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The first reports of Brazilian biodiversity: an update on the river dolphin described and depicted in the XVIIth century manuscript *History of Animals and Trees of Maranhão*

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The first reports of Brazilian biodiversity: an update on the river dolphin described and depicted in the XVIIth century manuscript *History of Animals and Trees of Maranhão*

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ABSTRACT
During the XVIth and XVIIth centuries, the reports about Brazilian biodiversity were made mainly by chroniclers, military explorers and religious missionaries of various nationalities. Some reports included drawings representing the local fauna and flora. The XVIIth century manuscript *History of Animals and Trees of Maranhão* published under authorship of Friar Cristóvão de Lisboa presents for the first time the association of the description with the depiction of a river dolphin in Brazil. Anterior papers related it to *Inia geoffrensis* (Blainville, 1817) with current distribution in the Amazon basin. At the beginning of this century, a new species *Inia araguaiaensis* Hrbek, Da Silva, Dutra, Gravena, Martin & Farias, 2014 was described from the Araguaia-Tocantins basin and Marajó bay. A doubt arises about which species is related to the manuscript. The aims here were to identify the river dolphin described and depicted in the manuscript and to relate the manuscript and the identification of the river dolphin to the context of the production of the first reports on Brazilian biodiversity in the XVIth and XVIIth centuries. Analyzing biological, geographic and historical data, we identify the river dolphin in the manuscript as *Inia araguaiaensis*. We consider that the manuscript *History of Animals and Trees of Maranhão* was ahead of its time in Brazil, since it contained, in addition to the textual descriptions of the species, 259 drawings representing the local biodiversity, of which almost half

KEY WORDS
Amazon biome, historiography, Friar Cristóvão de Lisboa, environmental history, history of zoology.

(116) referred to aquatic fauna. The large number of drawings denotes the importance given by the possible authors of the manuscript to the existence of images that represented this biodiversity in line with what was being produced in Europe. The manuscript, remained unknown until the xxth century, would considerably expand knowledge about the fauna and flora of Brazil in the xviiith century.

RÉSUMÉ

Les premiers rapports sur la biodiversité brésilienne : une mise à jour des connaissances sur le dauphin de rivière décrit et représenté dans le manuscrit du XVII^e siècle Histoire des animaux et arbres du Maranhão. Aux XVI^e et XVII^e siècles, les rapports sur la biodiversité brésilienne provenaient principalement de chroniqueurs, d'explorateurs militaires et de missionnaires religieux de diverses nationalités. Certains rapports comprenaient des dessins représentant la faune et la flore locales. Le manuscrit du XVII^e siècle *Histoire des animaux et des arbres du Maranhão*, publié sous la direction de frère Cristóvão de Lisboa, présente pour la première fois l'association de cette description avec la représentation d'un dauphin de rivière au Brésil. Des articles antérieurs l'associaient à *Inia geoffrensis* (Blainville, 1817), actuellement réparti dans le bassin amazonien. Au début de ce siècle, une nouvelle espèce, *Inia araguaiaensis* Hrbek, Da Silva, Dutra, Gravena, Martin & Farias, 2014, a été décrite dans le bassin d'Araguaia-Tocantins et la baie de Marajó. De ce fait, un doute subsiste quant à l'espèce apparentée au manuscrit. L'objectif était d'identifier le dauphin de rivière décrit et représenté dans le manuscrit, et de relier ce dernier et son identification au contexte de la production des premiers rapports sur la biodiversité brésilienne aux XVI^e et XVII^e siècles. L'analyse des données biologiques, géographiques et historiques nous a permis d'identifier le dauphin de rivière du manuscrit comme étant *Inia araguaiaensis*. Nous considérons que le manuscrit *Histoire des animaux et des arbres du Maranhão* était en avance sur son temps au Brésil car il contenait, outre les descriptions textuelles des espèces, 259 dessins représentant la biodiversité locale, dont près de la moitié (116) se référaient à la faune aquatique. Ce grand nombre de dessins témoigne de l'importance accordée par les auteurs potentiels du manuscrit à la production d'images représentant cette biodiversité, conformément à la production européenne. Le manuscrit, resté inconnu jusqu'au XX^e siècle, a considérablement enrichi les connaissances sur la faune et la flore du Brésil au XVII^e siècle.

MOTS CLÉS
Biome amazonien,
historiographie,
frère Cristóvão de Lisboa,
histoire environnementale,
histoire de la zoologie.

INTRODUCTION

The first representations of Brazilian biodiversity are present in rock art in several places in Brazil. Brazilian rock art has different graphic styles and themes, where paintings and engravings were made on different rocky supports such as slabs near rivers, rocks, stone blocks and walls of rock shelters. The animals and plants represented vary according to the region where the rock art site is located. Representations of aquatic mammals such as manatees are found in some rock art sites in the Amazon region. Examples of the oldest records of Brazilian rock art include records dating back more than 11 000 years in the Serras de Monte Alegre in Pará state and in the Serra da Capivara National Park in the Piauí state. Apparently, rock art was no longer practiced when Europeans arrived in Brazilian territory (Gaspar 2003; Jorge *et al.* 2007; Pessis *et al.* 2018; Pereira & Moraes 2019).

When the first Europeans arrived in Brazil in the xvith century, the native peoples occupied large areas and had different ways of life; they were organized into hierarchical societies living in settlements or were nomads (Neves 2006).

Brazilian biodiversity began to be reported by Europeans who arrived in the territory. During the xvith and xviith centuries, these reports were made mainly by chroniclers, military explorers and religious missionaries of various nationalities. Some reports included drawings representing the local fauna and flora, and were sent to Europe with samples of this biodiversity (Prestes 2000; Almaça 2002).

The arrival of Europeans in the region developed a new process of production and circulation of intercultural knowledge. Brazilian biodiversity began to be reported by combining different forms of knowledge. The Europeans' textual reports were based on the knowledge of native peoples and personal observations. The native peoples provided information and a set of practices related to this biodiversity. The Europeans compared Brazilian biodiversity with what they knew in Europe. The reports highlighted peculiarities of biodiversity, such as its usefulness or harmfulness. The circulation of information and products related to Brazilian biodiversity led to the production of printed knowledge in Europe about Brazilian fauna and flora (Prestes 2000; Almaça 2002; Singh & Françozo 2023).

The first animal reported and collected by Europeans in Brazil may have been a marsupial and would have occurred during the voyage of the Spanish navigator Vicente Yáñez Pinzón (1462-1514) to the American continent. Pinzón's expedition arrived in the American continent in January 1500 and while sailing along a certain stretch of the coast, collected an animal that had an external pouch where it hid its young after they were born. This female South American marsupial and her young were taken to Spain. The young

died during the journey and the female died in Spanish territory, arousing great interest as it was the first American marsupial observed in Europe (Teixeira & Papavero 2024). Publications relate this section of Pinzón's expedition to the Amazon River mouth, while others relate it to the Venezuelan coast (Espínola 2001; Teixeira & Papavero 2002; Gallego 2008; Filho 2009).

The first official reports of Brazilian biodiversity are related to the arrival of Pedro Álvares Cabral's fleet in Brazil in April 1500. The five documents are the letter by Pero Vaz de Caminha (1450-1500), the report by the "anonymous pilot" and three letters from Italian missivists reporting on Cabral's expedition. The five documents mention 14 animals: two mollusks, one crustacean, two fish, eight birds and one aquatic mammal (Teixeira & Papavero 2006).

The xviiith century manuscript *História dos Animais e Árvores do Maranhão* [*History of Animals and Trees of Maranhão*] has special importance in the early history of natural sciences in Brazil. The manuscript was published under the authorship of Friar Cristóvão de Lisboa (Cristóvão Severim de Faria, 1583-1652), but there are hypotheses about the existence of other authors who also composed this work. The manuscript represents, in a pioneering way, a work in which the description is associated with the depiction of a considerable number of 259 drawings of Brazilian fauna and flora (Almaça 2002).

Here we consider that, based on the literature available to date, the manuscript *History of Animals and Trees of Maranhão* presents for the first time the association of the description with the depiction of a river dolphin in Brazil. Previous studies linked the river dolphin in the manuscript to *Inia geoffrensis* (Blainville, 1817), currently distributed in the Amazon Basin. (Frade 1966; Walter *in* Lisboa 1967; Ávila-Pires 1989; Nomura 1996; Romero *et al.* 1997; Papavero *et al.* 1999; Brito 2009). According to the list of Brazil mammals updated by the Committee on Taxonomy of the Brazilian Society of Mastozoology (CT-SBMz 2024), there are three current species of *Inia* d'Orbigny, 1834: *Inia geoffrensis* known as Amazon boto or red boto, *Inia boliviensis* d'Orbigny, 1834 known as Bolivian boto, and *Inia araguaiaensis* Hrbek, Da Silva, Dutra, Gravena, Martin & Farias, 2014 known as Araguaian boto. The description of the species *I. araguaiaensis* in 2014, distributed in the Araguaia-Tocantins basin and Marajó bay, raises doubts about which species of river dolphin is present in the manuscript, since both part of the Amazon basin and part of the Araguaia-Tocantins basin belonged to the colonial state of Maranhão.

OBJECTIVES

The aims of our study were to identify the river dolphin described and depicted in the manuscript *History of Animals and Trees of Maranhão* and to relate the manuscript and the identification of the river dolphin to the context of the production of the first reports on Brazilian biodiversity in the xvith and xviiith centuries.

MATERIAL AND METHODS

We conducted multidisciplinary bibliographical research based on biological, geographical and historical evidence. The data collection was related to reports of Brazilian biodiversity in the xvith and xviiith centuries, the manuscript in question and the current species of river dolphins in Brazil.

Regarding the manuscript, we analyzed the hypotheses of authorship of the manuscript, the relationships of the possible authors of the manuscript with the places where they were in Brazilian territory, the formation of the Colonial State of Maranhão and the context in which the manuscript is inserted as a source of information on the region's biodiversity (Fig. 1).

Regarding the current species of river dolphins in Brazil, we analyzed the descriptions of the species and articles related to their differences and distributions to compare with the data available in the manuscript.

The titles of the selected historical sources were transcribed as they were written in their original language, Portuguese or French, followed by the English translation in brackets. We transcribe excerpts, translated into English, from selected historical sources to contextualize our analyses.

RESULTS

We present the results of our study subdivided into nine sections to highlight each issue addressed.

The formation of the colonial state of maranhão

Portuguese colonization in Brazil began in the xvith century. Until the first half of the xviiith century, under the Iberian Union Government (1580-1640), the coast of the Amazon region and the mouth of the Amazon River still seemed like regions to be conquered. French, Dutch, English and Irish carry out expeditions in these regions. Due to the sugar economy at the time, the Portuguese were more established in the Northeast region of the Brazilian coast, where there were also attempts at trade and colonization by other European nations (Velho 1972; Gadelha 2002; Pianzola 2008).

