasnodar Province, the Mute Swan is a breeding species and occurs throughout the year, whereas the Whooper and Bewick’s Swans only appear on migration and during winter. The hunting of swans is illegal throughout Russia, except for Mute Swans in the Astrakhan Region. Bewick’s Swans are included in the Red Data Book of the Russian Federation (2001).

Most Russian wetlands normally freeze by January and thus are not suitable for wintering waterbirds. However, extensive parts of the Sea of Azov and Black Sea coasts and also inland waterbodies of Krasnodar Province often remain ice-free and therefore provide important winter quarters for swans and other waterbirds, especially in mild winters. Since 2003, mid-winter waterbird counts have been conducted regularly in the region, as part of the International Waterbird Census (IWC) (Solokha 2006). This article presents the results of the mid-January swan surveys made in Krasnodar Province under the IWCs from 2003 until 2016, except for three missing seasons of 2007–2009.

Materials and methods

The IWC is a site-based counting scheme for monitoring waterbird numbers. It is a so-called look-see survey whereby observers visit a site and make a count of every waterbird species present (Bibby *et al.* 1992, Delany 2005). We used ground and boat surveys to count swans and other waterbirds during several days in January each year. Extensive wetlands and a lack of experts and trained volunteers meant that we were unable to conduct counts simultaneously at all sites in the region. Nevertheless, we tried to visit the sites in as short a time as possible, particularly in recent years, and most counts were performed between 10–25 January. We used binoculars and spotting scopes with 20–60 X magnification for observations. Swans were counted mainly one-by-one, but in the case of large congregations (*e.g.* at Taman Bay) also as groups of ten individuals.

The coverage of IWC in Krasnodar Province varied, being dependent mostly on the condition of the wetlands (frozen or not), but also on available time and funds. Altogether, 37 sites were counted at least once with high coverage (27 sites) in 2004 (Table 1).

The standard customised software Excel and Access were used to collate and summarise the data, and a