



Some nomenclatural notes regarding authorship and dates of New World monkeys (Primates: Platyrrhini)

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Abstract

We correct and clarify some nomenclatural issues involving family-level and species-level nomina of Platyrrhini. First, we found that the authorship of *Ateles hypoxanthus*, *Cebus xantosternos*, and *Callithrix melanochir* should be attributed to Wied (1820) not Kuhl (1820), based on the date of publication. We also conclude that: i) Thomas (1903) is the author of Callitrichidae; ii) there is no available family-group name based on the genus *Saguinus* Hoffmannsegg, 1807; iii) *Mico leucippe* is the original name combination and the author's name should not be set off by parentheses; and iv) we comment on the emendation of genitives of species and subspecies names derived from personal names, and recommend authors of new nomina explicitly state the number and gender(s) of the dedicatee(s), and whether the name has been Latinized.

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Introduction

New World monkeys (Platyrrhini) comprise a group of more than 200 valid species and subspecies within five families (Rylands & Mittermeier 2009; Rylands *et al.* 2012). Taxonomy and systematics of Platyrrhini are still a matter of debate, even for family groups (e.g., Groves 2001; Rylands 2002; Schneider & Sampaio 2015), and more than 30 species have been described in the past few decades (Rylands *et al.* 2012).

Aside from taxonomic discussions some Platyrrhini groups are also the focus of nomenclatural issues, such as correction of authorship (e.g., Coimbra-Filho *et al.* 2006), synonymies (e.g., Ferrari *et al.* 2014) or attribution of priority (Garbino & Nascimento 2014). We have noticed contradictions concerning the nomenclature of some Platyrrhini that we explore in this article. To support our claims, we refer to The International Code on Zoological Nomenclature (International Commission on Zoological Nomenclature 1999), hereafter referred to as the *Code*.

Authorship of New World monkeys described by Wied (1820) and Kuhl (1820)

Between 1815 and 1817, Maximilian Alexander Philipp, Prince of Wied-Neuwied made a collection of natural history specimens during his travels in eastern Brazil (Vanzolini 1996). After returning to Europe, Wied published the results of his travels in the two-volume *Reise nach Brasilien in den Jahren 1815 bis 1817* (Wied 1820a, 1821; see Myers *et al.* 2011 and Vanzolini & Myers 2015 for the use of Wied instead of Wied-Neuwied as the Prince's family name).

In footnotes, Wied (1820a) described three monkey species: *Ateles hypoxanthus* (p. 91), *Callithrix melanochir* (p. 256), and *Cebus xanthosternos* (p. 368). In the second volume (Wied 1821), he described *Cebus robustus* (p. 339) and *Hapale chrysomelas* (p. 137).

Wied frequently shared information on his discoveries with colleagues (Vanzolini 1996). This practice resulted in nomenclatural confusion, because descriptions of Wied's new taxa also were published by other authors (Roze 1966; Myers *et al.* 2011). Duplicate descriptions occurred with Wied's (1820a, 1821) primate taxa, which were described by Heinrich Kuhl, based on the same specimens collected by the Prince; therefore, Wied's and Kuhl's specimens have the same types (Avila-Pires 1965).

Kuhl (1820) described Wied's five species as: *Ateles hypoxanthus* (p. 25), *Cebus robustus* (p. 35), *Cebus xantosternos* (p. 35), *Callithrix melanochir* (p. 40), and *Midas chrysomelas* (p. 51). These Kuhl attributed to Wied

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as "P. Maximiliani", "Pr. Max", "Max", or "Max. spec. inedita". However, according to Article 50 of the *Code*, this attribution in Kuhl (1820) does not suffice to give the authorship of any of these names to Wied.

Because of the year of publication, there is no doubt that *Cebus robustus* Wied, 1821 is a junior primary homonym of *Cebus robustus* Kuhl, 1820, and *Hapale chrysomelas* Wied, 1821 is a junior objective synonym of *Midas chrysomelas* Kuhl, 1820 (current *Leontopithecus chrysomelas*).

The problem arises with *Ateles hypoxanthus*, *Cebus xantosternos*, and *Callithrix melanochir*. Different authorships and dates have been cited for three species by many authors, highlighting the nomenclatural confusion involved (e.g., Wied 1822, 1823, 1826; Fischer 1829; Wagler 1830; I. Geoffroy 1851; Gray 1843, 1870; Groves 2001; Schlegel 1876; Elliot 1913a, b; Vieira 1944; Avila-Pires 1965; Hershkovitz 1987, 1990; Rylands *et al.* 1995, 2005; van Roosmalen *et al.* 2002). Currently, *Ateles hypoxanthus*, *Cebus xantosternos* and *Callithrix melanochir* are names used in the main taxonomic references for mammals (Groves 2005) and primates (Mittermeier *et al.* 2013) as *Brachyteles hypoxanthus* (Kuhl, 1820), *Cebus (Sapajus) xanthosternos* (Wied, 1826), and *Callicebus melanochir* (Wied, 1820).

