
Mammals of Colombia deposited at the Zoologische Staatssammlung Muenchen, Germany

Héctor E. Ramírez-Chaves

Abstract

The Zoologische Staatssammlung Muenchen (ZSM), Germany, possesses an historical value because is the depository of important specimens that were used in the description of different species, especially from South America. Unfortunately, there is not available information about the mammals of Colombia housed at this collection. For this, 33 specimens from Colombia belonging to six orders, 14 genus, and 17 species were reviewed. Cranial and external measurements are given, as well as information of collectors and localities. Of these specimens, 23 were captured in Northern Colombia and imported to Germany to a pet store between 1954 and 1966. Due the difficulties to access to information of mammals from Colombia in European museums and collections, the information summarized here may be useful for people interested in these species.

Key words. Collectors. Mammals. Northern Colombia. Localities. Specimens.

Resumen

La colección Zoologische Staatssammlung Muenchen (ZSM) en Alemania, posee un carácter histórico ya que alberga importantes ejemplares, especialmente de Suramérica, que fueron empleados para la descripción de diferentes especies. Desafortunadamente no existe información sobre los mamíferos de Colombia depositados en dicha colección. Por esto, un total de 33 especímenes procedentes de Colombia pertenecientes a seis órdenes, 14 géneros y 17 especies depositados en ZSM fueron revisados. Medidas craneales y externas son suministradas al igual que la información de los colectores y localidades. De dichos especímenes, 23 fueron capturados en el norte de Colombia e importados a Alemania hacia una tienda de mascotas entre 1954 y 1966. Teniendo en cuenta la dificultad de acceso a información sobre mamíferos de Colombia depositados en colecciones y museos europeos, la información resumida aquí puede ser útil para personas interesadas en estas especies.

Palabras clave. Colectores. Mamíferos. Norte de Colombia. Localidades. Especímenes.

Introduction

The Zoologische Staatssammlung Muenchen (ZSM) or Bavarian State Collection of Zoology is one of the largest reference collections of Germany. It was founded in 1811 by Johann Baptist von Spix and since then the ZSM has supported zoological studies in systematics and biodiversity (Haszprunar *et al.* 2011).

Despite, the relevance of ZSM in the contributions of the knowledge of the mammals of South American (see Kraft 1982, 1983, 1992), until now, there is no available information in the scientific literature of the mammal specimens from Colombia deposited in this collection.

In order to make more accessible the information of the material from Colombia housed at ZSM, an annotated list of specimens is presented. A total of 33 specimens belonging to six orders, 14 genus, and 17 species from Colombia were reviewed and their identification corroborated. Of these specimens, 23 were captured in northern Colombia and imported to Germany to a pet store (“Von der Tierhandlung Werner aus Kolumbien importiert”) between 1954 and 1966. Four specimens were collected by the herpetologist Dr. Walter Hellmich in the departments of Bolívar (Jesús del Río), Cundinamarca (Bogotá), and Meta (Villavicencio). One specimen was collected by the entomologist Dr. Hella Wendt at Lower Río Magdalena, and another by Dr. Friedrich Reiss at the coast of Colombia. The specimens from Barranquilla, and Bogotá, probably were collected in adjacent localities to these places. Three specimens only have the information of the country (Kolumbien) in the locality, while four additional specimens collected in (1) Küste von Kolumbien (coast of Colombia), (2) Lower Río Magdalena, and (3) [Department of Chocó], border of Panama and Colombia, lack of more precise information. In addition, three specimens have precise localities: (1) [Department of Bolívar], Jesús del Río, affluent of Magdalena River (09°51'N-74°54'W; 40 m a.s.l.), and (2) Meta, Villavicencio, Hacienda La Quebradita (04°09'N-73°38'W; 540 m a.s.l.). Given the scarcity of information of mammals from Colombia deposited in European collections, the information regarding the localities and collectors could be useful for people interested in these groups.

The information here presented contains the catalogue number (ZSM year of accession/specimen number), locality, collector, dates, and comments. Additionally, cranial measurements were taken following Voss (2011) for the genus *Coendou*, Wetzel (1975) for *Tamandua*, and Voss *et al.* (2001) for the order Carnivora.

