DISTRIBUTION OF COMMERSON'S DOLPHIN, *Cephalorhynchus commersonii*, AND THE REDISCOVERY OF THE TYPE OF *Lagenorhynchus floweri**

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ABSTRACT

Commerson's dolphin, *Cephalorhynchus commersonii*, is well known from the coastal waters of Argentina, from Peninsula Valdes (42°S) southward to the Strait of Magellan, Tierra del Fuego, and around the Falkland (Malvinas) Islands, and Kerguelen Islands. With the possible exception of some Drake's Passage records, there are no confirmed sightings of this species from pelagic areas adjacent to or outside its known range. One of the two type specimens of *Lagenorhynchus floweri*, a synonym of *C. commersonii*, was rediscovered and measurements from it are presented along with those from four other specimens of *C. commersonii*.

INTRODUCTION

Lacépède (1804) described *Cephalorhynchus commersonii (as Delphinus commersonii)* based on observations and a description by Philibert Commerson in a manuscript addressed to Georges Louis Leclerc, Le Comte de Buffon. The type locality was the Strait of Magellan, Tierra del Fuego, Chile. In this paper we review the distribution of *C. commersonii* based on published records, new specimens, and at-sea sightings. We also report on the rediscovery of the type specimen of *Lagenorhynchus floweri* Moreno, 1892.

MATERIALS AND METHODS

At-sea sightings of Commerson's dolphins were made by one of us (RLB)

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during the late 1960's and the early 1970's. Both published and some unpublished accounts on this species were reviewed with specific reference to its distribution. Five specimens of *C. commersonii*, including one of the type specimens of *L. floweri*, were examined and measured. Skull measurements were taken as described by Perrin (1975). These specimens are listed below. Full names of institutions are included in the Acknowledgements.

Lagenorhynchus floweri—ARGENTINA: Bahia de Santa Cruz, Provincia Santa Cruz, 1 (MLP 1480: the type).

Cephalorhynchus commersonii—ARGENTINA: Quilmes, Provincia Buenos Aires, 1 (MACNBA 4-421); Tierra del Fuego, 1 (MACNBA unnumbered but 2c marked on cranium). UNKNOWN LOCALITY: 2 (MLP 633; MACNBA, unnumbered).

RESULTS

Specimens and At-sea Sightings of Commerson's Dolphins

During late 1968, Kenneth S. Norris collected two *C. commersonii* specimens in the Strait of Magellan (Norris, 1968; Anonymous, 1969; Aguayo, 1975). These specimens are now in the USNM collection with the numbers 395352 and 395372. There are four other specimens in the USNM collection: (1) USNM 252568, collected by Dr Deane, south of Stanley, East Falkland; (2) USNM 504072; (3) USNM 504073; and (4) the remains of one or more specimens labeled USNM 484889. James G. Mead collected the latter three specimens during February 1973 along the Estancia La Angelina coast approximately 10 km north of Rio Gallegos, Argentina. Mead (personal communication) stated that these specimens were obtained by the local crab fishermen in nets used for *centolla, Lithodes antarcticus*.

On 28 January 1974 M. Canevari obtained a Commerson's dolphin specimen from four km north of Rio Grande on Tierra del Fuego's Atlantic coast. Hugo Castello (personal communication) reported another specimen from Rio Gallegos, Province Santa Cruz, captured in a net used for fishing for *robalo, Eleginops maclovinus,* on 27 or 28 December 1973. Another specimen from Playa La Angelina, Bahia Grande, Province Santa Cruz, was obtained from a *centolla* net on 20 December 1973. Goodall (1978) described 31 specimens (11 fresh and 20 skeletons) netted by fishermen during 1977–78. Three were caught in *centolla* nets and 28 in nets set for *robalo* in the area around Bahia San Sebastian, Tierra del Fuego, Argentina. She also noted an additional 54 skulls collected in distinct parts of the Atlantic coast of Tierra del Fuego, Strait of Magellan, and the Beagle Channel. The localities where these specimens were collected suggest that the species is more common along the northern coast than along the southern coast of Tierra del Fuego.

