

Proposal to Retain the Scientific Names of Five Species of Small Cetaceans (*Delphinapterus leucas*, *Tursiops truncatus*, *Lissodelphis borealis*, *Cephalorhynchus eutropia*, and *Inia geoffrensis*) by Designating Their Unused Senior Synonyms as *nomina oblita*

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Abstract

The purpose of this note is to retain five names of small cetaceans—*Delphinapterus leucas* (Pallas, 1776) for the beluga whale, *Tursiops truncatus* (Montagu, 1821) for the common bottlenose dolphin, *Lissodelphis borealis* (Peale, 1849) for the northern right whale dolphin, *Cephalorhynchus eutropia* (Gray, 1846) for the Chilean dolphin, and *Inia geoffrensis* (Blainville in Desmarest, 1817) for the Amazon river dolphin—that are each threatened by synonyms that antedate their currently used names. In each case, the earlier name has rarely or never been used in the past 120 years, and its resurrection as the valid name for these species would threaten stability. Prevailing usage must be maintained to favor stability over priority in accordance with Article 23.9 of the International Code of Zoological Nomenclature. I request that in each case listed, the designated junior synonym be henceforth considered a *nomen protectum* (and thereby continue to be used as the valid name for the relevant taxon) and that each of the indicated senior synonyms be treated as a *nomen oblitum* (i.e., forgotten name).

Key Words: nomenclature, taxonomy, systematics, Cetacea, Odontoceti, dolphin, porpoise, small whale

Introduction

The International Code of Zoological Nomenclature (hereafter referred to as the “Code”) governs the use of scientific names for all animals (ICZN, 1999). It contains very specific rules about which name is to be used for each species. In most cases, the name to be used (i.e., the “valid” name) is the oldest available name published since the start of our current system of binomial nomenclature, which was established by Linnaeus in 1758. But,

in certain cases, generally to maintain stability, the Code allows for the use of a younger name (a junior synonym) to be officially recognized as the valid name of a species. This usually happens when the older name (the senior synonym) falls out of use for one reason or another. An example of this is preservation of the use of *Stenella attenuata* for the pantropical spotted dolphin, despite several names that antedate it (Perrin, 1990; ICZN, 1991). Identifying and resolving such cases are important means of stabilizing the nomenclature and avoiding the large-scale confusion that can happen when the name of a commonly known species is suddenly changed for reasons of what many might consider simple “taxonomic book-keeping.”

In the process of preparing an exhaustive monograph reviewing all nominal species of small cetaceans of the cetacean families Delphinidae, Phocoenidae, Monodontidae, Iniidae, Platanistidae, and Pontoporiidae (Jefferson, in press), I have identified five cases in which there is an unresolved instance of a junior synonym being extensively used as the valid name of a species. In each case, the resurrection of the senior synonym for use as the valid species name would threaten stability and cause great confusion.

The relevant rules of the Code are contained in Article 23.9 (ICZN, 1999, pp. 27-28):

- 23.9. Reversal of precedence. In accordance with the purpose of the Principle of Priority [Art. 23.2], its application is moderated as follows:
- 23.9.1. Prevailing usage must be maintained when the following conditions are both met:
- 23.9.1.1. the senior synonym or homonym has not been used as a valid name after 1899, and
- 23.9.1.2. the junior synonym or homonym has been used for a particular taxon, as its presumed valid name, in at least 25 works, published by at least 10 authors in the immediately

preceding 50 years and encompassing a span of not less than 10 years.

23.9.2. An author who discovers that both the conditions of 23.9.1 are met should cite the two names together and state explicitly that the younger name is valid, and that the action is taken in accordance with this Article; at the same time the author must give evidence that the conditions of Article 23.9.1.2 are met, and also state that, to his or her knowledge, the condition in Article 23.9.1.1 applies. From the date of publication of that act the younger name has precedence over the older name. When cited, the younger but valid name may be qualified by the term *nomen protectum* and the invalid, but older, name by the term *nomen oblitum* (see Glossary). In the case of subjective synonymy, whenever the names are not regarded as synonyms the older name may be used as valid.

Retention of *Delphinapterus leucas* (Pallas, 1776) by Invalidation of *Cetus albicans* Brisson, 1762

The beluga whale is currently known as *Delphinapterus leucas* (Pallas, 1776). However, 14 years before Pallas's name was published, Brisson (1762) gave a short description of a white whale ("le chachalot blanc") found in the Davis Strait and vicinity ("Baye Meridionale, appelee Sud-Bucht") (p. 227). It appears to be the first description and name used for the beluga whale, though that description appears to have been largely forgotten in recent times. Actually, Brisson had earlier described this species in 1756, but that was pre-Linnaean. Brisson's species was supposedly similar to the narwhal and was about 4.6 to 4.9 m in length (15 to 16 feet). No type specimen was collected, but the type locality was Sydbay, Greenland (C. C. Kinze, pers. comm., 27 January 2021). Hershkovitz (1966) also listed the name *B[alaena] albicans* Müller, 1776 for this species but gave priority for the beluga whale to Pallas's *D. leucas*, a practice that has been dutifully, though apparently incorrectly, followed ever since. Interestingly, Tomilin (1957/1967) accurately showed *C. albicans* Brisson to be the senior synonym of the beluga whale but did not explain why this name was not used as the valid name, instead using *D. leucas* (Pallas).