The Frenchman Jacques Riffault (xvith century) explored part of the Brazilian northeastern coast since the xvith century, acquiring knowledge about the region and the friendship of the native people. During one of these trips, due to bad weather, he disembarked at the Captaincy of Maranhão in 1594 on an island that became known as *Ilha Grande ou Ilha do Maranhão* [Big Island or Maranhão Island] and established a *feitoria* [trading post]. Jacques Riffault returned to France and leaved Charles des Vaux (xvith century) in charge of this trading post. Charles des Vaux maintained permanent contact with natives of the Tupinambá ethnic group, settled in the region fleeing their lands occupied by the Portuguese. He earned the respect of the Tupinambás by becoming a great hunter, and fluent in their language. He made exploration trips to the interior of the Captaincy establishing a trading post at the mouth of the Tocantins River (Velho 1972; Mariz & Provençal 2011; Ferro 2014).

Fig. 1. — Study area in the bibliographic research: **1**, Amazon River; **2**, mouth of the Amazon River; **3**, Marajó Island; **4**, Marajó Bay; **5**, Belém City; **6**, São Luís City; **7**, mouth of the Tocantins River; **8**, Tocantins River; **9**, Araguaia River. Modified from https://geoaplicacao.wordpress.com/2019/05/27/caracteristicas-da-hidrografia-brasileira/, last consultation on 20 June 2025.

Charles des Vaux reported to the French court about the possibilities of economic exploration in the Captaincy of Maranhão. Daniel de La Touche (Sire de La Ravardière, 1570-1631), that had already sailed in 1604 near the mouth of the Amazon River passing through the Guianas region, was chosen as one of the commanders of the French colonization expedition in the Captaincy of Maranhão and had the assistance of Charles des Vaux (Branco 2008).

The expedition arrived at the Captaincy of Maranhão in the second half of 1612. They founded Fort Saint Louis on the Maranhão Island, beginning the period of French colonization that became known as Equinoctial France. The island also became known as São Luís Island. São Luís is currently the capital of the state of Maranhão, the only Brazilian capital founded by the French. The French explored the interior of the colony, including the Araguaia-Tocantins basin region, going up the two rivers (Fig. 2). In 1613, Daniel de La Touche organized an expedition towards the Amazon River in which Charles des Vaux also participated. The expedition left São Luís, bordered the coast and entered Marajó Bay, sailing to the Tocantins, Pará, Pacajá and Camaraipi rivers (Velho 1972; Pianzola 2008; D'Évreux 2009; Moreno 2011).

Under the command of Jerônimo de Albuquerque Maranhão (1548-1618) and Alexandre de Moura (xvɪth century), the Portuguese regained possession of the Maranhão Island region in 1615 and expelled most of the French. After the end of Equinoctial France, Francisco Caldeira Castelo Branco (1566-1619) commanded an expedition to the mouth of the Amazon River to found a Portuguese colony in the region. Charles des Vaux participated in the expedition, as in addition to getting to know the region, he acted as an interpreter for the native people to convert them into allies of the Portuguese. The expedition through Marajó Bay arrived at Guajará Bay and disembarked on 12 January 1616, choosing a location for the construction of the so-called Presépio Fort and for the founding of the Feliz Lusitânia colony, future Santa Maria de Belém do Grão-Pará (Filho 1976; Saragoça 2000).

In 1621, Brazil was divided into two independent administrative units, the State of Maranhão in the north and the State of Brazil in the south. The State of Maranhão included the Captaincie of Ceará, the Captaincie of Grão-Pará and the Captaincie of Maranhão. The State of Brazil included the rest of the territory (Cardoso 2011).

The effective occupation of the State of Maranhão by the Portuguese government was necessary both to expand commercial development and to prevent the advance of exploration of the region by the Dutch, English and French. The State of Maranhão also had other denominations during the Brazilian colonial period, such as State of Maranhão and Grão-Pará and State of Grão-Pará and Maranhão (Fig. 3), comprising

Fig. 2. — *Atlas do Brasil: Província do Brasil* [*Brazil Atlas: Brazil Province*] by João Teixeira Albernaz II [16--]. We inform the following locations: São Luís Island, mouth of the Tocantins River, Tocantins River and Araguaia River. Source: National Library of Rio de Janeiro, modified from: https://objdigital.bn.br/objdigital2/acervo_digital/div_cartografia/cart1079075/cart1079075.pdf, last consultation on 20 June 2025.

the current states of Ceará, Piauí, Maranhão, Pará, part of Amazonas and Amapá (Toledo & Barboza 2017).

Friar Cristóvão de Lisboa

Friar Cristóvão de Lisboa (Franciscan Recollect) consolidated one of the most influential ecclesiastical authorities of his time, carrying out religious and administrative activities both in Portugal and in the colonial State of Maranhão. His father, Gaspar Gil Severim (xvith century), was chief executor of the kingdom and clerk of the Royal Treasury, and like his mother, Juliana de Faria (xvith century), belonged to a traditional Lisbon family linked to the kingdom's bureaucracy. Friar Cristóvão began formal humanities studies in the city of Évora together with his older brother, Manuel Severim de Faria (1584-1665). Friar Cristóvão entered in 1602 as a Franciscan novice at the Santo António dos Capuchos Convent of Portalegre, completing the studies and receiving holy orders at the Santo António dos Capuchos Convent of Lisbon. He was chosen as Custodian of the State of Maranhão in 1622. The objective of this new Custody was to definitely install the Catholic faith and the administration of the Portuguese government in the region. Friar Cristóvão received appointments as inspector and qualifier of the Holy Office and ecclesiastical visitor in Maranhão, having the powers of inquisitor and the obligation to visit the territories under his custody (Amorim 2005; Souza 2011).

Friar Cristóvão de Lisboa arrived in Brazil in 1624 with stays in Olinda and Fortaleza before arriving in São Luis do Maranhão, seat of the new Custody. He returned to Portugal in 1635 and died in 1652. During his stay in the colonial state of Maranhão, he developed his missionary activity, establishing new parishes in the interior and dedicating himself to the conversion of native people, acting against their exploitation and slavery, often in disagreement with the local government and settlers (Fonseca 1952; Amorim 2005).

There are manuscripts that indicate where Friar Cristóvão and his entourage traveled during their stay in the Custody. In the manuscript *Notícias, dos Severins e Farias* [*News, from Severins and Farias*] authored by Gaspar de Faria Severim (xvith century), nephew of Friar Cristóvão de Lisboa, it is reported that after one of the visits of Friar Cristóvão's entourage to Belém:

> "They sailed up the river, beyond Pará (…) and admirable things that exist in it, one of which is that the tides fill it in three waves only so big each one, that they can make three the same growth in the waters, as in the other parts tend to cause the continuation of the six hours in which the tides rise, along the banks of this entire river, the Custodian was doing his job, which was to catiquize and preach (…) and through it he reached Tocantins (…)" (Walter *in* Lisboa 1967: 12-13)

The report appears to describe the pororoca phenomenon observed by Friar Cristóvão in Marajó Bay.

Friar Venâncio Willeke (1906-1978), a scholar of the Franciscan missions in Brazil, published about Friar Cristóvão de Lisboa. These publications included the routes of his missions to the interior of the Maranhão State, as transcribed:

> "On 8 August 1625, under the custodian direction, the first great missionary journey up the Tocantins River began (…) deviating from Tocantins they went up the Araguaia and reached the north of Goiás (…)" (Willeke 1978)

This report indicates the trip of Friar Cristóvão and his entourage to the Araguaia-Tocantins basin. Other missionaries in the same period participated in the Amazon River expeditions, reaching of the Tapajós River mouth (Willeke 1970, 1977, 1978).

Manuel Severim de Faria

Friar Cristóvão's older brother, Manuel Severim de Faria, had a great influence on him throughout his life. With a doctorate in philosophy and theology from the University of Évora, Manuel inherited the office of canon of the See of Évora from his uncle Baltazar de Faria Severim (xvıth century) in 1608 and abdicated the position in 1642. In addition to being a canon, he was the precentor of this archdiocese, considered one of the richest in southern Europe (Brockey 2012).

Manuel Severim de Faria was part of the Republic of Letters. In addition to corresponding with other scholars and keeping up to date with politics and publications in Portugal and abroad, Manuel owned a large library that he shared with his peers and maintained a collection of natural specimens and artifacts from various regions. The University of Évora, founded in 1559, was administered by the Society of Jesus. Because it had a large teaching staff and a novitiate, Évora was one of the main training centers for Jesuit missionaries and Manuel Severim was one of its most important patrons. During the first half of the xvııth century, he established a network of missionary correspondents in Asia, Africa and the Americas, gathering and sharing information related, for example, to the "Natural and Moral History" of the Portuguese colonies. In addition to the Jesuit missionaries, Manuel Severim also had as correspondents servants of the crown and Augustinian, Dominican and Franciscan missionaries. In Brazil, Friar Vicente do Salvador and Friar Cristóvão de Lisboa produced respectively *História do Brasil* [*History of Brazil*] and *História Natural e Moral do Maranhão* [*Natural and Moral History of Maranhão*] at the request of Manuel Severim de Faria (Brockey 2012).

Vicente Rodrigues Palha (1564-1636), known as Friar Vicente de Salvador, was born in the Recôncavo region of Bahia. In Salvador, he initially entered the seminary of the Society of Jesus and later the Franciscan Order, professing on 30 January 1600. Friar Vicente served in the Captaincies of Pernambuco, Paraíba, Rio de Janeiro and Bahia. He was elected Custodian of the Province of Santo Antônio do Brasil in 1614. At the end of his term, he went to Portugal in 1618 to present his manuscript *Crônica da Custódia do Brasil* [*Chronicle of the Custody of Brazil*], which is currently considered lost. Friar Vicente returned to Brazil in 1621 and produced the manuscript *History of Brazil* with a dedication to Manuel Severim de Faria dated December 20, 1627 (Willeke 1967; Oliveira 2008).

Manuel Severim de Faria encouraged Friar Cristóvão to write the *Natural and Moral History of Maranhão*, giving instructions on how he should carry it out. The compendium should have three books:

> "The first book on the description and natural things of the region. The second of what happened, in her, until this help arrived. The third of the most happens until the completion of the Company." (Walter *in* Lisboa 1967: 18-20)

The title *Natural and Moral History of Maranhão and Grão Pará* is also reported for the compendium (Willeke 1970).

