



Noteworthy seabird records from Paraná state, southern Brazil

Authors: Daudt, Nicholas Winterle, Pereira, Alice, Rechetelo, Juliana, Krul, Ricardo, and Mestre, Luiz Augusto Macedo

Source: Bulletin of the British Ornithologists' Club, 137(3) : 195-205

Published By: British Ornithologists' Club

URL: <https://doi.org/10.25226/bboc.v137i3.2017.a3>

BioOne Complete (complete.BioOne.org) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at www.bioone.org/terms-of-use.

Usage of BioOne Complete content is strictly limited to personal, educational, and non - commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

Noteworthy seabird records from Paraná state, southern Brazil

by Nicholas Winterle Daudt, Alice Pereira, Juliana Rechetelo, Ricardo Krul &
Luiz Augusto Macedo Mestre

Received 16 March 2017; revised 28 July 2017; published 15 September 2017

<http://zoobank.org/urn:lsid:zoobank.org:pub:3E863833-C195-4A8F-A59A-8F2551C71EE0>

SUMMARY.—We inventoried seabird specimens—skeletons and skins—collected during beach surveys of Paraná, south Brazil, both the mainland coast and offshore islets during the period 1992–94. We found 184 specimens comprising four orders and 17 species. This represents the most important collection of seabirds from Paraná and includes three new records for the state, Cory's Shearwater *Calonectris borealis*, Sooty Shearwater *Puffinus griseus* and Snowy Shearwater *Chionis albus*. We recommend the removal of two species from the avifauna of Paraná—Shy Albatross *Thalassarche cauta* and Broad-billed Prion *Pachyptila vittata*—due to the lack of tangible evidence. All of this material is held in publicly accessible natural history museums.

Natural history museums and their research collections play an important role in cataloguing biodiversity. Material held in museums aids our understanding of species diversity, evolution and genetics (Winker 2005). Collections are also important for educational and cultural reasons (Arinze 1999). They represent biological 'libraries' and their databases provide a robust starting point for scientific studies (Suarez & Tsutsui 2004, Joseph 2011).

In Brazil, three museums specialise in seabirds: the Museu de Ciências Naturais da Universidade Federal do Rio Grande do Sul, Imbé (MUCIN) and Coleção de Aves da Universidade Federal do Rio Grande do Sul—FURG, Rio Grande (CAFURG), both in Rio Grande do Sul state, and the Museu Oceanográfico do Vale do Itajaí, Itajaí (MOVI) in Santa Catarina state. The MOVI and MUCIN collections also focus on osteological material, which comprises more than 90% of their specimens (Aleixo & Straube 2007; M. Tavares 2017 pers. comm.). In Paraná state, the principal natural history museums are the Museu de Historia Natural do Capão da Imbuia, Curitiba (MHNCI) and Museu de Ciências Naturais da Universidade Federal do Paraná, Curitiba (MCNPR), neither of which specialises in seabirds. In the early 1990s, the establishment of an ornithology laboratory on the Paraná coast and detailed beached bird surveys led to the founding of a seabird osteological collection at the Centro de Estudos do Mar (CEM), Universidade Federal do Paraná (UFPR), Pontal do Paraná (Moraes & Krul 1992). Here we provide a complete list of the specimens collected in Paraná by the ornithology laboratory.

Specimens of seabirds were collected during non-systematic transect surveys between the beaches of Shangrilá (25°37'07"S, 48°24'37"W) and Pontal do Sul (25°33'51"S, 48°21'17"W), covering 9 km of coast in Pontal do Paraná municipality. Beached birds were recorded by *ad libitum* searches, from the surf zone to the landward edge of the beach. Additional opportunistic surveys were undertaken in the Currais archipelago (National Marine Park at c.25°44'S, 48°21'W) and Ilha Itacolomis (25°50'31"S, 48°24'26"W), as well nearby beaches. All of this material was incorporated in the osteological / skin collection reported here (MCEM or MCEMAV).

Despite the importance of this material to the avifauna of Paraná, there have been few publications based on it—just two conference abstracts both published *c.*20 years ago (Krul & Moraes 1997, Moraes & Krul 1997), making the present study the first publication to fully discuss and inventory the seabird specimens collected on the Paraná coast in 1992–94 by the ornithology laboratory. Here, we propose the inclusion of three new records and the removal of two species from the Paraná state bird list. We considered as ‘seabirds’ those specimens classed as Sphenisciformes, Procellariiformes, Suliformes (except Phalacrocoracidae and Anhingidae) and Charadriiformes, except Charadrii (but including Chionidae) and Scolopacii (*sensu* Harrison 1985). We followed the taxonomy of the Brazilian Ornithological Records Committee (CBRO) (Piacentini *et al.* 2015), except Shy Albatross *Thalassarche cauta*, where we follow ACAP (2011).

Comments on the material

The studied seabird collection comprises 184 specimens, belonging to the following orders: Sphenisciformes (9%), Procellariiformes (50%), Suliformes (32%) and Charadriiformes (9%) (Table 1). Sphenisciformes were represented exclusively by Magellanic Penguin *Spheniscus magellanicus* ($n = 16$). Procellariiformes comprised albatrosses (Diomedidae, $n = 18$) and petrels (Procellariidae, $n = 75$), mostly represented by the genera *Puffinus* ($n = 32$) and *Calonectris* ($n = 24$). Suliformes were exclusively represented by specimens of Magnificent Frigatebird *Fregata magnificens* ($n = 21$) and Brown Booby *Sula leucogaster* ($n = 37$), both of which breed on islands in Paraná (Krul 2004). Charadriiformes were represented by Snowy Shearwater *Chionis albus* ($n = 1$), Kelp Gull *Larus dominicanus* ($n = 5$), terns (Sternidae, $n = 8$) and skuas (Stercorariidae, $n = 2$).

The only specimen data available was that provided on the labels on the specimen boxes. This information covered genus / species identification, date, identifier and collector, and collection locality. Despite poor storage conditions, the skins and skeletons are in good state. We reorganised all of the material based on current CBRO taxonomy and some specimens were reclassified based on comparative osteology (Table 1). Most are skeletons ($n = 178$; 96%), with only six preserved as skins (3%). One Brown Skua *Stercorarius antarcticus* (MCEMAV 34) is preserved as a study skin and partial skeleton. Among osteological material, most (53%) are complete skeletons, with the rest being partial skeletons (40.5%) or complete skulls (6%). One specimen is represented exclusively by the cranium and the jaw (0.5%). All specimens are currently held in the Coleção Científica Ornitológica, Museu de Ciências Naturais da Universidade Federal do Rio Grande do Sul (MUCIN) or Museu de Ciências Naturais da Universidade Federal do Paraná (MCNPR).