Although *C. albicans* Brisson is the senior synonym, to my knowledge this name has not been used for the beluga whale since before 1899. Instead, *Delphinapterus leucas* (Pallas) has been used universally for this species since then as exemplified by the following 25 works published between 1973 and 2012:

- Brodie, P. F. (1989). The white whale *Delphinapterus leucas* (Pallas, 1776). In S. H. Ridgway & R. Harrison (Eds.), *Handbook of marine mammals: Volume 4. River dolphins and the larger toothed whales* (pp. 119-144). Academic Press.
- Dietz, R., Heide-Jorgensen, M. P., Born, E. W., & Glahder, C. M. (1994). Occurrence of narwhals (*Monodon monoceros*) and white whales (*Delphinapterus leucas*) in East Greenland. *Meddelelser om Gronland Bioscience*, 39, 69-86.
- Ferrero, R. C., Moore, S. E., & Hobbs, R. C. (2000). Development of beluga, *Delphinapterus leucas*, capture and satellite tagging protocol in Cook Inlet, Alaska. *Marine Fisheries Review*, 62, 112-123.
- Gewalt, W. (1994). *Delphinapterus leucas* (Pallas, 1776) Weißwal or beluga. In D. Robineau, R. Duguay, & M. Klima (Eds.), *Handbuch der saugetierte Europas: Band 6. Meeressäuger, Teil I: Wale und Delphine – Cetacea* [Handbook of mammals of Europe: Volume 6. Sea animals, Part 1A: Whales and dolphins – Cetacea] (pp. 185-208). Aula-Verlag Wiesbaden.
- Goetz, K. T., Montgomery, R. A., Ver Hoef, J. M., Hobbs, R. C., & Johnson, D. S. (2012). Identifying essential summer habitat of the endangered beluga whale *Delphinapterus leucas* in Cook Inlet, Alaska. *Endangered Species Research*, 16, 135-147. <https://doi.org/10.3354/esr00394>
- Gurevich, V. S. (1980). Worldwide distribution and migration patterns of the white whale (beluga) *Delphinapterus leucas*. *Reports of the International Whaling Commission*, 30, 465-480.
- Heide-Jorgensen, M. P., Hanmeken, N., Dietz, R., Orr, J., & Richard, P. R. (2001). Surfacing times and dive rates for narwhals (*Monodon monoceros*) and belugas (*Delphinapterus leucas*). *Arctic*, 54, 284-298. <https://doi.org/10.14430/arctic788>
- Hobbs, K. E., Muir, D. C. G., Michaud, R., Beland, P., Letcher, R. J., & Norstrom, R. J. (2003). PCBs and organochlorine pesticides in blubber biopsies from free-ranging St. Lawrence Estuary beluga whales (*Delphinapterus leucas*), 1994-1998. *Environmental Pollution*, 122, 291-302. [https://doi.org/10.1016/S0269-7491\(02\)00288-9](https://doi.org/10.1016/S0269-7491(02)00288-9)
- Hubbard, J. D., Hansen, D. J., & Mahoney, B. A. (1999). Winter sightings of beluga whales (*Delphinapterus leucas*) in Yakutat-Disenchantment Bay, Alaska. *Arctic*, 52, 411-412. <https://doi.org/10.14430/arctic945>
- Krahn, M. M., Borrows, D. G., Stein, J. E., Becker, P. R., Schantz, M. M., Muir, D. C. G., O'Hara, T. M., & Rowles, T. (1999). White whales (*Delphinapterus leucas*) from three Alaskan stocks: Concentrations and patterns of persistent organochlorine contaminants in blubber. *Journal of Cetacean Research and Management*, 1, 239-250.
- Laidre, K. L., Shelden, K. E. W., Rugh, D. J., & Mahoney, B. A. (2000). Beluga, *Delphinapterus leucas*, distribution and survey effort in the Gulf of Alaska. *Marine Fisheries Review*, 62, 27-36.
- Lesage, V., & Kingsley, M. C. S. (1998). Updated status of the St. Lawrence River population of the beluga,