Annotated list

Didelphimorphia

Didelphidae

1. *Chironectes minimus* (Zimmermann, 1780)

Voucher: ZSM 1937/60, female (skin).

Locality: Bogotá.

Collector: W. Hellmich.

Date: 1937.

Pilosa

Myrmecophagidae

2. *Tamandua mexicana* (Saussure, 1860)

Voucher: ZSM 1960/191, female (skull and skin).

Locality: Barranquilla.

Collector: Imported to Germany to a pet shop by A. Werner.

Date: 25.10.1960.

Comments: The skull is slender and presents the discrete diagnostic characters for the species proposed by Wetzel (1975): four pairs of orbital foramina, distance between anterior borders of palatine and lacrimal bones proportionally less than in *Tamandua tetradactyla* (Figure 1A); the jugal is broken. External measurements from the catalogue are: total length: 940 mm; tail: 456 mm; foot: 80 mm; ear: 42 mm; weight: 2900 g. The cranial measurements (Table 1) are in the ranges proposed by Wetzel (1975) and differ from one specimen of similar age of *T. tetradactyla* from Yuto, Jujuy, Argentina, deposited in the collection (ZSM 1955/55).

3. *Tamandua tetradactyla* (Linnaeus, 1758)

Voucher: ZSM 1937/100 (skull).

Locality: Meta, Villavicencio, Hacienda La Quebradita.

Collector: W. Hellmich.

Date: 1937.

Comments: The skull is broad and presents the following discrete morphological characters (Wetzel 1975): three pairs of orbital foramina, and broad jugal bone (Figure 1B). The cranial measurements (Table 1) are in the ranges proposed by Wetzel (1975).



Figure 1. Crania of **A.** *Tamandua mexicana* ZSM 1960/191 (dorsal, ventral and lateral view; arrows show the presence of four orbital foramina). **B.** *Tamandua tetradactyla* ZSM 1937/100 (dorsal, ventral and lateral view; arrows show the presence of three orbital foramina). Scale bar = 10 mm.

Table 1. Measurements of the skull of *Tamandua mexicana* (ZSM 1960/191), and *Tamandua tetradactyla* (ZSM 1937/100 from Colombia, ZSM 1955/55 from Argentina).

Measurements	<i>Tamandua mexicana</i> ZSM 1960/191 (female)	<i>Tamandua tetradactyla</i> ZSM 1937/100 (unknown)	<i>Tamandua tetradactyla</i> ZSM 1955/55 (female)
Anterior rostral width	11.99	14.68	14.42
Minimal length of nasals	34.94	40.35	27.38
Maximal length of nasals	35.45	43.60	31.59
Infraorbital foramina, mean of minimal lengths of the pair	5.48	10.52	6.87
Occipito-nasal length	104.48	129.98	108.11
Rostral length	46.05	59.10	41.68
Post-rostral length	58.93	68.18	64.97
Interorbital breadth	24.39	25.11	25.13
Breadth of braincase	38.18	41.10	39.41

Primates

Aotidae

4. *Aotus griseimembra* Elliot, 1912

Voucher: Five specimens, (1) ZSM 1958/67, male (skin, skull and skeleton): External measurements from the label: total length: 685 mm; tail: 365 mm; foot: 85 mm; ear: 26 mm, weight: 1000 g; (2) ZSM 1958/68, male (skin, skull and skeleton): External measurements from the label include: total length: 655 mm; tail: 350 mm; foot: 90 mm; ear: 30 mm, weight: 1000 g; (3) ZSM 1958/78, male (skin and skull; Figure 2A,C): External measurements from the label: total length: 665 mm; tail: 360; foot: 95 mm; ear: 27 mm, weight: 800 g; (4) ZSM 1958/129, Female, (skull); (5) ZSM 1944/3010 (skull).

Locality: Barranquilla (ZSM 1958/67, ZSM 1958/68, ZSM 1958/78, ZSM 1958/129). “Küste von Kolumbien” (coast of Colombia; ZSM 1944/3010).

Collector: The specimens from Barranquilla were imported to Germany to a pet shop by A. Werner. Specimen ZSM 1944/3010 was collected by F. Reiss.