Sighting and specimen data indicate *C. commersonii* ranges between 42°S and 56°S along South American's Atlantic coast. This distribution is based on the fact that specimens have been collected or described from the following

localities: between the Strait of Magellan and Peninsula Valdes (Cummings, Fish and Thompson, 1971); between the Strait of Magellan and Rawson, Comodoro Rivadavia and Puerto Deseado (Mermoz and Goodall, 1980; Gewalt, 1979); Comodoro Rivadavia (Mermoz, 1980); Puerto Deseado (Spotte, Radcliffe and Dunn, 1979); Chubut (Gilmore, 1969); Rio Santa Cruz (Moreno, 1892); Isla de los Estados and Isla Pavon, Santa Cruz (Lahille, 1899); Strait of Magellan (Lacépède, 1804; Harmer, 1922; Norris, 1968; Gilmore, 1971; Goodall, 1977; Goodall, 1978); Isla Desolacion, the westernmost record in the Strait of Magellan (Goodall and Polkington, 1979); Tierra del Fuego (Lacépède, 1804; Dabbene, 1902; Marelli, 1953; Goodall, 1977; Goodall, 1978; Pine, Bridge and Angle, 1978; Lockyer, Smellie, Goodall, and Cameron, 1981); Beagle Channel (Olrog, 1950; Brownell, 1974; Goodall, 1977; Goodall, 1978); and Falkland (Malvinas) Islands (Quoy and Gaimard, 1824; Lesson and Garnot, 1826; Bruce, 1915; Harmer, 1922; Hamilton, 1952; Strange, 1972).

Hart (1935) reported that this species was known to the whalers off South Georgia. This is the only report of this species from the area around South Georgia Island.

We found one specimen (MACNBA 4-421) of this species reported from Quilmes, Provincia Buenos Aires (approximately 34°S). This is about 8 degrees north of the Peninsula Valdez region which we believe is the approximate northern range limit of *C. commersonii*. We and numerous colleagues have worked in the region north of Peninsula Valdez and know of only a few sightings just north (within about one degree) of the Peninsula Valdez area.

Aguayo and Torres (1967) and Aguayo (1975) reported *C. commersonii* from the following geographical positions: 61°59′ S −63°05′ W; 61°50′ S − 63°17′ W; and 58°10′ S −67°58′ W on 27 and 28 February 1966. These localities are in the Drake Passage (Cape Horn is located at approximately 56° S−67°16′ W), and are the only published sightings from that area. We find these three sightings extremely puzzling. Numerous scientific vessels annually traverse Drake Passage in route to the Antarctic Peninsula but we know of no other published or unpublished sightings of *C. commersonii* from this area.

Based on Commerson's dolphins observed along Chile's southern coast between Navarino and Wollaston Islands, Aguayo (1975) amplified the species known geographical distribution by stating that it occurred along the "Atlantic and Pacific coasts of the southern end of South America". In the southermost area of the islands south of Tierra del Fuego, this species is allopatric with *C. eutropia* as shown by observations of Norris (1968) and Aguayo (1975).

At least one sighting of Commerson's dolphin was recorded during a whale-sighting cruise carried out from 1 to 15 February 1982, between 32°S and 38°30′ S and between 75° W and the Chilean coast (Gallardo, Arcos, Salamanca, and Pastene, 1983). As no specific details are provided on this

sighting, we have dismissed it as erroneous. Even if this supposed sighting was made as far south as 38° S, this is still at least fifteen degrees north of the most northern confirmed sighting and well outside the normal range of this species.

Paulian (1953) observed some dolphins similar to Commerson's near the Kerguelen Islands in the southern Indian Ocean. He visited the Kerguelen Islands in 1952 and on his return he took to the British Museum (Natural History) a cranium of a dolphin collected during the voyage. Our inquiries about this specimen have been unfruitful as it cannot be found in the collection of the BM (NH) (F. C. Fraser, personal communication), nor in the Museum National d'Histoire Naturelle de Paris (D. Robineau, personal communication). Angot (1954) captured two male specimens which he determined to be this species in Kerguelen coastal waters. He later wrote to one of us (RLB) on 9 October 1973 that the specimens were harpooned and brought ashore where they were examined but no materials were collected.

Frost and Best (1976) reported this species from the Indian Ocean at 49°44′ S–68°42′ E and 49°44′ S–69°00′ E in the coastal water around Kerguelen. Pascal (1981) reported additional observations on this species in Kerguelen waters.

Gaskin (1972) suggested that a piebald specimen of *C. hectori* recorded by Oliver in the Malborough Sounds, New Zealand, was a Commerson's dolphin. We agree with Morzer Bruyns and Baker (1973) that this proposal has no merit.