- Delphinapterus leucas*. *Canadian Field-Naturalist*, 112, 98-114.
- Lint, D. W., Clayton, J. W., Lillie, W. R., & Postma, L. (1990). Evolution and systematics of the beluga whale, *Delphinapterus leucas*, and other odontocetes: A molecular approach. *Canadian Bulletin of Fisheries and Aquatic Sciences*, 224, 7-22.
- Lockyer, C., Hohn, A. A., Doidge, D. W., Heide-Jorgensen, M. P., & Suydam, R. S. (2007). Age determination in belugas (*Delphinapterus leucas*): A quest for validation of dentinal layering. *Aquatic Mammals*, 33(3), 293-304. <https://doi.org/10.1578/AM.33.3.2007.293>
- Murayama, T., & Tobayama, T. (1997). Preliminary study on stimulus equivalence in beluga (*Delphinapterus leucas*). *Japanese Journal of Animal Physiology*, 47, 79-89. <https://doi.org/10.2502/janip.47.79>
- O'Corry-Crowe, G. M. (2009). Beluga whale *Delphinapterus leucas*. In W. F. Perrin, B. Würsig, & J. G. M. Thewissen (Eds.), *Encyclopedia of marine mammals* (2nd ed., pp. 108-112). Academic Press. <https://doi.org/10.1016/B978-0-12-373553-9.00030-4>
- O'Corry-Crowe, G. M., Lydersen, C., Heide-Jorgensen, M. P., Hansen, L., Mukhametov, L. M., Dove, O., & Kovacs, K. (2010). Population genetic structure and evolutionary history of North Atlantic beluga whales (*Delphinapterus leucas*) from West Greenland, Svalbard and the White Sea. *Polar Biology*, 33, 1179-1194. <https://doi.org/10.1007/s00300-010-0807-y>
- Pilleri, G., & Arvy, L. (1981). Peter Simon Pallas (1741-1811) and his beluga, "*Delphinus leucas*" (= *Delphinapterus leucas*, white whale). *Investigations on Cetacea*, 12, 82-87.
- Reeves, R. R., Dietz, R., & Born, E. W. (1994). Overview of the special issue "Studies of white whales (*Delphinapterus leucas*) and narwhals (*Monodon monoceros*) in Greenland and adjacent waters." *Meddelelser om Gronland Bioscience*, 39, 3-11.
- Rice, D. W. (1998). *Marine mammals of the world: Systematics and distribution* (Special Publication 4). Society for Marine Mammalogy. 231 pp.
- Sergeant, D. E. (1973). Biology of white whales (*Delphinapterus leucas*) in western Hudson Bay. *Journal of the Fisheries Research Board of Canada*, 30, 1065-1090. <https://doi.org/10.1139/f73-178>
- Sergeant, D. E. (1986). Present status of white whales *Delphinapterus leucas* in the St. Lawrence Estuary. *Le Naturaliste Canadien*, 113, 61-81.
- Smith, T. G., & Martin, A. R. (1994). Distribution and movements of belugas, *Delphinapterus leucas*, in the Canadian high arctic. *Canadian Journal of Fisheries and Aquatic Sciences*, 51, 1653-1663. <https://doi.org/10.1139/f94-166>
- St. Aubin, D. J., De Guise, S., Richard, P. R., Smith, T. G., & Geraci, J. R. (2001). Hematology and plasma chemistry as indicators of health and ecological status in beluga whales, *Delphinapterus leucas*. *Arctic*, 54, 317-331. <https://doi.org/10.14430/arctic791>
- Stewart, B. E., & Stewart, R. E. A. (1989). *Delphinapterus leucas*. *Mammalian Species*, 336, 1-8. <https://doi.org/10.2307/3504210>

Therefore, the conditions of both ICZN Articles 23.9.1.1 and 23.9.1.2 have been met and apply to this species, and the younger name has precedence over the older name. Thus, from the date of publication of the current paper, *C. albicans* Brisson is to be viewed as a *nomen oblitum*; the name *Delphinapterus leucas* (Pallas) is the associated *nomen protectum* and the valid scientific name of the beluga whale. Although Pallas (1776) did not specifically designate a holotype, the specimen described in Table 4 of his book may be considered as a type specimen. Though the exact date of publication is uncertain, if Müller's (1776) *B[alaena] albicans* is found to antedate *Delphinus leucas* Pallas, 1776, then the former name would also need to be suppressed.

Retention of *Tursiops truncatus* (Montagu, 1821) by Invalidation of *Delphinus tursio* Gunnerus, 1768

The common bottlenose dolphin is currently known as *Tursiops truncatus* (Montagu, 1821). An earlier synonym, *Delphinus nesarnack* Lacepede, 1804 has already been declared a *nomen oblitum* by the ICZN (Tubbs, 1986), and the argument made by Rice (1984) in that case also applies to the current situation. Fifty-three years before Montagu's species was published, *Delphinus tursio* was named and described by Gunnerus (1768), with reference to the description and illustrations in Klein (1741), which clearly show a common bottlenose dolphin. The name appears to have been long overlooked and forgotten, but Kinze (2018) recently exhaustively reviewed the relevant history and proposed resurrecting *Delphinus tursio* as the valid name for the common bottlenose dolphin. *Delphinus tursio* Gunnerus is the senior homonym of *D. tursio* Fabricius, 1780, which enjoyed occasional use in the 20th century. However, True (1903) argued that this latter name was not associated with a bottlenose dolphin (but see also Kinze, 2018).

Despite Kinze's (2018) suggestion, a recent vote of the Society for Marine Mammalogy's Taxonomy Committee did not support using *T. tursio* as the valid name of the common bottlenose dolphin (generally citing the problems and confusion that upsetting the stability of this well-known and well-studied species would cause) and, instead, considered it appropriate to have that name declared a *nomen oblitum*.