Date: Deceased 09.05.1958; imported on 07.05.1958 (ZSM 1958/67). Deceased 09.05.1958; imported on 07.05.1958 (ZSM 1958/68). Deceased 19.05.1958; imported on 07.05.1958 (ZSM 1958/78). Deceased 14.07.1958 (ZSM 1958/129).

Callitrichidae

5. *Saguinus geoffroyi* (Pucheran, 1845)

Voucher: ZSM 1954/151, male (mounted skin, skull and skeleton; Figure 2B,D).

Locality: Border of Panama and Colombia.

Collector: H. Heck.

Date: Captured on 17.08.1952, deceased on 16.05.1954.

Comments: The specimen was kept alive at Zoo Hellabrunn, Munich. No measurements available.

6. *Saguinus oedipus* (Linnaeus, 1758)

Voucher: Three specimens, (1) ZSM 1956/44, female (skin, skull and skeleton): External measurements from the label: total length: 637 mm; tail: 385 mm; foot: 72 mm; ear: 19 mm, weight: 425 g; (2) ZSM 1959/176, male (skin, skull and skeleton): External measurements from the label: total length: 600 mm; tail: 350 mm; foot: 50 mm; ear: 20 mm, weight: c.a 500 g; (3) ZSM 1970/75, male (skull).

Locality: Barranquilla (ZSM 1956/44 and ZSM 1959/176). Lower Río Magdalena (ZSM 1970/75).

Collector: Imported to Germany to a pet shop on 1957 and 1959 by A. Werner (ZSM 1956/44 and ZSM 1959/176). H. Wendt, Baden-Baden (ZSM 1970/75).