Friar Cristóvão de Lisboa wrote a letter in 1650 to Friar Diogo de Penalva (xvıth century), minister of the Province of Santo António, informing:

> "I also composed the natural and moral history of Maranhão in four volumes… for this book I order to do more than thirty prints, of which I brought taken from natural, which I brought in a book, which I gave to João Batista, a goldsmith from the gold, who made two prints that I think were paid for." (Walter *in* Lisboa 1967: 26)

Currently this compendium is considered lost for an unknown reason that may be related to the Lisbon earthquake in 1775. The manuscript *History of Animals and Trees of Maranhão* would be associated with the first book of the compendium suggested by his brother and the existence of just this manuscript may have occurred because Friar Cristóvão handed it over to the engraver João Batista (1628-1680) to begin preparing the publication (Walter *in* Lisboa 1967: 25-28; Toledo & Barboza 2020).

The hypotheses about authorship of the manuscript *History of Animals and Trees of Maranhão*

Friar Cristóvão de Lisboa would not be the only author of *History of Animals and Trees of Maranhão*. His artistic ability to draw and his knowledge of fauna and flora are unknown (Walter *in* Lisboa 1967: 27). It is considered that there are three or four different handwriting in the manuscript, including the handwriting of Friar Cristóvão. He would have written the index and corrections. The text of most of the species descriptions would not be his, as it is written in a different handwriting and with many spelling errors (Walter *in* Lisboa 1967; Papavero *et al.* 1999; Amorim 2005).

There are two main hypotheses about the authorship of the manuscript *History of Animals and Trees of Maranhão*. The first hypothesis proposes that the manuscript was produced by Friar Cristóvão de Lisboa and other Portuguese who participated in his trips to the interior of the Custody of Maranhão (Walter *in* Lisboa 1967; Amorim 2005). The second hypothesis pro-

FIG. 3. — *Pequeno atlas do Maranhão e Grão-Pará* [*Maranhão and Grão-Pará Small Atlas*] by João Teixeira Albernaz I (1629). We inform the following locations: São Luís City and Belém City. Source: National Library of Rio de Janeiro, modified from: https://objdigital.bn.br/objdigital2/acervo_digital/div_cartografia/cart555828/cart555828.pdf, last consultation on 20 June 2025.

poses that the manuscript was produced by French before the arrival of Friar Cristóvão de Lisboa in Brazil (Papavero *et al.* 1999). In the first hypothesis, Friar Cristóvão would include information in a manuscript produced together with other Portuguese and would use it in the compendium suggested by his brother. In the second hypothesis, Friar Cristóvão would include information in a manuscript that already existed and would use it in the compendium suggested by his brother.

The first hypothesis relates the authors of the various handwritings and figures in the manuscript to those who participated with Friar Cristóvão de Lisboa on trips to the interior of the Custody. The manuscript would have been produced during these trips, consisting of notes and drawings. Friar Cristóvão informed in a letter to his brother dated 20 January 1627:

> "I'm a very busy person, I have no one to spare me. My companion does a great job of writing what he writes (…) This land is terrible for my eyesight, and I'm not taking good care of my eyes." (Walter in Lisboa 1967: 23)

The mentioned companion who helps him in the production of the manuscripts would be his scribe João da Silva. He and Manuel da Pinha participated in the trips and knew the native languages, which would indicate that they had been in the region for longer and that they could have had contact with the French, explaining the existence of French words in the manuscript. It is highlighted in this hypothesis that Friar Cristóvão informed in the letter he wrote to Friar Diogo de Penalva in 1650:

> "(…) for this book I order to do more than thirty prints, of which I brought taken from natural." (Walter *in* Lisboa 1967: 26; Amorim 2005).

The second hypothesis is motivated by the existence of French expressions in the text of the manuscript and by the fact that many figure captions indicate the Tupy names of the species through a French transliteration. The manuscript would be a translation into Portuguese of an original manuscript written in French that had been lost. The author of this original manuscript could have been Charles des Vaux or another Frenchman that would have counted on his help to show the natural riches of the region to the French court, aiming resources raising for their enterprise. The original manuscript would have remained in Brazil after the end of French rule in the region. Friar Cristóvão de Lisboa would have obtained it during his stay in the Maranhão Custody and would have asked a Frenchman who already lived in the region and knew a little of the Portuguese language to translate the manuscript. (Papavero *et al.* 1999, 2000; Papavero & Teixeira 2000; Capozzi 2021).

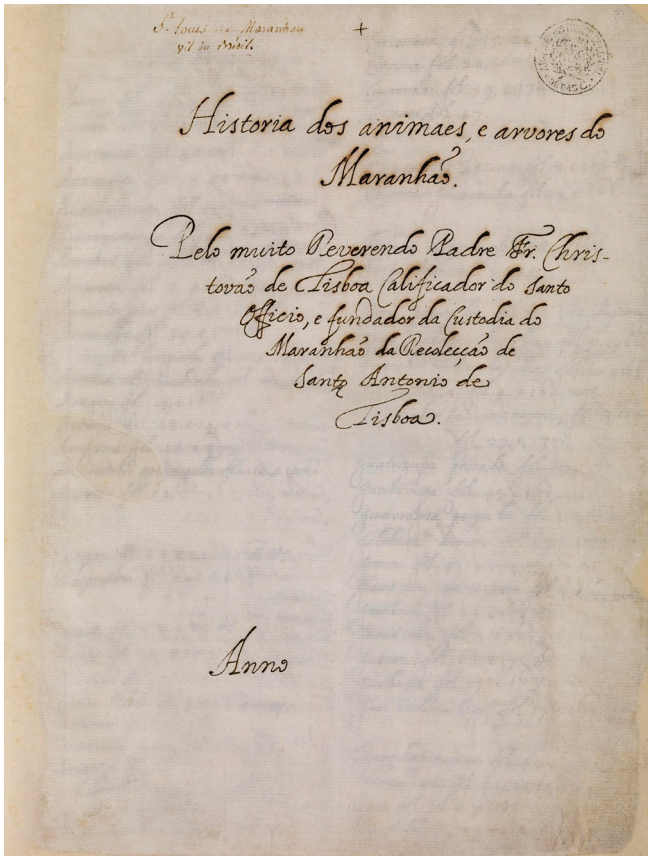

Fig. 4. — First page of the manuscript *History of Animals and Trees of Maranhão* (Lisboa [16--]) with the title in Portuguese and the sentence in French at the top of the page. Source: Overseas Historical Archive, under CC BY-SA 4.0 licence. https://urlr.me/EmT4fR, last consultation on 26 June 2025.

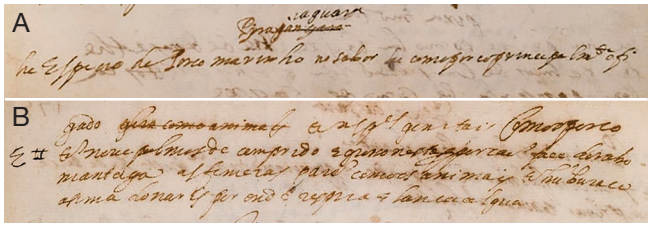

Fig. 5. — Original description of the river dolphin in the manuscript *History of Animals and Trees of Maranhão* (Lisboa [16--]: fol. 175: **A**, front; **B**, back). Source: Overseas Historical Archive, under CC BY-SA 4.0 licence. https://urlr.me/EdQKkn, last consultation on 26 June 2025.

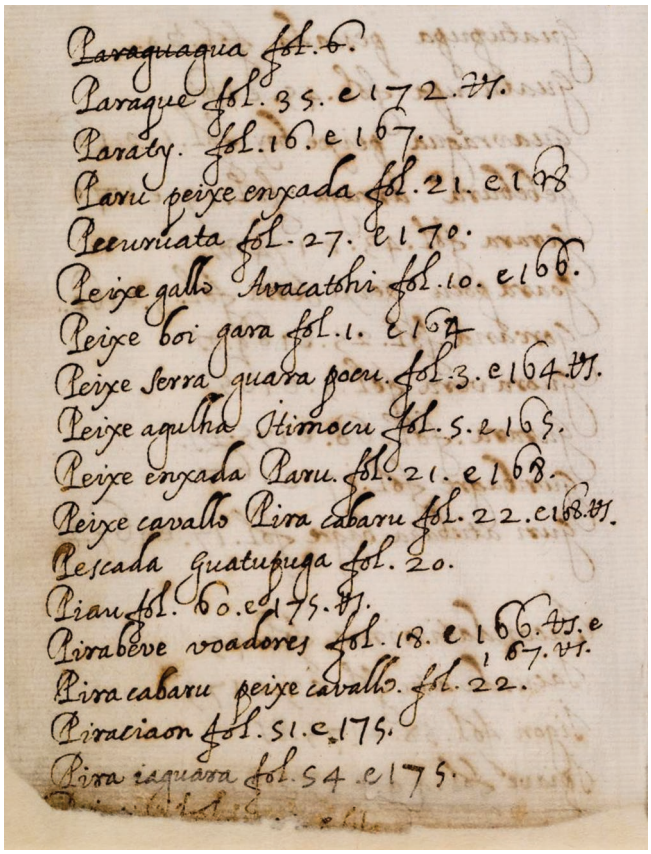

Fig. 6. — Part of the index of the manuscript *History of Animals and Trees of Maranhão* (Lisboa [16--]) in which the river dolphin (Pira iaguara fol 54 e 175) is referred to at the end of the column. Source: Overseas Historical Archive, under CC BY-SA 4.0 licence. https://urlr.me/smZdGt, last consultation on 26 June 2025.

The codex *History of Animals and Trees of Maranhão*

The manuscript *History of Animals and Trees of Maranhão* was found in 1933 when João da Silva Coelho (xixth century), a Lisbon bookseller, proposed selling it to the Portuguese Government, which acquired it in 1934. The Codex is in the reserved section of the Overseas Historical Archive library located in Lisbon, Portugal (Iria *in* Lisboa 1967: v-vi) and is available online (https://digitarq.arquivos.pt/documentDetails/c5807adfa0cd48b79fd88f4baffdf525, last consultation on 26 June 2025). There are three complete editions and two incomplete editions. The three complete editions were published in 1967 and 2000 in Portugal, and in 1998 in Brazil. The two incomplete editions were published in 1968 and 1985 in Brazil (Lisboa 1967, 1968, 1985, 1998, 2000).

