

# A hidden early source of information on north-eastern Brazilian zoology

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**Key words:** zoology; Dutch Brazil; Barlaeus; Johan Maurits van Nassau; De Laet; Marcgrave; Piso. Attention is drawn to some hitherto overlooked paragraphs on the north-eastern Brazilian fauna hidden in a historiographic account of Count Johan Maurits' governorship (1637-1644), published by Caspar van Baerle (Barlaeus) in 1647, a year before the publication of Marcgrave & Piso's famous *Historia naturalis Brasiliae* and based on the same sources.

## Introduction

The publication in 1648 of the *Historia naturalis Brasiliae*, edited by Johan de Laet of the Dutch West India Company, should have marked the beginning of a new, more modern approach to the study of the population and natural phenomena of north-eastern Brazil. This voluminous book, based on the notes of the scientist Georg Marcgraf or Marcgrave (1610-1643) and contributions by the physician Willem Piso or Piso (1611-1678), both members of the retinue of Johan Maurits of Nassau Siegen during his government of Dutch Brazil (1637-1644), presents among other information an extensive survey of the flora and fauna of the region with, for that time, elaborate data and numerous woodcut illustrations (Whitehead & Boeseman, 1989: 27-31), representing most of the enumerated species. But, though it might have been expected to stimulate further research of this kind, in fact similar and comparable exploration did not occur until the activities of Spix, Martius, Wied Neuwied and a few others in the 19th century.

Before the publication of the *Historia*, as a matter of fact, there had been printed information on the South American flora and fauna, but more casually and usually without such scientific quality or illustrations, in historical accounts, regional descriptions or narratives of explorations. But none of these has been considered by Linnaeus to be worthy to contribute to his *Systema Naturae*, the 10th edition (1758) of which included many Piso and especially Marcgrave species, all validated for scientific purposes with diagnoses and appropriate Latin names.

Although these early, pre-Linnaean records may not be of the greatest scientific importance, they remain quite interesting, and it seems worthwhile to draw attention to one such item that seems to have been generally overlooked.

After Johan Maurits in 1644 returned to Holland, he asked Caspar van Baerle (Barlaeus), professor of philosophy in Amsterdam, to compile a book on Dutch Brazil and his activities as governor, based on the available archives (including numerous animal and plant pictures to be used by De Laet for the *Historia*), and oral information. This book was published already in 1647, about a year before De Laet issued

Piso and Marcgrave's *Historia*. Although probably both Barlaeus and De Laet received their commission soon after Johan Maurits' return in 1644, the publication of the *Historia* probably was delayed by the necessity for De Laet to first transcribe and put in order the bundle of Marcgrave notes, written in code for reason of secrecy.

In Barlaeus' book there are a few paragraphs dedicated to the flora and fauna of Dutch Brazil, with also some remarks on Chilean animals. Since Barlaeus was not a zoologist (but as student of medicine probably acquainted with botany), while both he and De Laet worked in Amsterdam studying the results of Johan Maurits' activities, we may assume that at least for these paragraphs there must have been some cooperation, possibly promoted by Johan Maurits. Having been hidden in Barlaeus' voluminous book, these records hitherto seem to have been overlooked or neglected by most later authors on Brazilian natural history.

In the subsequent part of this paper an English translation is given of the relevant paragraphs, made after the 1923 Dutch translation of Barlaeus' Latin text by S.P. l'Honoré Naber, who explicitly states to have followed the original text with utmost care. This means that the resulting Dutch still may slightly deviate and, as a consequence, also the present English version. An occasional correction is given, based on Barlaeus, 1660, understood to be textually identical with the original of 1647.

The translations are followed by comments, when possible including tentative identifications of the listed animals. Where there are more possibilities, an identification as the species described and pictured by Marcgrave is considered the most likely interpretation.

#### Barlaeus, 1647

In the margin the pagination of the Dutch 1923 edition is given, with the original 1647 pagination between brackets.

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This addition was included on behalf of the reader.