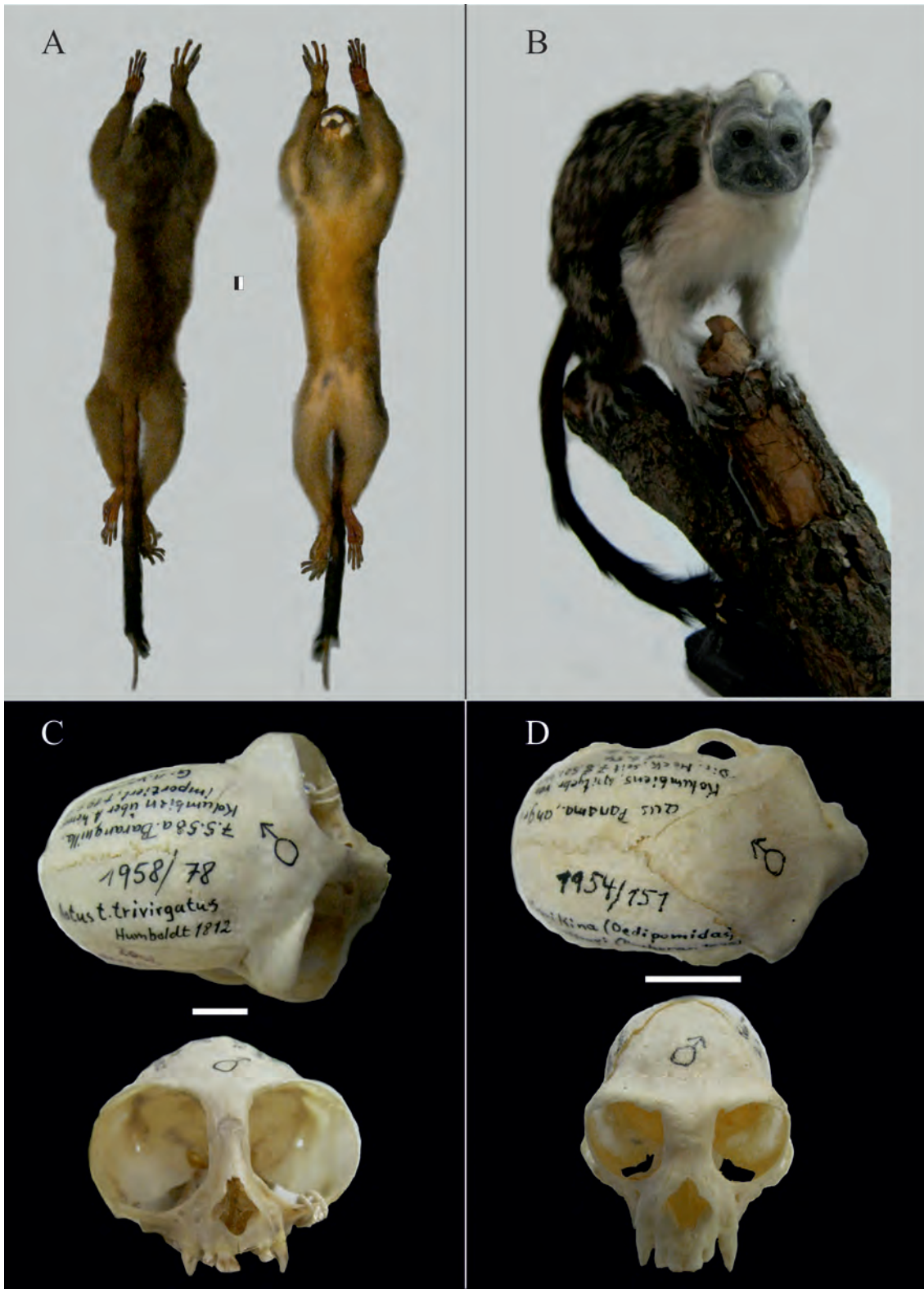


Figura 2. Skin of **A.** *Aotus griseimembra* ZSM 1958/78 (dorsal and ventral view). **B.** Mounted skin of *Saguinus geoffroyi* ZSM 1954/151. Crania of **C.** *Aotus t. trivirgatus* ZSM 1958/78 (dorsal and frontal view). **D.** *Saguinus geoffroyi* ZSM 1954/151 (dorsal and frontal view). Scale bar = 10 mm

Date: Deceased 08.04.1956; imported on 10.10.1957 (ZSM 1956/44). Deceased 14.11.1957; imported on 10.11.1957 (ZSM 1959/176). Deceased on 25.11.1970; imported in 1959 (ZSM 1970/75).

Comments: ZSM 1970/75 was kept alive in captivity for 11 years.

Cebidae

7. *Cebus albifrons* (Humboldt, 1812)

Voucher: ZSM 1960/154, male (skull). External measurements from the label are: total length: 470 mm; tail: 330 mm; foot: 75 mm; ear: 30 mm; weight: 1600 g.

Locality: Barranquilla.

Collector: Imported to Germany to a pet shop by A. Werner.

Date: 15.07.1960.

8. *Cebus capucinus* (Linnaeus, 1758)

Voucher: Three specimens, (1) ZSM 1963/63, male (skin): External measurements from the label: total length: 660 mm; tail: 390 mm; foot: 103 mm; ear: 30 mm, weight: 750 g; (2) ZSM 1963/76, male (skull); (3) ZSM 1903/1323, female (skull).

Locality: Barranquilla (ZSM 1963/63 and ZSM 1963/76). Colombia, without additional data (ZSM 1903/1323).

Collector: Imported to Germany to a pet shop by A. Werner (ZSM 1963/63 and ZSM 1963/76). M. P. Riedel, Roda (ZSM 1903/1323).

Date: 24-26.04.1963 (ZSM 1963/63 and ZSM 1963/76). 1903 (ZSM 1903/1323).

9. *Saimiri sciureus* (Linnaeus, 1758)

Voucher: ZSM 1966/235, male (skin, skull and skeleton). External measurements from the label are: total length: 515 mm; tail: 335 mm; foot: 66 mm; ear: 21 mm; weight: 20.5 g.

Locality: Colombia, without additional data.

Collector: Imported to Germany to a pet shop by A. Werner.

Date: 19.08.1966.

Atelidae

10. *Ateles geoffroyi* Kuhl, 1820

Voucher: ZSM 1953/82, female (skull and skeleton). External measurements from the label are: total length: 1090 mm; tail: 410 mm; foot: 170 mm; ear: 25 mm.

Locality: border of Panama and Colombia.

Collector: H. Heck.

Date: 07.08.1952.

11. *Alouatta seniculus* Linnaeus, 1766

Voucher: AM 1364 (skull).

Locality: Colombia, without additional data.

Comments: Skull is broken. Collector and date unknown.