Pilleri (1971), in a report on the Franciscana, listed the cetaceans that should be found in Uruguayan waters, including *C. heavisidei* (sic). Marcuzzi and Pilleri (1971) discussed the geographical range of all four *Cephalorhynchus* species (see their Fig. 47), and claimed that *C. heavisidii* was sympatric with *C. commersonii* along a large portion of the Argentine Atlantic coast. These two references are the only ones which expand the distribution of *C. heavisidii* from South Africa, across the whole of the South Atlantic Ocean, to the coast of South America. We know of no specimens, nor any direct observations, published or unpublished, that would support the claim that *C. heavisidii* occurs anywhere in the Atlantic Ocean other than along the western coast of southern Africa.

We give a series of new sightings where *C. commersonii* has been observed, mostly by RLB during several voyages in the waters of the western South Atlantic Ocean, in Table 1. Most of these records were plotted on plate 8 in Brownell (1974). No pelagic sightings of this species were ever made during these voyages.

In summary, *C. commersonii* is well known in the western South Atlantic Ocean along the coast of Argentina from Peninsula Valdes (approximately 42°S) southward to the Strait of Magellan, around most of Tierra del Fuego and around the Falkland (Malvinas) and Kerguelen Islands. Its occurrence around South Georgia Island and in the Drake Passage needs to be recon-

firmed. With the possible exception of the Drake's Passage reports, there are no confirmed sightings of this species from pelagic areas adjacent to or outside of its known range.

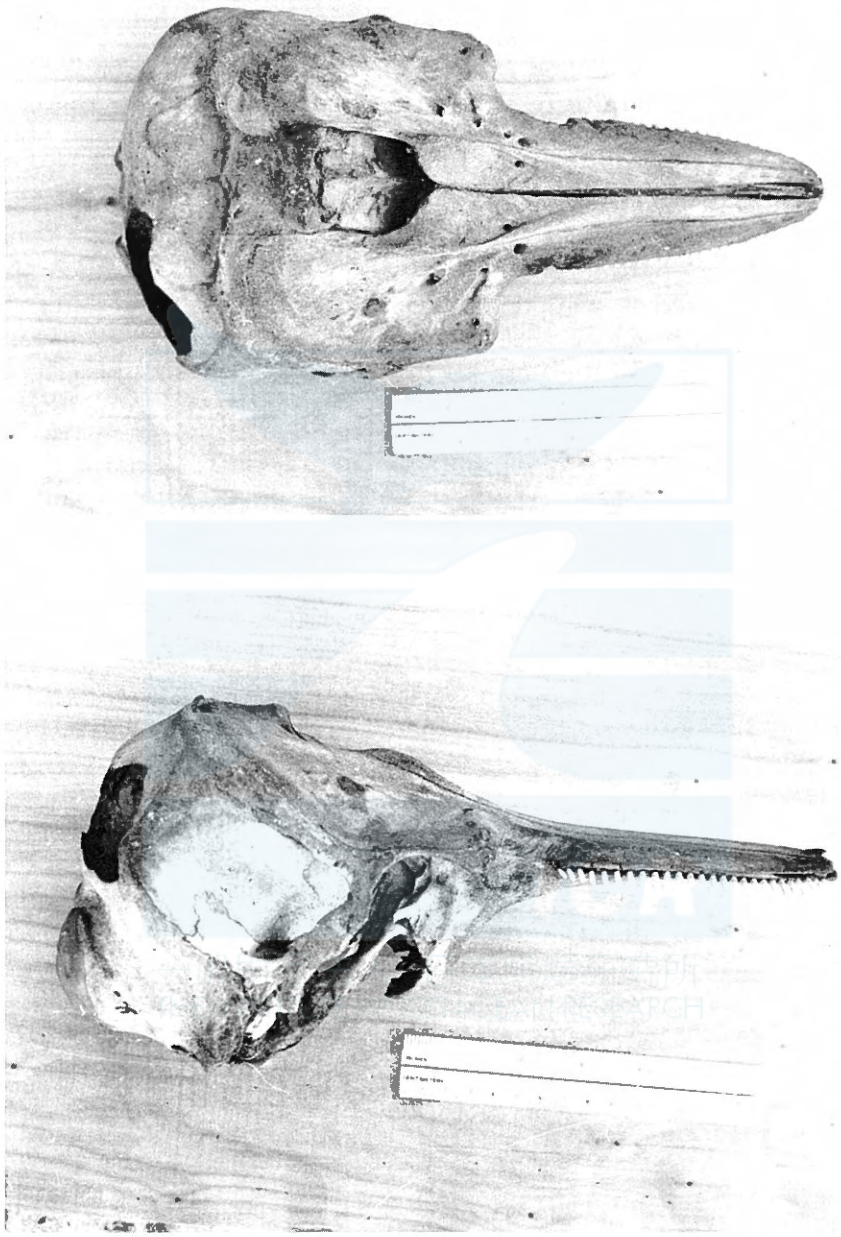
Rediscovery of the type of Lagenorhynchus floweri