There is a great abundance of wild and tame animals. Some of these I will mention. The wild swines live in water and on land, their meat is tasty and healthy. Because their legs are unequal in length, for the front legs are shorter than the hind legs, they advance only slowly, so that, when they are pursued by hunters, they dive as rapidly as possible into the nearest water<sup>1)</sup>. The *Anta's* make one think of hinnies although they are of smaller size; they have a more slender snout, the lower lip is extended, which makes one think of a trumpet, the ears are rounded, the tail short, the further body ash-grey. They shun light and also only forage by night. At the break of day they hide in their shelters. Their meat tastes almost like beef<sup>2)</sup>. The *Cotia's*, as they are named in vernacular, are as big as hares or somewhat smaller and almost without tail<sup>3)</sup>. The larger are named *Paca's*, have a mouth as a cat, are of a brown colour with white spots and are on account of their tasty meat considered as delicacies<sup>4)</sup>. The *Tatu's* are as big as a young pig, the skin is covered with scutes, so they seem armoured. They stick out their head in the way of tortoises. The meat, that is tasty, is served during feasts<sup>5)</sup>. Also there is here a

175 large number of *Tijgers* [*tigers*] which with their ferocity increased by hunger



C. Barlaeus

and by their speed are feared by the population<sup>6</sup>). The *Cerigo's* are of the size of a fox; by an unusual spectacle they show a belly from which so to speak two pouches are hanging and in which they carry their young which suck themselves so firmly to the nipples that they do not let go before they are strong enough to forage for themselves<sup>7</sup>). Also curious is the animal that the Portuguese call *Preguiça* because it climbs up and down a tree so slowly that four days hardly suffice<sup>8</sup>). Unusual is also the race of *Tamendoa's* which have a body as a wether, a very elongate thin snout and long flat claws. They live from ants, the hiding places and nests of which they rob through holes made with the claws; they stick their extended tongue inside and withdraw it covered with ants and like to devour them as captives.

- (133) For protection they have a long hairy tail like squirrels, under which they hide themselves so nothing of their bodies remains visible<sup>9</sup>). The *Jaguareta's*, which the Portuguese call *Onça's*, are black tigers<sup>10</sup>). *Cayataya's* are monkeys of a yellowish colour, which smell like musk<sup>11</sup>). The *Teju* is a lizard of various colour and size<sup>12</sup>). *Boiguaçu*, a very large multicoloured snake<sup>13</sup>). *Boicinininga*, in Portuguese *Cascavel*, is a poisonous snake that with a long, rattling tail warns people for its presence<sup>14</sup>). *Boiobi* is a green snake<sup>15</sup>). *Cariguaya's* are the *Cerigo's* mentioned above<sup>7</sup>).

#### Bird species.

Of bird species one has the following. The *Tucan*, as large as a magpie with a yellow breast, a very large, long and light beak, with a yellow outside and red within<sup>16</sup>). The *Guara*, a bright red bird<sup>17</sup>). The *Piretaguara* is of a green colour<sup>18</sup>). The *Parrots* are sufficiently known. The *Arara*, purple and blue. It is called the Brazilian Raven; it exceeds in size and beauty all others<sup>19</sup>). The American *Ostrich* is smaller than the African<sup>20</sup>).

However, not only wild animals are found in Brazil, but also sheep and horses, recently introduced by the Portuguese, which multiply very rapidly. One also comes across very beautiful horses, which fetch high prices and in large numbers are bought by the Portuguese in Angola. Also of other cattle dense herds are found, so that not a few herds of 500 to a few thousand bulls and cows are kept by a single owner. Especially in the plains of Paratinga, where fertile meadows occur, they breed abundantly. Their increase is unbelievable and the meat is so good that it is furnished to the sick both as medicine and as food. The fowl are, due to the moderate climate, innumerable. They are no less desired by the Natives than by the Portuguese and well taken care of. The country produces geese which surpass the European in size and are better. The sheep create aversion by their greasiness and judging by our taste, are of inferior quality.