Carnivora

Felidae

12. *Herpailurus yagouaroundi* (É. Geoffroy Saint-Hilaire, 1803)

Voucher: Two specimens, (1) ZSM 1960/162, male, juvenile (skin and skull); (2) ZSM 1960/163, male, juvenile (skin and skull).

Locality: Barranquilla.

Collector: Imported to Germany to a pet shop by A. Werner.

Date: 05.08.1960.

Comments: Both skulls belong to juvenile specimens without the complete emergence of the teeth and with open cranial sutures (Figure 3A). Cranial measurements are presented in Table 2. The specimens were donated by the German ethologist and felid specialist Dr. Paul Leyhausen.

13. *Panthera onca* (Linnaeus, 1758)

Voucher: ZSM 1959/135, female, juvenile (skull and skeleton).

Locality: Barranquilla.

Collector: Imported to Germany to a pet shop by A. Werner.

Date: 15.06.1959.

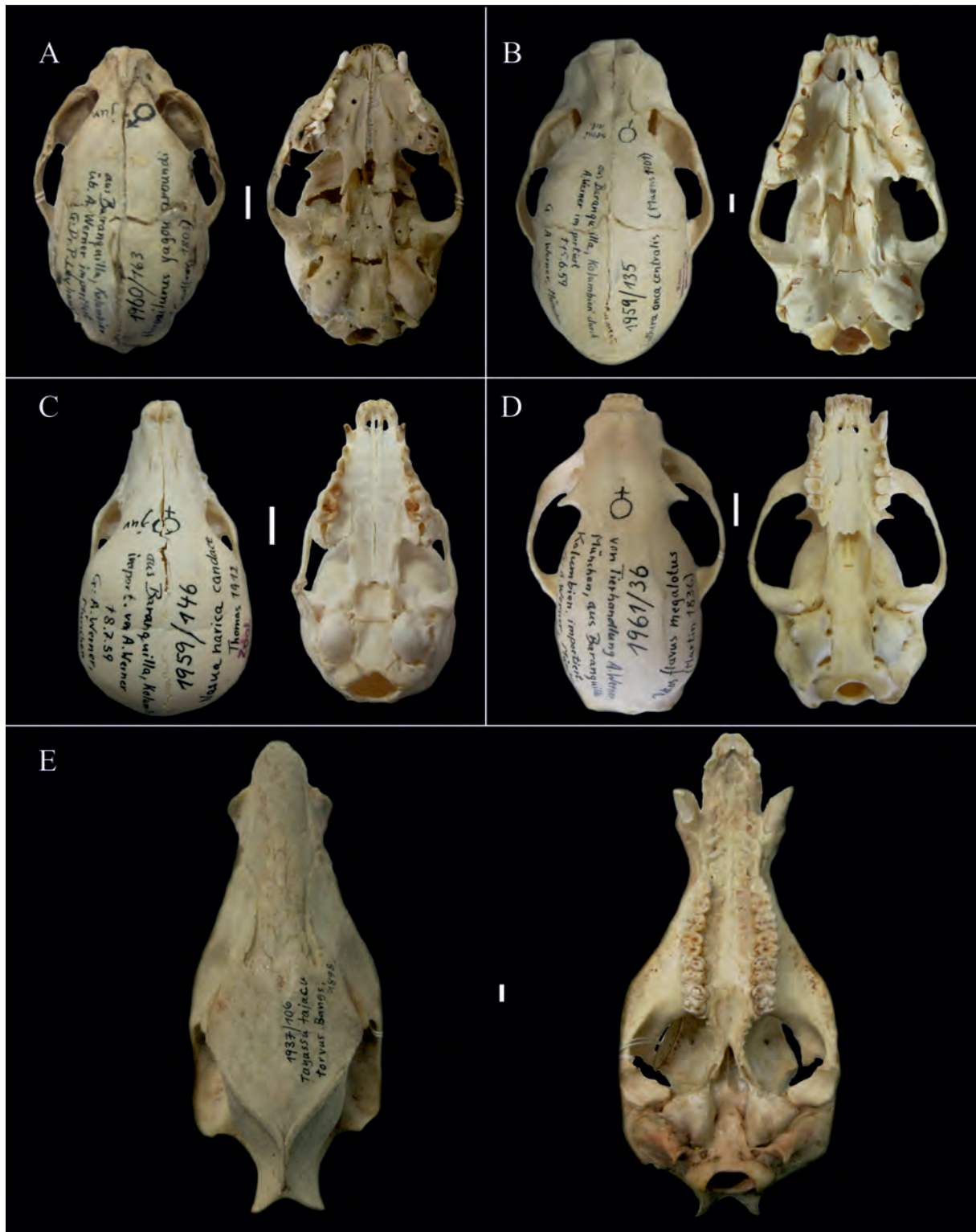


Figura 3. Crania of **A.** *Herpailurus yagouaroundi* ZSM 1960/163 (dorsal and ventral view). **B.** *Panthera onca* ZSM 1959/135 (dorsal and ventral view). **C.** *Nasua narica* ZSM 1959/146 (dorsal and ventral view). **D.** *Potos flavus* ZSM 1961/36 (dorsal and ventral view). **E.** *Pecari tajacu* ZSM 1937/106 (dorsal and ventral view). Scale bar = 10 mm.

Table 2. Cranial measurements of juvenile specimens of *Herpailurus yagouaroundi*, *Panthera onca*, *Nasua narica* and *Potos flavus*.

Measurements	<i>Herpailurus yagouaroundi</i> ZSM 1960/162	<i>Herpailurus yagouaroundi</i> ZSM 1960/163	<i>Panthera onca</i> ZSM 1959/135	<i>Nasua narica</i> ZSM 1959/146	<i>Potos flavus</i> ZSM 1961/36
Condyle-basal length	77.73	77.18	117.31	69.91	77.09
Zygomatic breadth	51.65	51.59	78.34	39.57	53.11
Interorbital breadth	14.72	13.40	22.05	18.88	18.30
Postorbital breadth	30.83	29.79	41.79	-	19.87
Breadth of braincase	42.30	39.99	58.04	40.03	36.23
Maxillary toothrow	22.74	-	41.68	-	23.95
Mandibular length	52.76	49.32	86.61	49.56	56.57