The Codex measures 30 × 22 cm with bound in thick yellowish vellum. On the spine it says *Animaes do Maranhão* [*Animals of Maranhão*] in brown ink and in xviith century characters. It comprises 198 leaves: the first one with the title, three with the index of the species names, 164 with species drawings, and 30 with species descriptions. The title on the first page is *Historia dos animaes e arvores do Maranhão. Pelo muito Reverendo Padre Fr. Christovão de Lisboa Calificador do santo officio, e fundador da Custodia do Maranhão da Recolecção de santo Antonio de Lisboa. Anno* [*History of the Animals and Trees of Maranhão by the Very Reverend Father Friar Cristóvão of Lisbon Qualifier of the Holy Office, and Founder of the Custody of Maranhão of the Recollection of Saint Antonio of Lisbon. Year*] (Fig. 4). On the upper left margin of the first page, there is a sentence in French in a different handwriting from the title in Portuguese: "St. Louusi de Maramham vil du Brésil"[St. Louis of Maranhão city of Brazil] (Walter in Lisboa 1967: 9; Papavero *et al.* 1999).

The species present in the manuscript *History of Animals and Trees of Maranhão* are indicated by their native name and/or their popular name in Portuguese, and are grouped

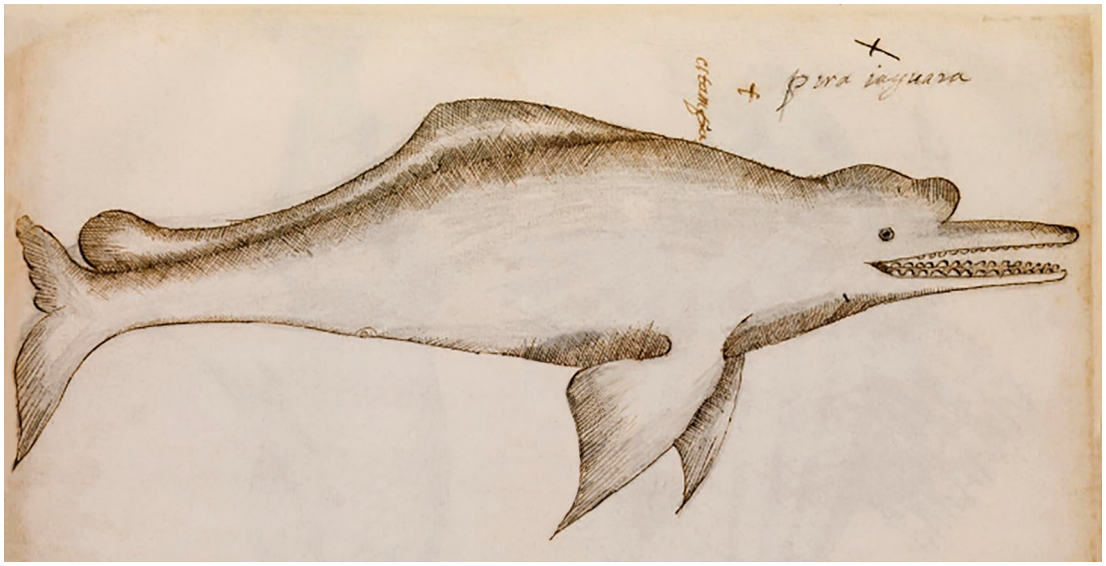

FIG. 7. — Original drawing of the river dolphin in the manuscript *History of Animals and Trees of Maranhão* (Lisboa [16--]: fol. 54). Source: Overseas Historical Archive, under CC BY-SA 4.0 licence. https://digitarq.arquivos.pt/fileViewer/c5807adfa0cd48b79fd88f4baffdf525?isRepresentation=false&selectedFile=63979864&fileType=IMAGE, last consultation on 26 June 2025.

in the index as fish, birds, animals and trees. The manuscript presents 259 drawings named as follows: 116 of fish, 67 of birds, 21 of animals and 55 of trees. The 116 drawings of fish include three of crustaceans, four of turtles and four of aquatic mammals. The 67 drawings of birds include one of a bat. The 21 drawings of animals include three drawings of scaly reptiles and 18 drawings of terrestrial or arboreal mammals (Almaça 2002). The drawings are made with a pencil and most of them painted. On several pages of the drawings, the word *estampa* [print] appears followed by a small cross, which may indicate that the figure was one of those chosen for publication. Sometimes there is only the cross and sometimes the word *estampa* is crossed out (Fonseca 1952).

The manuscript *History of Animals and Trees of Maranhão* is undated, but Friar Cristóvão de Lisboa mentions in a letter to his brother on 20 January 1627:

> "The treaty on birds, plants, fishes and animals. I have been verifying and mending and all this goes with drawings, and this cannot be risked because I will not be able to remake it." (Walter *in* Lisboa 1967: 23).

The river dolphin described and depicted in the manuscript *History of Animals and Trees of Maranhão*

Most of the mammals present in the manuscript *History of Animals and Trees of Maranhão* are listed in the animal section of the index. These mammals are represented in drawings, but do not have textual descriptions. Only four mammals have drawings and descriptive text because they are outside the animal section. They are the manatee (*guaragua*), the porpoise (*pocosin*) and the river dolphin (*pira iaguara*) that are in the manuscript like fish, and the bat (*andura*) which is in the manuscript as a bird.

The river dolphin is recorded in the manuscript by a drawing (Lisboa [16--]: fol. 54) and a description (Lisboa [16--]: fol. 175) in the Pará fish section as transcribed:

> "It's a kind of sea pig; in taste it is like pork, especially the liver; It has genitals like a pig and is nine palms long and thick in this proportion; from the tail it is made butter; females give birth like animals; It has a hole above its nose through which it breathes and releases water." (Lisboa [16--]) (Fig. 5)

We can also read the phrase "generates like an animal" that is crossed out (Lisboa [16--]).

In the index of the manuscript (Fig. 6) and in the drawing (Fig. 7), the river dolphin is referred to by its native name *Pira iaguara*. In the description the river dolphin is referred in two different ways: *Piyra yan gara* corrected to *Piyra ia guara*. *Pirá iauára* in the general Amazonian language or *Nheengatu* means "dog fish" (Stradelli 1929). In the drawing, we can also read the word *estampa* (Lisboa [16--]). The two incomplete editions published in Brazil in 1968 and 1985 omitted the textual descriptions of the Pará fish section, in which the river dolphin is described (Lisboa 1968, 1985).

The current species of river dolphins present in Brazil

As we mentioned previously, there are three living species of *Inia*: *I. geoffrensis*, *I. boliviensis* and *I. araguaiaensis* (Fig. 8). The Committee on Taxonomy of the Society for Marine Mammalogy (2023) recognizes until now only *I. geoffrensis*, even though there is a considerable amount of new information on the acoustic, genetic, molecular and morphological differences between the three Inia species (Banguera-Hinestroza *et al.* 2002; Ruiz-García *et al.* 2006; Ruiz-García *et al.* 2008; Hrbek *et al.* 2014; Siciliano *et al.* 2016; Melo-Santos *et al.* 2019; Emin-Lima *et al.* 2022; Da Silva *et al.* 2023).

Fig. 8. — Mother and calf of the Araguaian boto (*Inia araguaiaensis* Hrbek, Da Silva, Dutra, Gravena, Martin & Farias, 2014) sighted in the lower Tocantins River, Pará State, Brazil. Photo credit: Paulo Henrique Ott.

The three Inia species have an independent evolutionary history supported by speciation events. The earliest species-level divergence resulted in the separation of *I. boliviensis* from the other lineage in the late Pliocene. The other species-level divergence resulted in the separation of *I. geoffrensis* from *I. araguaiaensis* in the early Pleistocene. Both divergences are associated with major geological events in the Amazon basin. The estimated divergence of *I. boliviensis* from its sister clade is compatible with the uplift of the Fitzcarrald Arch which commenced to isolate the Bolivian sub-basin from the Amazon basin. The estimated divergence of *I. araguaiaensis* and *I. geoffrensis* corresponds to the estimated isolation of the Araguaia-Tocantins basin from the Amazon basin (Hrbek *et al.* 2014). We can differentiate the distribution of *Inia* species through the river basins it inhabits (Fig. 9).

I. geoffrensis has a wide distribution and is found in Brazil, Colombia, Ecuador, Peru and Venezuela. Some studies consider two subspecies: *I. g. geoffrensis* with distribution in the Amazon basin, and *I. g. humboldtiana* with distribution in the Orinoco basin. The Cassiquiare Channel connects these two river basins. There are doubts as to whether the two sets of rapids at Puerto Ayacucho, located on the Orinoco River, would separate the two subspecies (Da Silva *et al.* 2018; Mosquera-Guerra *et al.* 2018). Since 2014, most studies consider that the distribution of the *I. geoffrensis* does not include the Araguaia-Tocantins basin, as the river dolphins in the region are considered *I. araguaiaensis* (Hrbek *et al.* 2014; Emin-Lima *et al.* 2022; Da Silva *et al.* 2023).

I. boliviensis is found in Bolivia and Brazil. In Bolivia, it is distributed along the Mamoré River, in most of its tributaries and along the Itenez-Guaporé River. In Brazil, it is distributed on the Madeira River in the state of Rondônia, where a series of rapids were geographic barriers for *I. boliviensis* and *I. geoffrensis*. With the start of construction of the dams at the Jirau and Santo Antônio hydroelectric power plants in 2008-2009, many rapids and falls were flooded and the *Inia* populations in the region were blocked and fragmented (Best & da Silva 1993; Aliaga-Rossel 2010; Da Silva *et al.* 2023). Also of relevance is the record of hybrid specimens along the Madeira River (Gravena *et al.* 2015).

I. araguaiaensis, considered the sole endemic species of *Inia* in Brazil, occurs in the Araguaia-Tocantins basin upstream the Tucuruí hydroelectric power plant dam (Hrbek *et al.* 2014). Its distribution has expanded downstream this dam with eight specimens sampled (Adolfo *et al.* 2020) and in Marajó Bay with two specimens sampled on the east coast of Marajó Island and one specimen sampled on the Curuçá River Estuary (Siciliano *et al.* 2016).

The mouth of the Tocantins River, despite the lack of material evidence to date, is considered a potential contact zone between *I. geoffrensis* and *I. araguaiaensis* due to its proximity to the Amazon basin. All eleven specimens analyzed at the mouth of the Tocantins River, Marajó Bay, and the Curuçá River estuary was identified as *I. araguaiaensis* (Siciliano *et al.* 2016; Adolfo *et al.* 2020). Henry Walter Bates (1825-1892), an English naturalist who visited the Amazon region between 1848 and 1859, reported that river dolphins are abundant at the mouth of Tocantins River, especially in the dry season (Bates 1863).

It is important to note that there is a species of river dolphin in Brazil that belongs to another genus. The species is *Sotalia fluviatilis* (Gervais & Deville, 1853), known as *tucuxi*. It occurs in the Amazon Basin and is found in Brazil, Colombia, Ecuador and Peru (Domit *et al.* 2023b).