Contribution to Paraná ornithology

The material inventoried here represents the only major collection of seabirds made in Paraná (F. C. Straube *in litt.* 2017), but has been largely overlooked in the ornithological literature. These specimens add to the history of seabird studies made by UFPR on the Paraná coast. In addition, under the criteria proposed by Carlos *et al.* (2010) skins and osteological material (Table 1) provide evidence to support species occurrences. On this basis, we suggest that the following taxa should be included on the primary list of birds recorded in Paraná state (Scherer-Neto *et al.* 2011).

CORY'S SHEARWATER *Calonectris borealis*

Trans-equatorial migrant that breeds in the Northern Hemisphere. Regular in Brazilian waters during the species' non-breeding period (González-Solis *et al.* 2007, Dias *et al.* 2011)

TABLE 1

List of seabird specimens collected on the coast of Paraná, southern Brazil, by the ornithology laboratory (CEM-UFPR) in 1992–94, and currently deposited at Museu de Ciências Naturais da Universidade Federal do Paraná (MCNPR) and Museu de Ciências Naturais da Universidade Federal do Rio Grande do Sul (MUCIN). All of the beaches lie within the 9 km covered by regular transects, except Ipanema (25°39'00''S, 48°26'12''W), Praia de Leste (25°41'01''S, 48°27'02''W), Monções (25°42'46''S, 48°28'36''W), Gaivotas (25°43'33''S, 48°28'56''W), and the islands Ilha do Mel (25°32'7''S, 48°19'52''W), Ilha dos Currais (Currais archipelago) and Ilha Itacolomis. Legend: u.d. = unknown date.

| MCEMAY no. | Taxon | Collection locality | Date | Material | Museum |
|--------------------------|------------------------------------|-------------------------------|-------------|-------------------|--------|
| SPHENISCIFORMES | | | | | |
| SPHENISCIDAE | | | | | |
| 19 | <i>Spheniscus magellanicus</i> | Ilha do Mel | 20 Jul 1992 | Skull | MCNPR |
| 27 | <i>Spheniscus magellanicus</i> | Atami beach | 19 Aug 1992 | Skull | MCNPR |
| 47 | <i>Spheniscus magellanicus</i> | Atami beach | 12 Nov 1993 | Complete skeleton | MCNPR |
| 53 | <i>Spheniscus magellanicus</i> | Atami beach | 7 Jul 1993 | Complete skeleton | MCNPR |
| 59 | <i>Spheniscus magellanicus</i> | Barranco beach | 24 Sep 1992 | Complete skeleton | MCNPR |
| 63 | <i>Spheniscus magellanicus</i> | Atami beach | 12 Nov 1992 | Complete skeleton | MCNPR |
| 66 | <i>Spheniscus magellanicus</i> | Barranco beach | 24 Sep 1992 | Complete skeleton | MUCIN |
| 67 | <i>Spheniscus magellanicus</i> | Pontal do Sul beach | 12 Sep 1992 | Complete skeleton | MUCIN |
| 75 | <i>Spheniscus magellanicus</i> | Atami beach | 24 Sep 1992 | Complete skeleton | MUCIN |
| 84 | <i>Spheniscus magellanicus</i> | Barranco beach | 24 Sep 1992 | Complete skeleton | MUCIN |
| 94 | <i>Spheniscus magellanicus</i> | Pontal do Sul beach | 2 Aug 1992 | Partial skeleton | MCNPR |
| 143 | <i>Spheniscus magellanicus</i> | Ipanema beach | 12 Sep 1992 | Complete skeleton | MCNPR |
| 168 | <i>Spheniscus magellanicus</i> | Barranco beach | 24 Sep 1992 | Partial skeleton | MCNPR |
| 169 | <i>Spheniscus magellanicus</i> | Barranco beach | 24 Sep 1992 | Partial skeleton | MCNPR |
| 214 | <i>Spheniscus magellanicus</i> | Pontal do Sul beach | 28 Jul 1993 | Complete skeleton | MCNPR |
| 226 | <i>Spheniscus magellanicus</i> | Shangrilá beach | 17 Jul 1992 | Complete skeleton | MUCIN |
| PROCELLARIIFORMES | | | | | |
| DIOMEDEIDAE | | | | | |
| 70 | <i>Thalassarche chlororhynchos</i> | Barranco beach | 12 Nov 1992 | Partial skeleton | MCNPR |
| 76 | <i>Thalassarche chlororhynchos</i> | Pontal do Sul beach | 12 Sep 1992 | Complete skeleton | MUCIN |
| 85 | <i>Thalassarche chlororhynchos</i> | Atami beach | 12 Sep 1992 | Complete skeleton | MUCIN |
| 95 | <i>Thalassarche chlororhynchos</i> | Pontal do Sul beach | 12 Sep 1992 | Complete skeleton | MCNPR |
| 170 | <i>Thalassarche chlororhynchos</i> | Atami beach | 12 Nov 1992 | Partial skeleton | MCNPR |
| 217 | <i>Thalassarche chlororhynchos</i> | At sea, near Ilha dos Currais | 16 Jul 1993 | Complete skeleton | MUCIN |
| 227 | <i>Thalassarche chlororhynchos</i> | Ilha do Mel | 4 Aug 1993 | Complete skeleton | MCNPR |
| 230 | <i>Thalassarche chlororhynchos</i> | Pontal do Sul beach | 28 Jul 1993 | Complete skeleton | MUCIN |
| 79 | <i>Thalassarche melanophris</i> | Atami beach | 24 Sep 1992 | Complete skeleton | MCNPR |
| 87 | <i>Thalassarche melanophris</i> | Atami beach | 12 Nov 1992 | Complete skeleton | MCNPR |
| 89 | <i>Thalassarche melanophris</i> | Pontal do Sul beach | 12 Sep 1992 | Complete skeleton | MCNPR |
| 172 | <i>Thalassarche melanophris</i> | Pontal do Sul beach | 11 Jul 1992 | Complete skeleton | MUCIN |
| 187 | <i>Thalassarche melanophris</i> | Paraná coast | 1992 | Complete skeleton | MUCIN |
| 242 | <i>Thalassarche melanophris</i> | Pontal do Sul beach | 3 Aug 1993 | Complete skeleton | MUCIN |