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#### Fishes

While the sea is extremely rich with fishes, the rivers are famous for the multitude of swimming animals. *Olho de Boy* carries that name on account of its oxen eyes, the epitheton with which Homer usually indicates Juno. This has the size of the tunies of the Spanish and is so fat that the Natives make of its grease oil that resembles butter<sup>21</sup>). One of the most important fishes is the *Camurupi*, of good taste, with terrible spines, of which he carries one on the back that stands upright<sup>22</sup>). The *Piraambu* that emits a snore as someone sleeping, is 8 or 9 palms [1

palm=10 cm] long, high in price and of very good taste. In the mouth it has two small stones between which it crushes shell-fish on which it lives. The Natives string them to make necklaces<sup>23</sup>. *Beyupira*, which resembles the Portuguese sturgeon, is frequent here; its shape is slender, its back black, its belly white. This is also known from European waters as the Tainha's (Tagana, Taagfish) of the Portuguese. They are beneficial against snakebite<sup>24</sup>. Of the Cyprinids<sup>25</sup> there are many species, like carps and breams, ray and other fishes<sup>26</sup>. The Dorado's (gold-mackerels) excel above all; the Natives call them *Waraka Pemme*<sup>27</sup>. *Araguagua* is a fish with a sword [shaped] beak<sup>28</sup>. *Guaperua* and *Peixe Porco* are everywhere detested for its thorns [spines in the original text]<sup>29</sup>. *Guacucua* is a water-bat<sup>30</sup>. *Nhanduguacu* a large sea-spider<sup>31</sup>. On the beaches occur large numbers of heavy turtles, which lay eggs as big as chicken-eggs round, white and with a resistant shell, in the

(134) sand<sup>32</sup>. The most cruel fishes are the *Tubarões* (sharks) which can be fatal for swimmers<sup>33</sup>. They have as company multicoloured fishes which the Portuguese call *Caçadores*<sup>34</sup>. The Natives arm their arrows with shark teeth on account of their pungency and their venomousness<sup>35</sup>. Also there are flying fishes which catch the eye by their beauty, sparkling like gems, with wings as those of bats, without feathers and silvery. When they flee for hostile fish they escape by flying and then often fall on board [of ships], which the sailors consider as a good omen<sup>36</sup>. It is believed that here also occurs the electric ray, which the Natives call *Puragua* because it strikes the limbs with lameness and even if it is only touched with a stick, then it makes the arm powerless. Killed, it loses its poison and becomes edible<sup>37</sup>.

#### The Tritons.

Most surprising are the *Tritons*, by the Natives called *Ypupiapra*, since they show an almost human face and the female creatures show long hanging hair with a more attractive appearance. They are observed at 7 or 8 miles from the Baía de Todos los Santos and also near the province of Porto Seguro. One believes that they kill people in a slow embrace, not by malignancy but by extreme love. Because corpses washing ashore are damaged at the eyes, nostrils and fingertips, it is most probable that this is caused by sucking or biting by such marvels of the sea<sup>38</sup>. These seas teem with cuttlefish [cephalopods] the blood of which is ink, with polyps and large sea nettles<sup>39</sup>. Oysters and such shell-fish are very numerous<sup>40</sup>. The Natives use mussel

177 shells instead of spoons and knives<sup>41</sup>. Little 'horns' and 'sawshells' compete in beauty and are a delight for the eyes<sup>42</sup>.

#### Sea-birds.

Of the sea-birds some are worth mentioning for the development of their bill, others by the split shape of their tails, still others by epilepsy [?] and again still others by their diversity of colours; some are remarkable because they can not fly<sup>43</sup>.

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[Chile]

#### Animal world..

The animal world considerably differs from ours. The sheep are partly wild as

349 in Scotland, partly tame. In appearance they somewhat resemble camels, but are not that large; the neck is longer and slender; they have a split lip but are completely without a hump. The colour varies; there are some which are white, which are black, which are ash grey, but the wild sheep are red and brown-yellow. The owners lead them to wherever they wish by a rope that passes through the pierced ears, like horses by the bridle<sup>44</sup>. Chile also produces a little animal with the size of a squirrel, bare [?], that is highly esteemed by the Peruvians; it is called *Chincilla*<sup>45</sup>. There is here much cattle and there are many ostriches<sup>46</sup>.