Some authors have attributed authorship of *A. hypoxanthus* to 'Demarest, 1820' (e.g., Geoffroy 1851; Vieira 1944). Although the title page of Desmarest's book (part of the *Encyclopédie Méthodique*) is dated 1820, the complete work was in fact published 6 January 1821 (Sherborn & Woodward 1906; Evenhuis 2003).

Fischer (1829) may have been the first to cite Wied (1826) as the author of *C. xantosternos*. This is clearly a mistake, since the species was validly described years before by Wied (1820a) and Kuhl (1820), as noted by Torres de Assumpção (1983) and Silva-Junior (2001).

To resolve the Wied vs. Kuhl issue we needed to find more specific information on dates of publication. There is no further information besides the year in Wied (1820a). A review of Wied's first volume was published in two parts, on November and December of the same year (Hildebrandt 1820a, b), but without any more specific information.

An English translation published by Richard Phillips & Co. was available in May (Wied 1820b, preface) and a review of that translation appeared on 13 May 1820, the earliest date we found for this edition (Anonymous 1820b, p. 305). A second English edition (Wied 1820c) was published on 15 May 1820 (Anonymous 1820c, p. 320). The English translation was being prepared as early as January 1820 (Anonymous 1820a, p. 116) so, either proof sheets or a manuscript of the German version was available at that time in England for translation.

In searching for more information about the dates, we examined the "Leipzig Book Fair Catalogue", because the earliest date a work became available can be suggested by the dates of the fairs (Evenhuis 2014). Nothing was found for Wied (1820a) in the Ostermesse and Michaelimesse fairs (N. Evenhuis, pers. comm.). A search in the catalogs by Engelmann (1846), Borba de Moraes (1983), and Koppel (1986) also yielded no information other than the year of publication.

We found more specific information about the date of publication of Wied (1820a) after contacting Prof. Hermann J. Roth (Naturhistorischer Verein der Rheinlande und Westfalens) and Mrs. Susane Koppel (Mitglied im Verband Deutscher Antiquare e. V.). They confirmed the existence of a letter written by Wied dated 29 March 1820 in which he mentioned the publication of the first volume of the *Reise*. Wied sent the letter to the Swiss Prof. Carl Friedrich August Meisner in Bern (S. Koppel, pers. comm.), and while our manuscript was being prepared (September 2015) this letter was offered for sale online at <http://www.zvab.com/displayBookDetails.do?itemId=206635998&b=1>. In conclusion, we now have secure information that Wied (1820a) was available by 29 March 1820.

The preface of Kuhl (1820) is dated 9 April 1820; Kuhl's book is cited in page 116 of the Ostermesse Book Fair of 23 April 1820 (N. Evenhuis, pers. comm.). Clearly Kuhl's (1820) descriptions were not published before April 1820. Having confirmed that Wied (1820a) predates Kuhl (1820); therefore, the following names of Platyrrhini described the same year by both authors should be attributed to Wied as *Ateles hypoxanthus* Wied, 1820 [current name: *Brachyteles hypoxanthus*], *Cebus xantosternos* Wied, 1820 [current name: *Cebus (Sapajus) xantosternos*], and *Callithrix melanochir* Wied, 1820 [current name: *Callicebus melanochir*].

Authorship of Callitrichidae: Gray, 1821 or Thomas, 1903?

Groves (2001) and Brandon-Jones & Groves (2002) suggest that the authorship of Callitrichinae (and all subordinate family-level and tribe-level taxa) be corrected from Thomas (1903) to Gray (1821). This was based on the assumption that the name used by Thomas (1903) was a justified emendation of Callitricidae Gray, 1821 (see article 32.5.3.1 of the *Code*), and assuming in this context that Gray created his "Callitricidae" (sic) based on *Callithrix* Erxleben, 1777. This change in authorship was followed by many authors (Röhrer-Ertl 2004; Groves 2005; Kawashima *et al.* 2009; Rylands & Mittermeier 2009; de Vivo *et al.* 2011; Schneider & Sampaio 2015).