Comments: External measurements from the catalogue include: total length: 580 mm; tail: 260 mm; foot: 140 mm; ear: 68mm. The skull belongs to a juvenile specimen without the complete emergence of the teeth and open sutures (Figure 3B). Cranial measurements are presented in Table 2.

Procyonidae

14. *Nasua narica* (Linnaeus, 1766)

Voucher: ZSM 1959/146, female juvenile (skull).

Locality: Barranquilla.

Collector: Imported to Germany to a pet shop by A. Werner.

Date: 08.07.1959.

Comments: Juvenile specimen with partially emerged teeth and all open cranial sutures (Figure 3C). The palatal is depressed in the posterior part; anterior alveolar foramen medial to infraorbital canal, and the jugal postorbital process is absent. These characters are present in *Nasua narica* (see Decker 1991, Gompper 1995). Cranial measurements are presented in Table 2.

15. *Potos flavus* (Schreber, 1774)

Voucher: ZSM 1961/36, female (skin and skull; Figure 3D).

Locality: Barranquilla.

Collector: Imported to Germany to a pet shop by A. Werner.

Date: 03.05.1961.

Comments: Adult specimen with all the teeth emerged and cranial sutures fused. External measurements from the catalogue include: total length: 925 mm; tail: 475 mm; foot: 90 mm; ear: 27 mm; weight: 1600 g. Cranial measurements are presented in Table 2.

Artiodactyla

Tayassuidae

16. *Pecari tajacu* (Linnaeus, 1758)

Voucher: Two specimens: ZSM 1937/105 (skull); ZSM 1937/106 (skull, Figure 3E).

Locality: Bolívar, Jesús del Río, affluent of Magdalena River.

Collector: W. Hellmich.

Comments: Date of collection probably 1937.

Rodentia

Erethizontidae

17. *Coendou prehensilis* (Linnaeus, 1758)

Voucher: Seven specimens, (1) ZSM 1956/199, female, adult (skull and skeleton); (2) ZSM 1957/167, female, adult (skin and skull); (3) ZSM 1957/187, female, subadult (skull and skeleton); (4) ZSM 1958/9, female, adult (skull); (5) ZSM 1958/10, female, adult (skull); (6) ZSM 1958/20, female, adult (skin, skull and skeleton); (7) ZSM 1958/76, female, subadult (skull).