A recent literature search found only four cases of Gunnerus's *D. tursio* having been used for the bottlenose dolphin since 1899 (Kükenthal, 1909a,

1909b; Burlet, 1917; Brunner, 1918), and these were all anatomical papers, not primarily taxonomic in nature. However, *D. tursio* has been used in a number of papers in the German and Nordic zoological literature through about 1960 (C. C. Kinze, pers. comm., 27 January 2021). Fabricius's *D. tursio* may have been based partly on a white beaked dolphin (*Lagenorhynchus albirostris*), though Bonnaterre's use of the name clearly depicts a bottlenose dolphin (Kinze, 2018). Despite the occasional use of *D. tursio* for the bottlenose dolphin, *T. truncatus* (Montagu) has been used nearly universally for this species for over 120 years as exemplified by the following 25 recent works published between 1980 and 2018:

- Au, W. W. L. (1980). Echolocation signals of the Atlantic bottlenose dolphin (*Tursiops truncatus*) in open waters. In R. G. Busnel & J. F. Fish (Eds.), *Animal sonar systems* (NATO Advanced Study Institutes Series [Series A: Life Sciences], Vol. 28, pp. 251-282). Springer. https://doi.org/10.1007/978-1-4684-7254-7_10
- Brusa, J. L., Young, R. F., & Swanson, T. (2016). Abundance, ranging patterns, and social behavior of bottlenose dolphins (*Tursiops truncatus*) in an estuarine terminus. *Aquatic Mammals*, 42(1), 109-121. <https://doi.org/10.1578/AM.42.1.2016.109>
- Brzica, H., Špiranec, K., Zečević, I., Lucić, H., Gomerčić, T., & Đuras, M. (2015). New aspects on the laryngeal anatomy of the bottlenose dolphin (*Tursiops truncatus*). *Veterinarski Akhiv*, 85(2), 211-226.
- Costidis, A., & Rommel, S. A. (2012). Vascularization of air sinuses and fat bodies in the head of the bottlenose dolphin (*Tursiops truncatus*): Morphological implications on physiology. *Frontiers in Physiology*, 3, Article 243. 23 pp.
- De Francesco, M. C., & Loy, A. (2016). Intra- and interspecific interactions as proximate determinants of sexual dimorphism and allometric trajectories in the bottlenose dolphin *Tursiops truncatus* (Cetacea, Odontoceti, Delphinidae). *PLOS ONE*, 11(10), e0164287. 19 pp. <https://doi.org/10.1371/journal.pone.0164287>
- Diaz-Delgado, J., Arbelo, M., Sierra, E., Vela, A., Dominguez, M., Paz, Y., Andrada, M., Domínguez, L., & Fernández, A. (2015). Fatal *Erysipelothrix rhusiopathiae* septicemia in two Atlantic dolphins (*Stenella frontalis* and *Tursiops truncatus*). *Diseases of Aquatic Organisms*, 116(1), 75-81. <https://doi.org/10.3354/dao02900>
- Hernandez-Milian, G., Berrow, S., Santos, M. B., Read, D., & Rogan, E. (2015). Insights into the trophic ecology of bottlenose dolphins (*Tursiops truncatus*) in Irish waters. *Aquatic Mammals*, 41(2), 226-239. <https://doi.org/10.1578/AM.41.2.2015.226>
- Jaing, C., Thissen, J. B., Gardner, S., McLoughlin, K., Slezak, T., Bossart, G. D., & Fair, P. A. (2015). Pathogen surveillance in wild bottlenose dolphins *Tursiops truncatus*. *Diseases of Aquatic Organisms*, 116(2), 83-91. <https://doi.org/10.3354/dao02917>
- Leeney, R. H., Weir, C. R., Campredon, P., Regalla, A., & Foster, J. (2016). Occurrence of Atlantic humpback (*Sousa teuszii*) and bottlenose (*Tursiops truncatus*) dolphins in the coastal waters of Guinea-Bissau, with an updated cetacean species checklist. *Journal of the Marine Biological Association of the United Kingdom*, 96, 933-941. <https://doi.org/10.1017/S0025315415000661>
- Martien, K. K., Baird, R. W., Hedrick, N. M., Gorgone, A. M., Thieleking, J. L., McSweeney, D. J., Robertson, K. M., & Webster, D. L. (2012). Population structure of island-associated dolphins: Evidence from mitochondrial and microsatellite markers for common bottlenose dolphins (*Tursiops truncatus*) around the main Hawaiian Islands. *Marine Mammal Science*, 28(3), E208-E232. <https://doi.org/10.1111/j.1748-7692.2011.00506.x>
- Miyazaki, N., Hirotsaki, Y., Kinuta, T., & Omura, H. (1992). Osteological study of a hybrid between *Tursiops truncatus* and *Grampus griseus*. *Bulletin of the National Science Museum*, 18, 79-94.
- Pande, S., Sant, N., Pednekar, S., & Pradhan, M. S. (2009). Definite records of sperm whale *Physeter catodon* (Linnaeus), spinner dolphin *Stenella longirostris* (Gray) and bottlenose dolphin *Tursiops truncatus* (Montagu) (Mammalia: Cetartiodactyla) in the Arabian Sea. *Journal of Threatened Taxa*, 1(3), 80-81. <https://doi.org/10.11609/JoTT.o1881.180-1>
- Rajaguru, A., & Natarajan, R. (1985). Systematics and organ weights of two dolphins, *Stenella longirostris* (Gray, 1828) and *Tursiops truncatus* (Montagu, 1821) of Porto Novo, southeast coast of India. *Proceedings of the Symposium on Endangered Marine Animals and Marine Parks*, 1, 72-77.
- Reif, J. S., Schaefer, A. M., & Bossart, G. D. (2015). Atlantic bottlenose dolphins (*Tursiops truncatus*) as a sentinel for exposure to mercury in humans: Closing the loop. *Veterinary Sciences*, 2, 407-422. <https://doi.org/10.3390/vetsci2040407>
- Rice, D. W. (1998). *Marine mammals of the world: Systematics and distribution* (Special Publication 4). Society for Marine Mammalogy. 231 pp.
- Sanchez, S. M., Goldstein, L. Y., & Dronen, N. O. (2018). *Diphyllobothrium stemmacephalum* Cobbold, 1858 (Diphyllobothriidea) from common bottlenose dolphin, *Tursiops truncatus* (Montagu) from the Texas Gulf coast, USA. *Zootaxa*, 4379, 448-450. <https://doi.org/10.11646/zootaxa.4379.3.11>
- Schaefer, A. M., Titcomb, E. M., Fair, P. A., Stavros, H-C. W., Mazzoil, M., Bossart, G. D., & Reif, J. S. (2015). Mercury concentrations in Atlantic bottlenose dolphins (*Tursiops truncatus*) inhabiting the Indian River Lagoon, Florida: Patterns of spatial and temporal distribution. *Marine Pollution Bulletin*, 97(1-2), 544-547. <https://doi.org/10.1016/j.marpolbul.2015.05.007>
- Sezaki, K., Hirotsaki, Y., Watabe, S., & Hashimoto, K. (1984). Electrophoretic characters of the hybrids between two dolphins *Tursiops truncatus* and *Grampus griseus*. *Bulletin of the Japanese Society of Scientific Fisheries*, 50, 1771-1776.