Identification of the river dolphin described and depicted in the manuscript *History of Animals and Trees of Maranhão*

Trying to identify the river dolphin described and depicted in the manuscript *History of Animals and Trees of Maranhão*, we analyzed the biological, geographical and historical aspects mentioned above. There is no information in the manuscript related to the existence of specimen collection localities.

Analyzing the descriptions of the *Inia* species and the publications available to date on the differences between these species, we consider that the description and depiction of the river dolphin in the manuscript made it possible to identify it at

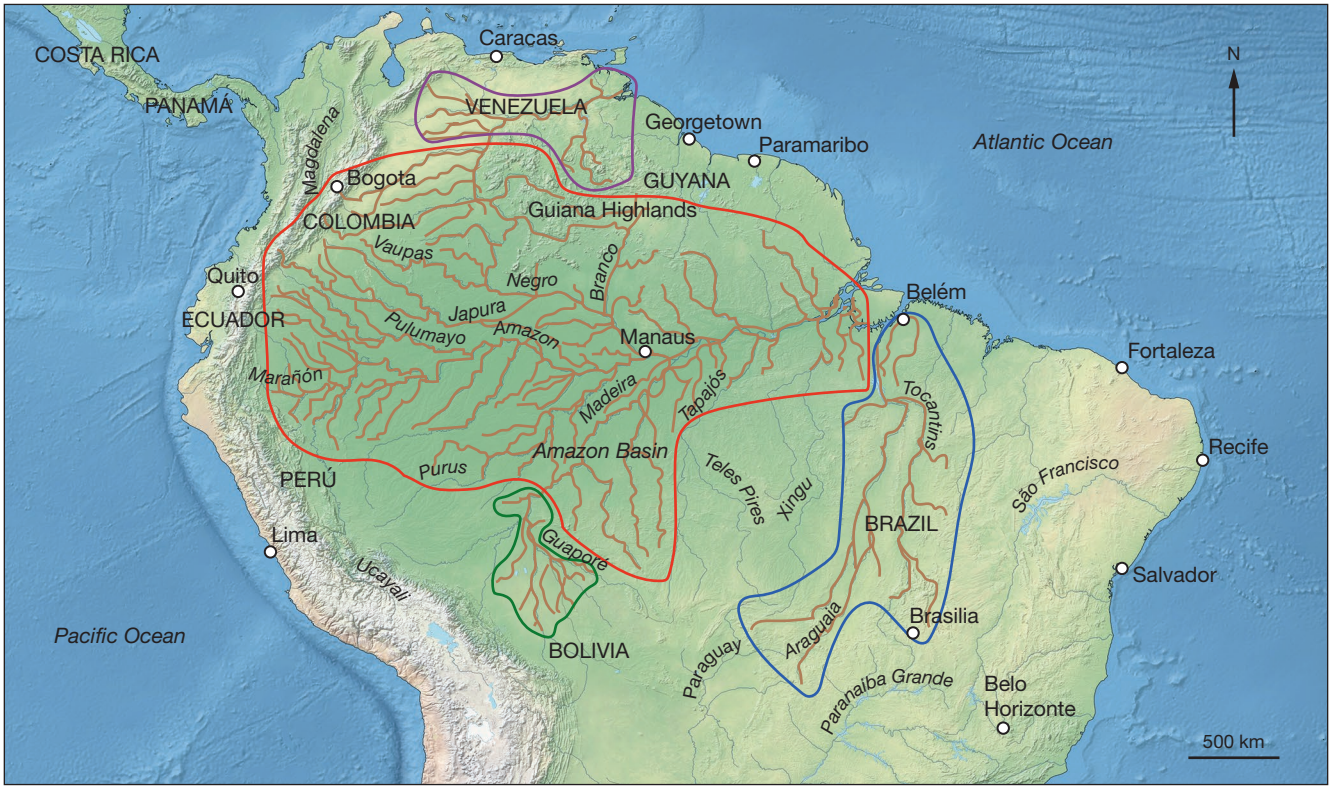

Fig. 9. — Distribution map of *Inia* species and subspecies. Rivers are represented in **brown**; distribution areas are delimited by lines in the following colors: **purple**, *Inia geoffrensis humboldtiana* Pilleri & Gihr, 1978 in the Orinoco basin; **red**, *Inia geoffrensis geoffrensis* (Blainville, 1817) in the Amazon basin; **green**, *Inia boliviensis* d'Orbigny, 1834 in part of the Madeira River and in the Itenez-Guaporé River, in the Mamoré River and its tributaries; **blue**, *Inia araguaiaensis* Hrbek, Da Silva, Dutra, Gravena, Martin & Farias, 2014 in Marajó Bay and Araguaia-Tocantins basin. Source: IUCN Red List of Threatened Species. Modified from https://www.iucnredlist.org/species/10831/50358152, last consultation on 26 June 2025.

the genus level. *Inia* has a relatively robust body. The rostrum is long and the melon is bulbous. The dorsal fin is low with a wide base and the pectoral fins are wide and oar-shaped. The caudal fin is wide with a visible central indentation (Miranda *et al.* 2020). It is interesting to note that in the depiction of the river dolphin in the manuscript, a hemimandible has 15 teeth and another has 13 teeth, not corresponding to any of the *Inia* species, as they have hemimandibles with the number of teeth varying from 24 to 35 (Hrbek *et al.* 2014).

The river dolphin is included in the Pará fish section of the manuscript, which indicates that the species in this section were found in the Captaincy of Grão-Pará. This Captaincy included part of the Amazon basin and part of the Araguaia-Tocantins basin, encompassing the current distribution of I. geoffrensis and I. araguaiaensis, which did not help identify the *Inia* species. We confirmed this coverage by checking the current geographic distribution of the fish in this section and observed that they are distributed in several hydrographic basins, including the two basins mentioned above (Carvalho de Paiva 1964; Dagosta 2016).

We also analyzed the current geographic distribution of the terrestrial an arboreal mammal species mentioned in the animal section of the manuscript. The species have a distribution that includes the Amazon, Cerrado and Caatinga biomes, which leads us to question the possibility of them having been observed around Marajó bay and the Araguaia-Tocantins basin, the region of the current distribution of *I. araguaiaensis* (Marques-Aguiar *et al.* 2002; Stone *et al.* 2009; Gesteira 2012; Siciliano *et al.* 2015; Choueri & Azevedo 2017). Analyzing the locations visited and the itineraries traveled by the possible authors of the manuscript, Friar Cristóvão de Lisboa and part of his entourage (Walter *in* Lisboa 1967; Amorim 2005) or Charles des Vaux and whoever he helped (Papavero *et al.* 1999), we found that they traveled the interior of the Maranhão Custody, including the Marajó bay and the Araguaia-Tocantins basin (Velho 1972; Willeke 1977), known regions of distribution of *I. araguaiaensis* (Hrbek *et al.* 2014; Siciliano *et al.* 2016; Adolfo *et al.* 2020).

We therefore consider that the river dolphin described and depicted in the manuscript *History of Animals and Trees of Maranhão* is *Inia araguaiaensis*, since this species is currently the only one with known distribution in Marajó bay and the Araguaia-Tocantins basin.

The Manuscript *History of Animals and Trees of Maranhão* in the context of reports on Brazilian biodiversity

As previously indicated the manuscript *History of Animals and Trees of Maranhão* presents species descriptions of fauna and flora with related drawings. The descriptions of the species in the manuscript resemble what was produced at the time in other reports on Brazilian biodiversity: characterization

of the external morphology indicating some peculiarity and possible use normally related to food. The difference in relation to other reports of the period was in the drawings. The amount of 259 images produced of Brazilian biodiversity was unprecedented.

Prior to the manuscript *History of Animals and Trees of Maranhão*, Hans Staden (1525-1576) in 1557 and André Thevet (1502-1590) in 1558 presented some drawings of Brazilian biodiversity in their respective reports on their stay in Brazil (Almaça 2002). The German arquebusier Hans Staden published in 1557 the reports of his two trips to Brazil. He was in the region belonging to the current Pernambuco state in 1547 and after (1550-1554), he was in the current Santa Catarina state (Staden 2020). The French Franciscan André Thevet published in 1558 the account of his trip to Brazil. He participated in the so-called Antarctic France (1555-1570), the attempt to create a French colony in the region belonging to the current state of Rio de Janeiro (Thevet 2009).

The faunal diversity of the Colonial State of Maranhão before the arrival of Friar Cristóvão de Lisboa appears in five main works: *Historie de la mission des pères capuchins' en l'isle de Maragnan et terres circonvoisines* [*History of the Mission of the Capuchin Fathers on the Maranhão Island and Surrounding Lands*] by Claude D'Abbeville (?-1632) in 1614, *Suitte de l'histoire des choses plus memorables aduenuës en Maragan, és années 1613 et 1614* [*History continuation of the most memorable things that happened in Maranhão, in the years 1613 and 1614*] by Yves D'Évreux (1577-1632) in 1615, *Relação do que Há no grande Rio das Amazonas Novamente Descoberto* [*List of what exists in the Great Amazon River Discovered Again*] by André Pereira (xvɪth century) in 1616, *Relação das Cousas que há, se tem visto e achado nas terras e suas ilhas do Pará e Rio Amazonas de 19 meses a esta parte* [*List of things that have been seen and found in the lands and their islands of Pará and the Amazon River over the last 19 months*] by anonymous in 1617, and *Relação sumária das cousas do Maranhão* [*Summary list of things in Maranhão*] by Simão Estácio da Silveira (xvɪth century) in 1624 (D'Abbeville 1945; Papavero *et al.* 2000; Silveira 2001; Amorim 2005; D'Évreux 2009). We did not have access to the publication by Anonymous (1617), but there are no drawings representing local biodiversity in the other four works. This information could make the drawings in the manuscript *History of Animals and Trees of Maranhão* the first drawings to represent the region's biodiversity. As previously reported, the manuscript remained unknown until the xxth century. This means that the first major source of knowledge about Brazilian biodiversity with descriptions and drawings was the *Historia Naturalis Brasiliae* [*Natural History of Brazil*], with the first edition published in 1648.

Natural History of Brazil was written by the Dutch physician Williem Pies (1611-1678) and the German naturalist Georg Marcgrav (1610-1644). This work was a product of the period known as Dutch Brazil (1630-1654), when the Dutch West India Company conquered and governed part of the northeast coast of Portuguese America (Françozo 2010).

