



Atypical records of pinniped specimens housed in the Museo Argentino de Ciencias Naturales 'Bernardino Rivadavia'

G. A. Daneri^{†,*}, E. A. Varela[†], C. C. Di Martino[†],
A. Harrington[†] and R. A. Montiel[†]

[†]División Mastozoología, Museo Argentino de Ciencias Naturales 'Bernardino Rivadavia', Av. Ángel Gallardo 470, Buenos Aires, Argentina

*Corresponding author, e-mail: gdaneri@macn.gov.ar

ARTICLE INFO

Manuscript type	Note
Article history	
Received	20 January 2011
Received in revised form	10 June 2011
Accepted	15 June 2011
Available online	27 January 2014
Responsible Editor: Maritza Sepúlveda	
Citation: Daneri, G.A., Varela, E.A., Di Martino, C.C., Harrington, A. and Montiel, R.A. (2011) Atypical records of pinniped specimens housed in the Museo Argentino de Ciencias Naturales. <i>Latin American Journal of Aquatic Mammals</i> 9(2): 150-153. http://dx.doi.org/10.5597/lajam00180	

Pinnipeds are widely distributed in the Southern Hemisphere. The most common species that occur along the Argentinean coast are the southern elephant seal (*Mirounga leonina*), the southern fur seal (*Arctocephalus australis*) and the South American sea lion (*Otaria flavescens*), with their breeding colonies lying at different sites throughout the continental coast and adjacent islands (Reeves *et al.*, 1992; Bastida *et al.*, 2007). However, individuals from other pinniped species such as the leopard seal (*Hydrurga leptonyx*), the crabeater seal (*Lobodon carcinophaga*), the Subantarctic fur seal (*A. tropicalis*) and the Antarctic fur seal (*A. gazella*), have also been reported for the area (Rodríguez *et al.*, 1994¹; Rodríguez *et al.*, 2003; Oliveira *et al.*, 2006; Bastida *et al.*, 2007).

The Marine Mammal Scientific Collection of the Museo Argentino de Ciencias Naturales 'Bernardino Rivadavia' (MACN-Ma) houses a total of 378 specimens, of which 56.9% are Cetacea and the remainder (43.1%) are Pinnipedia. Within Pinnipedia, three families are represented: Phocidae (6 genera and 6 species), Otariidae (3 genera and 4 species), and Odobenidae (1 genus and 1 species). A recent thorough examination of the collection revealed that 13 specimens of pinnipeds (6 Otariids and 7 Phocids) had been collected at non-traditional sites in relation to their geographic distribution range. The species involved were *O. flavescens* (4 specimens), *A. australis* (2 specimens), *M. leonina* (4 specimens), and *H.*

leptonyx (3 specimens). In addition, most of these specimens are of historical value owing to the date on which they were collected. The available data for each specimen are shown in Tables 1 and 2.

In the sections that follows, these 13 specimens are treated by species, and the common geographic distribution of the species involved is indicated. The South American sea lion is widely distributed along the Atlantic and Pacific coasts of South America, from southern Brazil (between 13° and 23°S) to Perú (approximately 4°S), including the Islas Malvinas/Falkland Islands and Staten Island (King, 1983; Reeves *et al.*, 1992). Even though the sites of collection of the specimens involved (MACN-Ma 271; MACN-Ma 20576; MACN-Ma 20578) are within the normal latitudinal range of the species, it is remarkable that these were found in the coastal zone of the Río de La Plata/River Plate, at a relatively long distance from its outer limit on the Atlantic Ocean (approximately 340km) (Figure 1). In this regard, it is noteworthy that sightings of *O. flavescens* were recently reported at San Javier and Guardia Mitre, on the coasts and islets of the Río Negro, by rangers of the Consejo de Ecología y Medio Ambiente (CODEMA) of Río Negro Province, Argentina (A. Namuncura and A. Lapa, pers. comm., September 2010). These sites are situated at 54km and 102km from the Atlantic coast, respectively.