- Song, Z., Yue, R., Sun, Y., Liu, C., Khan, S. H., Li, C., Zhao, Y., Zhou, X., Yang, L., & Zhao, D. (2017). Fatal bacterial septicemia in a bottlenose dolphin *Tursiops truncatus* caused by *Streptococcus iniae*. *Diseases of Aquatic Organisms*, 122(3), 195-203. <https://doi.org/10.3354/dao03069>
- Stolen, M. K., Durden, W. N., & Odell, D. K. (2007). Historical synthesis of bottlenose dolphin (*Tursiops truncatus*) stranding data in the Indian River Lagoon system, Florida, from 1977-2005. *Florida Scientist*, 70, 45-54.
- Stolen, M. K., Odell, D. K., & Barros, N. B. (2002). Growth of bottlenose dolphins (*Tursiops truncatus*) from the Indian River Lagoon system, Florida, U.S.A. *Marine Mammal Science*, 18, 348-357. <https://doi.org/10.1111/j.1748-7692.2002.tb01042.x>
- Stolen, M., Durden, W. N., Mazza, T., Barros, N., & St. Leger, J. (2013). Effects of fishing gear on bottlenose dolphins (*Tursiops truncatus*) in the Indian River Lagoon system, Florida. *Marine Mammal Science*, 29(2), 356-364. <https://doi.org/10.1111/j.1748-7692.2012.00575.x>
- Sukhoruchenko, M. N. (1992). Selective hearing adaptation to paired pulses in *Tursiops truncatus*. In J. A. Thomas, R. A. Kastelein, & A. Ya. Supin (Eds.), *Marine mammal sensory systems* (pp. 277-286). Plenum Press. https://doi.org/10.1007/978-1-4615-3406-8_19
- Tezanos-Pinto, G., Baker, C. S., Russell, K., Martien, K., Baird, R. W., Hutt, A., Stone, G., Mignucci-Giannoni, A. A., Caballero, S., Endo, T., Lavery, S., Oremus, M., Olavarria, C., & Garrigue, C. (2008). A worldwide perspective on the population structure and genetic diversity of bottlenose dolphins (*Tursiops truncatus*) in New Zealand. *Journal of Heredity*, 100, 11-24. <https://doi.org/10.1093/jhered/esn039>
- Zornetzer, H. R., & Duffield, D. A. (2003). Captive-born bottlenose dolphin × common dolphin (*Tursiops truncatus* × *Delphinus capensis*) intergeneric hybrids. *Canadian Journal of Zoology*, 81, 1755-1762. <https://doi.org/10.1139/z03-150>

Therefore, the conditions of both ICZN Articles 23.9.1.1 and 23.9.1.2 have been met and apply to this species, and the younger name has precedence over the older name. Thus, from the date of publication of the current paper, *D. tursio* Gunnerus is to be viewed as a *nomen oblitum*; the name *Tursiops truncatus* (Montagu) is the associated *nomen protectum* and the valid scientific name of the common bottlenose dolphin. Since *D. tursio* of Fabricius (1780) and of Bonnaterre (1789) are interconnected, these names may also be viewed as *nomina oblita*.

Retention of *Lissodelphis borealis* (Peale, 1849) by Invalidation of *Lagenorhynchus thicolea* Gray, 1846

The northern right whale dolphin has been known as *Lissodelphis borealis* (Peale, 1849) for many decades (though the date is often erroneously given as 1848, which is based on the printed date on the monograph). Peale (1849) and later Cassin (1858) provided detailed descriptions and illustrations of this species in their accounts, but an earlier name applies to this species. In 1846, Gray (Plate 36) illustrated a dolphin skull and labeled it *Lagenorhynchus thicolea*. There was no description in the text, but a few years later, Gray published a short description of the species based on a single, damaged skull. For many decades after, the specimen was considered to represent a species of *Lagenorhynchus* (e.g., Miller, 1923; Bierman & Slijper, 1948; Miller & Kellogg, 1955; Hershkovitz, 1966; Rice & Scheffer, 1968; Morzer-Brüyns, 1971; Nishiwaki, 1972; Rice, 1977). This was an assumption based on Gray's use of the genus *Lagenorhynchus* for the species and the general similarity of skulls of the two genera. Recently, Vollmer et al. (2019) corrected this and identified Gray's type as a specimen of the genus *Lissodelphis* (right whale dolphins) but considered it to be possibly of either the northern (*L. borealis*) or southern (*L. peronii*) species. However, the stated collection locality of the "west coast of N. America" (confirmed by the author from examination of the tags on the skull in the Natural History Museum, UK) excludes the southern species and, assuming the locality information is correct, thus confirms that this is a specimen of the northern right whale dolphin and, therefore, the senior synonym of that species.