DISCUSSION

Apart from animals related to hunting and farming, the first major group of animals to be intensively studied in the Europe modern period was the so-called aquatilia which included, for example, fish, molluscs, crustaceans and aquatic mammals. Only interest in medicinal plants was developed earlier in numerous manuscripts and printed works. The works *Historia aquatilium* (1517-520) by the German Nikolaus Marschalk (1470-1525) and *De Romanis piscibus* (1524) by the Italian Paolo Giovio (1483-1525) are the earliest known printed books exclusively about aquatic animals. Ichthyological works with illustrations, including editions, reprints, and translations into vernacular languages appeared earlier and also exceeded the number of publications on other animal groups in the same period. The illustrated publications of the 1550s by the Swiss Conrad Gessner (1516-1565), the French Pierre Belon (1517-1564) and Guillaume Rondelet (1507-1566), and the Italian Ippolito Salviani (1514-1572), are regarded as the founding canon of ichthyology. The illustrations and textual descriptions in these publications served the essential purpose of identification. The authors demonstrated a broader effort to include as many species as possible and to incorporate local knowledge about the region and the species (Egmond 2024; Funk 2024; Smith 2024).

In continental Portugal, the first known inventory of aquatic fauna was produced by the Swiss scholar Leonhardt Thurneysser zum Thurn (1531-1596) during his visit to Lisbon between 1555 and 1556. The manuscript is untitled, written in German, and became known as *The Natural History of Portugal*. It lists several species of plants and animals from Portugal, including molluscs, crustaceans, marine fish and estuarine fish related to the Tejo River. Two cetaceans are included among the fish. Possibly from the same period as Leonhardt Thurneysser's manuscript, there are fragments of the manuscript *Dicionário Português-Latino de Nomes de Animais Marinhos* [*Portuguese-Latin Dictionary of Marine Animal Names*]. The two manuscripts demonstrate that there was an interest in studying Portuguese aquatic fauna at the time. The development of ichthyology in Portugal occurred in the second half of the xvɪɪɪth century, during the establishment of the Botanical Garden and Royal Natural History Office of Ajuda, the country's main scientific-museological complex, and the founding of the Royal Academy of Sciences (Brito 2024; Herold & Cabral 2024).

Citations of aquatic mammals in Brazil have occurred since the arrival of the first Europeans in the region. The first reports of Brazilian biodiversity already indicated the abundance of fish in the sea, rivers and bays, including manatees and cetaceans in the fish group (Ferronha *et al.* 1993). The west-indian-manatee, *Trichechus manatus* Linnaeus, 1758, was among the 14 animals mentioned in the five documents referring to the arrival of Pedro Álvares Cabral's fleet in Brazil in April 1500. The species was mentioned in the report of the anonymous pilot as a large, long, round fish with a head like the one of a pig (Teixeira & Papavero 2006). The Frenchman Jean de Léry (1534-1611) mentioned the existence of dolphins in Guanabara Bay when he participated in

the so-called Antarctic France (1555-1570), the attempt to create a French colony in the region belonging to the current state of Rio de Janeiro (Léry 1980).

The three aquatic mammals (manatee, porpoise and river dolphin) in the manuscript *History of Animals and Trees of Maranhão* are described and depicted in the fish section, which contains 116 drawings of a total of 259. The fact that the fish section corresponds to almost half of all the existing drawings is consistent with the development of studies of aquatic fauna in Europe during the same period.

The description and depiction of the river dolphin in the manuscript are more related to external morphological characters, but there is also a reference in the description to the taste of meat: "in taste it is like pork, especially the liver". It is not common to use river dolphins as food (Ávila-Pires 1989). The current riverside population does not use river dolphins as food because they consider the strong smell of its meat (Da Silva 2007) and its symbolism as an "enchanted animal" (Cravalho 1999; Siciliano *et al.* 2018). The first mentions of the river dolphin as an animal that transforms into a seductive man or woman appear in the xixth century. One of the first to record this legend was Henry Walter Bates, who visited the Amazon region between 1848 and 1859 and reported that there are many legends related to rivers dolphins and that these legends probably originated with the Portuguese settlers. In one of these stories, the river dolphin takes the form of a beautiful woman with long hair that takes men inside river at night (Cascudo 2024). The legend that the river dolphin's eyes and genitalia act as love charms may have derived from African legends (Gravena *et al.* 2008).

The threats to *Inia* species are not their use as food. The main threats are accidental capture in fishing nets, illegal hunting to use river dolphin meat as fishing bait, pollution, environmental degradation with the silting of rivers causing river dolphins strandings, habitat fragmentation and modification due to the construction of hydroelectric plants (Iriarte & Marmontel 2013; Domit *et al.* 2023a).

CONCLUSION

We highlight that in the same period of the so-called Maritime Expansion (xvth-xviith centuries) in which the biodiversity of the American continent began to be reported, studies of aquatic fauna expanded in Europe using illustrations to assist in the textual descriptions of the species.

Regardless of the possible authors of the manuscript *History of Animals and Trees of Maranhão*, Friar Cristóvão de Lisboa and part of his entourage or Charles des Vaux and whoever he helped, we highlight the great undertaking that was its creation, bringing together a wide range of descriptions and drawings of Brazilian biodiversity.

We consider that the manuscript *History of Animals and Trees of Maranhão* was ahead of its time in Brazil, since it contained, in addition to the textual descriptions of the species, 259 drawings representing the local biodiversity, of which almost half (116) referred to aquatic fauna. The large number of drawings denotes the importance given by the possible authors of the manuscript to the existence of images that represented this biodiversity in line with what was being produced in Europe. The manuscript would considerably expand knowledge about the fauna and flora of Brazil in the xviith century, but remained unknown until the xxth century.

In identifying the river dolphin in the manuscript as *I. araguaiaensis*, biological data helped in identifying the genus, while geographical and historical data helped in specific identification. We emphasize that more studies should be carried out in the genus related to possible external morphological differences between *Inia* species.

We highlight that in history of Zoology in Brazil, the manuscript *History of Animals and Trees of Maranhão* continues to stimulate the production of knowledge.

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REFERENCES

Adolfo A., Valiati V. H., Emin-Lima R., Ott P. H., Siciliano S., Silva J. de S. e. Jr. & De Oliveira L. R. 2020. — Novos registros de *Inia araguaiaensis* na transição Cerrado-Amazônia: a única espécie de cetáceo endêmica do Brasil. *Anais III Curso de Verão em Genética da Universidade Federal de Goiás, Goiânia*, 27 de janeiro a 01 de fevereiro de 2020. https//www.even3.com.br/anais/cvgufg3/237672, last consultation on 26 June 2025.

Aliaga-Rossel E. 2010. — Conservation of the River Dolphin (*Inia boliviensis*) in Bolivia, *in* Shostell J. M. & Ruiz-Garcia M. (eds), *Biology, Evolution and Conservation of River Dolphins Within South America and Asia (Wildlife Protection, Destruction and Extinction)*. Nova Science Publishers, New York: 1-17.

Almaça C. 2002. — *A Zoologia Pré-Lineana no Brasil*. Museu Bocage, Fundação para a Ciência e a Tecnologia, Lisboa, 147 p.

Amorim M. A. 2005. — *Os Franciscanos no Maranhão e Grão-Pará: Missão e Cultura na Primeira Metade de Seiscentos*. Centro de Estudos de História Religiosa, Universidade Católica Portuguesa, Lisboa, 368 p.

Anonymous 1617. — *Relação das Cousas que há, se tem visto e achado nas terras e suas ilhas do Pará e Rio Amazonas de 19 meses a esta parte*. B.A., MS. 50/V/3442.

Ávila-Pires F. D. 1989. — Mamíferos da França Equinocial (Maranhão, Brasil). *Revista Brasileira de Zoologia* 6 (3): 423-442. https://doi.org/10.1590/S0101-81751989000300002

Banguera-Hinestroza E., Cárdenas H., Ruiz-García M., Marmotel M., Gaitan E., Vázquez R. & García-Vallejo F. 2002. — Molecular identification of evolutionarily significant units in the Amazon river dolphin *Inia* sp. (Cetacea: Iniidae). *Journal of Heredity* 93 (5): 312-322. https://doi.org/10.1093/jhered/93.5.312

Bates H. W. 1863. — *The Naturalist on the Rivers Amazons*. Vol. I. John Murray, London, 351 p.

Best R. C. & Silva V. M. F. da 1993. — *Inia geoffrensis*. *Mammalian Species* 426: 1-8. https://doi.org/10.2307/3504090

Branco B. do R. 2008. — *Questões de Limites:* Guiana francesa. Senado Federal, Brasília, 438 p.

Brito C. 2009. — *Os Mamíferos marinhos nas viagens marítimas pelo Atlântico entre os séculos XV e XVIII: a evolução da ciência e do conhecimento*. Doctoral dissertation, Universidade Nova de Lisboa, Faculdade de Ciências Sociais e Humanas, 327 p. http://hdl.handle.net/10362/116184

Brito C. 2024. — 'Um Grande Peixe, Dona Baleia da Costa': the whale in Portuguese early modern Natural History, *in* Smith P. J. & Egmond F. (eds), *Ichthyology in Context (1500-1880)*. Koninklijke Brill NV, Leiden: 392-419. https://doi.org/10.1163/9789004681187_014

Brockey L. M. 2012. — An imperial republic: Manuel Severim de Faria surveys the Globe, 1608-1655, *in* Berbara M. & Enenkel K. A. E. (eds), Portuguese Humanism and the Republic of Letters. *Intersections* 21: 265-285.

Capozzi R. 2021. — *Experiência e descrição: Os animais da França Equinocial entre a atividade franciscana e a filosofia natural (1612-1615)*. Masters dissertation, Fundação Oswaldo Cruz (FIOCRUZ), 250 p.

Cardoso A. 2011. — A conquista do Maranhão e as disputas atlânticas na geopolítica da União Ibérica (1596-1626). *Revista Brasileira de História* 31 (61): 317-338. https://doi.org/10.1590/S0102-01882011000100016

Carvalho J. de Paiva 1964. — Comentários sobre os peixes mencionados na obra "História dos Animais e Árvores do Maranhão" de Frei Cristóvão de Lisboa. *Arquivos De Ciências Do Mar* 4 (1): 1-39.

Cascudo L. da Câmara 2024. — *Dicionário do Folclore Brasileiro*. Global Editora, São Paulo, 419 p.

Choueri R. B. & Azevedo J. A. R. 2017. — Biodiversidade e impacto de grandes empreendimentos hidrelétricos na Bacia Tocantins-Araguaia: uma análise sistêmica. *Sociedade e Natureza* 29 (3): 443-457. https://doi.org/10.14393/SN-v29n3-2017-6

Comitê de Taxonomia da Sociedade Brasileira de Mastozoologia (CT-SBMz) 2024. — *Lista de Mamíferos* [online]. CT-SBMz. https://www.sbmz.org/comite-de-taxonomia/, last consultation on 26 June 2025.

