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## ON SOME MONKEYS FROM RONDÔNIA, BRASIL (PRIMATES: CALLITRICHIDAE, CEBIDAE)

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### ABSTRACT

*Callithrix emiliae* and *Saguinus fuscicollis weddelli* (Callitrichidae), *Callicebus moloch* and *Pithecia hirsuta* (Cebidae) were collected in the state of Rondônia, Brasil, as part of the project "Polonoroeste". Taxonomic and distributional notes are provided for all species but *S. fuscicollis*, whose taxonomy is not commented. The taxonomic status of *Callicebus geoffroyi* Miranda-Ribeiro is assessed.

### INTRODUCTION

The primate fauna of Rondônia is still poorly known. The main sources of information are the collections made by Natterer (Pelzeln, 1883; Wagner, 1848), the Comissão Rondon (Miranda-Ribeiro, 1914) and the Roosevelt Expedition (Allen, 1916).

As part of the ecological section of the program "Polonoroeste", coordinated by the Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq) of Brasil, a Museu de Zoologia party, doing herpetological research under the leadership of Dr. P. E. Vanzolini, made a small collection of primates that deserves comments and indicates that the area still needs much collecting effort.

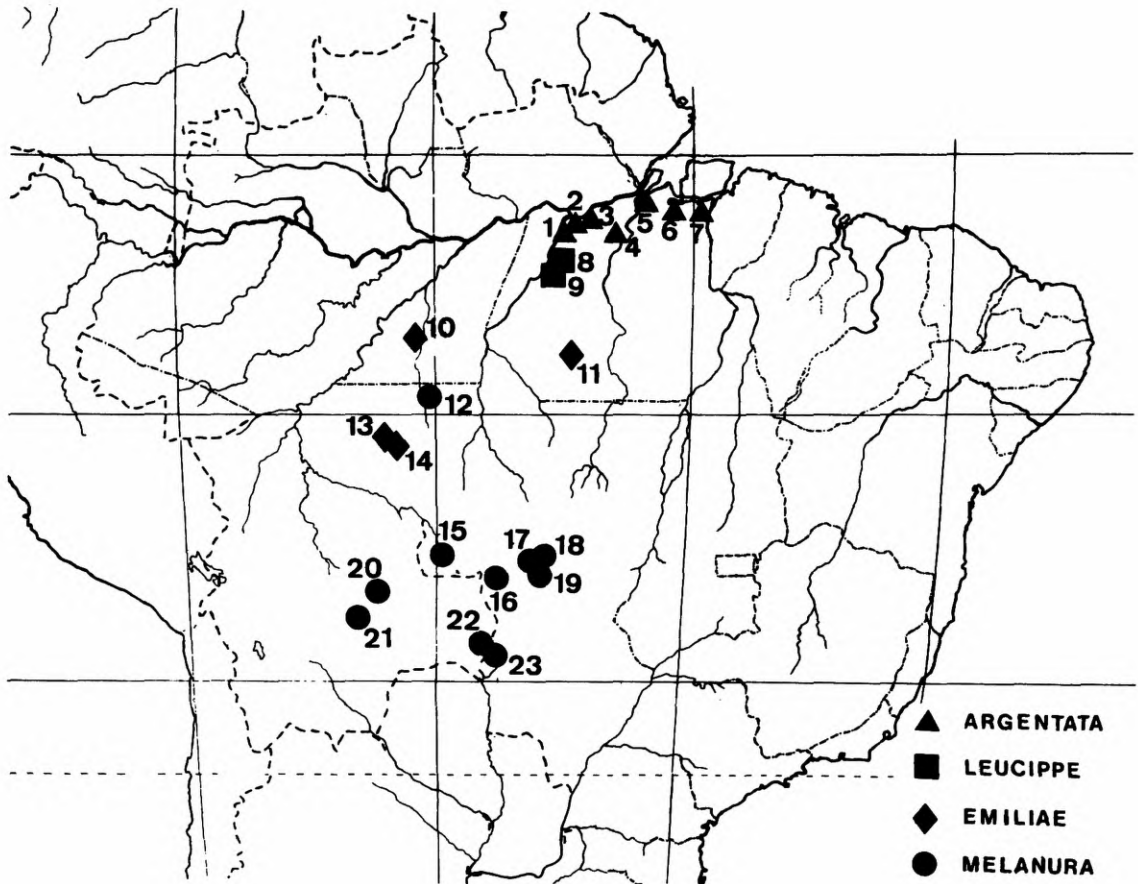
The materials were compared with specimens at the Museu Nacional, Rio de Janeiro (MNRJ), Museu Paraense Emilio Goeldi (MPEG) and Centro Nacional de Primatas (CENP), Belém, to whose authorities thanks are due.