#### comments

1. The animal called here wild swine is evidently not a pig but, considering the added information, the capibara (*Hydrochaeris hydrochaeris* (Linnaeus)), which is a large rodent. The indigenous vernacular name capybara is used by Marcgrave, who extensively describes and figures the species (in Piso & Marcgrave, 1648: 230). It is also known by the name water hog.
2. Anta is the Portuguese name of the tapir (*Tapirus terrestris* (Linnaeus)), described and figured by Marcgrave (in Piso & Marcgrave, 1648: 229).
3. The Cotia, a vernacular name also recorded by Marcgrave for the aguti (*Dasyprocta leporina* (Linnaeus)), is a rather common rodent in northern South America. It is described and figured by Marcgrave (in Piso & Marcgrave, 1648: 224).
4. The indigenous vernacular name Paca is still used for the rodent species here referred to, *Agouti paca* (Linnaeus), a close relative of the previous species. A description and figure are given by Marcgrave (in Piso & Marcgrave, 1648: 224).
5. Tatu is the indigenous vernacular name for armadillos, of which several species occur in the region. Since the size as recorded by Barlaeus, in translation, is verbally the same as used by Marcgrave: 'as big as a young pig' (in Piso & Marcgrave, 1648: 231) for the seven-banded armadillo (*Dasyppus septemcinctus* Linnaeus), that probably is the species here recorded. But Barlaeus' further information includes no pertinent supporting evidence, and Marcgrave (l.c.) also describes two other species: the nine-banded armadillo (*Dasyppus novemcinctus* (Linnaeus)) and the three-banded armadillo (*Tolypeutes tricinctus* (Linnaeus)).
6. The name Tiger, used for the larger carnivores, here probably refers to the jaguar (*Panthera onca* (Linnaeus)), described and figured, with the indigenous vernacular name jaguara, by Marcgrave (in Piso & Marcgrave, 1648: 235). The puma (*Puma concolor* (Linnaeus)), with the indigenous vernacular name cuguarana (Marcgrave, in Piso & Marcgrave, 1648: 235) is also known as tiger, but probably less 'feared by the population'.
7. The name Cerigo was not found in the available literature but, judging by the relatively extensive information added by Barlaeus, presumably concerns the common opossum (*Didelphis marsupialis* (Linnaeus)). This is the only pouched marsupial described and figured by Marcgrave (in Piso & Marcgrave, 1648: 222), for which he provides the similar indigenous vernacular name cariguaya.
8. Preguiça is the Portuguese name for a sloth. In the region occur two species, the three-toed sloth (*Bradypus tridactylus* (Linnaeus)) and the two-toed sloth (*Choloepus didactylus* (Linnaeus)). Since Marcgrave (in Piso & Marcgrave, 1648: 221)

- extensively describes and figures only the three-toed sloth, this must be the species here referred to.
9. The Tamendoa (or Tamandua, in indigenous vernacular) is an ant-eater and, considering the added information, here doubtlessly the giant ant-eater (*Myrmecophaga tridactyla* (Linnaeus)), described and figured by Marcgrave (in Piso & Marcgrave, 1648: 225).
  10. The Jaguareta apparently is not a separate species but identical with the jaguar (*Panthera onca* (Linnaeus)), here already discussed under the vernacular name tiger (Sawaya, in Marcgrave, 1942: LXXXIII).
  11. Cayataya is the indigenous vernacular name of the brown capucin monkey (*Cebus apella* (Linnaeus)). The species is described and figured by Marcgrave (in Piso & Marcgrave, 1648: 227, fig. p. 226), with the similar vernacular name caitaia.
  12. Teju, presumably a shortened version of the tupi name tejucuaca, as stated by Barlaeus refers to a species of lizard, probably *Tupinambis nigropunctatus* Spix. It is described and figured by Marcgrave (in Piso & Marcgrave, 1648: 237).
  13. The indigenous vernacular name Boiguaçu (or Boi Guacu), also used by Marcgrave (in Piso & Marcgrave, 1648: 239), has usually been applied for *Boa constrictor* (Linnaeus). Hoogmoed (in Boeseman et al., 1990: 76) presumes that Marcgrave does not figure the species, but possibly the snake figured erroneously with the rattlesnake text, on p. 240, actually represents the present species.
  14. The name Cascavel, according to Marcgrave (in Piso & Marcgrave, 1648: 240), was derived from the Portuguese casca vela, the indigenous vernacular name being boicinginga or boicinininga. This is a rattlesnake, presumably *Crotalus durissimus* (Linnaeus) (Hoogmoed, in Boeseman et al., 1990: 77).
  15. The vernacular name Boiobi (Boi-obi) is only incidentally recorded by Marcgrave in an appendix to the Boi Guacu (*Boa constrictor*, see above) paragraphs (Piso & Marcgrave, 1648: 239), as green, poisonous, and with a length of two to three feet (erroneously recorded in translation as inches). It seems correctly identified as *Phylodryas viridissimus* (Linnaeus) by Sawaya (in Marcgrave, 1942: LXXXIV).
  16. The name Tucan (or Toucan), from the indigenous vernacular, refers to a group of birds including several in the region here considered. Since the scanty description provided by Barlaeus accurately agrees with information provided by Marcgrave (in Piso & Marcgrave, 1648: 217), confirming the likelihood that Barlaeus (through De Laet) had access to Marcgrave's text or notes, and accepting the identification by Pinto (in Marcgrave, 1942: LXXVII), the species here referred to must be *Rhamphastos toco* S. Müller.
  17. The indigenous vernacular name Guara doubtlessly stands for the scarlet ibis, *Eudocimus ruber* (Linnaeus). It is described in detail and well figured by Marcgrave (in Piso & Marcgrave, 1648: 203).
  18. The evidently indigenous vernacular name Piretaguara was not found in any of the available literature, while the only character Barlaeus records, the green colour, hardly limits the possibilities.
  19. Arara, a shortened version of (probably) araracanga, is the indigenous vernacu-