In 1892, Moreno described *Lagenorhynchus floweri* on the basis of specimens observed in the mouth of the Rio Santa Cruz and along the coast of Chubut Province, Argentina, and two specimens (male and female) obtained by Sr. Tonini del Furia from Bahia de Santa Cruz and Tierra del Fuego.

Lagenorhynchus floweri was considered a separate species until Harmer (1922) made it a synonym of *C. commersonii* in his revision of the genus *Cephalorhynchus*, although he noted, "It is unfortunate that Moreno's specific name, which was based on a good and well-illustrated account of external and cranial characters, cannot be accepted." We accept Harmer's conclusion as have others before us. Moreno (1892) thus provided the first description of the cranial characters for *C. commersonii*.

TABLE 1. AT-SEA SIGHTINGS OF COMMERSON'S DOLPHINS, *CEPHALORHYNCHUS COMMERSONII*

Date	Hour	Locality	Number of dolphins	Observer
21. VI 1971	10:30	20 miles E. of Punta Norte de Peninsula Valdes 42°00′ S. – 63°30′ W.	3	Cummings (Pers. Com.)
29. VI 1971	15:20	41°26′ S. – 63°00′ W.	2	Cummings (Pers. Com.)
16. VII 1969	10:10	43°18′ S. – 64°53′ W.	2	Brownell & Gilmore, 1973
16. VII 1969	10:35	43°20′ S. – 64°55′ W.	2	Brownell & Gilmore, 1973
16. VII 1969	10:40	43°21′ S. – 64°56′ W.	1	Brownell & Gilmore, 1973
19. VII 1969	12:54	47°25′ S. – 65°39′ W.	1	Brownell & Gilmore, 1973
19. VII 1969	14:10	47°35′ S. – 65°45′ W.	1	Brownell & Gilmore, 1973
21. VII 1969	08:39	47°55′ S. – 65°40′ W.	2	Brownell & Gilmore, 1973
21. VII 1969	16:15	48°35′ S. – 66°46′ W.	1	Brownell & Gilmore, 1973
15. VI 1971	15:43	48°53′ S. – 68°15′ W.	3	Cummings (Pers. Com.)
13. VI 1971	12:00	Bahia San Julian 49°20′ S. – 67°40′ W.	2	Cummings (Pers. Com.)
22. VII 1969	16:25	49°35′ S. – 67°39′ W.		Brownell & Gilmore, 1973
23. VII 1969	10:05	50°04′ S. – 67°54′ W.	1	Brownell & Gilmore, 1973
24. VII 1969	15:00	51°35′ S. – 68°58′ W.	1	Brownell & Gilmore, 1973
26. VII 1969	12:41	51°39′ S. – 68°25′ W.	2	Brownell & Gilmore, 1973
26. VII 1969	12:45	51°39′ S. – 68°25′ W.	1	Brownell & Gilmore, 1973
12. VIII 1969		53°07′ S. – 70°50′ W. Punta Arenas, Chile	2	Brownell & Gilmore, 1973



Figs. 1 and 2. Dorsal and lateral (from top to bottom) view of the cranium (No. 1) of the type of *Lagenorhynchus floweri* Moreno, 1892.