Committee on Taxonomy of the Society for Marine Mammalogy (SMM) 2023. — *List of Marine Mammal Species and Subspecies* [online]. SMM. https://marinemammalscience.org/science-and-publications/list-marine-mammal-species-subspecies/, last consultation on 26 June 2025.

Cravalho M. A. 1999. — Shameless creatures: an ethnozoology of the Amazon river dolphin. *Ethnology* 38 (1): 47-58. https://doi.org/10.2307/3774086

D'Abbeville C. 1945. — *História da Missão dos Padres Capuchinhos na Ilha do Maranhão*. Livraria Martins Editora, São Paulo, 296 p.

D'Évreux Y. 2009. — *História das Coisas Mais Memoráveis Ocorridas no Maranhão nos Anos de 1613 e 1614*. Fundação Darcy Ribeiro, Rio de Janeiro, 465 p.

Dagosta F. C. P. 2016. — *História biogeográfica dos peixes da Bacia Amazônica: Uma abordagem metodológica comparativa*. Doctoral thesis, Museu de Zoologia da Universidade de São Paulo. https://doi.org/10.11606/T.38.2017.tde-06042017-182514

Domit C., Azevedo A. F., Meirelles A. C. O., Souza D. A., Attademo F. L. N., Silva F. J. L., Tullio J., Groch K. R., Oliveira L. R., Wedekin L. L., Carrion M., Cremer M. J., Marcondes M. C. C., Fruet P., Oliveira R. H. T., Botta S., Silva V. M. F., Gravena W., Lodi L. & Luna F. de Oliveira 2023a. — *Inia araguaiaensis*. *Sistema de Avaliação do Risco de Extinção da Biodiversidade (SALVE)* [online]. Instituto Chico Mendes de Conservação da Biodiversidade (ICMBio), Brasilia. https://doi.org/10.37002/salve.ficha.17711.1

Domit C., Azevedo A. F., Meirelles A. C. O., Souza D. A., Attademo F. L. N., Silva F. J. L., Tullio J., Groch K. R., Oliveira L. R., Wedekin L. L., Carrion M., Cremer M. J., Marcondes M. C. C., Fruet P., Oliveira R. H. T., Botta S., Silva V. M. F., Gravena W. & Luna F. O. 2023b. — Sotalia fluviatilis. *Sistema de Avaliação do Risco de Extinção da Biodiversidade (SALVE)* [online]. Instituto Chico Mendes de Conservação da Biodiversidade (ICMBio). https://doi.org/10.37002/salve.ficha.14514.2

Egmond F. 2024. — Looking beyond the margins of print: depicting water creatures in Europe, *c*. 1500-1620, *in* Smith P. J. & Egmond F. (eds), *Ichthyology in Context (1500-1880)*. Brill, Leiden: 147-243.

Emim-Lima R., Machado F. A., Siciliano S., Gravena W., Aliaga-Rossel E., Silva J. de S. e Jr., Hingst-Zaher E. & Rosa de Oliveira L. 2022. — Morphological disparity in the skull of Amazon River dolphins of the genus *Inia* (Cetacea, Iniidae) is inconsistent with a single taxon. *Journal of Mammalogy* 103 (6): 1278-1289. https://doi.org/10.1093/jmammal/gyac039

Espínola R. 2001. — *Vicente Pinzón e a Descoberta do Brasil*. Topbooks, Rio de Janeiro, 334 p.

Ferro A. L. A. 2014. — *1612 Os Papagaios Amarelos na Ilha do Maranhão e a Fundação de São Luís*. Juruá, Curitiba, 776 p.

Ferronha A. L., Bettencurt M. & Loureiro R. 1993. — *A Fauna Exótica dos Descobrimentos*. ELO-Publicadade, Mafra, 146 p.

Filho A. M. 1976. — *Evolução Histórica de Belém do Grão-Pará*. Vol. I. Grafisa, Belém, 434 p.

Filho J. M. 2009. — *Grandes Expedições à Amazônia Brasileira 1500-1930*. Metalivros, São Paulo, 244 p.

Fonseca L. da 1952. — Frei Cristóvão de Lisboa, O. F. M., missionary and natural historian of Brazil. *The Americas* 8 (3): 289-303. https://doi.org/10.2307/978374

Frade F. 1966. — Comentário zoológico relativo à História dos Animais e Árvores do Maranhão (1625-1631) de Frei Cristóvão de Lisboa. Vol. I, Mamíferos. *Garcia de Orta – Revista da Junta de Investigações do Ultramar* 14 (3): 345-350.

Françozo M. 2010. — Alguns comentários à *Historia Naturalis* Brasiliae. *Cadernos de Etnolingüística* 2 (1): 1-7.

Funk H. 2024. — Fish images true to life and a 16th-century controversy between Rondelet and Salviani. Essay and documentation of the sources, *in* Smith P. J. & Egmond F. (eds), *Ichthyology in Context (1500-1880)*. Brill, Leiden: 29-90.

Gadelha R. M. A. F. 2002. — Conquista e ocupação da Amazônia: a fronteira Norte do Brasil. *Estudos Avançados* 16 (45): 63-80. https://doi.org/10.1590/S0103-40142002000200005

Gallego R. B. 2008. — Primeras crónicas de la fauna silvestre en Venezuela, *in* Machado-Allison A. (ed.), *Simposio Investigación y Manejo de Fauna Silvestre en Venezuela en Homenaje al Dr. Juhani Ojasti, Caracas, 6 al 17 de octubre de 2008*. Academia de Ciencias Físicas, Matemáticas y Naturales, Caracas: 1-24.

Gaspar M. 2003. — *A Arte Rupestre no Brasil*. Zahar, Rio de Janeiro, 83 p.

Gesteira H. M. 2012. — Animais e plantas do sertão do Rio São Francisco nas representações do Brasil, *in* Kuly L. B. (ed.), *Sertões Adentro: Viagens nas Caatingas Séculos XVI a XIX*. Andrea Jakobsson Estúdio, Rio de Janeiro: 58-111.

Gravena W., Hrbek T., Silva V. M. F. da & Farias I. P. 2008. — Amazon River dolphin love fetishes: from folklore to molecular forensics. *Marine Mammal Science* 24 (4): 969-978. https://doi.org/10.1111/j.1748-7692.2008.00237.x

Gravena W., Silva V. M. F. da, Silva M. N. F. da, Farias I. P. & Hrbek T. 2015. — Living between rapids: genetic structure and hybridization in botos (Cetacea: Iniidae: *Inia* spp.) of the Madeira River, Brazil. *Biological Journal of the Linnean Society* 114 (4): 764-777. https://doi.org/10.1111/bij.12463

Herold B. J. & Cabral J. P. S. 2024. — Aquatilia of Portugal in 1555-1556 according to Leonhardt Thurneysser zum Thurn, *in* Smith P. J. & Egmond F. (eds), *Ichthyology in Context (1500-1880)*. Brill, Leiden: 123-144.

Hrbek T., Silva V. M. F. da, Dutra N., Gravena W., Martin A. R. & Farias I. P. 2014. — A new species of river dolphin from Brazil or: how little do we know our biodiversity. *PLOS ONE* 9 (1): e83623. https://doi.org/10.1371/journal.pone.0083623

Iriarte V. & Marmontel M. 2013. — Insights on the use of dolphins (boto, *Inia geoffrensis* and tucuxi, *Sotalia fluviatilis*) for bait in the piracatinga (*Calophysus macropterus*) fishery in the western Brazilian Amazon. *Journal of Cetacean Research and Management* 13 (2): 163-173. https://doi.org/10.47536/jcrm.v13i2.546

Jorge M., Prous A. & Ribeiro L. 2007. — *Brasil Rupestre: Arte Pré-Histórica Brasileira*. Zencrane Livros, Curitiba, 272 p.

Léry J. de 1980. — *Viagem à Terra do Brasil*. Itatiaia, Belo Horizonte, 303 p.

Lisboa C. de [16--]. — *História dos Animais e Árvores do Maranhão*. MS. PT/AHU/CU/072/01660. https://digitarq.arquivos.pt/documentDetails/c5807adfa0cd48b79fd88f4baffdf525, last consultation on 5 July 2025.

Lisboa C. de 1967. — *História dos Animais e Árvores do Maranhão*. Arquivo Histórico Ultramarino, Centro de Estudos Históricos Ultramarinos, Lisboa, 409 p.

Lisboa C. de 1968. — *História dos Animais e Árvores do Maranhão*. Universidade Federal do Paraná, Conselho de Pesquisas, Curitiba, 187 p.

Lisboa C. de 1985. — *História dos Animais e Árvores do Maranhão*. Alhambra, Rio de Janeiro, 219 p.

Lisboa C. de 1998. — *História dos Animais e Árvores do Maranhão*. Alumar Cultura, São Luís, 230 p.

Lisboa C. de 2000. — *História dos Animais e Árvores do Maranhão*. Comissão Nacional para as Comemorações dos Descobrimentos Portugueses, Instituto de Investigação Científica Tropical, Lisboa, 488 p.

Mariz V. & Provençal L. 2011. — *Os Franceses no Maranhão. La Ravardière e a França Equinocial (1612-1615)*. Instituto Geia, São Luís, 205 p.

Marques-Aguiar S. A., Melo C. C. S., Aguiar G. F. S. & Queiróz J. A. L. 2002. — Levantamento preliminar da mastofauna da região de Anajás-Muaná, Ilha de Marajó, Pará, Brasil. *Revista Brasileira de Zoologia* 19 (3): 841-854. https://doi.org/10.1590/S0101-81752002000300022

Melo-Santos G., Rodrigues A. L. F., Tardin R. H., De Sá Maciel I., Marmontel M., Silva M. L. da & May-Collado L. J. 2019. — The newly described Araguaian river dolphins, *Inia araguaiaensis* (Cetartiodactyla, Iniidae), produce a diverse repertoire of acoustic signals. *PeerJ* 7: e6670. https://doi.org/10.7717/peerj.6670

Miranda A. V. de, Luna F. de O., De Souza G. P., Fruet P. F. & Zanoni S. A. 2020. — *Guia Ilustrado de Identificação de Cetáceos e Sirênios do Brasil*. ICMBio/CMA, Brasília, 70 p.

Moreno D. de C. 2011. — *Jornada do Maranhão por Ordem de Sua Majestade Feita o Ano de 1614*. Senado Federal, Brasília, 168 p.