lar name for *Ara chloroptera* Gray provided by Marcgrave (in Piso & Marcgrave, 1648: 206). The record of a purple colour should rather be interpreted as red or crimson.

20. The American Ostrich hardly needs comment. It is the rhanduguacu of Marcgrave (in Piso & Marcgrave, 1648: 190), the indigenous vernacular name nowadays being reduced to nandu or replaced by rhea (*Rhea americana* (Linnaeus)).
21. The Portuguese name Olho de Boy ('Boope, marinus piscis' in original Latin text) was not found in the available literature, but most likely stands for peixe-boi, the manatee (*Trichechus manatus* (Linnaeus)), with the indigenous vernacular name of (i)guaraguá. Remarkably, this conspicuous species is not listed, described or pictured, by Marcgrave (in Piso & Marcgrave, 1648). In an excellent review of the former southern distribution of the manatee, Whitehead (1977: 178, 183) expresses his surprise about the missing records by Barlaeus, Piso or Marcgrave, and presents a map of the possible former distribution of the manatee in South America showing a conspicuous gap around the region of former Dutch Brazil. Apparently, Whitehead overlooked the present Barlaeus record on page 176 (133), while drawing attention to a Triton record on page 176 (134), cleverly found in the short faunistic paragraphs hidden among the extensive and detailed historiographic main texts of the book. Possibly Whitehead did not consider Barlaeus' aberrant name and limited accompanying information sufficient for the present interpretation, but this seems supported by the following observations.  
As stated above, Whitehead found the manatee to be lacking in Marcgrave's text, but he omitted to peruse the extensive introductory texts by Piso in which the vaccae marinae are named together with the tritons or nereids (sea-nymphs, peixe mulhier in Portuguese, iupiapre in indigenous vernacular) (Piso, in Piso & Marcgrave, 1648: 11; Piso, 1658: 11; Piso, 1948: 12-13; Piso, 1957: 48). These records seem to confirm the present interpretation. It may be assumed that Piso, when writing the introduction to the *Historia naturalis Brasiliae* after his return to Holland, had access to Marcgrave's notes or De Laet's interpretation, which may have been his source for the manatee records. Since Marcgrave probably made many more journeys (Whitehead, 1979) in Dutch Brazil looking for animals than Piso in his search for (medicinal) plants, it seems unlikely that he was unaware of the occurrence of the manatee in the area. The problem remains why Marcgrave omitted to describe (and picture) the species.
22. The indigenous vernacular name Camurupi, or camuri according to Marcgrave (in Piso & Marcgrave, 1648: 160), should be attributed to a species of *Centropomus*, presumably *C. parallelus* Poey (Boeseman, in Boeseman et al., 1990: 97), but Carvalho & Sawaya (in Marcgrave, 1942: LVI) identify the species as *C. undecimalis* (Bloch). As already stated by Marcgrave, it is generally known by the name of roballo (Tastevin, 1922: 703).
23. Piraambu, or piraambu according to Marcgrave (in Piso & Marcgrave, 1648: 167), seems the indigenous vernacular name of a grunt, presumably a *Haemulon* species. If we accept the identification of Carvalho & Sawaya (in Marcgrave, 1942: LVIII), this record refers to *H. album* Cuvier, but considering the spots on the fish as figured by Marcgrave, it may rather concern *H. steindachneri* (Jordan



& Gilbert).