Locality: Barranquilla.

Collector: Imported to Germany to a pet shop by A. Werner.

Date: Deceased 01.10.1956 (ZSM 1956/199). Deceased 30.10.1957; imported on 09.1957 (ZSM 1957/167). Deceased 03.12.1957; imported on 10.11.1954 (ZSM 1957/187). Deceased 30.01.1958; imported on 10.11.1957 (ZSM 1958/9). Deceased 30.01.1958; imported on 10.11.1957 (ZSM 1958/10). Deceased 23.2.1958; imported on 10.11.1957 (ZSM 1958/20). Deceased 15.06.1958; imported on 07.05.1958 (ZSM 1958/76).

Comments: One specimen (ZSM 1957/187) was kept alive for almost three years. Measurements are presented in Table 3. Specimens of *Coendou* from northern Colombia have been considered as a different species (named *C. sanctaemartae*), endemic of Colombia (Alberico *et al.* 2000b), but with probable

presence in the lowlands of the Serranía de Perijá in both Colombia and Venezuela (Alberico *et al.* 2000a). In a recent revision, Voss (2011) synonymized *C. sanctaemartae* with *C. prehensilis* based on the similar measurements of adult specimens from northern Colombia and central Brazil (*C. prehensilis*) and the absence of external or cranial features to differentiate them. As expected, the measurements given by Voss (2011) for specimens from northern Colombia are similar to those of specimens from Barranquilla at ZSM (Table 3) but slightly smaller than specimens from Brazil and Bolivia. One adult specimen from Maracay, Venezuela (ZSM 1928/452) presents similar measurements, as well as cranial and external morphology than those of specimens from Barranquilla (Figure 4). The skull of the specimen from Venezuela is broken.

Table 3. Measurements of the skull of specimens of *Coendou prehensilis* from northern Colombia. Sample means, the observed range (in parenthesis), and the sample size.

Measurements	Northern Colombia at ZSM	Northern Colombia (Voss 2011)
Condylar-incisive length	82.89 (78.8-85.5) 7	84.5 (77.8-91.8) 16
Length of diastema	20.9 (18.4-22.8) 7	22.0 (20.0-24.6) 16
Maxillary tooth row	19.3 (18.2-20.8) 6	19.4 (18.6-20.4) 15
Length of molars	14.3 (13.5-15.3) 6	14.3 (13.3-14.8) 15
Breadth of P4	5.4 (4.8-6.0) 7	5.7 (5.3-6.1) 16
Breadth of M1	5.3 (4.7-5.7) 7	5.4 (5.1-5.7) 15
Anterior palatal breadth	6.7 (5.8-7.8) 7	6.5 (5.2-7.5) 16
Posterior palatal breadth	8.4 (8.0-9.1) 6	8.7 (7.7-10.0) 14
Posterior zygomatic breadth	50.5 (46.7-53.2) 6	50.1 (46.8-53.3) 14
Height of the infraorbital foramen	12.7 (12.0-14.7) 7	12.2 (10.2-13.5) 16
Zygomatic length	33.2 (31.2-35.7) 6	32.9 (30.7-35.8) 16
Length of nasals	32.2 (28.0-35.0) 4	30.0 (27.5-32.0) 11
Breadth of nasal aperture	18.6 (15.3-20.5) 7	19.0 (17.3-20.3) 13
Breadth of braincase	36.1 (34.3-38.0) 7	37.0 (35.2-39.2) 16
Depth of incisor	4.0 (3.1-4.4) 7	4.2 (3.8-4.5) 16
Breadth of the incisor tips	8.8 (7.5-10.7) 7	6.1 (5.6-7.4) 15