| MCEMAY no. | Taxon | Collection locality | Date | Material | Museum |
|-----------------------|-----------------------------------|---------------------|-----------------|-------------------|--------|
| 72 | <i>Thalassarche melanophris</i> | Paraná coast | u.d. in 1992–94 | Complete skeleton | MUCIN |
| 73 | <i>Thalassarche melanophris</i> | Paraná coast | u.d. in 1992–94 | Complete skeleton | MUCIN |
| 77 | <i>Thalassarche melanophris</i> | Paraná coast | u.d. in 1992–94 | Complete skeleton | MUCIN |
| 312 | <i>Thalassarche</i> sp. | Atami beach | 30 May 1994 | Partial skeleton | MCNPR |
| PROCELLARIIDAE | | | | | |
| 180 | <i>Macronectes giganteus</i> | Barranco beach | u.d. in 1992–94 | Complete skeleton | MUCIN |
| 12 | <i>Fulmarus glacialisoides</i> | Pontal do Sul beach | 2 Jul 1992 | Complete skeleton | MUCIN |
| 96 | <i>Fulmarus glacialisoides</i> | Atami beach | 28 Jul 1992 | Complete skeleton | MUCIN |
| 128 | <i>Fulmarus glacialisoides</i> | Shangrilá beach | 19 Aug 1992 | Partial skeleton | MUCIN |
| 136 | <i>Fulmarus glacialisoides</i> | Pontal do Sul beach | 2 Jul 1992 | Complete skeleton | MUCIN |
| 8 | <i>Pachyptila belcheri</i> | Pontal do Sul beach | 3 Jul 1992 | Partial skeleton | MUCIN |
| 26 | <i>Pachyptila belcheri</i> | Pontal do Sul beach | 28 Jul 1992 | Skull | MUCIN |
| 97 | <i>Pachyptila belcheri</i> | Pontal do Sul beach | 28 Jul 1992 | Partial skeleton | MUCIN |
| 98 | <i>Pachyptila belcheri</i> | Pontal do Sul beach | 28 Jul 1992 | Partial skeleton | MUCIN |
| 111 | <i>Pachyptila belcheri</i> | Atami beach | 17 Jul 1992 | Complete skeleton | MUCIN |
| 112 | <i>Pachyptila belcheri</i> | Pontal do Sul beach | 2 Jul 1992 | Skull | MUCIN |
| 113 | <i>Pachyptila belcheri</i> | Atami beach | 17 Jul 1992 | Partial skeleton | MUCIN |
| 114 | <i>Pachyptila belcheri</i> | Atami beach | 17 Jul 1992 | Partial skeleton | MUCIN |
| 126 | <i>Pachyptila belcheri</i> | Atami beach | 17 Jul 1992 | Partial skeleton | MUCIN |
| 127 | <i>Pachyptila belcheri</i> | Atami beach | 17 Jul 1992 | Complete skeleton | MUCIN |
| 129 | <i>Pachyptila belcheri</i> | Ipanema beach | u.d. in 1992–94 | Complete skeleton | MUCIN |
| 64 | <i>Procellaria aequinoctialis</i> | Pontal do Sul beach | 19 Aug 1992 | Complete skeleton | MUCIN |
| 80 | <i>Procellaria aequinoctialis</i> | Assenodi beach | 12 Sep 1992 | Complete skeleton | MUCIN |
| 135 | <i>Procellaria</i> sp. | Paraná coast | u.d. in 1992–94 | Partial skeleton | MCNPR |
| 267 | <i>Calonectris borealis</i> | Atami beach | 14 May 1994 | Partial skeleton | MCNPR |
| 306 | <i>Calonectris borealis</i> | Barranco beach | 30 May 1994 | Complete skeleton | MUCIN |
| 307 | <i>Calonectris borealis</i> | Barranco beach | 30 May 1994 | Complete skeleton | MUCIN |
| 308 | <i>Calonectris borealis</i> | Barranco beach | 30 May 1994 | Complete skeleton | MUCIN |
| 309 | <i>Calonectris borealis</i> | Atami beach | 30 May 1994 | Complete skeleton | MUCIN |
| 310 | <i>Calonectris borealis</i> | Barranco beach | 30 May 1994 | Complete skeleton | MUCIN |
| 311 | <i>Calonectris borealis</i> | Barranco beach | 30 May 1994 | Complete skeleton | MUCIN |
| 313 | <i>Calonectris borealis</i> | Pontal do Sul beach | 30 May 1994 | Complete skeleton | MUCIN |
| 315 | <i>Calonectris borealis</i> | Barranco beach | 30 May 1994 | Complete skeleton | MUCIN |
| 316 | <i>Calonectris borealis</i> | Barranco beach | 30 May 1994 | Complete skeleton | MUCIN |
| 317 | <i>Calonectris borealis</i> | Barranco beach | 30 May 1994 | Complete skeleton | MUCIN |
| 318 | <i>Calonectris borealis</i> | Barranco beach | 30 May 1994 | Complete skeleton | MUCIN |
| 321 | <i>Calonectris borealis</i> | Barranco beach | 30 May 1994 | Complete skeleton | MUCIN |
| 323 | <i>Calonectris borealis</i> | Pontal do Sul beach | 15 May 1994 | Complete skeleton | MUCIN |
| 324 | <i>Calonectris borealis</i> | Pontal do Sul beach | 30 May 1994 | Partial skeleton | MCNPR |
| 325 | <i>Calonectris borealis</i> | Pontal do Sul beach | 15 May 1994 | Complete skeleton | MCNPR |
| 327 | <i>Calonectris borealis</i> | Pontal do Sul beach | 15 May 1994 | Complete skeleton | MCNPR |
| 328 | <i>Calonectris borealis</i> | Pontal do Sul beach | 15 May 1994 | Complete skeleton | MCNPR |