24. The Beyupira (or barawari cf. Tastevin, 1922: 699), described as looking like a Portuguese sturgeon, considering the shape and armour of the head, the inferior position of the barbeled mouth, the shape of body and tail, may well be interpreted as the guacary (*Hypostomus* species or *Pterygoplichthys etentaculatus* (Spix)), the only members of the extensive group of loricariid catfishes recorded by Marcgrave (in Piso & Marcgrave, 1648: 160). Unfortunately the next sentence poses a problem. By not first presenting the usual vernacular name and by its wording, it appears intended to provide additional information for the beyupira, but in fact it only refers to the Portuguese mullet or tainha (*Mugil cephalus* (Linnaeus)). Consultation of Barlaeus' original Latin text shows that no translational error is involved: 'Etiam Europaeo mari noti, ut quos Portugalli Tainhas vocant, adversus anguium morsus salubres'. I am not aware of any ichthyological remedy against snake poisoning. But if the sentence is intended to refer to Brazilian mullets, the indigenous vernacular name curema should have been added, pointing to *Mugil curema* Valenciennes or possibly *M. liza* Valenciennes, the only mullets recorded by Marcgrave (in Piso & Marcgrave, 1648: 181).
25. The fishes called Cyprinids here evidently are characids, of which Marcgrave (in Piso & Marcgrave, 1648: 156, 157, 164, 169 and 170) records seven species with the vernacular names of curimata, tareira de rio, piraya, piranha, muturague, piaba and biabucu successively. They were tentatively identified by Carvalho & Sawaya (in Marcgrave, 1942: LVI-LIX) as *Prochilodus argenteus* Agassiz; *Macrodon trahira* (= *Hoplias malabaricus* (Bloch)), *Serrasalmus* (*Pygocentrus*) *piraya* Cuvier, *Serrasalmus* spec., *Erythrinus erythrinus* (Bloch & Schneider), *Leporinus copelandi* Steindachner and *Piabuca dentatus* (Koelreuter).
26. The further sentence seems to imply that the subsequent groups of fishes belong to the cyprinids, which is the consequence of a faulty translation into Dutch (and English) of the original text. The carps and bream actually are sea-carps and sea-breams belonging to the sparid fishes; moreover, the scombrids were omitted from the original Latin text: 'Cyprinorum varia genera, Pargi & Sargi Lusitanis dicti, Scombrorum species, Acus, Raiae, aliique'. Marcgrave records three sparids (in Piso & Marcgrave, 1648): 147 - Guaibiaya, *Archosargus probatocephalus* (Walbaum); 153 - Sallema, *Archosargus rhomboidalis* (Linnaeus); and 161 - Acarapeba, unidentified, called bream by Marcgrave. Only two scombrids are described by Marcgrave (in Piso & Marcgrave, 1648: 178-179), the Guarapucu, *Scomberomorus cavalla* (Cuvier) and Cororoca, probably *Sarda sarda* (Bloch). The name Acus must refer to *Strongylura timucu* (Walbaum). Four rays are recorded by Marcgrave (in Piso & Marcgrave, 1648): 152 - Puraquê, *Rhinobatos percellens* (Walbaum); 175 - Aiereba, *Paratrygon orbicularis* (Bloch & Schneider) or *Potamotrygon ajereba* (Walbaum); same page - Jabebirete, *Dasyatis guttata* (Bloch & Schneider); same page - Narinari, *Aetobatus narinari* (Euphrasen).
27. The Dorado or, in indigenous vernacular, guaracapema, as stated by Marcgrave (in Piso & Marcgrave, 1648: 160) is the dolphin, *Coryphaena hippurus* (Linnaeus). The name Waraka Pemme, or warakapema, was only found recorded by Taste-

