

# Human Paleopathology And Related Subjects: An International Bibliography

LAIJAM 8(1-2): 151-165, December 2010

e-ISSN 2236-1057 / ISSN 1676-7497

<http://dx.doi.org/10.5597/lajam00164>

## CERVICAL RIBS AND CLEFT ARCHES IN BRAZILIAN *SOTALIA GUIANENSIS*: CONTRIBUTION TO COMPARATIVE STUDIES OF SKELETAL MORPHOLOGY IN NORTHERN AND SOUTHEASTERN SPECIMENS

MÁIRA LAETA<sup>1\*</sup>, SHEILA M. F. M. SOUZA<sup>1</sup> AND SALVATORE SICILIANO<sup>2</sup>

**ABSTRACT:** The Guiana dolphin, *Sotalia guianensis* (Van Bénédér, 1864), is a delphinid species found along the Brazilian coast. Morphological and genetic data point to the existence of different biological populations of the species within this portion of the range. The present paper compares the frequencies of developmental anomalies in two skeletal collections from geographically distant areas. The vertebral column of 43 specimens from Marajó Bay, located on the Pará State coast, and 20 specimens from the central-north coast of the Rio de Janeiro State were analyzed. The only anomalies found were cervical ribs and cleft neural arches, both located on the seventh cervical (C7) vertebra. Cervical ribs were found in 12% of the Pará specimens and in 45% of the Rio de Janeiro specimens, according to the Fisher's Exact Test the difference was significant at a confidence level of  $\alpha = 0.01$ , thus confirming that the series belong to different populations. The frequencies of cervical ribs observed in the present study were also compared to the frequencies of the same anomaly found in *S. guianensis* from the Ceará and Santa Catarina states, Brazil, and in tucuxi (*S. fluviatilis*) from the Brazilian Amazon. Although the results can be partially explained by demographic and evolutionary models for *Sotalia*, they may be affected by differences in the composition of the collections and in diagnostic methods/criteria used by different authors. Regarding the presence of cervical ribs, Amazon tucuxi were significantly different from the Rio de Janeiro and Pará series, as well as other marine series, as previously stated in the literature. The difference in the frequency of cleft neural arches in specimens from Rio de Janeiro and Pará was also significant, but no comparison could be conducted with other series due to lack of published material. A metric technique to discriminate transverse processes with and without fused cervical ribs is proposed as a methodological contribution for diagnosing the described anomaly.

**RESUMO:** O "boto-cinza" *Sotalia guianensis* (Van Bénédér, 1864) é uma espécie de Delphinidae encontrada em diferentes latitudes ao longo da costa do Brasil. Os dados da morfologia e da genética apontam para a existência de diferentes populações da mesma espécie. O presente trabalho contribui para o conhecimento da espécie através da comparação das frequências de anomalias de desenvolvimento em duas séries de esqueletos obtidos em áreas geograficamente distintas. Foram analisadas as colunas vertebrais de 43 espécimes da baía de Marajó, costa do Pará, e de 20 espécimes da costa centro-norte do Rio de Janeiro, e as únicas anomalias observadas foram costela cervical e não fechamento do arco neural, ambos na sétima vértebra cervical (C7). As costelas cervicais ocorreram em 12% dos exemplares do Pará e em 45% dos exemplares do Rio de Janeiro, de acordo com o Teste Exato de Fisher a diferença foi significativa ( $\alpha = 0.01$ , bilateral), confirmando que as séries examinadas pertencem a diferentes populações. As frequências de costelas cervicais também foram comparadas para *S. guianensis* dos estados do Ceará e Santa Catarina, e para o tucuxi (*S. fluviatilis*) da Amazônia brasileira. Os resultados são parcialmente explicados pelos modelos demográficos e evolutivos para *Sotalia*, mas podem estar sendo influenciados pela composição das séries e pelas diferenças em metodologia e critérios diagnósticos usados pelos diferentes autores. No que se refere a costela cervical, a série amazônica mostrou-se diferente das séries do Rio de Janeiro e do Pará, da mesma forma que das demais séries marinhas, tal como tem sido publicado. As frequências para o não fechamento do arco neural também foram significativamente diferentes entre Rio de Janeiro e Pará, mas não foi possível a comparação com outras séries por falta de material publicado. Uma técnica métrica para comparar os processos transversos com e sem costela cervical fusionada foi proposta como contribuição metodológica ao diagnóstico da anomalia descrita.