| MCEMAY no. | Taxon | Collection locality | Date | Material | Museum |
|-------------------|------------------------------------|---------------------|-----------------|-------------------|--------|
| 331 | <i>Calonectris borealis</i> | Barranco beach | 14 May 1994 | Complete skeleton | MCNPR |
| 332 | <i>Calonectris borealis</i> | Atami beach | 14 May 1994 | Complete skeleton | MCNPR |
| 334 | <i>Calonectris borealis</i> | Atami beach | 14 May 1994 | Complete skeleton | MCNPR |
| 335 | <i>Calonectris borealis</i> | Atami beach | 14 May 1994 | Complete skeleton | MCNPR |
| - | <i>Calonectris borealis</i> | Paraná coast | u.d. in 1992–94 | Skin | MCNPR |
| 326 | <i>Calonectris</i> sp. | Pontal do Sul beach | 15 May 1994 | Complete skeleton | MCNPR |
| 33 | <i>Puffinus griseus</i> | Atami beach | 2 Aug 1992 | Skin | MCNPR |
| 58 | <i>Puffinus griseus</i> | Pontal do Sul beach | 19 Aug 1992 | Complete skeleton | MUCIN |
| 86 | <i>Puffinus griseus</i> | Atami beach | 24 Sep 1992 | Complete skeleton | MUCIN |
| 99 | <i>Puffinus griseus</i> | Pontal do Sul beach | u.d. in 1992–94 | Complete skeleton | MUCIN |
| 57 | <i>Puffinus</i> cf. <i>griseus</i> | Paraná coast | u.d. in 1992–94 | Complete skeleton | MCNPR |
| 3 | <i>Puffinus gravis</i> | Pontal do Sul beach | 10 Jun 1992 | Complete skeleton | MUCIN |
| 5 | <i>Puffinus gravis</i> | Pontal do Sul beach | 10 Jun 1992 | Partial skeleton | MCNPR |
| 25 | <i>Puffinus gravis</i> | Pontal do Sul beach | 28 Jul 1992 | Partial skeleton | MCNPR |
| 30 | <i>Puffinus gravis</i> | Barranco beach | 19 Aug 1992 | Skull | MCNPR |
| 148 | <i>Puffinus gravis</i> | Barranco beach | 13 Apr 1994 | Skin | MCNPR |
| 250 | <i>Puffinus gravis</i> | Pontal do Sul beach | 25 Sep 1993 | Complete skeleton | MCNPR |
| 268 | <i>Puffinus gravis</i> | Atami beach | 14 May 1994 | Partial skeleton | MCNPR |
| 269 | <i>Puffinus gravis</i> | Barranco beach | 14 May 1994 | Complete skeleton | MCNPR |
| 270 | <i>Puffinus gravis</i> | Barranco beach | 14 May 1994 | Complete skeleton | MCNPR |
| 271 | <i>Puffinus gravis</i> | Barranco beach | 14 May 1994 | Complete skeleton | MCNPR |
| 329 | <i>Puffinus gravis</i> | Pontal do Sul beach | 15 May 1994 | Complete skeleton | MUCIN |
| 330 | <i>Puffinus gravis</i> | Barranco beach | 14 May 1994 | Partial skeleton | MUCIN |
| 333 | <i>Puffinus gravis</i> | Atami beach | 14 May 1994 | Complete skeleton | MCNPR |
| 166 | <i>Puffinus</i> cf. <i>gravis</i> | Pontal do Sul beach | 15 Jul 1992 | Partial skeleton | MCNPR |
| 171 | <i>Puffinus</i> cf. <i>gravis</i> | Pontal do Sul beach | 11 Jul 1992 | Complete skeleton | MCNPR |
| 91 | <i>Puffinus puffinus</i> | Atami beach | 12 Nov 1992 | Complete skeleton | MCNPR |
| 100 | <i>Puffinus puffinus</i> | Pontal do Sul beach | 2 Jul 1992 | Complete skeleton | MUCIN |
| 130 | <i>Puffinus puffinus</i> | Atami beach | 19 Aug 1992 | Complete skeleton | MUCIN |
| 131 | <i>Puffinus puffinus</i> | Barranco beach | u.d. in 1992–94 | Complete skeleton | MUCIN |
| 235 | <i>Puffinus puffinus</i> | Pontal do Sul beach | 10 Oct 1992 | Complete skeleton | MCNPR |
| 238 | <i>Puffinus puffinus</i> | Pontal do Sul beach | 14 Nov 1992 | Complete skeleton | MCNPR |
| 249 | <i>Puffinus puffinus</i> | Atami beach | 25 Sep 1993 | Complete skeleton | MCNPR |
| - | <i>Puffinus puffinus</i> | Paraná coast | u.d. in 1992–94 | Skin | MCNPR |
| 163 | <i>Puffinus</i> sp. | Paraná coast | u.d. in 1992–94 | Partial skeleton | MCNPR |
| 167 | <i>Puffinus</i> sp. | Paraná coast | u.d. in 1992–94 | Partial skeleton | MCNPR |
| 184 | <i>Puffinus</i> sp. | Paraná coast | u.d. in 1992–94 | Partial skeleton | MCNPR |
| 314 | <i>Puffinus</i> sp. | Barranco beach | 30 May 1994 | Partial skeleton | MCNPR |
| SULIFORMES | | | | | |
| FREGATIDAE | | | | | |
| 4 | <i>Fregata magnificens</i> | Pontal do Sul beach | 10 Jun 1992 | Partial skeleton | MCNPR |
| 6 | <i>Fregata magnificens</i> | Barranco beach | 10 Jun 1992 | Partial skeleton | MCNPR |