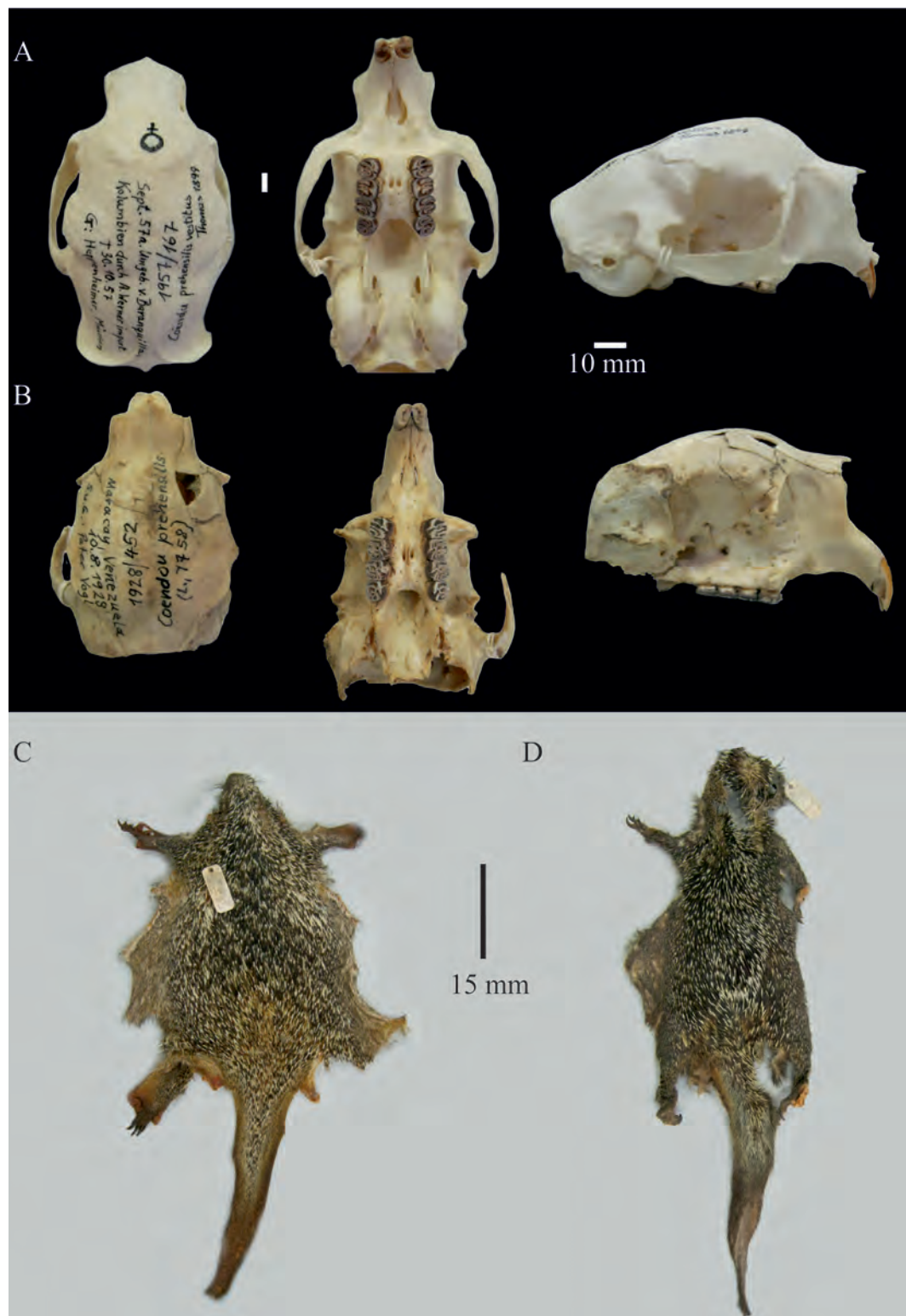


Figura 4. *Coendou prehensilis* from Barranquilla, Colombia. **A.** ZSM 1957/167 (cranium in dorsal, ventral and lateral view) and from Maracay, Venezuela. **B.** ZSM 1928/452 (cranium in dorsal, ventral and lateral view). **C.** Skin of specimen ZSM 1958/20 from Colombia. **D.** Skin of specimen ZSM 1928/452 from Venezuela. Scale bar = 10 mm.

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Héctor E. Ramírez-Chaves
Weisbecker Lab, School of Biological Sciences,
University of Queensland
Goddard Building 8, St. Lucia 4072, Brisbane, Australia.
hera.chaves@gmail.com

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