Mosquera-Guerra F., Trujillo F., Parks D., Oliveira Da Costa M., Marmontel M., Armenteras-Pascual D., Usma S., Willems D., Carvajal-Castro J. D., Mantilla Meluk H., Franco N., Amorocho D., Maldonado R., Berg K., Sainz L., Van Damme P. A. & Cambell E. 2018. — Analysis of distribution of river dolphins (*Inia* and *Sotalia*) in protected and transformed areas in the Amazon and Orinoco basins. *International Whaling Commission (IWC)*: SC/67B/SM/16.

Neves E. G. 2006. — *Arqueologia da Amazônia*. Zahar, Rio de Janeiro, 86 p.

Nomura H. 1996. — *História da Zoologia no Brasil: Século XVII*. Fundação Vingt-un Rosado, Mossoró, 405 p.

Oliveira M. L. 2008. — *A História do Brasil de Frei Vicente do Salvador: História e Política no Império Português do Século XVII*. Fundação Odebrecht, São Paulo, 344 p.

Papavero N. & Teixeira D. M. 2000. — Frei Cristóvão de Lisboa not the author of História dos Animais e Árvores do Maranhão. 2, Further Evidence and Comments on Plates 62-109. *Contribuições Avulsas sobre a História Natural do Brasil 9 (III), Série História da História Natural* 28: 1-10.

Papavero N., Teixeira D. M. & De Figueiredo J. L. 1999. — Frei Cristóvão de Lisboa not the author of História dos Animais e Árvores do Maranhão. 1. Introduction and Comments on Plates 1-60. *Contribuições Avulsas sobre a História Natural do Brasil 6 (VIII), Série História da História Natural* 6: 1-12.

Papavero N., Teixeira D. M., Overal W. L. & Pujol-Luz J. R. 2000. — *O Novo Éden*. Museu Paraense Emílio Goeldi, Belém, 388 p.

Pereira E. da S. & Moraes C. de P. 2019. — A cronologia das pinturas rupestres da Caverna da Pedra Pintada, Monte Alegre, Pará: revisão histórica e novos dados. *Boletim do Museu Paraense Emílio Goeldi. Ciências Humanas* 14 (2): 327-341. https://doi.org/10.1590/1981.81222019000200005

Pessis A. M., Cisneiros D. & Mutzenberg D. 2018. — Identidades gráficas nos registros rupestres do Parque Nacional Serra da Capivara, Piauí, Brasil. *FUMDHAMentos* 15 (2): 33-54.

Pianzola M. 2008. — *Os Papagaios Amarelos*. Senado Federal, Brasília, 252 p.

Prestes M. E. B. 2000. — *A Investigação da Natureza no Brasil Colônia*. Annablume, São Paulo, 154 p.

Raminelli R. 2008. — *Viagens ultramarinas: monarcas, vassalos e governo a distância*. Alameda, São Paulo, 317 p.

Romero A., Agudo I. & Blondell de Agudo S. J. 1997. — The scientific discovery of the Amazon river dolphin *Inia geoffrensis*. *Marine Mammal Science* 13 (3): 419-426. https://doi.org/10.1111/j.1748-7692.1997.tb00649.x

Ruiz-García M., Banguera E. & Cardenas H. 2006. — Morphological analysis of three *Inia* (Cetacea: Iniidae) populations from Colombia and Bolivia. *Acta Theriologica* 51 (4): 411-426. https://doi.org/10.1007/BF03195188

Ruiz-García M., Caballero S., Martinez-Agüero M. & Shostell J. M. 2008. — Molecular differentiation among *Inia geoffrensis* and *Inia boliviensis* (Iniidae, Cetacea) by means of nuclear intron sequences, *in* Koven V. T. (ed.), *Population Genetics Research Progress*. Nova Science Publishers, New York: 1-28.

Saragoça L. 2000. — *Da Feliz Lusitânia aos Confins da Amazônia (1615-62)*. Cosmos, Lisboa, 510 p.

Siciliano S., Emin-Lima R., Costa A. F. & Silva J. de S. e Jr. 2015. — Large and medium sized land mammals of northeast Marajó Island lower Amazon, Brazil. *Natural Resources* 6 (1): 37-47. https://doi.org/10.4236/nr.2015.61005

Siciliano S., Valiati V. H., Emin-Lima R., Costa A. F., Sartor J., Dorneles T., Silva J. de S. e Jr. & De Oliveira L. R. 2016. — New genetic data extend the range of river dolphins *Inia* in the Amazon Delta. *Hydrobiologia* 777 (1): 255-269. https://doi.org/10.1007/s10750-016-2794-7

Siciliano S., Viana M. C., Emin-Lima R & Bonvicino C. R. 2018. — Dolphins, love and enchantment: tracing the use of cetacean products in Brazil. *Frontiers in Marine Science* 5 (107): 1-10. https://doi.org/10.3389/fmars.2018.00107

Silva A. L. da 2007. — Comida de gente: preferências e tabus alimentares entre os ribeirinhos do Médio Rio Negro (Amazonas, Brasil). *Revista de Antropologia* 50 (1): 125-179. https://doi.org/10.1590/S0034-77012007000100004

Silva V. da, Trujillo F., Martin A., Zerbani A. N., Crespo E., Aliaga-Rossel E. & Reeves R. 2018. — *Inia geoffrensis*. *The IUCN Red List of Threatened Species*: e.T10831A50358152.

Silva V. M. F. da, Brum S. M., De Mello D. M. D., Amaral R. de Souza, Gravena W., Campbell E., Gonçalves R. da S. & Mintzer V. 2023. — The Amazon River dolphin, *Inia geoffrensis*: what have we learned in the last two decades of research? *Latin American Journal of Aquatic Mammals* 18 (1): 139-157. https://doi.org/10.5597/lajam00298

Silveira S. E. da 2001. — *Relação Sumária das Cousas do Maranhão*. Siciliano, São Paulo, 68 p.

Singh A. & Françozo M. 2023. — Locating knowledge in early modern Brazil and India: a comparative study of *Historia Naturalis Brasiliae* (1648) and *Hortus Malabaricus* (1678-1693), *in* Françozo M. (ed.), *Toward an Intercultural Natural History of Brazil: The Historia Naturalis Brasiliae Reconsidered*. Routledge Taylor & Francis Group (Routledge Studies in Global Latin America), New York, London: 9-31.

Smith P. J. 2024. — Towards a cultural history of early modern ichthyology, *in* Smith P. J. & Egmond F. (eds), *Ichthyology in Context (1500-1880)*. Brill, Leiden: 1-26.

Souza L. F. M. de 2011. — Frei Cristóvão de Lisboa (1583-1652), vida e obra do primeiro custódio do Maranhão (trabalhos apostólicos, historiografia e primeiros estudos de zoologia amazônica). *Comunicação ao Congresso Internacional sobre os Franciscanos em Portugal e no Mundo, Lisboa, 27 a 29 de Julho de 2011*, 55 p. https://www.academia.edu/18058850/FREI_CRIST%C3%93V%C3%83O_DE_LISBOA_1583-1652_V, last consultation on 26 June 2025.

Staden H. 2020. — *Duas Viagens ao Brasil (1547-1555)*. Valer, Manaus, 256 p.

Stone A. I., Lima E. M., Aguiar G. F. S., Camargo C. C., Flores T. A., Kelt D. A., Marques-Aguiar S. A., Queiroz J. A. L., Ramos R. M. & Silva J. de S. e Jr. 2009. — Non-volant mammalian diversity in fragments in extreme eastern Amazonia. *Biodiversity and Conservation* 18: 1685-1694. https://doi.org/10.1007/s10531-008-9551-9

Stradelli E. 1929. — Vocabulários da língua geral portuguez-nheêngatú e nheêngatú-portuguez, precedidos de um esboço de Grammatica nheênga-umbuê-sáua mirî e seguidos de contos em língua geral nheêngatú poranduua. *Revista do Instituto Histórico e Geographico Brasileiro* 104 (158): 9-768.

Teixeira Albernaz J. I 1629. — *Pequeno atlas do Maranhão e Grão-Pará*. https://objdigital.bn.br/objdigital2/acervo_digital/div_cartografia/cart555828/cart555828.pdf, last consultation on 20 June 2025.

Teixeira Albernaz J. II [16--]. — *Atlas do Brasil: Província do Brasil*. https://objdigital.bn.br/objdigital2/acervo_digital/div_cartografia/cart1079075/cart1079075.pdf, last consultation on 20 June 2025.

Teixeira D. M. & Papavero N. 2002. — A viagem de Vicente Yáñez Pinzón (1499-1500) e o primeiro relato sobre a *História Natural do Brasil*, segundo as "Décadas" de Pietro Martire de Anghiera. *Publicações Avulsas do Museu Nacional* 93: 1-48.

Teixeira D. M. & Papavero N. 2006. — Os animais do descobrimento: a fauna brasileira mencionada nos documentos relativos à viagem de Pedro Álvares Cabral (1500-1501). *Publicações Avulsas do Museu Nacional* 111: 1-136.

Teixeira D. M. & Papavero N. 2024. — A descoberta dos marsupiais e a "simivulpa", um esquecido símbolo do Novo Mundo. *Arquivos de Zoologia* 55 (1): 1-64. https://doi.org/10.11606/2176-7793/2024.55.1

Thevet A. 2009. — *A Cosmografia Universal de André Thevet, Cosmógráfo do Rei*. Fundação Darcy Ribeiro, Rio de Janeiro, 186 p.

Toledo C. de A. A. de & Barboza M. A. 2017. — A missão dos Franciscanos da Província de Santo António do Brasil no Maranhão e Grão-Pará em meados do século xvii. *Revista Brasileira de História da Educação* 17 (3): 69-97. https://doi.org/10.4025/rbhe.v17n3.813

Toledo C. de A. A. de & Barboza M. A. 2020. — A atuação educativa, missionária e pastoral dos Franciscanos no Brasil colonial nas páginas da Revista do Instituto Histórico e Geográfico Brasileiro (IHGB). *Revista Brasileira de História da Educação* 20 (111): 1-23. https://doi.org/10.4025/rbhe.v20.2020.e111

Velho O. G. 1972. — *Frentes de expansão e estrutura agrária*. Zahar Editores, Rio de Janeiro, 178 p.

Willeke V. 1967. — Frei Vicente do Salvador, O. F. M. Pai da História do Brasil. *Revista do Instituto Histórico e Geográfico Brasileiro* 277: 99-172.

Willeke V. 1970. — Frei Cristóvão de Lisboa, O. F. M. Primeiro Naturalista do Brasil. *Revista do Instituto Histórico e Geográfico Brasileiro* 289: 112-136.

Willeke V. 1977. — *Franciscanos na História do Brasil*. Vozes, Petrópolis, 156 p.

Willeke V. 1978. — *Missões Franciscanas no Brasil*. Vozes, Petrópolis, 200 p.

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