### Callitrichidae

#### *Callithrix emiliae* (Thomas)

Specimens examined: Rondônia: Nova Brasilia: MZUSP 18957, 10.xi.1984, field number 84.0536, male, stuffed skin, skull, skeleton; MZUSP 18958, 10.xi.1984, field number 84.0540, male, stuffed skin, skull, skeleton; MZUSP 18959, 10.xi.1984, field number 84.0542, male, flat skin, skull; MZUSP 18960, 8.xi.1984, field number 84.0472, female, stuffed skin, skull, skeleton; MZUSP

18961, 8.xi.1984, field number 84.0474, female, stuffed skin, skull, skeleton; Ji-Paraná, mouth of the Rio Urupá: MNRJ 23827, 1.ii.1961, A. Machado & F. S. Pereira col., female, flat skin. Amazonas: mouth of the Rio Castanho: MNRJ 2851, 10.iv.1914, Comissão Rondon, field number 33, male, stuffed skin; MNRJ 2856, 9.iv.1914, Comissão Rondon, field number 31, male, flat skin. Pará. Maloca, upper Rio Curuá, upper Rio Iriri: MPEG 170, 10.xi.1914, E. Sneath col., field number 36, male, stuffed skin (paratype).



Map 1. Distribution of the species of *Callithrix* discussed in the text. 1: Tauari, Pa (03° 05'S, 55° 06'W); Piquiatuba, Pa (02° 27'S, 54° 55'W); Aramanaí, Pa (02° 34'S, 54° 58'W); Belterra, Pa (02° 38'S, 54° 57'W); Caxiricatuba, Pa (02° 45'S, 55° 02'W). 2: Santarém, Pa (02° 26'S, 54° 43'W); Faz. Marucu and Mararu, Pa (02° 32'S, 54° 38'W); Maicá, Pa (02° 35'S, 54° 23'W); Os Patos, Pa (02° 31'S, 54° 18'W); Taperinha, Pa (02° 32'S, 54° 17'W). 3: Tamacuri, Pa (02° 11'S, 54° 01'W). 4: Altamira, Pa (03° 13'S, 52° 13'W). 5: Recreio, Rio Majari, Pa (01° 42'S, 52° 10'W); Tapará, Pa (01° 38'S, 52° 06'W); Vilarinho do Monte, Pa (01° 37'S, 52° 02'W). 6: Portel, Pa (01° 57'S, 50° 50'W). 7: Cameté, Pa (02° 14'S, 49° 29'W). 8: Távio, Pa (03° 27'S, 55° 11'W); Fordlândia, Pa (03° 42'S, 55° 25'W); Lago Arauepá, Pa (03° 50'S, 55° 39'W); Pedreira, Pa (03° 58'S, 55° 45'W). 9: Monte Cristo, Pa (04° 06'S, 55° 38'W); Pimental, Pa (04° 37'S, 56° 11'W). 10: mouth of the Rio Castanho, Am (07° 33'S, 60° 20'W). 11: Maloca, Pa (07° 54'S, 54° 49'W). 12: Aripuanã, MT (09° 10'S, 60° 38'W). 13: Ji-Paraná, Ro (10° 52'S, 61° 57'W). 14: Nova Brasília, Ro (11° 09'S, 61° 34'W). 15: Vila Bela da Santíssima Trindade, MT (15° S, 59° 57'W). 16: Caiçara, MT (16° 04'S, 57° 43'W); Cáceres, MT (16° 03'S, 57° 41'W). 17: Cuiabá, MT (15° 37'S, 56° 06'W). 18: Chapada do Guimarães, MT (15° 26'S, 55° 46'W). 19: Santo Antônio do Leverger, MT (15° 52'S, 56° 05'W); Rio Aricá, MT (15° 48'S, 55° 54'W); Palmeiras, MT (15° 54'S, 55° 24'W). 20: Palmarito, Bolivia (16° 49'S, 62° 38'W); Rio Quiser (mouth), Bolivia (16° 32'S, 62° 25'W). 21: Santa Cruz de la Sierra, Bolivia (17° 47'S, 63° 11'W). 22: Puerto Suarez, Bolivia (18° 58'S, 57° 48'W). 23: Corumbá, MS (19° S, 57° 38'W); Urucum, MS (19° 09'S, 57° 38'W).