The South American fur seal occurs on the coasts and offshore islands of South America, from southern Brazil in the Atlantic, southward around Cape Horn and northward along the Pacific to Paracas, southern Perú (Repenning *et al.*, 1971; King, 1983; Reeves *et al.*, 1992). One of the specimens (MACN-Ma 25.192) is the first record of the species in the coastal zone of the Río Uruguay, near the city of Gualaguaychú

¹Rodríguez, D., Bastida, R., Morón, S. and Loureiro, J. (1994) *Arctocephalus gazella* y *A. tropicalis* en Argentina. Page 127 in Abstracts, Sexta Reuniao de Trabalho de Especialistas em Mamíferos Aquáticos da América do Sul, 24-28 October 1994, Florianópolis, Brazil.



Figure 1. Atypical sites of otariid specimens housed at the MACN-Ma collection. The numbers in this figure correspond to the same numbers in Table 1.



Figure 2. Atypical sites of phocid specimens housed at the MACN-Ma collection. The numbers in this figure correspond to the same numbers in Table 2.

(Entre Ríos Province, Argentina), at approximately 380km in a straight line from the outer limit of the Río de La Plata/River Plate Estuary. The second specimen of *A. australis* (MACN-Ma 29.769) was collected at Georgias del Sur/South Georgia and it was the first record cited for this species south of the Antarctic Convergence (Daneri *et al.*, 1997) (Figure 1).

The southern elephant seal has a circumpolar distribution in the Southern Ocean and breeds mainly on Subantarctic islands, lying both north and south of the Antarctic Polar Front, such as Georgias del Sur/South Georgia, South Shetland, Malvinas/Falkland, and Kerguelen, Heard and Macquarie islands, with Península Valdés (Chubut Province) being the only continental breeding site. In the last decades several records of individuals of this species have been reported at different localities outside of their normal distributional range (Reeves *et al.*, 1992; Lewis *et al.*, 2006; Daneri, 2009). It is worth mentioning that the northernmost record of *M. leonina* comes from Sawqirah, on the central North Arabian coast of the sultanate of Oman (Johnson, 1990). In contrast, adult male individuals were tracked as far as 75°S in the Weddell Sea (Tosh *et al.*, 2009). Two of the specimens examined were collected in the coastal zones of the Río de la Plata/River Plate, Buenos Aires Province, one on the coast of the Río Uruguay, and the other on the Atlantic coast of Buenos Aires Province (Figure 2). With regard to the possible origin of these individuals, Lewis *et al.* (2006) concluded that

of the breeding colonies lying north of the Antarctic Polar Front and closest to southern South America (Península Valdés, Malvinas/Falklands, Georgias del Sur/South Georgia, Gough and Tristan da Cunha), the Patagonian colony was (in terms of population size and distance) the most likely source for seals recorded, at least along the Atlantic coast.

In regard to the occurrence of pinniped species inside estuarine zones, specifically for the Río de La Plata and its tributaries, Albareda (2002²) suggested that the entrance of individual seals might be explained by the hydrographic conditions of the estuary, such as the high variability in salinity, density and turbidity, which in turn are associated with the intense winds from the southeast sector. However, other factors, such as the lack of experience by young individuals, diseases and low food availability in their normal feeding areas should also be considered.

The leopard seal has a wide distribution in high latitudes of the southern hemisphere, occurring from the edge of the Antarctic pack ice to the Antarctic continent, as well as on many Subantarctic islands such as Heard, Kerguelen, Auckland, Campbell, Macquarie, Georgias del Sur/South Georgia and

²Albareda, D.A. (2002) Varamientos de mamíferos marinos (Cabo San Antonio – Río de la Plata): un enfoque médico. Page 7 in Abstracts, Primeras Jornadas: Conservación y Uso Sustentable de la Fauna Marina, 26-27 September 2002, Montevideo, Uruguay.

Table 1. Otariidae specimens collected at atypical distributions housed in the scientific collection of the MACN-Ma.