- vin (1922: 749), unfortunately without any identification.
28. Araguagua is the indigenous vernacular name of sawfishes, of which a few species occur in the area. Marcgrave (in Piso & Marcgrave, 1648: 159) seems to describe and figure only *Pristis pectinata* (Latham) (Boeseman, in Boeseman et al., 1990: 59), which probably is Barlaeus' species.
  29. Of the two species mentioned here, the peixe porco is described and figured by Marcgrave (in Piso & Marcgrave, 1648: 163), with also the indigenous vernacular name guaperua. Considering also the prominent spines to which Barlaeus draws attention, it should be interpreted as a trigger-fish, probably *Balistes vetula* (Linnaeus). The present guaperua therefore probably is the only other fish species recorded by that name and figured by Marcgrave (in Piso & Marcgrave, 1648: 150), an angler-fish, presumably *Antennarius* spec. This may be confirmed by the adjective "orbis" (round) in the original latin text, omitted in the Dutch (and present English) translation, if referring to the shape of the fish.
  30. The Guacucua or waterbat is described and figured by Marcgrave (in Piso & Marcgrave, 1648: 143) and may be identified as *Ogcocephalus vespertilio* (Linnaeus) (or *O. longirostris* (Valenciennes), see Boeseman, in Boeseman et al., 1990: 48).
  31. The Nhanduguacu, called sea-spider by Naber, but only spider in the Latin text, is misplaced among the fishes. It has been described, with the same indigenous vernacular name and figured by Marcgrave (in Piso & Marcgrave, 1648: 248) and belongs to the terrestrial bird spiders (*Avicularia* species), but a further identification of Marcgrave's species remains uncertain (Boeseman, in Boeseman et al., 1990: 68, 135).
  32. The turtles recorded by Barlaeus as heavy and laying eggs on the beach may represent the jurucua of Marcgrave (in Piso & Marcgrave, 1648: 241), but Marcgrave's description seems heterogeneous. Probably four or five species of sea turtles (Chelonidae) may occur in north-eastern Brazil, of which Sawaya (in Marcgrave, 1942: LXXXV) mentions *Caretta caretta* (Linnaeus) and *Chelonia mydas* (Linnaeus) as possibly representing Marcgrave's species, with a distinct preference for the first named.
  33. The Tubarões or sharks are quite common along the shores, but unfortunately not specified by Barlaeus. Marcgrave (in Piso & Marcgrave, 1648: 164, 172, 173, 181) records five shark species from the area, but the identification poses serious problems, as shown by the mostly erroneous efforts of Carvalho & Sawaya (in Marcgrave, 1942: LVII, LIX, LX). Only the attributions to the bonnethead (*Sphyrna tiburo* (Linnaeus)) and possibly the blue shark (*Prionace glauca* (Linnaeus)) appear reliable. Marcgrave's cucari (p. 164) may not be interpreted as the extralimital *Scoliodon* (= *Rhizoprionodon*) *terraenovae* (Richardson) but probably *R. lalandii* (Valenciennes) or possibly *R. porosus* (Poey). The Dutch name kruishaai (misspelt on p. 172) was not found in literature, but here again Carvalho & Sawaya are wrong in attributing it to the extralimital *Squalus blainvillei* (Risso). The fifth species is interesting on account of the given Dutch and Latin names, schoorhaai (misspelt on p. 173, = *Squatina squatina* (Linnaeus)), and squatina, which seems to imply the occurrence of an angel shark around north-eastern Brazil, presumably *S. dumeril* LeSueur, of which no further records that far south have been reported (Compagno, 1984: 147).