*Hapale emiliae* was described by Thomas (1920) from two specimens collected by Emilia Snethlage at Maloca (07° 54'S, 54° 49'W) on the Rio Curuá, a tributary of the Iriri, which on its turn is an affluent of the Xingu. Cruz Lima (1944) suggested that it might be a subspecies of *C. argentata* L. Cabrera (1958) adopted this allocation without comment. Hershkovitz (1968), also without comment, omitted *emiliae* from his analysis of chromatism in callithrichids. Ávila-Pires (1969), having examined the paratype in the Museu Goeldi, synonymized *emiliae* with *C. argentata argentata*. This was accepted by Hershkovitz (1977) in his review of the callithrichids. Finally, Ávila-Pires presented a communication at the XII Brazilian Zoological Congress, revalidating *emiliae*. In the published abstract (Ávila-Pires, 1985) he states that *emiliae* is a valid race of *C. argentata*, as shown by a series (number of specimens not specified) from northern Mato Grosso, which he compared with the type material.

The identification of the Nova Brasilia series as *emiliae* was based on comparison with the paratype, in the Museu Goeldi, and with Thomas's original description. All specimens in the Museu de Zoologia series are slightly darker than the paratype but, on the other hand, agree completely with Thomas's description. Three specimens in the Museu Nacional, Rio de Janeiro, from the states of Amazonas (mouth of the Rio Castanho) and Rondônia (Ji-Paraná) are very similar to the Nova Brasilia series. The skins were partially reversed and had to be treated again to be properly studied and this is probably why Hershkovitz (1977), having seen these specimens, identified them as *C. argentata melanura*. *C. emiliae* is readily distinguished from *melanura* by the absence of white hip patches and by a less brownish dorsum.

The present specimens definitely show that *emiliae* is a well defined form. Its distribution, from Rondônia (Ji-Paraná and Nova Brasilia) on the west, and southern Pará (Maloca) on the east, overlaps the general area of *C. argentata* as defined by Hershkovitz (1977). As may be seen in map 1, the specimens from Aripuanã, Mato Grosso I have studied at the Centro Nacional de Primatas (HM 8, HM 131 — field numbers) are identifiable as *melanura*. Considering Ávila-Pires's (1985) record of *emiliae* from northern Mato Grosso, the possibility of sympatry between them cannot be discarded. The other two forms involved, *argentata* and *leucippe*, are geographically distant from *emiliae* and no intergrades are known. Thus, I prefer to consider *emiliae* as a full species, reserving comments on the other forms for a future paper.

The description below is based on the Nova Brasilia series.

Face thinly to moderately haired except for the region between the eyes and nose, which is naked; hairs short, light gray; pigment present but confined to the region around the lips and nostrils; forehead grayish with a whitish median spot not sharply defined from the crown; cheeks and region below ears silvery; ears thinly haired without tufts, the moderately pigmented skin showing through; crown with a large dark gray to almost black spot beginning after the whitish spot of forehead, expanding sideways to the ears, becoming gradually paler posteriorly; nape and ill defined mantle silvery gray, more or less washed with brown, hairs silvery, sometimes gradually turning yellowish at the tips; dorsum gradually darkening from the silvery gray of the mantle to brownish gray posteriorly; hairs variable, with or without a dark gray basal band, with a wide median silvery band darkening to gray at the tips; proximal parts of arms like mantle, darkening to brownish gray distally; hands moderately haired and pigmented on upper side, hairs yellowish brown to grayish brown; proximal upper parts of legs like back, inner sides of thighs reddish ochraceous, distal upper parts of legs variable, sometimes like inner thighs, sometimes dark brown like upper parts of feet; feet pigmented above, hairs dark brown to

reddish ochraceous; throat and chest silvery like mantle; belly silvery yellow to yellowish, less hairy than chest; lower sides of legs like belly or slightly darker; soles with little or no pigment; tail ringless, black, except for the proximal tenth, brown above, reddish brown below.

