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Noteworthy seabird records from Paraná state, southern Brazil

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

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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*.

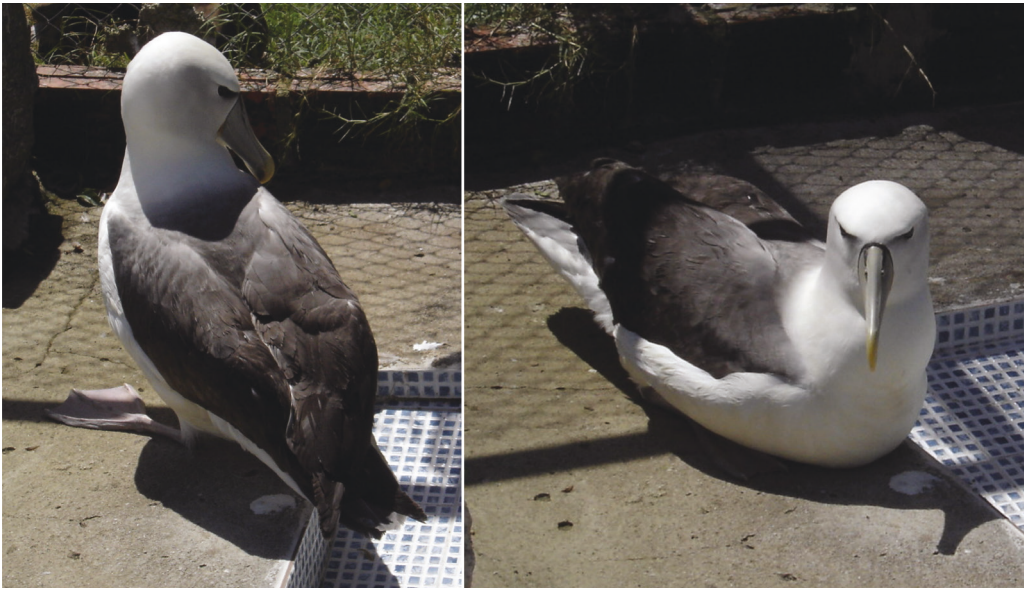


Figure 1. Shy-type albatross *Thalassarche cauta* / *T. steadi*, beached alive at Pontal do Sul beach, Paraná, 3 December 2005 (Ricardo Krul)

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.

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