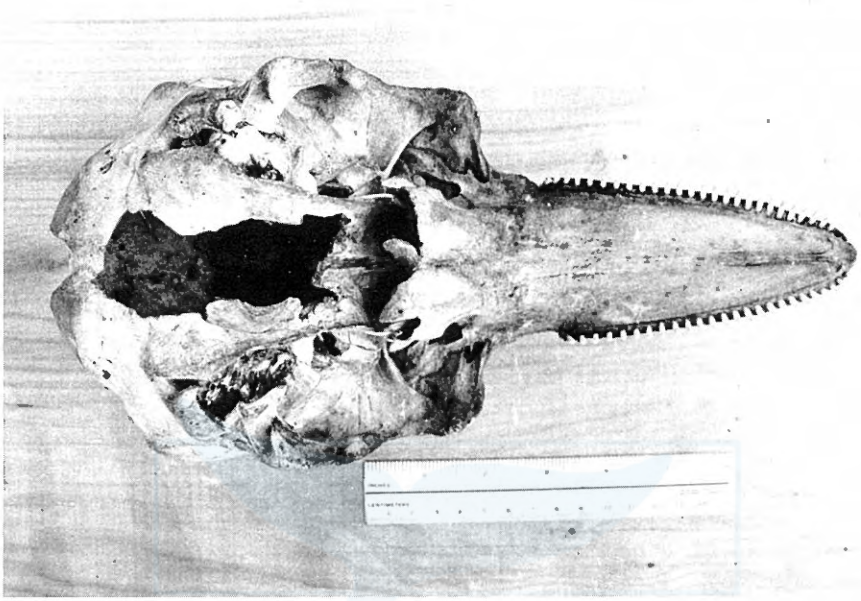


Fig. 3. Ventral view of the cranium (No.1) of the type of *Lagenorhynchus floweri* Moreno, 1892.

The two specimens described by Moreno were considered by Harmer and others to be unavailable, and no further mention of them has been made. Recently, however, while studying the cetacean collection in the MLP, we found a cranium (MLP 1480) without date or locality, recorded in the MLP catalogue as *Phocaena*. After examining this specimen in detail, we concluded that it was cranium No. 1 figured by Moreno (1892); therefore it is one of the two types of *L. floweri*.

The cranium is of a male. The right lateral side of the supraoccipital is broken; a large fracture occurs in the occipital-sphenoid region; the left tympanic bulla is missing; and there is a break in the external border of the left superior maxillary between the end of the tooth row and the antorbital notch (Figs 1 to 3). These characteristics and the dimensions of the partial cranium coincide exactly with those given by Moreno (1982) for his male specimen number one.

Moreno (1982) pointed out that the associated mandible does not belong to the cranium, but that it "procede del mismo punto donde fue recogido. He notado esto, despues de terminar el dibujo que conservo porque creo que esta mandibula pertenece a un *L. Burmeisteri* (*nomen lapsus* for *L. floweri* used in osteological description), pues en la Bahia de Santa Cruz no he observado otros delfines de este tamaño ni tengo noticia de que hayan sido vistos por otras personas". He added that "ha pertenecido a un individuo mas adulto, de

TABLE 2. SKULL MEASUREMENTS OF *CEPHALORHYNCHUS COMMERSONII* (IN MM.)

Measurements	1	2	3	4	5*)
1. Condylo-basal length	287	302	303	295	298
2. Rostrum length	135	146	143	142	139
3. Rostrum basal width	66	67	73	68	69
4. Rostrum width 60 mm. anterior to ant. ob. notches	52	51	52	49	53
5. Rostrum width at middle	50	53	51	47	50
6. Premaxillae width at same point.	23	23	27	22	24
7. Tip of snout to blowhole	173	180	172	177	177
8. Tip of snout to pterygoid	174	192	–	189	–
9. Preorbital width	125	128	121	118	129
10. Post-orbital width	140	143	135	136	146
11. Orbital width	125	127	124	120	130
12. Blowhole, width at	140	146	140	141	149
13. Zygomatic breadth	36	37	38	39	39
14. Greatest width pmx.	44	44	47	49	48
15. Width of braincase across parietals	139	138	134	134	139
16. Number of teeth upper R.	29	30	30	30	31
17. Number of teeth upper L.	26+	30	30	30	30
18. Length of tooth row upper R.	113	123	123	123	119
19. Length of tooth row upper L.	108+	122	123	123	121
20. Hinder end of upper tooth row R.	118	128	130	129	128
21. to tip of pmx. L.	110+	124	–	129	126
22. Number of teeth lower R.	28	33	30	30	29
23. Number of teeth lower L.	28	31	30	32	29
24. Length of lower tooth row R.	112	125	115	116	115
25. Length of lower tooth row L.	113	124	120	117	116
26. Hinder end of lower tooth row R.	118	125	125	125	121
27. to tip of mandible L.	118	125	125	124	121
28. Mandible length	223	234	233	229	226
29. Coronoid height	53	58	54	53	49
30. Length of symphysis	17	13	18	20	18
31. Post-temporal length	65	67	69	65	68
32. Post-temporal height	47	47	50	49	46
33. ¾ rostrum length-width at	38	37	35	35	39
34. Cranial height	128	132	128	126	134