In an extensive search, I could find no use of the name *L. thicolea* Gray as the valid name for the northern right whale dolphin since before 1899. Although this is the senior synonym, to my knowledge, *L. borealis* (Peale) has been used universally for this species since then as exemplified by the following 25 works published between 1970 and 2012:

- Baird, R. W., & Stacey, P. J. (1991). Status of the northern right whale dolphin, *Lissodelphis borealis*, in Canada. *Canadian Field-Naturalist*, 105, 243-250.
- Barlow, J., & Forney, K. A. (2007). Abundance and population density of cetaceans in the California Current ecosystem. *Fishery Bulletin*, 105, 509-526.
- Buckland, S. T., Cattanach, K. L., & Hobbs, R. C. (1993). Abundance estimates of Pacific white-sided dolphin, northern right whale dolphin, Dall's porpoise and northern fur seal in the North Pacific, 1987-1990.

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- Rice, D. W. (1998). *Marine mammals of the world: Systematics and distribution* (Special Publication 4). Society for Marine Mammalogy. 231 pp.
- Walker, W. A. (1975). Review of the live-capture fishery for smaller cetaceans taken in southern California waters for public display 1963-1973. *Journal of the Fisheries Research Board of Canada*, 32, 1197-1212. <https://doi.org/10.1139/f75-139>
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Therefore, the conditions of both ICZN Articles 23.9.1.1 and 23.9.1.2 have been met and apply to this species, and the younger name has precedence over the older name. Thus, from the date of publication of the current paper, *L. thicolea* Gray is to be viewed as a *nomen oblitum*; the name *Lissodelphis borealis* (Peale) is the associated *nomen protectum* and the valid scientific name of the northern right whale dolphin.

**Retention of *Cephalorhynchus eutropia*
(Gray, 1846) by Invalidation of
Delphinus lunatus Lesson, 1826**

Delphinus lunatus Lesson, 1826 is apparently the earliest name used for the Chilean dolphin, which is currently known as *Cephalorhynchus eutropia* (based on *Delphinus eutropia* Gray, 1846; see Goodall et al. [1988] for a review of the taxonomic history of this species). Lesson's new species was based on a sighting at sea in Bahía de Concepción, Chile. The original description is brief and rather generic, and no type specimen is in existence. A year later, Lesson & Garnot (1827) redescribed the species, again indicating a brown crescent behind the blowhole. The atlas for that expedition report includes a plate showing the perceived external appearance of this species (Plate 4, Figure 4, which is reproduced in Goodall et al., 1988). It does not much resemble a Chilean dolphin nor any other known species of dolphin. However, the dark crescent is clearly shown, and Goodall et al. (1988) interpreted this diagnostic feature as indicating it to be recognizable as a Chilean dolphin, and I agree. Goodall et al. stated that the name should be considered a *nomen oblitum* but did not present the explicit evidence required by the current version of the Code.

Although *D. lunatus* Lesson is the senior synonym, an extensive search found no examples of the use of *D. lunatus* Lesson since at least 1858. Instead, *C. eutropia* (Gray) has been used universally for this species since then as shown by the following 25 works published between 1975 and 2016:

Brownell, R. L., Jr., & Mead, J. G. (1989). Taxonomic status of the delphinid (Mammalia: Cetacea) *Tursio? panope* Philippi, 1895. *Proceedings of the Biological Society of Washington*, 102, 532-534.

Capella, J. J., Gibbons, J. E., & Vilna, Y. A. (1999). Nuevos registros del delfín chileno, *Cephalorhynchus eutropia* (Gray, 1846) en Chile central, extremo norte de su distribución [New northern records of Chilean dolphin, *Cephalorhynchus eutropia* (Gray, 1846) in central Chile]. *Estudios Oceanológicos*, 18, 65-67.

Crovetto, A., & Medina, G. (1991). Comportement du dauphin Chilien (*Cephalorhynchus eutropia* Gray, 1846) dans les eaux du sud du Chili [Behavior of the Chilean dolphin (*Cephalorhynchus eutropia* Gray, 1846) in the waters of southern Chile]. *Mammalia*, 55, 329-338. <https://doi.org/10.1515/mamm.1991.55.3.329>

Dawson, S. M. (2009). *Cephalorhynchus* dolphins *Cephalorhynchus heavisidii*, *C. eutropia*, *C. hectori*, and *C. commersonii*. In W. F. Perrin, B. Würsig, & J. G. M. Thewissen (Eds.), *Encyclopedia of marine mammals* (2nd ed., pp. 191-196). Academic Press. <https://doi.org/10.1016/B978-0-12-373553-9.00051-1>

Goetz, T., Antunes, R., & Heinrich, S. (2010). Echolocation clicks of free-ranging Chilean dolphins (*Cephalorhynchus eutropia*). *The Journal of the Acoustical Society of America*, 128, 563-566. <https://doi.org/10.1121/1.3353078>

Goodall, R. N. P. (1994). Chilean dolphin *Cephalorhynchus eutropia* (Gray, 1846). In S. H. Ridgway & R. Harrison (Eds.), *Handbook of marine mammals: Volume 5. The first book of dolphins* (pp. 269-287). Academic Press.