OTARIIDAE					
Species	Catalogue Number	Locality	Date of collection	Entry Date	Kind of specimen
<i>Otaria flavescens</i>	1 MACN-Ma 271	Bernal, Río de la Plata, Buenos Aires Province 34°42'S, 58°17'W	22 September 1899		Hemimandible
	2 MACN-Ma 20576	Punta Indio, Río de la Plata, Buenos Aires Province 35°18'S, 57°15'W	8 July 1989		Postcranial skeleton
	3 MACN-Ma 20578	Punta Indio, Río de la Plata, Buenos Aires Province 35°18'S, 57°15'W	8 April 1989		Skull and postcranial skeleton
	4 MACN-Ma 20602	Playa de Quilmes, Río de la Plata, Buenos Aires Province 34°43'S, 58°15'W	unknown	10 October 1995	Postcranial skeleton
<i>Arctocephalus australis</i>	5 MACN-Ma 25.192	Gualeguaychú, Río Uruguay, Entre Ríos Province 33°01'S, 58°31'W	12 October 1925		Skull
	6 MACN-Ma 29.769	Islas Georgias del Sur/ Southern Georgia, Tierra del Fuego Province 54°00'S, 38°04'W	8 September 1929		Skull

Table 2. Phocidae specimens collected at atypical locations housed in the scientific collection of the MACN-Ma.

PHOCIDAE					
Species	Catalogue Number	Locality	Date of collection	Entry Date	Kind of specimen
<i>Mirounga leonina</i>	7 MACN-Ma 26.222	Necochea, Buenos Aires Province 38°44'S, 58°44'W	14 December 1926		Female. Skull without mandible
	8 MACN-Ma 30.139	Gualeguaychú, Río Uruguay, Entre Ríos Province 33°01'S, 58°31'W	17 April 1930		Piece of mandible
	9 MACN-Ma 43.44	Playa de Quilmes, Buenos Aires Province 34°43'S, 58°15'W	22 June 1943		Incomplete postcranial skeleton. Fragment of skull
	10 MACN-Ma 49.129	Arroyo Espera, Tigre, Buenos Aires Province 34°25'S, 58°35'W	11 May 1949		Male. Skull and postcranial skeleton incomplete
<i>Hydrurga leptonyx</i>	11 MACN-Ma 13.15	Península Valdés, Chubut Province 42°30' S 64°00' W	unknown	13 March 1913	Incomplete skull
	12 MACN-Ma 21.29	Mar del Plata, Buenos Aires Province 38°00'S, 57°33'W	unknown	28 September 1921	Skull without teeth
	13 MACN-Ma 20396	Puerto Quequén, Buenos Aires Province 38°32'S, 58°42'W	unknown	12 January 1994	Skull. Incomplete skeleton

Malvinas/Falklands (King, 1983; Fischer and Hureau, 1988; Rodríguez *et al.*, 2003). Of the three specimens deposited in the collection, two of them were stranded on the southern coast of Buenos Aires Province, and the third one at Península Valdés, northern Patagonian coast (Chubut Province) (Figure 2). These individuals could have come from Antarctic waters, aided by the equatorward Malvinas/Falkland Current, which originates as a branch of the Antarctic Circumpolar Current (Tchernia, 1980). In this sense, Rodríguez *et al.* (2003) also suggested that the occurrence of leopard seal individuals, mostly juveniles, in temperate waters of the Western South Atlantic from early winter to late spring might be related to the northward dispersal of immature seals from the Antarctic pack ice. This could be a result of intra- (adult vs. younger seals) and / or interspecific competition with other top predators (*e.g.* penguins, crabeater seals) for food resources, mainly krill (Moura *et al.*, 2011).

The information reported here agrees with previous studies in concluding that individuals of many pinniped species may regularly wander hundreds or thousands of kilometers outside the normal limits of their traditional breeding or feeding regions (Reeves *et al.*, 1992). Moreover, as Moura *et al.* (2011) stated, the potential to swim long distances together with the lack of physical barriers in the marine environment could help the dispersion of seals.