34. The vernacular name Caçadores (or Pelgrimes in the Latin text) was not found in the consulted literature. The statement that these 'multicoloured' fishes accompany sharks seems to point to either remoras or pilotfishes, the last being the more colourful and thus recorded by Marcgrave (in Piso & Marcgraves, 1648: 153).
35. The habit to use shark teeth for weapons occurs world-wide in the tropics, but Barlaeus of course is erroneous when recording their venomousness.
36. The flying fishes Barlaeus records with rather extensive information evidently are not flying gurnards (*Dactylopterus volitans* (Linnaeus)), as described and figured by Marcgrave (in Piso & Marcgrave, 1648: 162), but an exocoetid fish presumably referred to in Marcgrave's final note of the flying gurnard paragraph, and must have been based on Marcgrave's or De Laet's original text or one of Johan Maurits' pictures. It may be identified as *Exocoetus obtusirostris* Günther (Boeseman, in Boeseman et al., 1990: 94).
37. The indigenous vernacular name Puragua, judging by the description and figure of Marcgrave (in Piso & Marcgrave, 1648: 151), is a guitar fish, presumably *Rhinobatos percellens* (Walbaum), but the severely numbing shock recorded by Barlaeus as well as Marcgrave points to an electric ray, possibly *Narcine brasiliensis* (Olfers).
38. The Triton, with the indigenous vernacular name Ypupiapra is difficult to interpret and has been thoroughly discussed by Whitehead (1977: 179-184), without reaching a definite conclusion.
39. Several species of cephalopods occur along the Brazilian coasts, but none are recorded by Marcgrave (in Piso & Marcgrave, 1648). This is especially remarkable because among the collections of animal pictures of Johan Maurits, there were available to De Laet (and Barlaeus) at least two representing cephalopods. Judging by copies in the Leningrad archives (Boeseman, in Boeseman et al., 1990: 131), these may be identified as *Doryteuthis plei* Blainville and *Octopus vulgaris* Cuvier. This seems to confirm the suspicion that De Laet did not use all Marcgrave's notes for his Historia text. Perhaps for the same reason the coelenterates are missing in Marcgrave's book.
40. The oyster mentioned by Barlaeus may be *Ostrea equestris* Say or *Crassostrea rhizophorae* (Guilding), and is recorded by Marcgrave (in Piso & Marcgrave, 1648: 188) as reri. In his comment, Sawaya (in Marcgrave, 1942: LXIII) mentions *Ostrea* (= *Crassostrea*) *virginica* (Gmelin), but that species does not venture that far south.
41. The mussel of which the shell is used as spoon or knife by the natives may be *Mytella guyanensis* (Lamarck) or *Perna perna* (Linnaeus), neither being mentioned by Marcgrave.
42. The little 'horns' presumably are unidentifiable gastropods, and the same applies to the 'sawshells', probably bivalves.
43. Since Barlaeus wrote this when De Laet presumably by far was not yet ready transcribing and editing Marcgrave's notes, this review of sea-bird diversity most likely was based on the bird pictures in Johan Maurits' collection.
44. Barlaeus' sheep are llama's (*Lama pacos* (Linnaeus)), described and figured by Marcgrave (in Piso & Marcgrave, 1648: 244).

45. The Andean Chincilla of course is the well-known chinchilla (*Chinchilla laniger* (Molina)), for its fur frequently and successfully reared in captivity. The translation 'bare' is a missinterpretation of the Latin word 'glabrum', meaning both bare and smooth.
46. The Ostrich already has been treated (see 20).

Reconsidering the interpretations given above, it is clear that Barlaeus, probably basing his choice mainly on Johan Maurits' animal pictures and, possibly, advice from De Laet, presents an interesting selection. While several of the more spectacular species are included for the mammals (tapir, sloth, giant ant-eater, armadillo, capybara) and the birds (ara, toucan, rhea), the number of reptiles is limited (as in the *Historia*) and amphibians are completely missing. The number of fishes is larger but not wholly specified. Also, or even more so, the choice of invertebrates is amazing. The crustaceans, one of the major groups recorded by Marcgrave, are completely lacking, the same applies to the echinoderms, of which quite a few species are given by Marcgrave. On the other hand, Barlaeus mentions more molluscs, almost restricted to some cephalopods in the Marcgrave book, and some coelenterates. Probably Marcgrave's notes included several species which De Laet did not include in the *Historia*.

The vernacular names considerably facilitated the identification of several species. Since they seem invariably (or mostly) derived from the tupi language, it was hoped that names lacking in the *Historia* could be found in the list of tupi names of plants and animals assembled by Tastevin (1922), but only a few were found, moreover without any information regarding their identity or (scientific) name.

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