Goodall, R. N. P., & Galeazzi, A. R. (1985). A review of the food habits of the cetaceans of the Antarctic and Sub-Antarctic. In W. R. Siegfried, P. Condy, & R. Laws (Eds.), *Antarctic nutrient cycles and food webs* (pp. 566-572). Springer-Verlag. https://doi.org/10.1007/978-3-642-82275-9_77

Goodall, R. N. P., Norris, K. S., Galeazzi, A. R., Oporto, J. A., & Cameron, I. S. (1988). On the Chilean dolphin, *Cephalorhynchus eutropia* (Gray 1846). *Reports of the International Whaling Commission*, Special Issue 9, 197-257.

Heinrich, S., Elwen, S., & Bräger, S. (2010). Patterns of sympatry in *Lagenorhynchus* and *Cephalorhynchus*: Dolphins in different habitats. In B. Würsig & M. Würsig (Eds.), *The dusky dolphin: Master acrobat off different shores* (pp. 313-332). Elsevier Press. <https://doi.org/10.1016/B978-0-12-373723-6.00015-1>

Lescrauwaet, A. C., & Gibbons, J. (1994). Mortality of small cetaceans and the crab bait fishery in the Magellanes area of Chile since 1980. *Reports of the International Whaling Commission*, Special Issue 15, 485-494.

Mitchell, E. D. (1975). *Porpoise, dolphin and small whale fisheries of the world* (IUCN Monograph 3). International Union for Conservation of Nature. 129 pp.

Molina, D. M., & Oporto, J. A. (1993). Comparative study of dentine staining techniques to estimate age in the Chilean dolphin, *Cephalorhynchus eutropia* (Gray, 1846). *Aquatic Mammals*, 19(1), 45-48.

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- Viddi, F. A., Harcourt, R. G., Hucke-Gaete, R., & Field, I. C. (2011). Fine-scale movement patterns of the sympatric Chilean and Peale's dolphins in the northern Patagonian fjords, Chile. *Marine Ecology Progress Series*, 436, 245-256. <https://doi.org/10.3354/meps09251>
- Viddi, F. A., Hucke-Gaete, R., Torres-Florez, J. P., & Ribeiro, S. (2010). Spatial and seasonal variability in cetacean distribution in the fjords of northern Patagonia, Chile. *ICES Journal of Marine Science*, 67, 959-970. <https://doi.org/10.1093/icesjms/fsp288>

Therefore, the conditions of both ICZN Articles 23.9.1.1 and 23.9.1.2 have been met and apply to this species, and the younger name has precedence over the older name. Thus, from the date of publication of the current paper, *D. lunatus* Lesson is to be viewed as a *nomen oblitum*; the name *Cephalorhynchus eutropia* (Gray) is the associated *nomen protectum* and the valid scientific name of the Chilean dolphin.

Retention of *Inia geoffrensis* (Blainville in Desmarest, 1817) by Invalidation of *Delphinus rostratus* Shaw, 1801

Recently, Smeenk (2018) showed that *Delphinus rostratus* Shaw, 1801 is the earliest name used for the Amazon river dolphin, or boto, currently known as *Inia geoffrensis* (Blainville in Desmarest, 1817). George Shaw described *Delphinus rostratus* in 1801, based on a type that may have been in the Hunterian Museum (Eschricht, 1851, 1852), which has also been referred to as the Museum of the Royal College of Surgeons. The type was thought to possibly be housed in the Natural History Museum in the United Kingdom, but it could not be located on a visit there by the author in December 2019. The exact type locality is unknown, but the species was “supposed to inhabit the Indian Seas” (Shaw, 1801, p. 514). The name has in the past been considered to be a synonym of *S. bredanensis* or *P. gangetica*, or even as a *nomen dubium*. However, Smeenk (2018), in a detailed and exhaustive historical review of the name *D. rostratus* Shaw, recently demonstrated that the type is almost certainly an example of the Amazon river dolphin (*Inia geoffrensis*). As such, this is technically the senior synonym and should be used as the name for the Amazon river dolphin. Smeenk suggested that it may be appropriate to suppress the name and thereby to conserve *geoffrensis* and consider *D. rostratus* Shaw a *nomen oblitum*. Smeenk may have intended to follow through on this, but, unfortunately, he passed away in 2017.