Gray (1821, p. 298), however, explicitly cited *Callitrix* (sic) of É. Geoffroy (1812) (not *Callithrix* Erxleben, 1777) as the genus that served as basis for his Callitricidae. Humboldt (1812) even stated that *Callithrix* of Erxleben and *Callitrix* of Geoffroy were

basically the same name used to designate 'very distinct' ('trés different') species. Although not explicitly saying so, Thomas (1903) considered *Callithrix* Geoffroy, 1812 a junior homonym of *Callithrix* Erxleben, 1777, since both authors included distinctly different species in their genera. Geoffroy (1812) included the following species in *Callithrix: sciureus* (today as *Saimiri sciureus*); *lugens*, *amictus*, *torquatus*, and *moloch*. The last four (all presently in *Callicebus*) were not even known in 1777, when Erxleben published his work.

The only argument by Brandon-Jones & Groves (2002) that favors the hypothesis that the *Callithrix* of Geoffroy is the same *Callithrix* of Erxleben, is the fact that Geoffroy had already used *Callithrix*, seven years earlier in a work co-authored with Cuvier, to encompass all Neotropical monkeys except *Alouatta* (Geoffroy & Cuvier, 1795). They cited '*cebus et callithrix d'Erxleben*' as genera lumped under *Callithrix* (Geoffroy & Cuvier 1795). These two French authors, however, diagnose their *Callithrix* as having six cheek teeth ('*six dents molaires*', Geoffroy & Cuvier 1795: 461), when all "*Callitrichidae*" known at that time had five cheek teeth in each side of the upper and lower dental arcade (*Callimico goeldii*, the only callitrichid with six teeth in the molar series, was described in 1904). Among the six species included in Erxleben's *Callithrix*, the only that has six cheek teeth is *Callithrix pithecia* (= *Pithecia pithecia*), a taxon that, in Erxleben's conception, was intricately composite, containing the Guianan saki monkey but also a species of titi monkey from northeastern Brazil described by Marcgraf in the 17th century. Moreover, Geoffroy (1803) used *Callitrix* (sic) for all medium and large-sized New World monkeys, while he used *Sagouin* for the marmosets and tamarins.

Other authors before Brandon-Jones & Groves (2002) (e.g., Hershkovitz 1977, 1990; de Vivo 1985, 1991; Rosenberger *et al.* 1990) did not attribute the authorship of Callitrichini to Gray (1821), by the same reason of Thomas (1903): they considered *Callithrix* Geoffroy, 1812 a junior homonym of *Callithrix* Erxleben, 1777. Supported by this evidence, *Callithrix* E. Geoffroy, 1812 and *Callithrix* Erxleben, 1777 should be considered homonyms, but not synonyms. Callitrichinae Gray, 1821 should be included in the synonymies of family-group taxa of *Saimiri* and *Callicebus*, in the same way *Callithrix* E. Geoffroy, 1812 is in the synonymy of *Callicebus* (Thomas 1903; Hershkovitz 1990). Callitrichidae Thomas, 1903 is, therefore, the correct family name to use for this group of Neotropical marmosets, tamarins and the Goeldi's monkey.

Can *Saguinina* Gray, 1825 be applied to *Saguinus* Hoffmannsegg, 1807?

Groves (2001, p. 127) stated that, if a monogeneric tribe would ever be created to encompass the Amazonian and Central American tamarins (genus *Saguinus*), the name *Saguinina* Gray, 1825 is available. The tribe created by Gray (1825), was based on *Saguinus* Lacépède, 1799, a

lapsus of *Sagouin* Lacépède, 1799, a genus that included only *Sagouin jacchus* (= *Simia jacchus* Linnaeus, 1758, the type species by monotypy; Thomas 1903, p. 457), and is currently a junior synonym of *Sagouinus* Kerr, 1792 and *Callithrix* Erxleben, 1777 (Thomas 1903). The name coined by Gray (1825) is, therefore, based on an unjustified emendation of *Sagouin* Lacépède, 1799. This fact alone offers enough evidence to amend the original name *Saguinina* Gray, 1825 to *Sagouinini* Gray, 1825 and conclude that *Saguinina* Gray, 1825 was not created to include *Saguinus* Hoffmannsegg, 1807. The first work, therefore, to use a family-group name based on *Saguinus* Hoffmannsegg, 1807 is Schneider *et al.* (1993), who used the name "Saguina" as a subtribe. Saguina, however, is a *nomen nudum*, because no character-based diagnosis was given (see Article 13.1 of the *Code*). Byrd (1981) mentioned the subfamily "Saguininae" informally as an alternative name to his Leontopithecinae; therefore, authorship cannot be attributed to him. We conclude that there is no available family-group name based on the genus *Saguinus* Hoffmannsegg, 1807.