| MCEMAY no. | Taxon | Collection locality | Date | Material | Museum |
|----------------|----------------------------|---------------------|-----------------|-------------------|--------|
| 9 | <i>Fregata magnificens</i> | Pontal do Sul beach | 10 Jun 1992 | Partial skeleton | MUCIN |
| 10 | <i>Fregata magnificens</i> | Pontal do Sul beach | 10 Jun 1992 | Partial skeleton | MUCIN |
| 11 | <i>Fregata magnificens</i> | Pontal do Sul beach | 10 Jun 1992 | Partial skeleton | MUCIN |
| 13 | <i>Fregata magnificens</i> | Pontal do Sul beach | 10 Jun 1992 | Partial skeleton | MCNPR |
| 24 | <i>Fregata magnificens</i> | Pontal do Sul beach | Aug 1992 | Partial skeleton | MUCIN |
| 29 | <i>Fregata magnificens</i> | Pontal do Sul beach | 10 Jun 1992 | Partial skeleton | MCNPR |
| 43 | <i>Fregata magnificens</i> | Ilha dos Currais | 27 Jan 1993 | Partial skeleton | MCNPR |
| 44 | <i>Fregata magnificens</i> | Pontal do Sul beach | 15 Jul 1992 | Skull | MUCIN |
| 48 | <i>Fregata magnificens</i> | Ilha dos Currais | 27 Jan 1993 | Partial skeleton | MUCIN |
| 49 | <i>Fregata magnificens</i> | Ilha dos Currais | 27 Jan 1993 | Partial skeleton | MUCIN |
| 182 | <i>Fregata magnificens</i> | Ilha dos Currais | 6 Aug 1993 | Partial skeleton | MUCIN |
| 186 | <i>Fregata magnificens</i> | Ilha dos Currais | 1993 | Partial skeleton | MUCIN |
| 215 | <i>Fregata magnificens</i> | Atami beach | 8 Jun 1993 | Partial skeleton | MUCIN |
| 222 | <i>Fregata magnificens</i> | Barranco beach | 1 Aug 1993 | Partial skeleton | MUCIN |
| 223 | <i>Fregata magnificens</i> | Ilha dos Currais | 24 May 1992 | Partial skeleton | MUCIN |
| 225 | <i>Fregata magnificens</i> | Shangrilá beach | Jul 1992 | Skull | MUCIN |
| 239 | <i>Fregata magnificens</i> | Atami beach | 12 Nov 1992 | Partial skeleton | MCNPR |
| 240 | <i>Fregata magnificens</i> | Ipanema beach | u.d. in 1992–94 | Partial skeleton | MUCIN |
| 241 | <i>Fregata magnificens</i> | Atami beach | 24 Sep 1992 | Partial skeleton | MCNPR |
| SULIDAE | | | | | |
| 7 | <i>Sula leucogaster</i> | Paraná coast | u.d. in 1992–94 | Partial skeleton | MCNPR |
| 14 | <i>Sula leucogaster</i> | Paraná coast | u.d. in 1992–94 | Partial skeleton | MCNPR |
| 28 | <i>Sula leucogaster</i> | Pontal do Sul beach | 3 Jul 1992 | Partial skeleton | MCNPR |
| 45 | <i>Sula leucogaster</i> | Ilha dos Currais | 27 Jan 1993 | Skull | MCNPR |
| 65 | <i>Sula leucogaster</i> | Barranco beach | 24 Sep 1992 | Complete skeleton | MUCIN |
| 68 | <i>Sula leucogaster</i> | Pontal do Sul beach | 12 Sep 1992 | Partial skeleton | MUCIN |
| 69 | <i>Sula leucogaster</i> | Atami beach | 11 Jul 1992 | Complete skeleton | MUCIN |
| 74 | <i>Sula leucogaster</i> | Pontal do Sul beach | 11 Jul 1992 | Complete skeleton | MUCIN |
| 78 | <i>Sula leucogaster</i> | Paraná coast | u.d. in 1992–94 | Partial skeleton | MUCIN |
| 88 | <i>Sula leucogaster</i> | Atami beach | 12 Nov 1992 | Partial skeleton | MUCIN |
| 90 | <i>Sula leucogaster</i> | Shangrilá beach | 17 Jul 1992 | Skull and jaw | MUCIN |
| 92 | <i>Sula leucogaster</i> | Barranco beach | 12 Nov 1992 | Complete skeleton | MUCIN |
| 93 | <i>Sula leucogaster</i> | Barranco beach | 12 Nov 1992 | Partial skeleton | MUCIN |
| 137 | <i>Sula leucogaster</i> | Atami beach | 17 Jul 1992 | Complete skeleton | MUCIN |
| 138 | <i>Sula leucogaster</i> | Barranco beach | 7 Jun 1993 | Partial skeleton | MCNPR |
| 139 | <i>Sula leucogaster</i> | Atami beach | 7 Jun 1993 | Partial skeleton | MUCIN |
| 140 | <i>Sula leucogaster</i> | Paraná coast | u.d. in 1992–94 | Complete skeleton | MCNPR |
| 141 | <i>Sula leucogaster</i> | Paraná coast | u.d. in 1992–94 | Partial skeleton | MCNPR |
| 162 | <i>Sula leucogaster</i> | Atami beach | 19 Aug 1992 | Complete skeleton | MCNPR |
| 165 | <i>Sula leucogaster</i> | Barranco beach | 13 Sep 1992 | Partial skeleton | MCNPR |
| 173 | <i>Sula leucogaster</i> | Barranco beach | 17 Jul 1992 | Partial skeleton | MCNPR |
| 175 | <i>Sula leucogaster</i> | Barranco beach | 28 Jul 1992 | Partial skeleton | MCNPR |

| MCEMAY no. | Taxon | Collection locality | Date | Material | Museum |
|------------------------|---|----------------------|-----------------|---------------------------|--------|
| 176 | <i>Sula leucogaster</i> | Pontal do Sul beach | 3 Jul 1992 | Complete skeleton | MUCIN |
| 178 | <i>Sula leucogaster</i> | Ilha dos Currais | 1993 | Complete skeleton | MUCIN |
| 181 | <i>Sula leucogaster</i> | Ilha dos Currais | 6 Aug 1993 | Complete skeleton | MUCIN |
| 183 | <i>Sula leucogaster</i> | Ilha dos Currais | 6 Aug 1993 | Complete skeleton | MUCIN |
| 216 | <i>Sula leucogaster</i> | Monções beach | 10 May 1993 | Partial skeleton | MCNPR |
| 218 | <i>Sula leucogaster</i> | Gaivotas beach | u.d. in 1992–94 | Skull | MCNPR |
| 220 | <i>Sula leucogaster</i> | Praia de Leste beach | 10 May 1993 | Complete skeleton | MCNPR |
| 236 | <i>Sula leucogaster</i> | Ipanema beach | 19 Aug 1992 | Partial skeleton | MCNPR |
| 237 | <i>Sula leucogaster</i> | Ipanema beach | 19 Aug 1992 | Partial skeleton | MCNPR |
| 247 | <i>Sula leucogaster</i> | Atami beach | 2 Mar 1994 | Partial skeleton | MUCIN |
| 248 | <i>Sula leucogaster</i> | Atami beach | 25 Sep 1993 | Partial skeleton | MUCIN |
| 265 | <i>Sula leucogaster</i> | Ilha dos Currais | 24 May 1993 | Partial skeleton | MCNPR |
| 319 | <i>Sula leucogaster</i> | Barranco beach | 30 May 1994 | Partial skeleton | MUCIN |
| 320 | <i>Sula leucogaster</i> | Barranco beach | 30 May 1994 | Partial skeleton | MUCIN |
| 322 | <i>Sula leucogaster</i> | Pontal do Sul beach | 15 May 1994 | Complete skeleton | MCNPR |
| 81 | <i>Sula</i> sp. | Paraná coast | u.d. in 1992–94 | Partial skeleton | MCNPR |
| CHARADRIIFORMES | | | | | |
| CHIONIDAE | | | | | |
| 188 | <i>Chionis albus</i> | Ilha dos Currais | 13 Jun 1994 | Partial skeleton | MUCIN |
| STERCORARIIDAE | | | | | |
| 34 | <i>Stercorarius antarcticus</i> | Grajaú beach | 7 Nov 1992 | Partial skeleton and skin | MCNPR |
| 232 | <i>Stercorarius</i> sp. | Barranco beach | 19 Aug 1992 | Complete skeleton | MUCIN |
| LARIDAE | | | | | |
| 219 | <i>Larus dominicanus</i> | Barranco beach | 15 Apr 1993 | Complete skeleton | MUCIN |
| 221 | <i>Larus dominicanus</i> | Assenodi beach | 15 May 1993 | Partial skeleton | MCNPR |
| 252 | <i>Larus dominicanus</i> | Barranco beach | 19 Jan 1994 | Complete skeleton | MUCIN |
| 253 | <i>Larus dominicanus</i> | Pontal do Sul beach | 3 Apr 1994 | Complete skeleton | MUCIN |
| - | <i>Larus dominicanus</i> | Atami beach | | | |
| - | <i>Larus dominicanus</i> | Paraná coast | u.d. in 1992–94 | Skin | MCNPR |
| STERNIDAE | | | | | |
| 179 | <i>Sterna</i> cf. <i>hirundinacea</i> | Ilha Itacolomis | u.d. in 1992–94 | Complete skeleton | MUCIN |
| 110 | <i>Sterna</i> sp. | Paraná coast | u.d. in 1992–94 | Partial skeleton | MUCIN |
| 124 | <i>Sterna</i> sp. | Paraná coast | u.d. in 1992–94 | Partial skeleton | MUCIN |
| 125 | <i>Sterna</i> sp. | Paraná coast | u.d. in 1992–94 | Partial skeleton | MUCIN |
| 144 | <i>Sterna</i> sp. | Paraná coast | u.d. in 1992–94 | Skull | MCNPR |
| 149 | <i>Thalasseus acuflavidus</i> | Pontal do Sul beach | 23 Apr 1994 | Skin | MCNPR |
| 224 | <i>Thalasseus acuflavidus eurygnathus</i> | Atami beach | 5 Apr 1993 | Partial skeleton | MUCIN |
| 234 | <i>Thalasseus acuflavidus eurygnathus</i> | Atami beach | 19 Aug 1992 | Complete skeleton | MUCIN |