**KEYWORDS:** *Sotalia guianensis*, cervical rib, cleft neural arch, congenital anomalies, Brazil.

### Introduction

The Guiana dolphin, *Sotalia guianensis* (Van Bénédér, 1864) is the best-known delphinid along the Brazilian coast. This species is distributed along the western South Atlantic and Caribbean coast, limited to the north at Nicaragua, Central America (Edwards and Schnell, 2001), and to the south at Florianópolis, Santa Catarina State, Brazil, South America (Simões-Lopes, 1988). The first scientific reports regarding the species were published during the 19<sup>th</sup> century, but their behavior and biological variability are still under investigation. They feed in shallow estuarine waters, in close contact with environments suffering high anthropogenic impacts,

making them one of the most threatened species along the Brazilian coast. *S. guianensis* is best documented from the south and southeastern coast of Brazil; detailed reports at the north coast are relatively recent (Ramos, 2001; Santos *et al.*, 2002; Siciliano *et al.*, 2007; Siciliano *et al.*, 2008; Caballero *et al.*, 2010 this volume). Smaller dolphins of the same genus are adapted to freshwater habitats and can be found along the Amazon River. These are the tucuxi, who play an important role in the mythology of the people living along the river basins of the Solimões, Amazonas and Orinoco Rivers (da Silva, 1990). The marine and river *Sotalia*, once considered a single species, have differences including the size and shape of skeletal

<sup>1</sup> Departamento de Endemias "Samuel Pessoa", Sérgio Arouca, Escola Nacional de Saúde Pública, FIOCRUZ, Rua Leopoldo Bulhões, 1480/666, CEP 21041-210, Rio de Janeiro, RJ, Brazil

\* Corresponding author, e-mail: mairalaeta@gmail.com

Human Paleopathology and Related Subjects: An International Bibliography San Diego Museum of Man, - Human remains (Archaeology) - pages.Human Paleopathology and Related Subjects: An International Bibliography [ Daniel V. (compiler) Elerick] on strongfemalefriendship.com \*FREE\* shipping on qualifying offers.strongfemalefriendship.com: Human Paleopathology and Related Subjects: An International Bibliography () by Daniel V. (compiler) Elerick and a great.Jane Buikstra, Kevin O'Briant, and Paula Tomczak, "Human Paleopathology and Related Subjects: An International Bibliography. Rose A. Tyson," Journal of.Human Paleopathology and Related Subjects: An International Bibliography. Compiled by Elerick Daniel V., edited by Tyson Rose A.. Human paleopathology and related subjects an international bibliography. Book.strongfemalefriendship.com: Human Paleopathology and Related Subjects: An International Bibliography: Former Library book. Shows some signs of wear, and may have.Author(s): Elerick,Daniel V; Tyson,Rose A; San Diego Museum of Man. Title(s): Human paleopathology and related subjects: an international bibliography/.This book is good alternative for Human Paleopathology and Related Subjects: An International Bibliography. Download now for free or you.Human Paleopathology and Related. Subjects: An International Bibliography. indexing the complete literature of paleopathology could be more easily.Why is this relevant to paleopathological inquiry. . Elerick, D.V. and Tyson, R. ( ) Human Paleopathology and Related Subjects: An International Bibliography. Human Paleopathology Bibliography (WORD document).Books on LibraryThing tagged paleopathology. Human Paleopathology and Related Subjects: An International Bibliography by Daniel V. Elerick (compiler) (2 .Human Paleopathology and Related Subjects: An International Bibliography. San Diego, San Diego. Museum of Man, xx, pp., illus. \$ (paper and.and disability are concepts intimately linked to the con- Human paleopathology , as a scientific discipline, started at the mid of the 19th deforming were subjects of great interest. .. An International Bibliography, San Diego Museum of Man.Human paleopathology, as a scientific discipline, started at the mid of the 19th .. Human Paleopathology and Related Subjects: An International Bibliography.Get more information about 'International Journal of Paleopathology' Journal. of Paleopathology (IJPP) will publish original and significant articles on human and Papers dealing with historical evidence relating to disease in the past ( rather . If you think your article is on a newsworthy general interest topic, we would.Human paleopathology and related subjects: an international bibliography isotopes as indicators of past human diet and landscape use in southeastern South.

[\[PDF\] Advances In Immunopharmacology 2: Proceedings Of The Second International Conference On Immunopharma](#)

[\[PDF\] Borders & Scrolls: Early American Brush-stroke Wall Painting, 1790-1820](#)

[\[PDF\] Dollar Wise: Home Budgeting Made Easy](#)

[\[PDF\] Dynamics Of Local Governance In China During The Reform Era](#)

[\[PDF\] Americas Bubble Economy: Profit When It Pops](#)

[\[PDF\] Political Economy And Globalization](#)

[\[PDF\] Art And Patronage In The English Romanesque](#)