Mico rondoni* is not the only species described originally in *Mico

The use of parentheses separating the author's name from a species-group name indicates that the taxon was described in a different name combination from the original as required by the *Code* (Article 51.3). It seems to be often assumed that *Mico rondoni* Ferrari, Sena, Schneider & Silva-Júnior, 2010 is the only marmoset species originally described in *Mico* Lesson, 1840 (Pimenta & Silva-Júnior 2005; Rylands *et al.* 2009; Rylands & Mittermeier 2009; Fialho 2011; Paglia *et al.* 2012). We call attention to Thomas (1922, p. 199) who originally described *Mico leucippe* under the genus *Mico*, a generic name he used for all bare-eared Amazonian marmosets. Therefore, the correct citation should be *Mico leucippe* Thomas, 1922, not *Mico leucippe* (Thomas, 1922). Moreover, *Mico sericeus* Gray, 1868, now a junior synonym of *Mico chrysoleucus* (Wagner, 1842), also was originally described under *Mico*.

A remark on the declination of species names based on persons

Recently, three names of Neotropical monkeys, *Aotus azarae*, *A. nancymai* and *Chiropotes utahicki*, were emended to *Aotus azarai*, *A. nancymae* and *Chiropotes utahickae* (Groves 1989, 2001; Aquino *et al.* 1990; Gozalo & Montoya 1990). Those nomenclatural changes were based on article 31 of the *Code*, and indeed, such emendation have been suggested and discussed for other taxa (e.g., Michels & Bauer 2004; Solari 2008; Costa 2012).

Azara, if recognized as a Latin name, gives *azarae* (similar to *Poda* and *podae* in Article 31.1.1. of the *Code*) and thus should not be emended (Brandon-Jones *et al.* 2007). Other mammal species named after Felix d'Azara,

such as *Akodon azarae* (J. B. Fischer, 1829) *Dasyprocta azarae* Lichtenstein, 1823, and *Didelphis azarae* Temminck, 1824, did not have their names emended – when an emendation occurred it was treated as an incorrect subsequent spelling (e.g., Cerqueira & Tribe 2008).

For the two other names, *Aotus nancymai* Hershkovitz, 1983 and *Chiropotes satanas utahicki* Hershkovitz, 1985, emendations are subject to more discussion. Those names are not Latin or Latinized, but based on modern personal names of two women, Nancy Shui Fong Ma, and Uta Hick. Strictly following Article 31.1.2 of the *Code*, it would be expected to have the names formed as *nancymae* and *utahickae*.

Hershkovitz recognized that *nancymai* was ‘incorrect’ (Aquino *et al.* 1990). The combination *Aotus nancymae* was first published by Gozalo & Montoya (1990) a few months before Aquino *et al.* (1990) – according to A. Gozalo (pers. comm.) R. Aquino and his co-authors told him about Hershkovitz’s suggestion of ‘correcting’ the name. One year before, Groves (1989) used *Aotus nancymaae*. The final ‘a’ of the surname Ma may be suppressed as in *nancymae*; therefore, *Aotus nancymaae* Groves, 1989 could be considered an unjustified emendation.

In the description of *Chiropotes satanas utahicki*, Hershkovitz (1985) explicitly gives the gender of the dedicatee using the German and English honorifics ‘Fräulein’ and ‘Miss’, respectively (this is not clear in the description of *A. nancymai*, however). This led Groves (2001) to emend the name to *C. s. utahickae*.

Both emended and original forms of the three species names cited above have been in use (e.g. Fernandez-Duque & Bravo 1997; Rylands *et al.* 2000; MacDonald *et al.* 2008; Espinosa *et al.* 2009; Gozalo *et al.* 2010; Maves *et al.* 2011) causing some confusion to readers and instability. Recently, some authors have suggested the *Code* has ambiguities and they present arguments against emendations of genitives formed from personal names (Brandon-Jones *et al.* 2007; Dubois 2007; Nemésio & Dubois 2012).

Discussing whether nomina derived from personal names should be emended or not is outside the scope of this paper, but it is clear that the confusion continues, in our opinion, due to a seemingly indifference or lack of knowledge about the rules and recommendations of the *Code* when describing new taxa. As a recent example, in the description of a new species of saki monkey, Marsh (2014) stated that *Pithecia isabela* is named after Mrs. Isabel Godin de Odonais. So, the expected name would not be *P. isabela*, but be *P. isabelae* or even *P. isabel* – if treated as a noun in apposition, although not recommended by the *Code*. To prevent such cases, authors should pay more attention to the *Code*. Some rules of the *Code* could also be updated to avoid subjectivity (Dubois 2007), or even to ease its understanding by persons not fully familiar to it and to

classical languages (i.e., most taxonomists today, probably).

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