and common during pelagic trips off southern Brazil (Neves *et al.* 2006), with records from the neighbouring states of Santa Catarina (Ghizoni-Jr. *et al.* 2013), São Paulo (Figueiredo 2016) and Rio Grande do Sul (Bencke *et al.* 2010). Krul & Moraes (1997) reported many carcasses on beaches in Paraná in May 1994 ($n = 55$). Skeletons are retained at MUCIN (MCEMAV 306–307; Barrancos beach, 30 May 1994; complete); and MCNPR (MCEMAV 327–328; Pontal do Sul beach, 15 May 1994; complete).

SOOTY SHEARWATER *Puffinus griseus*

Trans-equatorial migrant that breeds in the Southern Hemisphere. Follows the Brazilian coast en route to its wintering areas in the North Atlantic, using waters off Rio Grande do Sul and Santa Catarina to forage during the breeding season (Hedd *et al.* 2012, 2014). Common but not abundant during pelagic trips off south-east and southern Brazil (Neves *et al.* 2006), with records off São Paulo, Santa Catarina and Rio Grande do Sul (Bencke *et al.* 2010, Ghizoni-Jr. *et al.* 2013, Figueiredo 2016). Known from Paraná based on eight carcasses (Moraes & Krul 1997). Osteological material is held at MUCIN (MCEMAV 86; Atami beach, 24 September 1992; complete skeleton) and one skin at MCNPR (MCEMAV 33; Atami beach, 2 August 1992).

SNOWY SHEATHBILL *Chionis albus*

Southern Hemisphere vagrant to Brazil, based mainly on records from Rio Grande do Sul (Dias *et al.* 2010). Documented records of Snowy Sheathbill for Brazil include the specimen mentioned by Moraes & Krul (1997) for Paraná. The partial skeleton (including complete skull) is deposited at MUCIN (MCEMAV 188; Ilha dos Currais, 13 June 1994). Dias *et al.* (2010) mentioned documented records of *C. albus* from Rio Grande do Sul and Santa Catarina, as well as Bahia and Pernambuco (north-east Brazil).

We suggest removing the following two species from the primary list of bird species recorded in Paraná (Scherer-Neto *et al.* 2011) as follows.

SHY ALBATROSS *Thalassarche cauta*

Evidence for the species' occurrence in Paraná is based on a photograph by RK (Fig. 1; Scherer-Neto *et al.* 2011). The specimen was brought alive to CEM-UFPR and, following observation for a few days, was released. No material other than the photograph was retained. Bill colour confirms that the bird was an adult, but the absence of yellow at the base of the culminicorn does not reliably distinguish Shy Albatross and White-capped Albatross *T. steadi* (Carlos 2008). Consequently, the photograph alone does not determine which species was involved. Following ACAP (2011), Pereira *et al.* (2016) presented the first documented record of White-capped Albatross for Brazil. These authors suggested that Shy-type albatrosses recorded in Brazil might be White-capped because numbers of this species recorded as by-catch in Uruguayan pelagic longline fisheries are much larger (Jiménez *et al.* 2009, 2015). We propose moving Shy Albatross to the tertiary list (hypothetical occurrence; lacking any confirmed records) and White-capped Albatross to the secondary list (probable occurrence) for Paraná (Scherer-Neto *et al.* 2011).

BROAD-BILLED PRION *Pachyptila vittata*

Moraes & Krul (1997) reported a specimen from Atami beach, Paraná, on 14 May 1994, which was subsequently lost. But, in any case, RK believes that the specimen actually involved an example of Slender-billed Prion *P. belcheri*.

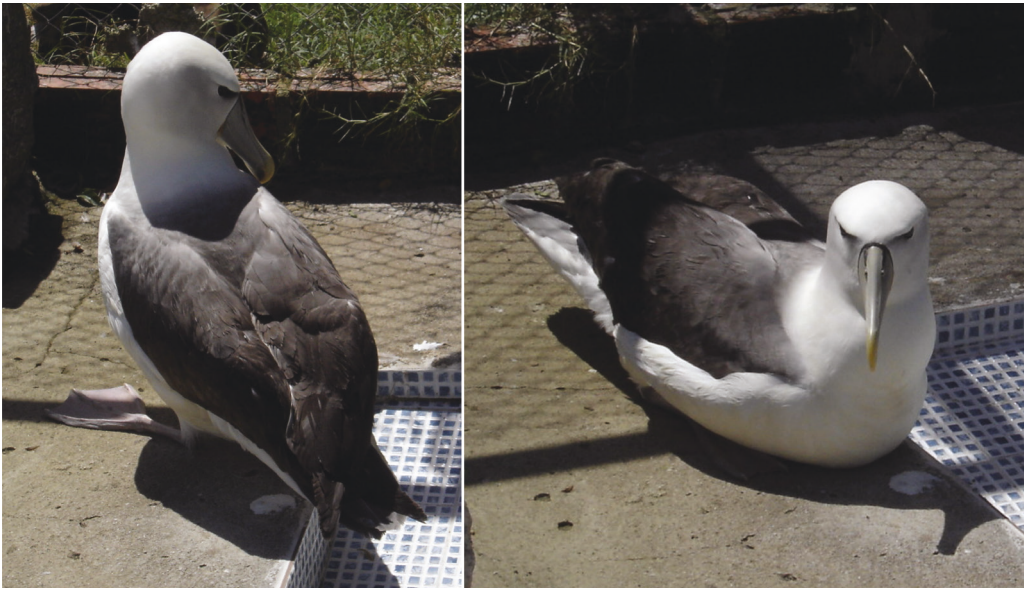


Figure 1. Shy-type albatross *Thalassarche cauta* / *T. steadi*, beached alive at Pontal do Sul beach, Paraná, 3 December 2005 (Ricardo Krul)

Discussion

The information presented here contributes to our knowledge of seabird occurrence in southern Brazil, from where there are still comparatively few publications focused on beached seabirds (e.g. Vooren & Fernandes 1989, Faria *et al.* 2014), despite their important contribution to overall knowledge of the Brazilian seabird avifauna (Roos & Piacentini 2003, Bugoni 2006, Pereira *et al.* 2016). Although the records do not permit us to elucidate stranding patterns, the data match known seasonality of migrants and other occurrence patterns (Harrison 1985, Vooren & Fernandes 1989). It appears that the species added to the state's bird list had not been documented previously because of the paucity of appropriate studies. Therefore, beach monitoring surveys contribute to knowledge, by providing various data including specimens.