Although *D. rostratus* Shaw is the senior synonym, to my knowledge there is no evidence that Shaw's name has been in use since 1899. Instead, *I. geoffrensis* (Blainville in Desmarest) has been used universally for this species since then as exemplified by the following 25 works published between 1970 and 2012:

- Aliaga-Rossel, E. (2002). Distribution and abundance of the river dolphin (*Inia geoffrensis*) in the Tijamuchi River, Beni, Bolivia. *Aquatic Mammals*, 28(3), 312-323.
- Aliaga-Rossel, E., McGuire, T. L., & Hamilton, H. (2006). Distribution and encounter rates of the river dolphin (*Inia geoffrensis boliviensis*) in the central Bolivian Amazon. *Journal of Cetacean Research and Management*, 8(1), 87-92.
- Best, R. C., & Da Silva, V. M. F. (1989a). Amazon river dolphin, boto *Inia geoffrensis* (de Blainville, 1817). In S. H. Ridgway & R. Harrison (Eds.), *Handbook of marine mammals: Volume 4. River dolphins and the larger toothed whales* (pp. 1-24). Academic Press.
- Best, R. C., & Da Silva, V. M. F. (1989b). Biology, status and conservation of *Inia geoffrensis* in the Amazon and Orinoco river basins. In W. F. Perrin, R. L. Brownell, Jr.,

- K. Zhou, & L. Jiankang (Eds.), *Biology and conservation of the river dolphins* (Occasional Paper, pp. 23-34). IUCN Species Survival Commission.
- Best, R. C., & Da Silva, V. M. F. (1993). *Inia geoffrensis*. *Mammalian Species*, 426. 8 pp. <https://doi.org/10.2307/3504090>
- Da Silva, V. M. F. (2009). Amazon river dolphin *Inia geoffrensis*. In W. F. Perrin, B. Würsig, & J. G. M. Thewissen (Eds.), *Encyclopedia of marine mammals* (2nd ed., pp. 26-28). Academic Press. <https://doi.org/10.1016/B978-0-12-373553-9.00007-9>
- Da Silva, V. M. F., & Martin, A. R. (2000). A study of the boto, or Amazon river dolphin (*Inia geoffrensis*), in the Mamirauá Reserve, Brazil: Operation and techniques. In R. R. Reeves, B. D. Smith, & T. Kasuya (Eds.), *Biology and conservation of freshwater cetaceans in Asia* (Occasional Paper, pp. 121-131). IUCN Species Survival Commission.
- Gomez-Salazar, C., Trujillo, F., & Whitehead, H. (2011). Population size estimates of pink river dolphins (*Inia geoffrensis*) using mark-recapture methods on photo-identification. *Latin American Journal of Aquatic Mammals*, 9, 40-47.
- Gomez-Salazar, C., Trujillo, F., & Whitehead, H. (2012). Ecological factors influencing group sizes of river dolphins (*Inia geoffrensis* and *Sotalia fluviatilis*). *Marine Mammal Science*, 28(2), E124-E142. <https://doi.org/10.1111/j.1748-7692.2011.00496.x>
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- Herman, L. M., von Fersen, L., & Solangi, M. (1996). The bufeo (*Inia geoffrensis*) in the Rio Lagarto Cocha of the Ecuadorian Amazon. *Marine Mammal Science*, 12, 118-124. <https://doi.org/10.1111/j.1748-7692.1996.tb00309.x>
- Hollatz, C., Vilaca, S. T., Redondo, R. A. F., Marmontel, M., Baker, C. S., & Santos, F. R. (2011). The Amazon River system as an ecological barrier driving genetic differentiation of the pink dolphin (*Inia geoffrensis*). *Biological Journal of the Linnean Society*, 102, 812-827. <https://doi.org/10.1111/j.1095-8312.2011.01616.x>
- Martin, A. R., & Da Silva, V. M. F. (2006). Sexual dimorphism and body scarring in the boto (Amazon river dolphin) *Inia geoffrensis*. *Marine Mammal Science*, 22, 25-33. <https://doi.org/10.1111/j.1748-7692.2006.00003.x>
- McGuire, T. L., & Henningsen, T. (2007). Movement patterns and site fidelity of river dolphins (*Inia geoffrensis* and *Sotalia fluviatilis*) in the Peruvian Amazon as determined by photo-identification. *Aquatic Mammals*, 33(3), 359-367. <https://doi.org/10.1578/AM.33.3.2007.359>
- Meade, R. H., & Koehnken, L. (1991). Distribution of the river dolphin, tonina *Inia geoffrensis*, in the Orinoco river basin of Venezuela and Colombia. *Interciencia*, 16, 300-312.
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- Petter, A. J. (1972). Redescription of *Anasakis insignis* Deising (Ascaridoidea), parasite of the Amazon dolphin *Inia geoffrensis*. *Investigations on Cetacea*, 4, 93-99.
- Pilleri, G., & Arvy, L. (1981). Johan Baptist Von Spix (1781-1861) and the description of the “*Delphinus amazonicus*” (= *Inia geoffrensis*, Amazon dolphin). *Investigations on Cetacea*, 12, 146-152.
- Rice, D. W. (1998). *Marine mammals of the world: Systematics and distribution* (Special Publication 4). Society for Marine Mammalogy. 231 pp.
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Therefore, the conditions of both ICZN Articles 23.9.1.1 and 23.9.1.2 have been met and apply to this species, and the younger name has precedence over the older name. Thus, from the date of publication of the current paper, *D. rostratus* Shaw is to be viewed as a *nomen oblitum*; the name *Inia geoffrensis* (Blainville in Desmarest) is the associated *nomen protectum* and the valid scientific name of the Amazon river dolphin.

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