Acknowledgements

We would like to thank Lic. Olga B. Vaccaro for her valuable help in the compilation of this paper. We are also indebted to Dr. Marthan Bester and one anonymous reviewer for critical comment of the manuscript.

References

Bastida, R., Rodríguez, D., Secchi, E. and da Silva, V. (2007) *Mamíferos Acuáticos de Sudamérica y Antártica*. Vázquez Mazzini Ed., Buenos Aires, 336 pp.

Daneri, G.A. (2009) Two records of male southern elephant seals (*Mirounga leonina*) on the Atlantic coast of Uruguay. *Latin American Journal of Aquatic Mammals* 7 (1-2): 101-102. <http://dx.doi.org/10.5597/lajam00144>.

Daneri, G.A., García Esponda, C.M. and De Santis, L.J. (1997) A record of *Arctocephalus australis* (Zimmermann, 1783) (Carnivora, Otariidae) south of the Antarctic. Convergence. *Mammalia* 61 (3): 451-454.

Fischer, W. and Hureau, J.C., Eds (1988) *Fichas FAO de Identificación de Especies para los Fines de la Pesca Océano Austral (áreas de pesca 48, 58 y 88, área de la convención CCRVMA)*. Roma, FAO, Vol II, 233-474.

Johnson, D. W. (1990) A southern elephant seal (*Mirounga leonina* Linn.) in the Northern Hemisphere (Sultanate of Oman). *Marine Mammal Science* 6(3): 242-243. <http://dx.doi.org/10.1111/j.1748-7692.1990.tb00248.x>.

King, J. E. (1983) *Seals of the World*. 2d. Ed. Oxford, England: Oxford University Press. 240 pp.

Lewis, M., Campagna, C., Marin, M. R. and Fernández, T. (2006) Southern elephant seals north of the Antarctic Polar Front. *Antarctic Science* 18:213-221. <http://dx.doi.org/10.1017/S0954102006000253>.

Moura, J. F., di Dario, B. P., and Siciliano, S. (2011) Occurrence of pinnipeds on the coast of Rio de Janeiro State, Brazil. *Marine Biodiversity Records* 4: 1-10. <http://dx.doi.org/10.1017/S1755267211000030>.

Oliveira, L.R., Machado, R., Meller Alievi, M. and Würdig, N.L. (2006) Crabeater Seal (*Lobodon carcinophagus*) on the coast of Rio Grande do Sul, Brazil. *Latin American Journal of Aquatic Mammals* 5(2): 145-148. <http://dx.doi.org/10.5597/lajam00107>

Reeves, R.R., Stewart, B.S. and Leatherwood, S. (1992) *The Sierra Club Handbook of Seals and Sirenians*. Sierra Club Books. San Francisco, 359 pp.

Repenning, C.A., Peterson, R.S. and Hubbs, C.L. (1971) Contributions to the systematics of the Southern fur seals, with particular reference to the Juan Fernandez and Guadalupe species. *Antarctic Pinnipedia* 18: 1-34. <http://dx.doi.org/10.1029/AR018p0001>.

Rodríguez, D., Bastida, R., Morón, S., Rodríguez Heredia, S. and Loureiro, J. (2003) Occurrence of leopard seals in northern Argentina. *Latin American Journal of Aquatic Mammals* 2 (1): 51-54. <http://dx.doi.org/10.5597/lajam00031>.

Tosh, C.A., Bornemann, H., Ramdohr, S., Schroder, M., Martin, T., Carlini, A., Plotz, J. and Bester, M.N. (2009) Adult male southern elephant seals from King George Island utilize the Weddell Sea. *Antarctic Science* 21:113-121. <http://dx.doi.org/10.1017/S0954102008001557>.

Tchernia, P. (1980) *Descriptive Regional Oceanography: An Elementary Description of the Four Main Divisions of the World Ocean, of their Limits, Forms, Topography, Wind Systems, Climatology, Surface Circulation, and Hydrological Characteristics and Structure*. Pergamon Press, Oxford, 253 pp.