This is the largest collection to date of seabirds in Paraná, with most specimens being skeletons. The osteological material, though, has the advantage that it can be maintained at low cost, being durable and less susceptible to damage (Winker 2000, Olson 2003, Causey & Trimble 2005). Even so, the number of skeletons is <10% of material in Brazilian collections and worldwide, with few exceptions (Causey & Trimble 2005, Aleixo & Straube 2007, Müller & Vieira 2016).

Our work highlights the importance of subjecting specimens to appropriate verification and agrees with the role of public natural history collections (Brooke 2000, Rainbow 2009) both to civil society and government agencies (Suarez & Tsutsui 2004). Open science improves dissemination of knowledge on species' distributions (Baird 2010, Drew 2011). We encourage scientific collections and museums unable to provide open access to their material (via websites) to compile and publish catalogues periodically.

Beach monitoring surveys contribute to documenting seabirds in the country, supplementing field and other studies, improving information on seabird biology and helping to expand scientific collections. Therefore, we encourage salvaging specimens from beach surveys, especially osteological material.

Acknowledgements

We thank Valéria Moraes-Ornellas who co-founded the ornithology laboratory at CEM-UFPR together with RK. Fernando Sedor (MCNPR-UFPR) and Maurício Tavares (MUCIN-UFRGS) permitted us to check and publish these data. Thanks to Caio J. Carlos for discussing the records of Broad-billed Prion and Shy Albatross, and Fernando C. Straube who improved an early version of this manuscript and discussed the Shy-type albatross record with us. The submitted manuscript benefitted from the valuable suggestions of Bianca P. Vieira, an anonymous reviewer and the editor Guy Kirwan. Anthony C. Grice kindly revised the English language. NWD & AP are supported by Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq), Brazil.

References:

- Agreement on the Conservation of Albatrosses and Petrels (ACAP). 2011. ACAP species assessment: White-capped Albatross *Thalassarche steadi*. <http://acap.aq/en/resources/acap-species2/317-white-capped-albatross/file> (accessed 22 October 2016).
- Aleixo, A. & Straube, F. C. 2007. Coleções de aves brasileiras: breve histórico, diagnóstico atual e perspectivas para o futuro. *Rev. Bras. Orn.* 15: 315–324.
- Arinze, E. N. 1999. The role of the museums in society. Public lecture presented on Guyana workshop – museums, peace, democracy and governance in the 21st century. http://www.maltwood.uvic.ca/cam/activities/past_conferences/1999conf/CAM'99-EmmanuelArinze.GuyanaFinal.pdf.
- Baird, R. 2010. Leveraging the fullest potential of scientific collections through digitalization. *Biodiver. Inf.* 7: 130–136.
- Bencke, G. A., Dias, R. A., Bugoni, L., Agne, C. E., Fontana, C. S., Maurício, G. N. & Machado, D. B. 2010. Revisão e atualização da lista de aves do Rio Grande do Sul, Brasil. *Iheringia, Sér. Zool.* 100: 519–556.
- Brooke, M. L. 2000. Why museums matter. *Trends Ecol. Evol.* 15: 136–137.
- Bugoni, L. 2006. Great-winged Petrel *Pterodroma macroptera* in Brazil. *Bull. Brit. Orn. Cl.* 126: 52–54.
- Carlos, C. J. 2008. A critical look at the alleged Brazilian records of the Indian Yellow-nosed Albatross *Thalassarche carteri*, with comments on mollymawk identification in Brazil (Procellariiformes: Diomedidae). *Rev. Bras. Orn.* 16: 99–106.
- Carlos, C. J., Straube, F. C. & Pacheco, J. F. 2010. Conceitos e definições sobre documentação de registros ornitológicos e critérios para a elaboração de listas de aves para os estados brasileiros. *Rev. Bras. Orn.* 18: 355–361.
- Causey, D. & Trimble, J. 2005. Old bones in new boxes: osteology collections in the new millennium. *Auk* 122: 971–979.
- Dias, R. A., Agne, C. E., Gianuca, D., Gianuca, A., Barcellos-Silveira, A. & Bugoni, L. 2010. New records, distribution and status of six seabird species in Brazil. *Iheringia, Sér. Zool.* 100: 379–390.
- Dias, M. P., Granadeiro, J. P., Phillips, R. A., Alonso, H. & Catry, P. 2011. Breaking the routine: individual Cory's shearwaters shift winter destinations between hemispheres and across ocean basins. *Proc. Roy. Soc. B* 278: 1786–1793.
- Drew, J. 2011. The role of natural history institutions and bioinformatics in conservation biology. *Conserv. Biol.* 25: 1250–1252.
- Faria, F. A., Burguenio, L. E. T., Weber, F. S., Souza, F. J. & Bugoni, L. 2014. Unusual mass stranding of Atlantic Yellow-nosed Albatross (*Thalassarche chlororhynchos*), petrels and shearwaters in southern Brazil. *Waterbirds* 37: 446–450.
- Figueiredo, L. F. A. (ed.) 2016. Lista de aves do Estado de São Paulo. V. 15/1/2016. www.ceo.org.br (accessed 12 October 2016).
- Ghizoni-Jr., I. V., Farias, F. B., Vieira, B. P., Willrich, G., Silva, E. S., Mendonça, E. N., Albuquerque, J. L. B., Gass, D. A., Ternes, M. H., Nascimento, C. E., Roos, A. L., Couto, C. C. M., Serrão, M., Serafini, P. P., Dias, D., Fantacini, F. M., Santi, S., Souza, M. C. R., Silva, M. S., Barcellos, A., Albuquerque, C. & Espínola, C. R. R. 2013. Checklist da avifauna da Ilha de Santa Catarina, sul do Brasil. *Atualidades Orn.* 171: 50–75.
- González-Solis, J., Croxall, J. P., Oro, D. & Ruiz, X. 2007. Trans-equatorial migration and mixing in the wintering areas of a pelagic seabird. *Front. Ecol. Environ.* 5: 297–301.
- Harrison, P. 1985. *Seabirds: an identification guide*. Houghton Mifflin, Boston.
- Hedd, A., Montevecchi, W. A., Otle, H., Phillips, R. A. & Fifield, D. A. 2012. Trans-equatorial migration and habitat use by sooty shearwaters *Puffinus griseus* from the South Atlantic during the nonbreeding season. *Mar. Ecol. Prog. Ser.* 449: 277–290.
- Hedd, A., Montevecchi, W. A., Phillips, R. A. & Fifield, D. A. 2014. Seasonal sexual segregation by monomorphic sooty shearwaters *Puffinus griseus* reflects different reproductive roles during the pre-laying period. *PLoS ONE* 9: e85572.
- Jiménez, S., Domingo, A., Marquez, A., Abreu, M., D'Anatro, A. & Pereira, A. 2009. Interactions of long-line fishing with seabirds in the south-western Atlantic Ocean, with a focus on White-capped Albatrosses (*Thalassarche steadi*). *Emu* 109: 321–326.