***Saguinus fuscicollis weddelli* (Deville)**

Specimens examined: Rondônia: Alto Paraiso: MZUSP 18952, 18.x.1984, field number 84.0096, male, stuffed skin, skull, skeleton; MZUSP 18953, 18.x.1984, field number 84.0097, male, stuffed skin, skull, skeleton.

Both skins agree completely with Hershkovitz's (1977) description of *weddelli* and with nine specimens from Iquiri, Acre, in the Museu de Zoologia.

The materials from Alto Paraiso confirm the occurrence of *Saguinus* east of the Rio Madeira. Hershkovitz (1977: 661, 1024) listed specimens from Porto Velho and Rio Jamari, right bank of the Rio Madeira, but assumed that all had actually been collected on the opposite bank and so plotted them in his maps of *Saguinus fuscicollis* subspecies (Hershkovitz, 1977: 622, 636).

Until now, records of *Callithrix* from Rondônia do not ensure actual sympatry with *Saguinus*, but this is a clear possibility, since there seems to be no major barrier between them. If such an overlap is confirmed by further research, this would be the second area of sympatry between marmosets and tamarins, the first being the Cametá region, on the lower Rio Tocantins, Pará, where *Callithrix argentata* and *Saguinus midas niger* have been collected (Hershkovitz, 1977: 569, 706; specimens in the Museu de Zoologia). Ecological studies regarding habitat preferences of these taxa should be given priority, since the areas concerned are being considerably disturbed.

Cebidae

***Callicebus moloch* (Hoffmannsegg)**

Specimens examined: Rondônia: Nova Brasilia: MZUSP 18964, 8.xi.1984, male, skull; Nova Colina: MZUSP 18956, 3.xi.1984, male, stuffed skin, skull, skeleton. Unknown locality: MNRJ 2925, xi.1913, P. P. Peixoto col., male, flat skin.

The Nova Colina skin, although more reddish on its underparts than other specimens I have examined of *C. moloch* (*C. moloch moloch* sensu Hershkovitz, 1963), is here assigned to this species because it presents the upper parts of limbs grizzled gray with lighter hands and feet, grayish crown and brownish dorsum, becoming grayish brown on the sides.

The records from Rondônia are the southwesternmost for *C. moloch*, a species previously known only from the state of Pará, between the rivers Tapajós and Tocantins (Hershkovitz, 1963; Jones and Anderson, 1978; Kinzey, 1982). Miranda-Ribeiro (1914) reported *C. remulus*, a junior synonym of *C. moloch*, from Urupá, a locality adjacent to Ji-Paraná, Rondônia, but I found no specimens from this locality in the Museu Nacional. Miranda-Ribeiro (1914) did not describe the skins he assigned to *C. remulus* and Hershkovitz (1963: 24-25) judged the specimens to be misidentified *Callicebus moloch donacophilus*, in which he was followed by later authors. *C. cineracens* (sic) Spix, 1823, was also reported by Miranda-Ribeiro (1914: 19) from the headwaters of the Jiparaná, then in Mato Grosso, now in Rondônia. One skin (MNRJ 2924) from this locality I have seen at the Museu Nacional is not *C. moloch* and is also

quite distinct from *donacophilus*, which Hershkovitz (1963: 24-25) thought to be the correct identification of the specimen.

*Callicebus geoffroyi* Miranda-Ribeiro, 1914, type locality Urupá, Rondônia, was named after a single skin but was not formally described except for a comment on its similarity to a plate by I. Geoffroy (1844, plate 3) captioned as *moloch* Hoff. but that Miranda-Ribeiro (1914) did not consider to represent "true" *moloch*. I have not found the holotype of *C. geoffroyi* in the Museu Nacional but the skin MNRJ 2925, without locality, is identified by Miranda-Ribeiro himself as *geoffroyi* (see also Ávila-Pires, 1963: 170-171). This skin is in poor condition but it compares favorably with I. Geoffroy's plate which, in my opinion, represents an individual of *C. moloch*. The Museu Nacional specimen differs from the Nova Colina skin by having lighter throat and forehead. This type of variation, however, is found in other series of *C. moloch* I have examined. Therefore *C. geoffroyi* Miranda-Ribeiro should be considered a junior synonym of *C. moloch* Hoffmannsegg, 1807, and not of *C. moloch donacophilus* D'Orbigny, 1835, as proposed by Hershkovitz (1963).

### ***Pithecia hirsuta* Spix**

Specimen examined: Rondônia: Nova Brasilia: MZUSP 18962, 11.xi.1984, field number 84.0552, male, stuffed skin, skull, skeleton.