*)
1 – M.L.P. 1480, Bahia de Santa Cruz, Provincia Santa Cruz, Rep. Argentina. Type of *Lagenorhynchus floweri* Moreno, 1892.
2 – M.L.P. 633, No data.
3 – M.A.C.N.B.A. 4-421, Quilmes, Provincia Buenos Aires, Rep. Argentina.
4 – M.A.C.N.B.A. 2c, Tierra del Fuego, Rep. Argentina.
5 – M.A.C.N.B.A., No data.

TABLE 3. SKULL MEASUREMENTS OF *CEPHALORHYNCHUS COMMERSONII* EXPRESSED AS A PERCENT OF THE CONDYLO-BASAL LENGTH

Measurements	1	2	3	4	5*)
1. Condylo-basal length	100.0	100.0	100.0	100.0	100.0
2. Rostrum length	48.4	48.3	47.1	48.1	46.6
3. Rostrum basal width	22.9	22.1	24.0	23.0	23.1
4. Rostrum width 60 mm. anterior to ant. ob. notches	18.1	16.8	17.1	16.6	17.7
5. Rostrum width at middle	17.4	17.5	16.8	15.9	16.7
6. Premaxillae width at same point	8.0	7.6	8.9	7.4	8.0
7. Tip of snout to blowhole	60.2	59.6	56.7	60.0	59.5
8. Tip of snout to pterygoid	60.6	63.5	–	64.0	–
9. Preorbital width	43.2	42.3	39.9	40.0	43.2
10. Post-orbital width	48.7	47.3	44.5	46.1	43.9
11. Orbital width	43.2	42.0	40.9	40.6	43.6
12. Blowhole, width at	48.7	48.3	46.2	47.7	50.0
13. Zygomatic breadth	12.5	12.2	12.5	13.2	13.5
14. Greatest width pmx.	15.3	14.5	15.5	16.6	16.1
15. Width of braincase across parietals	48.4	45.6	44.2	45.4	46.6
18. Length of tooth row upper R.	39.3	40.7	40.5	41.6	39.9
19. Length of tooth row upper L.	–	40.3	40.5	41.6	40.6
20. Hinder end of upper tooth row R.	41.1	42.3	42.9	43.7	42.9
21. to tip of pmx. L.	–	41.0	–	43.7	42.2
24. Length of lower tooth row R.	39.0	41.3	37.9	39.3	38.5
25. Length of lower tooth row L.	39.3	41.0	39.6	39.6	38.8
26. Hinder end of lower tooth row R.	41.1	41.3	41.2	42.3	40.6
27. to tip of mandible L.	41.1	41.3	41.2	42.0	40.6
28. Mandible length	77.7	77.8	76.8	77.6	75.8
29. Coronoid height	18.4	19.2	17.8	17.9	16.4
30. Length of symphysis	5.9	4.3	5.9	6.7	6.0
31. Post-temporal length	22.6	22.1	22.7	22.0	22.8
32. Post-temporal height	16.3	15.5	16.5	16.5	15.4
33. 3/4 rostrum length-width at	13.2	12.2	11.5	11.8	13.0
34. Cranial height	44.5	43.9	42.2	42.7	44.9

*) Same abbreviations in Table 2

craneo algo mas estrecho." Nevertheless, we conclude that this mandible has all the characteristics typical of *C. commersonii*.

The MLP and MACNBA collections contained four crania of *C. commersonii* (1 MLP and 3 MACNBA). We have included the measurements from these specimens and their relative percentages here for comparison with those from the type of *L. floweri* (Tables 2 and 3). The small variation among these specimens and those reported by Harmer (1922) falls within the intraspecific variation of *C. commersonii* .

SUMARIO

Se analizan las citas bibliograficas para tonina overa, *Cephalorhynchus commersonii*, en lo relativo a su distribution geográfica, y se proporcionan nuevas localidades basadas en observaciones directas. Medidas craneométricas y fórmulas dentarias son presentadas de cinco especimenes en museos Argenti nos, incluido el tipo de *Lagenorhynchus floweri* Moreno, 1892.

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