- Jiménez, S., Marquez, A., Abreu, M., Forselledo, R., Pereira, A. & Domingo, A. 2015. Molecular analysis suggests the occurrence of Shy Albatross in the south-western Atlantic Ocean and its by-catch in longline fishing. *Emu* 115: 58–62.
- Joseph, L. 2011. Museum collections in ornithology: today's record of avian biodiversity for tomorrow's world. *Emu* 111: i–xii.
- Krul, R. 2004. Aves marinhas costeiras do Paraná. Pp. 37–56 in Branco, J. O. (ed.) *Aves marinhas insulares brasileiras: bioecologia e conservação*. Ed. Univali, Itajaí.
- Krul, R. & Moraes, V. S. 1997. *Calonectris diomedea* (Procellariiformes, Procellariidae) no litoral do Paraná. P. 105 in Coelho, A. G. M., Nascimento, I. L. S., Nascimento, J. L. X. & Azevedo-Junior, S. M. (eds.) *IV Congresso Brasileiro de Ornitologia, Resumos*. Sociedade Brasileira de Ornitologia, Recife.
- Moraes, V. S. & Krul, R. 1992. Uma coleção especial de aves marinhas no Estado do Paraná. P. 33 in Sander, M., Petry, M. V. & Voss, W. A. (eds.) *II Congresso Brasileiro de Ornitologia, Resumos*. Sociedade Brasileira de Ornitologia, Campo Grande.
- Moraes, V. S. & Krul, R. 1997. Dados sobre algumas aves pelágicas visitantes da costa do Brasil. P. 45 in Coelho, A. G. M., Nascimento, I. L. S., Nascimento, J. L. X. & Azevedo-Junior, S. M. (eds.) *IV Congresso Brasileiro de Ornitologia, Resumos*. Sociedade Brasileira de Ornitologia, Recife.
- Müller, I. H. & Vieira, B. P. 2016. Estado de preservação dos espécimes na Coleção de Aves da Universidade Federal de Santa Catarina. *Atualidades Orn.* 194: 52–74.
- Neves, T., Vooren, C. M., Bugoni, L., Olmos, F. & Nascimento, L. 2006. Distribuição e abundância de aves marinhas na região sudeste-sul do Brasil. Pp. 11–35 in Neves, T., Bugoni, L. & Rossi-Wongtschowski, C. L. B. (eds.) *Aves oceânicas e suas interações com a pesca na região sudeste-sul do Brasil*. Instituto Oceanográfico, Universidade de São Paulo, São Paulo.
- Olson, S. L. 2003. Development and uses of avian skeleton collections. *Bull. Brit. Orn. Cl.* 123A: 26–34.
- Pereira, A., Daudt, N. W., Nuss, A., Tavares, M. & Carlos, C. J. 2016. The first confirmed record of the White-capped Albatross *Thalassarche steadi* in Brazil. *Rev. Bras. Orn.* 24: 286–289.
- Piacentini, V. Q., Aleixo, A., Agne, C. E., Maurício, G. N., Pacheco, J. F., Bravo, G. A., Brito, G. R. R., Naka, L. N., Olmos, F., Posso, S., Silveira, L. F., Betini, G. S., Carrano, E., Franz, I., Lees, A. C., Lima, L. M., Pioli, D., Schunck, F., Amaral, F. R., Bencke, G. A., Cohn-Haft, M., Figueiredo, L. F. A., Straube, F. C. & Cesari, E. 2015. Annotated checklist of the birds of Brazil by the Brazilian Ornithological Records Committee. *Rev. Bras. Orn.* 23: 91–298.
- Rainbow, P. S. 2009. Marine biological collections in the 21st century. *Zool. Scripta* 38 (Suppl. 1): 33–40.
- Roos, A. L. & Piacentini, V. Q. 2003. Revisão dos registros sul-brasileiros do gênero *Phoebetria* Reichenbach, 1853 e primeiro registro documentado de *Phoebetria palpebrata* (Forster, 1785) (Procellariiformes: Diomedidae) para Santa Catarina. *Ararajuba* 11: 223–225.
- Scherer-Neto, P., Straube, F. C., Carrano, E. & Urben-Filho, A. 2011. *Lista de aves do Paraná*. Hori Consultoria Ambiental, Curitiba.
- Suarez, A. V. & Tsutsui, N. D. 2004. The value of museum collections for research and society. *BioScience* 54: 66–74.
- Vooren, C. M. & Fernandes, A. C. 1989. *Guia de albatrozes e petréis do sul do Brasil*. Sagra, Porto Alegre.
- Winker, K. 2000. Obtaining, preserving, and preparing bird specimens. *J. Field Orn.* 71: 250–297.
- Winker, K. 2005. Bird collections: development and use of scientific resource. *Auk* 122: 966–971.

Addresses: Nicholas W. Daudt and Alice Pereira, Setor de Coleções (Ornitologia), Museu de Ciências Naturais (MUCIN), Universidade Federal do Rio Grande do Sul (UFRGS), Imbé, RS, Brazil, e-mails: nicholaswdaudt@gmail.com, vakkerstormsjo@gmail.com. NWD also at Programa de Pós-Graduação em Oceanografia Biológica, Instituto de Oceanografia, Universidade Federal do Rio Grande—FURG, Rio Grande, RS, Brazil. AP also at Programa de Pós-Graduação em Biologia Animal, Instituto de Biociências, Universidade Federal do Rio Grande do Sul (UFRGS), Porto Alegre, RS, Brazil. Juliana Rechetelo, Ricardo Krul and Luiz A. M. Mestre, Laboratório de Ornitologia, Centro de Estudos do Mar (CEM), Universidade Federal do Paraná (UFPR), Pontal do Paraná, PR, Brazil, e-mails: jurechetelo@gmail.com, ricardokrul@gmail.com, luiz.mestre@ufpr.br