The Museu de Zoologia specimen from Nova Brasilia, a subadult male, deciduous canines present, is provisionally assigned to *Pithecia hirsuta* Spix, 1823, based on Hershkovitz's (1979) key and on comparison with the original description and plate. However, it is necessary to point out that, in my opinion, Hershkovitz's (1979) concept of *hirsuta* may not be correct, since he assigned specimens from Santa Cruz, Rio Eiru, Amazonas, in the Museu de Zoologia to this species. An examination of this series (8 males, 8 females) shows it to be distinct from the original description. All specimens from Santa Cruz have whitish arms, except the proximal parts; the light color also extends from the feet at least up to the distal parts of legs, features not seen in Spix's description and plate of *hirsuta*. Lönnberg (1938) apparently committed the same mistake when he recognized *hirsuta* as a subspecies of *Pithecia monachus* and assigned to it specimens from Igarapé Grande and Santo Antônio, on the Rio Juruá, Amazonas, stating that "hands and feet are white or whitish, and often the light colour extends as more or less buffish some way up on resp. legs". Three specimens from Santo Antônio in the Museu de Zoologia (MZUSP 4160, 4161, 4162) agree completely with Lönnberg's description of *P. monachus hirsuta* and are also similar to the Santa Cruz series.

Hershkovitz (pers. comm.) has changed his views on the species of *Pithecia* and intends to publish a reappraisal of the genus. Since he did not see specimens of *P. hirsuta* from Rondônia and since present identification is provisional, the specimen from Nova Brasilia is described in detail:

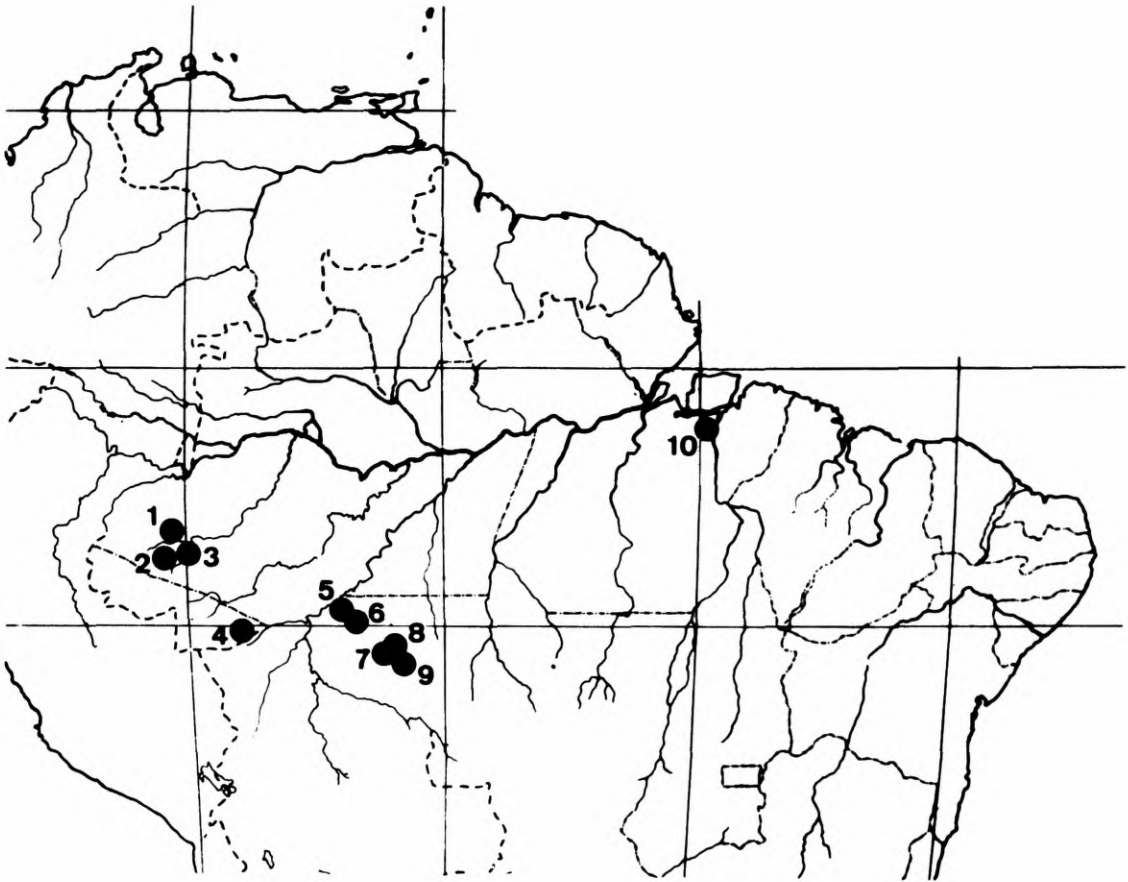
Mostly black, except for whitish hands and feet and whitish or buffy subterminal bands to hairs throughout the body; skin of face heavily pigmented, with a stripe of very short white hairs running from the inner corner of the eyes to a little below the mouth opening; white eyebrows of short and sparse hairs directed sideways and continuing into forehead as short stripes of white hairs directed sideways but covered by longer black hairs from nape; cheeks moderately haired, grizzled dark brown to grizzled black, hairs with white subterminal band; throat naked and pigmented; nape presenting a whorl, reaching anteriorly the crown; hairs mostly black at the center of the whorl, with white

TABLE 1. Field data on the specimens examined

MZUSP	Sex	Age *	Body	Tail	Foot	Ear	Weight	Testes
			<i>Callithrix emiliae</i>					
18957	♂	y/ad	210	325	65	25	330	13x7, 10x5
18958	♂	y/ad	215	335	70	25	350	15x10, 15x9
18959	♂	y/ad	205	330	65	24	320	15x9, 13x11
18960	♀	y/ad	205	340	65	25	380	
18961	♀	y/ad	225	350	65	24	400	
			<i>Saguinus fuscicollis weddelli</i>					
18952	♂	ad	200	330	65	20	380	14x11, 14x10
18953	♂	y/ad	210	345	70	20	380	12x7, 12x6
			<i>Callicebus moloch</i>					
18956	♂	ad	340	510	91	20	1200	16x9, 15x9
18964	♂	ad	350	490	75	25	1000	
			<i>Pithecia hirsuta</i>					
18962	♂	s/ad	335	405	112	35	1100	13x8, 13x7

\* Age criteria: ad (adult), all permanent teeth erupted, basisphenoid and basioccipital fused; y/ad (young adult), all permanent teeth erupted, basisphenoid and basioccipital not fused; s/ad (sub-adult), one deciduous tooth present.

Measurements in millimeters; weights in grams.



Map 2. Localities cited in the text, except for *Callithrix*. 1, Igarapé Grande, Rio Juruá, Am (06° 43'S, 70° 26'W). 2, Santo Antonio, Rio Eiru, Am (06° 42'S, 69° 53'W). 3, Santa Cruz, Rio Eiru, Am (07° 23'S, 70° 48'W). 4, Iquiri, Ac (10° 06'S, 67° 34'W). 5, Porto Velho, Ro (08° 46'S, 63° 55'W). 6, Alto Paraiso, Ro (09° 37'S, 63° 27'W). 7, Urupá and Ji-Paraná, Ro (10° 52'S, 61° 57'W). 8, Nova Colina, Ro (10° 48'S, 61° 43'W). 9, Nova Brasília, Ro (11° 09'S, 61° 34'W). 10, Cametá, Pa (02° 14'S, 49° 29'W).

subterminal bands forming a white fringe above the forehead and sideways over the shoulders; dorsum mostly black, curly hairs directed sideways, with whitish subterminal bands making the sides much more grizzled than the middle of the back; arms grizzled black, hairs black with whitish subterminal bands; hands white, hairs moderately short; legs mostly black, less grizzled than arms; feet whitish, hairs moderately short; chest presenting a sparse whorl of dark brown to black hairs, some of them whitish on upper third; belly presenting sparse black hairs; tail grizzled black, hairs curled, with whitish or buffy subterminal bands.

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## REFERENCES

- Allen, J. A., 1916. Mammals collected on the Roosevelt Brazilian Expedition, with field notes by Leo E. Miller. Bull. Amer. Mus. Nat. Hist. 35(30): 559-610.
- Ávila-Pires, F. D., 1963. Tipos de mamíferos recentes no Museu Nacional, Rio de Janeiro. Arq. Mus. Nac. Rio de Janeiro 53: 161-191.
- Ávila-Pires, F. D., 1969. Taxonomia e zoogeografia do gênero *Callithrix* Erxleben, 1777 (Primates, Callithricidae). Rev. Brasil. Biol. 29(1): 49-64.
- Ávila-Pires, F. D., 1985. Sobre a validade de *Callithrix argentata emiliae* Thomas, 1920 e sua distribuição geográfica. in Sociedade Brasileira de Zoologia, XII Congresso Brasileiro de Zoologia, Campinas, São Paulo, 1985, Resumos: 318.
- Cabrera, A., 1958. Catalogo de los mamíferos de America del Sur. Rev. Mus. Arg. Cienc. Nat. Bernardino Rivadavia 4(1): iv+307 pp.
- Cruz Lima, E., 1944. Mamíferos da Amazonia, Vol. 1, Introdução Geral e Primatas. Contr. Mus. Paraense Emílio Goeldi de Historia Natural e Etnografia, Belém, Rio de Janeiro. viii+273 pp., 42 pr.
- D'Orbigny, A., 1835. Voyage dans l'Amérique Meridionale (le Brésil, la République Orientale de l'Uruguay, la République Argentine, la Patagonie, la République du Chili, la République de Bolivia, la République du Perou), exécuté pendant les années 1826, 1827, 1828, 1829, 1830, 1831, 1832 et 1833. planche 5.
- Hershkovitz, P., 1963. A systematic and zoogeographic account of the monkeys of the genus *Callicebus* (Cebidae) of the Amazonas and Orinoco river basins. Mammalia 27(1): 1-79, 11 pl.
- Hershkovitz, P., 1968. Metachromism or the principle of evolutionary change in mammalian tegumentary colors. Evolution 22: 556-575.
- Hershkovitz, P., 1977. Living New World Monkeys (Platyrrhini), Vol. 1. Univ. Chicago Press, xiv+1117 pp.
- Hershkovitz, P., 1979. The species of sakis, genus *Pithecia* (Cebidae, Primates), with notes on sexual dichromatism. Folia Primat. 31: 1-22.
- Hoffmannsegg, G. v., 1807. Beschreibung vier affenartiger Thiere aus Brasilien. Mag. Ges. Naturf. Fr. Berlin, 1: 83-104.
- I. Geoffroy. vide Saint-Hilaire, I. Geoffroy.
- Jones, C. and S. Anderson, 1978. *Callicebus moloch*. Mammalian Species 112: 5 pp.
- Kinzey, W. G., 1982. Distribution of primates and forest refuges. in Ghilleen T. Prance (ed.), Biological Diversification in the Tropics, chapter 25, 455-482. Columbia Univ. Press, New York.
- Lönnberg, E., 1938. Remarks on some members of the genera *Pithecia* and *Cacajao* from Brazil. Ark. Zool., Stockholm 30(18): 25 pp.
- Miranda-Ribeiro, A., 1914. História Natural: Zoologia. Publ. 84, anexo n.º 5, Comissão de Linhas Telegraphicas Estrategicas de Matto-Grosso ao Amazonas. 49 pp. + appendice: 3 pp., estampas 1-25, Rio de Janeiro.
- Pelzeln, A. v., 1883. Brasilische Säugethiere: Resultate von Johann Natterer's Reisen in der Jahren 1817 bis 1835. Verhandl. K.-K. Zool.-Bot. Gesellsch. 33: ii+140 pp.
- Saint-Hilaire, I. Geoffroy, 1844. Description des mammifères nouveaux ou imparfaitement connus de la collection du Muséum d'Histoire Naturelle et remarques sur la classification et les caractères des mammifères. Second mémoire. Singes américains. Arch. Mus. Hist. Nat. Paris 4: 5-42, 3 pl.
- Spix, J. de, 1823. Simiarum et Vespertilionum Brasiliensium species novae ou Histoire Naturelle des Espèces Nouvelles de Singes et de Chauves-souris observées et recueillies pendant le voyage dans l'intérieur du Brésil. viii+72 pp., 38 tab., Typis Francisci Seraphici Hübschmanni, Monachii.
- Thomas, O., 1920. On mammals from the lower Amazons in the Goeldi Museum, Para. Ann. Mag. Nat. Hist. (9) 6: 266-283.
- Wagner, J. A., 1848. Beiträge zur Kenntniss der Säugethiere Amerika's. Dritte Abtheilung. Abhandlungen Akad. Wiss. München 5: 405-480, 1 pl.